

KDOT PROJECT NO: 096-087 KA-6099-02

K-96 IMPROVEMENTS PROJECT

DRAFT ENVIRONMENTAL ASSESSMENT

March 2024

FHWA Project No. ACNHP-A609(902)
KDOT Project No. KA-6099-02

Kansas Highway 96 Improvements Project
City of Wichita, Sedgwick County, Kansas

Environmental Assessment
and Section 4(f) *de minimis* and Section 6(f) Evaluations

Submitted Pursuant to 42 U.S.C. §4332 (2) (c); 49 U.S.C. §303; and 54 U.S.C. §2003

by the

U.S. Department of Transportation, Federal Highway Administration
and
Kansas Department of Transportation

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The Kansas Department of Transportation (KDOT) and the Federal Highway Administration (FHWA) have developed this Environmental Assessment (EA) to upgrade the existing K-96 corridor in the City of Wichita, Sedgwick County, Kansas. This EA evaluates and discloses the potential environmental impacts resulting from the Proposed Action.

Comments on this EA are due by May 15, 2024, and should be sent to the person listed above or submitted via the project website at https://k96improvements.ksdot.gov.

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Appendix A: Agency Coordination
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List of Acronyms

AAO – Colonel James Jabara Airport
ACS – American Community Survey
ADA – Americans with Disabilities Act
ADT – Average Daily Traffic
BGEPA – Bald and Golden Eagle Protection Act
BMP – Best Management Practice
BNSF – Burlington Northern Santa Fe
CAA – Clean Air Act
CFR – Code of Federal Regulations
CGT – Continuous Green-T
CWA – Clean Water Act
DCH – Designated Critical Habitat
DDI – Diverging Diamond Interchange
DLT – Displaced Left Turn
DWR – Division of Water Resources
EA – Environmental Assessment
ECA – Established Central Area
EDR – Environmental Data Resources
EIS – Environmental Impact Statement
EJ – Environmental Justice
EJ MOU – Environmental Justice Memorandum of Understanding
EPA – Environmental Protection Agency
ESA – Endangered Species Act
FAA – Federal Aviation Administration
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FIRMs – Flood Insurance Rate Maps
FONSI – Finding of No Significant Impact
FPPA – Farmland Protection Policy Act
FRA – Federal Railroad Administration
HOA – Homeowners Association
HUD – U.S. Department of Housing and Urban Development
IPaC – Information for Planning and Consultation
KBS – Kansas Biological Survey
KDHE – Kansas Department of Health and Environment
KDOT – Kansas Department of Transportation
KDWP – Kansas Department of Wildlife and Parks
KGS – Kansas Geological Survey
KMUA – Kansas Metropolitan Urbanized Area
KSHS – Kansas Historical Society
LEP – Limited English Proficiency
LOS – Level of Service
LUST – Leaking Underground Storage Tanks
LWCF – Land and Water Conservation Fund
MBTA – Migratory Bird Treaty Act

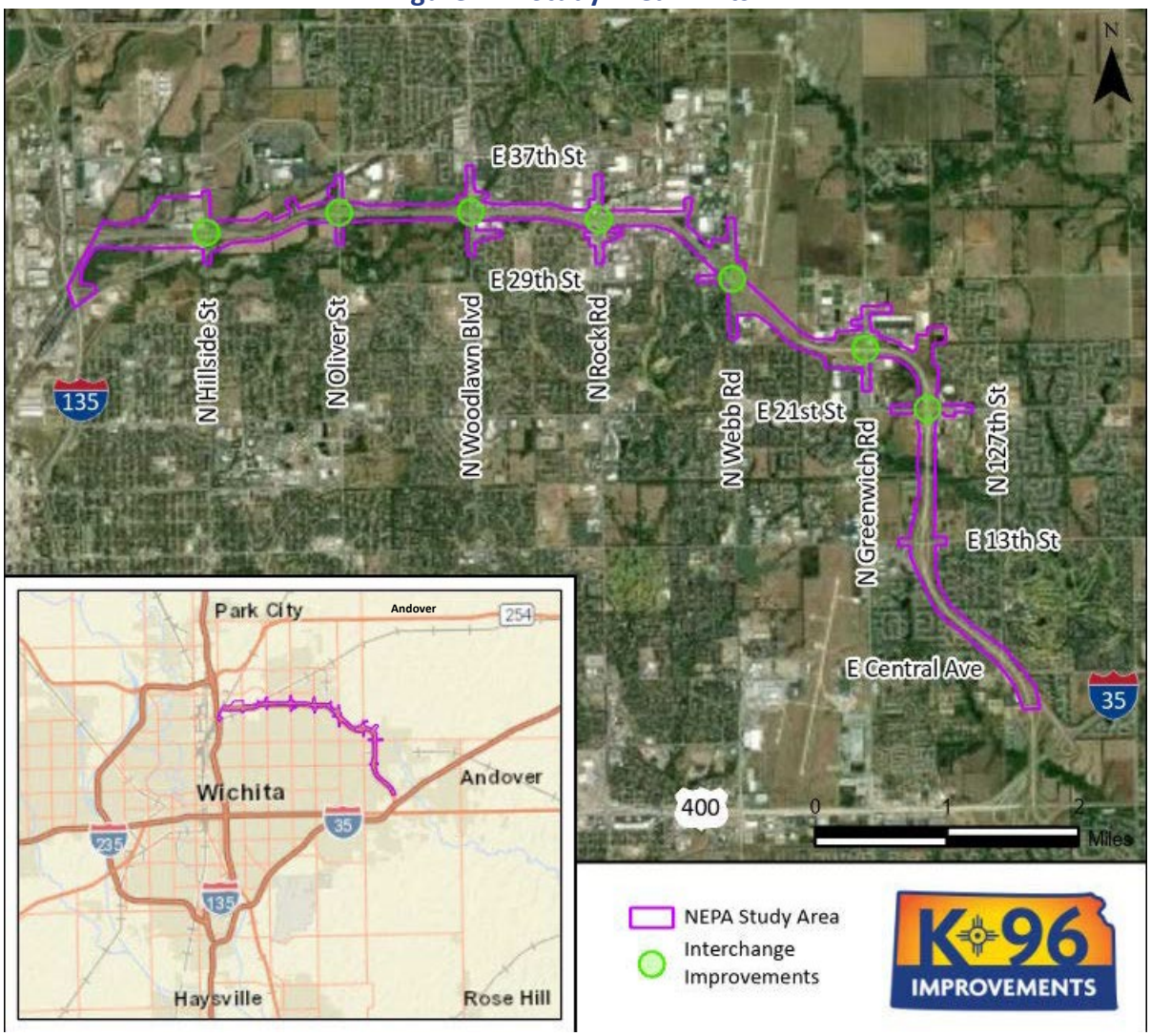
MTP – Metropolitan Transportation Plan
MVMT – Million Vehicle Miles of Travel
NAAQS – National Ambient Air Quality Standards
NAC – Noise Activity Category
NEPA – National Environmental Policy Act
NFHL – National Flood Hazard Layer
NHD – National Hydrography Dataset
NHPA – National Historic Preservation Act
NOI – Notice of Intent
NPDES – National Pollutant Discharge Elimination System
NPS – National Park Service
NRCS – National Resource Conservation Service
NRHP – National Register of Historic Places
NSA – Noise Sensitive Area
NWI – National Wetlands Inventory
ONHPO – Osage Nation Historic Preservation Office
PA – Preferred Alternative
ROW – Right-of-Way
SHPO – State Historic Preservation Office
SINC – Species in Need of Conservation
SPUI – Single Point Urban Interchange
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
TNM – Traffic Noise Model
UASFIA – Uniform Appraisal Standards for Federal Law Acquisition
USACE – U.S. Army Corps of Engineers
USC – U.S. Code
nUSDA – United States Department of Agriculture
USDOT – U.S. Department of Transportation
USFWS – U.S. Fish and Wildlife Service
USGS – U.S. Geological Survey
WAMPO – Wichita Area Metropolitan Planning Organization
WAMPO TAC - Wichita Area Metropolitan Planning Organization Technical Advisory Committee
WAMPO TPB - Wichita Area Metropolitan Planning Organization Transportation Policy Body
WOTUS – Waters of the U.S.
WWC – Water Well Completion

1.0 Purpose and Need

1.1 Proposed Action

The proposed project is located within the City of Wichita in Sedgwick County, Kansas. The project will upgrade K-96 from a 4-lane to a 6-lane freeway and extends from approximately the K-96/I-135 interchange 9.5 miles east/southeast to just north of the K-96/US 54/US 400 interchange. From East 21st Street N to 13th Street the project will replace pavement only and does not include frontage or outer roads. In addition, improvements at the interchanges of Hillside Street, Oliver Street, Woodlawn Boulevard, Rock Road, Webb Road, Greenwich Road, and East 21st Street N are being considered. The Study Area is depicted in **Figure 1-1**.

Figure 1-1. Study Area Limits



1.2 Purpose of the Proposed Action

The purpose of the proposed action is to provide a safe, reliable, and sustainable transportation facility that supports mobility needs and is flexible for all users.

1.3 Need for the Proposed Action

The proposed project is needed because the current roadway and interchanges are unable to meet the current and future mobility needs of a growing community. K-96 between the I-135 interchange and the I-35 interchange has high crash frequencies, increased congestion, and lacks reliability and flexibility to support the long-term travel needs of multiple modes. In addition, the corridor currently does not meet the needs for long-term sustainability and flexibility for all users, including incorporating non-vehicular modes of transportation.

The proposed project is needed to:

- Support local and regional growth consistent with planned and proposed land uses.
- Reduce congestion and improve traffic operations to meet existing and future travel demands.
- Address crash frequency and severity within the corridor to improve safety.
- Provide a transportation system that accommodates the needs of all users and modes.

1.3.1 Support Local and Regional Growth

The City of Wichita and the Wichita Metropolitan Area have been experiencing substantial growth over the last twenty years, especially in northeast Wichita and the surrounding community of Andover located just to the east of the Study Area. More specifically, the Study Area has seen substantial growth in residential development, commercial development, and office development. The growth has resulted in increased travel demand along the local roadways, especially along K-96 between I-135 and I-35 in the northeast corner of Wichita.

From 2000 to 2020, the largest increase in population in and near the Study Area occurred between 2000 and 2010 with Andover growing by 76 percent and the Wichita Metropolitan Area growing by 14 percent (**Table 1-1**). Employment growth in the Study Area mimicked population growth over the same time periods reflecting the influence of 20 of the area's major employers as part of the evolving aviation industry along with the number of jobs growing in advanced manufacturing, education, health care, and oil and gas markets.

From 2020 to 2050, the Center for Economic Development and Business Research at Wichita State University forecasts the population in Sedgwick County will approach 620,000 persons (**Table 1-2**). The forecast for the Wichita Metropolitan Area for this same period is over 750,000 people.

The cities of Wichita and Andover, Sedgwick County, along with Wichita Area Metropolitan Planning Organization (WAMPO) have recognized the nexus between the rapid population and employment growth and existing and forecasted levels of congestion and traffic crashes. Based on these findings, the region has initiated plans to address capacity, congestion, increased travel demand, and regional employment and population growth within the corridor.

Table 1-1. Population and Employment Growth in the Study Area from 2000-2020

	Population			Percent Population Change	Percent Employment Change
	2000	2010	2020	2000-2010	2000-2010
				2010-2020	2010-2020
City of Wichita	344,384	382,368	390,566	11%	9%
				2%	6%
Sedgwick County	452,869	498,365	515,416	10%	7%
				3%	8%
City of Andover	6,698	11,791	13,069	76%	75%
				15%	19%
Wichita Metropolitan Area	545,220	623,061	639,668	14%	12%
				3%	7%

Sources: 2000 U.S. Census Summary, 2010 U.S. Census Summary, 2016-2020 American Community Survey (ACS) 5-year estimate; accessed December 2022

Table 1-2. Population Forecasts for Sedgwick County and Wichita Metropolitan Area, 2020 – 2050

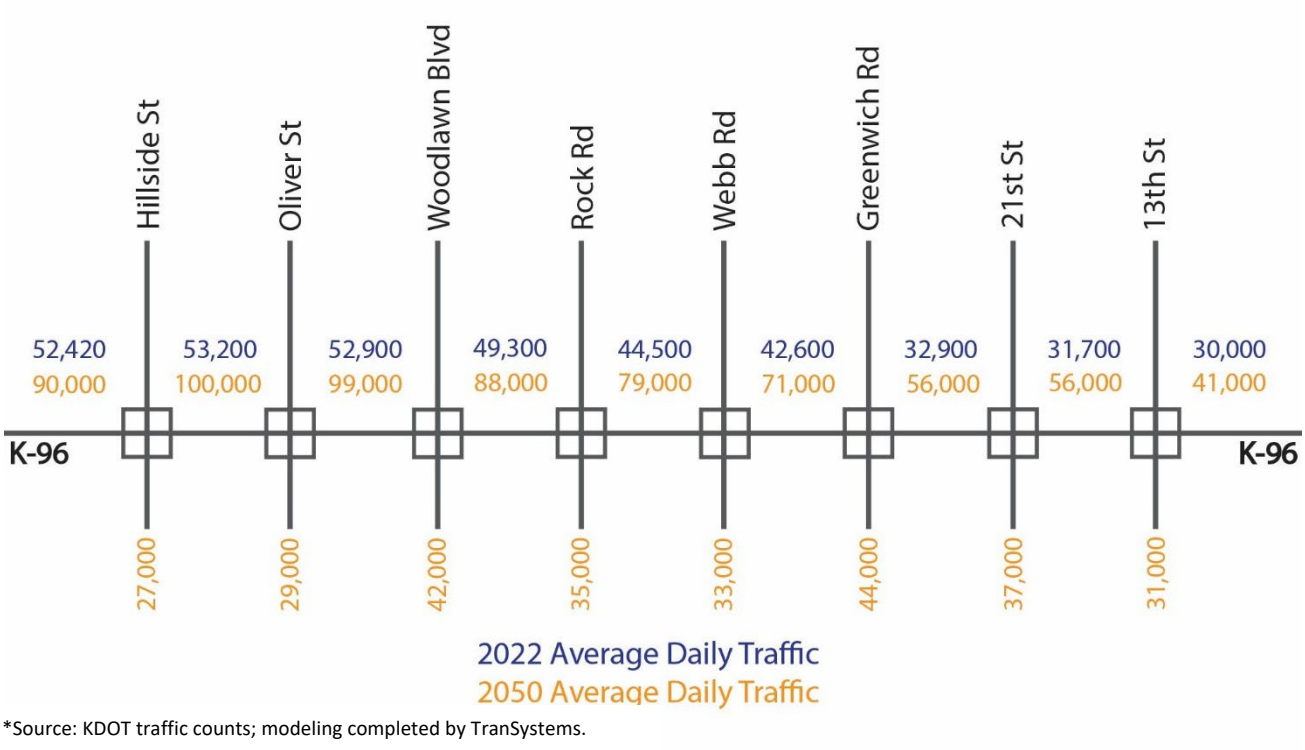
	Population				Percent Population Growth
	2020	2030	2040	2050	2020-2030
					2030-2040
					2040-2050
Sedgwick County	534,532	575,450	605,262	619,471	7.86%
					5.96%
					2.14%
Wichita Metropolitan Area	663,494	710,224	743,649	757,181	7.04%
					4.70%
					1.82%

Source: Wichita State University, Center for Economic Development and Business Research

1.3.2 Reduce Congestion and Improve Traffic Operations

Traffic volumes reflect the growth in population and employment that have occurred in Wichita. Currently, traffic volumes range from 30,000 average daily traffic (ADT) at the south end of the project near 13th Street to over 53,000 ADT between Oliver and Hillside. By 2050, traffic is projected to be nearly 100,000 vehicles per day. Future traffic volumes along the intersecting roadways are also expected to range from 27,000 to 44,000 in 2050 creating congestion at each of the Study Area interchanges. **Figure 1-2** illustrates the daily traffic volumes modeled for 2022 (existing) and 2050 (design year) along the mainline and 2050 ADT on the intersecting roadways.

Figure 1-2. Existing (2022) and Future (2050) Traffic on K-96



*Source: KDOT traffic counts; modeling completed by TranSystems.

For the peak periods, the AM and PM daily traffic was modeled for 2050 and it shows the highest volumes are on mainline between Hillside Street and Oliver Street, and Oliver Street and Woodlawn Boulevard. The projected PM peak hour at Woodlawn Boulevard and Greenwich Road will be the highest among the intersecting roadways at over 4,200 and 4,400 vehicles per hour (VPH), respectively. Currently during the PM peak hour traffic some of the interchange ramps experience operational challenges with significant queuing, particularly at Woodlawn Boulevard and Webb Road. With the 2050 peak hour projections, more of the interchange ramp operations will break down causing significant congestion and traffic delays.

For each peak period, the traffic volumes were analyzed to determine levels of congestion based on standard calculations for levels of service (LOS), vehicle to capacity ratios (V/C) and for estimated delay. LOS, the most common measure of congestion, is based on a typical grading scale where LOS A represents free flow traffic to LOS F which represents gridlock conditions. Typically, in urban areas, LOS of D, E or F is considered unacceptable. The City of Wichita confirmed that they use LOS C as the acceptable threshold for urban arterials and KDOT confirmed that LOS D should be used for mainline K-96 and LOS C for the cross streets.

Table 1-3 shows the standard calculations (LOS, V/C, delay) for each K-96 ramp termini along the corridor. Most of K-96 currently functions at acceptable LOS B or C, except near Webb Road in the eastbound direction. However, as growth continues in the corridor the expectation is that LOS will reach unacceptable levels by the design year (2050) in both the AM and PM Peak periods.

Table 1-3. Traffic Levels of Service on K-96 by Intersection (Existing & Design Year)

K-96	Cross Street	Existing (2022)						Design Year (2050)					
		AM			PM			AM			PM		
		LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay
EB	Hillside	B	0.72	14.1	B	0.72	10.0	C	0.88	21.2	D	1.10	47.9
WB	Hillside	B	0.73	15.5	B	0.76	14.5	D	1.10	41.5	D	1.17	45.1
EB	Oliver	B	0.79	15.4	B	0.79	18.9	C	0.88	27.3	F	1.84	120.4
WB	Oliver	C	0.90	23.9	B	0.73	15.5	F	1.31	98.2	F	1.37	99.5
EB	Woodlawn	C	0.89	21.2	C	0.92	29.0	C	0.93	31.3	F	1.69	166.1
WB	Woodlawn	B	0.78	12.6	B	0.89	19.4	F	1.34	98.4	F	1.54	142.9
EB	Rock	C	0.79	20.5	C	0.82	22.8	C	0.85	24.9	F	1.27	80.5
WB	Rock	B	0.83	13.5	C	0.92	23.1	C	0.98	23.5	D	1.12	48.9
EB	Webb	E	1.08	64.3	E	1.37	56.3	F	1.74	242.4	F	3.33	383.1
29^{th}	Webb	B	0.87	17.4	C	0.92	25.7	E	1.24	69.7	E	1.16	63.1
WB	Webb	C	0.88	22.7	C	1.08	23.9	E	1.96	77.9	F	3.79	239.7
EB	Greenwich	B	0.65	17.4	C	0.84	27.1	C	0.83	21.0	F	1.54	93.6
WB	Greenwich	B	0.63	16.9	C	0.84	25.5	C	0.97	30.9	F	1.69	172.0
EB	21^{st}	B	0.71	19.7	C	0.81	22.3	E	1.41	71.8	F	1.51	95.5
WB	21^{st}	C	0.88	20.8	B	0.75	18.9	F	1.58	105.6	D	1.27	43.5
EB	13^{th}	C	0.65	20.2	C	0.75	20.4	C	0.89	26.6	F	1.42	82.1
WB	13^{th}	B	0.76	19.1	B	0.72	17.7	D	1.07	45.2	C	0.94	28.6

*Source: TranSystems traffic modeling. Red indicates those ramp termini with unacceptable levels of congestion.

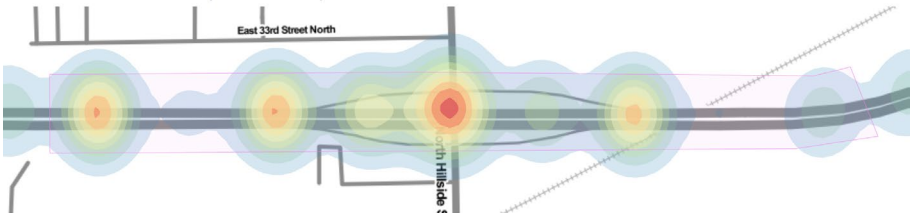
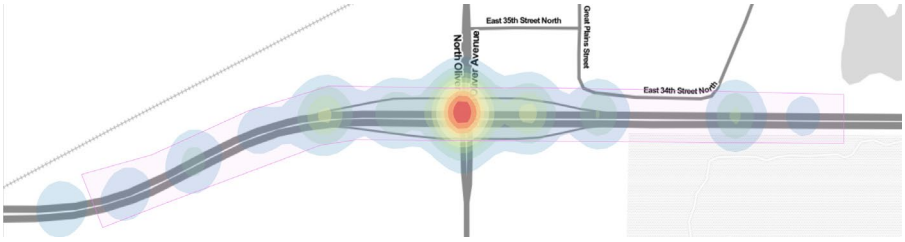
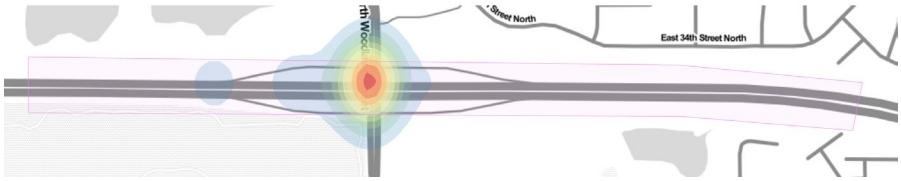
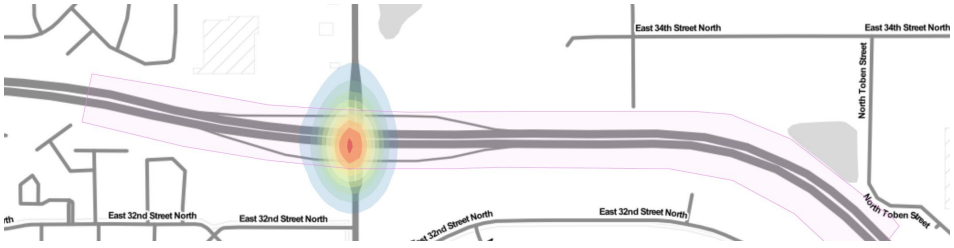
1.3.3 Address Crash Frequency and Severity

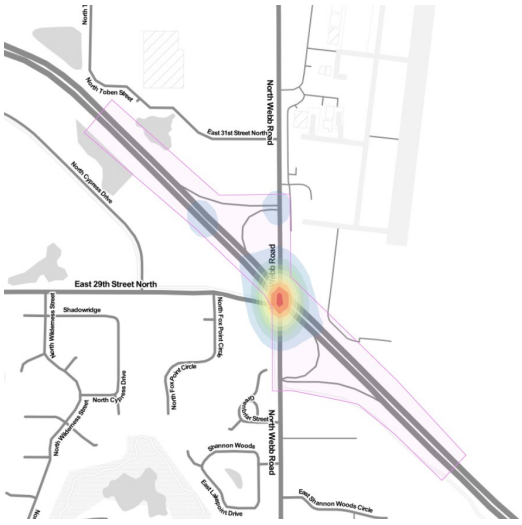
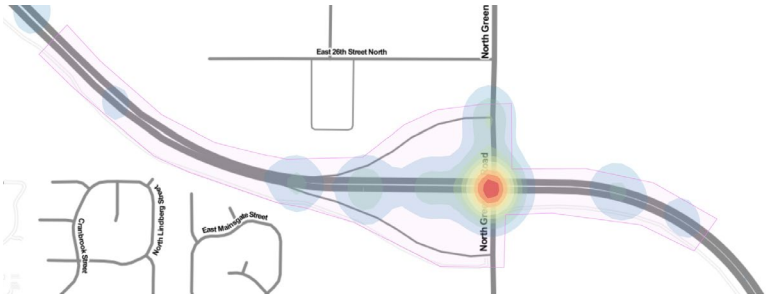
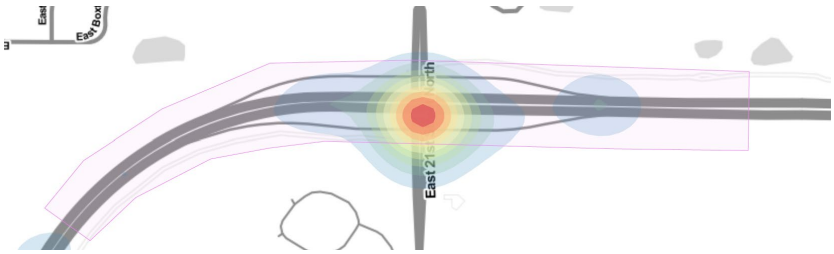
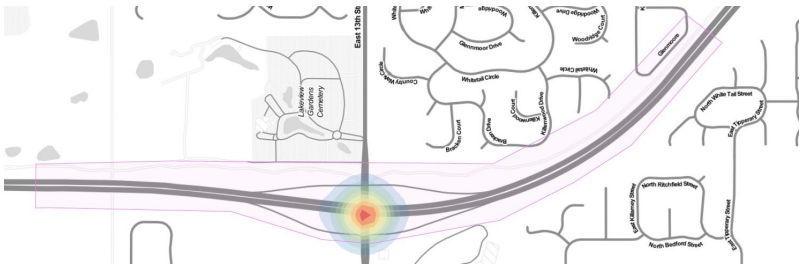
As traffic continues to grow along the K-96 corridor, crashes, as expected, have continued to increase. Crashes in the corridor typically cluster (1) where traffic backs up the ramps onto mainline traffic, (2) where geometric design is substandard, (3) where mainline traffic tends to slow down, and (4) where there is a lot of cross street traffic. Historically, between 2015 and 2020, the corridor has experienced a total of 1,166 traffic crashes, including 1 fatality and 262 Injury crashes. Segments with higher traffic volumes and lower LOS, such as Oliver and Rock, experience a higher number of crashes. **Table 1-4** presents the historical number of crashes by segment and by severity, along with a heat map showing where clustering of crashes occurs along the corridor. As expected, most of the crashes occur at the ramp terminals, but the crash maps also illustrate areas where

there are clusters of crashes along the mainline, typically a result of congestion (rear end collisions). Mainline clustering is especially pronounced near the Hillside, Oliver, and Greenwich segments.

Table 1-4 also shows the crash rates in crashes per Million Vehicle Miles of Travel (MVMT). Overall, the corridor has a crash rate of 1.451 which is 50% greater than the statewide average of 0.964 for fully access controlled urban facilities. In addition, the segments with the higher crash rates correspond to those segments with higher ADT and worsening LOS, including the Hillside, Oliver, Woodlawn, and Rock segments. The Rock segment has the highest crash rate of any segment at 2.436 crashes per MVMT, 153% greater than the statewide average. For reference purposes, **Figure 1-1** displays the study area interchanges in relation to the broader K-96 study corridor.

Table 1-4. Historical Crashes by Severity by Segment (2015 to 2020)

K-96 Segment	Total	Fatality	Injury	PDO	Crashes per MVMT
Hillside	206	0	39	167	1.923
					
Oliver	216	0	40	176	1.647
					
Woodlawn	201	0	47	154	1.623
					
Rock	280	0	88	192	2.436
					
Webb	104	0	25	79	1.170

K-96 Segment	Total	Fatality	Injury	PDO	Crashes per MVMT
					
Greenwich	71	0	14	57	0.690
					
21st Street	45	1	9	35	0.795
					
v13th Street	43	0	9	34	0.413
					

*Source: KDOT crash statistics. The heat map color codes range from red (high density) to yellow (medium density) to blue (low density).

Breaking the historical crash data into various crash types provides additional insight into the correlation between traffic, poor LOS, and crashes. For crashes at intersections (ramp terminals), the predominant crash types are rear end and angle-side impact, which are typical accident types for standard intersections, especially with heavy left turn movements and numerous conflict points (**Table 1-5**). Along mainline K-96, the predominate crash type is rear end (46% of injury crashes and 37% of PDO crashes), typically a result of slower traffic, sudden stops, etc. associated with high levels of congestion.

Table 1-5. Leading Crash Types on K-96 by Crash Severity and Location (2015 to 2020)

Crash Type	Injury and Fatal Crashes		Property Damage Only	
	Intersections	Mainline	Intersections	Mainline
Rear End	40%	46%	40%	37%
Angle – Side Impact	41%	12%	29%	7%*
Fixed Object	14%	26%	11%	26%

*Note: For PDO only crashes at non-intersection locations, the third leading crash type are same direction sideswipes at 10%.

Source: KDOT crash statistics. Totals do not add to 100% because numerous crash types were omitted from the table.

1.3.4 Accommodates the Needs for All Users and Modes

K-96 is a major transportation corridor for northeastern Wichita with valuable connections to the Kansas Turnpike (I-35), the Jabara Airport, Wichita State University, the Koch Industries' campuses, as well as several commercial and residential areas and city parks. It supports daily commuters, regional traffic, freight users and more. As traffic volumes continue to increase along K-96 and its connecting arterials, it is important to understand that the K-96 corridor lacks accommodations for other transportation modes. More specifically, the corridor multi-modal needs include:

- **Transit** - Although there are no bus routes that directly use K-96, there are routes that cross it at Hillside Street, Rock Road, Webb Road, and Greenwich Boulevard. Growth along with current and forecasted traffic volumes affects the operational efficiency of these crossings and decrease the reliability of bus schedules.

- **Bicycle/Pedestrian – K-96 Path** – There are existing recreational trails in and/or adjacent to the K-96 corridor including a linear trail that runs parallel to the K-96 corridor (the K-96 Path – **Figure 1-3**) from just north of the Central Avenue overpass on the south end to Webb Road. The trail runs just east of K-96 from Central Avenue to East 21st Street N, crosses under K-96, and then runs along the west and south sides of K-96 to Greenwich Road where it diverts slightly south to avoid the ramps on the south side of K-96 and then picks back up along the south side where it terminates at Webb Road. Increased traffic congestion and wide roadways result in delays and



Figure 1-3: The existing K-96 Path runs parallel to K-96 between Central Avenue and Webb Road.

potentially unsafe crossings at Greenwich Road, East 21st Street N and East 13th Street N. While the total number of crashes involving pedestrians or bicyclists are relatively low, there was a bicyclist involved accident at Greenwich Road in 2018.

- **Bicycle/Pedestrian – Sidewalk Connectivity –** Sidewalk crossings occur throughout the corridor that provide needed connectivity across K-96 (**Figure 1-4**) including Hillside Street, Oliver Street, Woodlawn Boulevard, Rock Road, Webb Road, Greenwich Road, 21st Street N, 13th Street N, 127th Street (over K-96) and Central Avenue (over K-96). However, while the sidewalk network is adequate to cross K-96, the ability to cross the existing side streets is increasingly inhibited by the volume of traffic and the large sections of roadway required to cross.

- **Bicycle/Pedestrian – Chisolm Creek Park –** Between Oliver Street and Woodlawn Boulevard, Chisolm Creek Park and North Chisolm Creek Park provide important recreational opportunities including an extensive trail network and a trail connection between the two parks that crosses under K-96. In fact, a portion of the trail on the south side of K-96 is within seven feet of the existing eastbound off ramp to Woodlawn Boulevard (**Figure 1-5**). Proximity to K-96, growing congestion along Woodlawn, and growing noise pollution all result in the reduced efficacy of this trail network.



Figure 1-4: Sidewalks exist at each of the K-96 cross streets and are either barrier separated as pictured (top) at Greenwich Road or separated with a grassy median pictured just above at East 21st Street N.



Figure 1-5: A portion of the Chisolm Creek Park trail runs within seven feet of the eastbound off ramp to Woodlawn Boulevard.

2.0 Alternatives

Within the project Study Area, multiple build alternatives were developed and evaluated to address the project's Purpose and Need. Build alternatives considered included improvements to the existing K-96 corridor mainline and crossroad interchanges within the project Study Area. The No-Build Alternative, an alternative that includes existing planned projects but excludes other future improvements in the corridor, was also considered.

2.1 No-Build Alternative

The No-Build Alternative takes no action regarding reconstructing existing K-96 corridor interchanges or constructing additional lanes and capacity improvements for K-96. The No-Build would include routine and on-going maintenance of the facility. As a result, this alternative cannot meet the Purpose and Need established in Section 1.0 of this EA. The potential impacts associated with the No-Build Alternative are discussed in Section 3.0 to provide a basis of comparison to the Proposed Alternative.

2.2 Initial Alternatives Development and Screening

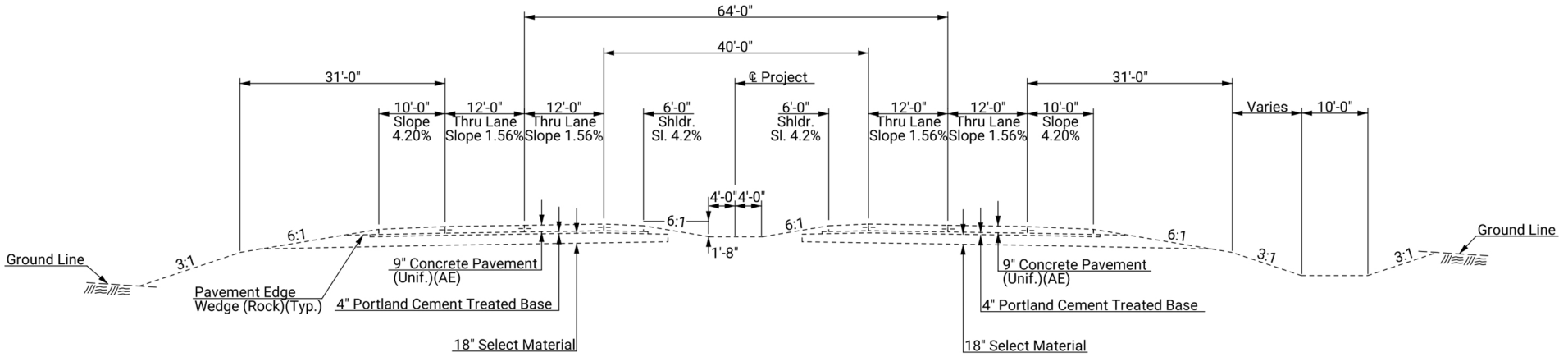
In July 2021, KDOT completed *the K-96 Expansion Screening Study* report which documented the engineering review of K-96, developed initial high-level alternatives for the study corridor, and identified major risk items to the project development schedule and a construction budget for the project. The Initial Alternatives were developed to respond to existing and future crossroad and minor ramp queuing along K-96, caused by the lack of signal coordination and inadequate sideroad lane configurations at the interchanges. The Initial Alternatives were developed in accordance with the principles of appropriate design standards, consideration of existing planning goals, consideration of public involvement, potential environmental impacts, and engineering judgment.

The existing K-96 mainline typical section is comprised of two 12-ft lanes in each direction with 6-ft inside shoulders and 10-ft outside shoulders. The 40-ft wide open grass median was improved in 2012 to include cable median barrier in various locations between I-135 and Rock Road. The existing typical section of the K-96 corridor is displayed on **Figure 2-1**.
Due to the existing and future forecasted ramp congestion and future traffic volumes necessitating six lanes on K-96, three typical section options were evaluated. Those options were:

- Mainline **Option 1** included a lane addition to the inside which resulted in a 16-ft concrete median with 6-ft-10-inch inside shoulders and a concrete median barrier.
- Mainline **Option 2** included shifting the travel lanes, with lane widening to both the inside and outside for a 24-ft concrete median with 10-ft inside shoulders.
- Mainline **Option 3** included a lane addition to the outside with 10-ft inside shoulders and a 40-ft concrete median.

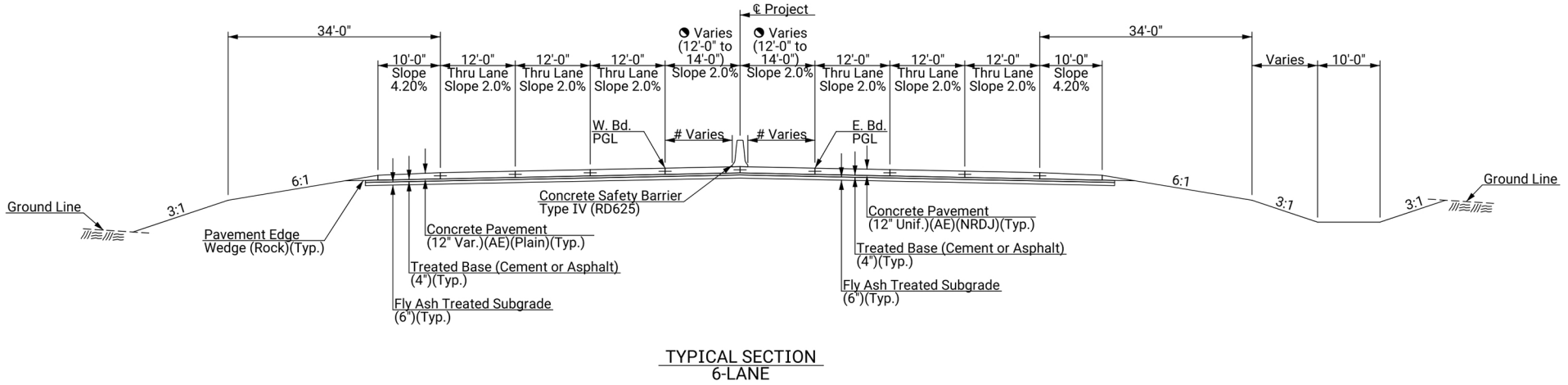
All three mainline widening options met the Purpose and Need for the project. Option 1 was eliminated from further consideration due to insufficient inside shoulders and KDOT District staff preference. Option 3 was determined to be feasible, but required the acquisition of substantial amounts of right-of-way and had additional utility conflicts and impacts in comparison to Options 1 and 2. Option 2 was identified as the preferred mainline widening option as it best balanced addressing the project Purpose and Need, safety concerns with inside shoulders, and potential project environmental and utility impacts. The typical cross section for Option 2 is displayed on **Figure 2-2**.

Figure 2-1: Existing K-96 Corridor Typical Cross Section



EXISTING TYPICAL SECTION

Figure 2-2: Mainline Widening Option 2 Typical Cross Section



TYPICAL SECTION
6-LANE

The primary tool used to evaluate the Initial Alternatives were criteria related to satisfying the project Purpose and Need. Initial Alternative screening criteria included elements related to project goals, such as:

- Improved trip reliability.
- Supporting economic growth in the region.
- Minimization of duration of construction impacts.
- Ability to deliver the project efficiently and within budget.

As a result of the initial screening, those alternatives that met the project Purpose and Need, achieved all or most of the project goals, and had fewer numbers of engineering and environmental impacts were carried forward to the second tier of the alternative development process. Those alternatives, referred to as *Reasonable Alternatives*, are discussed in **Section 2.3.**

2.3 Reasonable Alternatives Development and Screening

The development of Reasonable Alternatives focused on the development and refinement of concepts and configurations at interchange locations throughout the project corridor. Interchange conceptual configurations considered as part of the Reasonable Alternatives are shown in **Table 2-1**.

Table 2-1: Interchange Configurations Considered in the K-96 Corridor

Interchange Location	Conceptual Configuration 1	Conceptual Configuration 2	Conceptual Configuration 3	Conceptual Configuration 4	Conceptual Configuration 5	Conceptual Configuration 6
I-135 to K-96 Ramp	Base Configuration	2-Lane On-Ramp	Braided Ramp Hydraulic Ave. Weave	Braided Ramp New Hillside On-Ramp	Braided Ramp Hydraulic Ramp	CD Road Hydraulic Left On-Ramp
Hillside Street	Tight Diamond	Diverging Diamond Interchange (DDI)	N/A	N/A	N/A	N/A
Oliver Street	Tight Diamond	DDI	N/A	N/A	N/A	N/A
Woodlawn Boulevard	Tight Diamond	DDI	Displaced Left Turn	Single Point Urban Interchange (SPUI)	N/A	N/A
Rock Road	Tight Diamond	DDI	Displaced Left Turn	SPUI	N/A	N/A
Webb Road	Additional Lanes	Eastbound Exit Loop	Continuous Green-T	Roundabouts	Exit Ramps	Dogbone Roundabout
Greenwich Road	Additional Turn Lanes	N/A	N/A	N/A	N/A	N/A
21st Street North	Tight Diamond	DDI	N/A	N/A	N/A	N/A

N/A – Not Applicable as additional design configurations for the given interchange were not considered

A No-Build Alternative was also considered and evaluated at each interchange location for comparison purposes. Each interchange location and the conceptual interchange configurations are discussed in sections **2.3.1** through **2.3.7**

2.3.1 I-135 Northbound to K-96 Eastbound Ramp

Five conceptual new ramp configurations plus the existing ramp configuration were considered for the I-135 northbound to K-96 eastbound ramp. Three of the new ramp configurations use a braided ramp system that relocates weaving movements from the K-96 mainline to the ramp system, with differences between how the Hydraulic Avenue weave onto K-96 is treated. Ramp Configuration 3 requires Hydraulic Avenue on-ramp traffic to merge onto K-96 prior to entering the braided ramp system. Ramp Configuration 4 moves the Hydraulic Avenue on-ramp traffic to enter onto the braided ramp system before merging onto K-96. Ramp Configuration 5 moves the Hydraulic on-ramp to enter K-96 from the left, which prohibits access to the braided ramp system. Configuration 2 utilizes two lanes on the I-135 to K-96 ramp while the rest of the existing is maintained, and Ramp Configuration 6 uses a collector-distributor (CD) road system and moves the Hydraulic Avenue on-ramp to K-96 to enter from the left.

Conceptual Configuration 3 was chosen as the preferred configuration for the northbound I-135 to eastbound K-96 ramp. In this ramp configuration, northbound I-135 traffic may access the mainline K-96 traffic lanes via a slip ramp that travels underneath the eastbound K-96 to Hillside ramp. The new braided ramp configuration will reduce weaving movements that affect mainline K-96 traffic operations by moving those weaving movements to the new braided ramp system, which improves traffic operations. Configuration 3 also performed well with driver expectancy and future forecasted traffic operations. The proposed I-135 to K-96 braided ramp is shown on **Exhibit 2-1**. The conceptual interchange evaluation matrix for this ramp is shown on **Figure 2-3**.

Figure 2-3: I-135 to K-96 Conceptual Ramp Configuration Evaluation Matrix

Criteria	Alt 1 Base Configuration	Alt 2 2-Lane On-Ramp	Alt 3 Braided Ramp Hydraulic Weave	Alt 3A Braided Ramp Hydraulic Weave New Hillside On	Alt 4 Braided Ramp Hydr -> Ramp	Alt 5 CD Road Hyd Left On
Safety						
Collision Frequency	Lo	Lo	Med	Hi	Med	Lo
Traffic Operations						
Delay	Lo	Lo	Med	Hi	Med	Med
Driver Expectancy	Hi	Hi	Hi	Hi	Med	Lo
Signing	Hi	Med	Med	Med	Lo	Lo
Physical Impacts						
Environmental Impacts	N/A	Hi	Med	Med	Med	Hi
Right of Way Impacts	N/A	Hi	Med	Med	Med	Med
Utility Impacts	N/A	Hi	Med	Med	Med	Med
Constructability						
Constructability	N/A	Hi	Med	Med	Med	Med
Maintenance of Traffic	N/A	Med	Med	Med	Med	Med
Longevity (Beyond Design Year)	Lo	Lo	Hi	Hi	Hi	Med
Ability to Phase Implementation	N/A	N/A	Lo	Lo	Lo	Med
Cost						
Construction Cost	N/A	Hi	Med	Med	Lo	Lo
Operation/Maintenance Cost	Med	Med	Med	Med	Lo	Lo

Exhibit 2-1: I-135 Northbound to K-96 Braided Ramp

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KDOT IKE AT WORK

K-96 IMPROVEMENTS

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I-135 TO K-96
ALT. 3A - BRAIDED RAMP
W/ NEW HILLSIDE ONRAMP

LEGEND

PROPOSED
- MAINLINE/RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- CLOSED ACCESS
- RETAINING WALL
- RIGHT-OF-WAY
- ACCESS CONTROL
- TEMP. CONST. EASEMENT

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY
- ACCESS CONTROL

2.3.2 Hillside Street Interchange

Two conceptual interchange configurations were developed and evaluated for the Hillside Street interchange. A Tight Diamond conceptual interchange configuration that added two left hand turning lanes and a right-hand turning lane to the north and southbound lanes prior to the K-96 bridge at the Hillside interchange was developed. A Diverging Diamond Interchange (DDI) concept that separated northbound and southbound traffic by routing traffic on opposite driving sides through two signalized intersections was also developed. This configuration allowed free left turns for traffic entering and exiting the freeway facility, rather than using signalized intersections to cross opposing traffic.

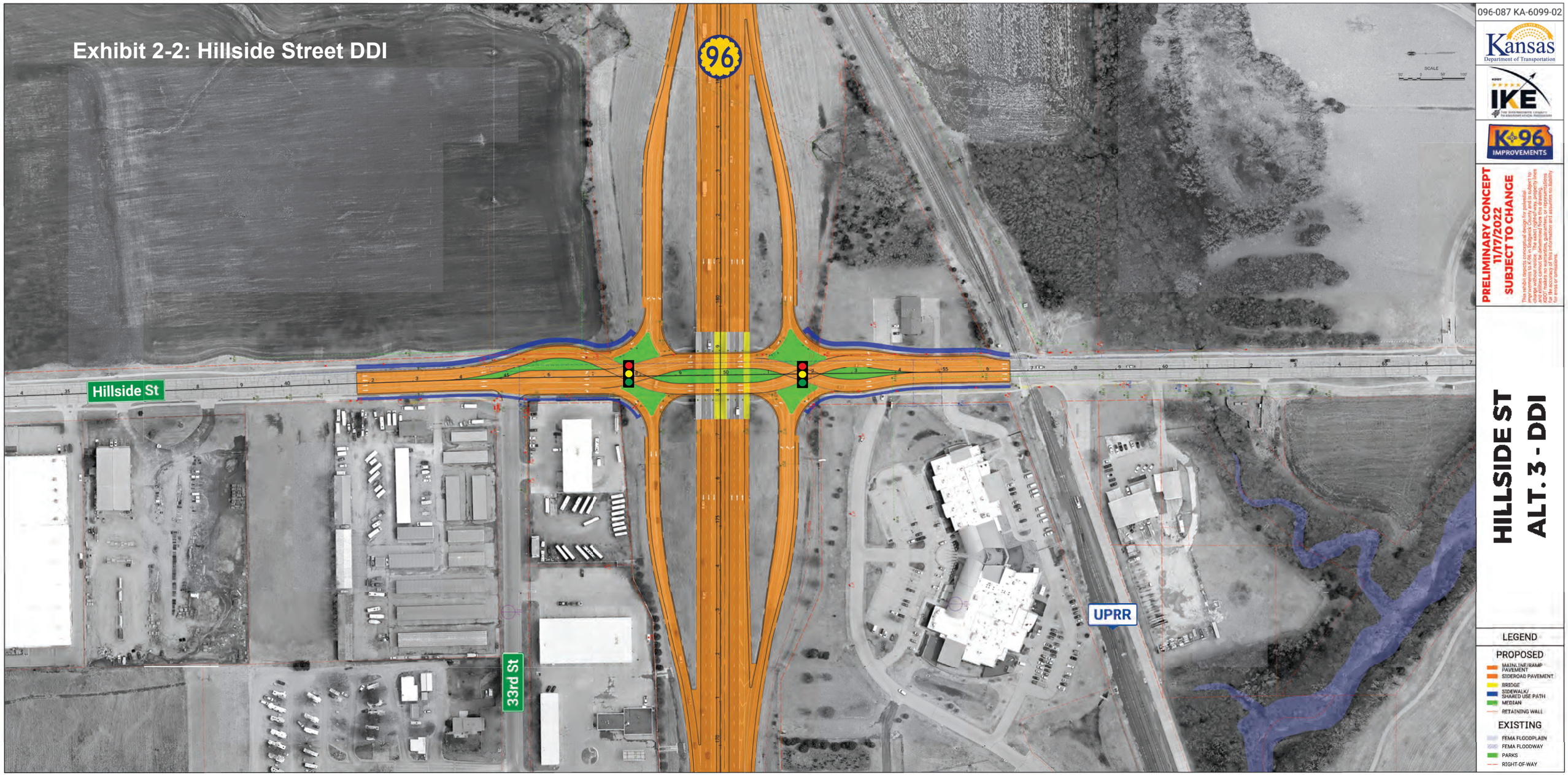
The DDI concept was selected as the preferred configuration at this location due to its ability to minimize conflict points with bicyclists and pedestrians through the interchange, to provide safety enhancements typical of DDIs in comparison to diamond interchanges, and to improve traffic operations on the K-96 mainline and the on-ramps by reducing congestion. The proposed Hillside Street DDI configuration is shown on **Exhibit 2-2**. The Hillside Street conceptual interchange evaluation matrix is shown on **Figure 2-4**.

Figure 2-4: Hillside Street Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Tight Diamond	DDI
Safety/Mobility				
Bicycle Accomodations/Safety		Med	Med	Hi
Collision Severity		Lo	Med	Hi
Pedestrian Accomodations/Safety		Med	Med	Hi
Traffic Operations				
Access Management		Lo	Lo	Med
Delay		Lo	Med	Med
Driver Expectancy		Hi	Hi	Med
Queue Overflow		Lo	Med	Hi
Reserve Capacity		Lo	Med	Med
Signing		Hi	Hi	Hi
Physical Impacts				
Access Impacts		Hi	Hi	Lo
Aiport Impacts		N/A	N/A	N/A
Environmental Impacts - See Below for Details		Hi	Med	Med
Utility Impacts		Hi	Med	Lo
Constructability				
Constructability		Med	Lo	Med
Maintenance of Traffic		Med	Med	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Tight Diamond**	**DDI**
Community Impacts				
National Register of Historic Places (Buildings or Districts)	No.	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	0	0
Environmental Impacts				
Hazardous Material Sites (EDR)	No.	0	1	1
NHD Stream Crossings	No.	0	2	2
NHD linear feet of stream	No. feet	0	1,294	1,234
K96 Trail Impacts	No. feet	0	0	0
NWI Impacts	acre	0.0	0.4	0.4
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No
Wooded Areas	acre	0.0	1.6	0.9
100-Year Floodplain Impacts	acre	0.0	0.4	0.4

EJ – Environmental Justice: Study of census data to determine if impacts will be borne by minority or low-income populations
EDR – Environmental Database Report: High level data regarding the hazardous material risks affecting a study area
NWI – National Wetlands Inventory: Dataset used to assess the potential risks to wetlands in study area

Exhibit 2-2: Hillside Street DDI



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HILLSIDE ST
ALT. 3 - DDI

LEGEND

PROPOSED
- MAINLINE/RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY

2.3.3 Oliver Street Interchange

The Oliver Street interchange also had two concepts developed and evaluated for improvements. Those two concepts were Tight Diamond and DDI configurations. The Tight Diamond configuration added two left-hand turning lanes and a right-hand turning lane at ramp terminal locations, prior to the K-96 bridge. Right-of-way and the shared-use path through the interchange would be shifted on the east and west sides of Oliver Street under the bridge (between the traffic signals). There would be a total of eight lanes, with one left-hand turning lane added to each direction. The DDI configuration proposed at Oliver Street separated northbound and southbound traffic by routing traffic on opposite driving sides through two signalized intersections.

The DDI concept was selected as the preferred configuration at Oliver Street due to its ability to minimize conflict points with bicyclists and pedestrians through the interchange, its ability, to provide safety enhancements typical of DDIs in comparison to diamond interchanges, and to improve interchange delay and handle large volumes of traffic in comparison to the Tight Diamond concept. Private property access to Oliver Steet immediately north of the interchange will be closed for safety and traffic operations needs due to the proximity of driveway access to the interchange ramp terminal. Access to the property will remain via 35th Street which accesses Oliver Street at a signalized intersection. The proposed Oliver Street DDI is displayed on **Exhibit 2-3**. The Oliver Street conceptual interchange evaluation matrix is shown on **Figure 2-5**.

Exhibit 2-3: Oliver Street DDI

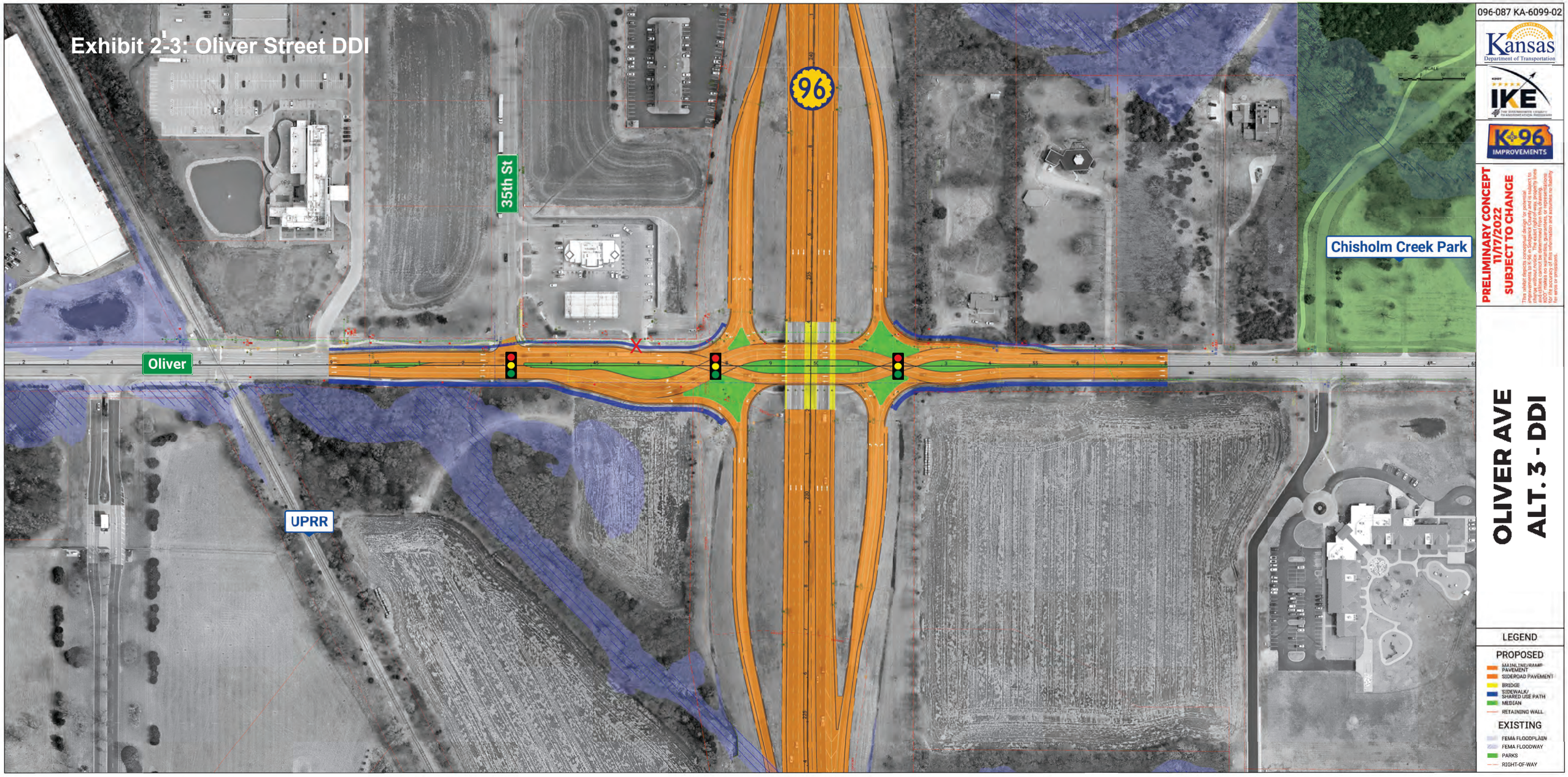


Figure 2-5: Oliver Street Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Tight Diamond	DDI
Safety/Mobility				
Bicycle Accomodations/Safety		Med	Med	Hi
Collision Severity		Lo	Med	Hi
Pedestrian Accomodations/Safety		Med	Med	Hi
Traffic Operations				
Access Management		Lo	Hi	Hi
Delay		Lo	Med	Hi
Driver Expectancy		Hi	Hi	Med
Queue Overflow		Lo	Med	Hi
Reserve Capacity		Lo	Med	Med
Signing		Hi	Hi	Hi
Physical Impacts				
Access Impacts		Hi	Med	Med
Aiport Impacts		N/A	N/A	N/A
Environmental Impacts - See Below for Details		Hi	Med	Med
Right of Way Impacts - See Below for Details				
Utility Impacts		Hi	Lo	Lo
Constructability				
Constructability		Med	Lo	Med
Maintenance of Traffic		Med	Med	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Tight Diamond**	**DDI**
Community Impacts				
National Register of Historic Places (Buildings or Districts)	No.	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	0	0
Environmental Impacts				
Hazardous Material Sites (EDR)	No.	0	3	3
NHD Stream Crossings	No.	0	3	3
NHD linear feet of stream	No. feet	0	1,547	1,547
K96 Trail Impacts	No. feet	0	545	155
NWI Impacts	acre	0.0	0.9	0.7
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No
Wooded Areas	acre	0.0	10.0	8.9
100-Year Floodplain Impacts	acre	0.0	2.7	2.5

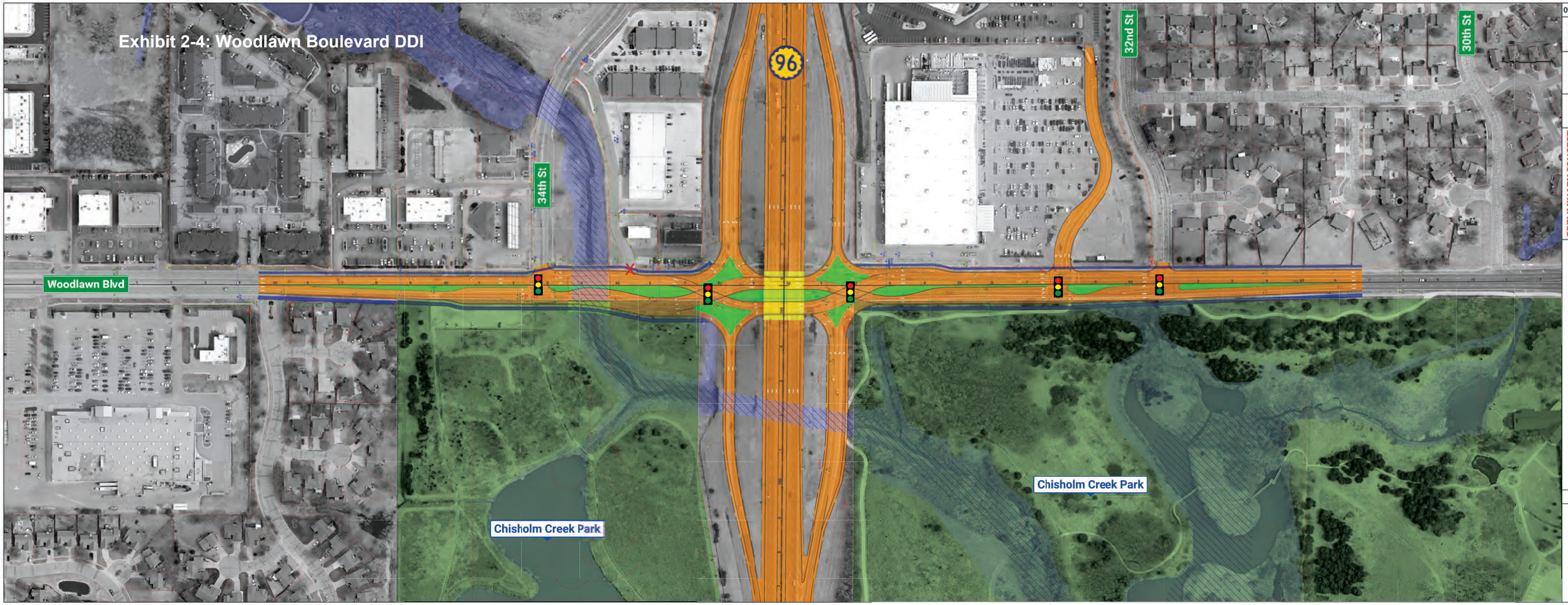
EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
NHD – National Hydrography Dataset: Represents the water drainage network of the U.S.

2.3.4 Woodlawn Boulevard Interchange

Four interchange concepts were developed and evaluated at the Woodlawn Boulevard Interchange. Concepts evaluated included a Tight Diamond, DDI, Displaced Left Turn (DLT), and a Single Point Urban Interchange (SPUI). The Tight Diamond and DDI interchange concepts were similar to those evaluated at the Hillside and Oliver Street interchanges. The DLT concept routed all left-turning vehicles from Woodlawn Boulevard to cross to the opposite side of the roadway at an upstream secondary signalized intersection and then proceed to the primary signal via a left turn only lane, parallel to Woodlawn Boulevard. At the primary signal, vehicles complete the left turn to reach K-96 at the same time as through traffic continues down Woodlawn Boulevard. For the SPUI concept, opposing left turns are completed at the same time with a single set of traffic signals, allowing more vehicles to make the turn and clear the interchange in one traffic signal cycle. It also allows for long, gradual turns, giving larger vehicles (trucks, buses, and recreational vehicles) more room to navigate.

The Tight Diamond configuration at this location was eliminated from further consideration due to its inability to handle large volumes of traffic in comparison to the other concepts. The SPUI concept was not considered further due to substantial utility impacts and poor constructability in comparison to the other concepts. Lastly, the DLT concept was eliminated due to poor driver expectancy. As a result, the DDI concept was selected at the Woodlawn Boulevard interchange as it provided the best combination of bicycle, pedestrian, and vehicular safety aspects, driver expectancy, traffic operations and ability to handle large volumes of traffic, and constructability. Driveway access to private property immediately north of the interchange will be closed for improved safety and traffic operations. Access to the property will remain available from 34th Street, which accesses Woodlawn Boulevard at a signalized intersection. The proposed Woodlawn Boulevard DDI is shown on **Exhibit 2-4** and the conceptual interchange evaluation matrix is displayed on **Figure 2-6**.

Exhibit 2-4: Woodlawn Boulevard DDI



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WOODLAWN BLVD
ALT. 2 - DDI

LEGEND

PROPOSED
- HMA/PCC/HAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY

Figure 2-6: Woodlawn Boulevard Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Tight Diamond	DDI	DLT	SPUI
Safety/Mobility						
Bicycle Accomodations/Safety			Med	Hi	Med	Med
Collision Severity			Med	Hi	Hi	Med
Pedestrian Accomodations/Safety			Med	Hi	Med	Med
Traffic Operations						
Access Management			Med	Med	Med	Med
Delay			Hi	Hi	Hi	Hi
Driver Expectancy			Hi	Med	Lo	Hi
Queue Overflow			Lo	Med	Hi	Med
Reserve Capacity			Lo	Med	Hi	Med
Signing			Hi	Hi	Med	Hi
Physical Impacts						
Access Impacts			Hi	Hi	Med	Hi
Aiport Impacts			N/A	N/A	N/A	N/A
Environmental Impacts - See Below for Details		Hi	Lo	Lo	Lo	Med
Right of Way Impacts - See Below for Details						
Utility Impacts			Med	Med	Med	Lo
Constructability						
Constructability			Med	Hi	Med	Lo
Maintenance of Traffic			Med	Med	Med	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Tight Diamond**	**DDI**	**DLT**	**SPUI**
Community Impacts						
National Register of Historic Places (Buildings or Districts)	No.	0	0	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	2	2	2	2
Environmental Impacts						
Hazardous Material Sites (EDR)	No.	0	5	5	5	5
NHD Stream Crossings	No.	0	2	2	2	2
NHD linear feet of stream	No. feet	0	1,365	1,361	1,366	977
K96 Trail Impacts	No. feet	0	3,223	2,549	2,525	1,693
NWI Impacts	acre	0	3.4	3.2	3.3	2.8
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No	No	No
Wooded Areas	acre	0	7.7	7.0	7.4	5.3
100-Year Floodplain Impacts	acre	0	1.7	4.4	4.4	2.1

EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
NHD – National Hydrography Dataset: Represents the water drainage network of the U.S.

2.3.5 Rock Road Interchange

Four interchange concepts were developed and evaluated for the Rock Road Interchange. Concepts evaluated included a Tight Diamond, DDI, DLT, and SPUI. These interchange concepts were similar to those evaluated at the Hillside, Oliver, and Woodlawn interchanges. The DDI concept was selected at this location due to its performance in providing superior safety and mobility for pedestrians, cyclists, and vehicles, improved traffic capacity operations in comparison to the three other concepts, and fewer utility impacts. Driveway access points for private property on Rock Road near the interchange will be closed to improve traffic operations and safety. Property access will be maintained through either existing internal circulation connections or relocation of access points. 32nd Street west of Rock Road will be realigned to the south to connect into the existing Rock

Road and 32nd Street intersection to the east. This relocation removes the intersection on Rock Road that is in close proximity to the proposed interchange and provides a continuous path for traffic on 32nd Street to the east and west. The Rock Road DDI is displayed on **Exhibit 2-5** and the conceptual interchange evaluation matrix is displayed on **Figure 2-7**.

Exhibit 2-5: Rock Road DDI

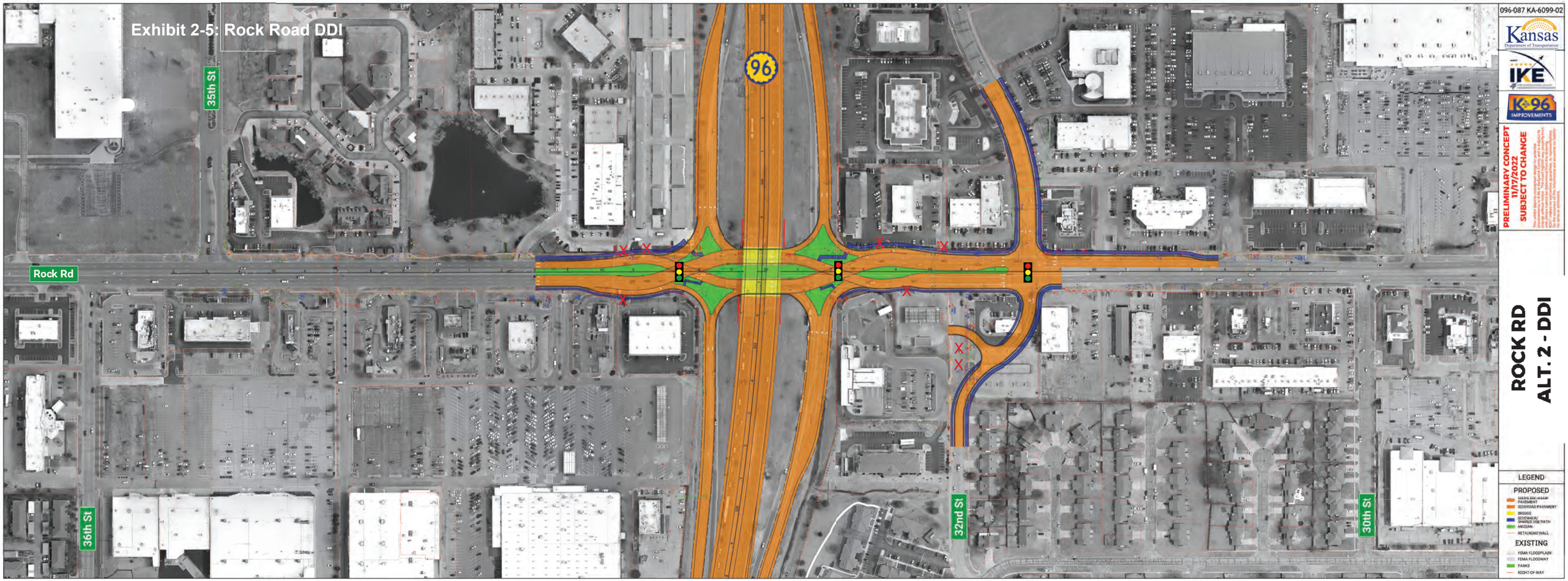


Figure 2-7: Rock Road Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Tight Diamond	DDI	DLT	SPUI
Safety/Mobility						
Bicycle Accomodations/Safety			Lo	Hi	Lo	Lo
Collision Severity			Med	Hi	Hi	Med
Pedestrian Accomodations/Safety			Lo	Hi	Lo	Lo
Traffic Operations						
Access Management			Med	Med	Med	Med
Delay			Hi	Hi	Hi	Hi
Driver Expectancy						
Queue Overflow			Med	Hi	Med	Med
Reserve Capacity			Lo	Hi	Med	Med
Signing						
Physical Impacts						
Access Impacts			Lo	Med	Lo	Lo
Aiport Impacts			N/A	N/A	N/A	N/A
Environmental Impacts - See Below for Details		Hi	Hi	Med	Med	Med
Right of Way Impacts - See Below for Details						
Utility Impacts			Med	Hi	Med	Lo
Constructability						
Constructability			Med	Med	Med	Lo
Maintenance of Traffic			Lo	Med	Med	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Tight Diamond**	**DDI**	**DLT**	**SPUI**
Community Impacts						
National Register of Historic Places (Buildings or Districts)	No.	0	0	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	0	0	0	0
Environmental Impacts						
Hazardous Material Sites (EDR)	No.	0	2	5	5	5
NHD Stream Crossings	No.	0	0	0	0	0
NHD linear feet of stream	No. feet	0	0	0	0	0
K96 Trail Impacts	No. feet	0	0	484	471	471
NWI Impacts	acre	0	0.0	0.0	0.0	0.0
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No	No	No
Wooded Areas	acre	0	0.0	0.0	0.0	0.0
100-Year Floodplain Impacts	acre	0	0.0	0.0	0.0	0.0

EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
NHD – National Hydrography Dataset: Represents the water drainage network of the U.S.

2.3.6 Webb Road Interchange

To respond to the needs at the Webb Road interchange and the existing split folded diamond configuration of the interchange, five unique interchange concepts were developed and evaluated. Concepts developed for Webb Road included the following:

- **Eastbound Exit Loop** – For this concept, both the eastbound K-96 entrance and exit ramps are extended and the ramp terminal moved south to accommodate an additional lane on K-96 and improvements on Webb Road.
- **Continuous Green-T (CGT)** – This concept creates three CGT intersections within the interchange at major conflict points. CGT intersections allow one major street direction to continue through the intersection without stopping and the opposite major street direction of travel is controlled by a traffic signal. Left turn vehicles use a channelized receiving lane to the continuous major street direction. The three CGT intersections are located north of the K-96 bridge (westbound ramp terminal), one directly under the K-96 bridge at the Webb Road and 29th Street intersection, and one south of the bridge (eastbound ramp terminal).
- **Roundabouts** – The roundabouts concept constructs roundabouts at the eastbound and westbound K-96 ramp terminals. All through traffic on Webb Road, traffic destined for K-96, and vehicles exiting K-96 would enter the respective roundabout and navigate to its destination. All signalized intersections within the interchange would be removed.
- **Exit Ramps** – This concept reconfigures the K-96 eastbound and westbound exit ramps to channelize northbound and southbound movements on Webb Road from K-96. The existing westbound exit ramp is removed and replaced with a traditional westbound exit ramp pulled tight along K-96 and allows for both northbound and southbound movements to Webb Road through the ramp terminal intersection. The eastbound exit loop ramp is split into two separate ramps to accommodate and channelize movements from K-96 to northbound and southbound Webb Road. To accomplish this, the eastbound exit loop ramp is extended and reconstructed to allow continuous eastbound K-96 to northbound Webb Road traffic, and southbound Webb Road traffic is channelized on the ramp to a traditional signalized exit ramp terminal that allows only southbound movements to Webb Road.
- **Dogbone** – This concept reconfigures the Webb Road interchange to a “dogbone” dual roundabout configuration to allow consideration of both through and freeway access movements. This concept eliminates the need for traffic to cross other lanes of traffic or oncoming traffic to complete turns, while slowing through traffic and reducing vehicle conflict points without the use of signalized intersections.

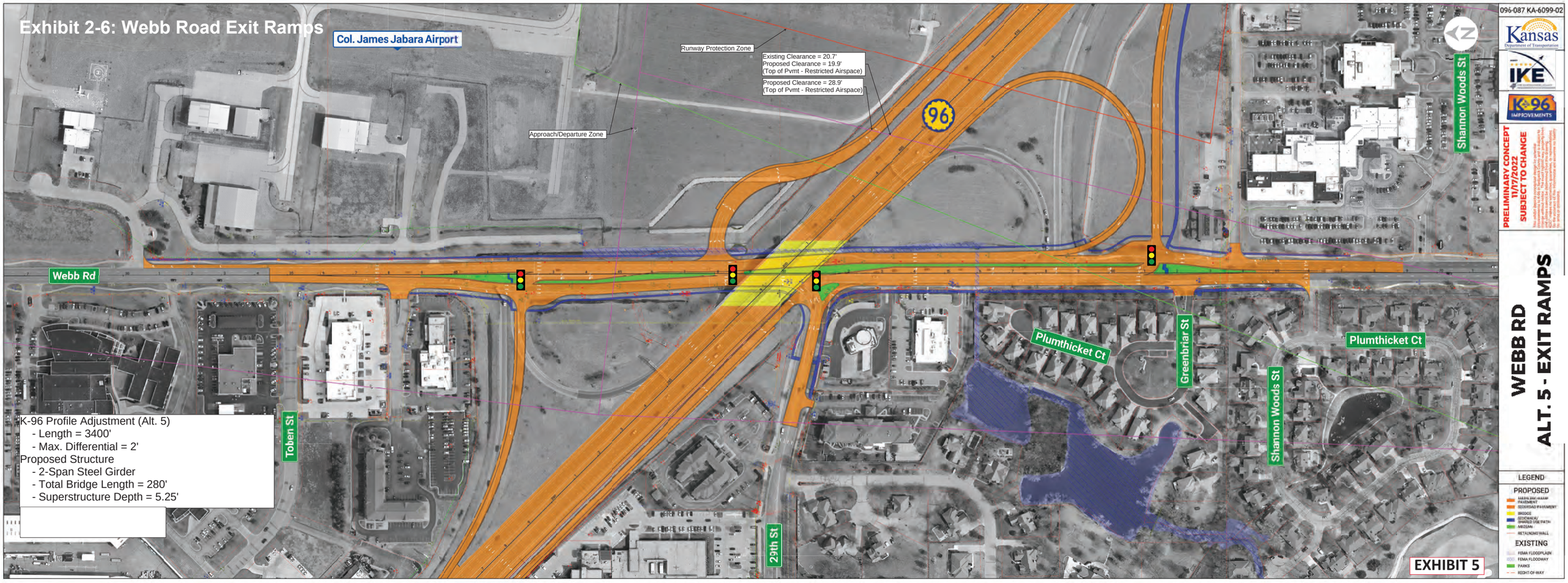
The Exit Ramps concept was selected as the preferred concept at the Webb Road interchange due to its traffic operations performance for future traffic projections in comparison to all other concepts. Specifically, the Exit Ramps concept substantially reduced delay and provided additional congestion capacity on the ramps in comparison to the other concepts. The proposed Exit Ramps concept for Webb Road is shown on **Exhibit 2-6**. The Webb Road conceptual interchange evaluation matrix is displayed on **Figure 2-8**.

Figure 2-8: Webb Road Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Add'l Lanes	EB Exit Loop	CGT	Roundabouts	Exit Ramps	Dogbone RAB
Safety/Mobility								
Bicycle Accomodations/Safety			Lo	Lo	Lo	Lo	Lo	Lo
Collision Severity			Lo	Lo	Lo	Hi	Lo	Med
Pedestrian Accomodations/Safety			Lo	Lo	Lo	Lo	Lo	Lo
Traffic Operations								
Access Management			Lo	Lo	Lo	Med	Med	Med
Delay			Lo	Lo	Lo	Med	Hi	Med
Driver Expectancy			Hi	Hi	Lo	Lo	Med	Lo
Queue Overflow			Lo	Lo	Lo	Med	Hi	Med
Reserve Capacity			Lo	Lo	Lo	Lo	Hi	Lo
Signing			Hi	Hi	Med	Med	Med	Med
Physical Impacts								
Access Impacts			Lo	Lo	Lo	Med	Med	Med
Airport Impacts			Hi	Lo	Lo	Lo	Lo	Med
Environmental Impacts - See Below for Details		Hi		Hi	Med	Med	Lo	Hi
Right of Way Impacts - See Below for Details								
Utility Impacts			Hi	Hi	Med	Lo	Hi	Lo
Constructability								
Constructability			Hi	Hi	Hi	Med	Hi	Lo
Maintenance of Traffic			Hi	Hi	Hi	Med	Hi	Lo
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Add'l Lanes**	**EB Exit Loop**	**CGT**	**Roundabouts**	**Exit Ramps**	**Dogbone RAB**
Community Impacts								
National Register of Historic Places (Buildings or Districts)	No.	0		0	0	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No		No	No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0		1	1	1	1	1
Environmental Impacts								
Hazardous Material Sites (EDR)	No.	0		6	7	7	7	5
NHD Stream Crossings	No.	0		0	1	1	1	0
NHD linear feet of stream	No. feet	0		0	267	267	286	0
K96 Trail Impacts	No. feet	0		2,217	3,168	3,326	3,714	2,438
NWI Impacts	acre	0		0.2	0.4	0.4	0.5	0.2
Potential Threatened/Endangered Species Habitat	Yes/No	No		No	No	No	No	No
Wooded Areas	acre	0		0.0	0.0	0.0	0.0	0.0
100-Year Floodplain Impacts	acre	0		0.1	0.6	0.6	0.1	0.1

EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
NHD – National Hydrography Dataset: Represents the water drainage network of the U.S.

Exhibit 2-6: Webb Road Exit Ramps



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PRELIMINARY CONCEPT
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WEBB RD
ALT. 5 - EXIT RAMPS

LEGEND

PROPOSED
- MAINLINE/MAIN PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY

2.3.7 Greenwich Road Interchange

One alternative concept in addition to the No-Build concept was considered at the Greenwich Road interchange. This concept, the Additional Turning Lanes, adds an additional lane on the eastbound and westbound K-96 exit ramps. The addition of lanes on the exit ramps coupled with re-striping of the ramps will create a triple left turn at the eastbound K-96 to westbound Greenwich Road ramp terminal, the first of its kind in the Wichita area.

The Additional Turning Lanes concept is displayed on **Exhibit 2-7** and was selected as the preferred concept at the Greenwich Road interchange as the addition of ramp lanes now will help meet future capacity needs and will be cost effective to add the pavement now in comparison to potential future costs. The conceptual interchange evaluation matrix for the Greenwich Road interchange is shown on **Figure 2-9**.

Figure 2-9: Greenwich Road Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	ADD'L LANES
Safety/Mobility			
Bicycle Accomodations/Safety		Med	Med
Collision Severity		Med	Lo
Pedestrian Accomodations/Safety		Med	Med
Traffic Operations			
Access Management		Lo	Lo
Delay		Lo	Med
Driver Expectancy		Hi	Hi
Queue Overflow		Lo	Med
Reserve Capacity		Lo	Med
Signing		Hi	Hi
Physical Impacts			
Access Impacts		Hi	Hi
Aiport Impacts		N/A	N/A
Environmental Impacts - See Below for Details		Hi	Med
Right of Way Impacts - See Below for Details			
Utility Impacts		Hi	Hi
Constructability			
Constructability		Hi	Med
Maintenance of Traffic		Hi	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**ADD'L LANES**
Community Impacts			
National Register of Historic Places (Buildings or Districts)	No.	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	0
Environmental Impacts			
Hazardous Material Sites (EDR)	No.	0	8
NHD Stream Crossings	No.	0	2
NHD linear feet of stream	No. feet	0	1,028
K96 Trail Impacts	No. feet	0	2,402
NWI Impacts	acre	0.0	2.8
Potential Threatened/Endangered Species Habitat	Yes/No	No	No
Wooded Areas	acre	0.0	0.0
100-Year Floodplain Impacts	acre	0.0	4.1

EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
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Exhibit 2-7: Greenwich Road Additional Lanes

2.3.8 21st Street Interchange

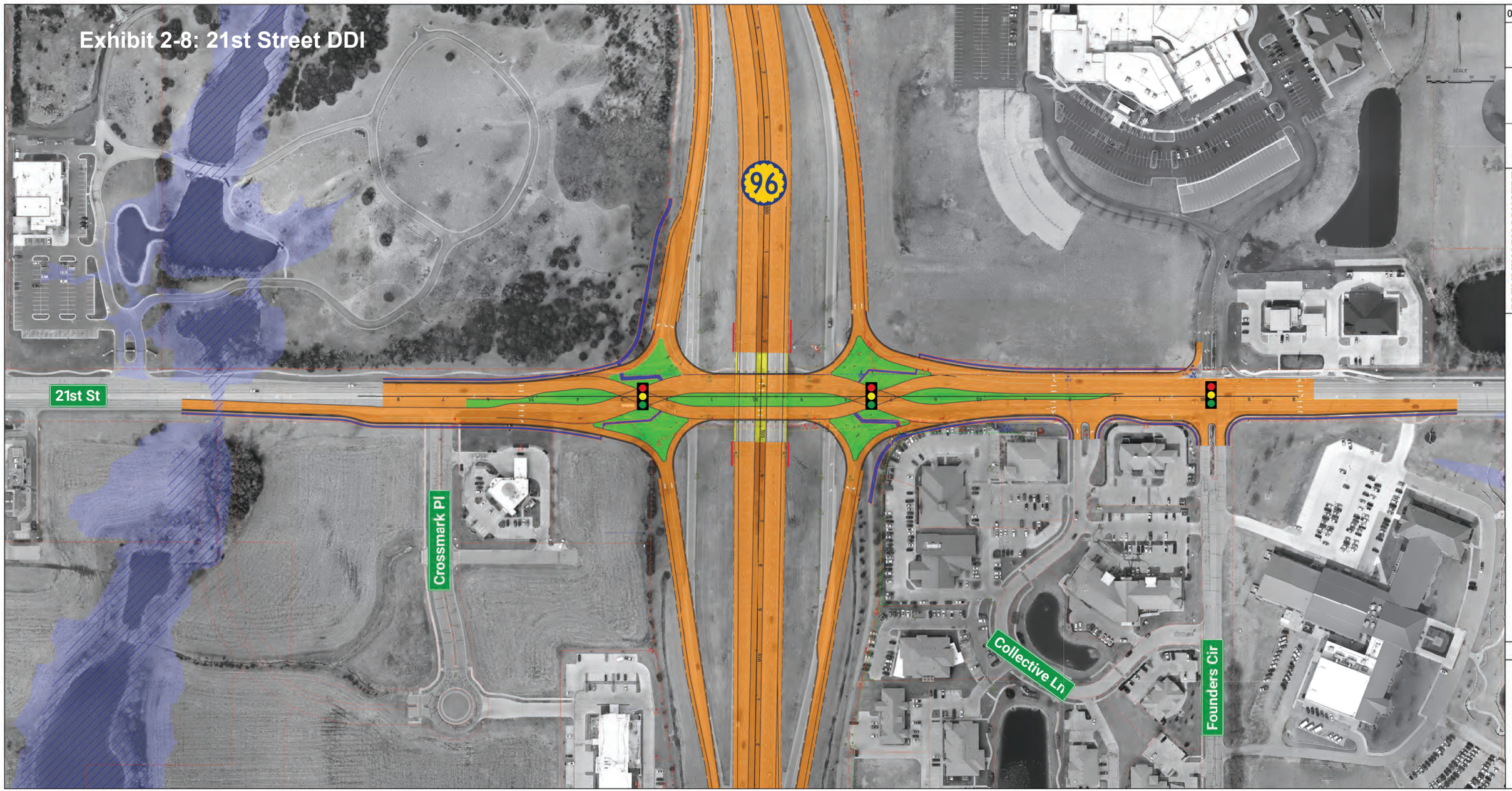
Two concepts in addition to the No-Build concept were considered at the 21st Street interchange. A Tight Diamond interchange concept and DDI concept were both considered at this location. The DDI concept was selected as the preferred concept due to its ability to provide better pedestrian, bicycle, and vehicular safety and mobility, along with better future traffic operations in comparison to the Tight Diamond concept. The proposed DDI concept for the 21st Street interchange is shown on **Exhibit 2-8**. The conceptual interchange evaluation matrix for the 21st Street interchange is displayed on **Figure 2-10**.

Figure 2-10: 21st Street Conceptual Interchange Evaluation Matrix

ENGINEERING CRITERIA		No-Build	Tight Diamond	DDI
Safety/Mobility				
Bicycle Accomodations/Safety		Med	Med	Hi
Collision Severity		Lo	Med	Hi
Pedestrian Accomodations/Safety		Med	Med	Hi
Traffic Operations				
Access Management		Lo	Med	Med
Delay		Lo	Med	Hi
Driver Expectancy		Hi	Hi	Med
Queue Overflow		Lo	Med	Hi
Reserve Capacity		Lo	Lo	Hi
Signing		Hi	Hi	Hi
Physical Impacts				
Access Impacts		Hi	Med	Med
Aiport Impacts		N/A	N/A	N/A
Environmental Impacts		Hi	Lo	Med
Utility Impacts		Hi	Med	Lo
Constructability				
Constructability		Med	Lo	Med
Maintenance of Traffic		Hi	Hi	Med
ENVIRONMENTAL CRITERIA	**Unit of Measure**	**No-Build**	**Tight Diamond**	**DDI**
Community Impacts				
National Register of Historic Places (Buildings or Districts)	No.	0	0	0
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No
Other (schools, religious orgs, cemeteries, fire stations)	No.	0	1	1
Environmental Impacts				
Hazardous Material Sites (EDR)	No.	0	0	1
NHD Stream Crossings	No.	0	1	1
NHD linear feet of stream	No. feet	0	536	325
K96 Trail Impacts	No. feet	0	2,821	2,376
NWI Impacts	acre	0	0.9	0.5
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No
Wooded Areas	acre	0.0	3.8	1.2
100-Year Floodplain Impacts	acre	0.0	6.8	2.5

EJ – Environmental Justice: Study of census data to determine if impacts will come to minority or low-income populations
EDR – Environment Database Report: High level data regarding the environmental risks affecting a study area
NWI – National Wetlands Inventory: Study done to assess the potential risks to wetlands in study area
NHD – National Hydrography Dataset: Represents the water drainage network of the U.S.

Exhibit 2-8: 21st Street DDI



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21ST ST
ALT. 3 - DDI

LEGEND

PROPOSED
- MAINLINE PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY

2.4 Recommended Preferred Alternative

The Recommended Preferred Alternative (PA) for the K-96 corridor from Hillside Street to Greenwich Road in Wichita is mainline Option 2. Option 2 included shifting the travel lanes, with lane widening to both the inside and outside for a 24-ft concrete median with 10-ft inside shoulders, creating a 6-lane freeway from the Hillside Street interchange to the 21st Street interchange. The typical cross section for the preferred mainline widening option is shown on **Figure 2-2**. The remainder of improvements in the K-96 corridor to the south of 21st Street would consist of pavement reconstruction which will maintain four 12-ft wide travel lanes, 10-ft outside and 6-ft inside shoulders, and a 28-ft open median. Mainline widening Option 2 was selected as the recommended Preferred Alternative due to its ability to meet the Purpose and Need for the project in comparison to the No-Build Alternative. The No-Build Alternative did not meet the Purpose and Need for the project.

In addition to mainline Option 2's selection as the preferred widening concept, existing interchanges were evaluated for improvement needs. The following preferred interchange conceptual configurations were selected over the No-Build Alternatives due to their ability to meet the project Purpose and Need:

- **Northbound I-135 to eastbound K-96 Ramp** – Conceptual Ramp Configuration 3 was chosen as the preferred configuration for the northbound I-135 to eastbound K-96 ramp. The braided ramp configuration will reduce weaving movements that affect mainline K-96 traffic operations by moving those weaving movements to the new braided ramp system, which improves traffic operations. Configuration 3 also performed well with driver expectancy and future forecasted traffic operations.
- **Hillside Street Interchange** – The DDI configuration was selected due to its ability to minimize conflict points with bicyclist and pedestrians through the interchange, to provide safety enhancements typical of DDIs in comparison to diamond interchanges, and to improve traffic operations on the K-96 mainline and the on-ramps by reducing congestion.
- **Oliver Street Interchange** - The DDI concept was selected due to its ability to minimize conflict points with bicyclists and pedestrians through the interchange, to provide safety enhancements typical of DDIs in comparison to diamond interchanges, and to improve interchange delay and provide additional overflow storage capacity on the ramp in comparison to the Tight Diamond concept.
- **Woodlawn Boulevard Interchange** - The DDI concept was selected as it provided the best combination of bicycle, pedestrian, and vehicular safety aspects, driver expectancy, traffic operations and additional overflow storage and reserve capacity on the ramp and at the ramp terminals, and constructability.
- **Rock Road Interchange** - The DDI concept was selected due to its performance in providing superior safety and mobility for pedestrians, bicyclists, and vehicles, additional overflow storage and reserve capacity on the ramp and at the ramp terminals, and fewer utility impacts.
- **Webb Road Interchange** - The Exit Ramps concept was selected due to its traffic operations performance for future traffic projections, substantially reduced delay, and additional overflow storage and reserve capacity on the ramp and at the ramp terminal.
- **Greenwich Road Interchange** - The Additional Turning Lanes concept was selected, as the addition of ramp lanes will help meet future capacity needs and will be cost effective in comparison to potential future costs.
- **21st Street North Interchange -** The DDI concept was selected as the preferred concept due to its ability to provide better pedestrian, bicycle, and vehicular safety and mobility, and better future traffic operations.

Exhibit 2-9 displays the entirety of the Recommended Preferred Alternative, including the preferred mainline widening option and preferred interchange conceptual alternatives with post-screening design modifications at each location.

The widening of mainline K-96 from four to six lanes reduces delay resulting from interchange queue lengths on the eastbound and westbound K-96 mainline segments. While each segment is anticipated to operate at Level of Service (LOS) E or worse in both the AM and PM peak hours for design year 2050, LOS isn't considered a great measurement of congestion once lane capacities are exceeded because the first bottleneck that is over capacity that traffic encounters will meter traffic to any downstream segment. For this type of scenario, where future lane capacities are likely to be exceeded, delay reduction measurements (based on a cumulative route time from one end of the study area to the other along mainline) in comparison to the future No-Build scenario are a more appropriate measurement of performance improvements.

Based on micro-simulation models of an expanded corridor footprint, total delay during the 2050 morning peak period for westbound traffic in the K-96 corridor is expected to be reduced by approximately 65 minutes (cumulative time savings accrued by all users per day). Morning peak period cumulative time savings in the K-96 eastbound direction is expected to be approximately 37 minutes (cumulative time savings accrued by all users per day).

During the 2050 afternoon peak hour, total delay for westbound K-96 users is expected to be reduced by approximately 119 minutes (cumulative time savings accruing to all users per day). K-96 eastbound travelers are expected to save approximately 141 minutes (cumulative time savings accrued by all users per day).

2.5 Recommended Preferred Alternative Summary

The Recommended Preferred Alternative includes the following roadway and interchange improvement elements:

- Reconfiguration of the northbound I-135 to eastbound K-96 ramp to incorporate a braided ramp system.
- Widening of K-96 from the Hillside interchange to the 21st Street interchange from four to six lanes.
- Pavement reconstruction, but no widening of K-96 from the 21st Street N interchange south to approximately Central Avenue overpass.
- Reconstruction of the existing Hillside, Oliver, Woodlawn, Rock, and 21st Street interchanges to DDI interchanges as shown on **Exhibit 2-2** through **Exhibit 2-3** and **Exhibit 2-8**.
- Reconstruction of the Webb Road interchange to the Exit Ramps concept as shown on **Exhibit 2-6**.
- Reconfiguration of the Greenwich Road interchange to the Additional Lanes concept as shown on **Exhibit 2-7**.

The preliminary construction cost estimate for the Recommended Preferred Alternative is approximately $397,800,000 in 2027 dollars. Final selection of an alternative, including construction phasing and sequencing scenarios, will not occur until KDOT and FHWA evaluate all comments received as a result of their review of this EA document and a public hearing. Following public and agency review of this EA, FHWA and KDOT will determine if preparation of an Environmental Impact Statement (EIS) is warranted. If an EIS is not warranted, the Preferred Alternative will be identified in the Finding of No Significant Impact (FONSI) document.

Exhibit 2-9: Preferred Alternative

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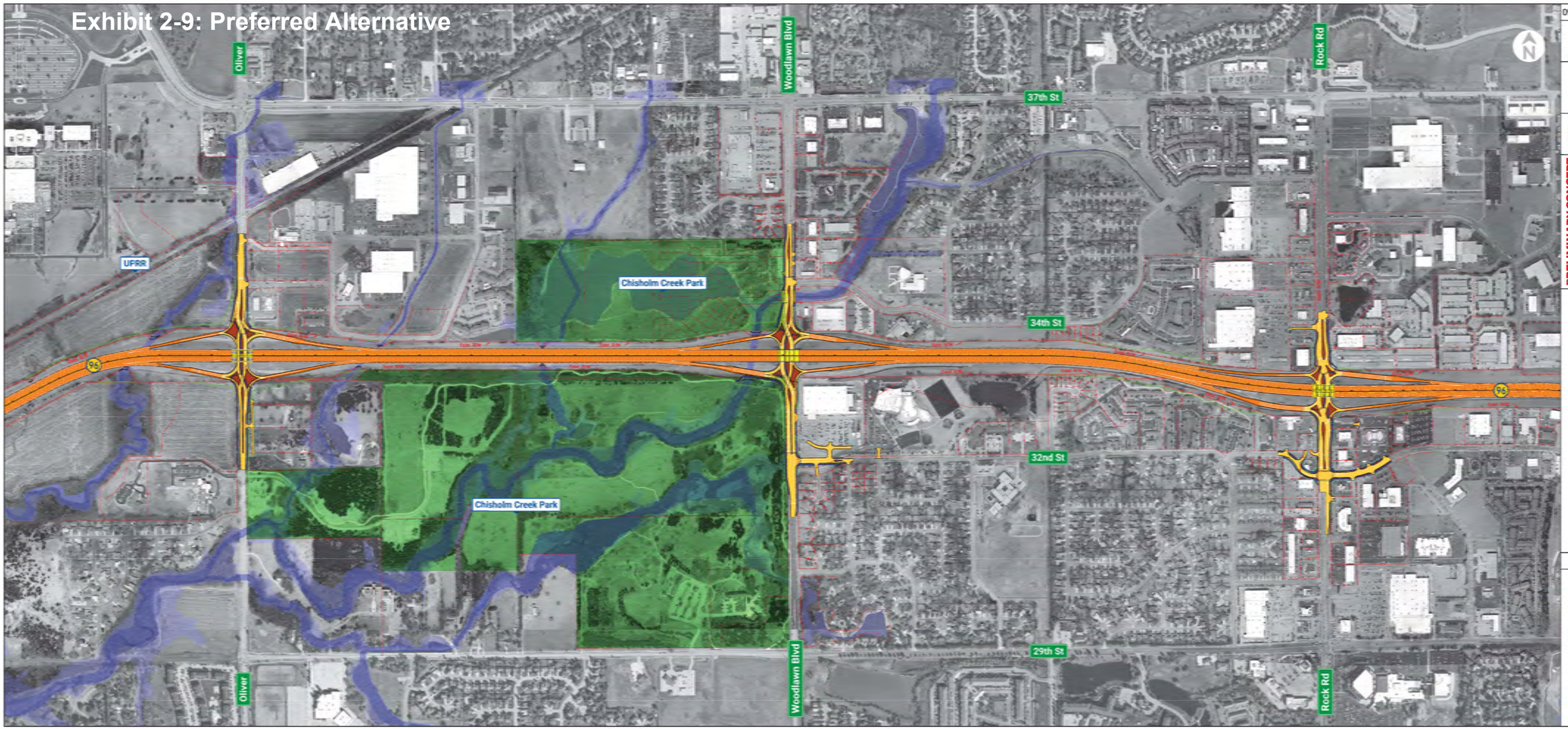
K-96 IMPROVEMENTS
Preferred Alternative

LEGEND

PROPOSED
- MAINLINE/RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- CLOSED ACCESS
- RETAINING WALL
- RIGHT-OF-WAY
- ACCESS CONTROL
- TEMP. CONST. EASEMENT

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY
- ACCESS CONTROL

Exhibit 2-9: Preferred Alternative



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K-96 IMPROVEMENTS
Preferred Alternative

LEGEND

PROPOSED

- WIDENING/NEW PAVEMENT
- RESURFACE PAVEMENT
- BRIDGE
- SIDEWALK
- SHARED USE PATH
- MEDIAN
- CLOSED ACCESS
- RETAINING WALL
- RIGHT-OF-WAY
- ACCESS CONTROL
- TEMP. CONST. EASEMENT

EXISTING

- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY
- ACCESS CONTROL

Exhibit 2-9: Preferred Alternative



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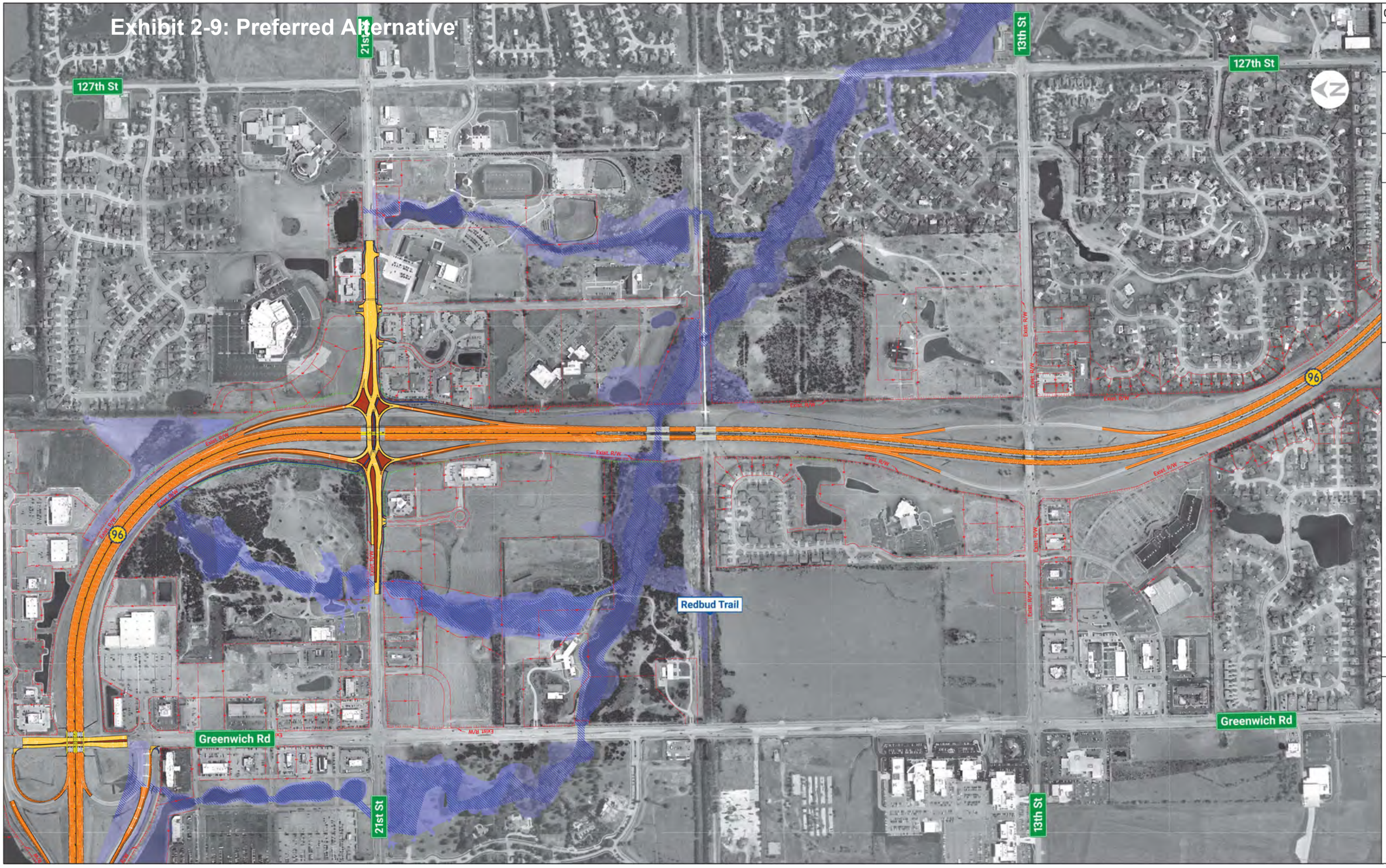
K-96 IMPROVEMENTS
Preferred Alternative

LEGEND

PROPOSED
- MAINLINE/RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- CLOSED ACCESS
- RETAINING WALL
- RIGHT-OF-WAY
- ACCESS CONTROL
- TEMP. CONST. EASEMENT

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY
- ACCESS CONTROL

Exhibit 2-9: Preferred Alternative



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K-96 IMPROVEMENTS

PRELIMINARY CONCEPT
02/13/2024
SUBJECT TO CHANGE

This exhibit depicts conceptual design for potential improvements to K-96 in Sedgwick County and is subject to change as the project progresses. Property lines and right-of-way limits are approximate, derived from multiple sources. KDOT makes no warranties, guarantees, or representations for the accuracy of this information and assumes no liability for errors or omissions.

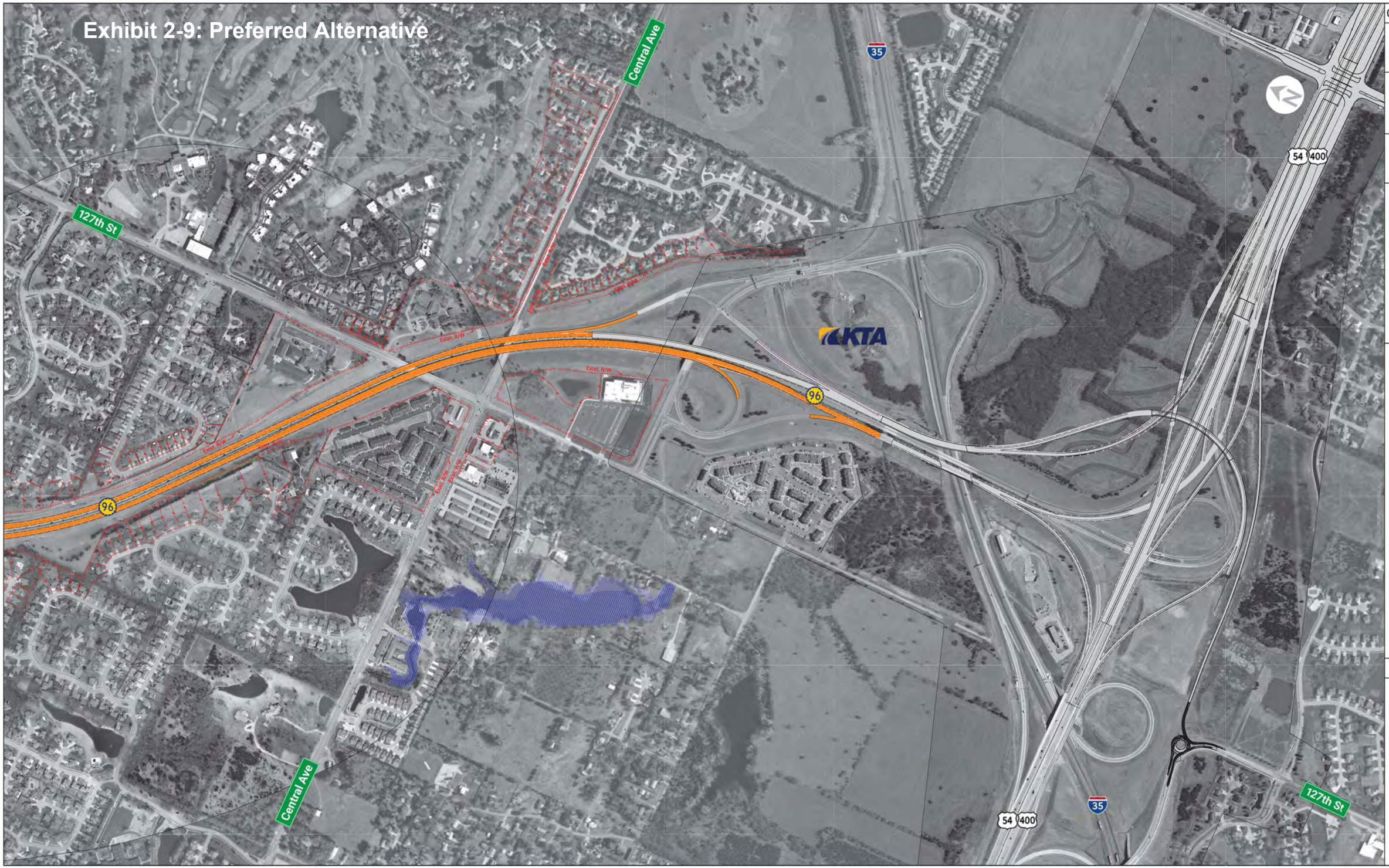
K-96 IMPROVEMENTS
Preferred Alternative

LEGEND

PROPOSED
- MAINLINE/RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- CLOSED ACCESS
- RETAINING WALL
- RIGHT-OF-WAY
- ACCESS CONTROL
- TEMP. CONST. EASEMENT

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY
- ACCESS CONTROL

Exhibit 2-9: Preferred Alternative



096-087 KA-6099-02

Kansas Department of Transportation

KDOT IKE AT WORK

K-96 IMPROVEMENTS

PRELIMINARY CONCEPT
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K-96 IMPROVEMENTS
Preferred Alternative

LEGEND

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- ACCESS CONTROL

3.0 Impacted Environment and Environmental Consequences

This chapter describes the socioeconomic, cultural, natural, and human environments along the project corridor and those affected by the Preferred Alternative. Each of the following sections describes the impacts of the Preferred Alternative. The impacts of the No-Build Alternative are also described to provide a comparison for the Preferred Alternative.

3.1 Land Use

The development and implementation of the proposed project was reviewed to determine its consistency with the land use plans, land use policies/zoning, and transportation plans governing the project boundary and surrounding areas. Local jurisdictions including the City of Wichita and Sedgwick County have been engaged throughout the project development process. In addition to describing the current land use and developments within the Study Area, the following discusses the most relevant local and regional plans and policy documents. *Community Investments Plan 2015-2035 (Wichita-Sedgwick County)* **–** The 2015-2035 Community Investments Plan is the most recently adopted joint comprehensive plan for the City of Wichita and Sedgwick County. The plan establishes a vision, community values, and guiding principles for intentional growth in the area through 2035, and serves as a guide for future growth, development, and public infrastructure investment decisions. The plan also describes future land use policies to encourage orderly growth to meet market demand, while considering impacts to various stakeholders, the environment, and the community. The K-96 Improvements Project will support the goals of the 2015-2035 Community Investments Plan by both increasing safety and connectivity as outlined in the plan's transportation goals.

Wichita: Places for People – Published in April 2018 by the Wichita Area Metropolitan Planning Organization (WAMPO), the Wichita: Places for People Vision Book identifies several important insights intended to provide a foundation for future decision making and investment within the Established Central Area (ECA). The book uses data analysis to uncover potential issues facing the ECA and offers recommendations to address said issues. The K-96 Improvements Study Area lies north of and falls outside of the ECA, so the K-96 Improvements will not detract from the goals of the Wichita: Places for People Vision Book.

"Reimagined Move 2040" Long-Range Metropolitan Transportation Plan (MTP) – Published in June 2020 by the WAMPO, the MTP sets the vision and strategy for all regional transportation decision-making for the next 20 years. The plan outlines strategies and projects that work to build a safe transportation system that increases quality of place and supports the economy of the Wichita region and south-central Kansas. The K-96 Improvements Project is included in the MTP, though with a lesser project area. The K-96 Improvements Project will support the goals of the MTP by increasing safety and connectivity thus supporting the plan's goals of bettering the regional transportation network and economy.

Current land uses within the Study Area consist primarily of single-family residential, commercial, and industrial uses with areas of public and private recreational use. The 2035 Future Growth Map, as included in the Community Investments Plan, identified the majority of the land adjacent to K-96 as new employment and new residential areas. This map can be seen in **Exhibit 3-1**. Additionally, the 2015-2035 Community Investments Plan outlines enhancement areas for Wichita Public Infrastructure Projects.

3.1.1 Land Use Impacts

Impacts of the No-Build Alternative

The No-Build Alternative would not acquire permanent right-of-way (ROW). Development may occur along the northeastern portion of K-96, east of Colonel James Jabara Airport and north of 21st Street, as the most opportunity for development along the corridor exists there and would be in line with the Community Investments Plan's 2035 Future Growth Map.

Impacts of the Preferred Alternative

Areas of new, permanent ROW along both sides of K-96 would be acquired from existing non-transportation uses. Temporary easements will also be needed during the project. The ROW acquisition could potentially change the access to commercial and residential properties not displaced by the proposed project. Potential residential and/or business displacements are described in **Section 3.6**. Growth and land use changes induced by transportation projects can relate to changes in accessibility, which in turn can affect the area's attractiveness for development. Improvements to the existing K-96 roadway could induce additional commercial development along the corridor as access improves with new construction of an additional lane and interchange design. Existing and planned areas of single-family and multi-family development would most likely remain. These developments occur south of K-96 along the K-96 corridor between I-135 and I-35; north of K-96 along the K-96 corridor between I-35 and N Greenwich Road; and between N Rock Road and N Woodlawn Boulevard. Induced growth pressures may be induced by transportation improvement, but these are expected to be controlled by and consistent with the City of Wichita through its zoning ordinance.

3.2 Community Resources

Community resources were identified during desktop reviews and field visits conducted in July 2022. A total of 20 community facilities were identified within the NEPA Study Area, including nine places of worship, two cemeteries, three parks/recreational areas, three multi-use trails, three schools (Annor Islamic School, Magdalen Catholic School, and Trinity Academy), two medical facilities, one Emergency Medical Services (EMS) station, one firehouse, and the Dennis Schoenebeck North YMCA (recreational services). All other community facilities are located further from the highway corridor.

It is essential for the health, safety, and general welfare of a community that emergency response vehicles and services have adequate roadway access to all residential, commercial, and industrial properties. For residents along the K-96 corridor, the nearest fire and emergency response providers are Wichita Firehouse 18 (located approximately 480 feet south of K-96 on N Webb Road), Sedgwick County EMS Post 12 (located approximately 300 feet south of K-96 on N Hillside Street), and Sedgwick County EMS Post 15 (located approximately 0.6 miles north of K-96 on N Webb Road). The nearest City of Wichita police station is approximately 1.5 miles south of the proposed project at the southwest corner of E 21st Street N and N Hillside Street.

Recreational amenities that have a portion located within the project Study Area include: K-96 Lake Park, (located south of K-96 near I-135), Chisholm Creek Park South and the Great Plains Nature Center (located south of K-96 between N Oliver Street and N Woodlawn Boulevard), Chisholm Creek Park North (located north of K-96 and west of N Woodlawn Boulevard), the Redbud Trail (located underneath K-96 running parallel with E 21st Street N to the north and parallel with E 13th Street N to the south), the Great Plains Nature Center Path (located northeast of the Great Plains Nature Center along N Woodlawn Boulevard), and the K-96 Bike Trail that begins in the southern portion of Chisholm Creek Park Southand is adjacent to K-96 down to Central Avenue for 7.9 miles. All recreational amenities mentioned are owned and operated by the City of Wichita. However, the Great Plains

Nature Center is a project with support from the city, United States Fish & Wildlife Service (USFWS), Kansas Department of Wildlife & Parks (KDWP), and the Friends of the Great Plains Nature Center nonprofit organization.

3.2.1 Impacts to Community Resources

Impacts of the No-Build Alternative

Under the No-Build Alternative, no improvements to existing roadways nor construction of new roadways would occur. The No-Build Alternative would not provide additional capacity or improve access to neighborhood and community facilities.

Impacts of the Preferred Alternative

The Preferred Alternative would provide added capacity along K-96 and at major cross-street intersections to reduce congestion and improve travel times across the Study Area for all travelers, including school buses and emergency responders. Under the Preferred Alternative one community resource, Wichita Firehouse 18 would be potentially displaced as shown in **Figure 3-1**. Wichita Firehouse 18 is located within the southeast quadrant of the K-96 and N Webb Road interchange with a physical address of 2808 N. Webb Road. Initial discussions with the City of Wichita and the City of Wichita Fire Department have been held to discuss the potential relocation of Firehouse 18, however no determination has been made to where the firehouse may be relocated. No additonal ROW, permanent or temporary, is required from the identified community resources.

Any detours will be temporary and limited in duration, and will be coordinated with emergency responders and school district transportation providers to limit routing and travel time impacts. The exact location, timing, and duration of road closures will be finalized during design and construction of the project. A traffic management plan will be developed and implemented by KDOT during construction. Access to properties along K-96 will be maintained by phased construction, temporary access roads, or other appropriate means to ensure that emergency response vehicles have access throughout the corridor. The Preferred Altenative may improve emergency response times through reduction in morning and afternoon peak period for improvements in overall corridor delay.

Figure 3-1: K-96 Preferred Alternative's Impact on Wichita Firehouse 18



3.3 Environmental Justice

All federal agencies must comply with Title VI of the 1964 Civil Rights Act (Title VI) and Executive Order (E.O.) 12898 (issued in 1994) *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations.* E.O. 12898's purpose is to focus federal attention on the environmental and human health effects of federal actions on minority and low-income populations with the goal of achieving environmental protection for all communities.

Under Title VI and related statutes, each federal agency is required to ensure that no person is excluded from participation in, denied

the benefit of or subjected to discrimination under any program or activity receiving federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion.

Pursuant to E.O. 12898, FHWA issued Order 6640.23A, *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Population* which established policies and procedures for the Federal Highway Administration (FHWA) to use in complying with Executive Order 12898.

E.O. 14096 (issued in 2023) *Revitalizing Our Nation's Commitment to Environmental Justice for All* confirmed the continued importance of identifying and addressing these considerations in agency programs, policies, and activities. Executive Order 14096 states that "…each federal agency shall make achieving environmental justice part of its mission"… by identifying, analyzing, and addressing "disproportionate and adverse human health or environmental effects (including risks) and hazards of Federal activities, including those related to climate change and cumulative impacts of environmental and other burdens on communities with environmental justice concerns…"

FHWA administers its governing statutes to identify and avoid discrimination and disproportionately adverse effects on minority populations and/or low-income populations by:

1. Identifying and evaluating environmental, public health, and interrelated social and economic effects of FHWA programs, policies, and activities;

2. Proposing measures to avoid, minimize, and/or mitigate disproportionately high and adverse environmental and public health effects and interrelated social and economic effects and provide offsetting benefits and opportunities to enhance communities, neighborhoods, and individuals affected by FHWA programs, policies, and activities, where permitted by law and consistent with Executive Order 14096;

3. Considering alternatives to proposed programs, policies, and activities where such alternatives would result in avoiding and/or minimizing disproportionately high and adverse human health or environmental impacts, where permitted by law and consistent with Executive Order 14096; and

4. Providing public involvement opportunities and considering the results thereof, including providing meaningful access to public information concerning the human health or environmental impacts and soliciting input from affected minority populations and/or low-income populations in considering alternatives during the planning and development of alternatives and decisions.

Within the Study Area, Census tract and block group data was collected, using the 2021 American Community Survey Five-Year Estimates Detailed Tables, to determine if potential environmental justice populations were present. A block group was considered to have a minority population if its minority percentage was greater than or equal to the minority percentage for the state of Kansas (18.6 percent), Sedgwick County (25.6 percent), or the City of Wichita (29.4 percent). Minority is defined as a person who is: Black (having origins in any of the black racial groups of Africa); Hispanic or Latino (of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race); Asian American (having origins in any of the original peoples of the Far East, Southeast Asia or the Indian subcontinent); American Indian and Alaska Native (having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition); or Native Hawaiian and Other Pacific Islander (having origins in any of the original peoples of Hawaii, Guam, Samoa or other Pacific Islands).[1]

Exhibit 3-2 displays the block groups with minority populations higher than the thresholds above within the Study Area. **Table 3-1** identifies the Census block groups within or adjacent to the Study Area that meet the threshold for minority environmental justice populations.

A block group was considered to have a low-income population if the percent of individuals at or below poverty level, and/or at or below 200 percent of the poverty level, was greater than or equal to the percent of individuals at or below the poverty level and/or at or below 200 percent of the poverty level for the state of Kansas, Sedgwick County, or the City of Wichita. **Exhibit 3-3** displays block groups with low-income populations higher than the communities of comparison. Three block groups in the vicinity of the Study Area are considered to be low-income populations, primarily due to the percentage of the population below both the 100 and 200 percent of poverty level calculations. Four block groups in the vicinity of the Study Area are considered to be low-income populations, solely due to the percentage of the population below 200 percent of poverty level calculations. **Table 3-1** identifies the tracts within or adjacent to the Study Area that meet the threshold for minority or low-income EJ populations.

Environmental justice impacts are impacts that are disproportionately adverse that are:

- Predominately borne by a people of color population and/or people with low income, or
- Will be suffered by the people of color and/or people with low income and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.

Table 3-1: Census Block Groups with Minority, Low-Income, and/or Limited English Proficiency Environmental Justice Populations [2]

Census Area	Percent Minority	Percent Below Poverty	Percent Below 200% of Poverty Level	Percent Limited English Proficiency	Minority EJ Population	Low-Income EJ Population	Limited English Proficiency EJ Population
Block Group 2, Census Tract 72.01	22.67%	1.08%	20.72%	0.18%	Yes	No	No
Block Group 1, Census Tract 77.01	55.38%	17.41%	72.64%	0.00%	Yes	Yes	No
Block Group 2, Census Tract 77.01	78.77%	0.00%	53.03%	0.00%	Yes	Yes	No
Block Group 1, Census Tract 78	89.53%	33.21%	78.52%	0.00%	Yes	Yes	No
Block Group 2, Census Tract 81	0.00%	0.00%	100.00%	0.00%	No	Yes	No
Block Group 2, Census Tract 100.02	12.01%	2.05%	30.22%	0.00%	No	No	No

Census Area	Percent Minority	Percent Below Poverty	Percent Below 200% of Poverty Level	Percent Limited English Proficiency	Minority EJ Population	Low-Income EJ Population	Limited English Proficiency EJ Population
Block Group 2, Census Tract 101.08	4.80%	0.00%	18.13%	0.00%	No	No	No
Block Group 2, Census Tract 101.13	26.32%	2.09%	15.09%	0.00%	Yes	No	No
Block Group 1, Census Tract 101.15	19.47%	1.37%	6.26%	0.00%	Yes	No	No
Block Group 2, Census Tract 101.15	14.83%	0.00%	15.30%	0.00%	No	No	No
Block Group 3, Census Tract 101.15	12.66%	17.16%	28.60%	0.00%	No	Yes	No
Block Group 1, Census Tract 101.16	24.44%	4.67%	28.39%	0.00%	Yes	No	No
Block Group 1, Census Tract 108.01	18.99%	0.00%	60.38%	0.00%	Yes	Yes	No
Block Group 2, Census Tract 108.01	20.95%	2.50%	59.58%	0.00%	Yes	Yes	No
Block Group 1, Census Tract 108.02	27.85%	3.36%	37.85%	0.00%	Yes	No	No
Block Group 2, Census Tract 108.02	64.76%	30.33%	70.53%	0.00%	Yes	Yes	No
Communities of Comparison							
State of Kansas	18.6%	11.50%	46.67%	2.1%	No	No	No
Sedgewick County	25.6%	13.20%	49.50%	2.7%	No	No	No
City of Wichita	29.4%	15.20%	52.71%	3.2%	No	No	No

[2] *2021 American Community Survey Five-Year Estimates – Detailed Tables | Table IDs B19001, B17010, B16004, and B02001*

3.3.1 Environmental Justice Impacts

Impacts of the No-Build Alternative

The No-Build Alternative would not result in disproportionately adverse impacts on environmental justice populations. No ROW would be acquired, no displacements would occur, and no changes in access to neighborhoods and communities would be made.

Impacts of the Preferred Alternative

The Preferred Alternative will require the partial acquisition of approximately 23 residential properties, totaling approximately 3.5 acres. There are no potential acquisitions of residential structures that will result in displacements of a minority-or low-income residences, although minor portions of residential properties will be acquired. Several multifamily apartment complexes located adjacent to K-96 ROW will have minor portions of property acquired. Data collected for the Census block groups in which those apartment complexes are located indicate that minority or low-income populations may be present. Potential impacts to any environmental justice populations living at those apartment complexes would be related to increased proximity to noise generators (vehicles on K-96) and construction related dust, noise, and temporary access and detour routes. These impacts would not be disproportionately borne by environmental justice populations as they would occur throughout the length of the K-96 corridor and would impact both environmental justice and non-environmental justice populations in similar proportions. Benefits of the Preferred Alternative include improved mobility, connectivity, and travel safety for the community, equally benefiting minority and low-income and non-environmental justice populations.

The City of Wichita and KDOT recognize that further engagement with EJ populations, key stakeholders, and the public is needed throughout the planning, design, and construction phases of the K-96 project to determine the best strategies to provide project benefits for all uses of the K-96 corridor. In addition to the comparison of the ACS block group level data, the EPA's Environmental Justice Screening and Mapping Tool (Version 2.2) (EJScreen) was utilized to search and identify any EJ populations. EJScreen confirmed the existence of EJ populations within or adjacent to the Study Area that the ACS block group level comparison had identified.

No Limited English Proficiency (LEP) communities were identified in the corridor. This was determined by utilizing ACS data at the block group level and comparing the tract percentage against the City of Wichita and Sedgwick County. **Table 3-1** identifies the block groups within or adjacent to the Study Area that meet the threshold for LEP environmental justice populations.

Two hundred and thirty-three (233) noise impacts were identified for the 2050 Preferred Alternative throughout the K-96 corridor. Of those noise impacts, 192 were located within Census block groups that contained either minority or low-income populations. All identified noise impacts were due to noise levels approaching or exceeding the FHWA NAC values, which is 67 Leq(h) for residential land uses. All noise impacts in the K-96 corridor were evaluated for mitigation and five noise barriers were determined to be both feasible and reasonable per KDOT's traffic noise policy. The proposed reasonable and feasible noise barriers in the K-96 corridor benefitted 120 impacted sensitive noise receptors located within the Census block groups with identified minority or low-income populations.

The average increase in noise without abatement is predicted to be approximately 1.4 dBA per receptor. For reference, a 3 dBA change is considered a "Barely Perceptible Change" to the human ear. Other noise abatement measures, such as berms, alternative alignments, speed or truck restrictions, etc., would not be practical in this Study Area. **Section 3.15**, **Table 3-7** provides a summary of the feasible and reasonable noise

walls that are recommended for construction, pending public approval. Noise walls proposed in environmental justice areas of the K-96 corridor are expected to provide mitigation for many potential noise impacts. Noise impacts would not be disproportionately borne by minority or low-income populations.

3.4 Bicycle and Pedestrian Facilities

Bicycle and pedestrian facilities in or near the Study Area include sidewalks and three multi-use recreational trails.

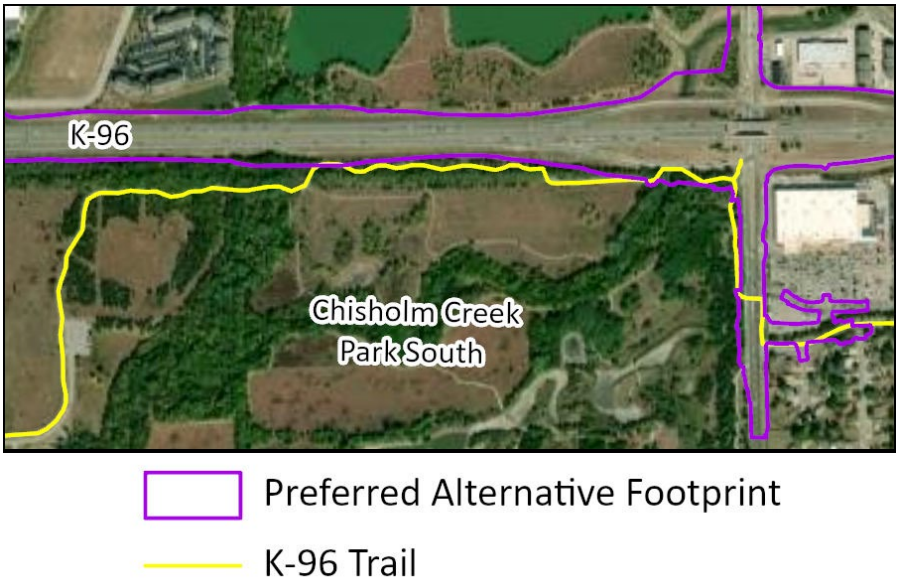
Sidewalks
Four-foot-wide concrete sidewalks extend along the east and west side of the following K-96 cross streets (underneath K-96): N Hillside Street, N Oliver Street, N Woodlawn Boulevard, N Rock Road, N Webb Road, and N Greenwich Road. Sidewalks of varying lengths extend along the north side of E 21st Street N as it crosses underneath K-96. The cross streets of E 13th Street N and E Central Avenue have sidewalks along their north side as they cross over K-96.

Trails
The K-96 Bike Trail is a multi-use trail located within or adjacent to the Study Area. The trail begins in the southwestern portion of Chisholm Creek Park South and runs immediately adjacent to or close to K-96 down to Central Avenue for 7.9 miles. Portions of the trail are on KDOT ROW by City/State agreement. A portion of the K-96 Bike Trail is within Chisholm Creek Park South. Chisholm Creek Park North and South received funding from the Land and Water Conservation Fund (LWCF) through the National Park Service (NPS), which places and protects the park under Section 6(f) of the Land and Water Conservation Act. More details on Section 6(f) are highlighted in **Section 3.9**. As a result of Chisholm Creek Park North and South being a Section 6(f) resource, an equal value of parkland is required as replacement for any portion of the park taken under the planned improvements of the K-96 Improvements Project. The Redbud Trail is a multi-use trail that spans nearly 16 miles of a former BNSF railroad. The trail crosses underneath K-96 in an east to west direction and is located one-half mile north of E 13th Street N and one-half mile south of E 21st Street N. The Redbud Trail directly crosses the K-96 Bike Trail in an east to west direction about 120 feet before the Redbud Trail crosses underneath K-96. The Great Plains Nature Center Path is a multi-use path that connects the K-96 Bike Trail to the Great Plains Nature Center. The trail originates at the Great Plains Nature Center and heads south towards E 29th Street N, follows along E 29th Street N towards N Woodlawn Boulevard, then continues north along N Woodlawn Boulevard where it then connects with the K-96 Bike Trail. The total length of the path is 2,678 feet. The K-96 Bike Trail, Great Plains Nature Center Path, and Redbud Trail locations related to the Study Area are shown in **Exhibit 3-4**.

3.4.1 Impacts to Bicycle and Pedestrian Facilities

Impacts of the No-Build Alternative
The No-Build Alternative would make no improvements to existing roadways nor construct new roadways, therefore, no effect on existing or planned bicycle and pedestrian facilities would occur.

Figure 3-2: Preferred Alternative's Impact on K-96 Bike Trail near Chisholm Creek Park South



Impacts of the Preferred Alternative
The Preferred Alternative is anticipated to impact portions of the K-96 Bike Trail. The portion of the K-96 Bike Trail impacted is within Chisholm Creek Park South. This park received LWCF resources, and as a result, an equal value of parkland is required as replacement for any portion of the park taken under the planned improvements, following the Section 6(f) process detailed in **Section 3.9**. At present KDOT plans to replace the trail within the existing park as discussions between KDOT, KDWP, and the City of Wichita continue. The impacts of the Preferred Alternative on the K-96 Bike Trail in Chisholm Creek Park South are shown in **Figure 3-2**.

The Redbud Trail will not be impacted by the Preferred Alternative. The widening portion of the K-96 Improvements Project ends at E 21st Street N, one-half mile north of where the Redbud Trail crosses underneath the K-96 roadway.

The K-96 Improvements Project will not impact any other current or planned multi-use trails outlined in Wichita-Sedgwick County Planning's *Wichita Bicycle Master Plan*, nor will the K-96 Improvements Project impact the goals of the *Wichita Pedestrian Master Plan*.

During construction, sidewalk closures will be required to move utility infrastructure and to generally reconfigure the corridor to the proposed configuration. Sidewalk closures will be temporary in nature, with detours, alternative routes, and temporary crosswalks provided to system users as applicable. While construction phasing and staging will be determined during later design phases, it is generally expected that temporary sidewalk closures will occur first to one side of the interchange being improved while keeping the opposite open for use.

3.5 Farmland

The Farmland Protection Policy Act (FPPA) of 1981 is intended to minimize the unnecessary conversion of prime farmlands and farmlands of statewide importance to non-agricultural uses by federal projects and programs.

Projects that cross soils classified as prime or statewide important farmlands and that are not located on land already in urban development are subject to review by the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) under the FPPA. The entirety of the Study Area is located within the census-designated Kansas Metropolitan Urbanized Area (KMUA) – Wichita. The desktop survey and field reconnaissance visit confirmed that the project is in an area dominated by urban uses and is exempt from evaluation under the FPPA.

3.6 Right-of-Way and Displacements

The project will require the acquisition of ROW along the K-96 corridor and its cross streets to construct the Preferred Alternative. A total of 44.6 acres of new, permanent ROW will be acquired. Property acquisitions will include both total property acquisitions and partial property acquisitions. Wichita Firehouse 18 at 2808 N. Webb Road and a portion of Colonel James Jabara Airport will be totally acquired.

Impacts of the No-Build Alternative
The No-Build Alternative would not involve construction or ROW acquisition and would have any displacements.

Impacts of the Preferred Alternative
Cross street interchange improvements and system reconfiguration improvements, coupled with the widening of K-96 from four to six lanes, would require the total acquisition of 2 commercial properties, totaling approximately 7.4 acres, and partial acquisition of another 99 individual commercial parcels, totaling approximately 29.8 acres. 27 individual residential parcels will be partially acquired, totaling approximately 3.7 acres. Another 3.9 acres of public park parcels will be partially acquired.

The ROW Acquisition for the Preferred Alternative would result in approximately 37.4 acres of partial acquisitions and 7.4 acres of full property acquisitions. **Table 3-2** displays the potential full property acquisitions which are also shown on **Exhibit 3-5**.

Table 3-2: Preferred Alternative Potential Total Property Acquisitions

Business Name	Address	Landowner Name	Acres	Map ID
Wichita Firehouse 18	2808 N WEBB RD	CITY OF WICHITA	0.8	C71
None	NO ADDRESS	WICHITA AIRPORT AUTHORITY	6.6	C72
Total Acreage of Potential Total Property Acquisitions			**7.4**	

Partial property acquisitions would also occur with implementation of the Preferred Alternative. **Appendix D** contains the potential partial property acquisitions which are also shown on **Exhibit 3-5**. Approximately 129 total properties would be impacted by partial acquisition, totaling 37.4 acres of acquisitions. 27 of those properties are residential properties totaling 3.7 acres. 99 of the properties are commercial or city-owned properties and total 29.8 acres of partial acquisitions. The three remaining partial acquisition properties are park properties, totaling 3.9 acres. Partial acquisitions will not affect the ability of the property or business to continue to function in its current state and will not remove access to the property.

Property owners will be compensated for property acquisitions as determined by KDOT and FHWA guidelines and processes for ROW acquisitions. All ROW acquisitions and relocations will be conducted in conformance with the Uniform Relocation Assistance and Real Property Acquisition Act of 1970, as amended by the Surface Transportation Assistance Act of 1987 and 49 Code of Federal Regulations, Part 24, as well as in conformance with KDOT's ROW acquisition policy. Relocation assistance will be made available as applicable to all persons and businesses without discrimination.

3.7 Transportation

The primary freeways within the Study Area are I-135 and K-96, shown in **Figure 1-1**. Within the Study Area, the I-135 mainline is classified as a six-lane urban interstate freeway. K-96 is a median-divided four-lane urban freeway. The I-135 and K-96 interchange has a direct exit ramp for westbound K-96 traffic to travel northbound on I-135 and K-96 mainline passes over I-135 with a loop exit for westbound K-96 traffic to travel southbound on I-135. Southbound I-135 traffic has an exit one-half mile north of where K-96 crosses over I-135, and this southbound exit connects to eastbound K-96 by going back over I-135. Northbound I-135 traffic has a direct exit ramp to eastbound K-96 one-half mile south of where K-96 crosses over I-135.

Major intersections along the K-96 corridor are at K-96 and I-135, K-96 and N Hillside Street, K-96 and N Oliver Street, K-96 and N Woodlawn Boulevard, K-96 and N Rock Road, K-96 and N Webb Road, K-96 and N Greenwich Road, K-96 and E 29th Street N, K-96 and E 21st Street N, K-96 and E 13th Street N, and K-96 and Central Avenue. The intersections in the Study Area can be viewed in **Figure 1-1**.

Bus transit service within the Study Area is provided by Wichita Transit. Three bus routes pass through or serve the Study Area: Route 201, Route 28, and Route 21.

Two freight rail lines are within the Study Area. K-96 crosses above BNSF Railway and Union Pacific rail lines east of the N Hillside Street and K-96 interchange. K-96 crosses above BNSF Railway and South Kansas and Oklahoma Railroad rail lines east of N Hydraulic Avenue.

One airport, Colonel James Jabara Airport, is located withing the Study Area. This airport is located north of K-96 and east of N Webb Road. N Webb Road is the only access point to the airport.

3.7.1 Transportation Impacts

Impacts of the No-Build Alternative

The No-Build Alternative would not have construction related impacts to the existing roadways or transit services within the project vicinity. The No-Build Alternative does not include access improvements, widening, or interchange improvements along the K-96 corridor. Traffic volumes are forecasted to increase substantially by 2050 and the No-Build Alternative would not alleviate the resulting future congestion or improve safety. Adverse impacts to transportation are likely to occur as a result of increased congestion and increased travel times, decreased safety, and decreased level of service. A full breakdown of 2050 No-Build traffic and safety can be found in **Section 2.1**.

Impacts of the Preferred Alternative

The construction of the Preferred Alternative will temporarily affect transportation and traffic patterns within the project area through the use of detours that may create congestion. KDOT will develop a Traffic and Transportation Management Plan that will outline detours, lane closures, and access considerations to be

implemented during construction. The project improvements include the K-96 DDI interchange at N Hillside Street, the K-96 DDI interchange at N Oliver Street, the K-96 DDI interchange at N Woodlawn Boulevard, the K-96 DDI interchange at N Rock Road, improved exit ramps at the K-96 and N Webb Road interchange, additional lanes at the K-96 and N Greenwich Road interchange, the K-96 DDI interchange at E 21st Street N, and pavement replacement between E 21st Street N and E Central Ave. The project improvements will also include the pavement widening of K-96 between N Hillside Street and E 21st Street N. The construction of the Preferred Alternative would result in less congestion and decreased travel times following completion of construction. Transportation system performance will improve from construction of the Preferred Alternative. A full breakdown of 2050 Build (Preferred Alternative) traffic and safety can be found in **Section 2.4.** As mentioned in **Section 3.6,** 10.6 acres of the Colonel James Jabara Airport will be acquired as permanent ROW. Despite this acquisition of ROW, there will be no impacts to the Colonel James Jabara Airport facilities, runways, or operations as a result of the Preferred Alternative.

The Preferred Alternative would have temporary construction impacts to Bus Routes 201, 28, and 21. Bus Routes 201 and 21 would likely be impacted the most, as both routes cross K-96. Bus Route 201 crosses K-96 as a fixed route at N Rock Road. Bus Route 21 crosses K-96 as a fixed route at N Greenwich Road and N Webb Road as an intermittent route (stops available by request). Bus Route 28 would be less impacted by construction in the K-96 corridor as it crosses underneath K-96 near I-135 utilizing Hydraulic Avenue. Any decisions on new or

modified bus transit routes during construction would be determined by Wichita Transit as the primary transit provider in the region.

Any transit related detours will likely be temporary in nature and limited in duration to the period required to construct project improvements. The exact location, timing, and duration of road closures will be finalized during later design phases and coordinated with Wichita Transit.

3.8 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966 (NHPA) requires federal agencies to consider the effects on historic properties of projects they carry out, assist, fund, permit, license, or approve throughout the country. If a federal or federally-assisted project has the potential to affect historic properties, a Section 106 review will take place.

Section 106 gives the Advisory Council on Historic Preservation, Tribal Nations, interested parties, and the public the chance to weigh in on these matters before a final decision is made. This process is an important tool for citizens to lend their voice in protecting and maintaining historic properties in their communities.

3.8.1 Historical Sites or Districts

The initial step in satisfying Section 106 regulations regarding historic properties is to determine if there are any properties listed or eligible for listing on the National Register of Historic Places (NRHP) that may be affected by the proposed project. The NHPA defines a historic property as any prehistoric or historic district, site, building, structure, or object included on, or eligible for inclusion on, the National Register, including artifacts, records, and material remains relating to the district, site, building, structure, or object.

The Kansas State Historic Preservation Office (SHPO) reviewed the resources within the study area in accordance with Section 106 of the NHPA. Kansas SHPO staff reviewed the project at the Phase II CRS (cultural resource survey) level. In reviews of this nature, the SHPO determines whether a federally funded, licensed, or permitted

project will adversely affect properties that are listed or determined eligible for listing in the NRHP. The Kansas SHPO determined that the proposed project will not affect any property listed or determined eligible for listing in the NRHP. The determination letter is available in Appendix A.

3.8.2 Historic Architecture Resources

The Kansas SHPO performed an architectural review of structures in the project area and determined that the project will not adversely affect any property listed or determined eligible for listing in the NRHP. Correspondence dated September 26, 2022 from Kansas SHPO regarding historic architecture properties may be viewed in **Appendix A**.

3.8.3 Archaeological Resources

The entirety of the project area is previously disturbed due to roadway and development related construction activities. The Kansas SHPO provided project clearance to this effect in a coordination response letter dated March 22, 2023.

On July 12, 2023, FHWA received a letter from the Osage Nation Historic Preservation Office (ONHPO) requesting that the expansion of the Study Area south of E 13th Street be subjected to a Phase II CRS with shovel testing. Additional shovel testing was also requested in the western portion of the project near sites ONHPO identified, especially along East Fork Chisholm Creek. ONHPO's request was made as the expansion of the Study Area is located within the Osage Nation's former Kansas Reservation and there are no previous surveys indicated on the Kansas Historical Society Map Viewer. FHWA responded to ONHPO addressing the ONHPO's concerns and was sent to ONHPO via FHWA email communications on July 17, 2023. All communication between ONHPO and FHWA can be viewed in **Appendix A**.

3.8.4 Cultural Resources Impacts

<u>Impacts of the No-Build Alternative</u>
The No-Build Alternative would have no impacts to cultural resources.

<u>Impacts of the Preferred Alternative</u>
No impacts to historical or archeological resources will occur resulting from the construction of the Preferred Alternative. KDOT and FHWA coordinated with the Kansas SHPO on historical and archaeological resources within the Study Area. SHPO project clearance for architectural properties was received on September 26, 2022 and for archeological resources on March 22, 2023. The clearance letters are both available in **Appendix A**.

KDOT and FHWA will continue to consult and coordination with those Tribes that have expressed interest in the project as it progresses to construction and will continue coordination and consultation processes. In the event that a previously unevaluated property of cultural significance is discovered during construction, all construction and excavation activities should cease immediately within the area. The area should be secured, the material left in place with no further disturbance, and KDOT, the Kansas SHPO, and FHWA, as appropriate, should be contacted immediately.

With the addition of the K-96 to I-135 ramp to the Study Area and the request from the Osage Nation for additional archeological investigations in the project corridor, Kansas SHPO staff conducted field investigations during February 2024 to determine if archeological resources may be present in these areas. The additional

investigations found one new archeology site that is not eligible for listing on the NRHP and further investigated an existing known site located well outside of the proposed project construction limits. The Kansas SHPO conditionally determined that the project will have no effect on any archeological sites listed or determined eligible for listing in the NRHP. Correspondence dated March 12, 2024 from Kansas SHPO regarding the new archeological site investigations can be viewed in **Appendix A**.

3.9 Section 4(f) & Section 6(f) Resources

The U.S. Department of Transportation (USDOT) refers to publicly owned land from parks, recreation areas, and wildlife and waterfowl refuges, or land from historic sites that are listed or potentially eligible for listing on the National Register of Historic Places, as "Section 4(f) resources" because they have special status under the provisions of Section 4(f) of the USDOT Act of 1966 (49 USC Part 303 and 23 CFR Part 774). Section 4(f) states

that the administration may not approve the use of a Section 4(f) property unless a determination is made that 1) there is no prudent and feasible avoidance alternative to the use of the property and 2) the action includes all possible planning to minimize harm to the property; or if the use of the property, including any measures to minimize harm (avoidance, minimization, mitigation, or enhancement measures) will have a de minimis impact on the Section 4(f) property. In addition, any public park or recreation land that has used funds from the Land and Water Conservation Fund (LWCF) for acquisition or development is protected under Section 6(f) of the LWCF Act.

There are three parks and one trail within the Study Area that are either (or both) a Section 4(f) or Section 6(f) resource. These resources are shown in **Exhibit 3-4** and described below.

Chisholm Creek Park South (Section 4(f) and Section 6(f)) – This park, located south of K-96, is over 200 acres in size and includes 1.6 miles of recreational trails. This park is also adjacent to the Great Plains Nature Center, which has indoor and outdoor facilities designed to educate the public about the flora & fauna of the Great Plains. Chisholm Creek Park South received a LWCF grant in 1977 for the acquisition of 228.19 acres of land.

Chisholm Creek Park North (*Section 4(f) and Section 6(f)*)– This park is located on the north side of K-96 and includes nearly 57 acres with a 23-acre stocked fishing pond. A LWCF grant application was submitted in 2022 for the construction of a trail around the lake and ADA fishing docks based on personal communication with the Section 6(f) coordinator for the state of Kansas.

K-96 Bike Trail (Section 4(f)) – This trail begins in Chisholm Creek Park South and runs immediately adjacent to or close to (about one block away but parallel) K-96 down to Central Avenue for 7.9 miles. As a multi-use trail, the K-96 Bike Trail provides connectivity between neighborhoods and parks on the eastern side of Wichita. Portions of the trail are located on KDOT right-of-way by City/State agreement.

K-96 Lake Park (Section 4(f)) – This park is located south of K-96 and east of I-135. The park is 46 acres and includes a 35-acre stocked fishing pond. The northern portion of this park is located within the Study Area.

No other Section 4(f) or Section 6(f) protected resources are located within the Study Area.

3.9.1 Impacts to Section 4(f) & 6(f) Resources

Impacts of the No-Build Alternative

No ROW would be acquired from the parks and no construction would occur within or along the K-96 Bike Trail. The No-Build Alternative would not impact any Section 4(f) or Section 6(f) protected resources.

Impacts of the Preferred Alternative

Construction of the proposed project would impact three Section 4(f) resources, two of which also qualify as Section 6(f) resources. FHWA has concurred with the eligibility of these resources for protections under Section 4(f) and Section 6(f). The impacts to Section 4(f) resources would be *de minimis* impacts, meaning the features, attributes, or activities qualifying for protection under Section 4(f) would not be adversely affected by the project. The Preferred Alternative impacts include the following:

- Acquisition of 0.77 acres of K-96 Lake Park to construct a braided ramp system from northbound I-135 to eastbound K-96 to accommodate expected weaving movements between traffic bound for eastbound

  K-96 and the Hillside Street interchange. The K-96 Park property to be acquired is located directly south of K-96 and the property is currently an unused, vacant portion of the park with no amenities or other features. The impacts to K-96 Lake Park are *de minimis* impacts, meaning that the features, attributes, or activities qualifying for protection on Section 4(f) would not be adversely affected by the project.

- Acquisition of 1.34 acres of Chisholm Creek Park North to accommodate the construction of a DDI interchange at K-96 and Woodlawn Street. The property to be acquired is adjacent to the existing Woodlawn Street westbound on-ramp to K-96 and does not include any amenities or other related park features. The impacts to Chisholm Creek Park North are *de minimis* impacts, meaning that the features, attributes, or activities qualifying for protection on Section 4(f) would not be adversely affected by the project. However, Chisholm Creek Park North is a Section 6(f) resource, and the Section 6(f) conversion and mitigation process for impacts is discussed later in the section.

- Acquisition of 1.82 acres of Chisholm Creek Park South to accommodate the construction of a DDI interchange at K-96 and Woodlawn Street. The property to be acquired is adjacent to the existing K-96 eastbound off-ramp to Woodlawn Street and includes the K-96 Bike Trail. The K-96 Bike Trail will be temporarily impacted during construction, including potential short-term closures and/or detours while the trail is reconstructed to avoid the new eastbound K-96 to Woodlawn Street ramp. Trail connectivity will be fully restored during or after construction. K-96 Bike Trail temporary closures or detours will be coordinated with the City of Wichita Parks Department to minimize impacts to the cycling public. The impacts to Chisholm Creek Park South are Section 4(f) *de minimis* impacts, meaning that the features, attributes, or activities qualifying for protection on Section 4(f) would not be adversely affected by the project. Chisholm Creek Park South is also a Section 6(f) resource and mitigation is required for those impacts.

FHWA and KDOT coordinated with the City of Wichita regarding Section 4(f) eligibility and impacts to the parks and trail. After public comment regarding the potential *de minimis* impact finding for these resources, the City of Wichita will be re-contacted to obtain a concurrence letter for the *de minimis* impacts to the park properties. Comments from the public will be solicited via the EA public comment period and public hearing regarding the potential *de minimis* finding.

Mitigation for Section 6(f) impacts to Chisholm Creek Parks (North and South) requires suitable replacement park and/or recreational property that has reasonably equivalent usefulness and location and of at least equal fair market value. KDOT is working with the Kansas Department of Wildlife and Parks (KDWP), U.S. National Park Service (NPS), and the City of Wichita Parks and Recreation Department to determine appropriate replacement property within the City of Wichita's park system. KDOT has initiated the Section 6(f) property conversion process through conducting property appraisals for the proposed conversions. Coordination and correspondence with KDWP (the agency responsible for administering Section 6(f) funds in the State of Kansas) has indicated that before a Section 6(f) conversion package can be submitted to NPS for review and approval, several steps must be taken:

- Complete an appraisal for both Section 6(f) park areas being converted and the entire replacement property following Uniform Appraisal Standards for Federal Land Acquisition (UASFLA) standards.
- Obtain a letter of intent to sell the replacement property from the current owner if is not already owned by the sponsor.
- Provide future development plans for the replacement property including the site's compatibility and usefulness to the community.

Once those steps have been completed and submitted to KDWP, a conversion packet will be submitted by KDWP to NPS for approval. The NPS will conduct their own NEPA determination, however, the NPS may use the analyses and results of this EA to process the conversion but are not required to for LWCF conversion purposes. Correspondence from KDWP regarding the Section 6(f) process can be viewed in **Appendix A**.

3.10 Wetlands and Waters of the US

Wetlands, waterways, lakes, natural ponds, and impoundments are regulated by the USACE under Section 404 of the Clean Water Act (CWA), which requires a permit to authorize the discharge of dredged or fill material into Waters of the United States (33 U.S. Code § 1344). Executive Order 11990, *Protection of Wetlands*, directs federal agencies (including FHWA) to implement "no net loss" measures for wetlands (42 Federal Register 26951). These no net loss measures include a phased approach to wetland avoidance, then minimization of impacts if wetlands cannot be avoided, and finally mitigation of unavoidable impacts.

Prior to conducting an onsite wetland delineation, the Study Area was screened for wetlands and other waters of the U.S. (WOTUS) using U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) data, as well as past and present aerial photography from Google Earth, U.S. Geological Survey (USGS) National Hydrography Database (NHD) flowline data, USGS Topographic Maps, and data from the Natural Resource Conservation Service (NRCS) Web Soil Survey. Wetlands exist throughout the Study Area near East Fork Chisholm Creek and four of its unnamed tributaries, an unnamed tributary of Gypsum Creek, two unnamed tributaries of Fourmile Creek, one unnamed stream, K-96 Lake Park, and Chisholm Creek Park Lake. A wetland delineation was conducted in August of 2023. Results of that delineation are shown in **Exhibit 3-6**.

The wetland delineation identified a total of 1.11 acres of wetlands, 27.47 acres of open water, 3,604 feet of relatively-permanent tributary, and 2,340 feet of non-relatively permanent tributary. Under the recent Supreme Court decision Sackett v. Environmental Protection Agency (EPA), not all these tributaries or wetlands may be jurisdictional and final jurisdiction under Sackett will be determined by the U.S. Army Corps of Engineers (USACE) and EPA.

USACE concurrence will be required following the completion and review of field delineations of potentially jurisdictional features within the proposed ROW/area of disturbance in order to obtain the appropriate permit

under Section 404 of the CWA. Further details regarding the wetland delineation and WOTUS identified for the proposed project are provided in a Wetland Delineation Report.

3.10.1 Impacts to Wetlands and Waters of the US

Impacts of the No-Build Alternative

Under the No-Build Alternative, no ROW acquisition or construction would occur. Therefore, no impacts to WOTUS would occur.

Impacts of the Preferred Alternative

Within the proposed construction limits the potentially jurisdictional WOTUS include a total of 0.5 acres of wetlands, 0 acres of open water, 1,966 feet of relatively-permanent tributary, and 1,822 feet of non-relatively permanent tributary. **Exhibit 3-6** shows the Preferred Alternative's construction limits and its impact to potential WOTUS. **Table 3-3** provides a summary of the potential WOTUS identified within the Study Area and those impacted by the Preferred Alternative.

Table 3-3: Impacts to Wetlands and Streams within Study Area and within Preferred Alternative Construction Limits

Water Feature Classification	Study Area	Preferred Alternative
Wetlands (Acres)		
Open Waters	27.47	0
Forested Wetland	0.25	0
Emergent Wetland	0.86	0.5
Total Wetlands and Open Waters	**28.58**	**0.5**
Streams (Linear Feet)		
Non-Relatively Permanent	2,340	1,822
Relatively Permanent (Including perennial)	3,604	1,966
Total Streams	**10**	**10**

Impacts to "potentially jurisdictional" features are based on KDOT interpretation and will be revisited prior to requesting permits through coordination with the USACE.

The presence of streams located within the construction limits of the Preferred Alternative and potential impacts to these streams will require coordination with the Kansas Department of Agriculture, Division of Water Resources (DWR) to obtain a Stream Obstruction permit. Streams within the construction limits of the Preferred Alternative include East Fork Chisholm Creek and four of its unnamed tributaries, one unnamed tributary of Fourmile Creek, and two unnamed streams.

The level of Section 404 permitting for the project would be determined during final design after obtaining concurrence on the jurisdictionally of the wetlands and stream features delineated and the magnitude of

impacts resulting from the placement of fill materials (including earthen fill, bridge bents/piers, riprap, etc.) within jurisdictional wetland boundaries and/or below the ordinary high-water mark in the stream channels.

Any required mitigation of impacts to WOTUS would be completed through the purchase of credits within a wetland and/or stream mitigation bank or other in-lieu fee program. The amount of wetland and stream mitigation credits needed for the project would be determined through coordination with the USACE during the Section 404 permitting process as the project approaches final design.

3.11 Floodplains

Executive Order 11988 on Floodplain Management directs federal agencies "to avoid to the extent possible the long-term and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative."

In Sedgwick County, theDWR has jurisdiction over fill material placed in a regulatory floodplain to an average height greater than one foot above the existing ground level for streams with a drainage area over 640 acres. Fills that meet this definition would require a Floodplain Fill permit from the DWR. Fills with drainage acreage

under 640 acres, but greater than 240 acres, and occurring in a mapped Federal Emergency Management Agency (FEMA) floodplain, also require a Floodplain Fill Permit from DWR. Regulations require that a floodplain fill should not have an unreasonable effect on adjacent landowners, be adverse to the public interest and environmental concerns, or lack required environmental mitigation.

Fill placed in a FEMA floodplain within the City of Wichita City Limits will also require a Floodplain Development Permit from the City. The City of Wichita Municipal Code (27.06) details floodplain management.

FEMA Flood Insurance Rate Maps (FIRMs) data showing mapped 100-year floodplains and regulatory floodways are available for the Study Area and can be viewed in **Exhibit 3-7**. National Flood Hazard Layer (NFHL) data showing the potential impacts of the Preferred Alternative on the 100-year floodplain and regulatory floodway can be viewed in **Exhibit 3-7**. According to the FIRM and NFHL data, the mapped 100-year floodplain and regulatory floodway of East Fork Chisholm Creek and four of its unnamed tributaries, an unnamed tributary of Gypsum Creek, two unnamed tributaries of Fourmile Creek, one unnamed stream, K-96 Lake, and Chisholm Creek Park Lake are located within the Study Area.

3.11.1 Floodplain Impacts

Impacts of the No-Build Alternative
The No-Build Alternative would have no direct impact to FEMA floodplains within the Study Area.

Impacts of the Preferred Alternative
Construction of the Preferred Alternative has the potential to place fill materials, including earthen fill, bridge bents, and/or culvert structures, within a total of approximately 4.5 acres of regulatory floodway and approximately 9.1 acres of 100-year floodplain. The Contractor will be responsible for obtaining all required floodplain permits from applicable jurisdictions, and for complying with all applicable local, state, and federal regulations. Any need for and amount of compensatory mitigation for potential impacts would be determined during the City of Wichita's floodplain development permitting process.

3.12 Water Quality

Section 303(d) of the CWA requires states to identify all water bodies where state water quality standards are not being met. Kansas water quality is governed by the Kansas Surface Water Quality Standards administered by the Kansas Department of Health and Environment (KDHE). The KDHE maintains a Kansas Section 303(d) Impaired Waters list which was reviewed to determine if any surface waters within the Study Area contained impairments that require Total Maximum Daily Load (TMDL).

Chisholm Creek Park Lake is the only water within the Study Area identified on the KDHE 2022 approved 303(d) Impaired Waters list. Chisholm Creek Park Lake is listed for only one impairment within one impaired use, aquatic life. The aquatic life use is listed as being impaired by eutrophication. The TMDL for Chisholm Creek Park Lake has not yet been scheduled for development but may be scheduled during TMDL development planning in 2025.

The Study Area lies within, and is drained by, the Middle Arkansas-Slate (11030013) eight-digit hydrologic code subbasin of the Lower Arkansas River Basin. Surface waters within the Study Area include East Fork Chisholm Creek and four of its unnamed tributaries, one unnamed tributary of Fourmile Creek, two unnamed streams, K-96 Fishing Lake, and Chisholm Creek Park Lake (**Exhibit 3-6**). The water quality of these resources varies depending upon such factors as water permanence, presence or absence of in-flowing streams, surrounding vegetation, and surrounding land use.

A review of the Kansas Geological Survey's (KGS) Water Well Completion (WWC5) database indicates that wells within the Study Area have static water depths generally from 0 to 100 feet with estimated yields of 0 gallons per minute (gpm) to 20 gpm. Facilities within the Study Area are served by a reliable municipal water supply system which obtains water directly from the Cheney Reservoir and the Equus Beds High Plains Aquifer. All sources are located outside of the Study Area.

The KDHE is responsible for administering the National Pollutant Discharge Elimination System (NPDES) to protect waters of the state from sediment and other contaminants. Any project that disturbs greater than one acre from construction activities requires a stormwater permit from KDHE. The primary requirement of the stormwater permit is the development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must specify Best Management Practices (BMPs) to be employed and what controls will be implemented to minimize the contamination of stormwater runoff associated with construction activity.

3.12.1 Water Quality Impacts

Impacts of the No-Build Alternative

No construction will occur with the No-Build Alternative, so there will be no direct impacts on water quality of surface or groundwater resources in the Study Area.

Impacts of the Preferred Alternative

The Preferred Alternative could have the potential for construction-related water quality impacts to roadside ditches that flow into East Fork Chisholm Creek and its four unnamed tributaries, an unnamed tributary of Gypsum Creek, two unnamed tributaries of Fourmile Creek, one unnamed stream, K-96 Lake, and Chisholm Creek Park Lake. Drainage patterns in the Study Area may bring stormwater runoff to their channels through overland flow to these streams and water bodies. Potential operation and maintenance related impacts to water

quality could include pollutants such as sediment, petroleum products, coolants, rubber debris, metals, and de-icing minerals/chemicals.

Pollutants from the construction, operation, and maintenance of the Preferred Alternative will contribute to loadings of the surface waters, which are a recharge component of local alluvial groundwater. Most of the surface loading is flushed during initial high flows associated with precipitation events, with very little being left for infiltration to the groundwater.

To minimize or avoid impacts to surface water quality, the construction contractor will submit a Notice of Intent (NOI) to obtain the National Pollutant Discharge Elimination System (NPDES) stormwater construction permit. The construction contractor will be required to obtain an NPDES stormwater permit prior to construction. The contractor will secure the NPDES Permit and develop a SWPPP. This plan may utilize BMPs such as seeding disturbed areas as soon as possible, installing ditch checks and silt fences at the outset of construction, minimizing disturbances to stream banks and riparian zones, and taking all necessary precautions to prevent petroleum products from entering streams or wetlands. The contractor will be responsible for the monitoring of the BMPs and updating the SWPPP as necessary during project construction.

The contractor will follow BMPs to reduce impact to groundwater during construction. Structural BMPs such as detention basins, filters, infiltration basins, grassed swales, and constructed wetlands utilize mechanical removal of pollutants. Other non-structural BMPs such as street sweeping, debris and litter removal, and control of

fertilizer, herbicide, and pesticide use can control pollutant sources. Best practice use and control of de-icing materials and methods can also reduce pollutant load.

3.13 Natural Habitats and Threatened and Endangered Species

The Study Area is located at the western-central edge of the Flint Hills physiographic region of Kansas. The Flint Hills region is characterized by gently rolling hills having shallow soils underlain by limestones and shales with numerous bands of chert (flint). There are few areas of the native tallgrass prairies remaining in the region.

The dominant vegetation in undeveloped areas of the Study Area is primarily grasses (urban open areas) with areas of remnant woodland along streams and open waterbodies. Significant portions of the Study Area are developed as existing roadway/maintained ROW and for residential and commercial uses.

The primary stream within the study is East Fork Chisholm Creek and four of its unnamed tributaries. Other streams in the Study Area include an unnamed tributary of Gypsum Creek, two unnamed tributaries of Fourmile Creek and one unnamed stream. The ponds or lakes within the Study Area are K-96 Lake within K-96 Lake Park and Chisholm Creek Park Lake within Chisholm Creek Park North.

Both the KDWP and the USFWS utilize the Kansas Biological Survey (KBS) Natural Heritage Database and their special studies to evaluate the presence or absence of species of concern in a given area. The database includes federal and state threatened and endangered species, species in need of conservation, and rare species. Federally listed threatened and endangered species are subject to the protection afforded under Section 7 of the Endangered Species Act of 1973, as amended (ESA) (16USC 1531 et seq.). The ESA provides protection of animal and plant species that have been determined to be in population decline and are in jeopardy of becoming extinct.

The USFWS Information for Planning and Consultation (IPaC) official species list was used to determine potential protected species and habitats in the Study Area. The IPaC official species list, accessed on March 18. 2024 found no designated critical habitat (DCH) within the Study Area and is available in **Appendix A**. A search of the online KBS Natural Resource Planner, accessed on September 9, 2023, did not identify any records or endangered species within the study area. The State of Kansas also maintains a state listing of threatened and endangered species, which are protected by the Kansas Nongame and Endangered Species Conservation Act of 1975. The KDWP website was visited on October 10, 2023, to obtain a list of the state protected species that are known to occur or likely to occur in Sedgwick County.

The recent update of the draft FHWA Bat Programmatic Biological Opinion (BPO) now includes the tricolored bat. The status of the tricolored bat as "endangered" is anticipated to be finalized in 2024. In the event the "endangered" status is finalized during the life of the project and tree clearing or other project activities are determined to adversely affect this species, consultation or conference under Section 7 would need to be re-initiated for the tricolored bat.

The USFWS and the KDWP list 11 threatened and endangered species for Sedgwick County, Kansas. No DHC's are defined within the Study Area. The federal (USFWS) and state (KDWP) listed threatened and endangered species for Sedgwick County are shown in **Table 3-4**.

Table 3-4: Sedgwick County Federal & State Listed Threatened & Endangered Species

Common Name	Scientific Name	Federal Status[1]	State Status[2]
Mammals			
Eastern spotted skunk	*Spilogale putorius*	--	Threatened
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	--
Birds			
Least tern	*Sterna antillarum athalassos*	Endangered	Endangered
Piping plover	*Charadrius melodus*	Threatened	Threatened
Snowy plover	*Charadius alexandrinus*	--	Threatened
Whooping crane	*Grus americana*	Endangered	Endangered
Fishes			
Arkansas River shiner	*Notropis Girardi*	Threatened	Endangered
Peppered chub	*Macrhybopsis tetranema*	Endangered	Endangered
Plains minnow	*Hybognathus placitus*	--	Threatened
Silver chub	*Macrhhybopsis storeriana*	--	Endangered
Invertebrates			
Monarch butterfly	*Danaus plexippus*	Candidate	Threatened

1 USFwS, IPaC Official Species List, Project Code: 2023-0127718
2 https://ksoutdoors.com/Services/Threatened-and-Endangered-Wildlife/List-of-all-Kansas-Counties/Sedgwick

3.13.1 Natural Habitats and Threatened and Endangered Species Impacts

The USFWS IPaC official species list, KBS Natural Resource Planner, and KDWP website found no DCH in the Study Area for the 11 threatened and endangered species for Sedgwick County, Kansas.

Impacts of the No-Build Alternative
Under the No-Build Alternative, no vegetation would be removed and forested areas would remain as they exist today; therefore, there would be no impacts to protected species.

Impacts of the Preferred Alternative
Construction of the Preferred Alternative would require the minor clearing of trees and grassland habitats within the proposed ROW. Coordination with the KBS indicated there will be no significant impacts to critical wildlife habitat and no special mitigation measures are recommended. KBS did not anticipate any potential impacts to currently listed threatened or endangered species or species in need of conservation. No KDWP permits or special authorizations will be required. Coordination with KBS can be viewed in **Appendix A**.

Although the Bald Eagle is not a listed threatened or endangered species, it is still afforded protection by the federal government under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). The BGEPA provides for the protection of Bald and Golden Eagles by prohibiting the taking, possession, and commerce of such birds, except under certain specified conditions. The MBTA makes it unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Provisions are in place for the protection of migratory birds, parts, nests, eggs, or products. Under the MBTA, "migratory birds" essentially includes all birds native to the U.S. and the regulations pertain to any time of the year, not just during migration. Since the Preferred Alternative will require some tree removal, conservation measures to minimize the potential impacts to migratory birds, including tree clearing outside of the nesting season (generally March 1st to September 15th) or conducting nest surveys prior to clearing to avoid injuries to eggs or nestlings, will be implemented. Based on the above conservation measures, impacts to migratory birds will be minimal.

A field habitat assessment of the Study Area was conducted on August 11, 12, and 13, 2023. The habitat assessment focused on identification of potential tricolored bat roosting habitat, potential Monarch butterfly habitat, and avian nesting sites. There are approximately 38 acres of potential suitable bat habitat within the Study Area. It is recommended that a presence/absence acoustic survey for tricolored bats be completed prior to construction activities and discussion with USFWS to occur depending on the federal status of the species at the time of construction. It is possible that any bridges or culverts in the Study Area could have cliff or barn swallow nests during any nesting season. It is therefore recommended that migratory birds survey be completed immediately prior to construction activities, and that construction activities be conducted outside of the nesting season. Further information regarding the field habitat assessment can be found in the **Threatened and Endangered Species Technical Memorandum** and further information regarding the Monarch butterfly can be found in the **Monarch Butterfly Technical Memorandum.**

3.14 Air Quality and Greenhouse Gas Emissions

The Federal Clean Air Act (CAA) Amendments of 1990 require states to adopt National Ambient Air Quality Standards (NAAQS). These standards were established to limit the amount of sulfur dioxide (SO_2), particulates (PM10 and PM2.5), carbon monoxide (CO), ozone (O_3), nitrogen dioxide (NO_2), and lead (Pb) in the air. EPA uses the term "attainment area" to describe those areas where air quality meets health standards for particular

airborne pollutants. Sedgwick County is currently classified by the EPA as attainment areas for all six criteria pollutants.

The CAA, as amended, and other rules and regulations, such as the Control of Hazardous Air Pollutants from Mobile Sources rule promulgated by the EPA, specifies environmental policies and regulations to promote and ensure acceptable air quality. These policies and regulations were adopted in the Final Conformity Rule (40 CFR Parts 51 and 93). The CAA defines conformity as the following:

"*Conformity to an implementation plan's purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards; and that such activities will not:*

- *Cause or contribute to any new violation of any NAAQS in any area;*
- *Increase the frequency or severity of any existing violation of any standard in any area; or*
- *Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area."*

The Federal Clean Air Act Amendments of 1990 require states to adopt the NAAQS. These standards were established to limit the amount of sulfur dioxide (SO2), particulates (PM10 and PM2.5), carbon monoxide (CO), ozone (03), nitrogen dioxide (NO2), and lead (Pb) in the air. The EPA delegates authority to the KDHE for monitoring and enforcing air quality regulations in Kansas.

3.14.1 Air Quality and Greenhouse Gas Emissions Impacts

Air quality emissions analyses were not required as part of this project. Sedgwick County, Kansas is classified as an attainment area by the EPA for five criteria pollutants and a maintenance area for Ozone pollutants. Because the project involves the widening of an existing roadway rather than the development of a route that did not previously exist, it will have a negligible impact on air quality standards and greenhouse gas emissions in the project area. There will be temporary air quality impacts associated with project construction which are discussed in **Section 3.19**.

Impacts of the No-Build Alternative
The No-Build Alternative could contribute to localized increases in emissions as travel demand increases over time contributing to congestion and delay, including longer vehicle queues at signalized intersections. The increased congestion should not affect the attainment status of the region.

Impacts of the Preferred Alternative
The Preferred Alternative would not affect regional air quality. Forecasted traffic volumes in combination with higher travel speeds and reduced delay would reduce congestion, therefore reducing emissions from stop-and-go traffic and idling at intersections. Free-flow traffic and higher travel speeds along the mainlines of K-96 would reduce congestion that contributes to localized air quality.

This project will not result in any meaningful changes in traffic volumes, vehicle mix, location of the existing facility, or any other factor that would cause an increase in emissions impacts relative to the No-Build Alternative. As such, FHWA has determined that this project will generate minimal air quality impacts for Clean Air Act criteria pollutants and has not been linked with any special MSAT concerns. Consequently, this effort is exempt from analysis for MSATs.

Moreover, EPA regulations for vehicle engines and fuels will cause overall MSATs to decline significantly over the next several decades. This will both reduce the background level of MSATs as well as the possibility of even minor MSAT emissions from this project.

3.15 Traffic Noise

A traffic noise study for the proposed project was performed in accordance with FHWA standards and regulations (23 CFR Part 772) and KDOT's Highway Traffic Noise Policy and Guidance. The full noise study is included as **Appendix C.**

3.15.1 Traffic Noise Methodology

Traffic noise is most commonly measured in "A-weighted" decibels (dBA). A dBA corresponds to the manner in which the human ear perceives noise at different frequencies. Since traffic noise is generated by passing vehicles and traffic volumes generally fluctuate, an hourly equivalent sound level, or $L_{eq}(h)$, is used to measure traffic noise. The $L_{eq}(h)$ is the constant, average sound level that contains the same amount of sound energy over the time period as does the varying levels of actual traffic noise.

The project study area was divided into 19 Noise Sensitive Areas (NSAs) to group noise sensitive receptors influenced by similar noise sources. Receptors within approximately 800 feet of the project were generally included in the noise study. Beyond this distance, noise impacts and any benefits provided by noise abatement are not anticipated. A total of 1,113 noise sensitive receptors were identified within the NSAs. The NSAs are defined as follows and are shown in **Exhibit 3-8**:

- NSA 1: south of K-96 between US 81 and Hillside Avenue
- NSA 2: north of K-96 between US 81 and Hillside Avenue
- NSA 3: south of K-96 between Oliver Street and Woodlawn Boulevard
- NSA 4: north of K-96 between Oliver Street and Woodlawn Boulevard
- NSA 5: south of K-96 between Woodlawn Boulevard and Rock Road
- NSA 6: north of K-96 between Woodlawn Boulevard and Rock Road
- NSA 7: south of K-96 between Rock Road and Webb Road
- NSA 8: north of K-96 west of Webb Road
- NSA 9: south of K-96 west of Webb Road
- NSA 10: south of K-96 between Webb Road and Greenwich Road
- NSA 11: southwest of K-96 between Greenwich Road and 21st Street
- NSA 12: northeast of K-96 between Greenwich Road and 21st Street
- NSA 13: east of K-96 betwe[en] 21st Street and 13th Street
- NSA 14: west of K-96 betwe[en] 21st Street and 13th Street
- NSA 15: northeast of K-96 betwe[en] 13th Street and 127th Street
- NSA 16: southwest of K-96 betwe[en] 13th Street and 127th Street
- NSA 17: northeast of K-96 betwee[n] 127th Street and Central Avenue
- NSA 18: east of K-96 and south of Central Avenue
- NSA 19: west of K-96 and south of Central Avenue

In accordance with FHWA requirements, detailed computer models were created using the FHWA Traffic Noise Model (TNM) version 2.5 software to predict loudest-hour equivalent traffic noise levels for noise sensitive

receptors in the vicinity of the K-96 project. The computer models were validated comparing the field measured sound levels to the predicted sound levels for the receptor points representing the sound meter locations in the field. If the predicted versus measured results have a difference less than +/- 3 dB(A), then the measurement location is considered validated.

The primary noise sensitive land use within the project area is residential, Noise Activity Category (NAC) B. At single-family homes, noise impacts are evaluated at an exterior area of frequent human use at each residence. For multi-family dwellings, such as duplexes and apartments, receptors are analyzed at an individual exterior area (such as balconies or patios) of each individual residence.

At other noise sensitive land uses other than residential within this project area, such as the YMCA facilities (NAC C) and hotels (NAC E), receptors are generally analyzed at each exterior area distinctly recognized for human activity. Equivalent Receptors (ERs) are calculated for land uses like parks, trails, schools, etc. In accordance with KDOT Noise Policy, the number of "equivalent receptors" for Activity Category C and E receptors was calculated following the criteria in Table 2 of the *KDOT Highway Traffic Noise Policy and Guidance* (2022).

NAC D land uses are those noise sensitive locations where no exterior activities are affected by traffic noise, or where exterior activities are far from or physically shielded from the roadway. In these instances, interior noise impacts are analyzed. Receivers are modeled at the exterior area of the property facing the roadway and a building noise reduction factor is applied based on the building type. In the project area, interior noise impacts were analyzed at one medical facility and two places of worship.

FHWA and KDOT define a noise impact as occurring when noise levels either: (1) approach or exceed the FHWA noise abatement criteria (NAC), with "approach" defined in the KDOT Noise Policy as reaching one decibel less than the NAC values listed in **Table 3-5**, or (2) substantially exceed the existing noise levels, defined as a 10-decibel increase, according to KDOT criteria. **Table 3-5** summarizes the NAC by activity category.

Table 3-5: Noise Abatement Criteria

Hourly Equivalent A-Weighted Sound Level (decibels (dB(A))			
Activity Category	**Activity Criteria[1] $L_{eq}(h)$[2]**	**Evaluation Location**	**Activity Description**
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[3]	67	Exterior	Residential.
C[3]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[3]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A- D or F.
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	Undeveloped lands that are not permitted.

The $L_{eq(h)}$ Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.
The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq(h)}$ being the hourly value of L_{eq}.
Includes undeveloped lands permitted for this activity category.
Source: FHWA Title 23 CFR Part 772, July 2010.

Peak hourly noise levels are analyzed at all noise sensitive receptors for the 2050 No-Build condition and the 2050 Preferred Alternative. Where noise impacts are identified in the Preferred Alternative, abatement will be

considered and analyzed using the Feasibility and Reasonableness Criteria set forth in KDOT's Highway Traffic Noise Policy and Guidance (2022).

3.15.2 Traffic Noise Impacts

Vehicle noise is a combination of noise produced by the engine, exhaust, and tires. Heavier traffic volumes, higher speeds, and a greater number of trucks all increase the loudness of traffic noise. Traffic noise impacts occur when the predicted noise levels approach or exceed the NAC (with "approach" defined in the KDOT Noise Policy as reaching one decibel less than the NAC values listed in **Table 3-5** or when the predicted noise levels substantially (greater than a 10 dB increase) exceed the existing noise level).

Impacts of the No-Build Alternative

In the existing conditions (2022 Base Year) the worst hourly noise levels approach or exceed the FHWA NAC at 174 receptors. 203 noise receptors were identified as approaching or exceeding the FHWA NAC values for the 2050 No-Build Alternative.

Impacts of the Preferred Alternative

Noise impacts for each NSA for the Build Alternative are summarized in **Table 3-6**. The Build Alternative is predicted to result in 233 traffic noise impacts. All impacts identified were due to noise levels approaching or

exceeding the FHWA NAC values. No locations are predicted to substantially exceed existing noise levels. Detailed information on the noise impacts can be found in the Noise Study Report located in **Appendix C**. Local public officials will be provided with a copy of the Noise Study Report to use in further planning decisions.

Table 3-6: Summary of Traffic Noise Impacts

Reason for Noise Impact	Summary of Impacted Receptors By Activity Category – Build Alternative							
	A	B	C	D	E	F[5]	G[6]	All Activity Categories
Based on NAC Criteria Only[1]	0	194	36	3	0	0	0	233
Based on Substantial Increase Criteria Only[2]	0	0	0	0	0	0	0	0
Based on Both Criteria[3]	0	0	0	0	0	0	0	0
Total Build Alternative Impacts[4]	0	194	36	3	0	0	0	233

Notes:

1. *Predicted traffic noise level impacts due to design year worst hour build-condition noise levels approaching or exceeding the NCDOT Noise Abatement Criteria (NAC).*
2. *Predicted design year worst hour noise levels exceeding existing worst hour noise levels by 10 dB(A) or greater (NCDOT Substantial Increase Criteria).*
3. *Predicted traffic noise level impacts due to both 1 and 2 above.*
4. *Only one of the Note 1 or Note 2 conditions must be met for an impact to exist.*
5. *There are no impact criteria for land use facilities in this activity category and no analysis of noise impacts are required.*
6. *There are no impact criteria for undeveloped lands but some noise levels may need to be provided to local officials to aid them in future land use planning efforts.*

Two hundred and thirty-three (233) noise impacts were identified for the 2050 Preferred Alternative. The average increase in noise without abatement is predicted to be approximately 1.4 dBA. For reference, a 3 dBA change is considered a “Barely Perceptible Change” to the human ear. However, because the Preferred Alternative is a Type I project, noise abatement was analyzed and could be implemented where feasible and reasonable.

FHWA and KDOT require that feasible and reasonable noise abatement measures be considered and evaluated for all predicted build-condition traffic noise impacts. Feasibility and reasonableness are distinct and separate considerations. Feasibility is the combination of acoustical and engineering factors considered in the evaluation of a noise barrier, such as topography, access, drainage, safety, and maintenance. Feasibility criteria specifically include:

- **Safety**: The noise barrier shall not excessively restrict sight distances, restrict drainage or exacerbate potential flooding.
- **Maintenance**: Access is needed to both sides of the barrier.
- **Acoustical Considerations**: An acoustically feasible noise barrier must have a minimum of three first row impacted receptors and must achieve at least a five (5) dBA traffic noise reduction for 80 percent of first row impacted receptors.

Reasonableness is the consideration of the social, economic, and environmental factors considered in the evaluation of a noise barrier. The KDOT Traffic Noise Policy (2022) has the following reasonableness requirements:

- **Insertion Loss** - Insertion loss is the difference between an evaluated receptor's noise levels with and without the barrier. A minimum of five (5) dBA insertion loss per receptor is counted as one benefited receptor. Other receptors not impacted but receiving a five (5) dBA benefit are counted as non-impacted benefited receptors. The benefited receptors are utilized in calculations for cost-effectiveness.
- **Noise Reduction Design** - The noise barrier must achieve a minimum of seven (7) dBA insertion loss for the majority (>50%) of benefited receptors or a minimum of an eight (8) dBA insertion loss for at least one impacted Activity Category B receptor that will benefit from the noise barrier.
- **Cost Effectiveness**: KDOT utilizes the square footage per receptor criteria for determining cost-effectiveness. For a noise barrier to meet the cost effectiveness criteria, barrier cost effectiveness shall not exceed 1,200 square feet per benefited receptor and shall be calculated by taking the total area of a proposed noise wall divided by the number of benefited receptors determined for the noise wall.
- **Public Approval**: Viewpoints are solicited from benefited receptors in the form of ballots. One ballot is assigned to each property and scored with a weighting system. A noise barrier shall be permitted when the majority of the points indicate approval of the barrier.

The 2050 Preferred Alternative noise impacts were identified in 12 out of the 19 NSAs within the Study Area. Noise barriers were considered for every impacted receptor. Other noise abatement measures, such as berms, alternative alignments, speed or truck restrictions, etc., would not be practical in this Study Area. A total of 10 noise walls have been evaluated for the Build Alternative using TNM.

Five of the 10 noise walls meet the KDOT feasibility and reasonableness criteria and are recommended for construction: NW4, NW5-2, NW6-1, NW6-2, and NW16-2. **Table 3-7** provides a summary of the feasible and reasonable noise walls that are recommended for construction, pending public approval, as part of the project. Five of the 10 noise walls do not meet the feasible and reasonableness criteria and are not recommended for construction: NW3, NW5-1, NW10, NW15 and NW16-1.

Table 3-7: Recommended Noise Barriers

Barrier Name	Benefited Noise Study Area (NSA)	Average Height (feet)	Length (feet)	Area (square feet)	Number of Impacted Receptors	Total Number of Benefits	Quantity of Wall per Benefit (square feet)	Allowable Quantity (square feet)
NW4-1	4	19	1,600	30,600	42	49	624	1,200
NW5-2	5	11	1,000	10,404	12	17	612	1,200
NW6-1	6	18	998	18,164	31	25	727	1,200
NW6-2	6	19	1405	27,118	61	85	319	1,200
NW16-2	16	12	698	8,590	17	14	614	1,200
		TOTALS	**5,701**	**94,876**	**163**	**190**	**----**	**----**

3.16 Hazardous Material Sites and Solid Waste

Identification of potential hazardous materials locations within the Study Area was conducted through review of existing and previous land uses, a regulatory database review, and site investigations conducted in July 2022. The regulatory database review was provided by Environmental Data Resources. There are 30 sites located within the Preferred Alternative footprint. The sites within the PA footprint are depicted in **Exhibit 3-9** and are further detailed in the **Hazardous Materials Technical Memorandum.** The results of the database search were prioritized as to the likelihood of soil and/or groundwater contamination present in or near the Study Area. The priority assigned was either “None-to-Low”, “Low-to-Moderate”, or “Moderate-to-High.”

3.16.1 Hazardous Material and Waste Impacts

Out of the sites identified above, seven sites are within or near the construction limits of the proposed project improvements. This includes three “Moderate-to-High” hazardous materials sites and four “Low-to-Moderate” hazardous materials sites. The location of all seven sites is shown in **Exhibit 3-9**

Impacts of the No-Build Alternative
No construction would occur under the No-Build Alternative; therefore, the No-Build Alternative would have no direct impact to hazardous material sites within the Study Area.

Impacts of the Preferred Alternative
There are seven hazardous material sites within or near the construction limits of the Preferred Alternative (PA) that may be impacted by construction of the Preferred Alternative. Releases into the environment may be caused by construction activities resulting in new or additional contamination and possible worker exposure. Potential negative impacts may include, but are not limited to, the following:

- Dust from contaminated soils disturbed during earth moving activities, with potential exposure to workers and nearby residents
- Worker contact with hazardous materials or waste unearthed or released during construction
- Unearthing disposal sites and spreading hazardous materials through wind, runoff, etc.

- Displacement of contaminated soils by borrowing or excavating and relocating the materials to fill areas

The seven sites that may be impacted by construction activities include:

Low-to-Moderate: 4 – Three of the four sites, Map ID's #1, #17, and #38 in **Exhibit 3-9**, are all listed in the Leaking Underground Storage Tanks (LUST) database, which indicates the reported release of hazardous materials or petroleum products regardless of remediation being completed at the site, thus giving them a "Low-to-Moderate" priority ranking. The fourth site, Map ID #21 in **Exhibit 3-9**, is listed in the EDR Historic Cleaner and Dry Cleaners databases, which encompass former or current operations identified as large quantity hazardous waste generators, thus giving it a "Low-to-Moderate" priority ranking. Site #1 (Johnny's Mini Mart) is located along the eastern edge of PA's construction limits, east of N Woodlawn Boulevard and north of K-96. Site #1 lies at grade with the PA. Site #17 (Total Station 4194) is located within the PA's construction limits, south of E 32nd Street N and west of N Rock Road. Site #17 lies at grade with the PA. Site #21 (In The Bag, Inc.) is located along the eastern edge of the PA's construction limits, south of E 32nd Street and east of N Rock Road. Site #21 lies at grade with the PA. Site #38 (Sam's Club #6418) is located northwest of the PA's construction limits, north of K-96 and west of N Rock Road. Site #38 lies at grade with the PA.

Moderate-to-High: 3 – Two of the three sites, Map ID's #8 and #23 in **Exhibit 3-9**, are both listed in the Per- and Polyfluorinated Substances (PFAS) database indicating they exhibit contamination related to PFAS. PFAS are known as forever chemicals and can pose health risks to humans, thus these two sites were given a "Moderate-to-High" priority ranking. Both sites are located on large land parcels, and the PA footprint has minimal intersection with these parcels. Site #8 (Koch-Glitsch Groundwater Remediation) is located approximately 225 feet north of the PA's construction limits, on a parcel owned by Koch Industries. Site #8 is northwest of the N Hillside Street and K-96 interchange, and the site lies downgradient from the PA. Site #23 (Scheibe Flugzeugbau SF-24A Motorspatz) is located approximately 123 feet northeast of the PA construction limits, on a parcel owned by Colonel James Jabara Airport. Site #23 is near the interchange of Webb Road and K-96, and the site lies upgradient from the PA. The third "Moderate-to-High" site is Map ID #43 as shown in **Exhibit 3-9**. This site is located on a large land parcel, but the parcel was used as a solid waste disposal area, thus giving it a "Moderate-to-High" priority ranking. Site #43 (Henry City of Wichita DWOP #273) is located approximately 600 feet south of the PA's construction limits, on a parcel owned by the City of Wichita. Site #43 is near K-96 Lake Park, west of N Hillside Street, between K-96 and the Union Pacific railroad tracks. Site #43 lies downgradient from the PA.

The likelihood of these impacts occurring is low due to preventative measures taken before and during construction. To the extent possible, known hazardous waste sites will be avoided. Construction-related impacts will be remedied prior to, or as part of, construction of the proposed project. If a previously unknown site is uncovered during construction, measures will be taken, as necessary, to eliminate or minimize adverse environmental consequences.

The greatest potential impact from these sites will be from the possibility of encountering contaminated soil. Contamination of this type will not subject the project to undue cost or time delays. Any soil excavated in the hazardous waste site locations is to be incorporated back into the direct area or tested and properly remediated. Any remediation will require the coordination and approval of KDHE. The positive impact to the community, if sites such as these are impacted by an alignment, is clean-up of the contamination.

3.17 Visual Environment

The visual environment along K-96 is primarily a mix of commercial and residential development, then commercial and industrial past Hillside Street near the K-96/I-135 interchange. The terrain is relatively flat,

bisected by low-lying floodplains along wooded stream channels crossing the highway. Development is the densest between N Woodlawn Boulevard and E 13th Street. Woodland areas possess a moderate degree of visual quality and although these areas are mainly on the western edge of the Study Area, south of K-96, they provide vertical visual elements in a predominantly flat landscape and help break-up the urban landscape of the Study Area.

Visual impacts can vary substantially through a project area since landscape elements can vary in their degree of visual quality and in viewer concern. There are two distinct categories of views: 1) a view of the road, which represents individuals (visual receptors) that can observe the roadway from an adjacent vantage point or who would have desirable views interrupted by the road, and 2) a view from the road which represents viewers who are users of the proposed facility.

3.17.1 Visual Environment Impacts

In roadway projects, visual quality impacts are typically determined by the degree of change that will occur in the visual environment as a result of building a new roadway facility. Areas that possess a high degree of visual quality may be more sensitive to change in the visual environment than areas that possess a low or moderate degree of visual quality.

The degree in change of visual quality is also related to viewer response, or how individuals who can see the roadway from an adjacent vantage point respond to the change in view. The most sensitive visual receptors are those individuals located in the vicinity of the existing K-96 corridor which would have the potential of undesirable views of a wider road.

The other category of viewer is the user of the roadway that responds to views from the road. Since the proposed project consists of widening an existing road and interchange improvements, it is anticipated that views from the roadway will have a minimal change and a minimal impact to the visual environment within the Study Area.

Impacts of the No-Build Alternative

The No-Build Alternative would not have direct impacts to the visual environment of the Study Area. However, based on traffic projections, congestion on the roadway will continue to increase, which can be considered a visual impact. Since the residents living near the road are already experiencing views of existing traffic congestion, any visual impacts would be minor.

Impacts of the Preferred Alternative

The Preferred Alternative is located within an urban area which has a moderately low visual quality. The portion of the corridor west of N Woodlawn Boulevard near Chisholm Creek Park North and South has the best visual quality components in the corridor. Otherwise, the remainder of the Study Area consists almost entirely of urban landscape that has moderately low visual qualities due to signage and typical commercial, residential, and industrial development.

Most residents living near the K-96 corridor are accustomed to living near the major roadway, and any changes to the roadway cross section are not anticipated to substantially change the visual character of the corridor. Changes to visual environment around existing transportation infrastructure may include redesigned interchanges, ramps, new lighting, and new signage. These visual changes resulting from the Preferred Alternative will be minor and in character with other local and regional transportation improvements in the Wichita urbanized area. If the community does consider changes to the roadway network to be a visual impact,

those impacts can be minimized by revegetating soil slopes with native plants. In areas where the roadway is visible to sensitive visual receptors, landscaping with evergreen trees and native deciduous trees, shrubs, grasses, and wildflowers could help to screen and soften the views of the road.

3.18 Utilities

Multiple utility infrastructure service providers are found within the study area. Electrical services within the study area are provided by Evergy. The City of Wichita provides water and sewer service within the project study area. Other utility services within the study area include the following:

- Natural Gas: Kansas Gas Service
- Telephone and communications: AT&T, Cox, Ideatek Telecom, Lumen, KDOT ITS, MCI/Verizon, Wichita Electric Company, Zayo
- Television: Cox
- Pipeline: CHS Pipeline & Terminals Jayhawk Pipeline, NuStar Energy, Phillips 66 Pipeline, Southern Star Pipeline

3.18.1 Impacts to Utilities

Impacts of the No-Build Alternative
No construction would occur under the No-Build Alternative; therefore no direct impacts will occur to utilities infrastructure or services within the Study Area.

Impacts of the Preferred Alternative
The Preferred Alternative will require relocation of overhead and underground utilities. The extent and exact nature of utility impacts will be determined during final design. Coordination with the public and private utility companies will continue as final design proceeds to ensure utility service is uninterrupted or only minimally interrupted. Known potential utility conflicts with the Preferred Alternative include the following:

- Evergy Transmission lines cross K-96 between I-135 and Hillside Street and between Webb Road and Greenwich Street. During later design phases of the project, the design team will work to minimize the likelihood of relocating transmission poles and structures with the system interchange at the west end of the corridor.

- Two existing gas pipelines run along or cross the K-96 corridor. These include an 8” NUStar pipeline at the Greenwich Street interchange and a 16” Southern Star high pressure gas pipeline located along the west side of Webb Road. Several other abandoned pipelines are also located in the corridor but will not likely be in conflict with proposed improvements. The design team will work with the pipeline owners to minimize potential conflicts and relocations.

- Many arterial streets crossing the K-96 corridor have City of Wichita owned stormwater drainage, sewer, and water lines running along and underneath public right-of-way and in easements on private property. This public infrastructure will likely have many conflicts with the proposed interchange reconstructions throughout the K-96 corridor. The process for reducing or eliminating these potential conflicts has already begun with the potholing of the existing water lines. Any of these public utility lines that require relocation will be designed as part of the project.

Other impacted utilities would most likely be relocated in the same vicinity of their current location. Coordination with public and private utility companies will be needed during the design phase to ensure utility service is uninterrupted or only minimally disrupted during utility relocation and construction of the proposed improvements.

3.19 Construction Impacts

Construction phasing and timing of the proposed improvements has not been determined. Likewise, this project's method of project delivery, whether design-bid-build versus design-build, has not yet been evaluated. However, to mitigate for potential effects from construction, KDOT has developed a series of Standard Specifications for State Road and Bridge Construction, which include, but are not limited to, air, noise, and water pollution control measures to minimize construction impacts. These Standard Specifications also include traffic control and safety measures. KDOT will implement these Standard Specifications and all current special provisions on the K-96 project. These provisions are discussed under the Impacts of the Preferred Alternative section.

Impacts of the No-Build Alternative

No construction would occur under the No-Build Alternative. Short-term impacts such as noise, dust, and pollutant discharges from maintenance activities associated with the No-Build Alternative would be mitigated in a similar manner to those for the Preferred Alternative.

Impacts of the Preferred Alternative

The Preferred Alternative will reconfigure several elements of the K-96 corridor. Proposed improvements in the K-96 corridor include:

- Widening the K-96 roadway from four to six lanes between N Hillside Street and E 21st Street N;
- Reconfiguring the northbound I-135 to eastbound K-96 to a braided ramp system;
- Reconstructing the existing K-96 and N Hillside Street interchange to a DDI configuration;
- Reconstructing the existing K-96 and N Oliver Street interchange to a DDI configuration;
- Reconstructing the existing K-96 and N Woodlawn Boulevard interchange to a DDI configuration;
- Reconstructing the existing K-96 and N Rock Road interchange to a DDI configuration;
- Reconstructing and improving the existing ramps K-96 and N Webb Road interchange;
- Adding additional lanes at the K-96 and N Greenwich Road interchange;
- Reconstructing the existing K-96 and E 21st Street N interchange to a DDI configuration;
- Pavement replacement from E 21st Street N to E Central Avenue.

Full implementation of the Preferred Alternative will result in less congestion and enhanced safety in comparison to the No-Build Alternative. Any traffic detours will be temporary in nature and limited in duration to the period required to construct project improvements. The exact location, timing, and duration of road closures will be finalized during later design phases. To the extent practicable, traffic will be maintained during construction. Local traffic will be maintained in areas where connecting roadways are affected by construction. Individual property driveway access points that are not expected to be permanently closed will be maintained throughout construction but may be limited or temporarily altered for certain time periods due to construction needs. Any required detours will be accomplished according to KDOT standard plans and specifications.

During construction of the project, construction methods and operations will be conducted in accordance with the City of Wichita, KDOT and KDHE regulations, particularly concerning batch plant operations and clearing and grubbing functions.

Measures will be taken to reduce fugitive dust and other emissions generated during construction. Emissions from construction equipment would be controlled in accordance with emission standards prescribed under state and federal regulations. Materials resulting from clearing and grubbing, demolition, or other operations, with the exception of materials to be retained, would be removed from the project, burned, or otherwise disposed of by the contractor. Any burning, when permitted, would be conducted in accordance with applicable local laws and state regulations. There are no fugitive dust regulations in the state of Kansas, but excess dust from road construction could generate complaints. No adverse long-term effect on air quality will occur since unique construction procedures are not expected and construction activities will be temporary in nature.

The major construction elements of this project are expected to be clearing, earth moving, hauling, grading, paving, and bridge construction. General construction noise impacts for passersby and those individuals living or working near the project can be expected particularly from clearing, earth moving, and paving operations. Considering the short-term nature of construction noise, the impacts are not expected to be substantial.

Construction activities can impact water resources both directly and indirectly. Stormwater runoff is addressed by the KDOT's SWPPP, which will be used to address this concern during construction. The KDHE has noted that nutrients can leach from the project into streams and adjacent water bodies. Private wells on the KDOT ROW will be located, mapped and protected until closure by KDOT. All underground storage tanks within the corridor ROW will be identified and disposed of in a proper manner during construction of the project. Where the Preferred Alternative crosses floodways and rivers, special conditions to minimize the potential for ground water contamination will be undertaken.

The KDHE has stated that BMPs should be utilized to reduce impacts to the aquatic environment to a minimal level. These BMPs include grading and seeding of disturbed areas, minimizing disturbances to the stream banks and riparian zones, and undertaking all necessary precautions to prevent petroleum products from entering streams. Pollution control measures, both temporary and permanent, will be enacted under the project specifications.

Stream crossings and surface water runoff will be impacted by construction activities for this project. KDOT's SWPPP will be employed during construction. Stormwater erosion control will be a primary environmental concern during construction and will be monitored according to the requirements of the KDOT standards and specifications. Nutrients leaching from hydroseeding/mulching of bare areas must be controlled. Potential water contaminants will be controlled during construction of any bridge over waterways. No substantial adverse impacts to water resources are expected with the temporary or permanent pollution control measures that will be enacted under the job construction specifications.

3.20 Cumulative and Indirect Effects

The Council on Environmental Quality defines cumulative effects on the environment that result from the incremental effects of the action when added to the effects of other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such an action. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time (40 C.F.R. 1508.7).

Cumulative impacts associated with the construction of the proposed project include those impacts resulting from the of widening K-96 from four to six lanes, the construction of additional capacity and safety improvements at the K-96 and I-135 interchange, K-96 and N Hillside Street interchange, K-96 and N Oliver

Street interchange, K-96 and N Woodlawn Boulevard interchange, K-96 and Rock Road interchange, K-96 and N Webb Road interchange, K-96 and Greenwich Road interchange, K-96 and 29th Street, K-96 and 21st Street interchange. The cumulative impacts associated with construction of the Preferred Alternative include the following:

Land use - The predominant land use within the study area at interchanges is automobile-oriented commercial and retail uses, along with office and single and multi-family residential uses throughout and adjacent to the K-96 corridor. Proposed property acquisitions associated with the Preferred Alternative may result in excess property that can be redeveloped or consolidated for additional opportunities for development. Any new property development will need to be consistent with City of Wichita land use plans and zoning ordinances and any future land use plan in effect at the time. The City of Wichita adopted their Comprehensive Plan (Places for People) in 2019.

Parks and Recreation Areas - The Preferred Alternative will have de minimis impacts to K-96 Lake Park and Chisholm Creek Parks North and South, totaling approximately 3.5 acres of acquisition from these properties. Due to their Section 6(f) resource statuses, 3.2 acres of the Chisholm Creek parks will be replaced with suitable park property of equal or greater appraised value and added to the City of Wichita Park and Recreation system. Other transportation projects are subject to the City of Wichita's future land use plans and policies which guide future development and would avoid existing parks and recreation areas. Therefore, it is anticipated that the Preferred Alternative and other transportation projects would not result in significant cumulative impacts to the parks and recreation system in the region.

Wetlands, Streams, and Ponds - The Preferred Alternative would impact approximately 0.5 acres of wetlands, 3,788 linear feet of streams, and no ponds. Other reasonably foreseeable projects would consist mostly of improvements to existing roadways, thereby minimizing additional ROW requirements and impacts to water resources. Any other reasonably foreseeable development projects would be in accordance with the City of Wichita's future land use and infrastructure plans, which strive to preserve natural areas with water resources, wherever possible. For unavoidable wetland impacts, the USACE and Kansas DWR require development of a wetlands mitigation plan to complete CWA Section 404 and state permits. Stream impacts would also require permits, and stream mitigation measures would be determined based on the most recent state guidance. Therefore, it is anticipated that cumulative impacts to water resources from the Preferred Alternative and other reasonably foreseeable transportation projects would be considered minor and not significant.

Threatened and Endangered Species and Woodlands - The construction of the Preferred Alternative would require the clearing of isolated trees and small stands of woodland, which is likely suitable summer roosting habitat for the federally-proposed endangered Tricolored Bat. Most of the vicinity contains only minimal areas of woodland, and is either developed or is vacant, grassed land. It is anticipated that tree clearing for construction of the Preferred Alternative and other reasonably foreseeable projects would be conducted outside the active summer roosting season to avoid adverse impacts to the Tricolored Bat. Cumulative impacts to threatened and endangered species and woodlands from the Preferred Alternative and the reasonably foreseeable projects would be considered minor and not significant.

3.21 Summary and Actions by Others

Two additional projects directly adjacent to the K-96 Improvements Study Area are underway to address additional local access and capacity issues. The first of these projects is the I-135 Gold Project: Wichita North Junction Improvements which is replacing the southbound I-135 ramp to southbound I-235, replacing the northbound I-135 loop ramp to southbound I-235 with a two-lane flyover ramp, extending the acceleration lane on the westbound K-254 ramp to southbound I-135, and constructing a direct connection for eastbound K-96 traffic from northbound I-235 to eastbound K-96 with new ramps for westbound K-96 at I-135. The second project is East Kellogg: K-96 to 159th Street which is widening East Kellog (U.S. 54/400) to six lanes, adding frontage roads, improving interchanges and ramps to both northbound and southbound K-96, and constructing grade-separated intersections at 143rd and 159th Streets. The implementation of both these projects would move forward with or without the construction of the K-96 Improvements Project.

Exhibit 3-1: Community Investments Plan 2015 - 2035: 2035 Wichita Future Growth Concept Map

CommunityInvestmentsPlan

2035 Wichita Future Growth Concept Map

Legend

- Established Central Area
- Northwest Bypass Right-of-Way
- Residential and Employment Mix
- New Employment
- New Residential
- Small City Limits
- Small City Limits
- Wichita City Limits

Statistical Development Areas

- Small City Urban Growth Areas
- Small City Urban Growth Areas
- Rural Areas

LAND USE

- Residential
- Commercial
- Industrial
- Major Air Transportation & Military
- Parks and Open Space
- Agricultural or Vacant
- Major Institutional
- Neighborhood/Area Plans

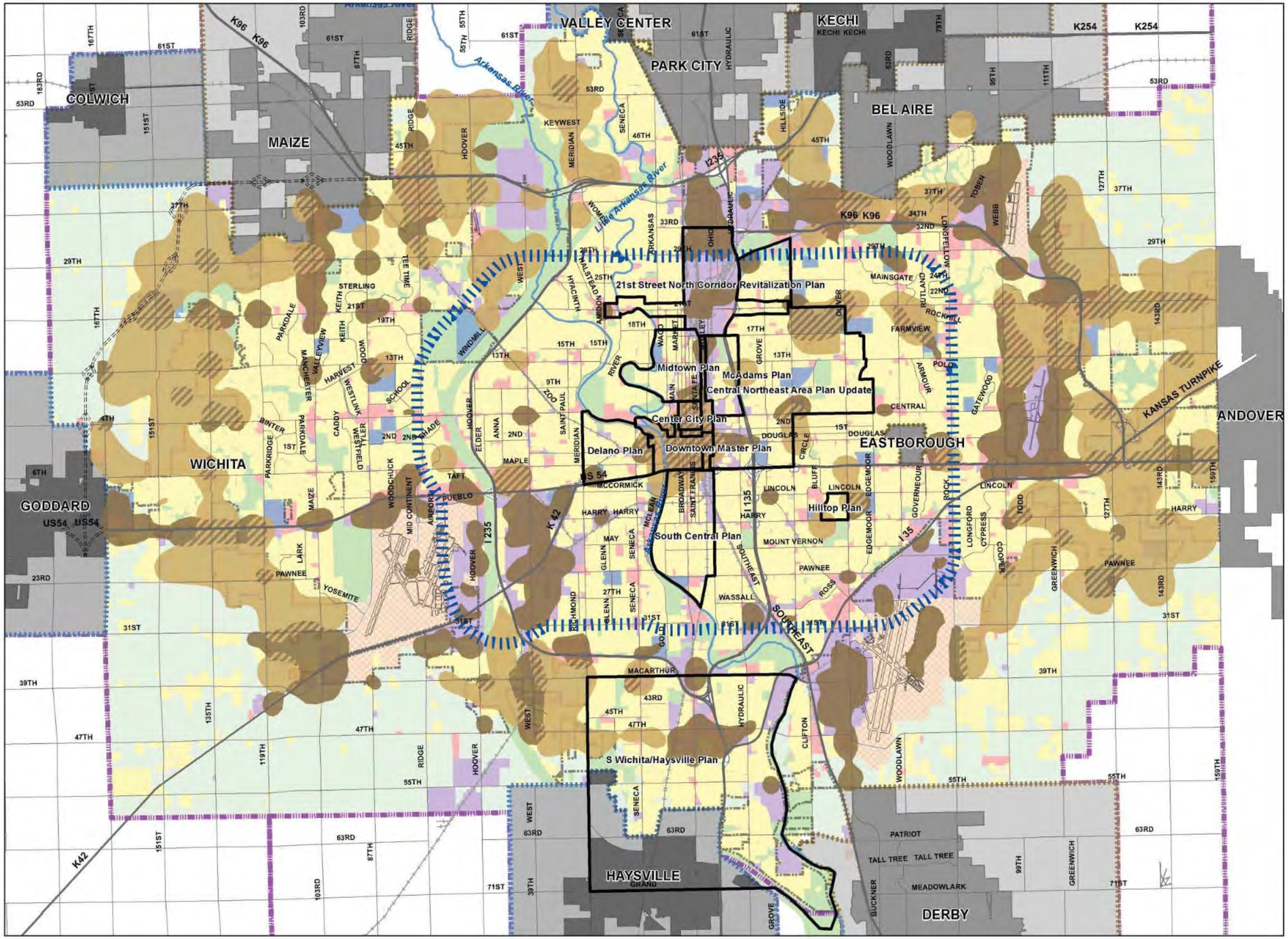
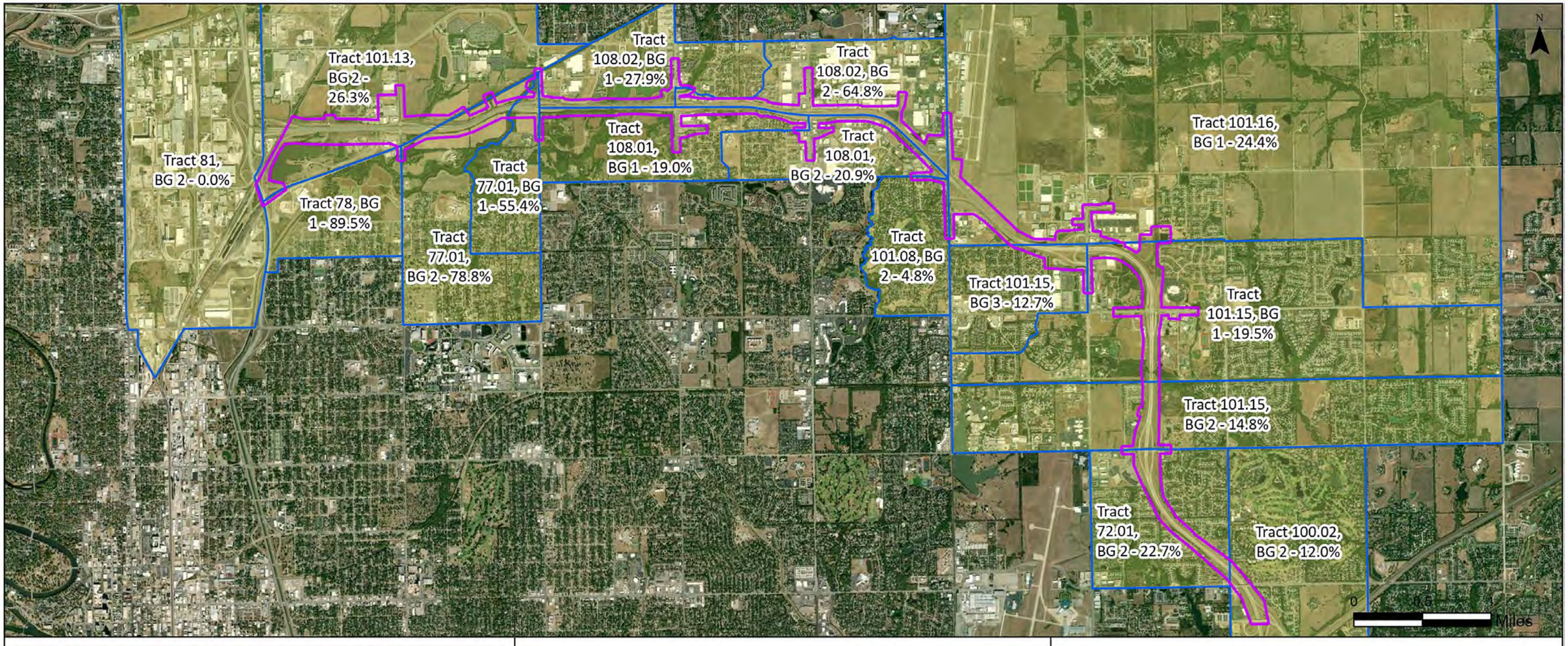
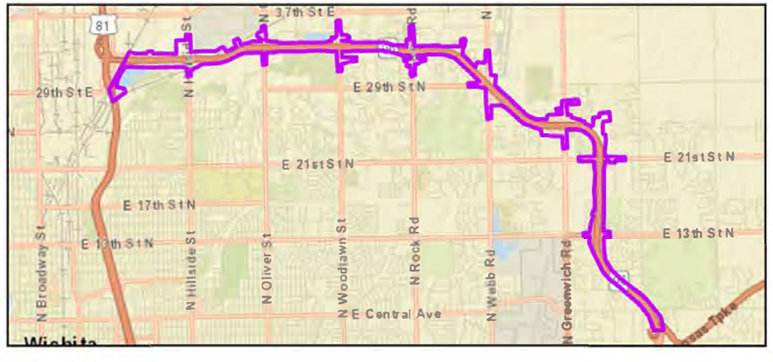


Exhibit 3-2: Percent Minority of Census Tract Block Group Populations within The Study Area





NEPA Study Area

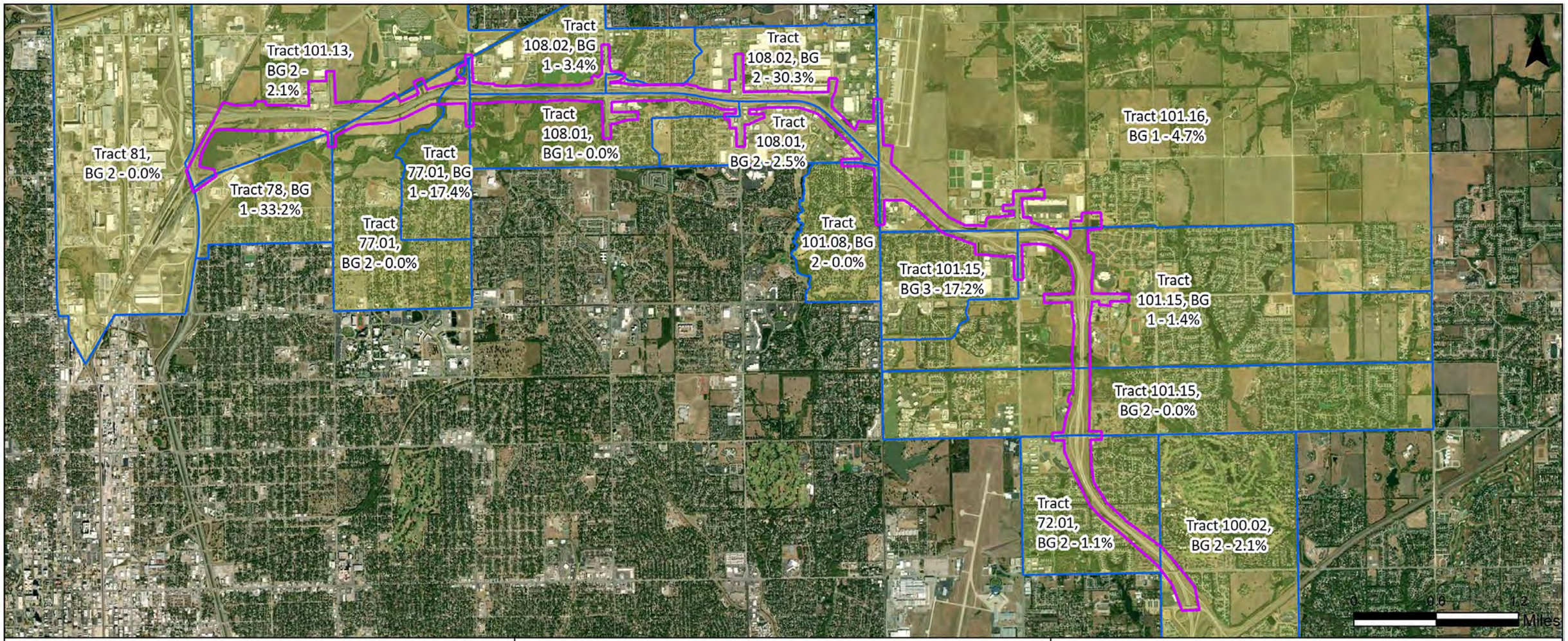
Census Block Group Boundary

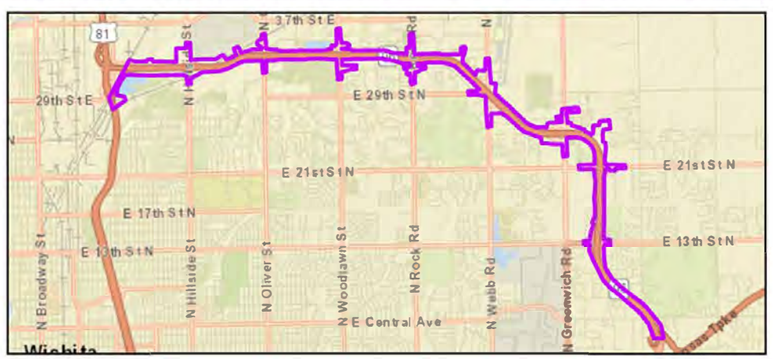
*Label equates to Census tract name, block group number - minority percentage of the block group's population

Source: 2022 American Community Survey 5-Year Estimates Detailed Tables

K-96 IMPROVEMENTS

Exhibit 3-3: Percentage of Census Tract Block Group Populations Below Poverty Level within The Study Area





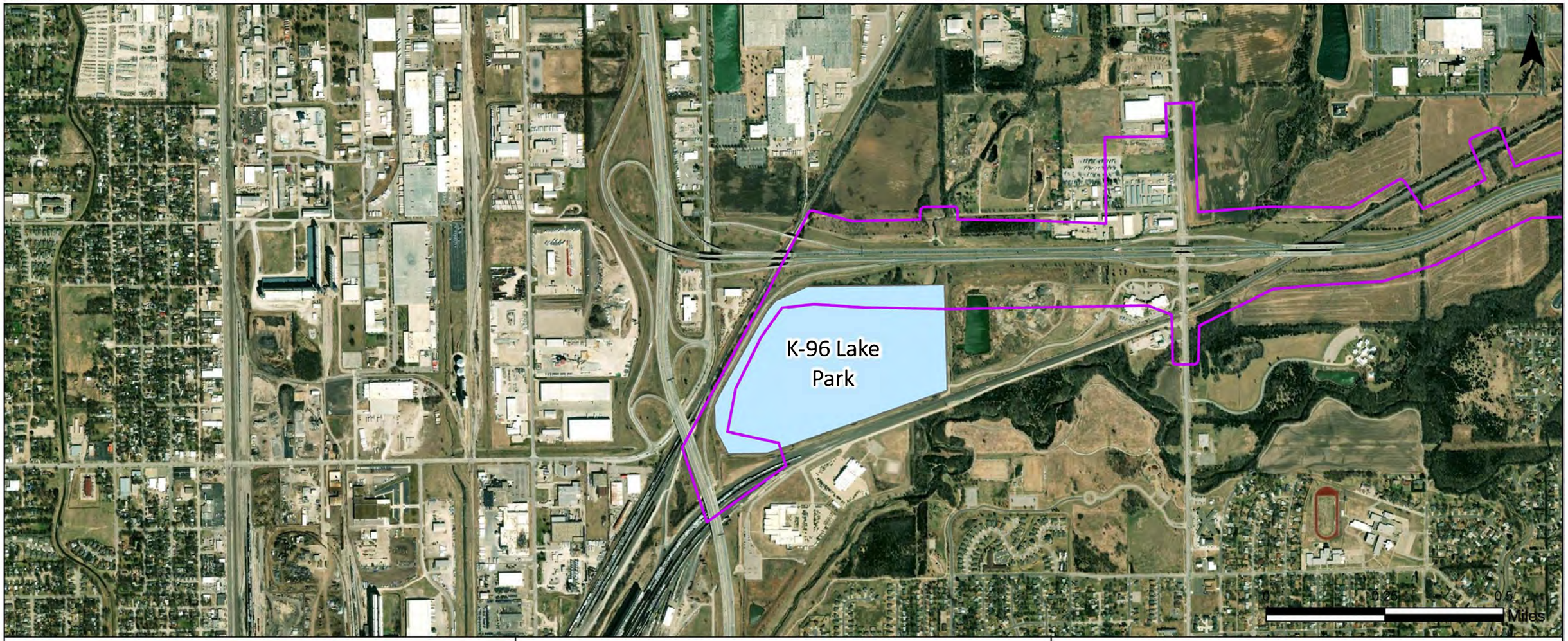
NEPA Study Area

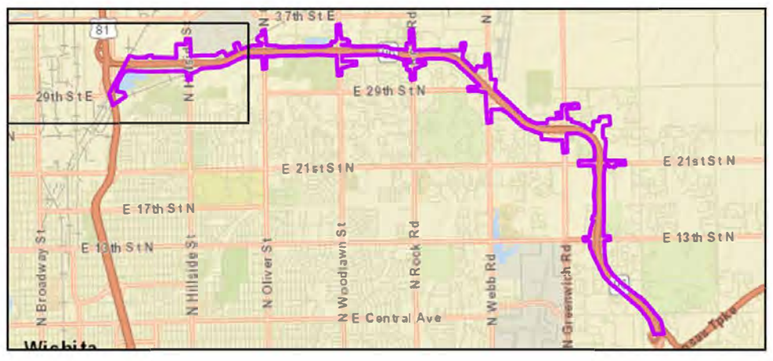
Census Block Group Boundary

*Label equates to Census tract name, block group number - percentage of block group population below poverty level

Source: 2022 American Community Survey 5-Year Estimates Detailed Tables

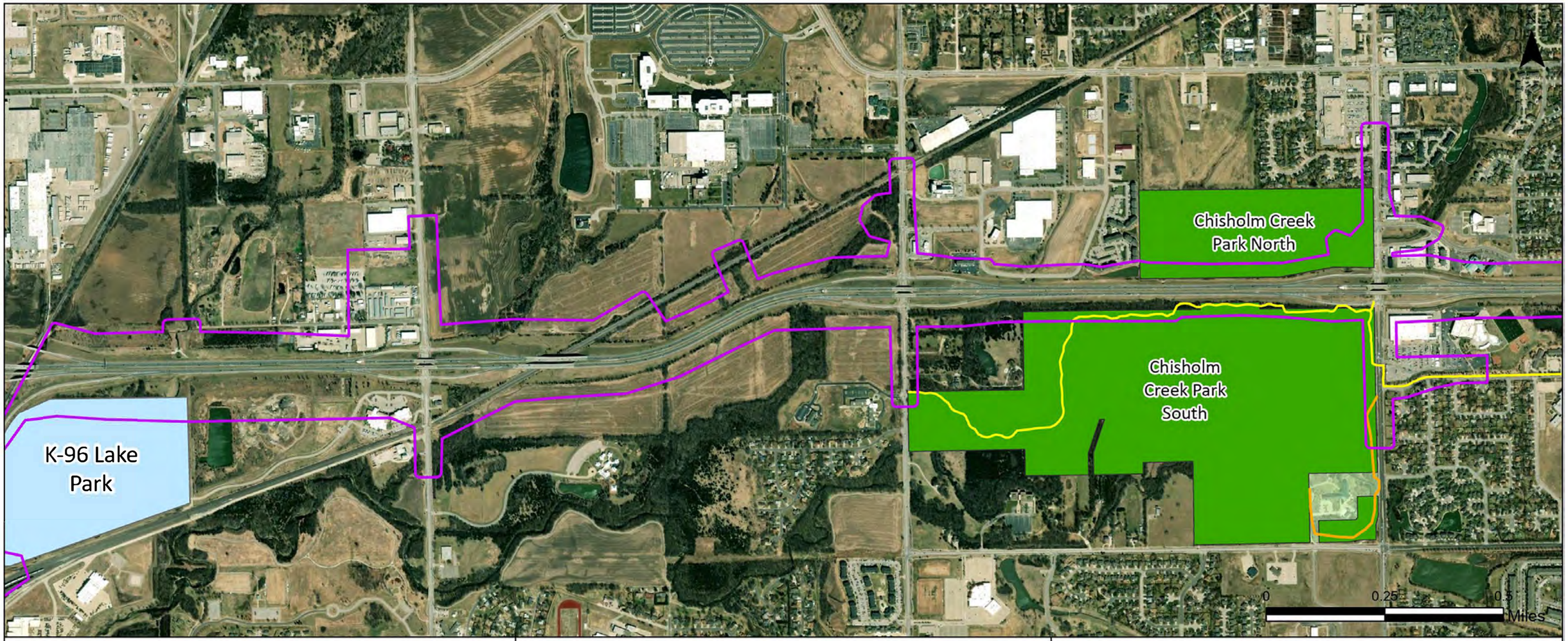
Exhibit 3-4: Section 4(f)/6(f) Resources and Trails within the Study Area

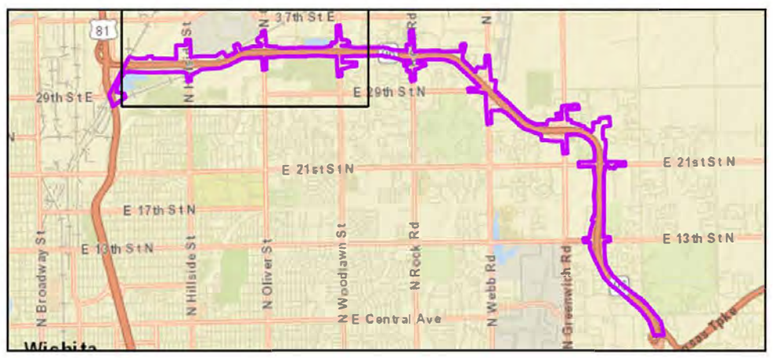




- NEPA Study Area
- Great Plains Nature Center Path
- K-96 Trail
- Redbud Trail
- Section 4(f) Resource
- Section 6(f) Resource

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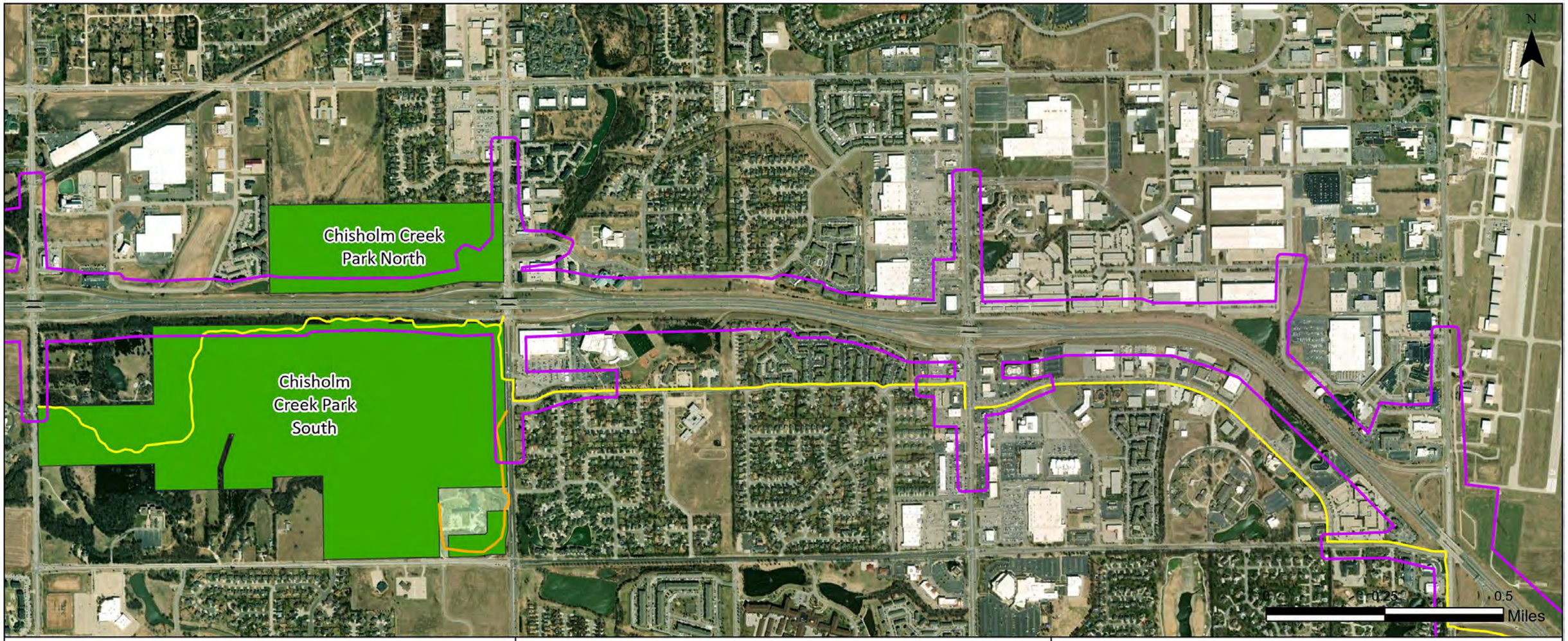


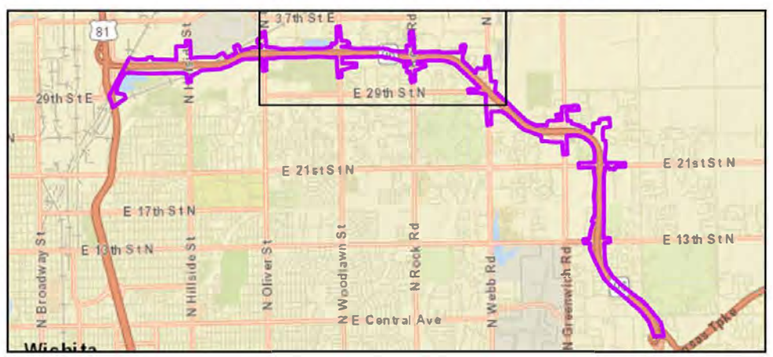


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K-96 IMPROVEMENTS

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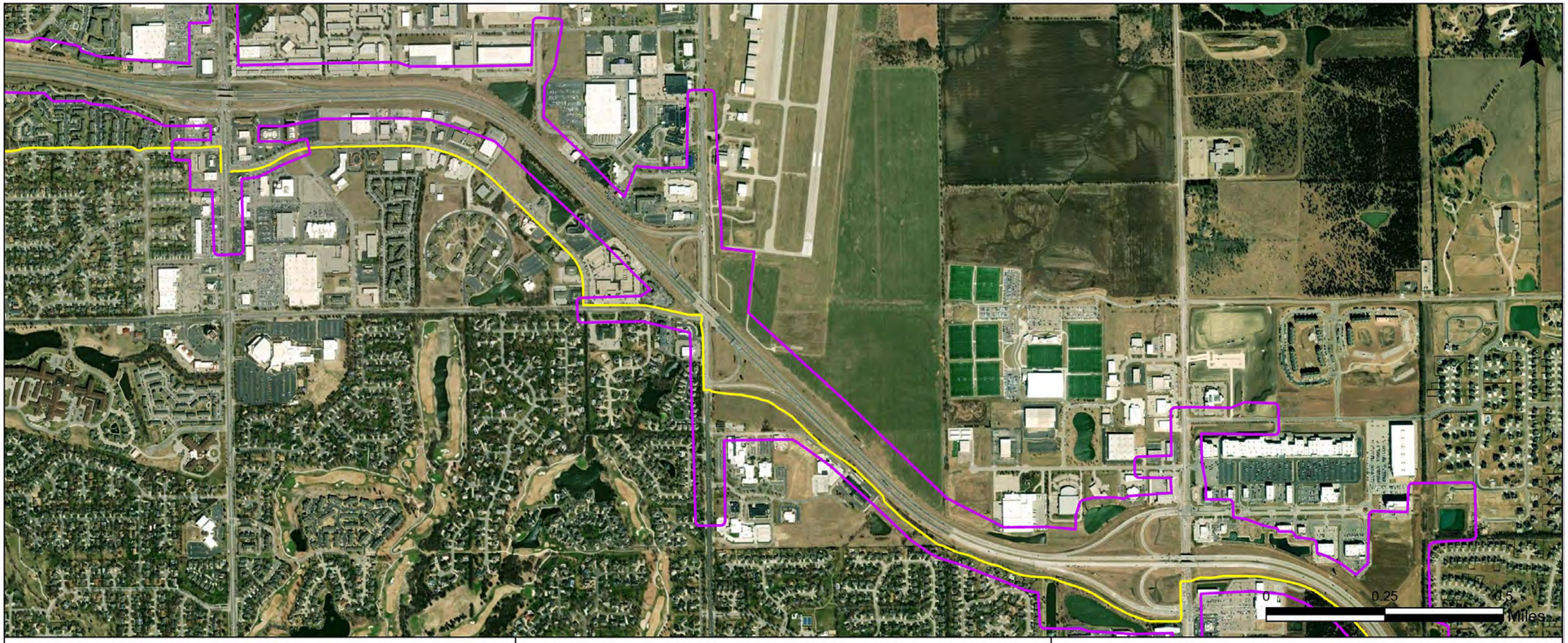


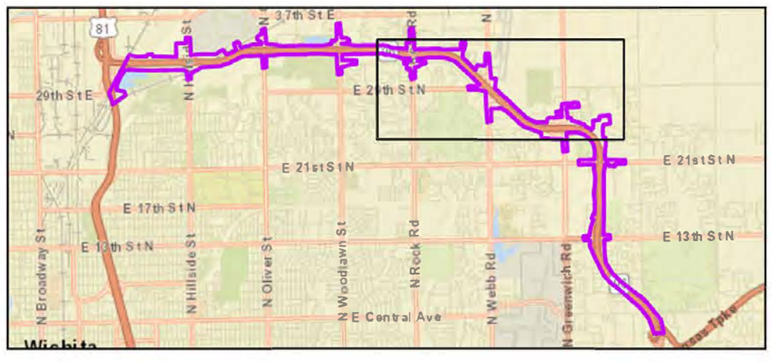


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K-96 IMPROVEMENTS

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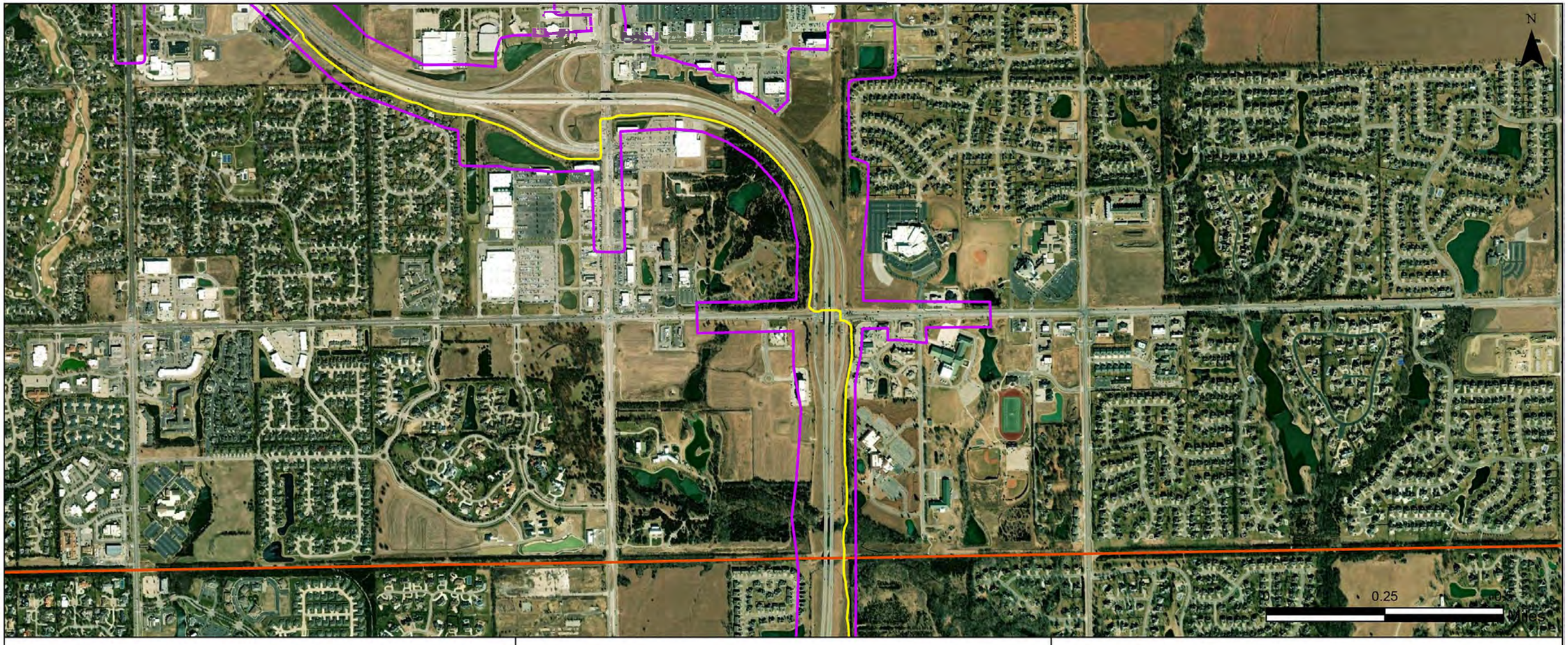


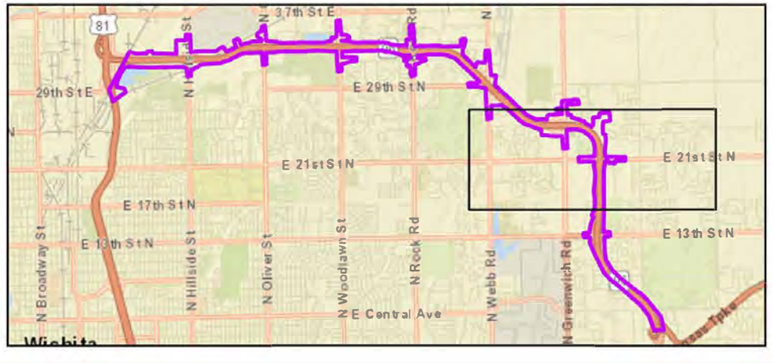


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K-96 IMPROVEMENTS

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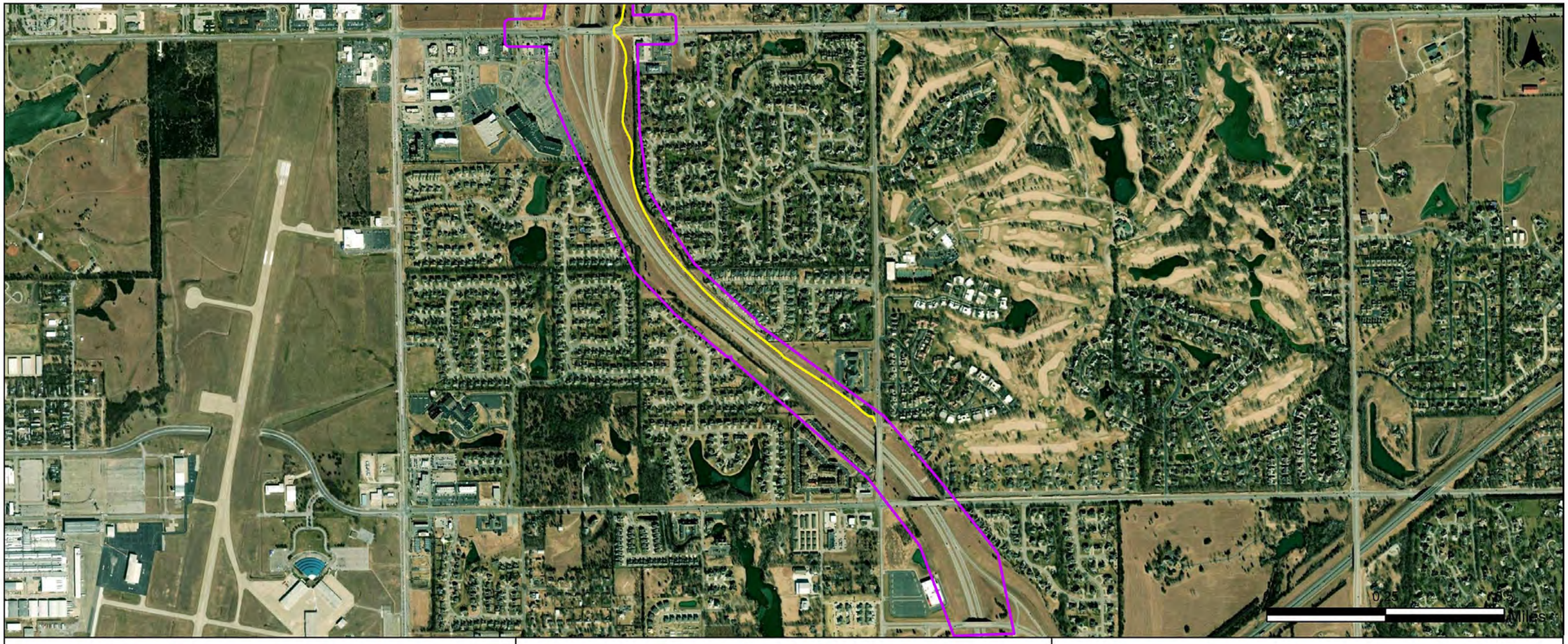


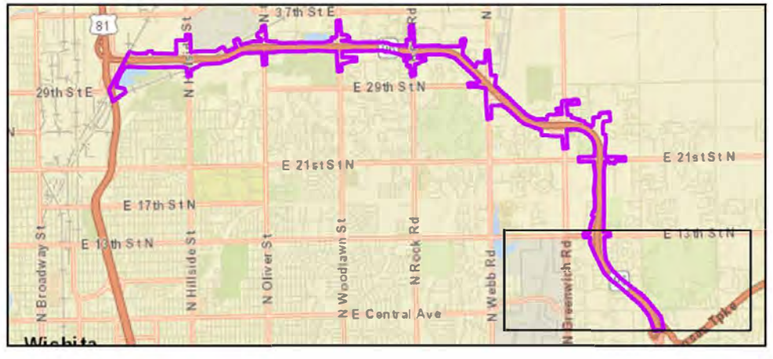


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K-96 IMPROVEMENTS

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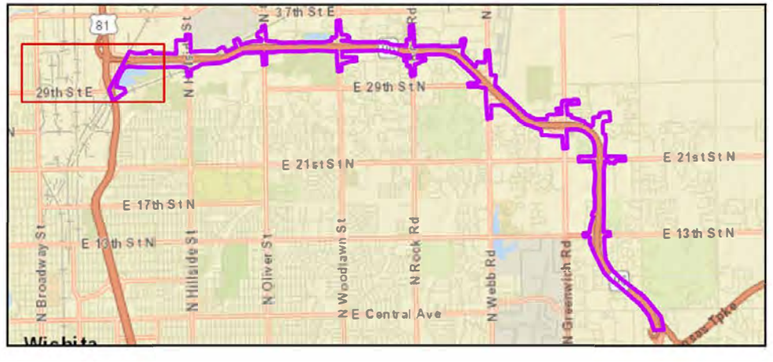


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K-96 IMPROVEMENTS

Exhibit 3-5: Areas of Right-of-Way Acquisition

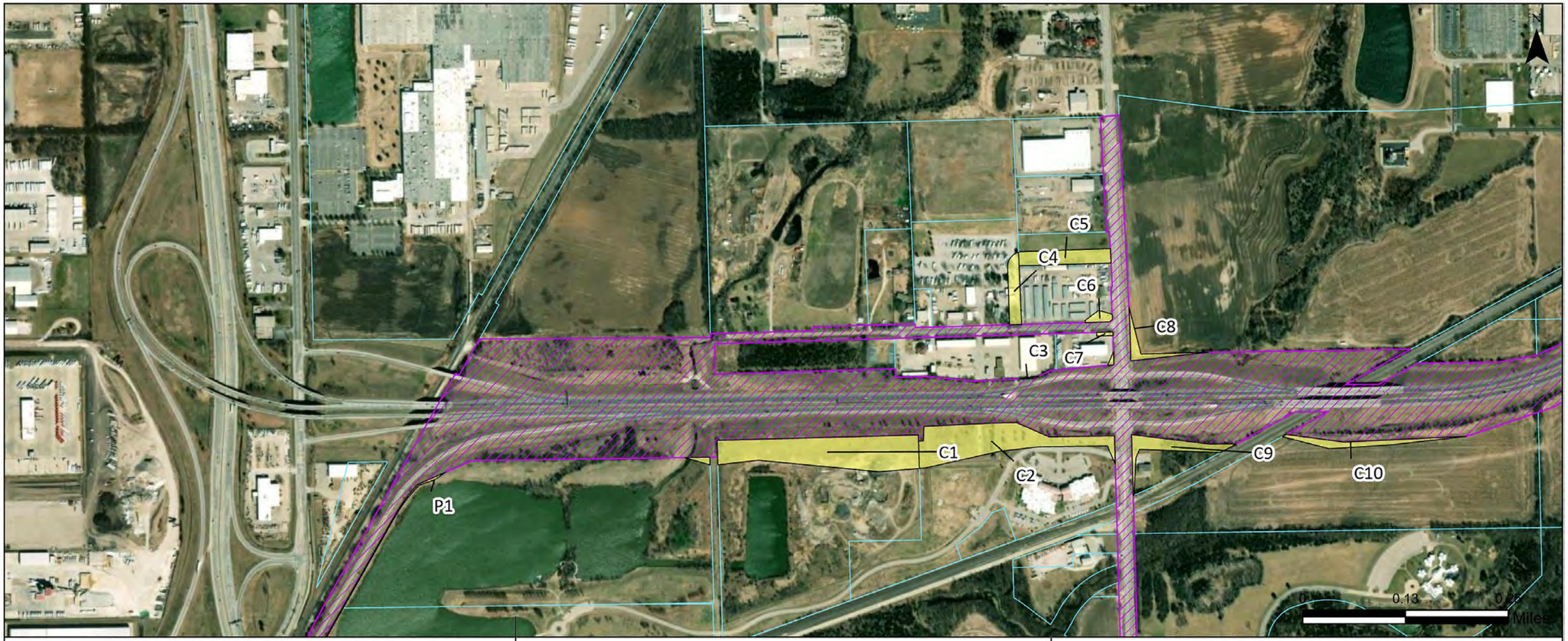


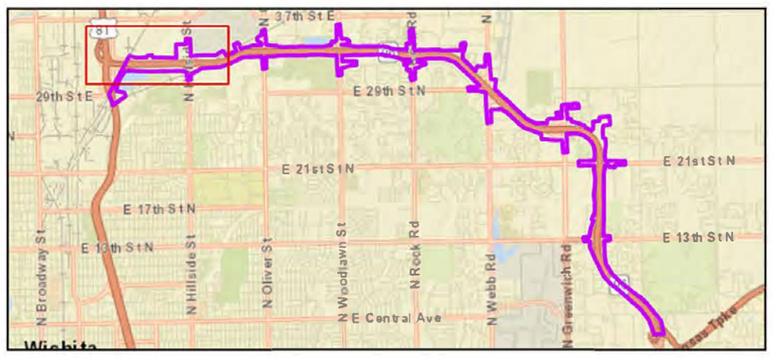


- Parcel Boundary
- Existing Right-of-Way
- Right-of-Way Acquisition

K-96 IMPROVEMENTS

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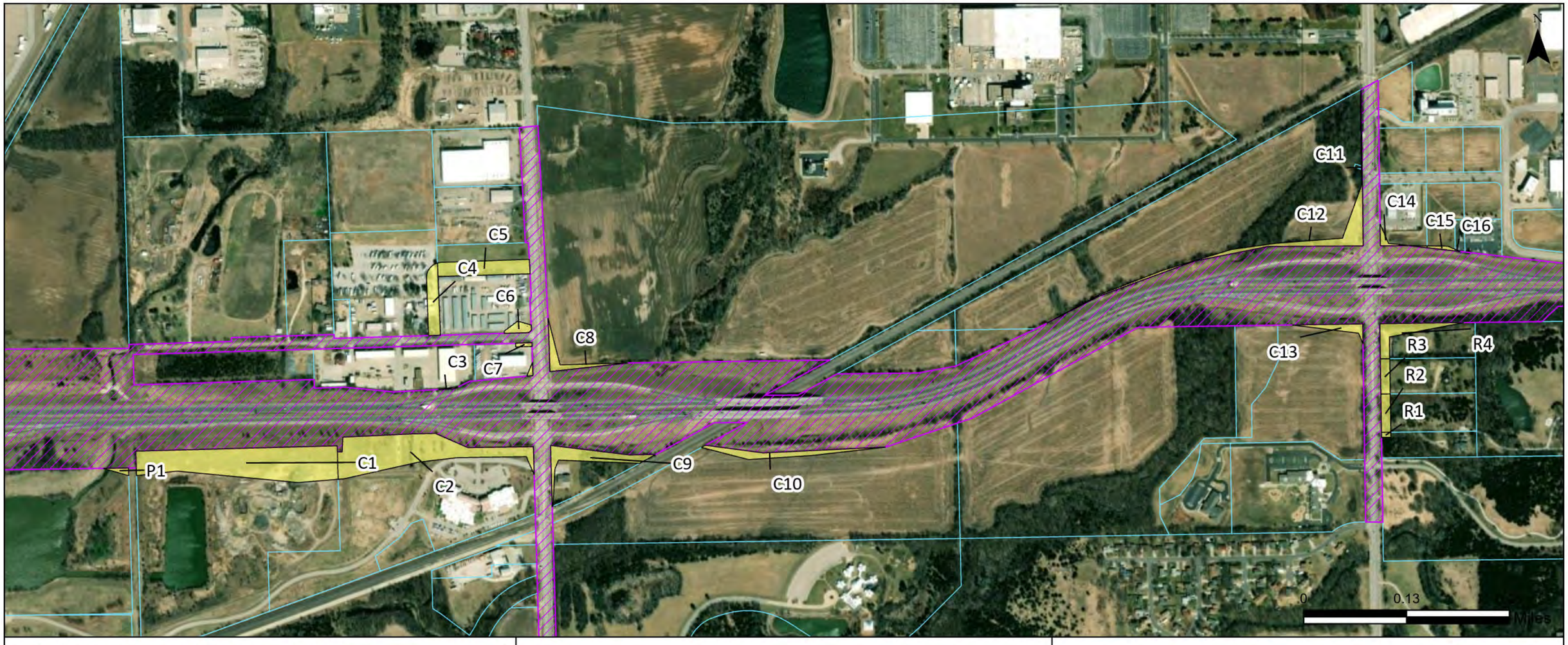


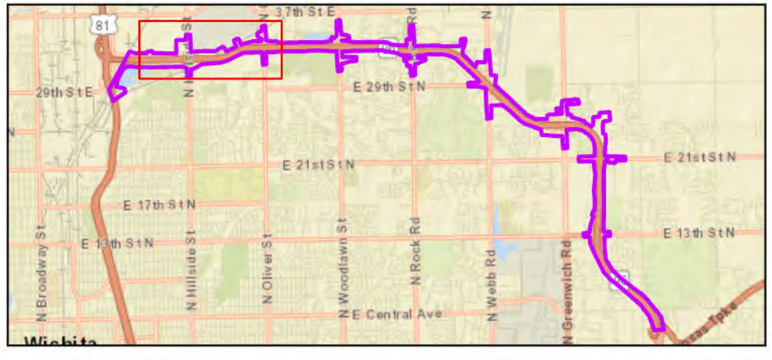


Parcel Boundary
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K-96 IMPROVEMENTS

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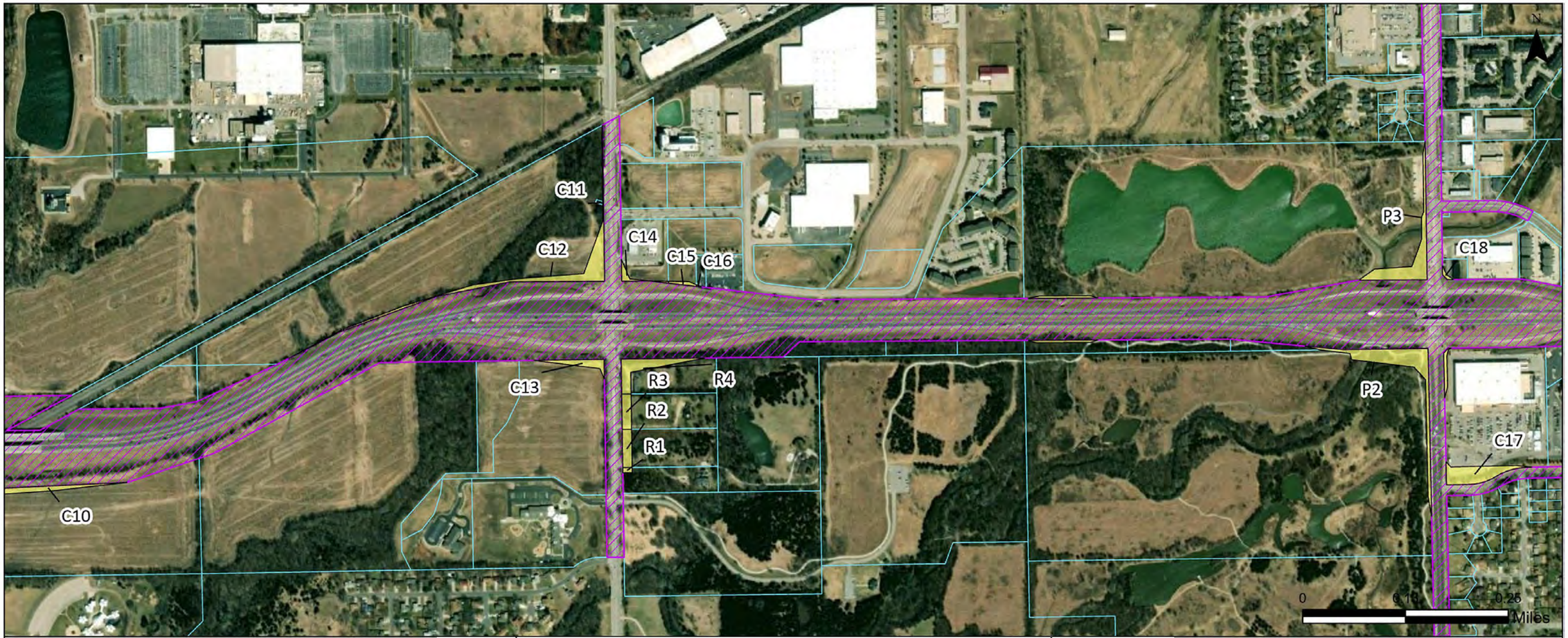


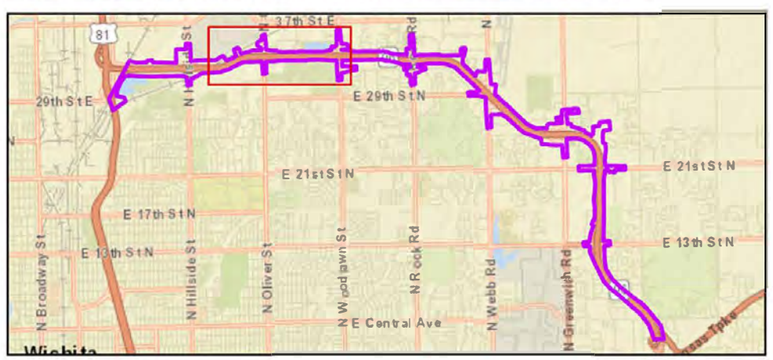


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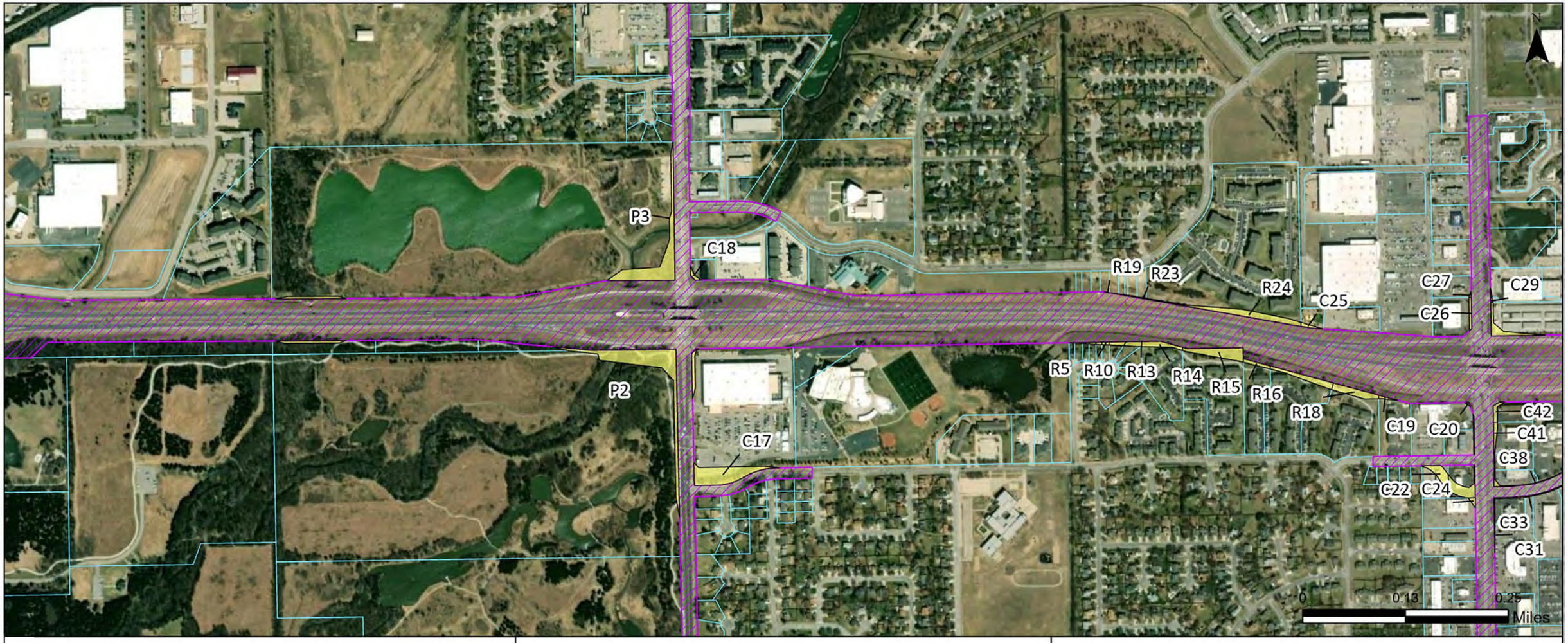


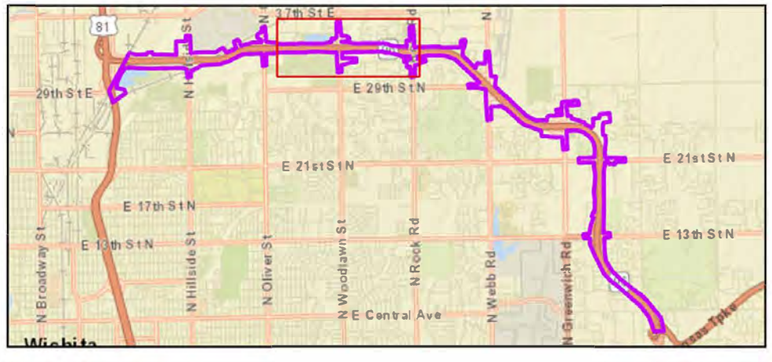


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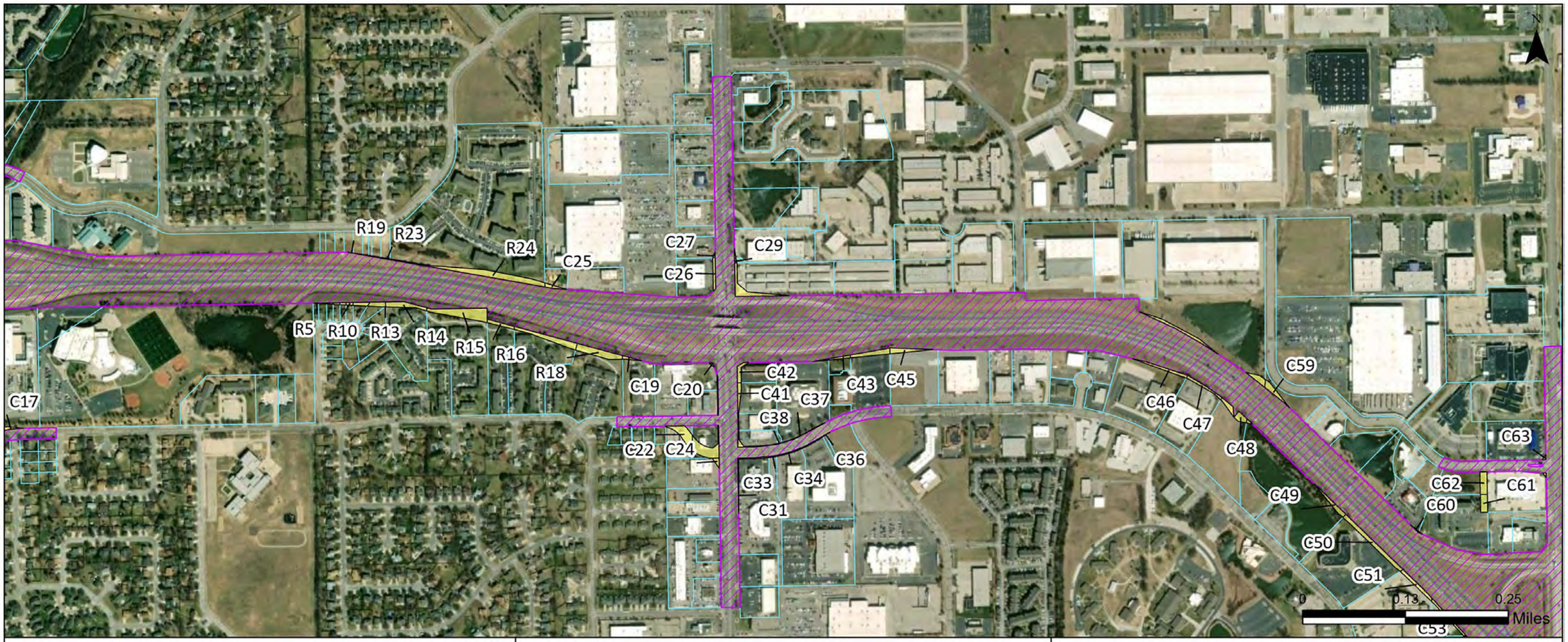


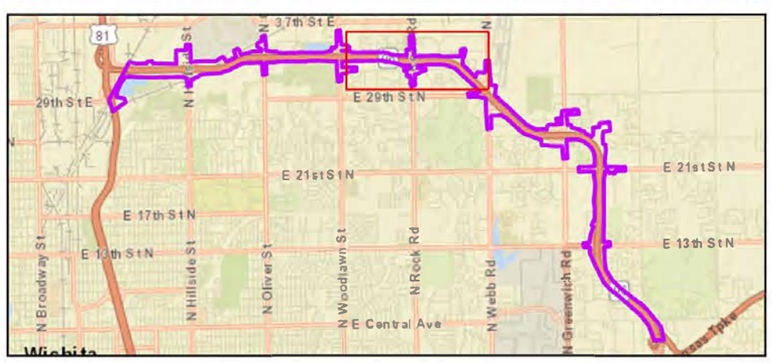


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K-96 IMPROVEMENTS

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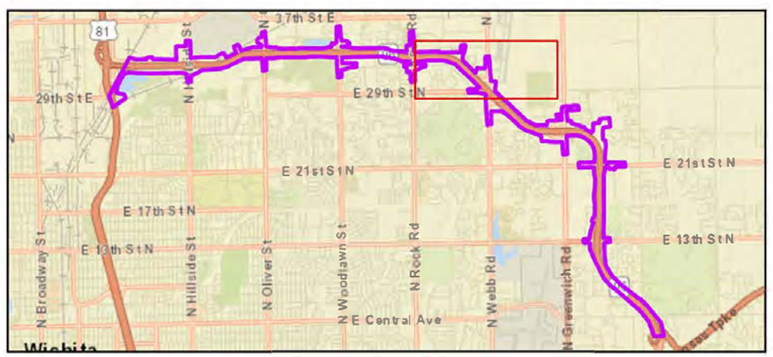


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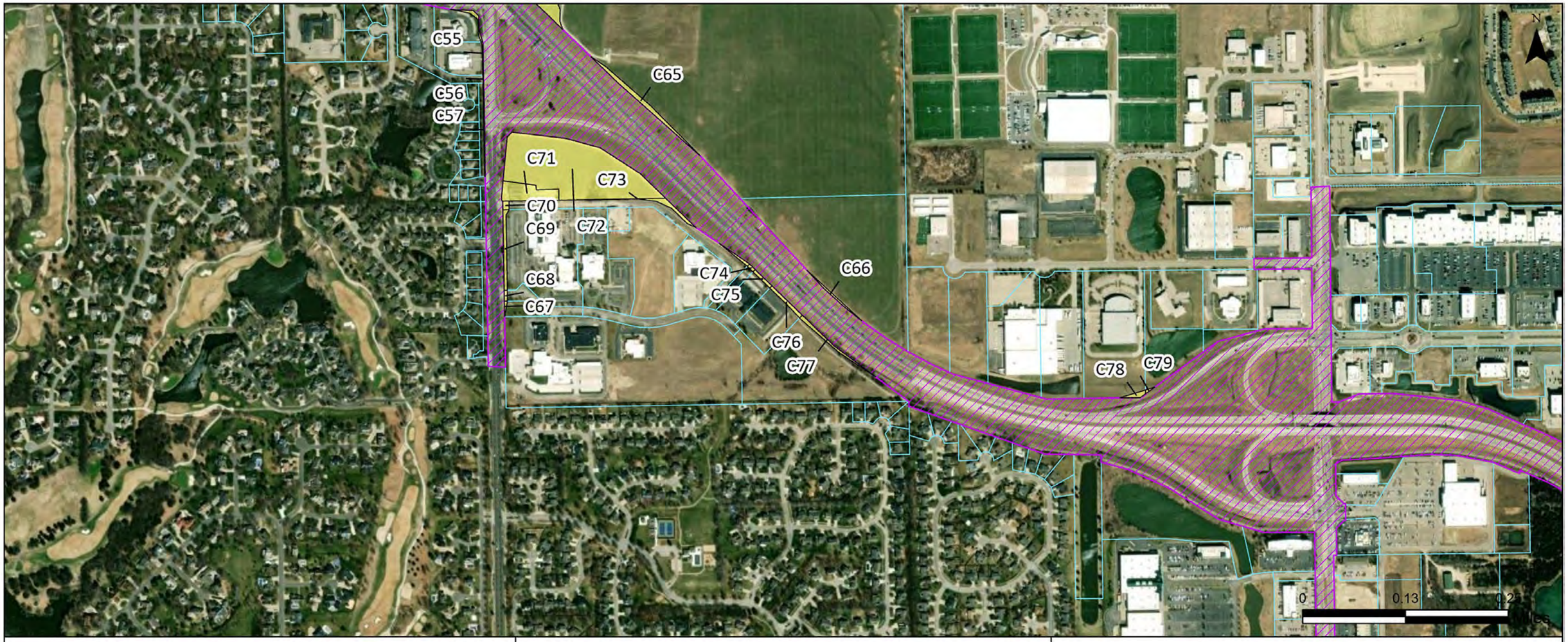


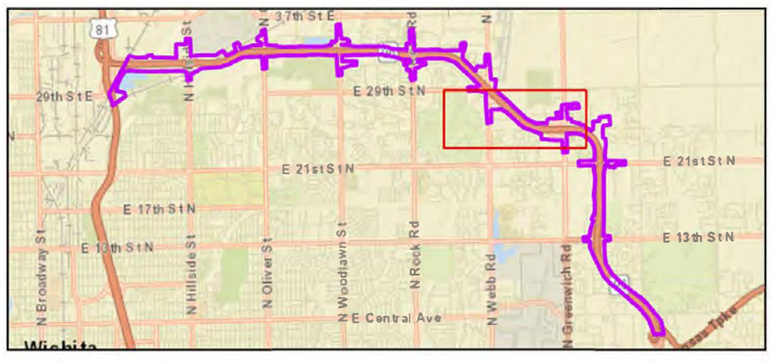


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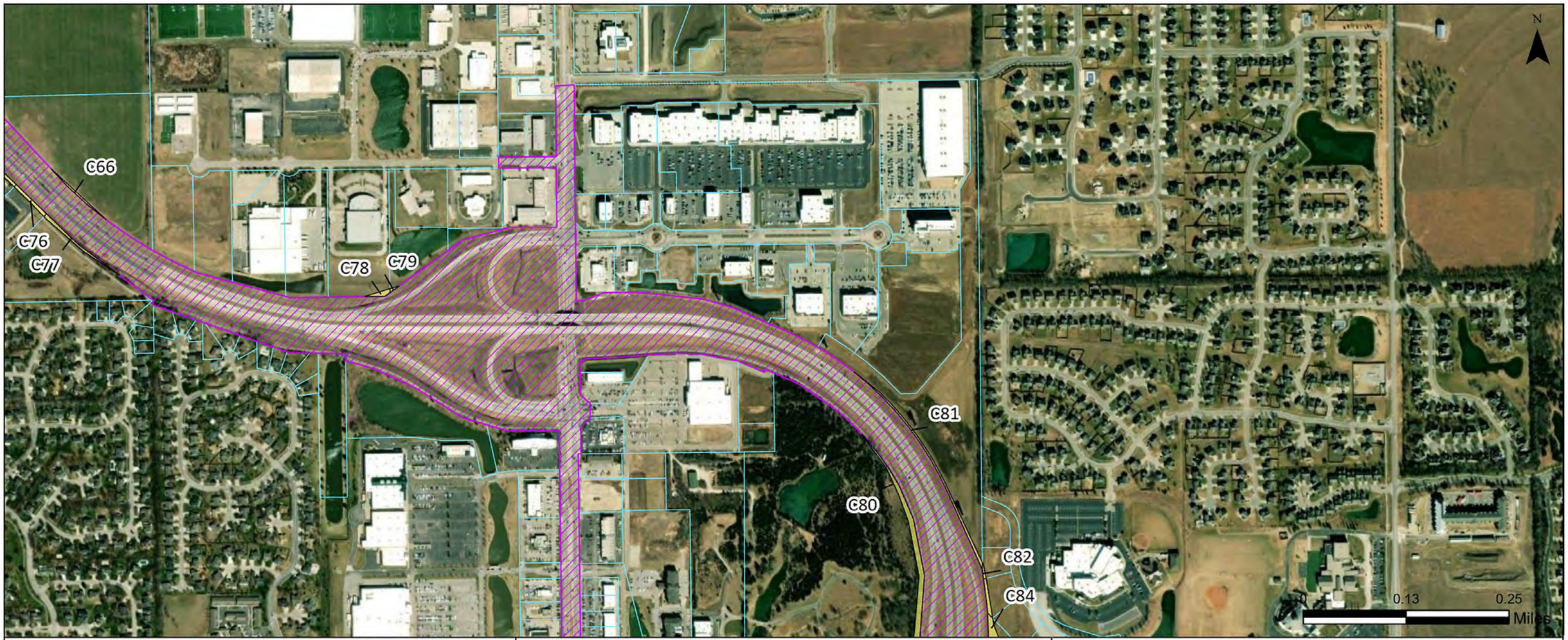


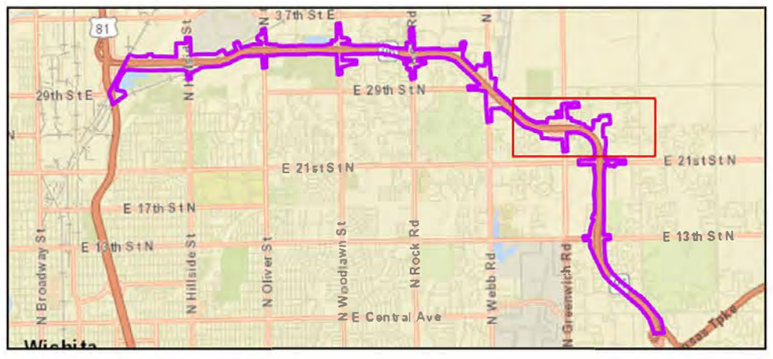


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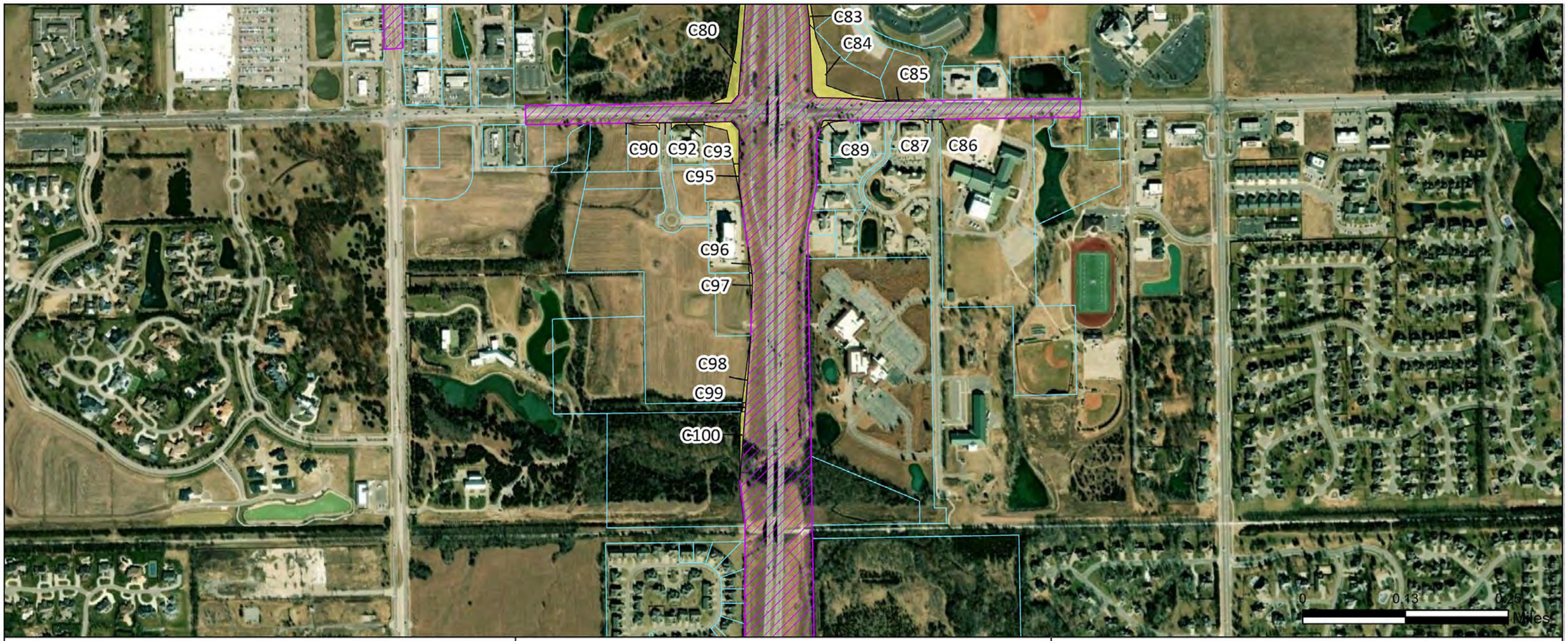


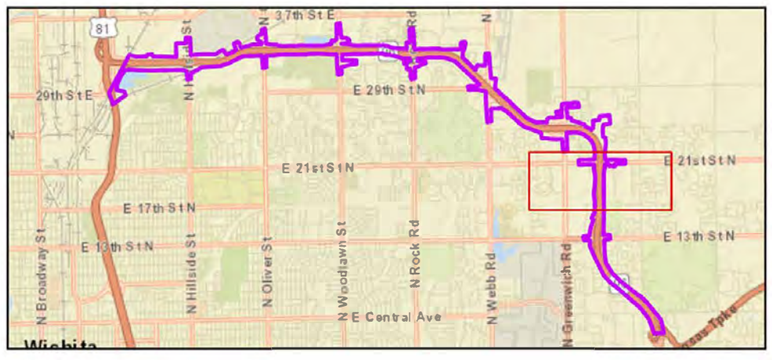


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K-96 IMPROVEMENTS

Exhibit 3-5: Areas of Right-of-Way Acquisition

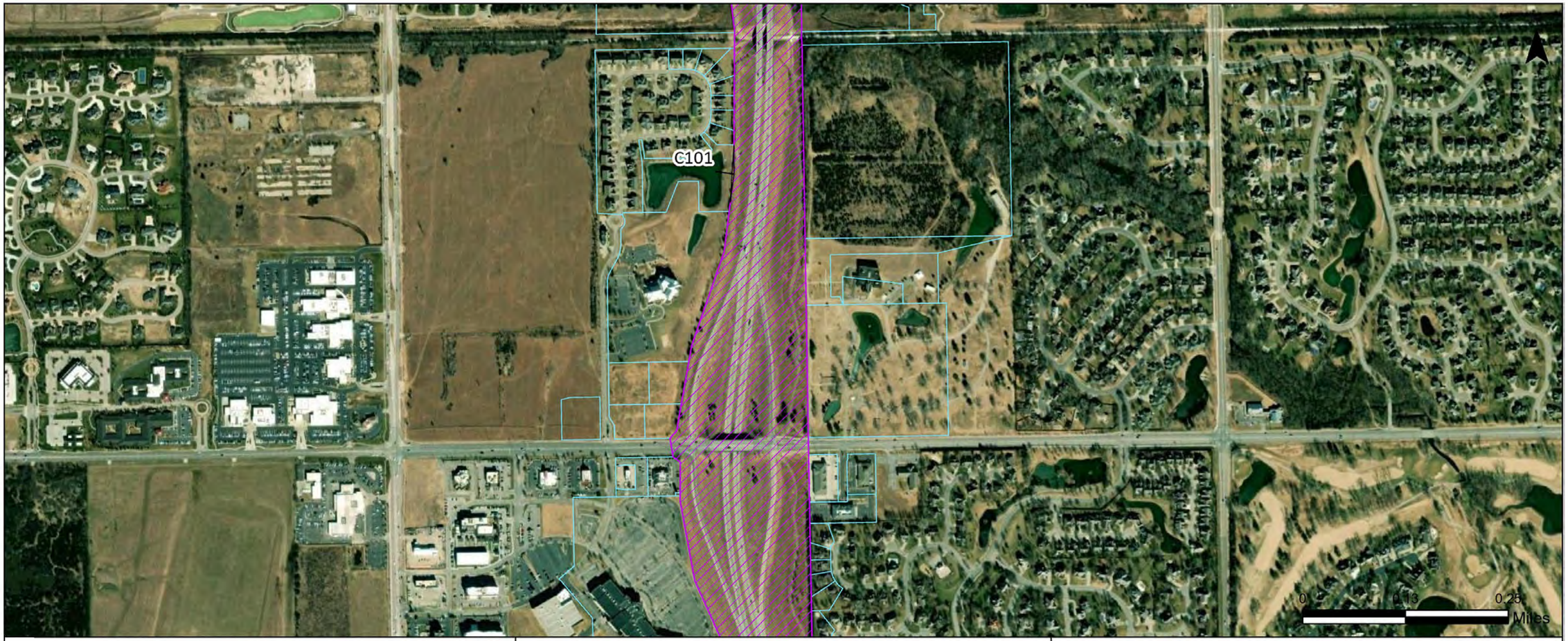


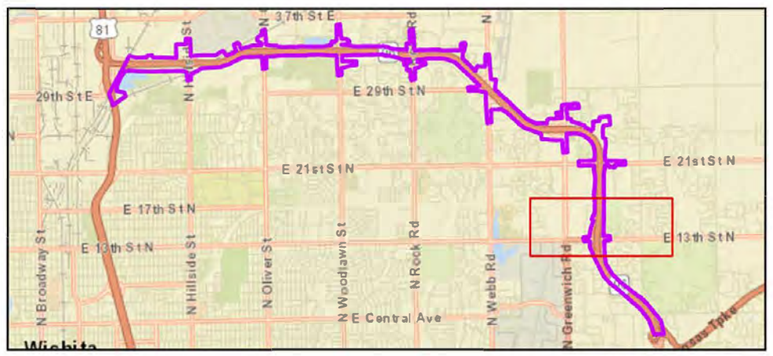


Parcel Boundary
Existing Right-of-Way
Right-of-Way Acquisition

K-96 IMPROVEMENTS

Exhibit 3-5: Areas of Right-of-Way Acquisition





Parcel Boundary

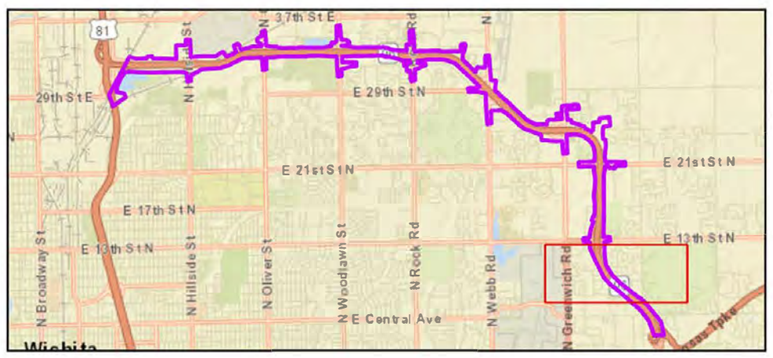
Existing Right-of-Way

Right-of-Way Acquisition

K-96 IMPROVEMENTS

Exhibit 3-5: Areas of Right-of-Way Acquisition

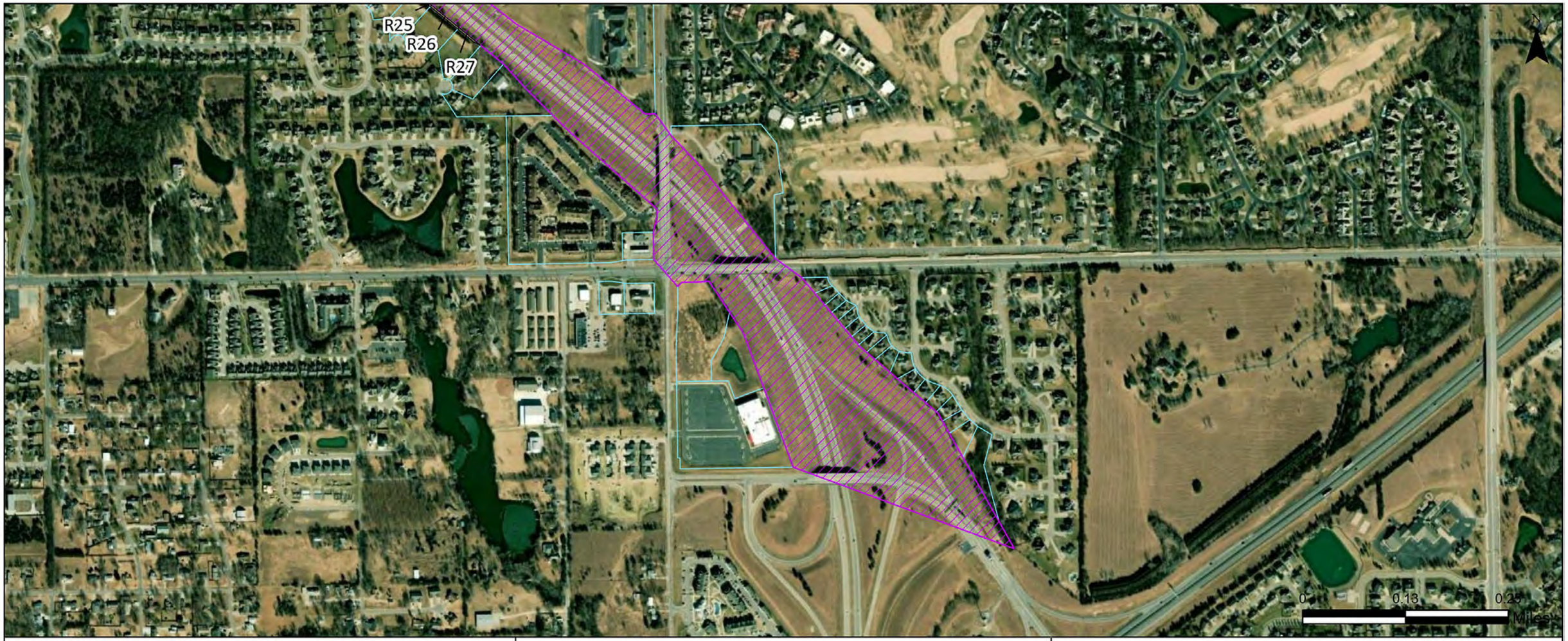


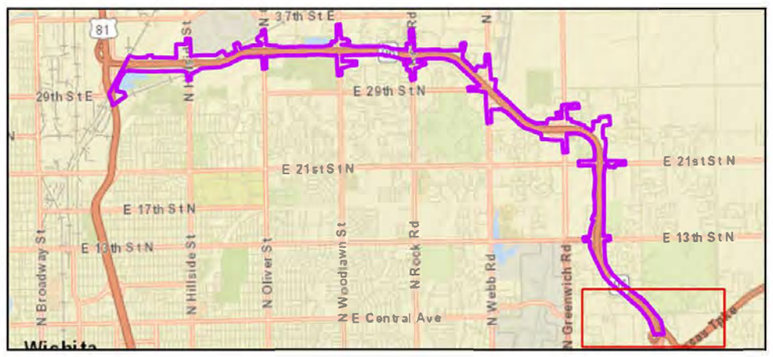


Parcel Boundary
Existing Right-of-Way
Right-of-Way Acquisition

K-96 IMPROVEMENTS

Exhibit 3-5: Areas of Right-of-Way Acquisition



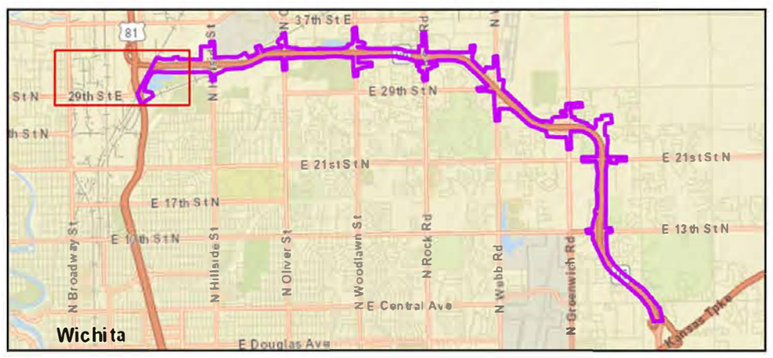


- Parcel Boundary
- Existing Right-of-Way
- Right-of-Way Acquisition

K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

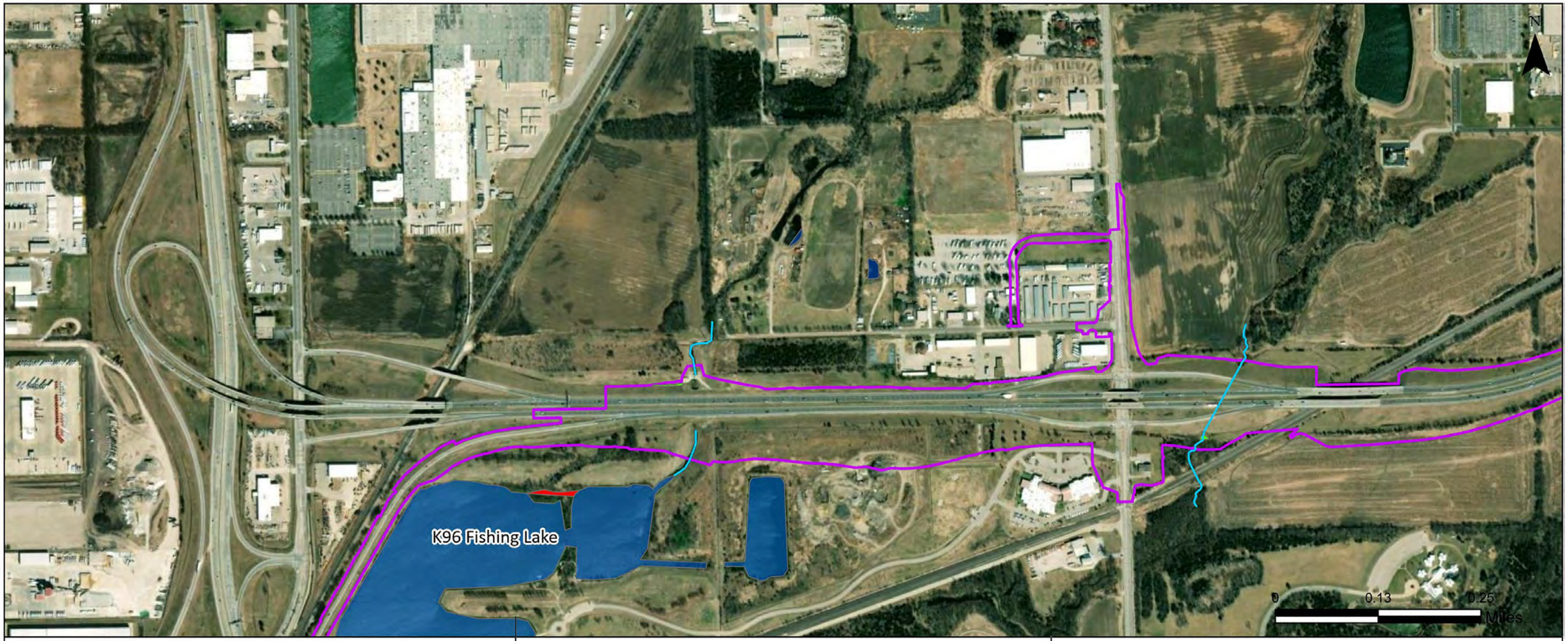


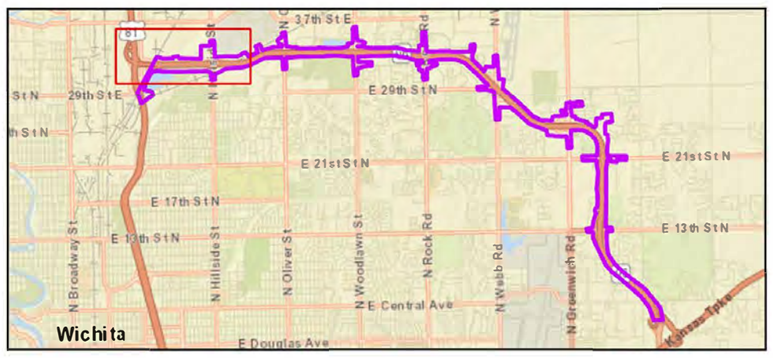


- Preferred Alternative Footprint
- Stream
- Open Water
- Emergent Wetland
- Forested Wetland

K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

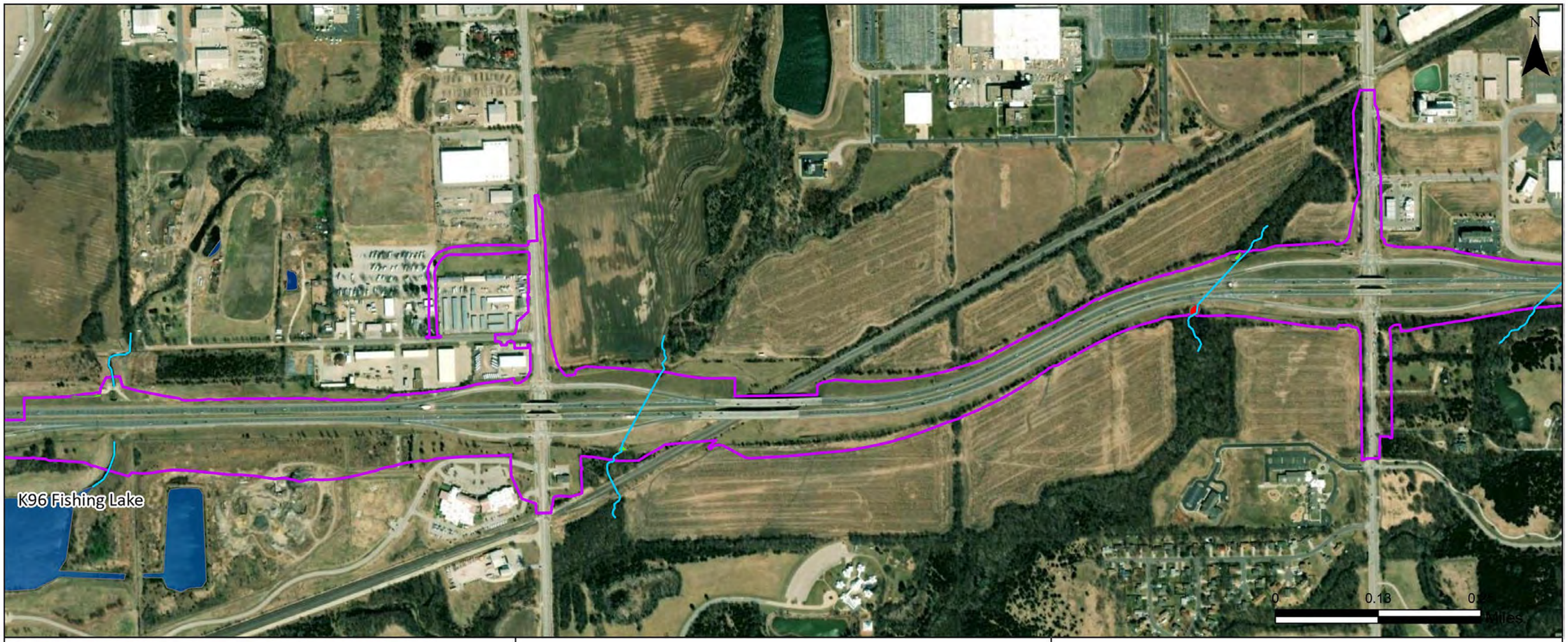


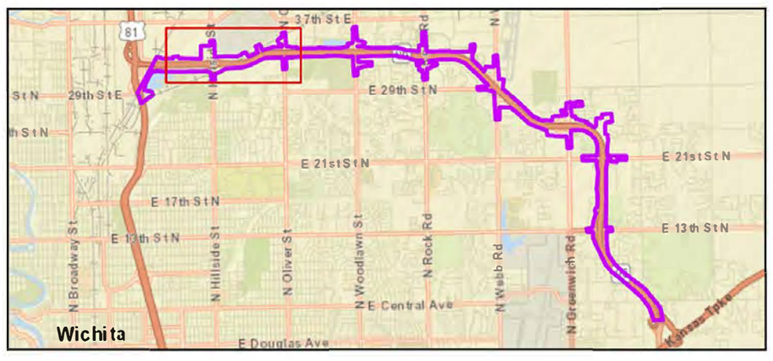


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

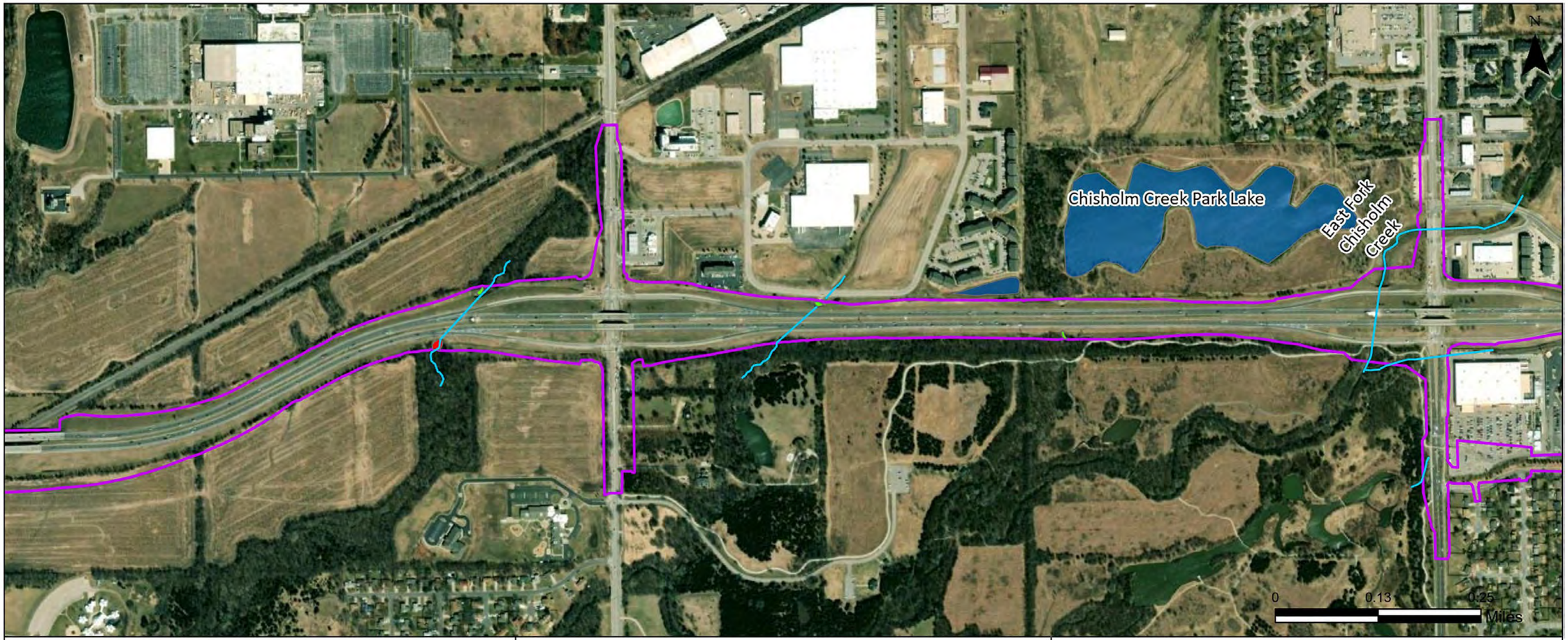


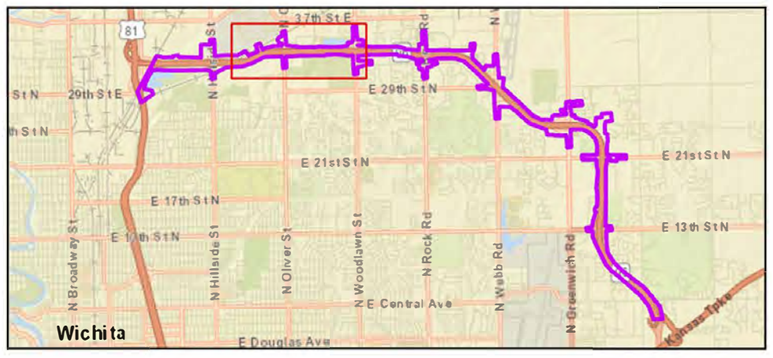


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

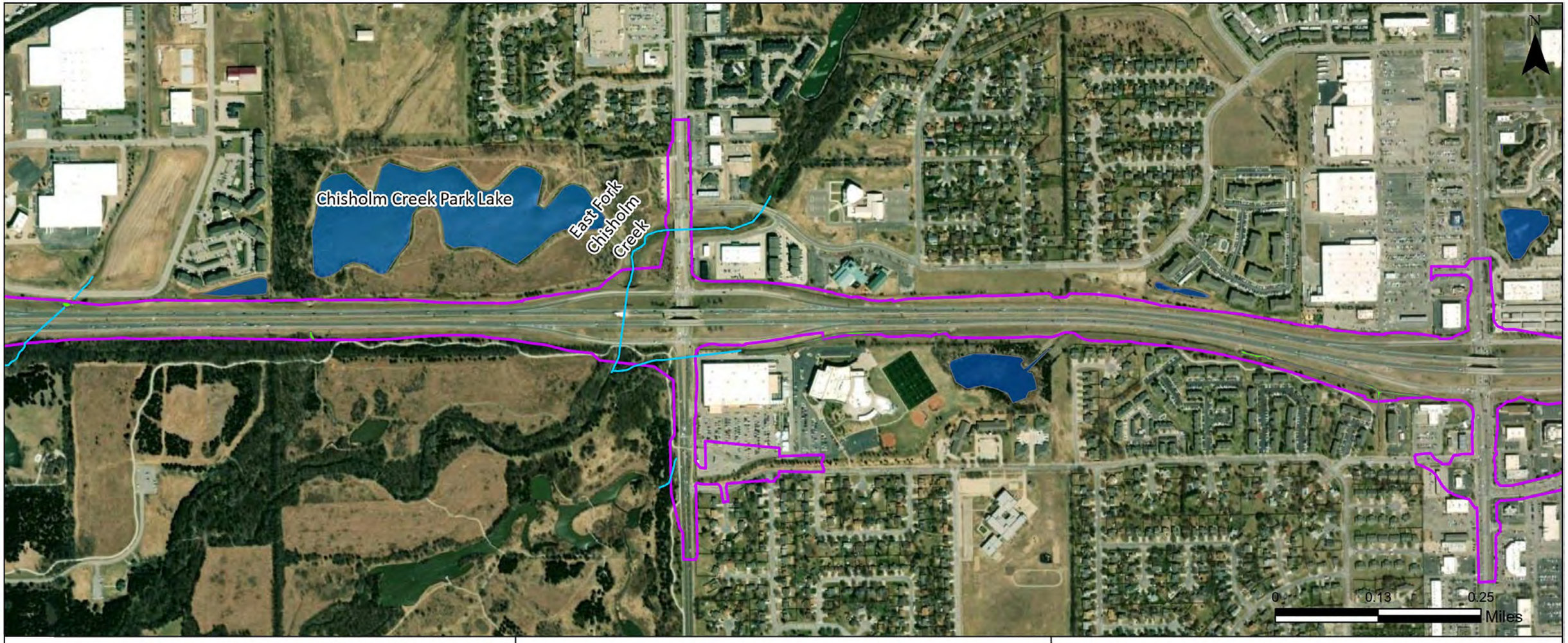


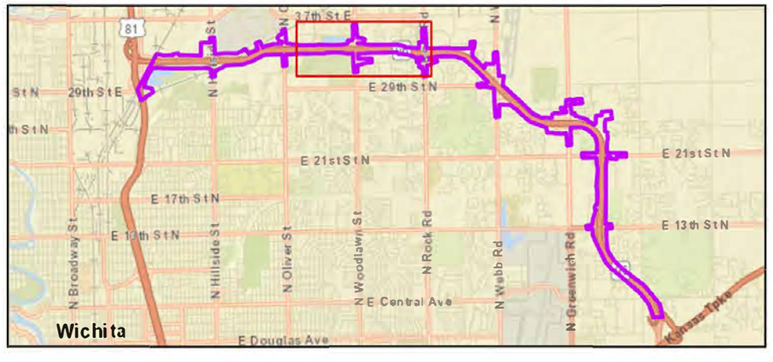


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

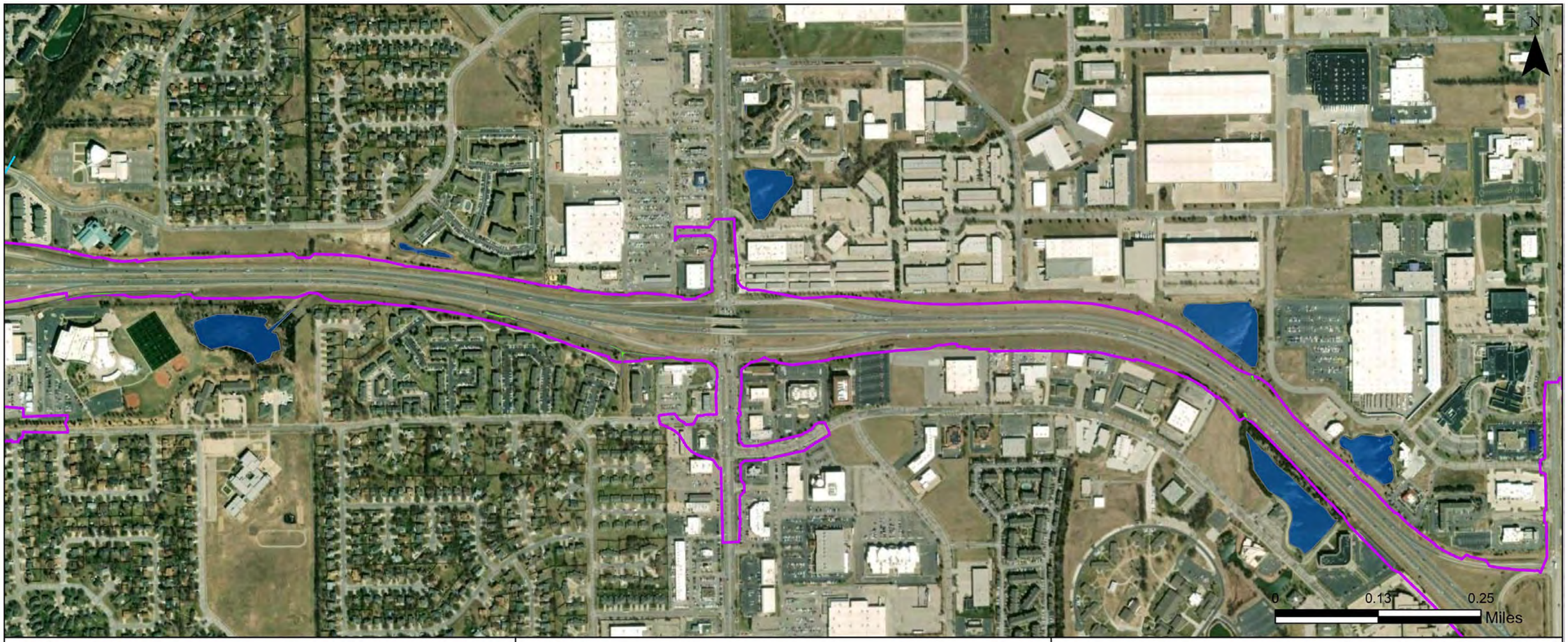


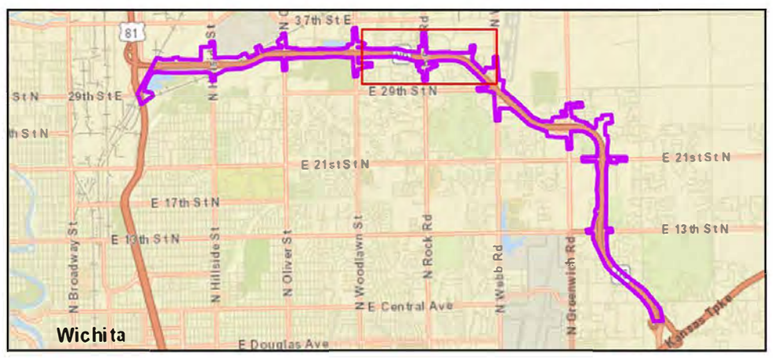


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

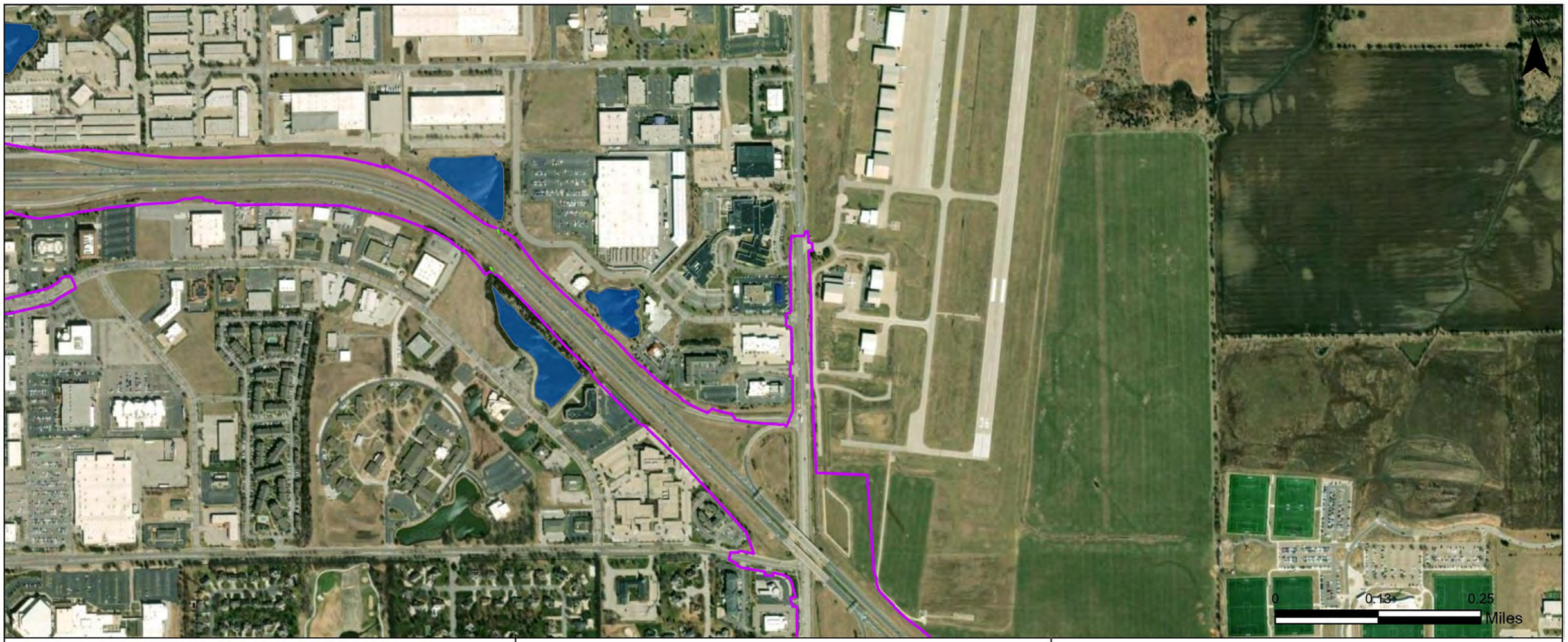


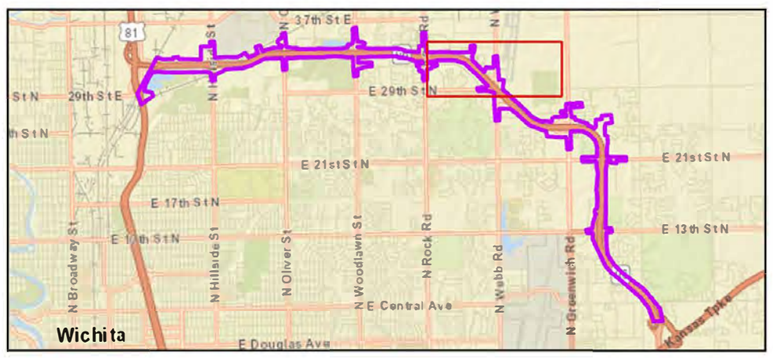


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

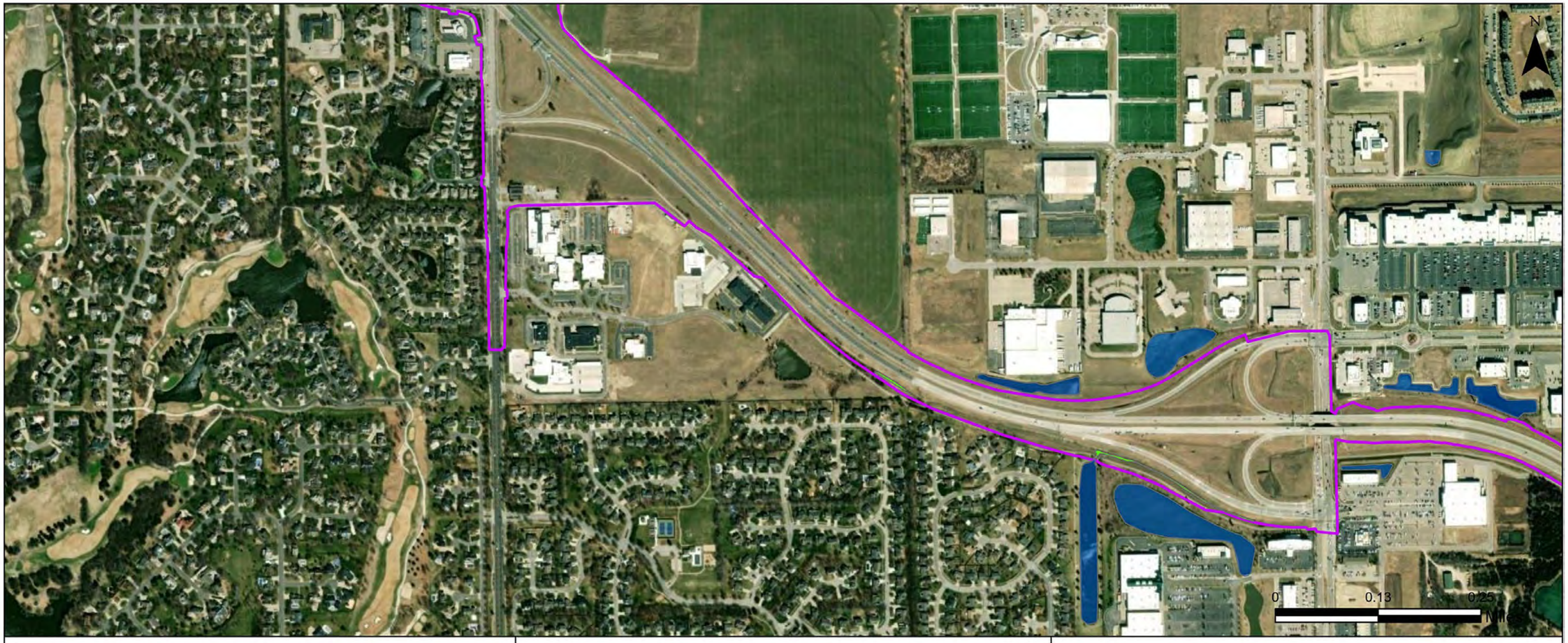


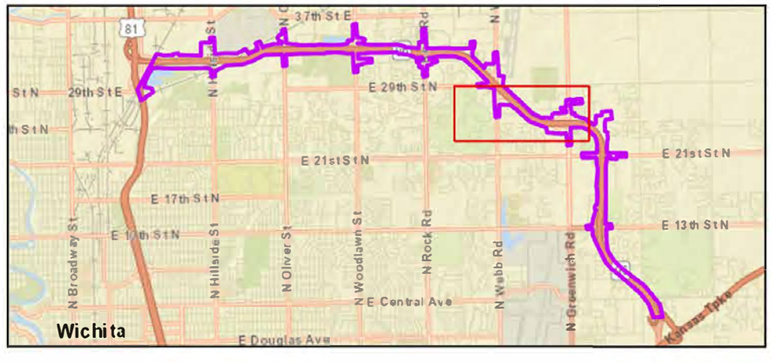


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

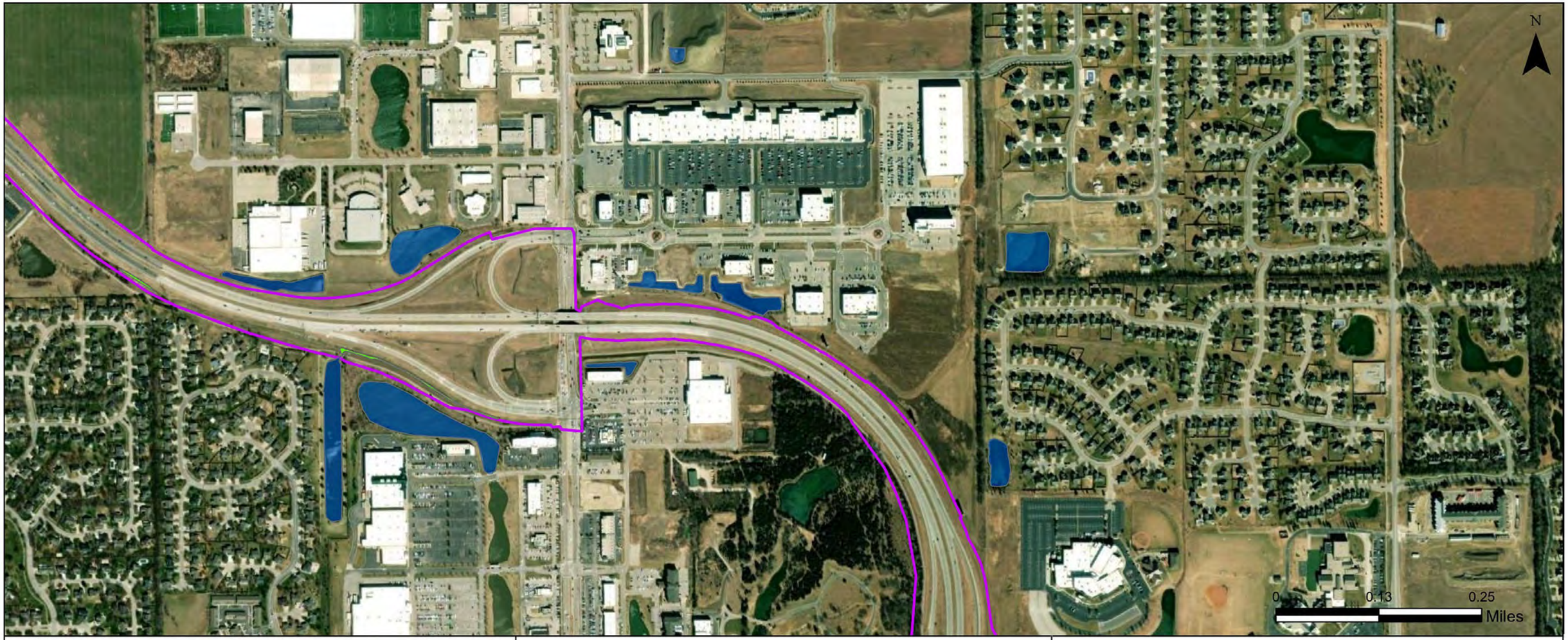


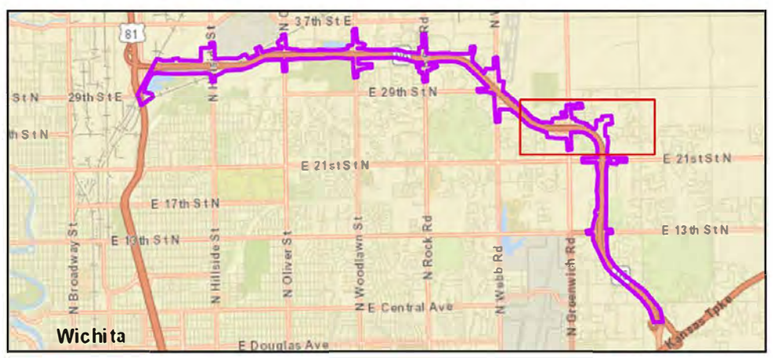


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

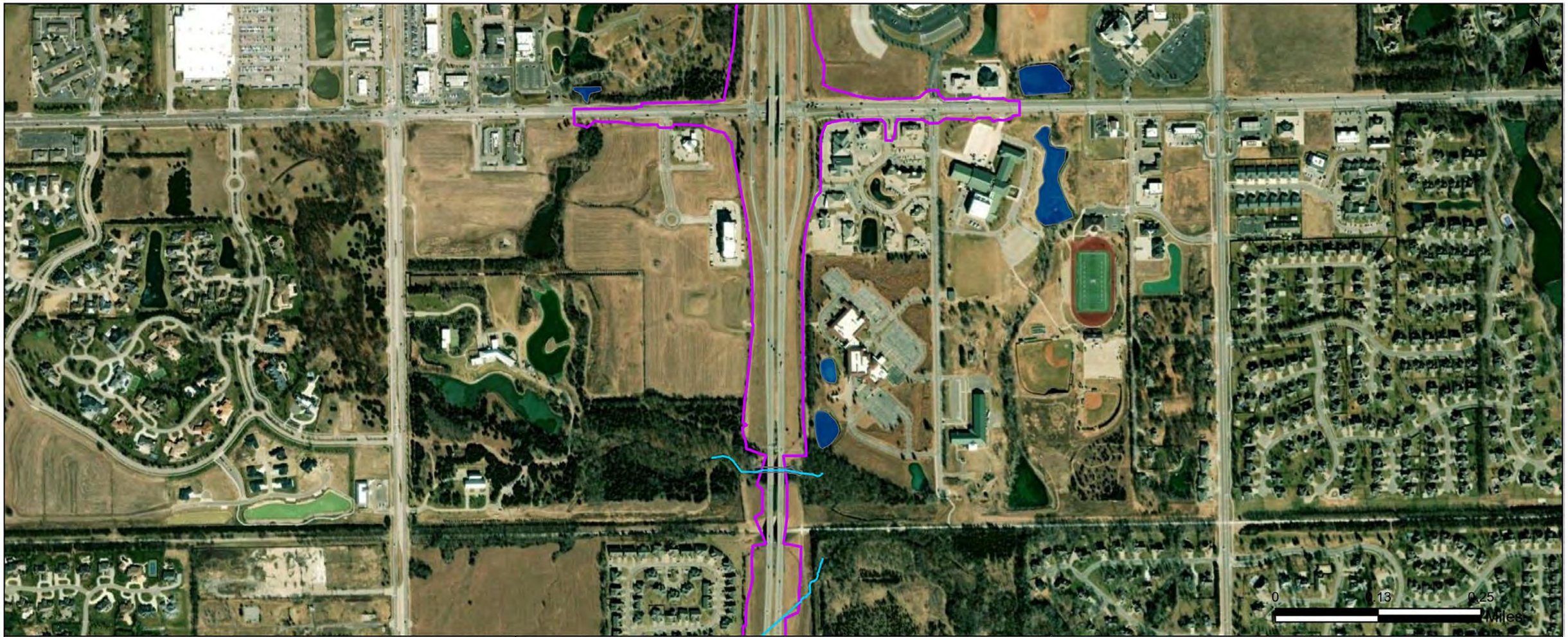


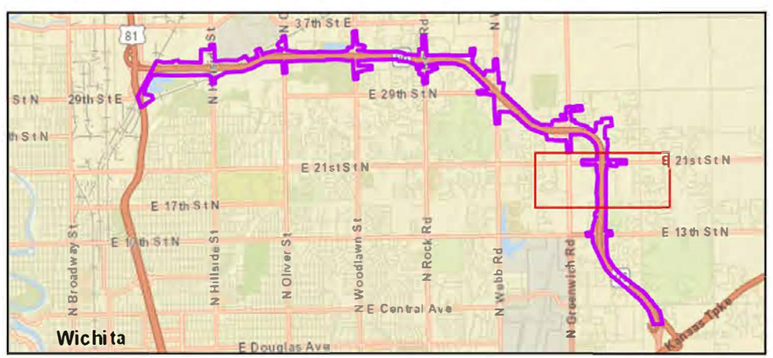


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

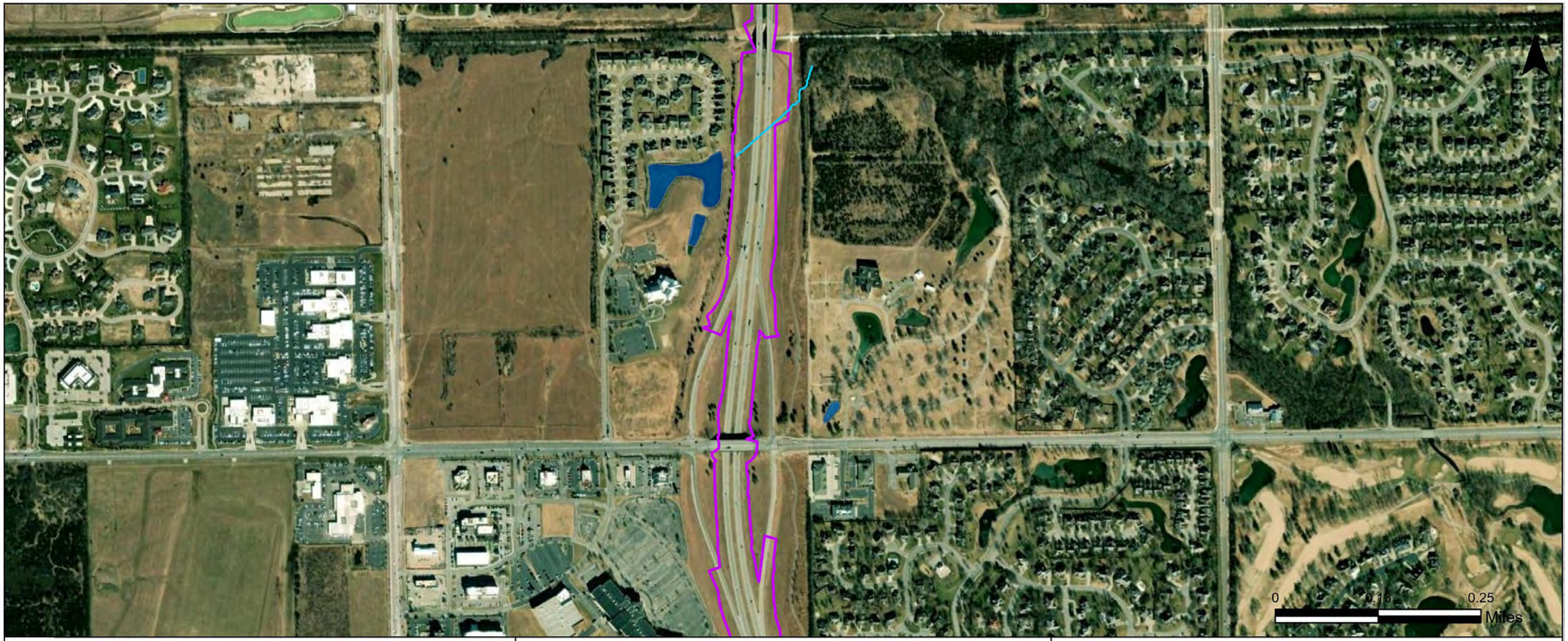


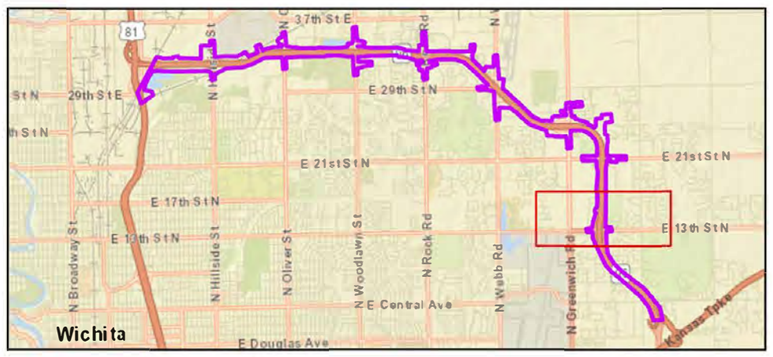


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States



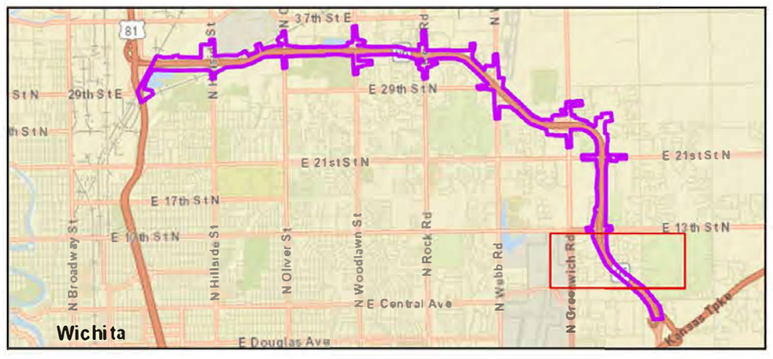


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

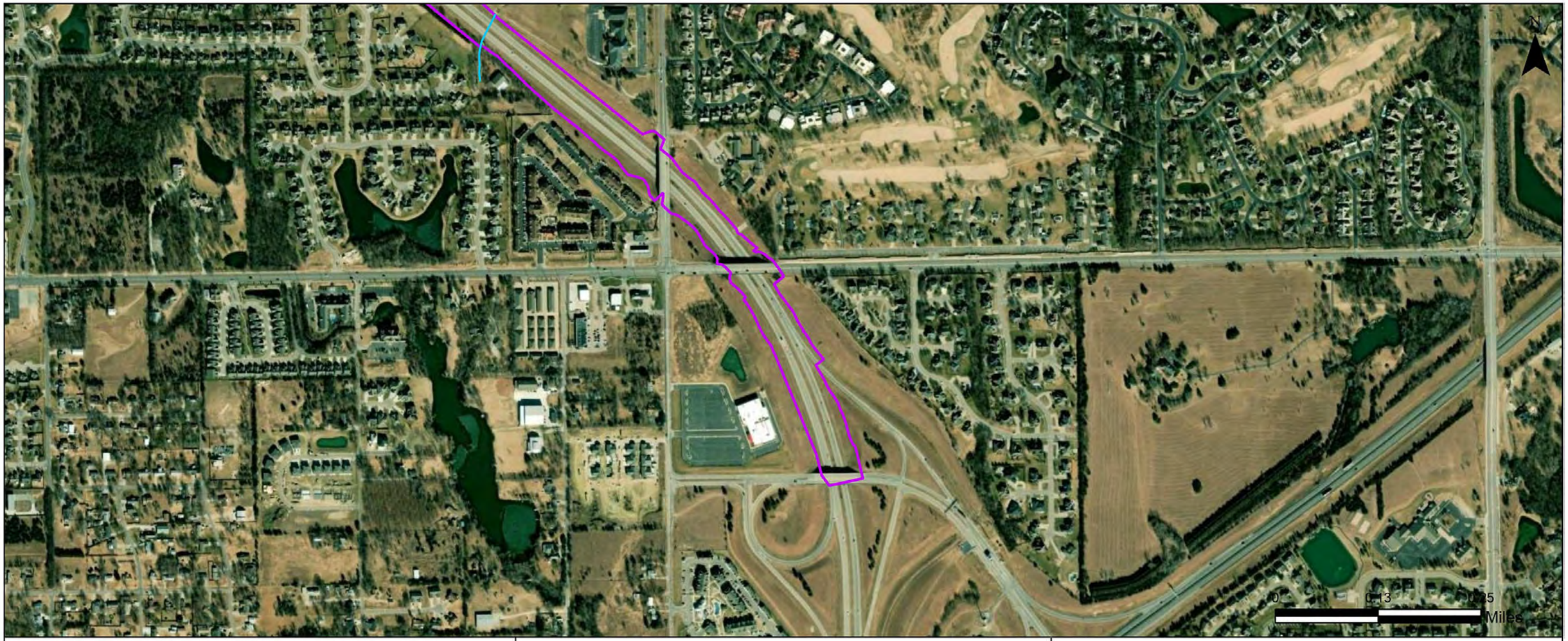


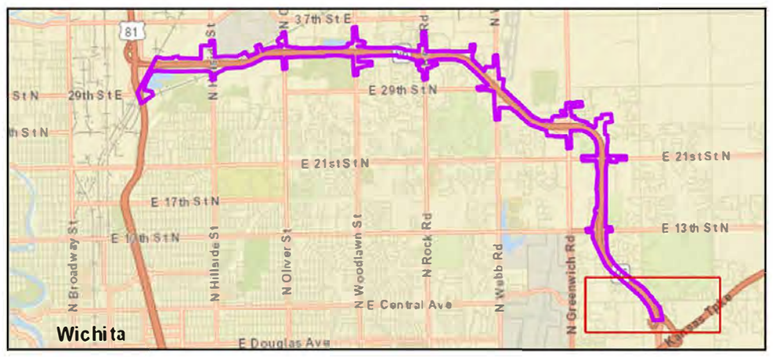


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K-96 IMPROVEMENTS

Exhibit 3-6: Preferred Alternative's Impacts to Wetlands and Waters of The United States

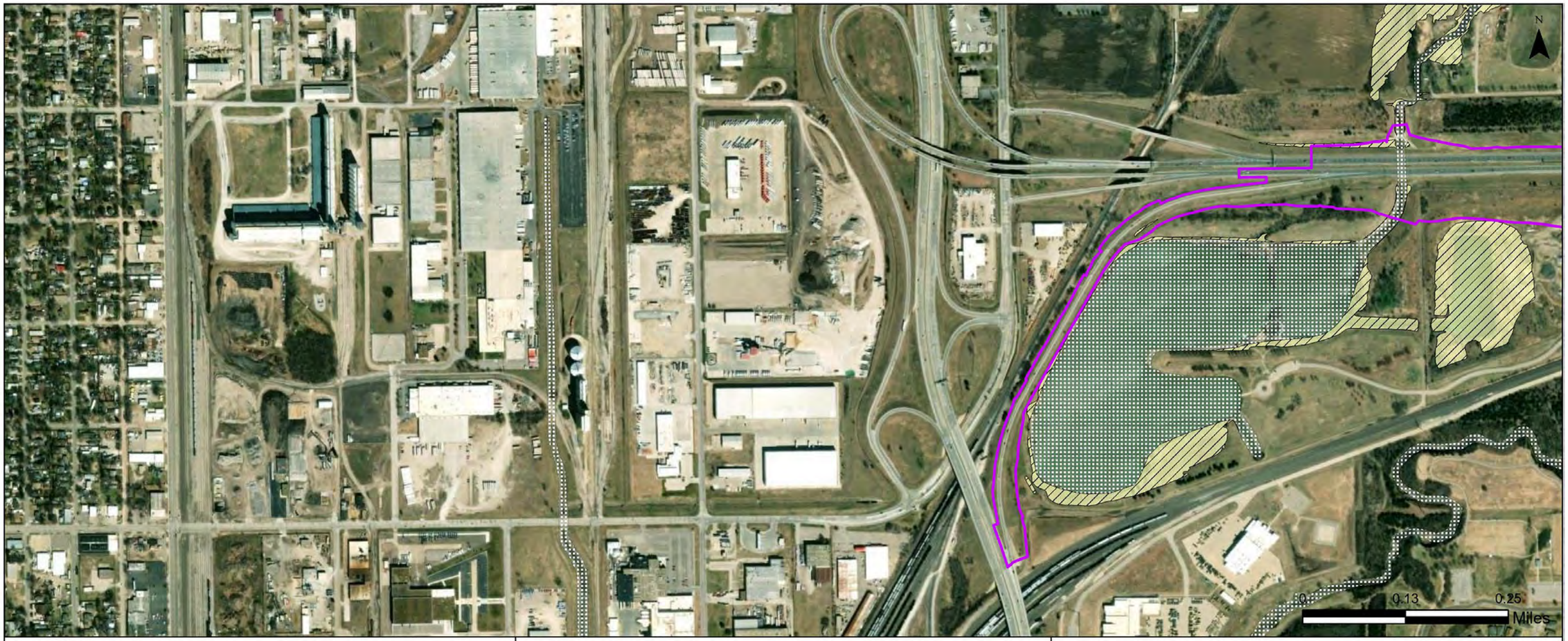


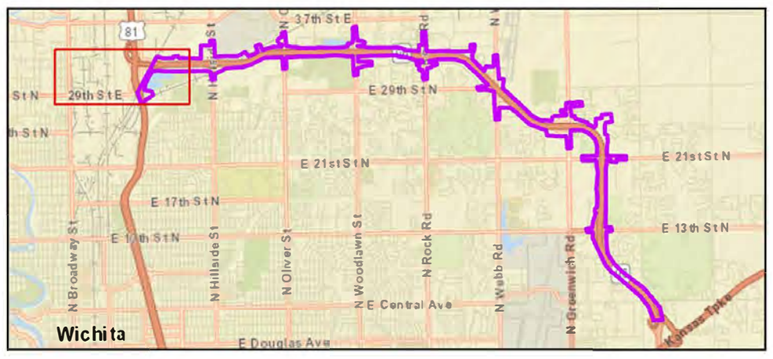


- Preferred Alternative Footprint
- Stream
- Open Water
- Emergent Wetland
- Forested Wetland

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





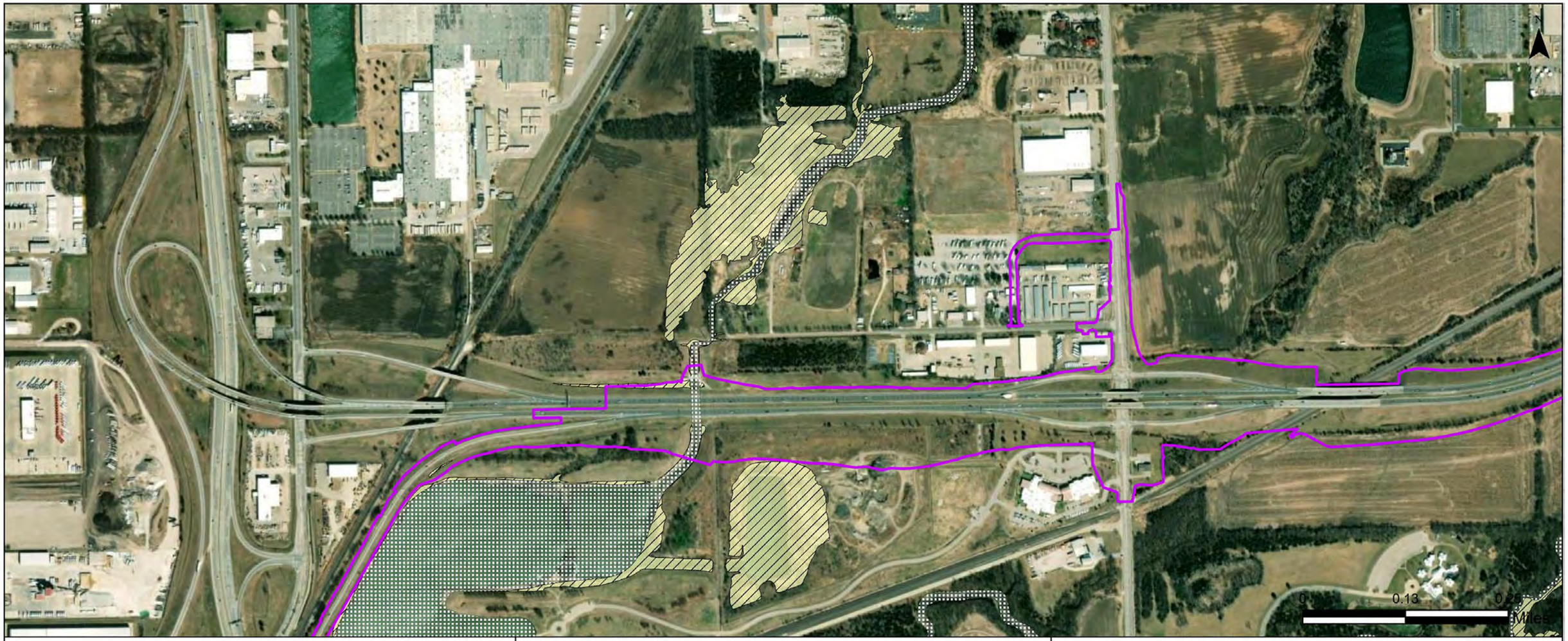
Preferred Alternative Footprint

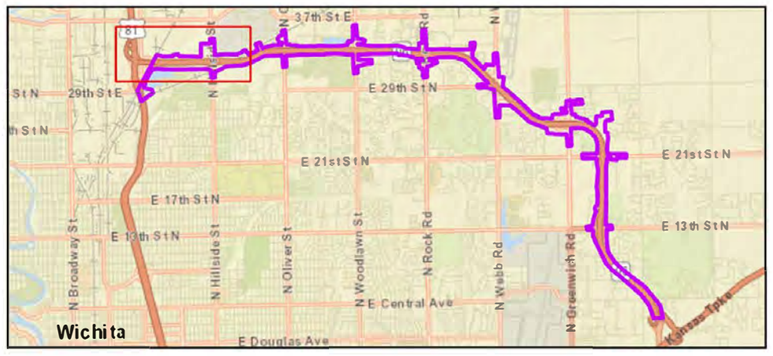
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





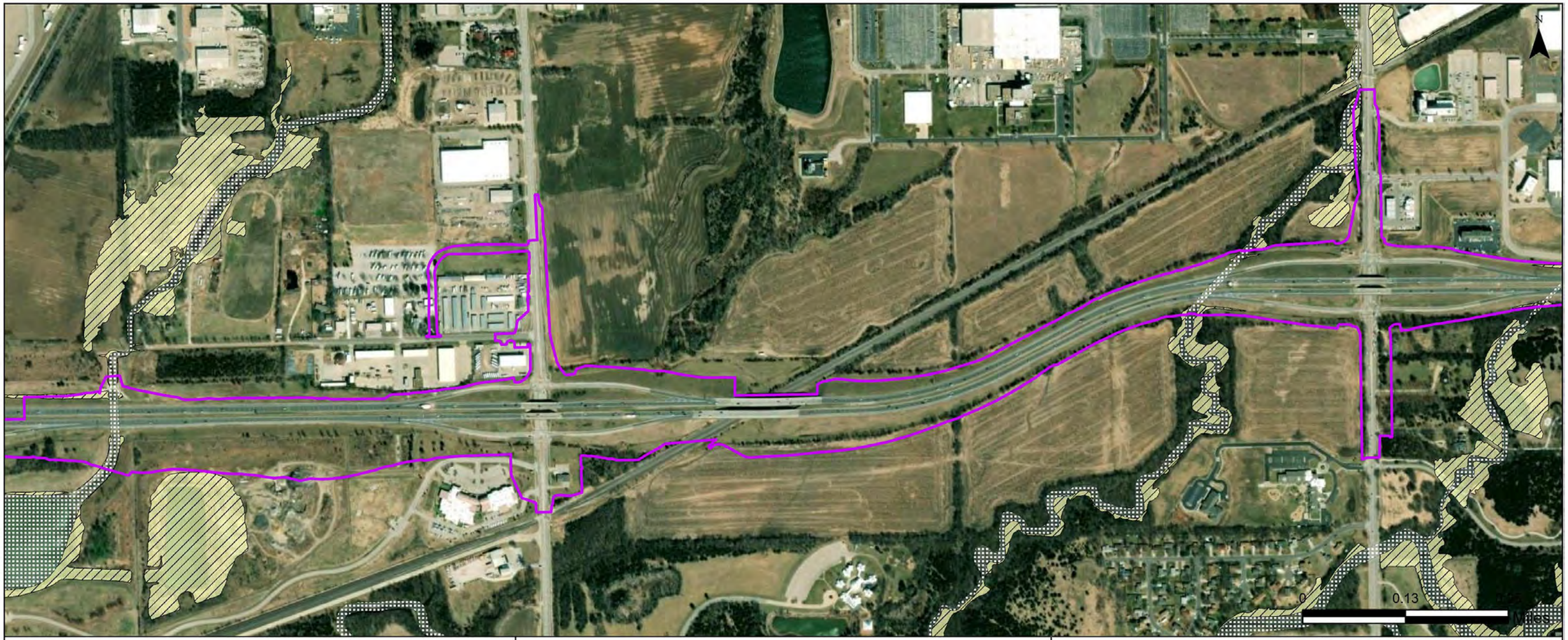
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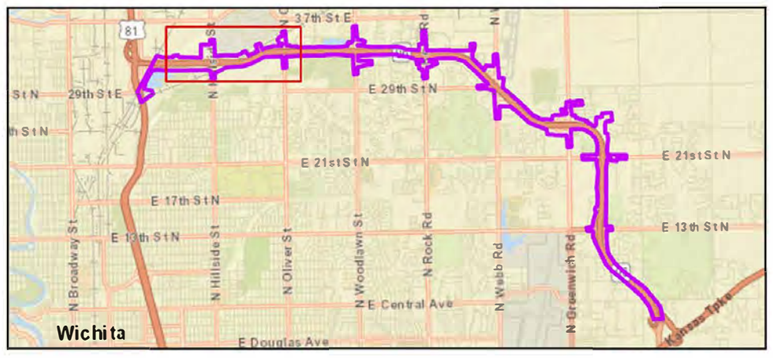
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





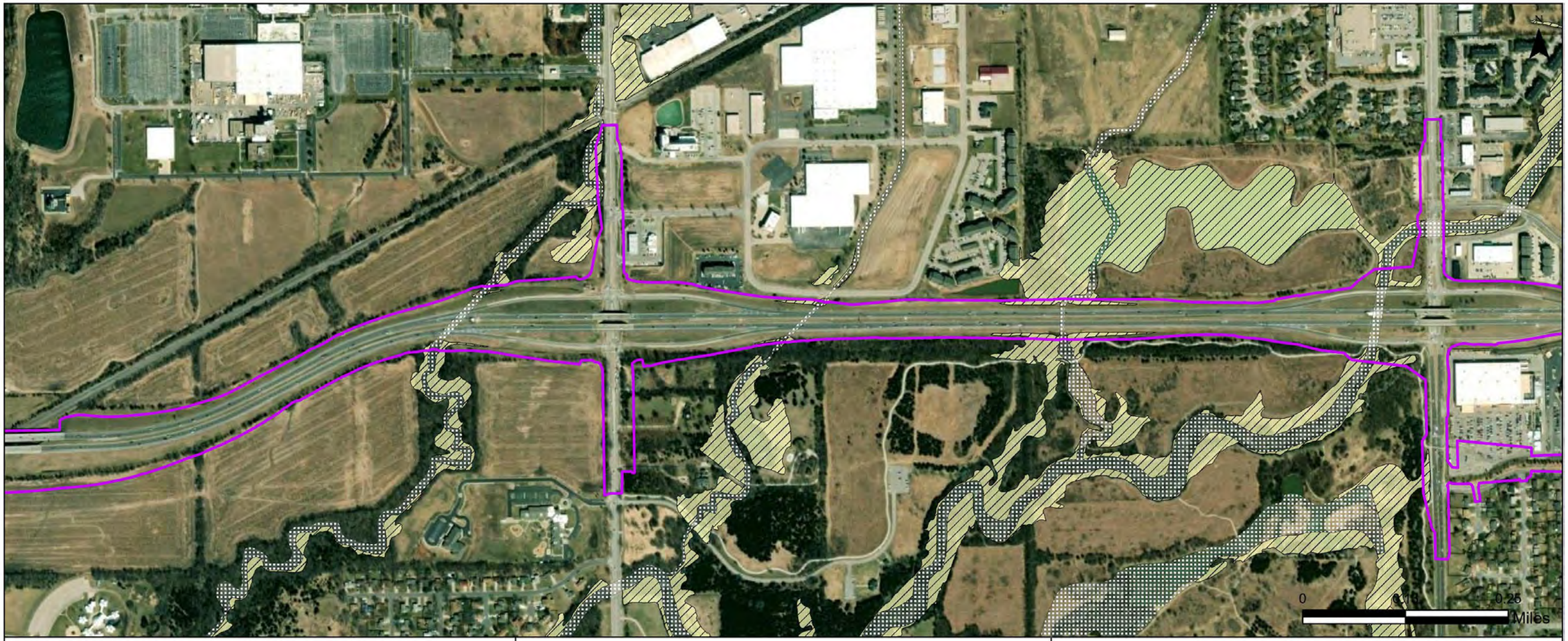
Preferred Alternative Footprint

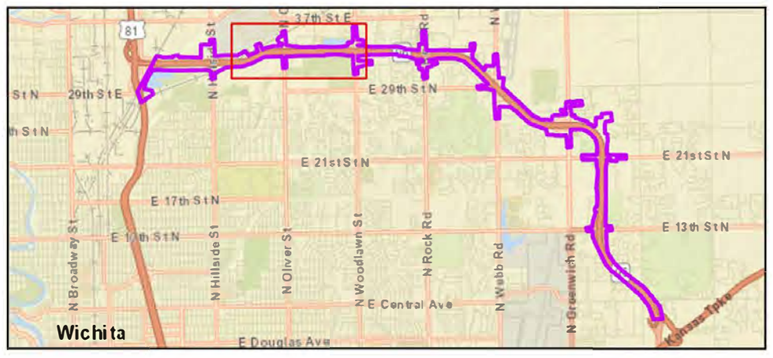
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





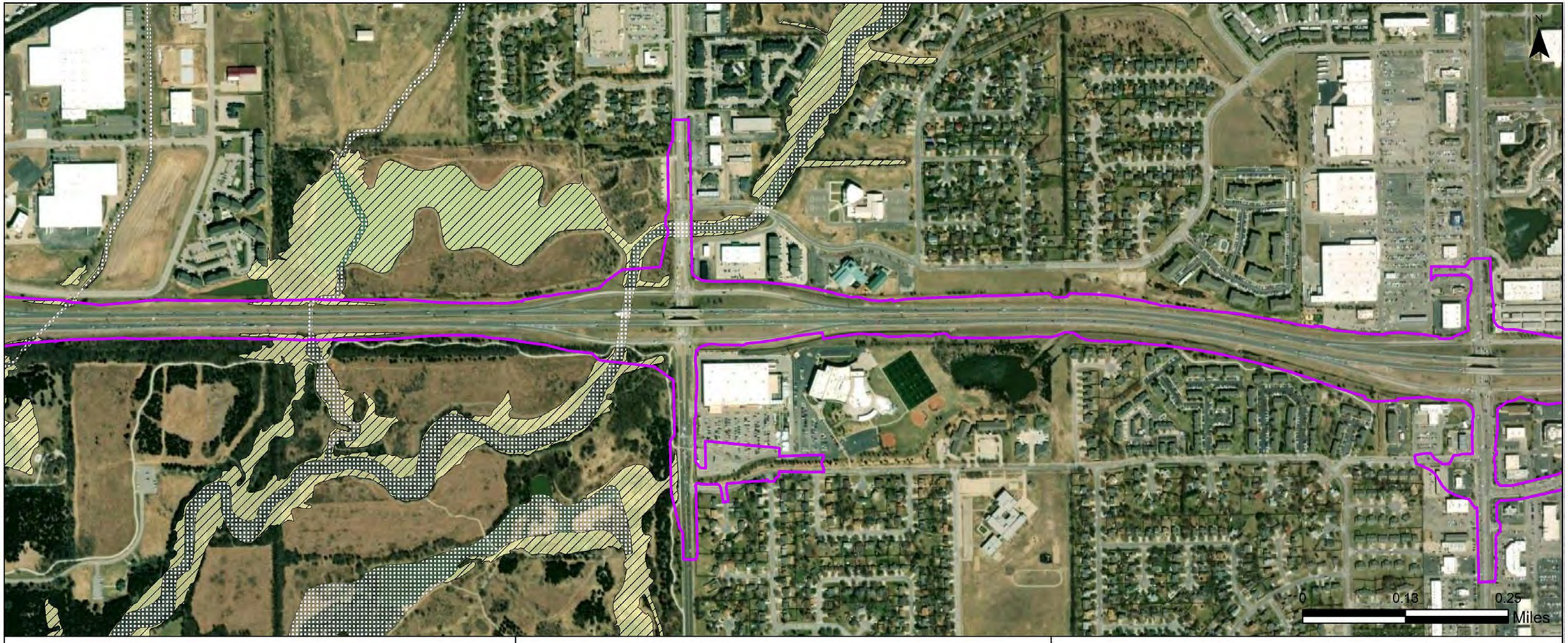
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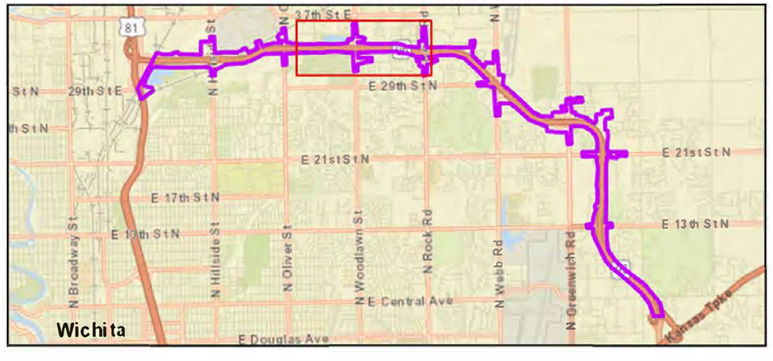
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





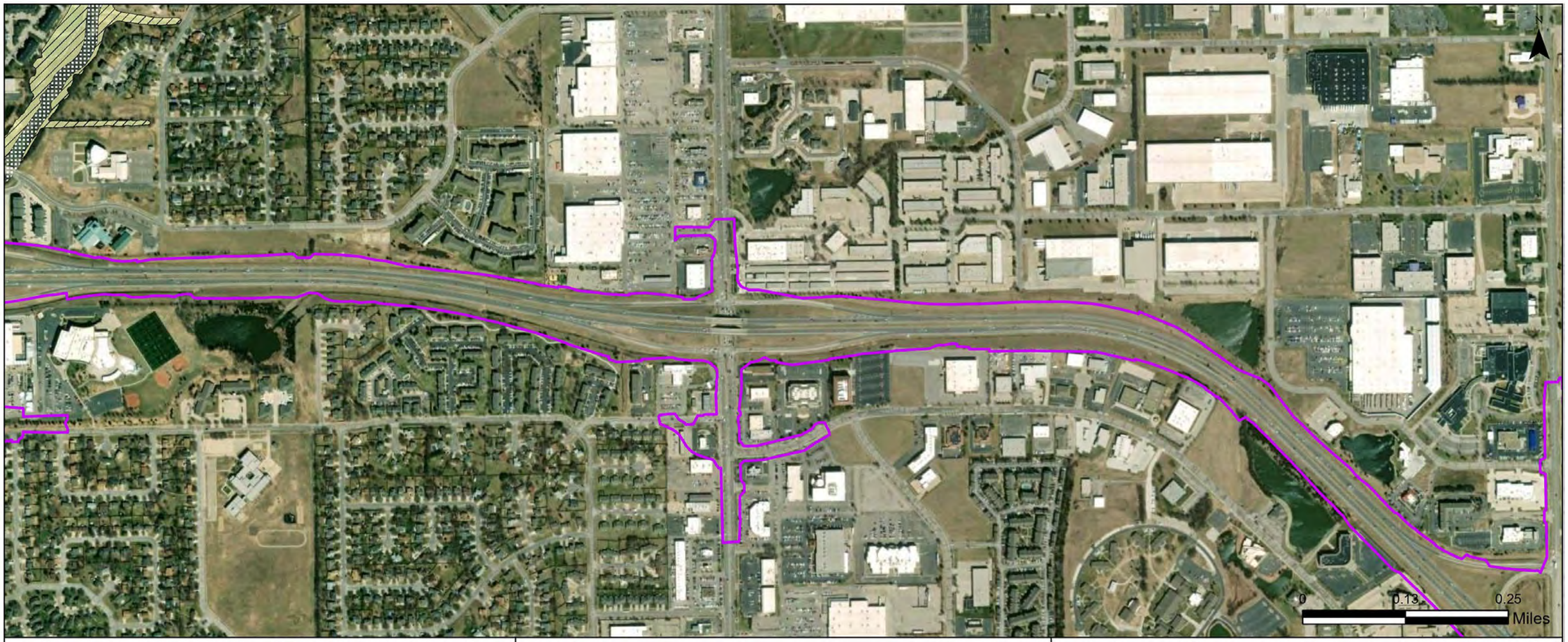
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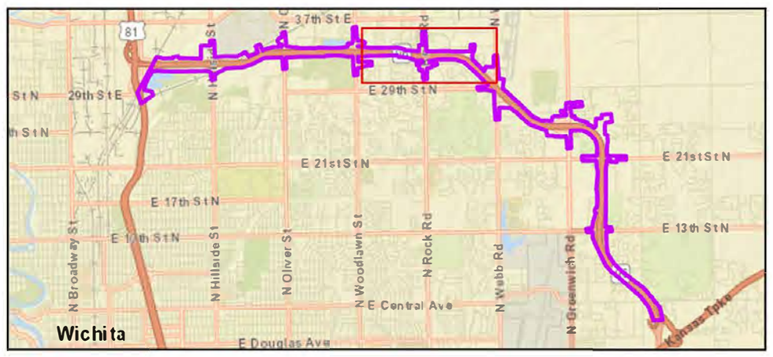
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





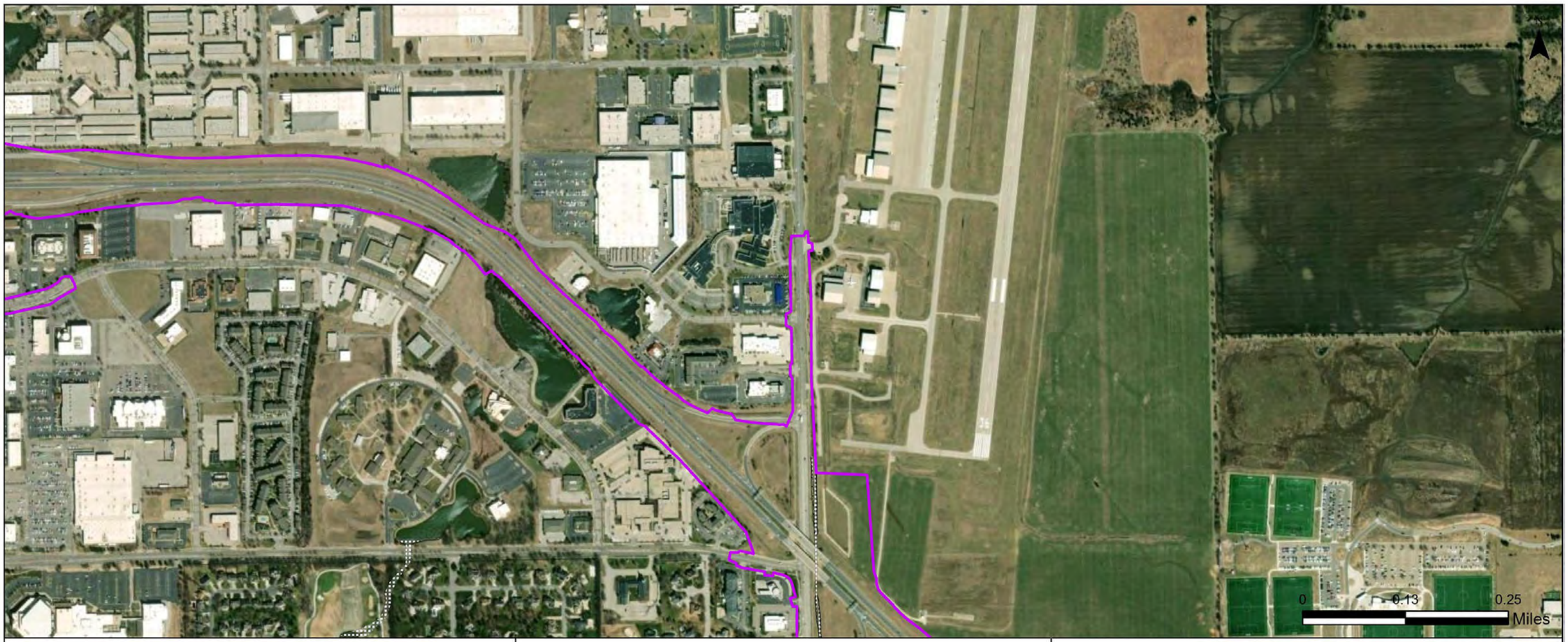
Preferred Alternative Footprint

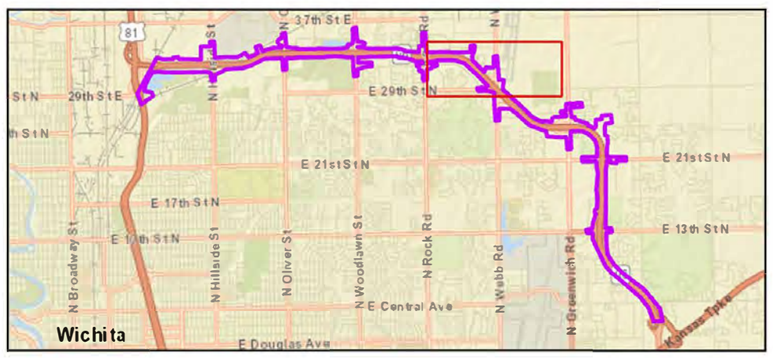
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





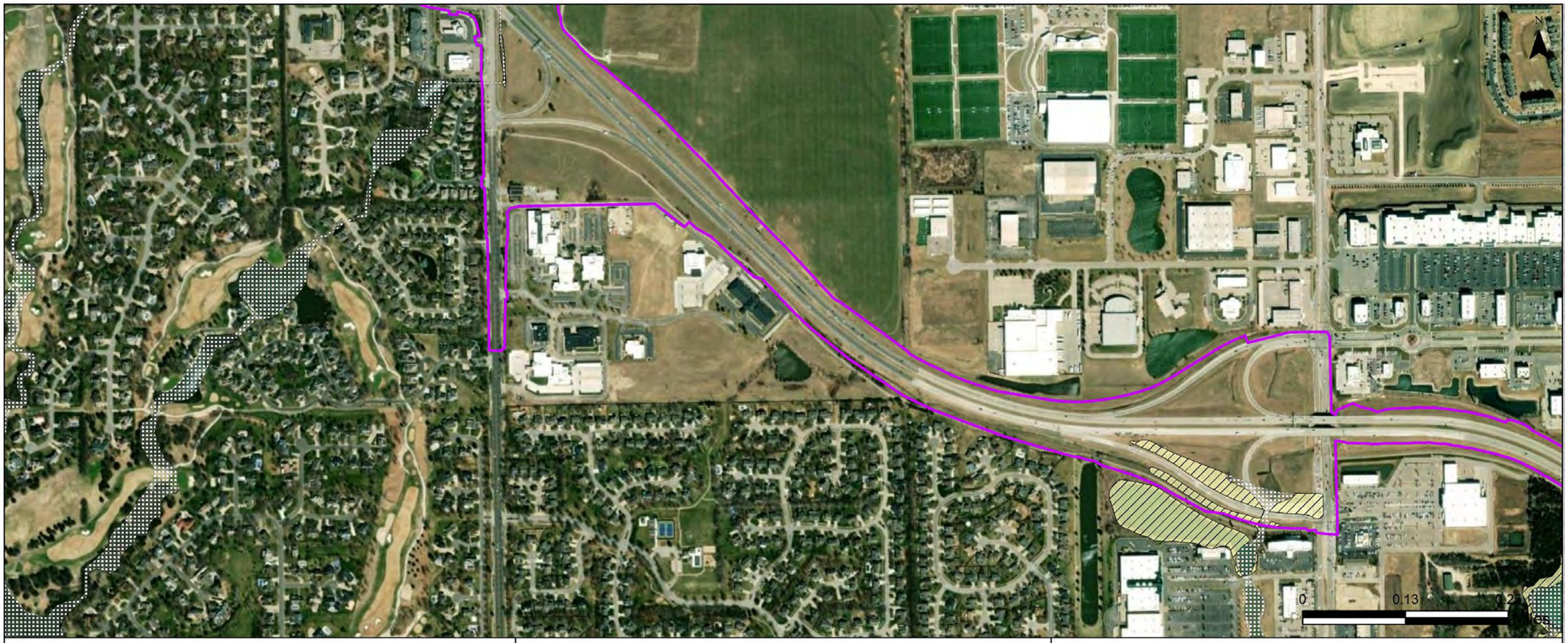
Preferred Alternative Footprint

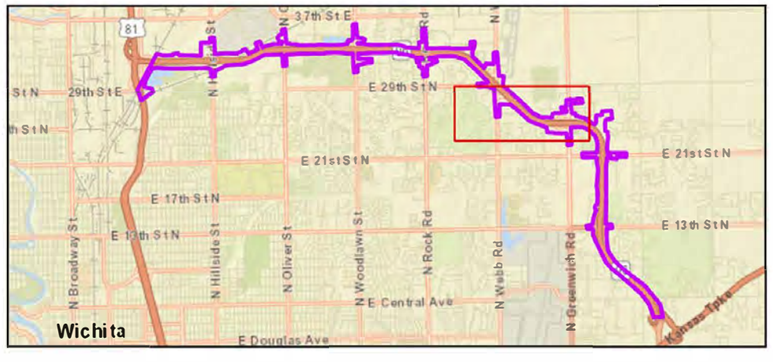
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





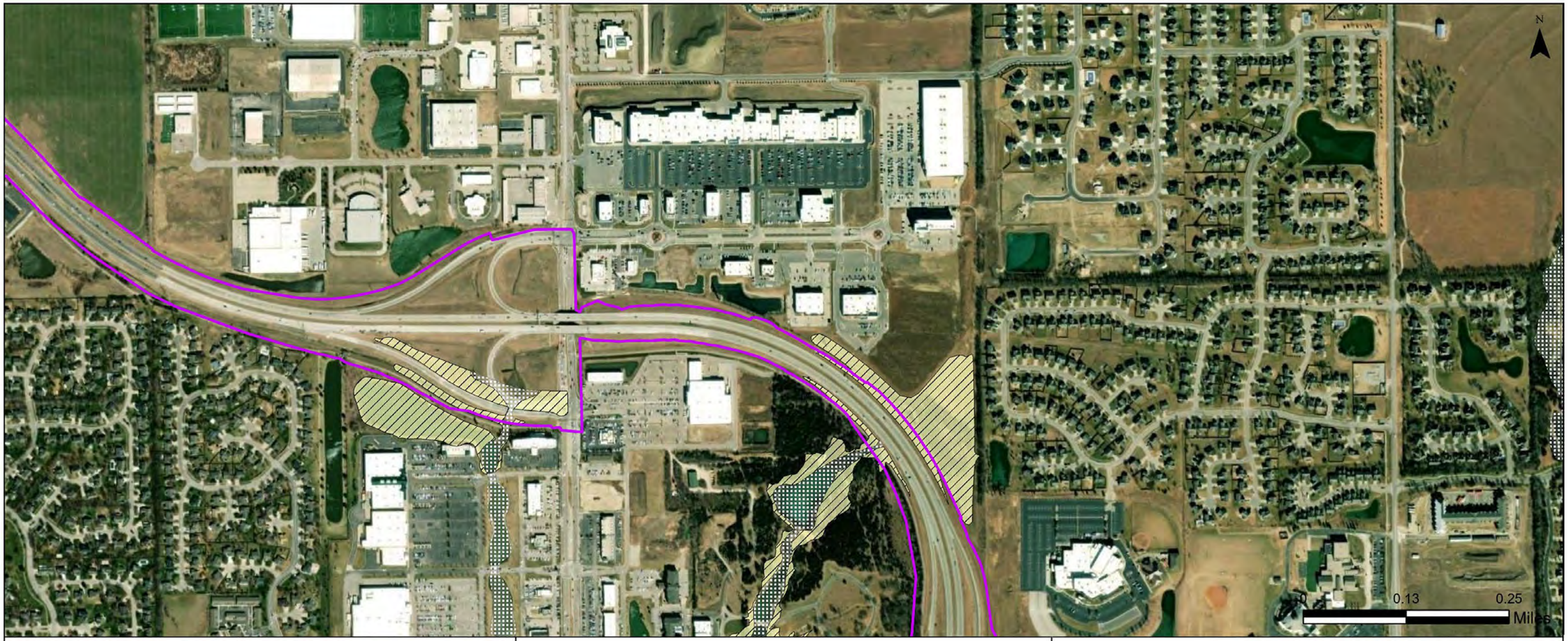
Preferred Alternative Footprint

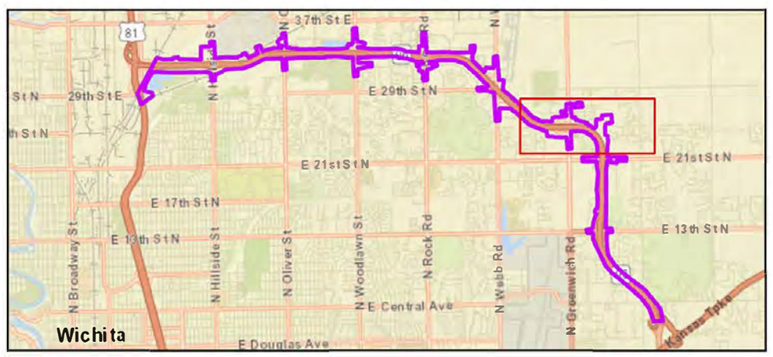
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





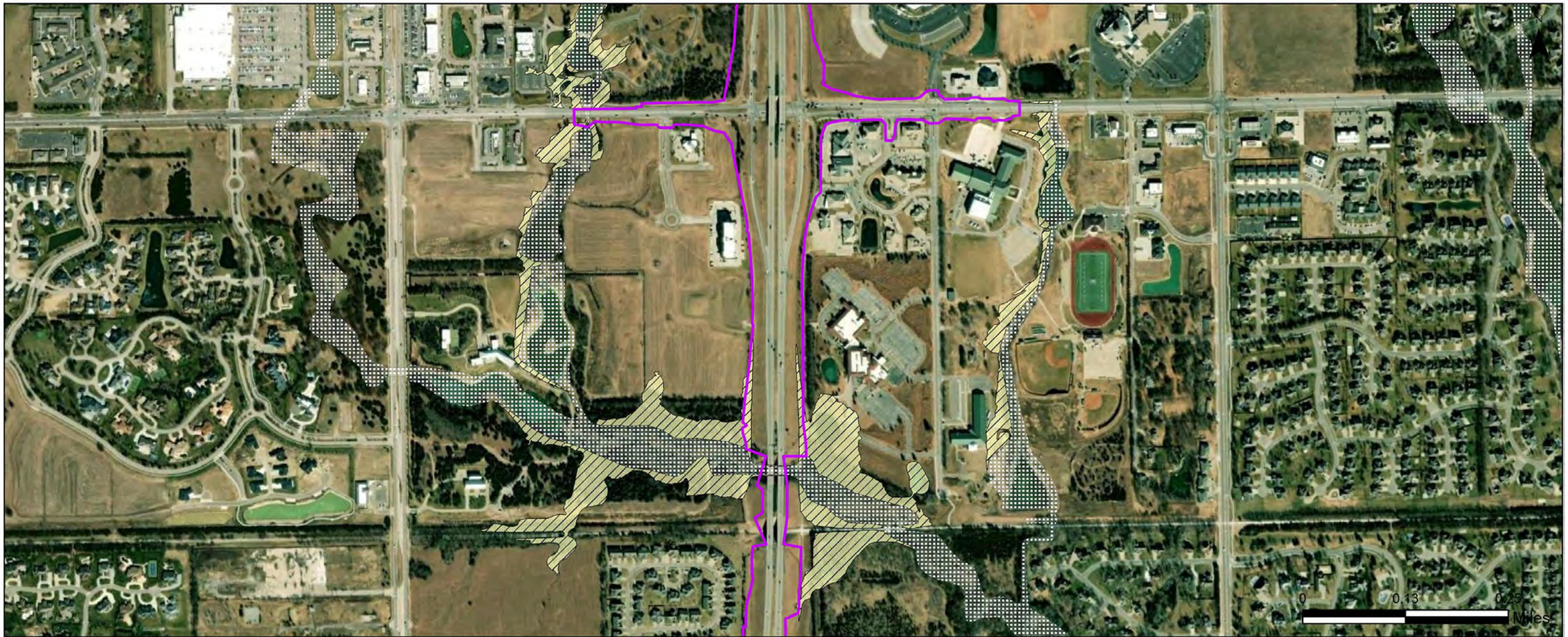
Preferred Alternative Footprint

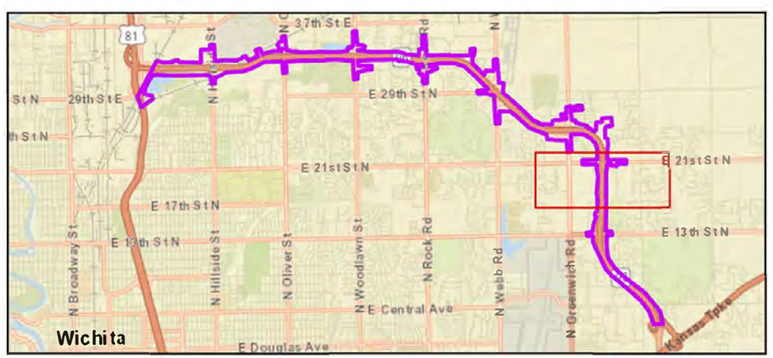
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





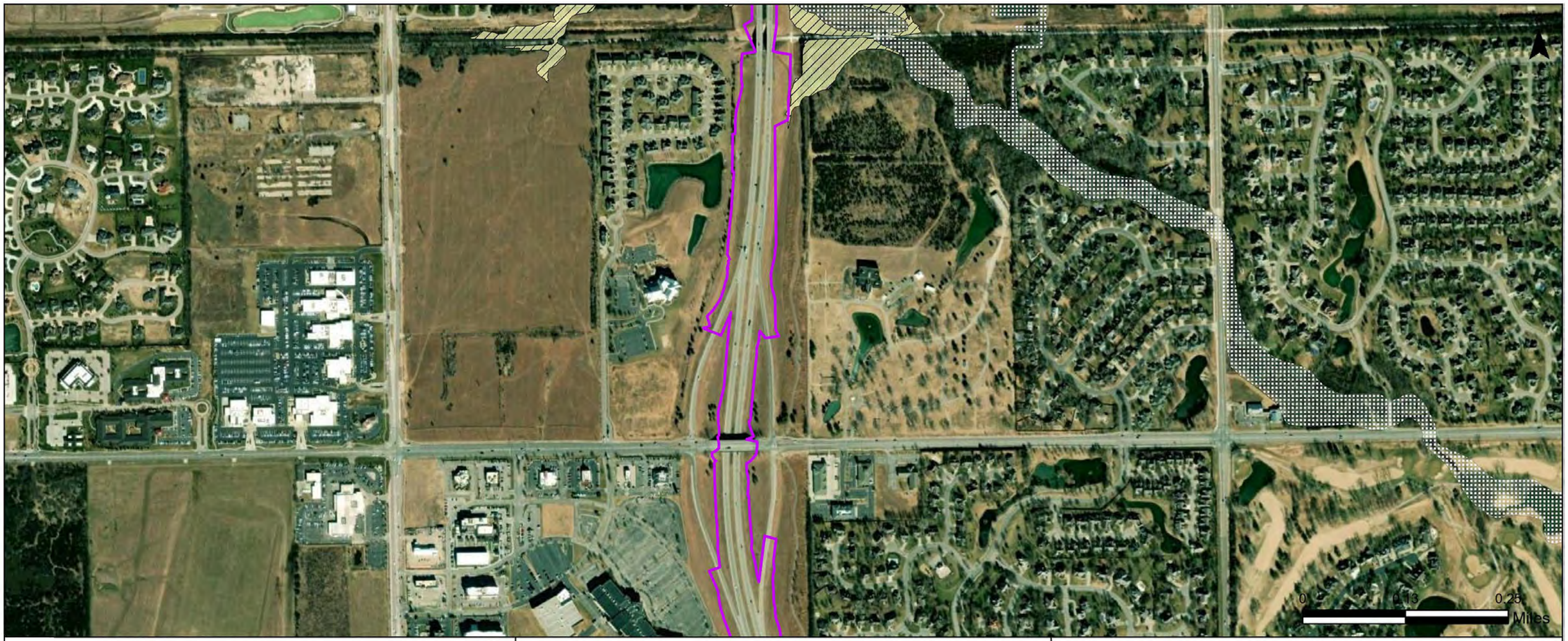
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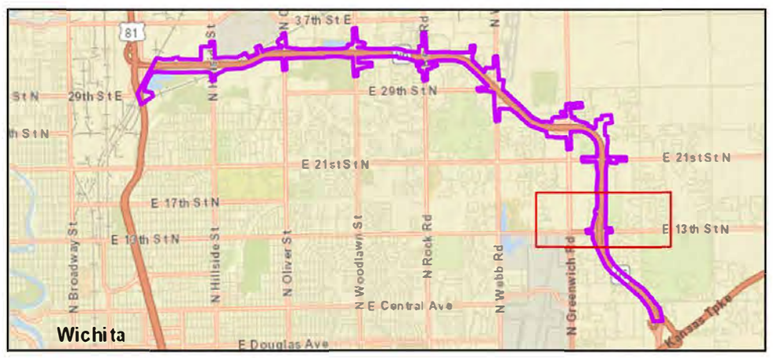
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





Preferred Alternative Footprint

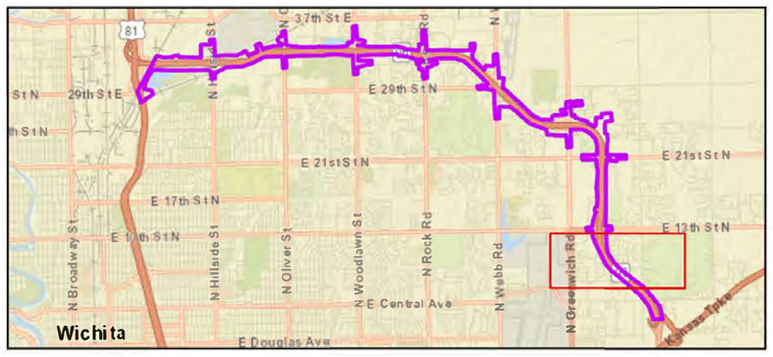
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





Preferred Alternative Footprint

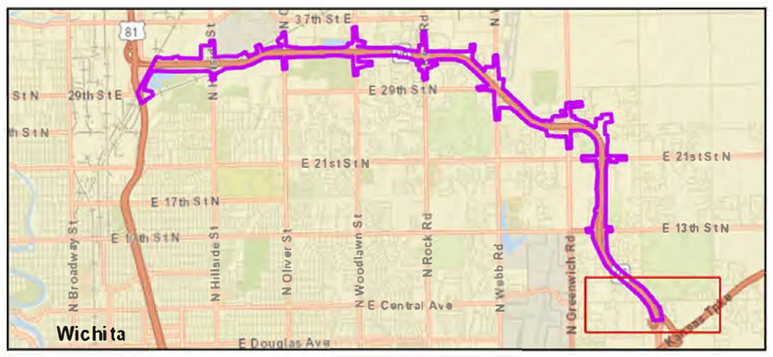
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-7: Preferred Alternative's Impacts to 100-year Floodplain and Regulatory Floodway





Preferred Alternative Footprint

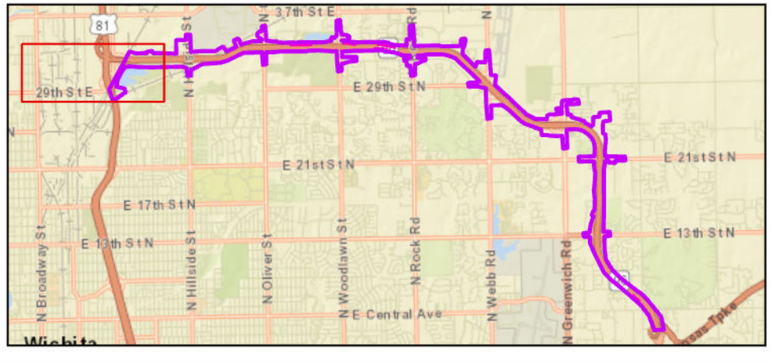
100-year Floodplain

Regulatory Floodway

K-96 IMPROVEMENTS

Exhibit 3-8: Noise Receptor and Proposed Noise Wall Locations within The Study Area





NEPA Study Area

Noise Wall

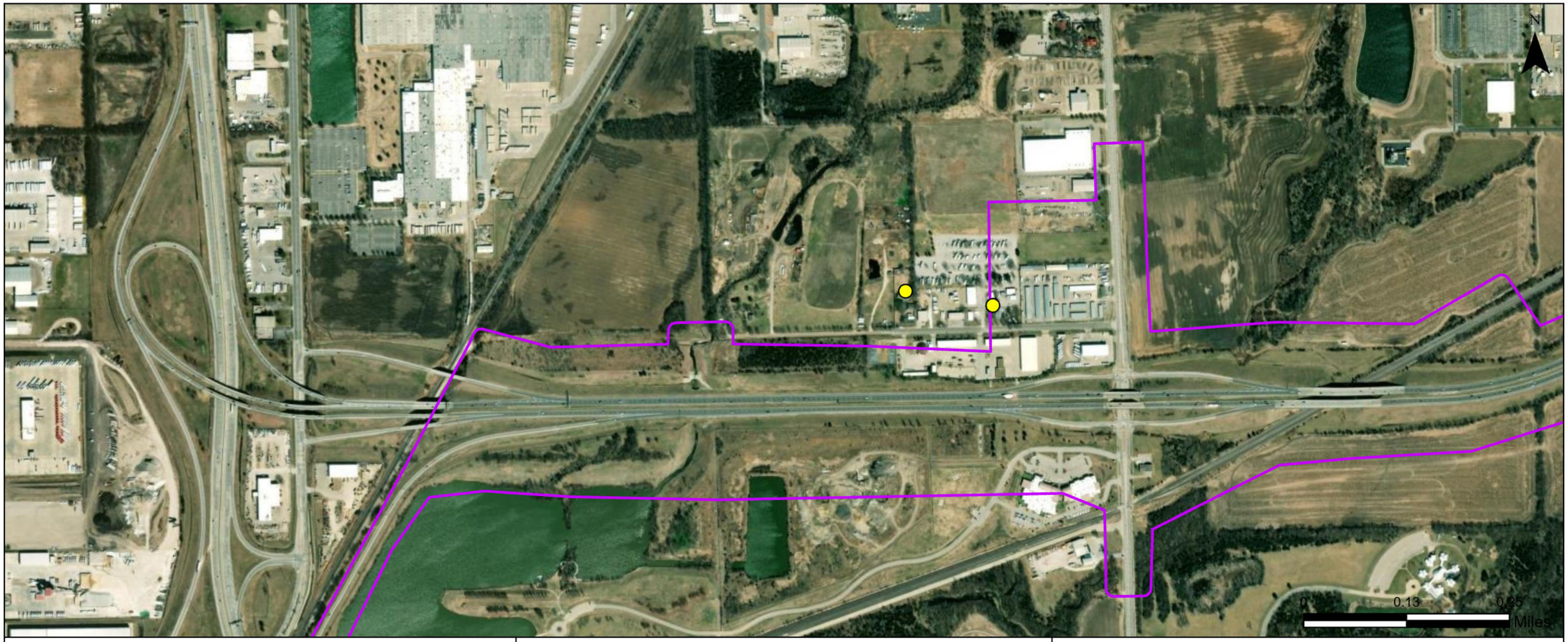
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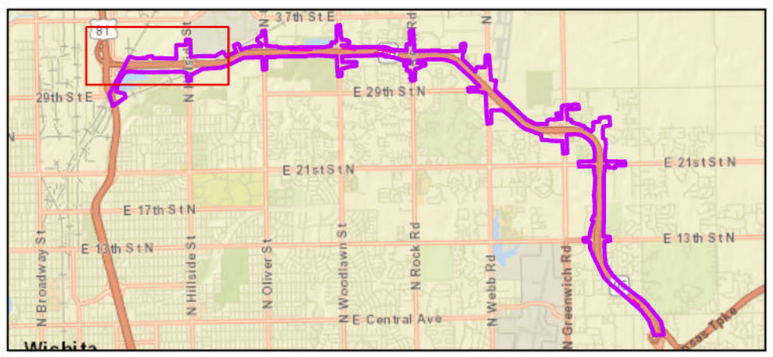
Noise Receptor

- Not Impacted, Not Benefited
- Impacted, Not Benefited
- Impacted, Benefited
- Not Impacted, Benefited

K-96 IMPROVEMENTS

Exhibit 3-8: Noise Receptor and Proposed Noise Wall Locations within The Study Area





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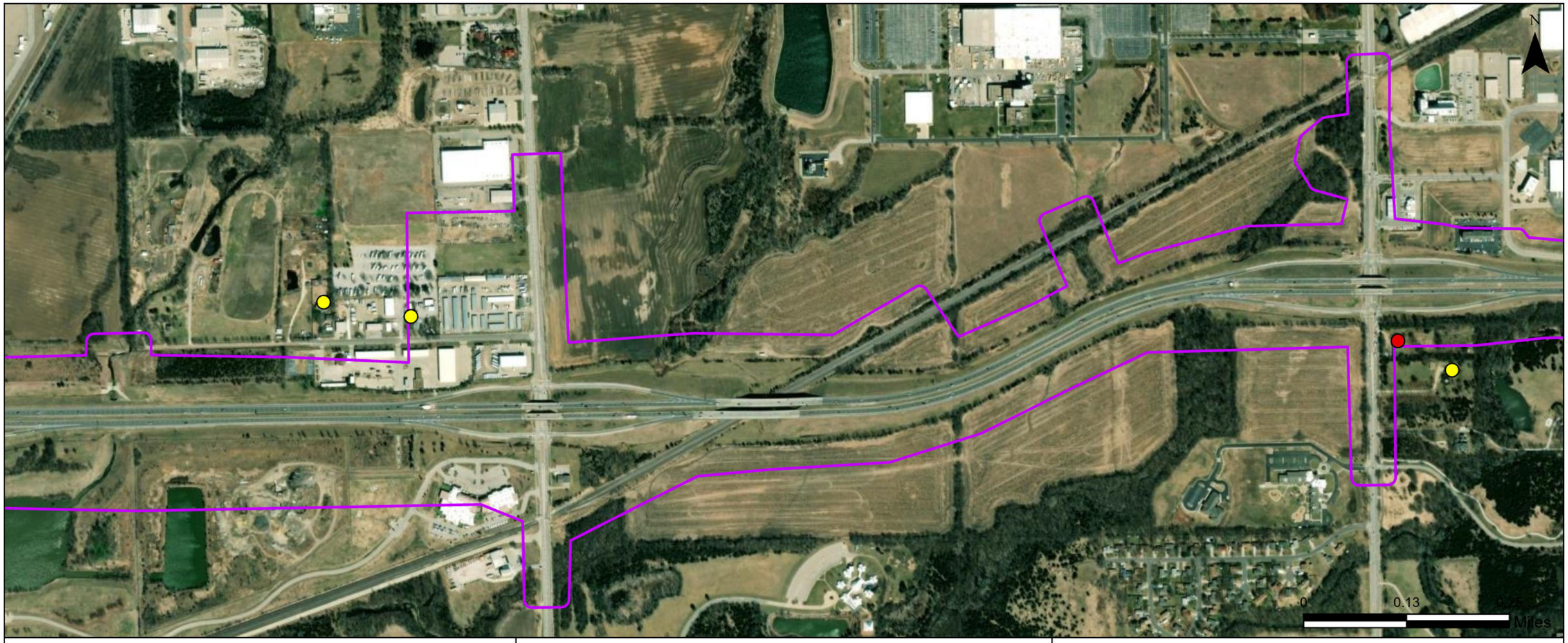
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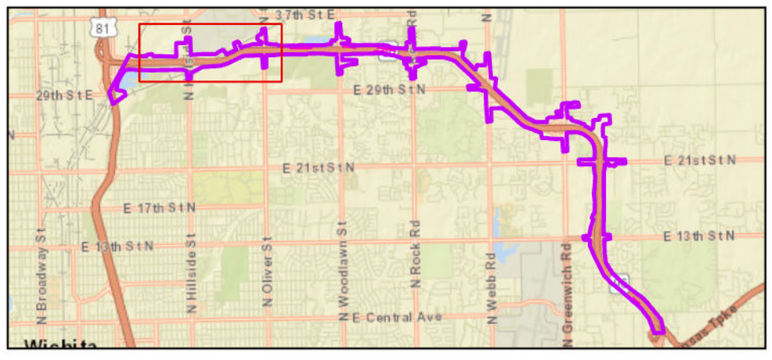
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K-96 IMPROVEMENTS

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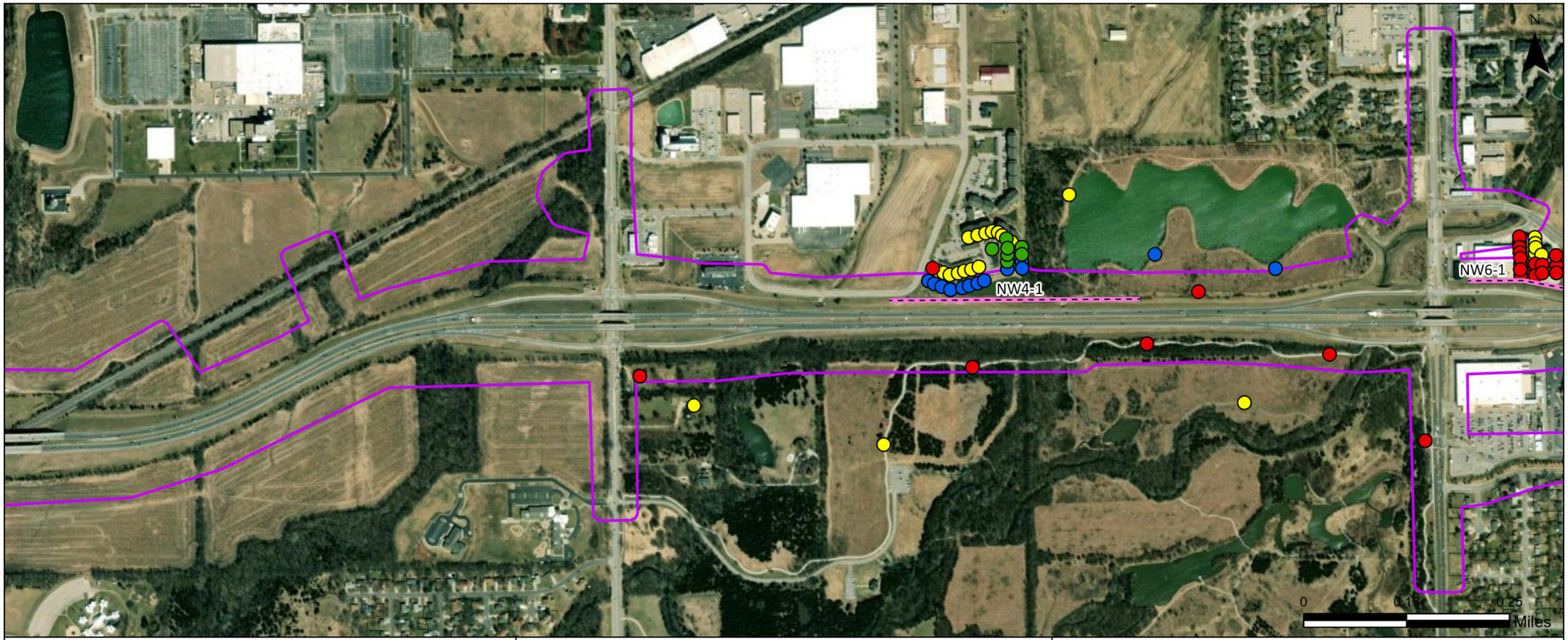
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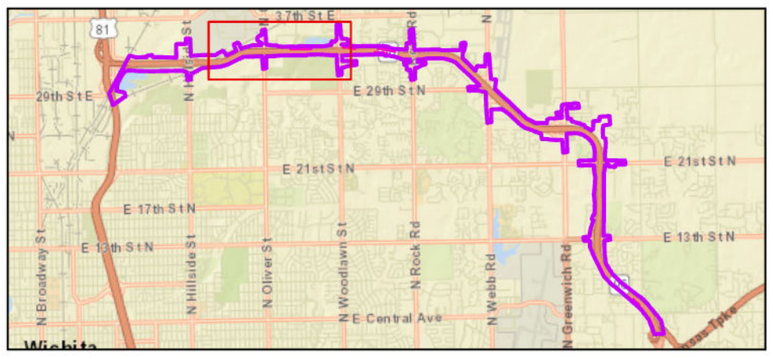
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K-96 IMPROVEMENTS

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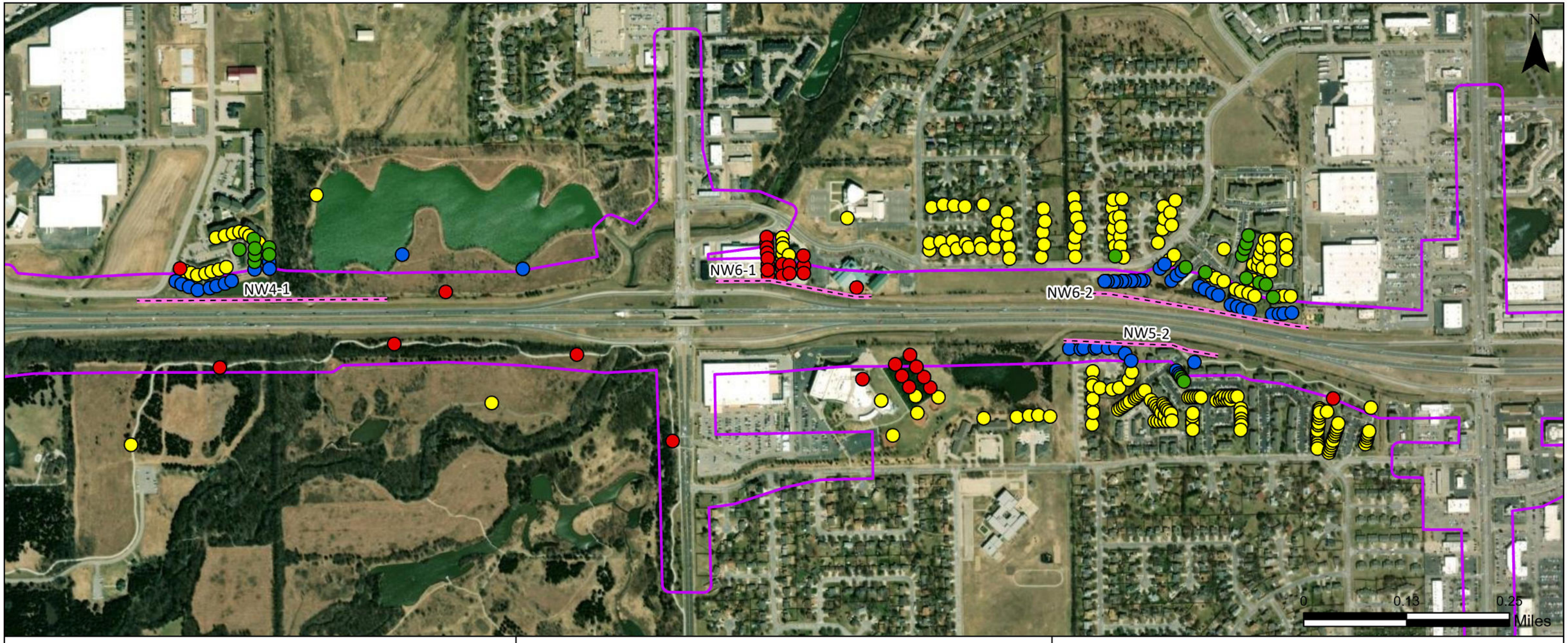
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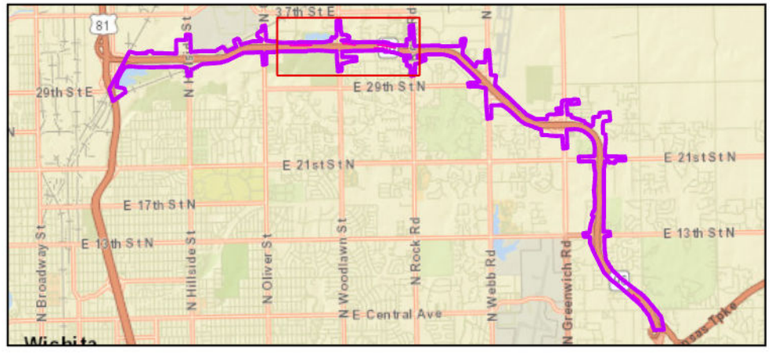
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K-96 IMPROVEMENTS

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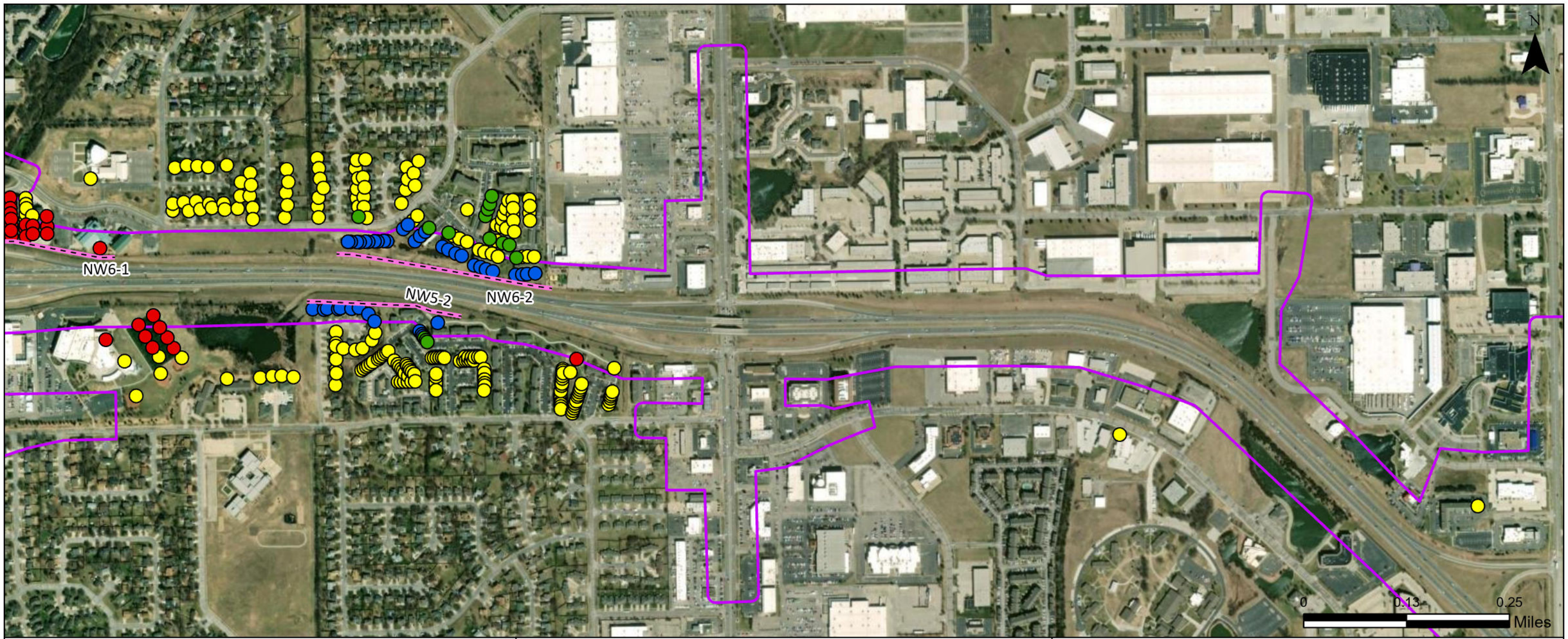
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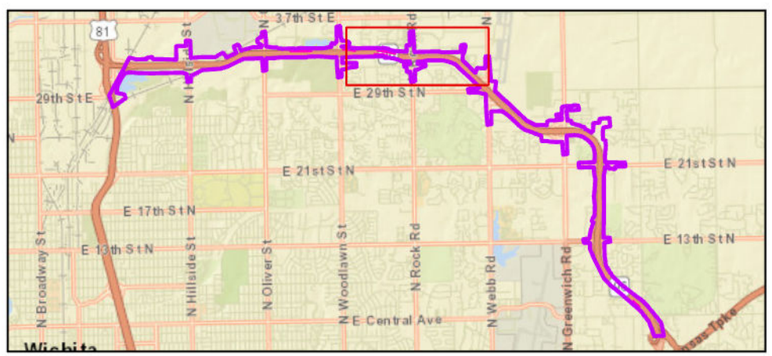
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K-96 IMPROVEMENTS

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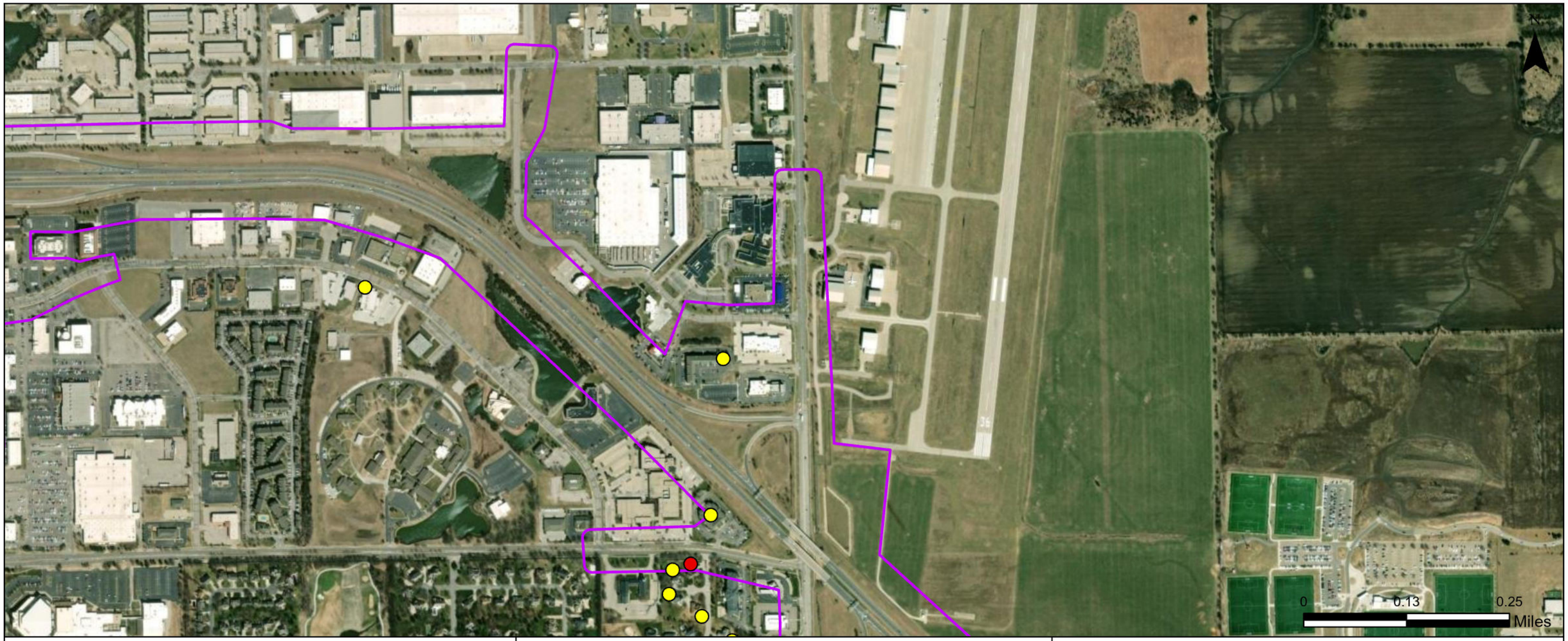
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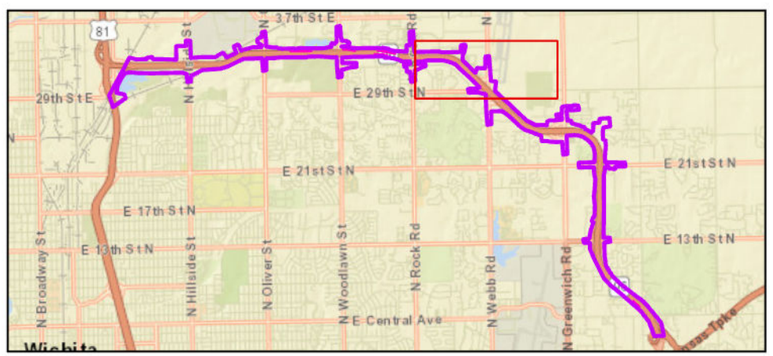
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K-96 IMPROVEMENTS

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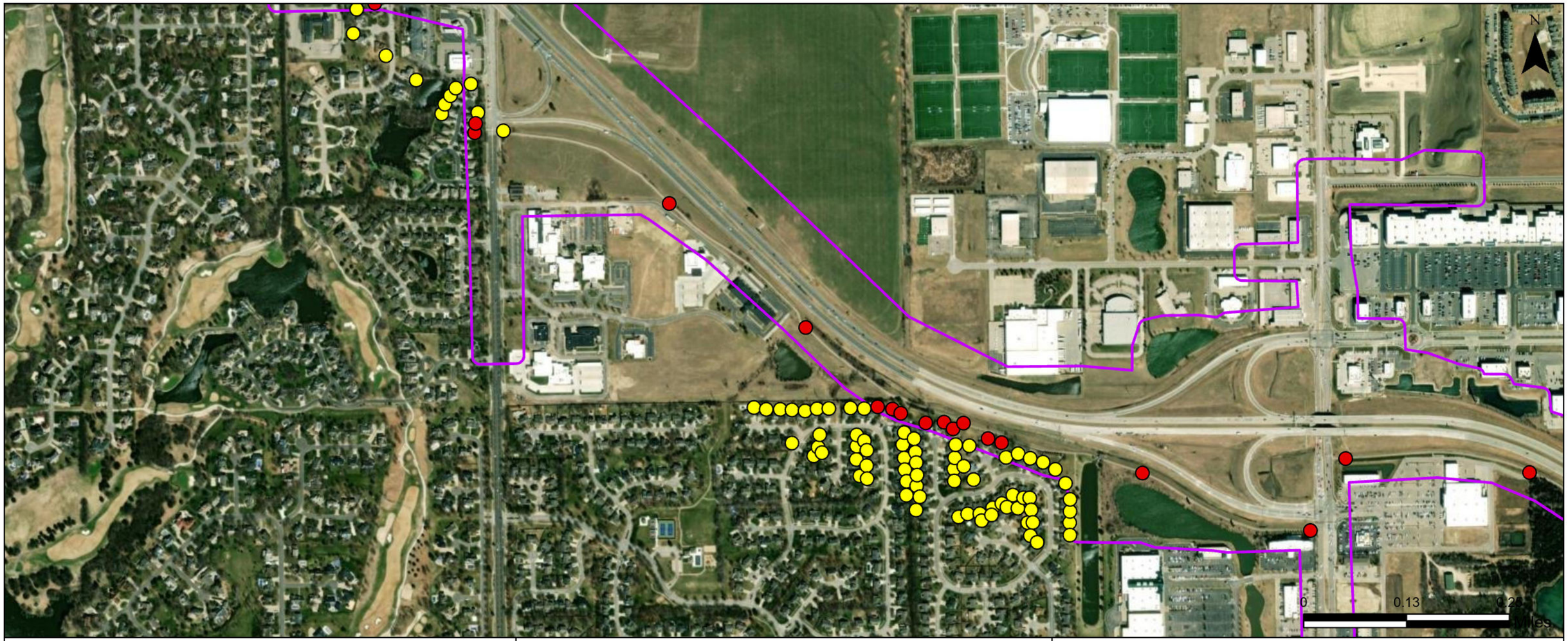
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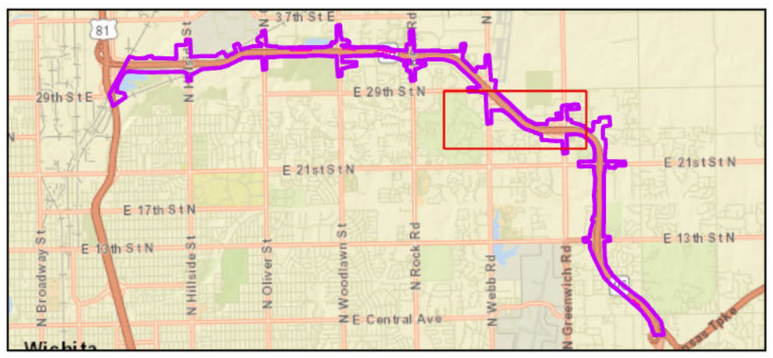
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K-96 IMPROVEMENTS

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NEPA Study Area

Noise Wall

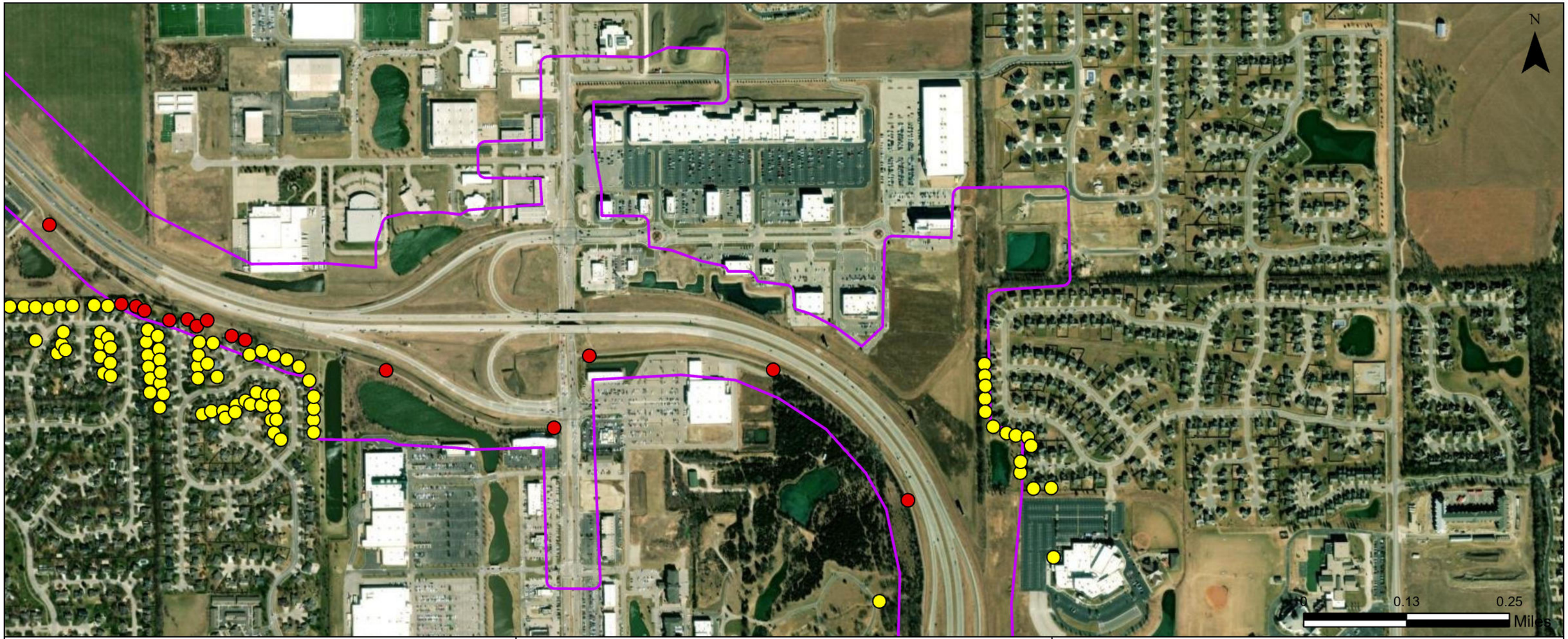
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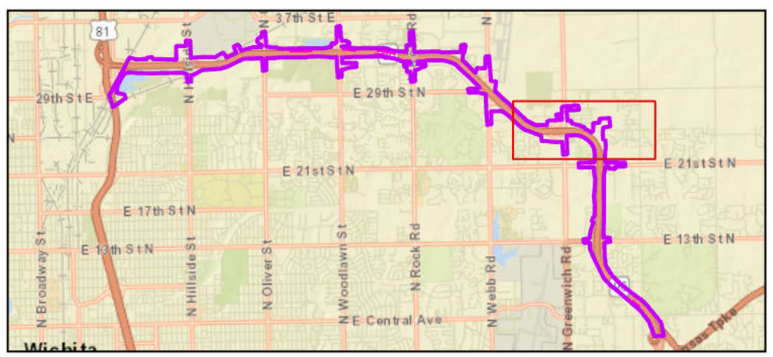
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K-96 IMPROVEMENTS

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NEPA Study Area

Noise Wall

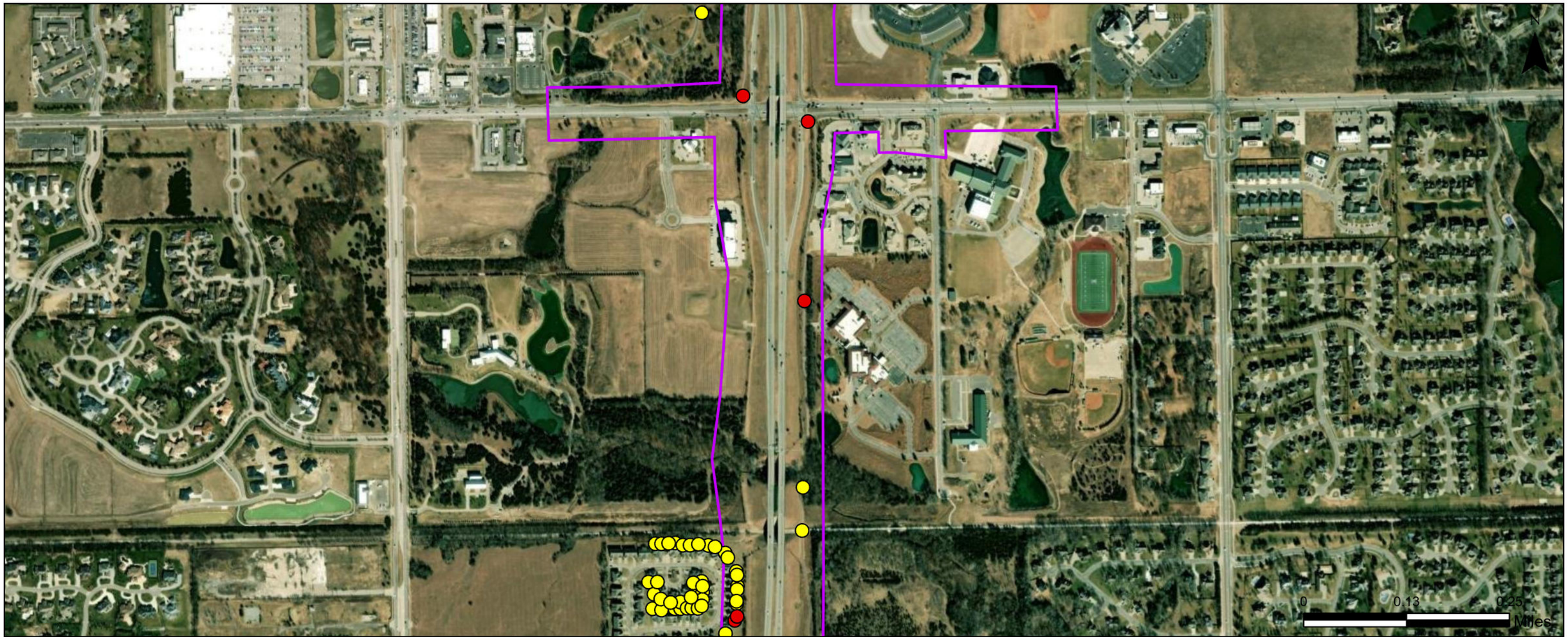
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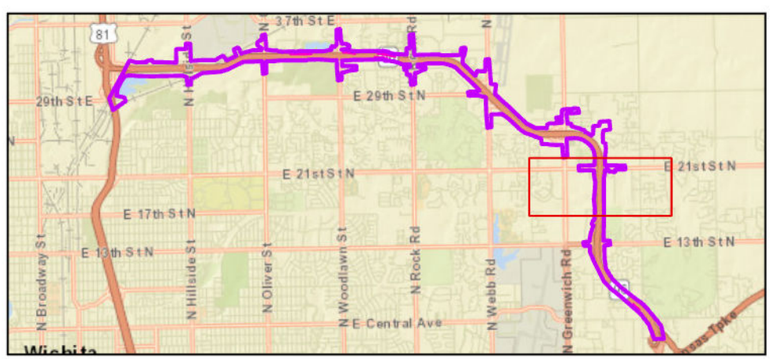
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K-96 IMPROVEMENTS

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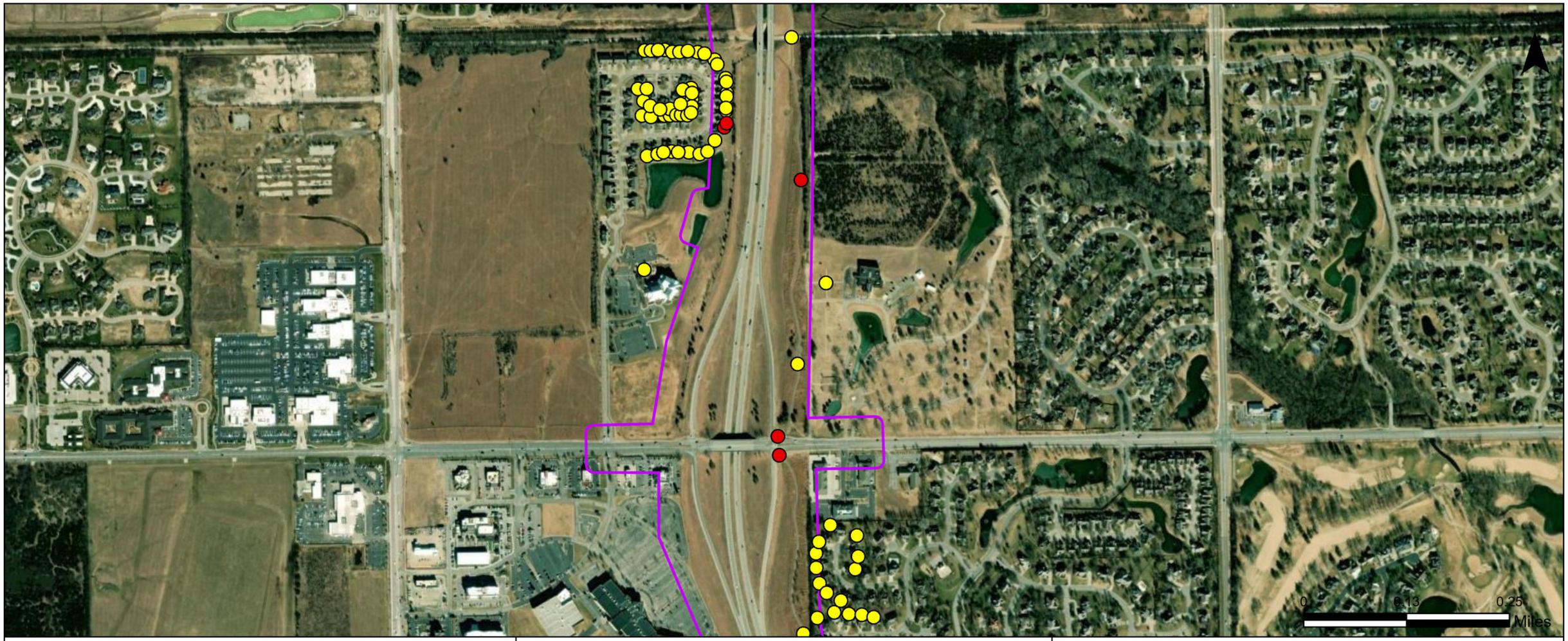
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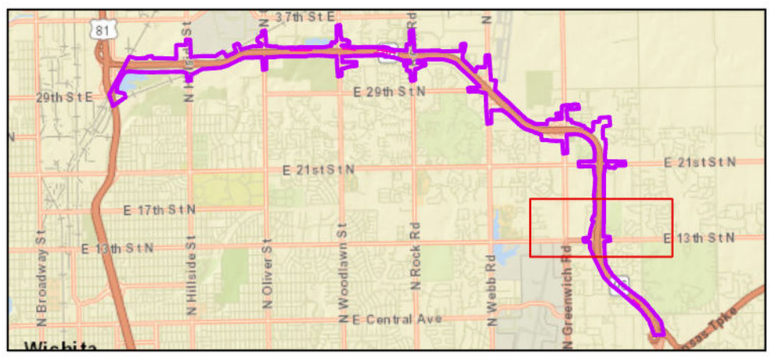
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K-96 IMPROVEMENTS

Exhibit 3-8: Noise Receptor and Proposed Noise Wall Locations within The Study Area





NEPA Study Area

Noise Wall

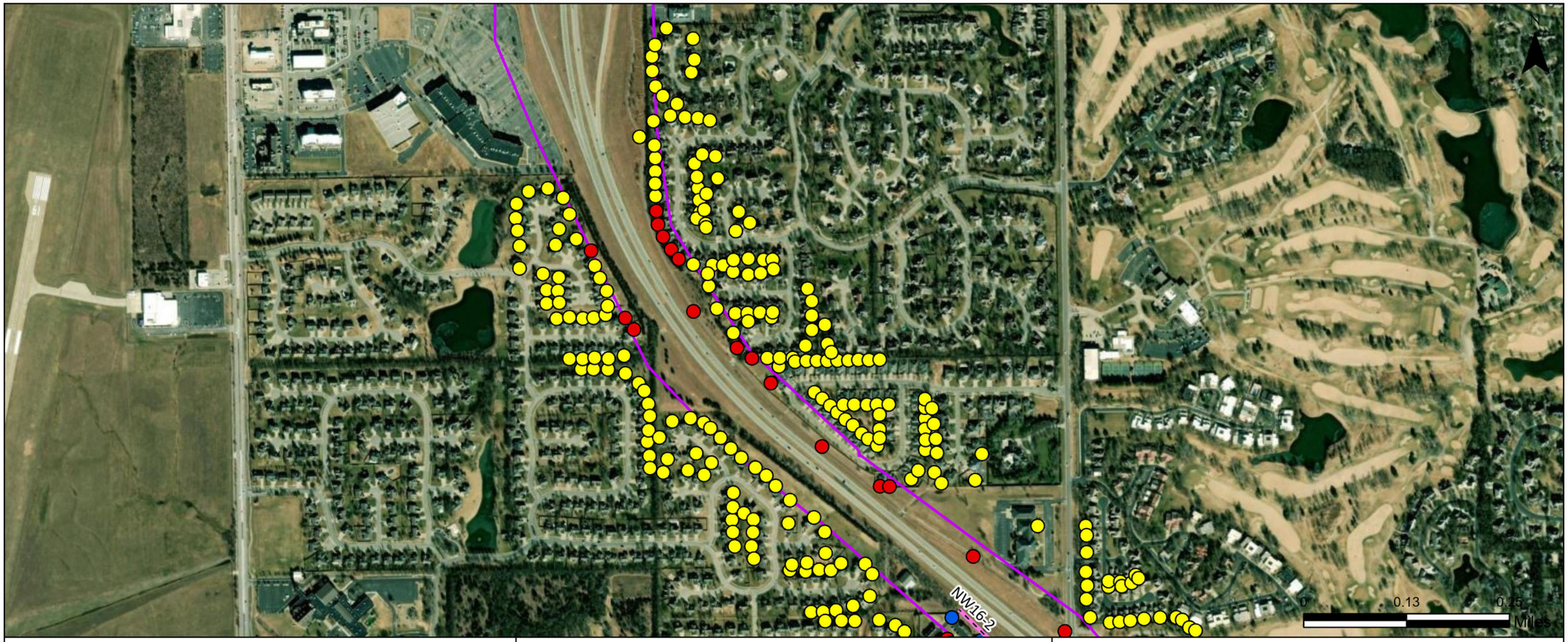
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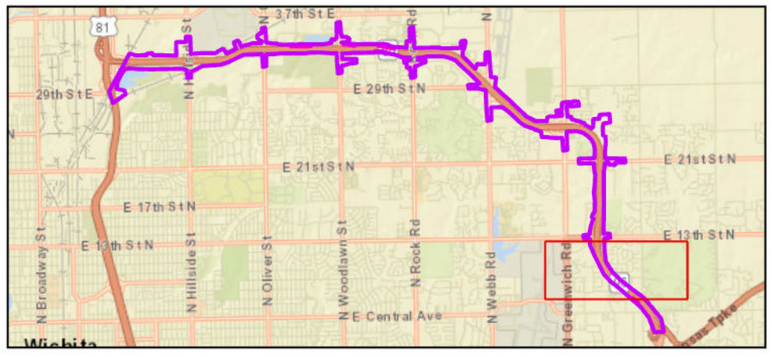
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K-96 IMPROVEMENTS

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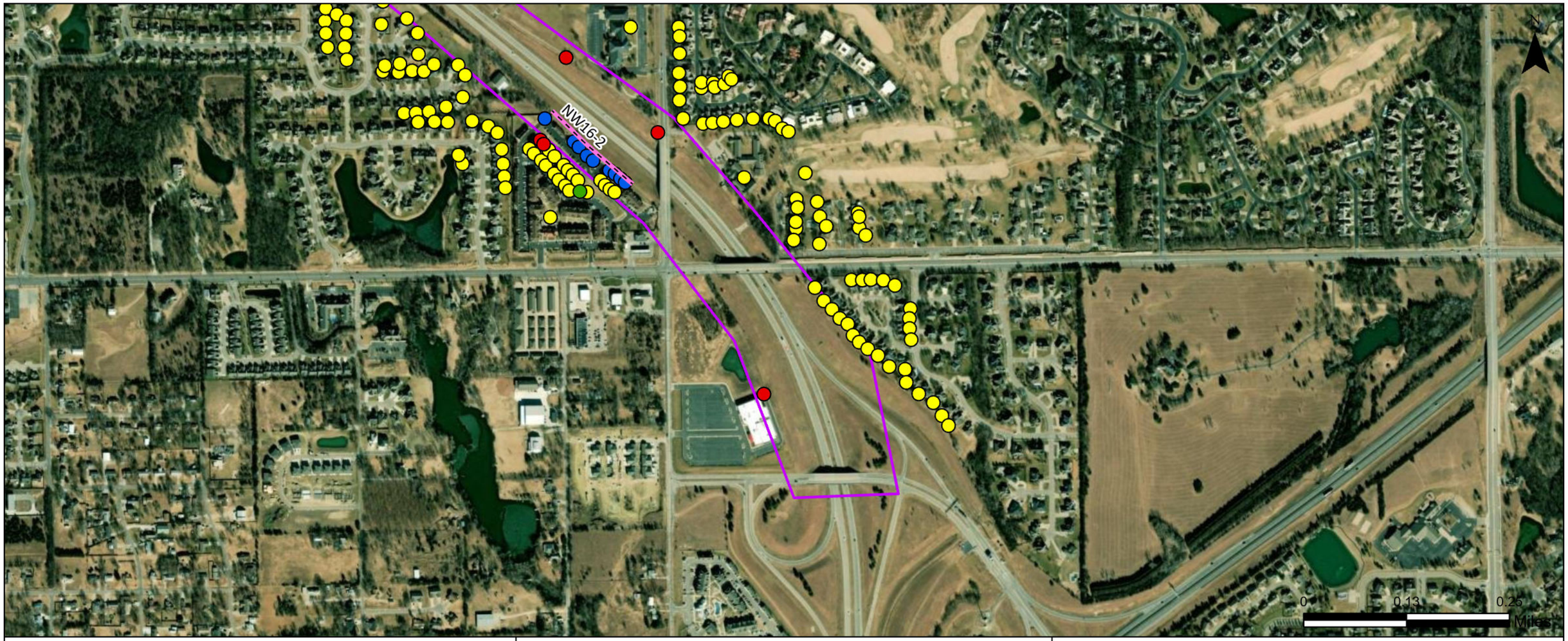
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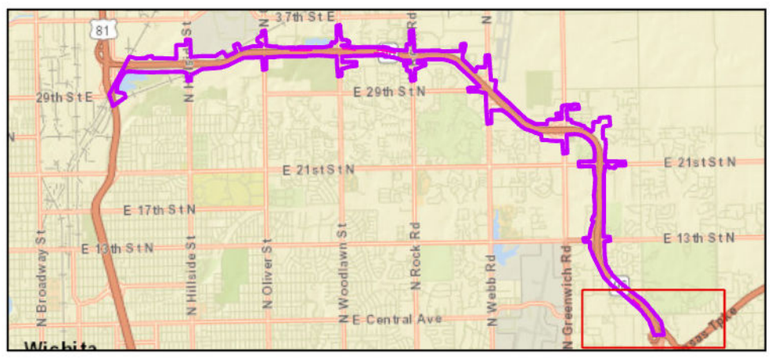
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K-96 IMPROVEMENTS

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NEPA Study Area

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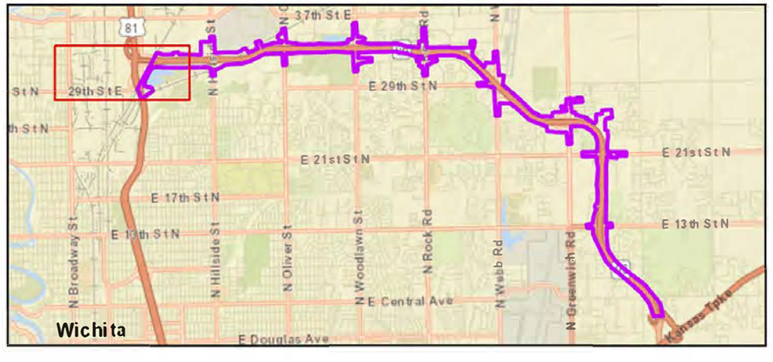
Feasible & Reasonable

Noise Receptor

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- Not Impacted, Benefited

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

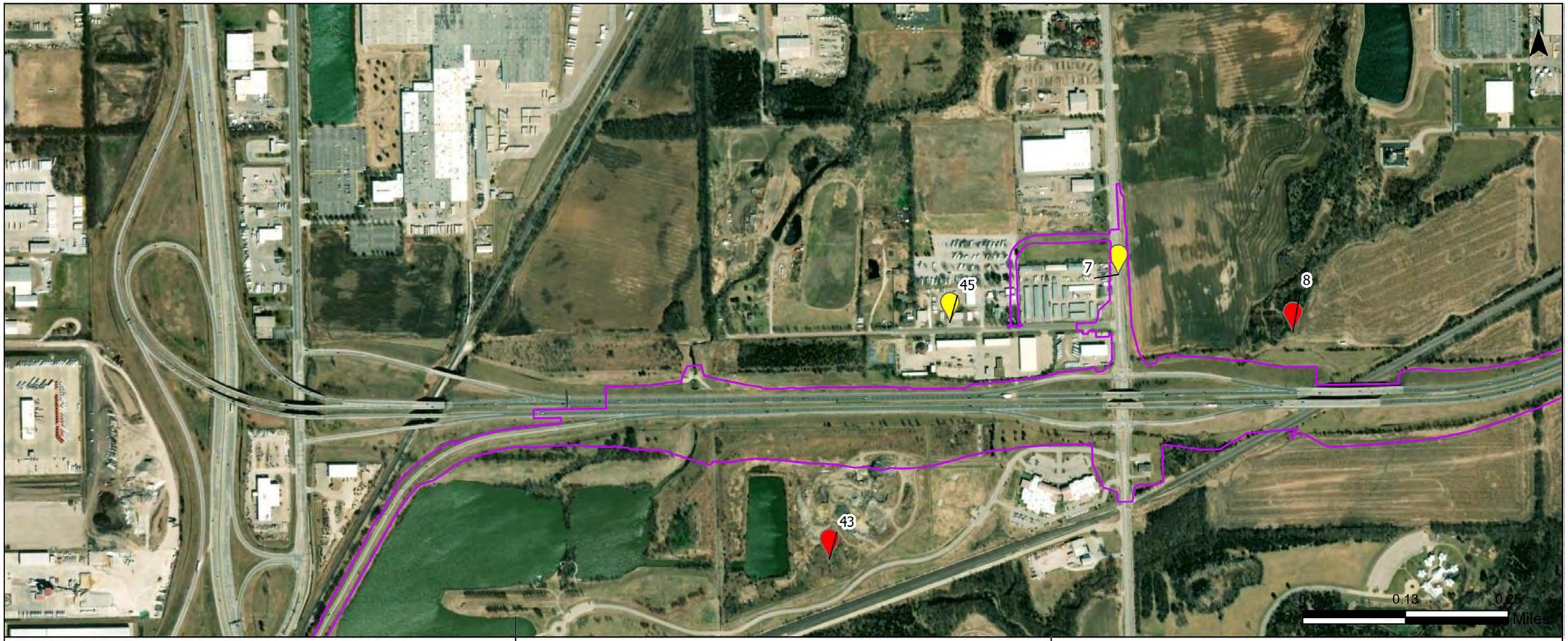
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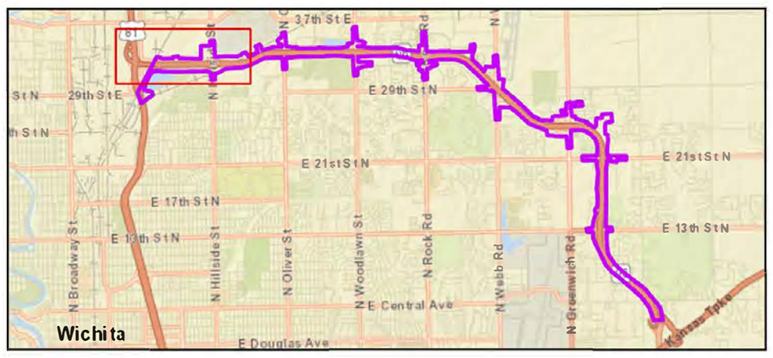
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

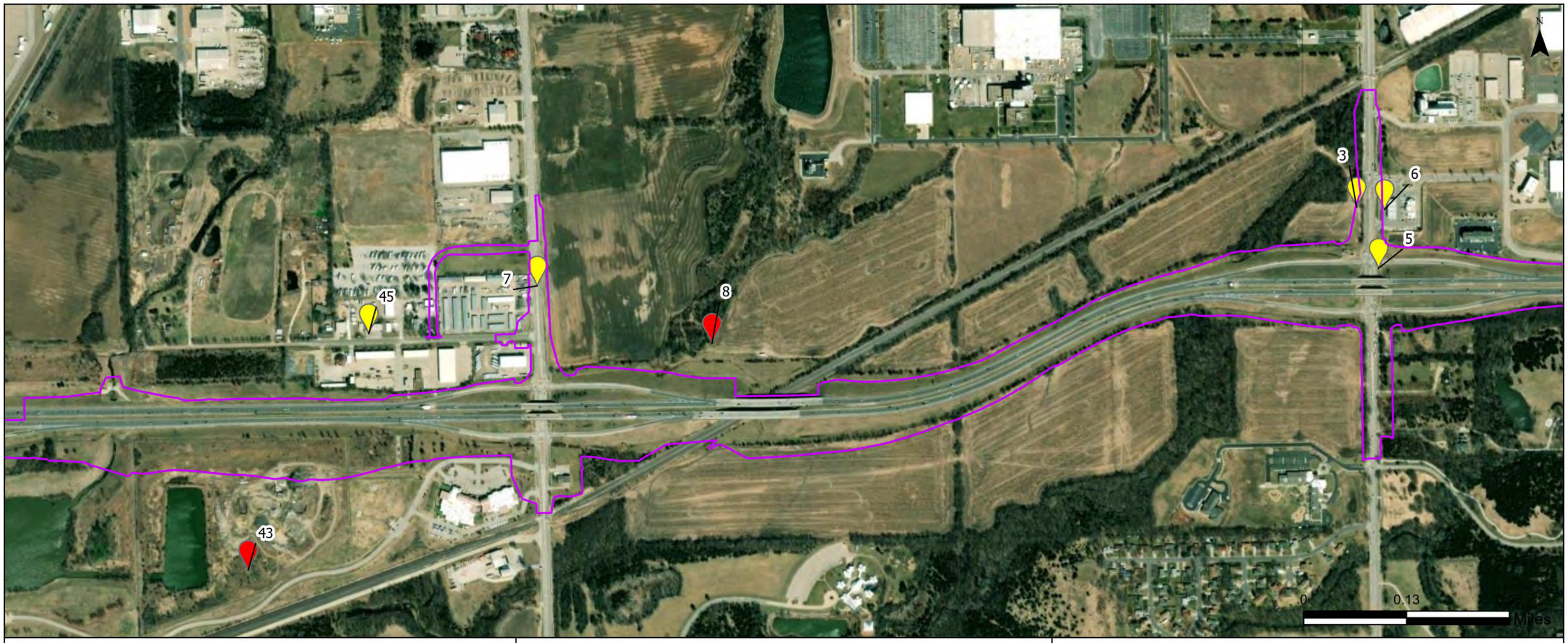
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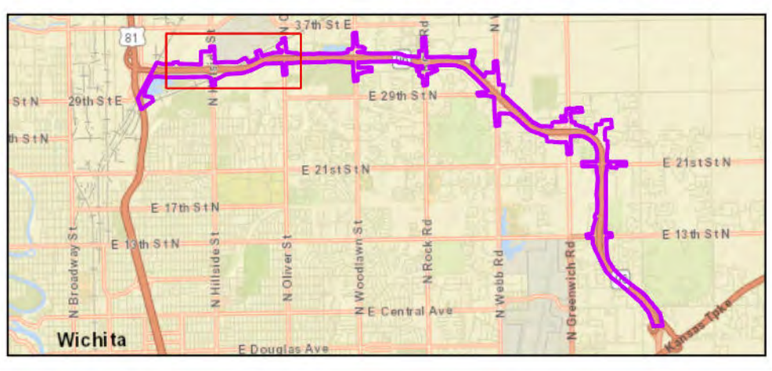
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

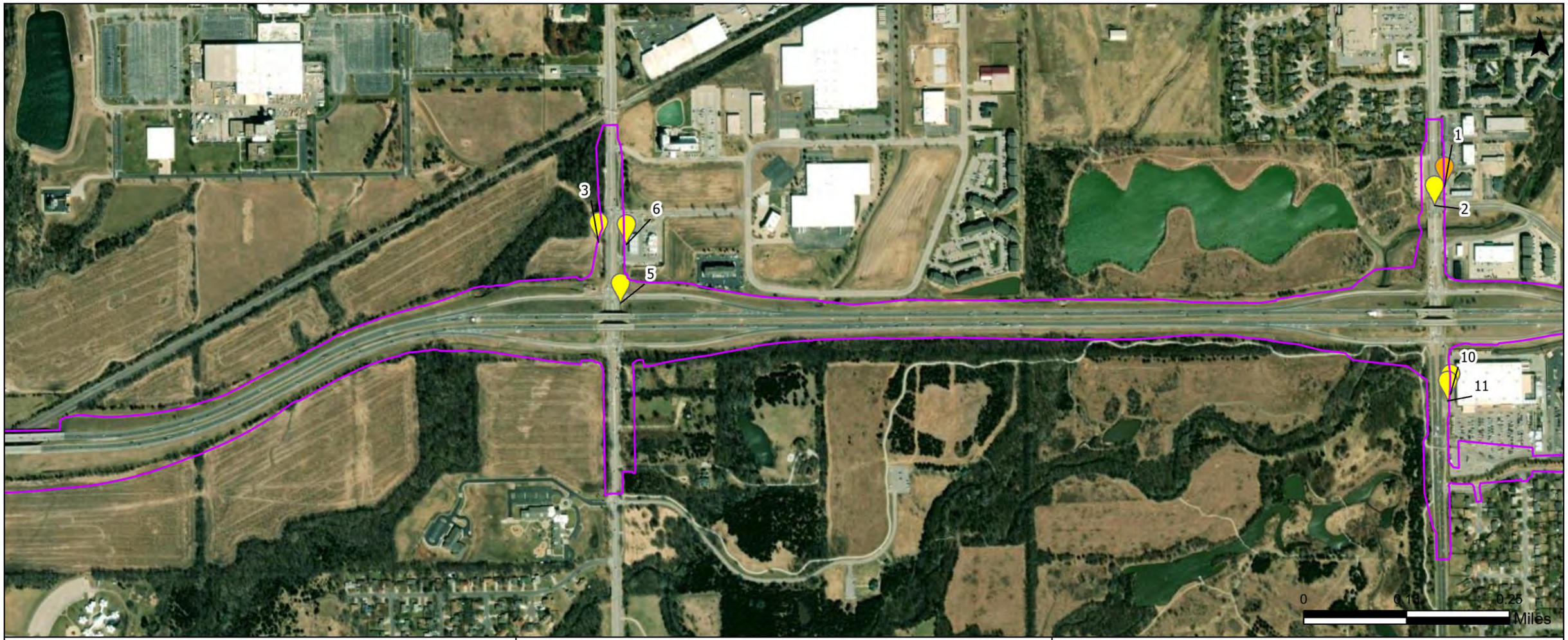
Site Priority Ranking

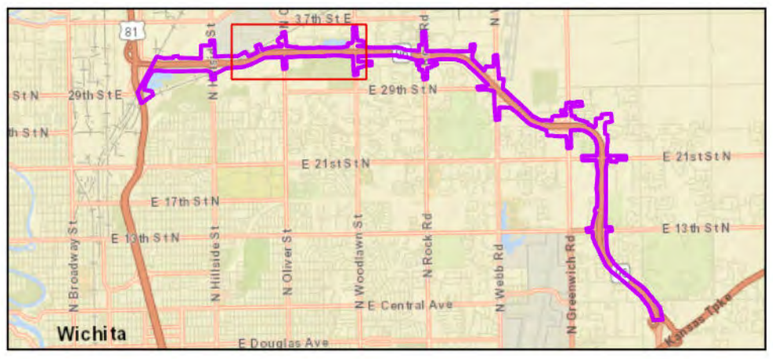
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Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

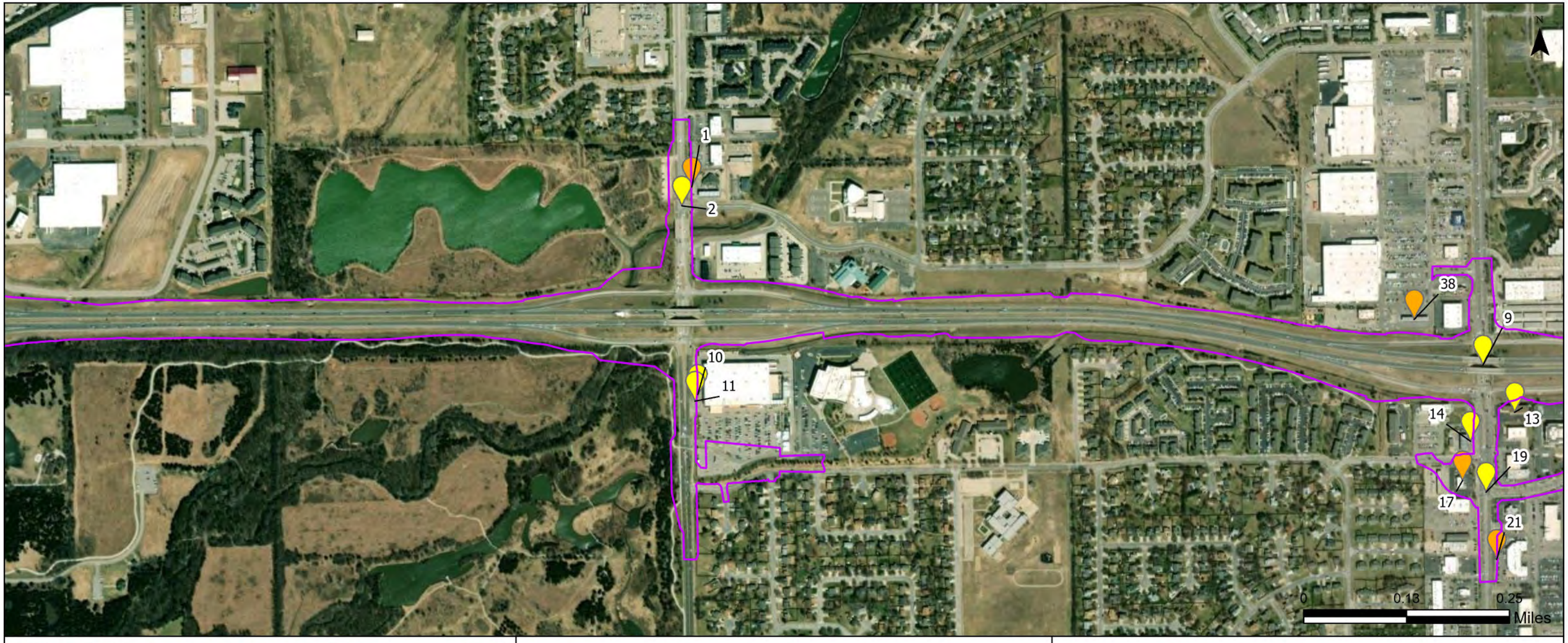
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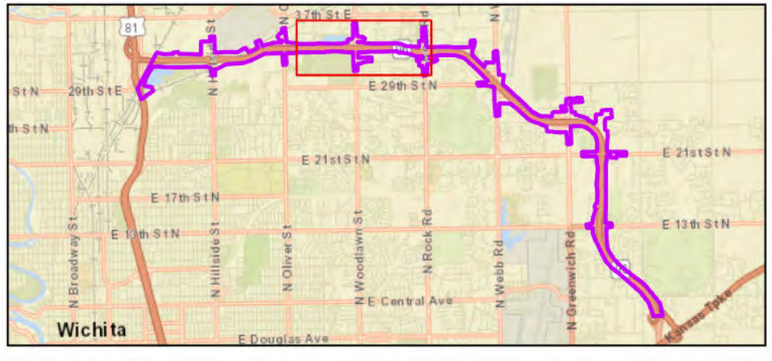
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

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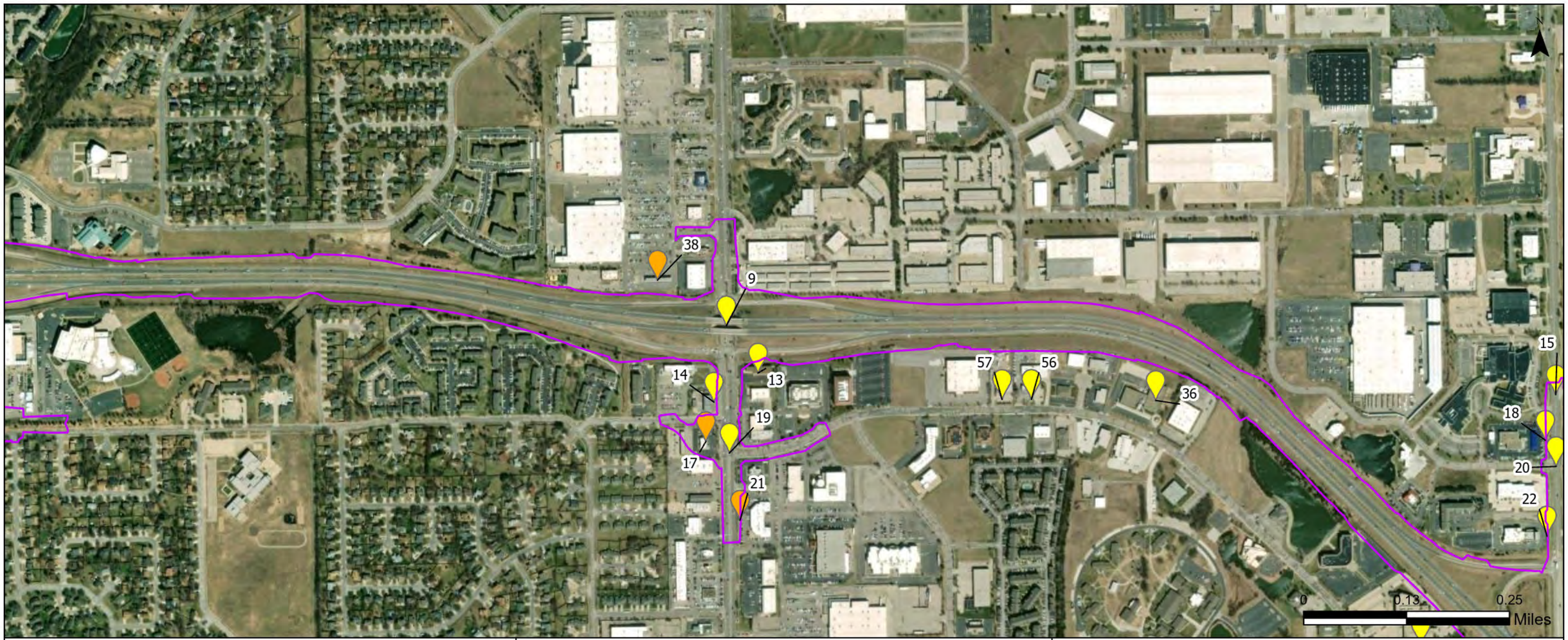
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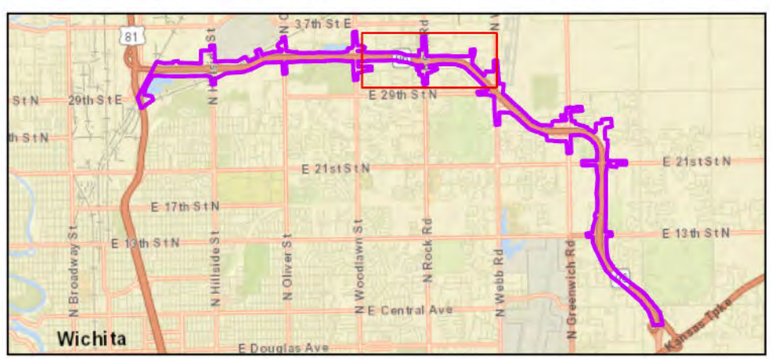
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

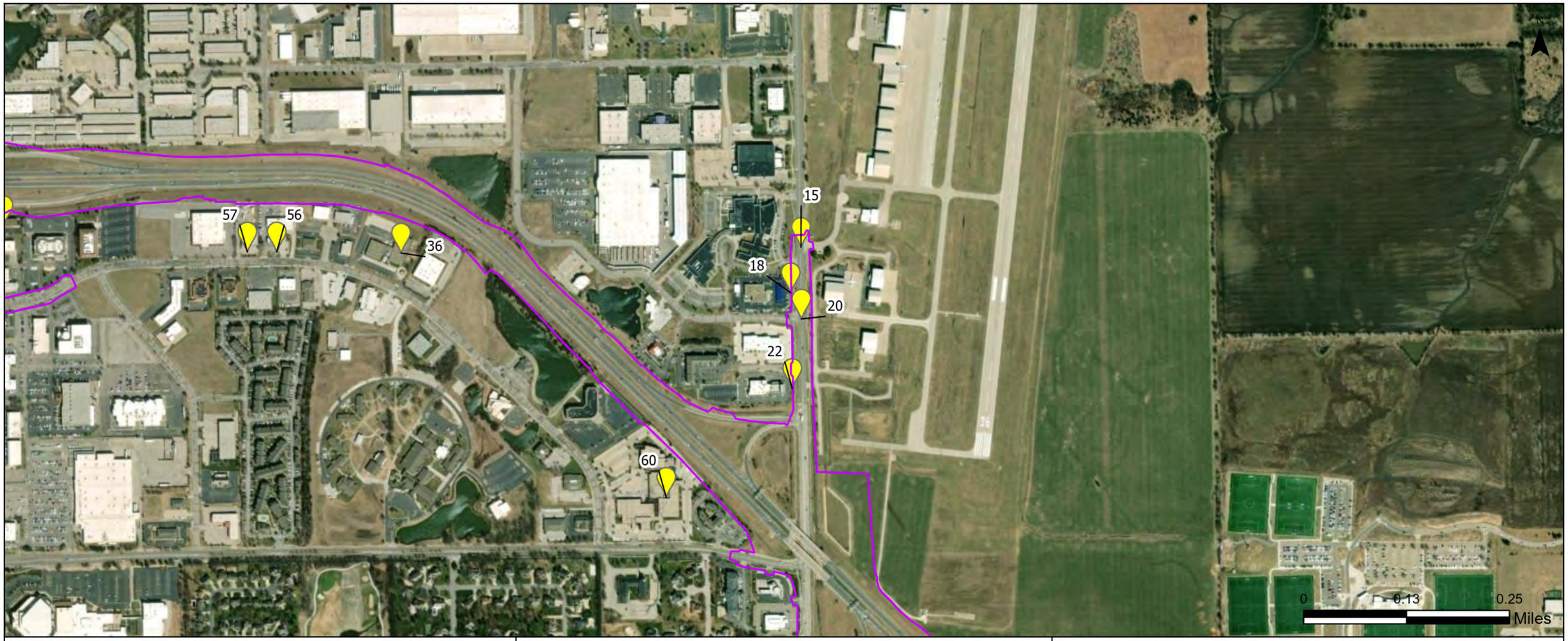
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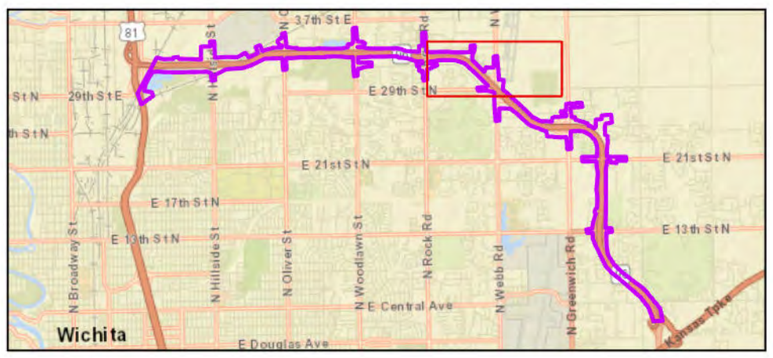
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Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

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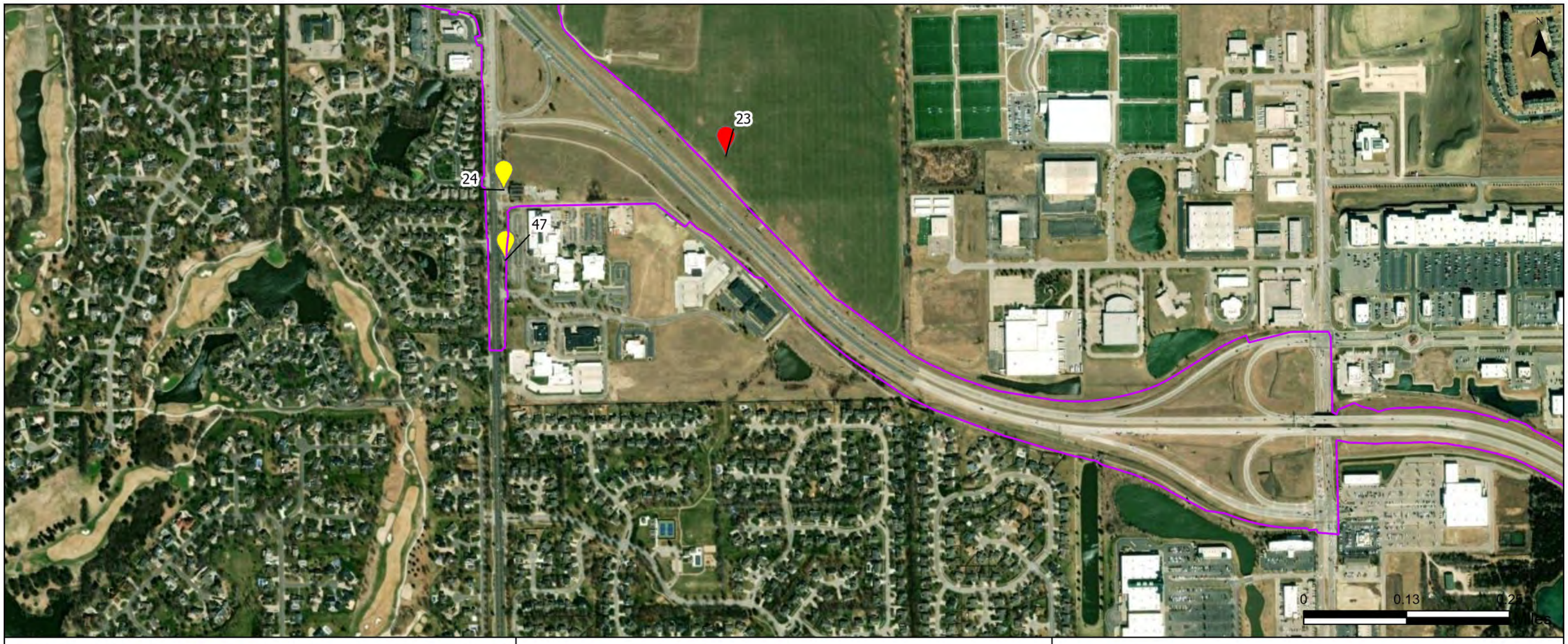
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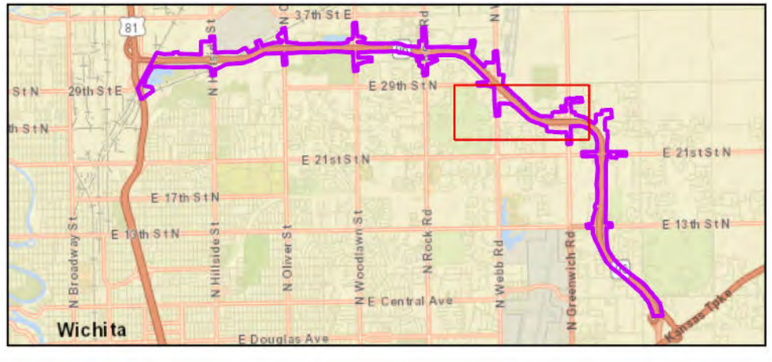
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3

K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

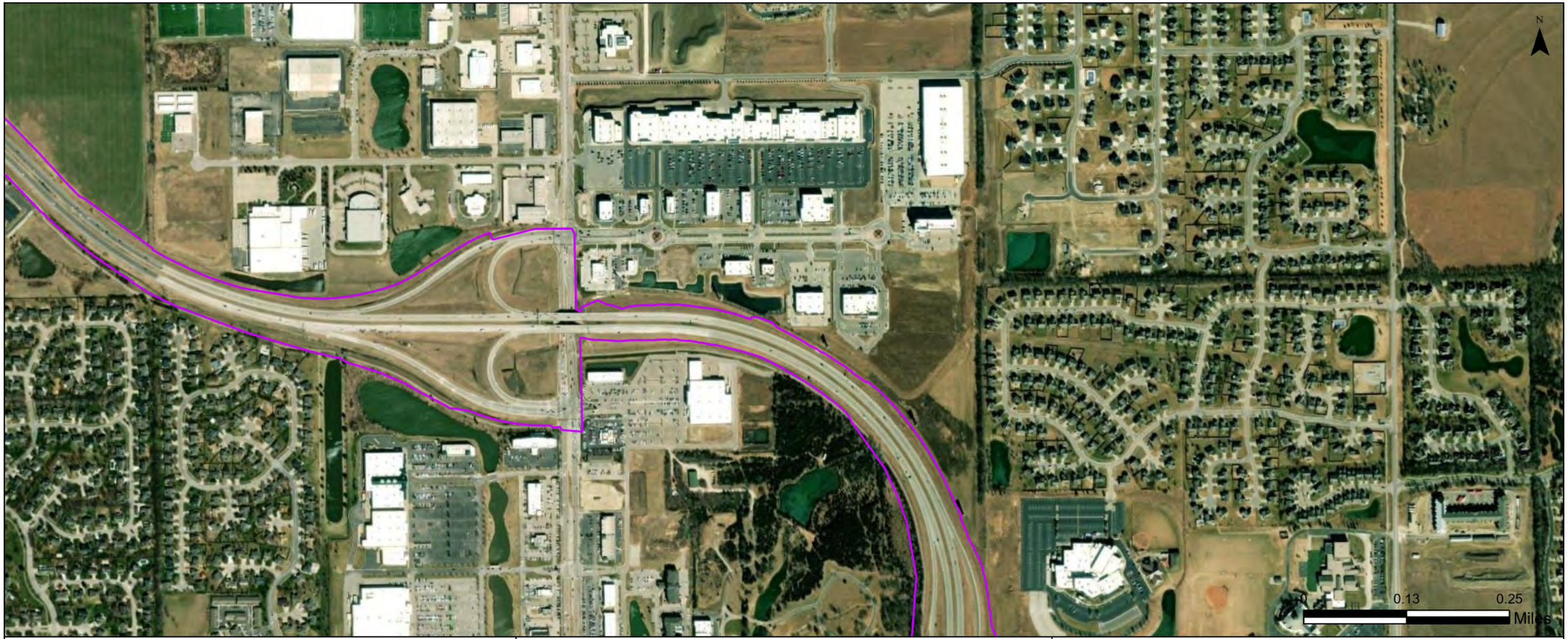
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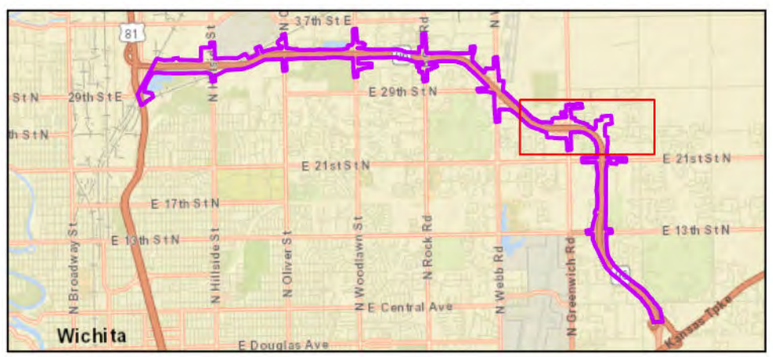
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

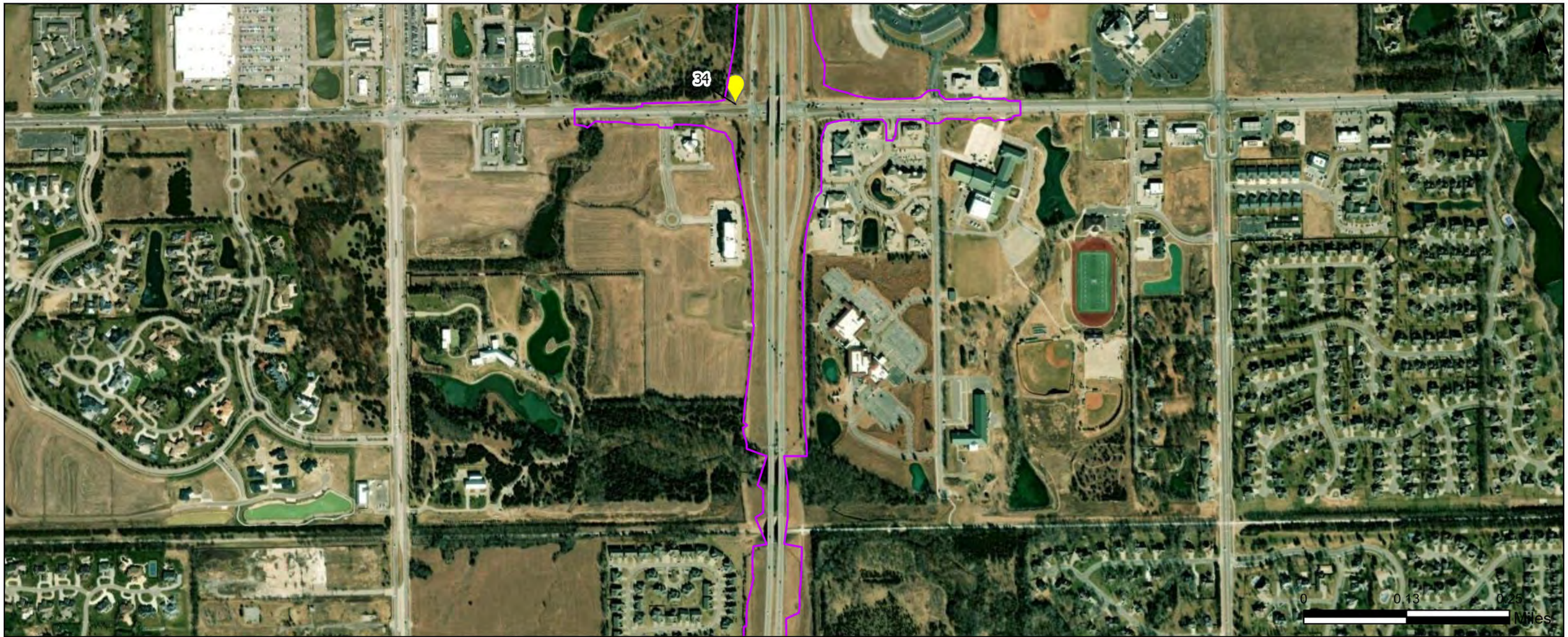
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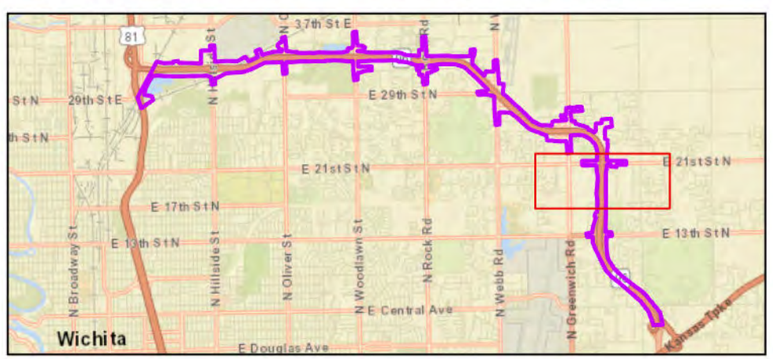
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

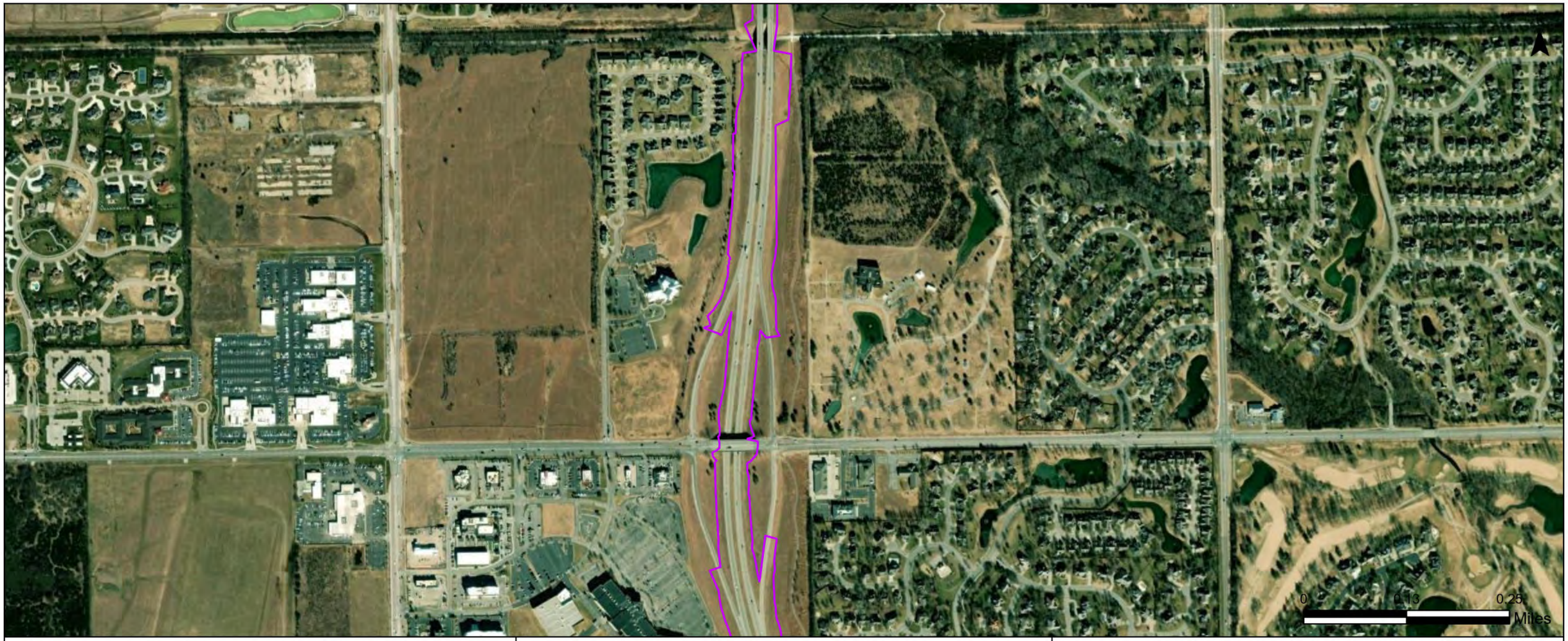
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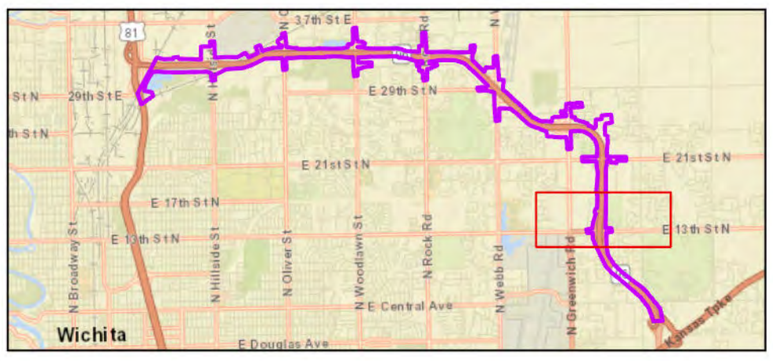
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

1

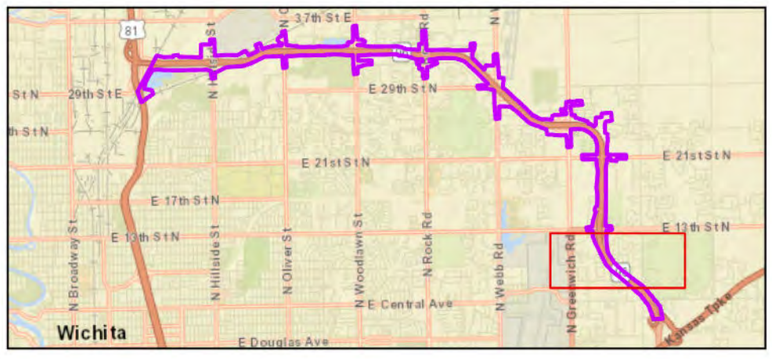
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

1

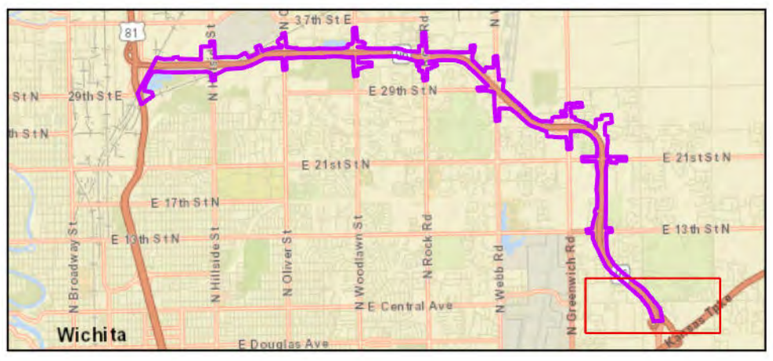
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K-96 IMPROVEMENTS

Exhibit 3-9: Preferred Alternative's Impacts to Hazardous Materials Sites





Preferred Alternative Footprint

Site Priority Ranking

1

2

3

K-96 IMPROVEMENTS

4.0 Federal Aviation Administration Coordination and Jabara Airport Impacts

At the request of the Federal Aviation Administration (FAA), this chapter documents and facilitates the FAA's independent review of actions associated with proposed KDOT improvements to the K-96 roadway facility. This chapter provides detailed descriptions of the layout options considered for the Webb Road interchange and the impacts to the Colonel James Jabara Airport (Jabara Airport) property. The effects of these proposed improvements on the airport property are discussed here, and are also included in the presentation of overall effects of the build alternative described in Chapter 3 of this EA.

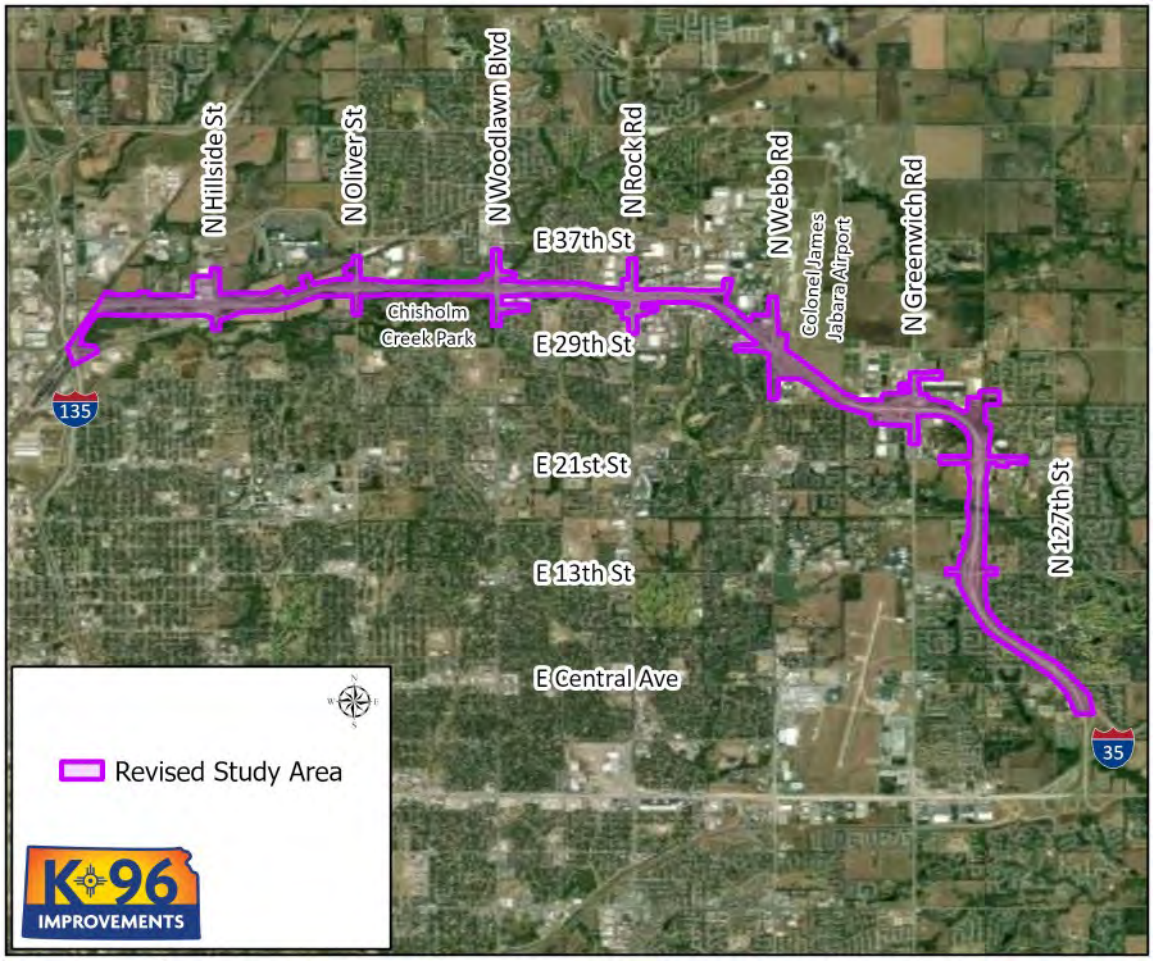
In addition to satisfying the requirements of NEPA and CEQ NEPA implementation regulations, this chapter was prepared following the guidance in FAA order 1050.1F, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act Implementing Instructions for Airport Actions*.
Under Section 8-2 of FAA Order 1050.1F, FAA may adopt, in whole or in part, another federal agency's draft or final EA, the EA portion of another agency's EA/FONSI, or EIS in accordance with 40 CFR 1506.3 of the CEQ Regulations Implementing NEPA, if certain criteria are met. The responsible FAA official must determine, based on an independent evaluation, that the document, or portion(s) thereof, to be adopted: (1) adequately address(es) the relevant FAA action(s); and (2) meet(s) the applicable standards (i.e., for an EA or EIS) in the CEQ Regulations and FAA Order 1050.1F.

4.1 Proposed Action and Federal Action

4.1.1 Proposed Action

The proposed project is located within the City of Wichita in Sedgwick County, Kansas. The project will upgrade K-96 from a 4-lane to a 6-lane freeway and extends from approximately the K-96/I-135 interchange 9.5 miles east/southeast to just north of the K-96/US 54/US 400 interchange. From East 21st Street N to 13th Street, the project will replace pavement only. In addition, improvements at the interchanges of Hillside Street, Oliver Street, Woodlawn Boulevard, Rock Road, Webb Road, Greenwich Road, and East 21st Street N are being considered. The Study Area is depicted in **Figure 4-1**.

Figure 4-1. Study Area Limits



4.1.2 Federal Actions

The FAA will take the following actions as appropriate to authorize implementation of the Proposed Action as it affects airport property:

- Unconditional approval of the Airport Layout Plan to depict the proposed improvements pursuant to 49 USC §§ 40103(b) and 47107(a)(16).
- Approval of an airport sponsors request for release of property pursuant to FAA Order 5190.6, FAA Airport Compliance Manual (49 USC Chapter 471) permitting the sale and disposal of airport property or change in land use from aeronautical to non-aeronautical.
- Determinations under 49 USC 47106 and 47107 relating to the eligibility of the Proposed Action for federal funding under the Airport Improvement Program and/or determinations under 49 USC 40117, as implemented by 14 CFR 158.25, to impose and use passenger facility charges.
- Determination under 49 USC § 44502(b) that the airport development is reasonably necessary for use in air commerce or in interests of national defense.
- Approval of Construction Safety and Phasing Plan to maintain aviation and airfield safety during construction pursuant to FAA Advisory Circular 150/5370-2F, Operational Safety on Airports During Construction (14 CFR Part 139 [49 USC § 44706]).
- Approval of changes to the airport certification manual pursuant to 14 CFR Part 139 (49 USC § 44706).

Determinations, through the aeronautical study process, under 14 CFR Part 77, regarding obstructions to navigable airspace (49 USC §§ 40103(b) and 40113).

4.2 Colonel James Jabara Airport (AAO)

Colonel James Jabara Airport is a public airport nine miles northeast of the central business district of Wichita, and in the northeast corner of the K-96/Webb Road Interchange. The airport, owned by the Wichita Airport Authority, has an FAA designation of AAO. The airport covers 600 acres and contains one runway and one helipad. Jabara Airport is a general aviation reliever airport for the Wichita metropolitan area. AAO is also home to a technical education center that supports the aviation and manufacturing industry cluster.

AAO is accessible from Webb Road, which parallels the airport property. The two existing AAO access points are described as:

- South Access – from Webb Road to N Jabara Road
- North Access – from Webb Road to E 35th St N

4.3 Alternatives Considered

The following section describes the options considered for the K-96 and Webb Road Interchange. Each of the alternatives described here are previously described in more detail in **Chapter 2** of this EA.

4.3.1 No-Build Alternative

Under NEPA, the No-Build Alternative (Alternative 1) is required to be evaluated and provides a baseline from which to compare the other reasonable alternatives. The No-Build Alternative would involve maintaining existing roadways in their current condition. The No-Build Alternative was considered in the alternative's evaluation process. Although the No-Build Alternative does not meet the project Purpose and Need, it is carried through to the end of the evaluation process to serve as a basis for comparison with the P
referred Alternative.

The No-Build Alternative would not include the proposed interchange and thus would not require ROW from AAO. There would be no impact to AAO. **Exhibit 4-1** displays the No-Build Alternative**.**

4.3.2 Build Alternatives

Five build alternatives are under consideration at this location as identified in Chapter 2 of this EA.

Alternative 2

In this alternative, Eastbound Exit Loop, both off ramps would be extended to accommodate an additional lane on K-96. The additional lane would allow for a dual turning lane on the right side. **Exhibit 4-2** displays Alternative 2**.** Alternative 2 does have impacts to AAO.

Alternative 3

In this alternative, Continuous Green-T (CGT), three CGTs would be created. A CGT is a design where the top side of the "T" direction can pass through the intersection without stopping and the opposite major street direction of travel is controlled by a traffic signal. The three CGTs would include one north of the K-96 bridge (northwest off ramp), one almost directly under the bridge, and one south of the bridge (southeast off ramp). A total of three lanes would make up the northern ramp, including a left turning lane, a dual turning lane, and a right turning lane. The southern off ramp would include four turning lanes, two going left and two going right. Under the bridge, the intersection would include a turning lane each direction, one lane turning left from northbound traffic on Webb and an 'on ramp' style lane entering the E 29th St N traffic. **Exhibit 4-3** displays this alternative**.**

Alternative 3 will impact AAO.

Alternative 4

Alternative 4 includes two roundabouts. Traffic exiting K-96 would either stay in the right-most lane to take a right onto Webb Road or stay in the left lane and enter the roundabout to go left down Webb Road. All traffic going down Webb Road would encounter a roundabout and could continue straight to reach the opposite direction of K-96, or through to Webb Road, or they would stay to the right and enter the roundabout to reach K-96. All traffic signals would be removed. **Exhibit 4-4** shows this alternative**.**

Alternative 4 will have impacts to AAO.

Alternative 5

In this alternative, Exit Ramps, traffic southeast bound on K-96 would exit prior to the bridge to reach southbound traffic of Webb Road, and continue to exit following the bridge to reach northbound traffic on Webb Road. Traffic going northwest on K-96 would exit prior to the bridge and have three turning lanes, one right with northbound Webb Road traffic, one left, southbound on Webb Road, and one left to go west on E. 29th St N. One additional traffic signal would be put in place for this alternative, and turning lanes would be added each direction on Webb Road. **Exhibit 4-5** displays Alternative 5**.**

The northeast interchange ramp in Alternative 5 would require ROW from AAO. This alternative would impact AAO.

Alternative 6

Alternative six, Dogbone, would cause southeast bound K-96 traffic to exit prior to the bridge and enter the Dogbone. This traffic would either exit right away to reach E. 29th St. N, enter the second exit to southbound Webb Rd traffic, or remain through the third exit to travel north on Webb. Northwest bound K-96 traffic would exit prior to the bridge and remain in the left lane for access to E. 29th St N or southbound Webb Rd traffic. To go north on Webb Rd, they would remain in the right lane until merging onto Webb Rd. Webb Rd. traffic would enter the onramp prior to the Dogbone to reach K-96 northwest bound traffic, travel through the Dogbone to reach E. 29th St N, continue through to remain on Webb Rd, or travel through to reach southeast bound K-96. **Exhibit 4-6** shows Alternative 6**.**

The northeast interchange ramp and Dogbone in Alternative 6 would require ROW from AAO. This alternative would impact AAO.

4.3.3 Recommended Preferred Alternative

Alternative 5, the Exit Ramps concept, was selected as the preferred alternative at the Webb Road interchange due to its traffic operations performance for future traffic projections in comparison to all other concepts. Specifically, the Exit Ramps concept substantially reduced delay and provided additional congestion capacity on the ramps in comparison to the other concepts.

4.4 Resources Not Affected at AAO

The following resources are either not present on AAO property or the permanent effects of the proposed improvements would be negligible. Temporary and short-term minor effects would occur under some categories during construction.

Table 4-1. Resource Categories Where No Effects Would Occur

Resource Category	Analysis of Effect
Air Quality	The EPA uses the term "attainment area" to describe those areas where air quality meets health standards for particular airborne pollutants. As of September 2022, Sedgwick and Butler Counties were both classified by the EPA as attainment areas for all six criteria pollutants comprising the National Ambient Air Quality Standards (NAAQS).15 (EPA, 2022). The proposed project is within the Kansas Metropolitan Urbanized Area (KMUA) – Wichita. However, it is outside of a non-attainment area. This type of project is included in paragraph (c) or (d) of 23 CFR §771.117 concerning categorical exclusions; therefore, the project is cleared for air quality concerns.
Climate	Construction activity associated with the Proposed Action would result in increased fossil fuel combustion from the operation of vehicles and heavy equipment in the vicinity of AAO. Reductions in greenhouse gas emissions (GHG) can be achieved during construction by implementing practices such as engine idle time restrictions and properly maintaining equipment. At this time, the FAA has not established a significance threshold for GHG emissions.
Coastal Barriers, Coastal Zones, and Wild and Scenic Rivers	There are no designated coastal zones, coastal management areas, or coastal barrier areas within the state of Kansas.
Cultural Resources	No National Register of Historic Places (NRHP) were identified on or adjacent to AAO. Previous archaeological surveys have not indicated known sites on or adjacent to AAO. In the event buried cultural deposits are encountered during construction of the project, all work within five meters (or approximately 20 feet) of located materials shall stop and the KS SHPO will be notified to evaluate the site before work may continue. The Osage Nation has requested to consult under Section 106. No specific sites have been identified. The proposed K-96 improvements and effects to

Resource Category	Analysis of Effect
	AAO right-of-way (ROW) would not significantly or uniquely affect tribal lands or their cultural properties. Effects to historical, architectural, archaeological, and cultural resources are not anticipated.
Farmland	AAO is in an urban developed area that does not support agricultural uses, therefore coordination under the Farmland Protection Policy Act does not apply.
Floodplains and Floodways	There are no floodplains or floodways at AAO.
Noise and Compatible Land Use	No changes would occur in the airfield, approach/departure procedures, or the type and number of aircraft using AAO. No changes would occur in the current noise contour. Land would be released from aeronautical uses to non-aeronautical use to provide ROW for the proposed access and highway improvements as shown in Figure 1-2. However, the proposed access and transportation corridor improvements are compatible with land uses on and adjacent to AAO.
Natural Resources and Energy Supply	Current aviation operations and maintenance activities would be maintained at AAO. No notable increases in the use of fossil fuels, other energy sources, or additional natural resources would be anticipated with continued operations at AAO.
Section 4(f) and 6(f) Properties	No impacts anticipated. The proposed development will not require the use of Section 4(f) or 6(f) properties.
Water Resources – Wetlands, Waters of the US, and Water Quality	No wetlands or waters of the US are located within the area proposed for improvement. No fill would be placed into wetlands or waters considered jurisdictional under Section 404 of the Clean Water Act; therefore, no Section 404 permit, nationwide or individual, would be required. Improvements proposed on AAO would result in “no net loss” of wetlands in compliance with EO 11990. No public drinking wells are located on AAO. No Outstanding Natural Resource Waters or Exceptional State Waters are located on or adjacent to AAO. During construction Best Management Practices (BMPs) would be implemented to manage stormwater runoff on airport property.

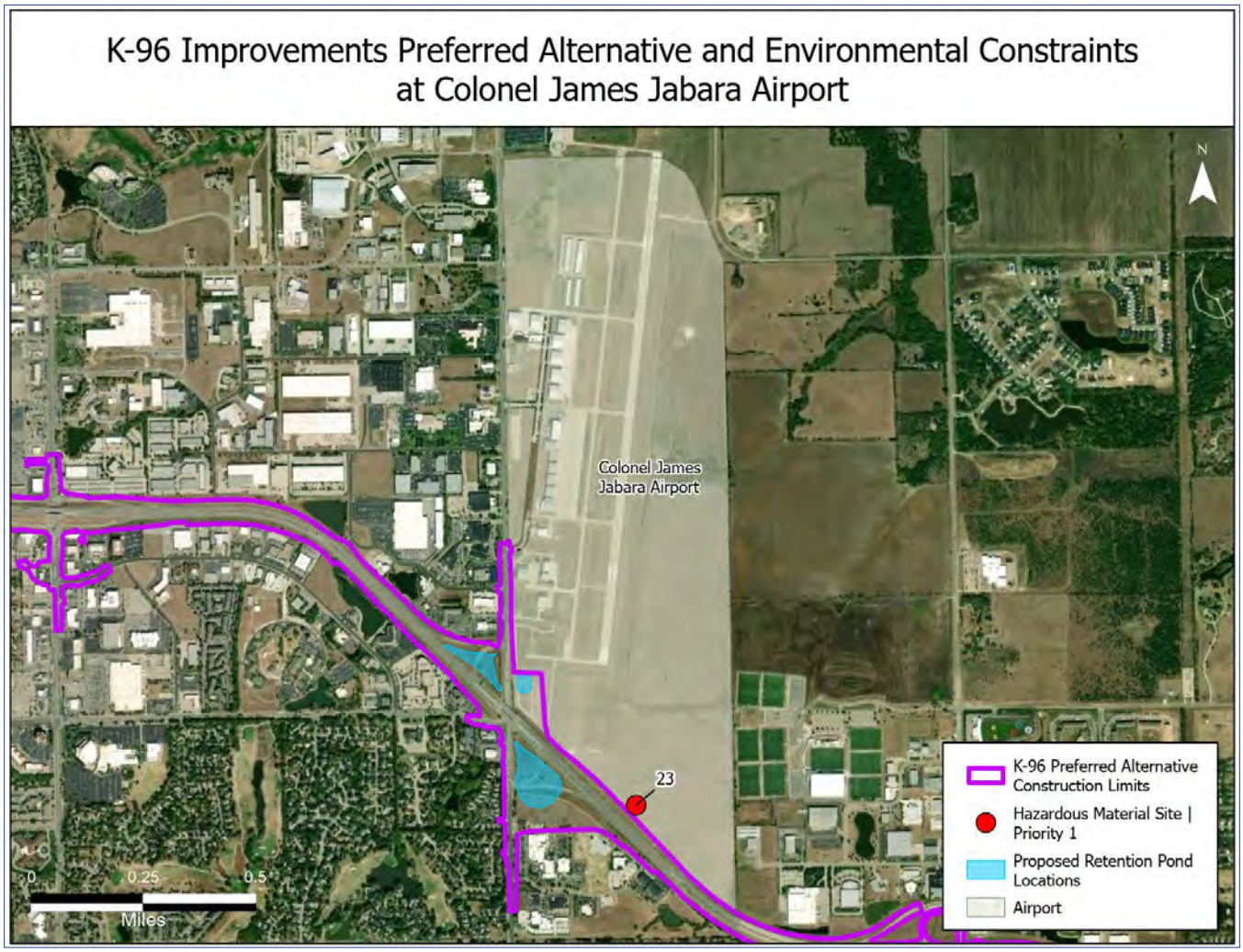
4.5 Resources Present on AAO, Project Effects, and Mitigation

The following sections describe the features and resources present on-airport and the anticipated effects of the No-Build Alternative and implementation of the Preferred Alternative as shown on **Figure 4-2**.

Direct effects, as defined by 40 CFR § 1508.8(a), CEQ Regulations, are caused by the Proposed Action and occur at the same time and place. Indirect effects per 40 CFR § 1508.8(b) are caused by the Proposed Action and are later in time or farther removed in distance but are still reasonably foreseeable. Cumulative effects per 40 CFR § 1508.7 are the effects on the environment which results from the incremental impact of the

Proposed Action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative effects can result from individually minor but collectively significant actions taking place over a period of time.

Figure 4-2. Preferred Alternative Effects to AAO



4.5.1 Land Use, Right-of-Way, and Displacements

AAO, located in Wichita, Sedgwick County, Kansas, is comprised of airside and landside areas that support various aviation-related activities. AAO is bounded by K-96 on the south, Webb Road. on the west and undeveloped land to the north and east. There are also sports fields and other commercial developments adjacent to the southeast corner of the property. No changes in future land use are proposed on or adjacent to AAO.

No-Build Alternative

No changes in existing or planned land use would occur. No ROW improvements would be made requiring the release of airport property from aeronautical use. No buildings, businesses, service providers or on-airport improvements would be displaced.

Recommended Preferred Alternative

Construction of the redesigned K-96/Webb Rd Interchange with the addition of ramps from K-96 north to Webb Rd would not displace buildings, businesses, or service providers on-airport or adjacent to AAO.

Impacts to existing and planned land use are not anticipated.

Based on the Recommended Preferred Alternative shown in **Figure 1-2**, approximately 5.2 acres of permanent ROW would be acquired from AAO to accommodate the proposed improvements. This ROW would impact an existing drainage retention basin which would be replaced just north of the current location, with additional retention basins in the southeast (inside the loop ramp) and northwest (between on-ramp and K-96) quadrants. The information contained in this disclosure document and the follow-on environmental decision documents issued by FHWA and FAA will be used to support a federal land release required to release land currently used for aeronautical use to the non-aeronautical use of highway right-of-way for the purpose of this highway improvement project. The land release is required in compliance with FAA Order 5190.6B, *FAA Airport Compliance Manual.*

Based on the *2005 Airport Master Plan for Colonel James Jabara Airport*, there are no proposed plans for the portion of AAO impacted by the Recommended Preferred Alternative. The Master Plan will need to be updated to reflect any changes to AAO ROW.

Impacts to land use or property are not anticipated to be significant.

4.5.2 Community Effects – Socioeconomics, Environmental Justice, Bicycle/Pedestrian Facilities, Community Facilities and Emergency Services

No-Build Alternative

No construction or improvements would occur, so existing airport conditions would remain.

Recommended Preferred Alternative

Socioeconomics – AAO is an economic hub for Wichita and the region. AAO provides general aviation service, charter service, fuel, maintenance and flight training. None of the businesses on-airport would be displaced or relocated. Off-airport businesses supporting the airport as well as airport employees and users would experience improved access to the airport once the proposed improvements are completed. No jobs at AAO would be displaced by the project and no change would occur in the community tax base.

Environmental Justice – No low-income, minority, disabled, elderly populations or persons with LEP reside on-airport, or on nearby ROW required for the interchange improvements, therefore no further assessment is warranted under EOs 12898 and 13166 or Title VI of the Civil Rights Act of 1964.

Bicycle/Pedestrian Facilities – No established bicycle or pedestrian facilities are designed on-airport, therefore no effects to these facilities would occur due to the Recommended Preferred Alternative effects at the airport.

Community Facilities – No schools, daycare facilities, health care facilities, community centers or churches are located on-airport; therefore, no effects to community facilities would occur.

Emergency Services – The non-emergency air ambulance service at AAO would not be affected. Improvements to access to AAO would accommodate emergency equipment ingress/egress at AAO and access would be maintained during all phases of construction.

Impacts to the community are not anticipated to be significant.

4.5.3 Threatened and Endangered Species and Biological Resources

Both landside and airside areas of AAO are well kept, minimizing the colonization of areas by plant communities that could support native and migratory wildlife. The Wichita Airport Authority has created a Wildlife Hazard Reporting and Documentation plan that includes AAO. The Plan provides airport personnel with procedural guidance in reference to their responsibilities for reporting and documentation of wildlife hazard activities, of mitigation and depredation, and of aircraft wildlife strikes on, over, or in the proximity of AAO.

Table 4-2. Federal and State Listed Threatened and Endangered Species in Sedgwick County

Common Name	Scientific Name	Federal Status[1]	State Status[2]
Mammals			
Eastern spotted skunk	*Spilogale putorius*	--	Threatened
Tricolored bat	*Perimyotis subflavus*	Proposed Endangered	--
Birds			
Least tern	*Sterna antillarum athalassos*	Endangered	Endangered
Piping plover	*Charadrius melodus*	Threatened	Threatened
Snowy plover	*Charadius alexandrinus*	--	Threatened
Whooping crane	*Grus americana*	Endangered	Endangered
Fishes			
Arkansas River shiner	*Notropis Girardi*	Threatened	Endangered
Peppered chub	*Macrhybopsis tetranema*	Endangered	Endangered
Plains minnow	*Hybognathus placitus*	--	Threatened
Silver chub	*Macrhhybopsis storeriana*	--	Endangered
Invertebrates			
Monarch butterfly	*Danaus plexippus*	Candidate	Threatened

Although the Bald Eagle is not a listed threatened or endangered species, it is still afforded protection by the federal government under the Bald and Golden Eagle Protection Act (BGEPA) and the Migratory Bird Treaty Act (MBTA). The BGEPA provides for the protection of Bald and Golden Eagles by prohibiting the taking, possession, and commerce of such birds, except under certain specified conditions. The MBTA makes it unlawful to pursue, hunt, take, capture or kill; attempt to take, capture or kill; possess, offer to or sell, barter, purchase, deliver or cause to be shipped, exported, imported, transported, carried or received any migratory bird, part, nest, egg or product, manufactured or not. Provisions are in place for the protection of migratory birds, parts, nests, eggs, or products. Under the MBTA, “migratory birds” essentially includes all birds native to the U.S. and the regulations

pertain to any time of the year, not just during migration. Since the Preferred Alternative will require some tree removal, conservation measures to minimize the potential impacts to migratory birds, including tree clearing outside of the nesting season (generally March 1st to September 15th) or conducting nest surveys prior to clearing to avoid injuries to eggs or nestlings will be implemented. Based on the above conservation measures, impacts to migratory birds will be minimal.

AAO is an area where federal and state listed species could occur. There are no critical habitats for state or federally listed species within the Study Area.

No-Build Alternative

No changes in land cover or grounds maintenance practices would occur at AAO.

Recommended Preferred Alternative

Aquatic and vegetative critical habitats necessary for the listed species are not located on the AAO property within the Study Area. Impacts to threatened and endangered species are not anticipated to be significant.

4.5.4 Hazardous Materials

Identification of potential hazardous materials locations within the Study Area was conducted through review of existing and previous land uses, a regulatory database review, and site investigations conducted in July 2022.

One site (Site 23) has a “moderate-to-high” priority located on AAO property. Further assessment to determine the potential for the presence of contaminants will be conducted during the EA process and/or after a final selected alternative is determined. Those sites were identified in the Kansas Department of Health and Environment’s (KDHE) per- and polyfluoroalkyl substances (PFAS) Inventory Report database which includes development of a statewide inventory and prioritization of potential PFAS sources in water supplies. PFAS are widely used, long lasting chemicals, components of which break down very slowly over time. Site 23 is the location of a previous aircraft incident on the airport property.

No-Build Alternative

No changes in existing airport and aircraft operations would occur. Generated wastes would continue to be collected and disposed of at licensed waste facilities.

Recommended Preferred Alternative

Site 23 is located outside of the area required for ROW by the Recommended Preferred Alternative and any proposed construction activities.

No airport operations or support services or facilities would be affected. The contractor will dispose of construction wastes to the appropriate landfill operator per construction specifications.

Construction activities may result in short-term and temporary effects on surface water quality by increasing the amount of suspended sediments in runoff flowing to receiving waters. Contractors would be responsible for obtaining all land disturbance and construction-related stormwater discharge permits. The contractor will be responsible for preparation of a Storm Water Pollution Prevention Program (SWPPP) indicating the BMPs (e.g. silt fencing, silt socks, erosion control blankets, hay bales, etc.) to be implemented to manage stormwater discharges will be developed in association with obtaining NPDES authorization.

Impacts to hazardous materials are not anticipated to be significant.

4.5.5 Visual Effects and Light Emissions

In accordance with FAA Order 5050.4B, *NEPA Implementing Instructions for Airport Actions*, the sponsor of an airport development project shall "consider the extent to which any lighting associated with an airport action will create an annoyance among people in the vicinity of the installation." It is also prudent to consider whether lighting associated with a proposed project might confuse or interfere with the vision of the air traffic controller's directing aircraft for arrival at an airport, or the vision of the pilots on approach to an airport runway.

No-Build Alternative

The airport would remain developed as it is today, accommodating both landside and airside activities. No change in existing lighting (parking, building, airfield, approach) would occur.

Recommended Preferred Alternative

AAO sits on a relatively flat piece of land along K-96 and Webb Rd. The visual character of AAO would not change with implementation of the proposed improvements. Along K-96 and the new ramp to N Webb Road, any changes to lighting type and location would be determined during design in coordination with the Wichita Airport Authority and FAA to ensure that any proposed lighting does not interfere with airport or aircraft operations. Lighting and signage associated with the Proposed Action would not affect the visual character of the area nor would it obstruct views of important resources, landmarks, or entrances on-airport. No changes would be made to the existing airfield or approach lighting systems.

Impacts on visual effects and light emissions are not anticipated to be significant.

4.6 Effects and Mitigation Summary

This chapter has presented the potential effects of the proposed improvements on airport property. No significant adverse effects (short- or long-term) are expected on airport resources from construction or operation of the Proposed Action. **Table 1 -3** summarizes the anticipated effects and any required mitigation.

Table 4-3. Summary of Effects at AAO and Required Mitigation

Resource Category	Recommended Preferred Alternative		No-Build Alternative	
	Effects	Mitigation Required	Impact	Mitigation Required
Air Quality	No Impact	None required	None	None
Climate	No Impact	None required	None	None
Coastal Resources	None present	None required	None	None
Community Effects – Socioeconomics, Environmental Justice,	None present	None required	None	None

Resource Category	Recommended Preferred Alternative		No-Build Alternative	
	Effects	Mitigation Required	Impact	Mitigation Required
Bicycle/Pedestrian Facilities, Community Facilities, and Emergency Services				
Cultural Resources (Historical, Architectural, and Archaeological)	None present	None required	None	None
Farmland	Not applicable	None required	None	None
Floodplains and Floodways	None present	None required	None	None
Hazardous Materials	Project impacts are not anticipated to be significant	Site 23 PFAS to be avoided	None	None
Land Use, Right-of-Way, and Displacements	Project impacts are not anticipated to be significant.	Coordination with AAO and FAA to relocate the detention basin.	None	None
Natural Resources and Energy Supply	Increase in use of construction materials, utility use (gas, water, electricity); not significant	Any on-airport utilities will be relocated as needed to accommodate the proposed improvements.	None	None
Noise and Compatible Land Use	No impact	None required	None	None
Section 4(f) and 6(f) Properties	None present	None required	None	None
Threatened and Endangered Species and Biological Resources	Project impacts are not anticipated to be significant.	None required	None	None
Visual Effects and Light Emissions	Project impacts are not anticipated to be significant.	Shielded or low-intensity lighting to be used as part of the proposed improvements would not interfere	None	None

Resource Category	Recommended Preferred Alternative		No-Build Alternative	
	Effects	Mitigation Required	Impact	Mitigation Required
		with airport or aircraft operations.		
Water Resources	No surface waters or wetlands are present. Stormwater management during construction.	Contractor to obtain NPDES permit and implement SWPPP during construction.	None	None

4.7 Cumulative Impact Analysis

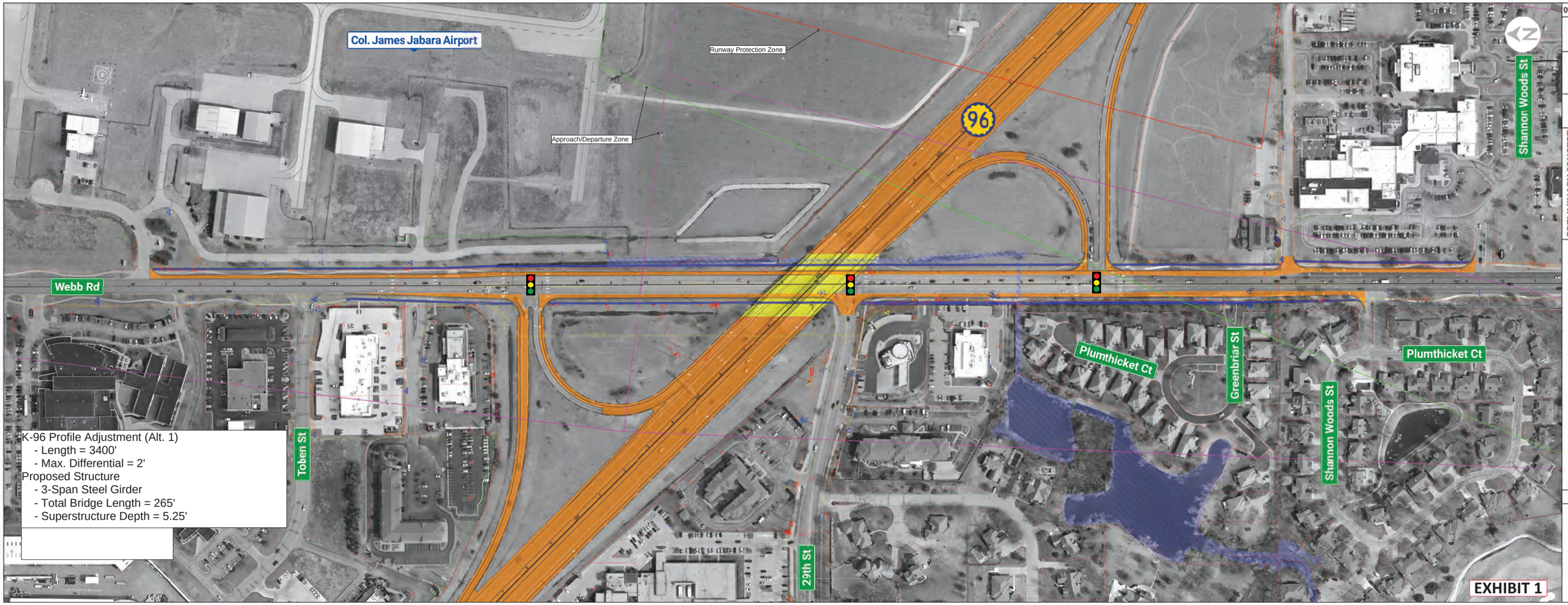
The CEQ defines cumulative effects (40 CFR 1508.7) as *the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions*. Section 4.2.15.2 of this EA summarizes the anticipated cumulative effects of the Proposed Action when considered in combination several past, current, and reasonably foreseeable future actions within the Study Area. The Study Area was used to determine the geographic scope of cumulative effects in support of the local and regional connectivity the Proposed Action would provide. The timeframe for cumulative effects is the planning horizon of 2045.

The limited area affected by the improvements proposed at AAO limits the scope and magnitude of both direct and related cumulative effects that would occur on-airport.

4.8 Coordination

On December 12, 2022, the design team met with the Wichita Airport staff. At that time the concepts were reviewed, and the airport staff identified keeping Jabara Road open as important to operations. FAA was identified as a Cooperating Agency for the NEPA document.

A second meeting was held on January 11, 2023, which included FAA, KDOT, the City of Wichita and the design team. Avoidance of the access road will avoid an Air Traffic Organization review.



096-087 KA-6099-02

Kansas Department of Transportation

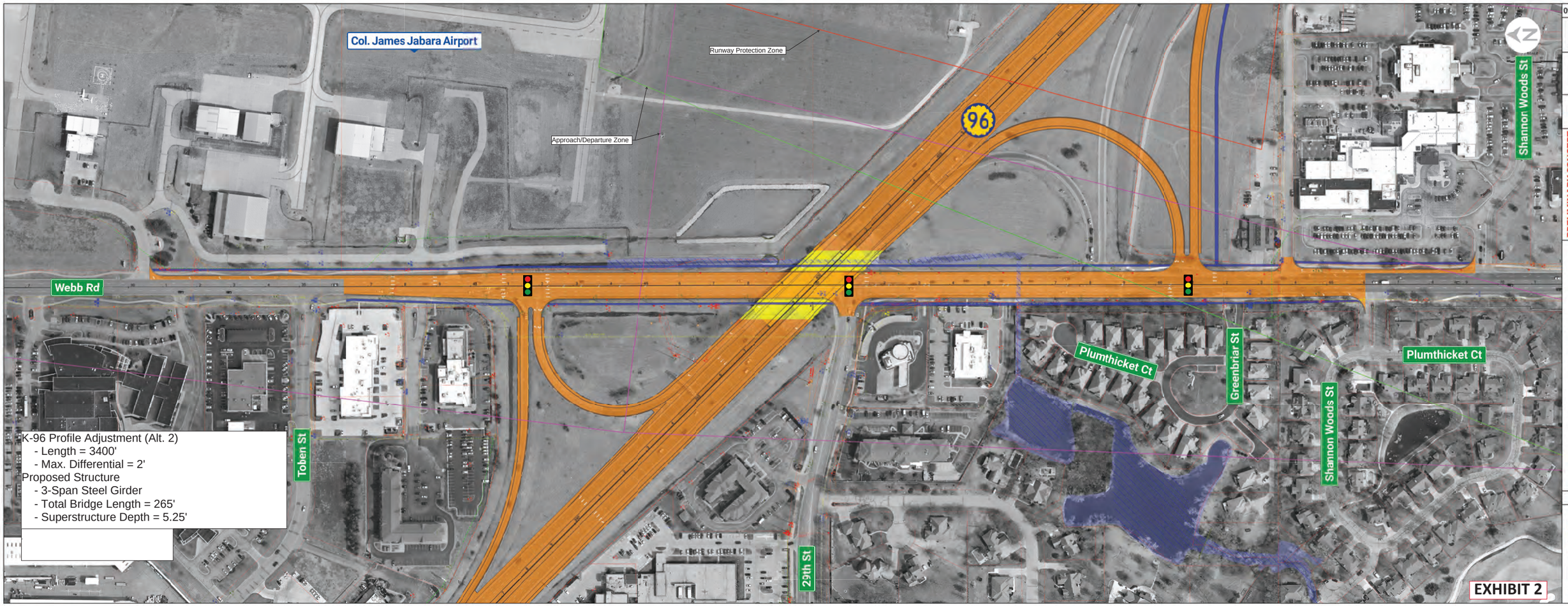
IKE

K-96 IMPROVEMENTS

PRELIMINARY CONCEPT
11/17/2022
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WEBB RD
ALT. 1 - DO NOTHING



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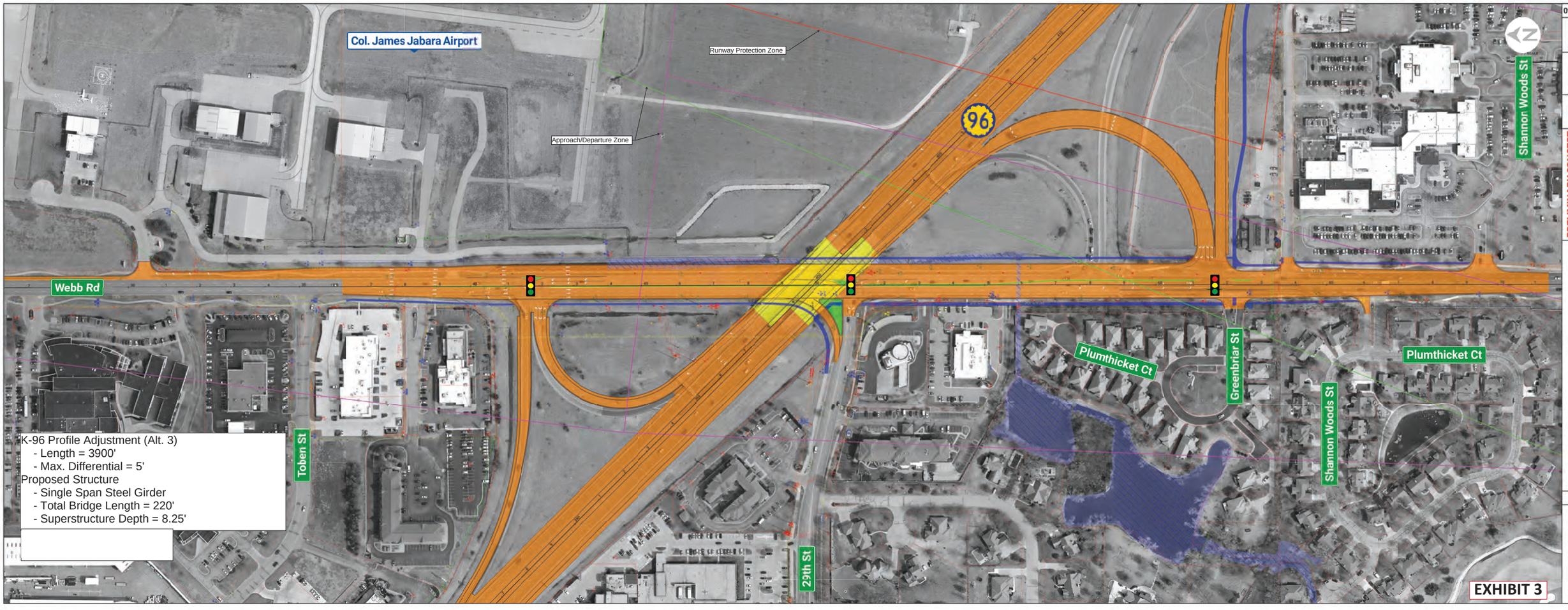
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WEBB RD
ALT. 2 - EB EXIT LOOP

LEGEND

PROPOSED
- MAIN LINE (ASSM PAVEMENT)
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY



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K-96 IMPROVEMENTS

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WEBB RD
ALT. 3 - CGT

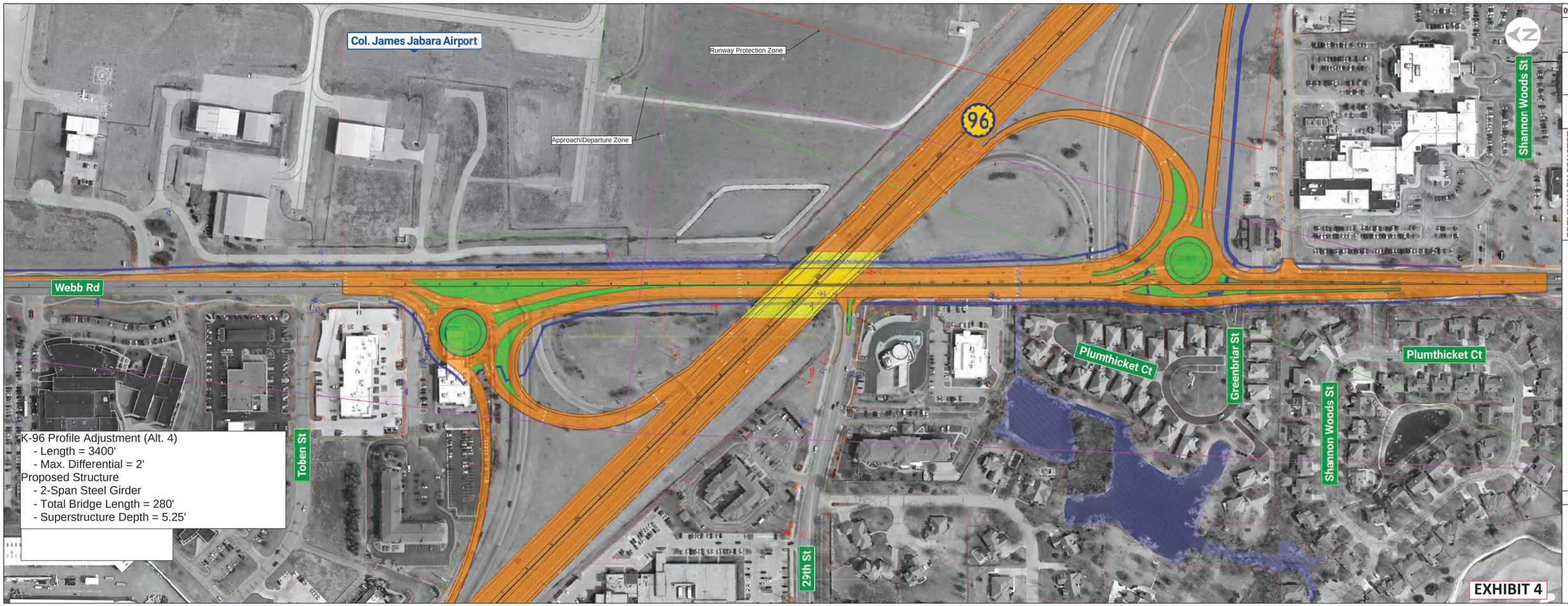
LEGEND

PROPOSED

- MAIN LINE / RAMP PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK / SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING

- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY



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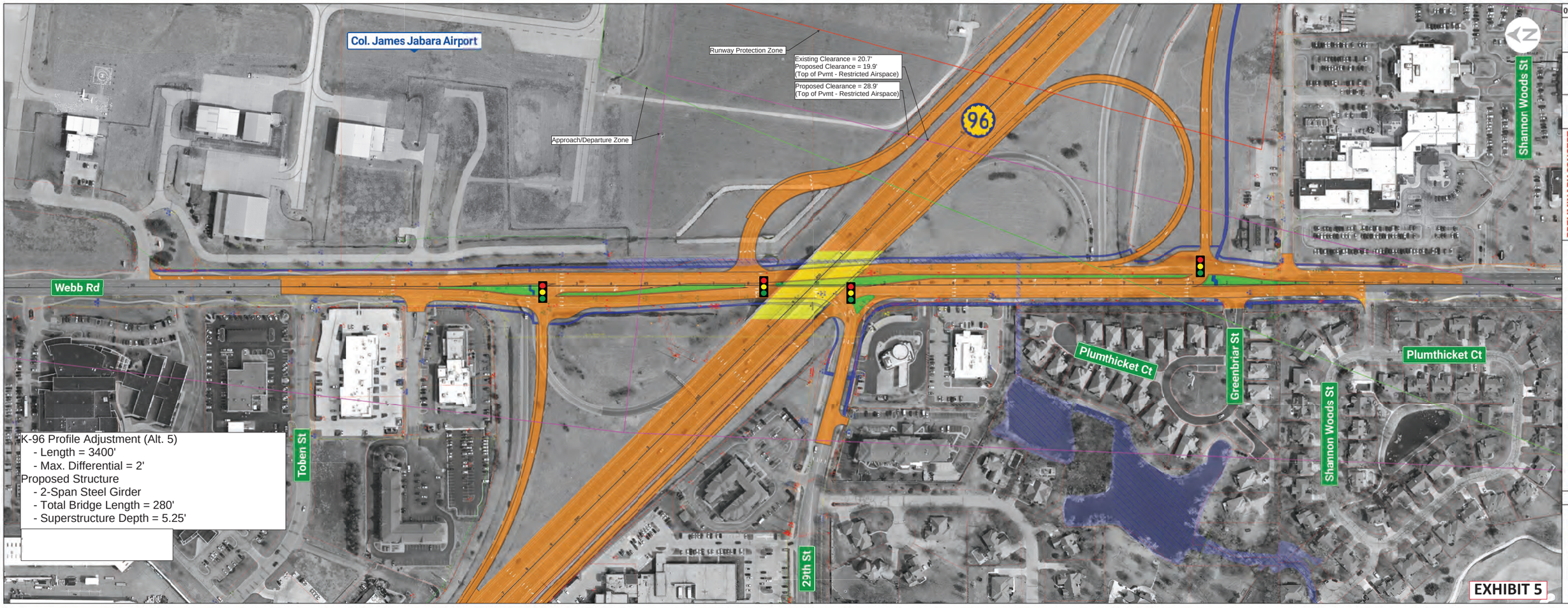
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WEBB RD
ALT. 4 - ROUNDABOUTS



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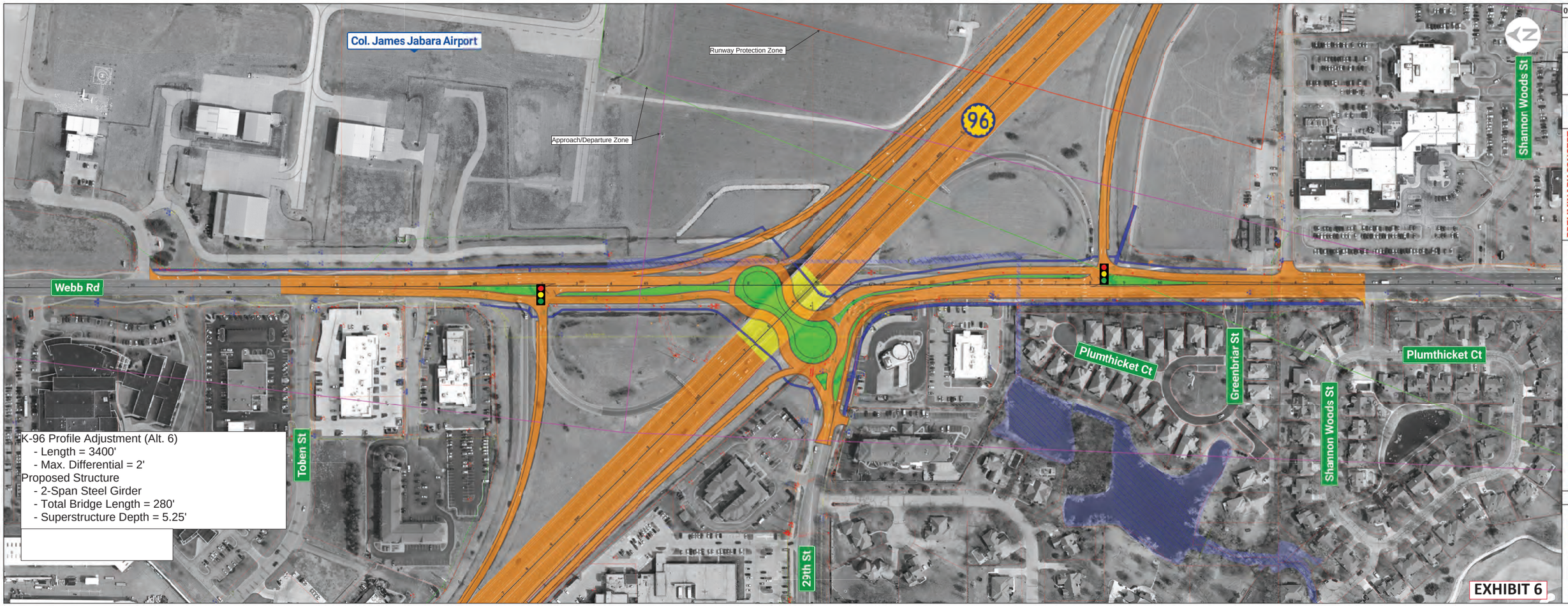
PRELIMINARY CONCEPT
11/17/2022
SUBJECT TO CHANGE

WEBB RD
ALT. 5 - EXIT RAMPS

LEGEND

PROPOSED
- MAIN LINE/ MAINLINE PAVEMENT
- SIDEROAD PAVEMENT
- BRIDGE
- SIDEWALK/ SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING
- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY



096-087 KA-6099-02

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K-96 IMPROVEMENTS

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WEBB RD
ALT. 6 - DOGBONE

LEGEND

PROPOSED

- EARTHWORK/ASPHALT PAVEMENT
- SIDEWALK PAVEMENT
- BRIDGE
- SIDEWALK/SHARED USE PATH
- MEDIAN
- RETAINING WALL

EXISTING

- FEMA FLOODPLAIN
- FEMA FLOODWAY
- PARKS
- RIGHT-OF-WAY

KA 6099-02
K-96 from I-135 to I-35

CONCEPT EVALUATION CRITERIA - WEBB INTERCHANGE

Criteria	Alt 1 Add'l Lanes	Alt 2 EB Exit Loop	Alt 3 CGT	Alt 4 Roundabouts	Alt 5 Exit Ramps	Alt 6 Dogbone RAB	COMMENTS
Safety/Mobility							
Bicycle Accomodations/Safety	Lo	Lo	Lo	Lo	Lo	Lo	
Collision Severity	Lo	Lo	Lo	Hi	Lo	Med	
Pedestrian Accomodations/Safety	Lo	Lo	Lo	Lo	Lo	Lo	
Traffic Operations							
Access Management	Lo	Lo	Lo	Med	Med	Med	
Delay	Lo	Lo	Lo	Med	Hi	Med	Alt 4&5 >LOS D thru 2045
Driver Expectancy	Hi	Hi	Lo	Lo	Med	Lo	
Queue Overflow	Lo	Lo	Lo	Med	Hi	Med	
Reserve Capacity	Lo	Lo	Lo	Lo	Hi	Lo	
Signing	Hi	Hi	Med	Med	Med	Med	
Physical Impacts							
Access Impacts	Lo	Lo	Lo	Med	Med	Med	
Airport Impacts	Hi	Lo	Lo	Lo	Lo	Med	
Environmental Impacts - See Below for Details		Hi	Med	Med	Med	Hi	
Right of Way Impacts - See Below for Details	Hi	Med	Med	Lo	Lo	Med	
Utility Impacts	Hi	Hi	Med	Lo	Hi	Lo	12" Southern Star, 20" Water, Ideatek, 12" KGS
Constructability							
Constructability	Hi	Hi	Hi	Med	Hi	Lo	
Maintenance of Traffic	Hi	Hi	Hi	Med	Hi	Lo	
Cost							
Construction Cost	Hi	Med	Med	Med	Lo	Med	
Operation/Maintenance Cost							

ENVIRONMENTAL DETAIL

Criteria	Unit of Measure	Alt 1 Add'l Lanes	Alt 2 EB Exit Loop	Alt 3 CGT	Alt 4 Roundabouts	Alt 5 Exit Ramps	Alt 6 Dogbone RAB	COMMENTS
Community Impacts								
National Register of Historic Places (Buildings or Districts)	No.	0	0	0	0	0	0	
Potential Low Income or Minority Populations (EJ)	Yes/No	No	No	No	No	No	No	
Other (schools, religious orgs, cemeteries, fire stations)	No.	1	1	1	1	1	1	Wichita Fire Station 18
Environmental Impacts								
Hazardous Material Sites (EDR)	No.	**6	**6	7	7	7	*5	K5 Spine & Specialty; UST *Site Improvements (Airport); FINDS *Gorges & Co; RCRA-VSQG *Medical Park; FINDS *Kansas Gastroenterology; FINDS *Wichita Fire Station #18; UST **Kansas Surgery & Recovery Center; UST
NHD Stream Crossings	No.	0	0	1	1	1	0	
NHD linear feet of stream	feet	0	0	267	267	286	0	
K96 Trail Impacts	feet	1,511	2,217	3,168	3,326	3,714	2,438	
NWI Impacts	acre	0.2	0.2	0.4	0.4	0.5	0.2	
Potential Threatened/Endangered Species Habitat	Yes/No	No	No	No	No	No	No	
Wooded Areas	acre	0.0	0.0	0.0	0.0	0.0	0.0	
100-Year Floodplain Impacts	acre	0.1	0.1	0.6	0.6	0.1	0.1	
Right of Way								
Agricultural (Wooded/Vacant)	acre	0.0	0.0	0.0	0.0	0.0	0.0	
Commercial	acre	3.5	3.5	3.6	5.1	4.6	3.5	
Industrial	acre	0.0	0.0	0.0	0.0	0.0	0.0	
Public (Parks and other publicly owned parcels)	acre	0.0	0.0	0.0	0.0	0.0	0.0	
Residential	acre	0.5	0.5	0.5	0.6	0.5	0.6	
Other (e.g. utilities, institutional, fraternal organizations)	acre	3.1	7.2	8.9	8.7	10.8	6.0	Airport R/W

EXHIBIT 7

5.0 Agency and Public Comments and Coordination

5.1 Public Involvement Process

The K-96 improvements are focused on enhancing safety and mobility within the corridor. Public engagement had various levels of involvement within all phases of the project. A stakeholder engagement and communications plan was developed to outline objectives and to define the communication tools and techniques to accomplish the following communication goals:

- Work with the City of Wichita, KDOT, FHWA and additional key stakeholders to best meet the needs of the community.
- Work with the City of Wichita, KDOT, FHWA and additional key stakeholders to best position the project to apply for and be awarded federal funding.
- Work with the City of Wichita to widely distribute materials and post materials electronically to reach a broad and diverse audience.
- Identify, address and mitigate controversial issues, early in a collaborative and constructive manner. Examples of controversial issues include right-of-way impact, access changes, parking impacts, etc.
- Ensure the public involvement process is fair, open and responsive to input of the public and the public knows where and how to request project information.

A scoping and coordination process was initiated that involves appropriate federal, state, and local agencies, as well as stakeholders and the public. Engagement with key stakeholders and the local and regional community will continue throughout the NEPA process to obtain public input and to keep the public informed of project updates and milestones. Coordination meetings were held as needed with affected/concerned local, state, tribal, and federal governmental entities. Public meetings were held to gather input and share findings on the EA. The EA will be made available for public and agency review and comment prior to the final public hearing.

5.1.1 Public Meetings

An in-person open house public scoping meeting was held on February 2, 2023, from 5:00 PM to 7:00 PM at Wichita State University Tech's National Center for Aviation Training in Wichita, Kansas. Approximately 120 people attended the open house. A virtual open house, including a recorded video of the in-person meeting, was hosted on the project website (https://k96improvements.ksdot.gov) during the comment period from February 2, 2023, through March 10, 2023. The same information and displays were provided in the online format as were presented at the in-person open house. A total of 59 comments were received during the comment period. Both the in-person and virtual meetings provided information on the purpose and need of the project, the alternatives being considered, an overview of the NEPA process, the anticipated study and construction schedule, and features and constraints to be considered. Comments received included questions about interchange design type, U-turns at Webb Road, bike/pedestrian accommodations along the corridor, HOA interests, and possible impacts to Chisholm Creek Park. The Public Meeting Summary is included in **Appendix B.**

People attending the open house meetings and those sending comments through letters or email were overall supportive of the improvements to K-96 and the respective interchanges. The following trends were noted.

- Many people noted seeing numerous crashes along the corridor and were happy to have a project that would enhance safety.

- The DDI was heavily preferred to the DLT, and many commentors requested that the DDI be used at all interchanges for driver consistency.
- Citizens were happy to see safer bicycle and pedestrian crossings with the DDI than the current intersections have, and requested our team connect sidewalks and bicycle paths to existing trails and paths whenever possible.
- The Webb Road interchange had the most individual feedback of the interchanges, with positive reactions to the larger loop and mixed reactions to eliminating left turns to and from 29th Street.

The public hearing for the project is expected to be held in mid-April 2024.

5.1.2 Stakeholder Meetings

The project team met in person with businesses and employers located in the corridor at multiple times and locations. These meetings were intended to provide an overview of the study and gather feedback from the businesses such as how they use their property, transportation concerns they have in the area, and improvements they would like to see.

During the public engagement process there were numerous official public presentations and presentations to local organizations. From September 7, 2022 to November 12, 2022 meetings were held with groups such as:

- Corridor Outreach Group
- District Area Boards 1 and 2
- WAMPO TAC, WAMPO TPB

Information presented at these meetings included:

- Project partners
- Project timeline, needs, benefits, and project limits
- Planned intersection upgrades to Woodlawn, Rock, and Webb
- Steps of the design and environmental process
- Discussion on a project vision statement
- Discussion on contact/website information.

On January 9, 2023 the project team updated two members of the Wichita City Council. The same information was presented with a change of project limits (now from K-96 at I-35 to I-135, with upgrades at seven interchanges: Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st Street). The concerns that were addressed at this meeting included:

- Eliminating left turns to and from 29th Street at the Webb Road interchange
- It was requested that the team create drive time simulations to compare existing conditions and the proposed design as traffic number increase to show to constituents
- Adding an FAQ to add to the website to display/explain traffic movements for the proposed U-Turns
- It was requested that the team ensuring HOAs along the Webb Road Interchange were contacted and informed of the proposed designs and Open House

Also on January 9, 2023 the City of Wichita Board of Park Commissioners were presented the same general information, and additional information on connections of interchanges to existing trails and project proximity to Wichita Parks. The project team also asked that the Board provide a Letter of Concurrence regarding

potential park impacts. The Board discussed how the designs would connect interchange crossing and sidewalks to the Wichita trail system and requested that any trees taken down for construction be replanted in the parks.

Friends of the Great Plains Nature Center met on February 16, 2023 and were presented general project information. The Corridor Outreach Group met for the second time on March 2, 2023 with updated information, primarily discussing the purpose and need and Open House feedback. Comments from this meeting can be found in **Appendix B.**

The project team met with representatives from District 1 and 2 and City of Wichita Planning Representatives met on March 6, 2023 to discuss a summary of feedback from the Open House held in February 2023, and interchange discussions based on feedback and possible solutions. The Wichita Bicycle and Pedestrian Advisory Board, WAMPO TPB, and WAMPO TAC met on March 13th, 14th, and 27th respectively, and were presented Open House meeting feedback, Interchange Design Concepts (DDIs), and next steps in the project. The Bicycle and Pedestrian Advisory Board was also involved in a discussion on how pedestrians/cyclists use DDIs, and were given examples of proposed safety barriers.

The South Central Kansas Legislative Delegation, the Bel Air Chamber of Commerce, Rotary Club of East Wichita, Rotary Club of Downtown Wichita, and the Andover Rotary Club were each presented a project overview video, steps of the design and environmental process, feedback from Open House #1, and proposed interchange designs. Questions following the presentations and team member responses can be found in **Appendix B**.

Property Owner Meetings were conducted from January to August 2023. U-Stor Self Storage, Subway and American Self Storage had independent meetings with team members to discuss concerns about the project and their related property. Group meetings by interchange location were conducted as well. Koch Industries, Wichita EMS, American Self Storage, Mid American Credit Union Group, Subway, Spangles, Wichita Fire Department, Midas, and Slawson met with team members and each had the opportunity to express their concerns. A summary of the property owner meetings can be found at **Appendix B**.

5.2 Agency Coordination

An in-person and virtual Agency Scoping Meeting was conducted on March 1, 2023, at the Great Plains Nature Center in Wichita, Kansas. An overview of the proposed project, the initial need and purpose, alternatives to be considered, the proposed methodology and level of detail to be used to evaluate alternatives, the anticipated NEPA and construction schedules, and an overview of the types of construction were discussed. All this information along with the Coordination Plan and Public Involvement Plan were included for review and comment as an attachment to the meeting invitations distributed on February 15, 2023. 13 people participated in the meeting representing nine agencies.

5.2.1 Notice of Intent

The City of Wichita published a Notice of Intent (NOI) to prepare an EA for the K-96 improvements and its respective interchanges in the Kansas Register on February 16, 2023. A copy is included in **Appendix B**. This was the first step in the agency and public coordination process for the project.

5.2.2 Agency Coordination Package

The City of Wichita and KDOT, in coordination with FHWA, prepared an initial coordination packet for distribution to local, state, and federal agencies, tribes, officials, and organizations identified in **Table 5-1**. This packet was sent to agencies in February 2023. This packet includes a letter inviting the agency to coordinate on

the project, a project description, a study area map, the draft purpose and need, and a copy of the Project Coordination Plan.

5.2.3 Cooperating and Participating Agencies

Cooperating agencies are those governmental agencies specifically requested by the lead agency to participate during the environmental evaluation process for the project. Cooperating agencies are federal agencies that have jurisdiction by law regarding aspects of the proposed project or special expertise pertaining to the project.

Wichita, in coordination with KDOT and FHWA, determined that FAA and USACE would be cooperating agencies for this project. If there is a need to request any additional agency to serve as a cooperating agency, then the City of Wichita, in consultation with KDOT and FHWA, will issue that agency an invitation.

Participating agencies are federal and non-federal governmental agencies that may have an interest in the project because of their jurisdictional authority, special expertise, and/or statewide interest. All federal, tribal, state, regional, and local government agencies that may have an interest in the project were invited to serve as participating agencies. Non-governmental organizations and private entities cannot serve as participating agencies.

Lead agencies (KDOT and FHWA) for the project must agree that the project may move forward at key points, including the agency coordination plan, purpose and need, range of alternatives and proposed action (Preferred Alternative), preliminary Draft EA, and FONSI. Participating agencies may be asked to review deliverables and provide feedback at collaboration points.

5.2.4 Agency List

Table 5-1 shows the Lead and Participating Agencies for the Project.

Table 5-1: List of Lead and Participating Agencies

Agency	Role	Accepted Invite*	Responsibility
Federal Highway Administration	Federal Lead Agency	Y	Manage environmental review process; prepare and approve EA; provide opportunities for public and agency involvement
Kansas Department of Transportation	State Lead Agency	Y	Manage environmental review process; prepare and approve EA; provide opportunities for public and agency involvement
Federal Aviation Administration (FAA)	Cooperating Agency	Y	Determinations regarding obstructions to navigable airspace (14 CFR Part 77 and 49 USC 40103(b) and 40113)
Federal Emergency Management Agency (FEMA)	Participating Agency		Floodplain management, oversight of the National Flood Insurance Program
Federal Railroad Administration (FRA)	Participating Agency		Identification and resolution of any issues or concerns regarding railroads and railroad safety in the study area

Agency	Role	Accepted Invite*	Responsibility
Federal Transit Administration (FTA)	Participating Agency		Guidance related to public transit system
U.S Army Corps of Engineers, Kansas State Regulatory Office (USACE)	Cooperating Agency	Y	Section 404 of Clean Water Act (CWA) permit jurisdiction Section 10 of the General Bridge Act of 1946 permit jurisdiction Section 408 of the Rivers and Harbors Act permit jurisdiction
U.S. Department of Agriculture (USDA), Natural Resource Conservation Services (NRCS)	Participating Agency		Compliance with Farmland Protection Policy Act (FPPA)
U.S Department of Commerce, Denver Regional Office	Participating Agency		US Census Bureau data and support for community economic growth
U.S Department of Housing and Urban Development (HUD)	Participating Agency		Compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act)
U.S Department of the Interior, Bureau of Indian Affairs	Participating Agency		Coordination assistance for federally recognized Tribes
U.S Department of the Interior, Fish and Wildlife Service (USFWS)	Participating Agency		Section 7 of the Endangered Species Act (ESA) permit jurisdiction Compliance with the Migratory Bird Treaty Act (MBTA) Compliance with the Bald and Golden Eagle Protection Act (BGEPA) Compliance with Fish and Wildlife Coordination Act
U.S Department of the Interior, National Park Service (NPS)	Participating Agency		Keeper of the National Register of Historic Places (NRHP) LWCF Grant Administrator
U.S Department of the Interior, Office of Environmental Policy and Compliance	Participating Agency		Conservation stewardship, sustainable development, and environmental justice for DOI actions NEPA reviews
U.S Department of Interior, Bureau of Land Management	Participating Agency		
U.S Bureau of Reclamation	Participating Agency		
U.S Department of the Interior, Office of the Solicitor	Participating Agency		

Agency	Role	Accepted Invite*	Responsibility
U.S Environmental Protection Agency, Region 7	Participating Agency		Compliance with Section 309 of the Clean Air Act (CAA) Compliance with applicable hazardous materials regulations
Osage Nation of Oklahoma	Participating Agency	Y	Coordination under Section 106 of the NHPA
Wichita and Affiliated Tribes	Participating Agency		Coordination under Section 106 of the NHPA
Kansas Biological Survey	Participating Agency		Research and expertise regarding the flora and fauna of Kansas
Kansas Corporation Commission	Participating Agency		Identification and resolution of any issues or concerns regarding existing and planning public electric, telecommunication, and water and sewer utilities in the study area.
Kansas Department of Agriculture, Kansas Division of Water Resources	Participating Agency		Floodplain management oversight and floodplain fill/levee permitting Stream Obstruction, Channel Change, and General DWR permits
Kansas Department of Health and Environment	Participating Agency	Y	Compliance with Section 401 of the CWA Compliance with state surface water quality standards Manage National Pollutant Discharge Elimination System (NPDES) permitting
Kansas Department of Wildlife, Parks & Tourism	Participating Agency		Compliance with Section 6(f) Land and Water Conservation Fund. May also include Riston Landwehr at Riston.Landwehr@ks.gov Management of state-listed species, critical habitats, and Species in Need of Conservation (SINC)
Kansas State Historical Society	Participating Agency		Section 106 of the NHPA compliance and eligibility Compliance with Section 4(f) of the Department of Transportation Act of 1966
Kansas Turnpike Authority	Participating Agency		Oversight and management of the Kansas Turnpike system and associated infrastructure.
Kansas Water Office	Participating Agency		Development and implementation of the Kansas Water Plan.
Andover Public School District	Participating Agency		General Coordination
Circle Public School District	Participating Agency		General Coordination
Butler County	Participating Agency		General Coordination

Agency	Role	Accepted Invite*	Responsibility
City of Andover	Participating Agency		General Coordination
City of Wichita	Participating Agency	Y	General Coordination
Wichita-Sedgwick County Planning	Participating Agency		General Coordination
Sedgwick County	Participating Agency		General Coordination
Wichita Public School System Unified School District	Participating Agency		General Coordination
Wichita Area Metropolitan Planning Organization	Participating Agency		General Coordination
Wichita Transit	Participating Agency		General Coordination

5.3 Tribal Coordination

The Wichita Tribe and other Affiliated Tribes were contacted by KDOT on September 14, 2022. In accordance with the National Historic Preservation Act, the Wichita Tribe and other Affiliated Tribes were notified of the project, given a site map, and provided contact information in order to share comments about the project within 60 days. On December 21, 2022, KDOT contacted the tribes again in order to share an updated site map. On May 4, 2023, the EA Purpose & Need chapter was shared with the tribes and asked to share feedback on the document by June 7, 2023. No comments were received from the Wichita Tribe or Affiliated Tribes.

On September 14, 2022 notification of the project was sent to the Osage Nation. The Osage Nation responded by requesting a KMZ file of the project and to be notified when the Section 106 process will begin, as well as stating they had not been notified of the project by KDOT's Environmental Division or the Kansas Division of FHWA. On January 24, 2023, the Osage Nation communicated that they had received the update site location map and apologized for their delayed response but wanted it to be known that this project is a priority to them. Additionally, they expressed that their previous requests had yet to be satisfied (the KMZ file, and formal responses from KDOT and FHWA). On the same day a KMZ file and a statement was sent explaining that the NEPA process does not require the same formal level as Section 106 and that the Section 106 consultation process was initiated when the original letter was sent in September. The Osage Nation responded by stating they were looking forward to reviewing and commenting on the cultural resources report.

The Osage Nation was invited to attend the Agency Scoping Meeting conducted on March 1, 2023, at 10:00 AM. The Osage Nation was unable to attend the meeting, but were sent meeting minutes, a pdf of the presentation, and an updated copy of the Agency Coordination Plan on March 16, 2023. On April 12, 2023 the Osage Nation shared their concerns that their letter and request to be a participating agency had not been addressed in the updated Agency Coordination Plan, as well as leaving additional comments on the Agency Coordination Plan. At this time they also requested the EA for review and comment, requested an appropriate POC, requested formal consultation with all required parties, and stated they had received the archeological phase II survey and will review and comment as needed.

On May 4, 2023 the Purpose & Need was shared with the Osage Nation. Comments were requested to be made by June 7, 2023. The project team addressed the comments made by the Osage Nation on June 6, 2023 via email. On July 12, 2023, the Osage Nation requested construction monitoring and for a phase II evaluation south of 13th Street as well as in the western portion of the project near sites identified by OHNPO. On the same day

the team responded that KSHA would use the project plans to identify APE and stated that the request for construction monitoring will be revisited. An updated KMZ file was attached with the construction limits. Coordination with the Osage Nation can be found in **Appendix B.**

5.4 Public Review of the EA

A Notice of Availability of the Draft EA and Notice of Public Hearing were published in the *Kansas Register* on March 28, 2024**.** The Draft EA was made available for review and comment by the public from March 27 through May 15, 2024. The public comment periods for the proposed Section 4(f) *de minimis* finding and the proposed Section 6(f) property conversions will occur concurrently with the Draft EA public comment period from March 27 to May 15, 2024. The Draft EA is posted on the K-96 website at https://k96improvements.ksdot.gov/ and paper copies are available for inspection at the Atwater Neighborhood Resource Center, 2755 East 19th St. N., Wichita, KS. 67214 and the Rockwell Branch Library, 5939 East 9th St., Wichita, KS. 67208 during normal business hours., and at the public hearing. The public hearing will occur on April 11, 2024 and will be conducted in both an in-person open house setting and a virtual open house.

6.0 References

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Agency Correspondence

Notice of Intent to Conduct Environmental Assessment

Public notice is hereby given that the Kansas Department of Transportation (KDOT), in cooperation with the Federal Highway Administration (FHWA), will prepare an Environmental Assessment (EA) for a proposal to upgrade a portion of K-96 in Wichita, Sedgwick County, Kansas, from a 4-lane to a 6-lane freeway. The City of Wichita, Kansas is serving as a partner in the study.

The overall environmental study limits begin just east of the K-96/I-135 interchange in Wichita, Kansas and extend east/southeast to just north of the K-96/US 54/US 400 interchange. The overall length of the proposed project is approximately 9.5 miles. The proposed upgrade of K-96 from a 4-lane to a 6-lane freeway includes pavement replacement only from 21st Street to the K-96/US 54/US 400/I-35 Interchange. In addition, improvements at the seven interchanges of Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st Street are being considered.

Within the EA, KDOT and FHWA will evaluate a "No Build" alternative as well as expansion alternatives. Roadway configurations, including freeway main lanes and interchange options will be evaluated throughout the corridor.

The FHWA and KDOT plan to prepare an EA for the project. The EA will analyze the potential social, economic, and environmental impacts resulting from the proposed project. The following issues will be specifically analyzed as part of the EA: traffic noise; impacts to aquatic ecosystems and floodplains; effects on cultural resources; effects on threatened and endangered species and habitats; effects on the transportation system; effects on parks/recreation; populations with environmental justice concerns; community cohesion; and socioeconomics. This includes direct, indirect, and cumulative impacts. Other federal approvals or permits that may be required; addition of the Federal Aviation Administration (FAA) as a Cooperating Agency and federal action on their part to address impacts to the Colonel James Jabara Airport, a Section 404 Permit from the U.S. Army Corps of Engineers (USACE), floodplain development permits from Sedgwick County, and water resource and floodplain permits from the Kansas Division of Water Resources.

A scoping and coordination process was initiated with stakeholders, tribal governments, and the public in September 2022. Coordination, including meetings as needed, will continue throughout the study to engage the local and regional community to inform and obtain input from agencies, tribal governmental entities, stakeholders, and the public with an interest in the project. A public meeting was conducted on February 2, 2023, to gather input and share findings from the development of the alternatives process. In addition, an Agency/Tribal Scoping meeting will be held on March 1, 2023 to discuss the project and receive input on the purpose and need for the project, alternatives being considered, and known environmental and cultural issues. The EA will be made available for public and agency review and comment prior to a public hearing anticipated to be held in late 2023. To ensure that the full range of issues related to the proposed action are addressed and all potentially significant issues defined, comments and suggestions are invited from all interested parties. Comments or questions

concerning the proposed action and the EA should be directed to KDOT at the address provided below.

For further information contact Kansas Department of Transportation, Attn: Kris Norton, PMC Coordinating Engineer, Kansas Department of Transportation, Division of Program & Project Management, Eisenhower State Office Building, 700 SW Harrison St., Topeka, KS 66603-3745, phone 785-368-6429, kris.norton@ks.gov

Calvin Reed

Acting Secretary

David Kocour <dkocour@hgcons.com>

Re: KDOT Project No. KA6099-02; K-96 Wichita, KS; Agency/Tribal Scoping Meeting

1 message

Elizabeth Smith [KDHE] <Elizabeth.Smith@ks.gov> Tue, Mar 14, 2023 at 5:45 PM
To: David Kocour <dkocour@hgcons.com>
Cc: "Scott Satterthwaite [KDHE]" <Scott.Satterthwaite@ks.gov>, "Katlynn Decker [KDHE]" <Katlynn.Decker@ks.gov>, "Karle Woodward [KDHE]" <Karle.Woodward@ks.gov>

Hi, David --

Would you please also include:
Scott.Satterthwaite@ks.gov
Katlynn.Decker@ks.gov
and, if the project affects any NPDES dischargers,
Karle.Woodward@ks.gov

Thanks!

Liz

Elizabeth Fabri Smith, PhD (she/her)

Bureau of Water

Kansas Department of Health and Environment

Curtis Building, 1000 SW Jackson St., Suite 430

Topeka, KS 66612-1367

tel: (785) 296 - 4332

elizabeth.smith@ks.gov

https://www.kdhe.ks.gov/1204/Watershed-Planning-Monitoring-Assessment

*** NOTE: our website is under construction ***

From: David Kocour <dkocour@hgcons.com>
Sent: Tuesday, March 14, 2023 4:59 PM
To: Elizabeth Smith [KDHE] <Elizabeth.Smith@ks.gov>
Subject: Re: KDOT Project No. KA6099-02; K-96 Wichita, KS; Agency/Tribal Scoping Meeting

EXTERNAL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Good point. It looks like we also had previously invited and will continue to send items to:

Julie Coleman, Hazmat Coordination Director
Leo Henning
Kari Goldston, Water Supply and Wastewater, South Central Office

On Tue, Mar 14, 2023 at 4:54 PM Elizabeth Smith [KDHE] <Elizabeth.Smith@ks.gov> wrote:

> Hi, David -- so that I don't duplicate effort, can you tell me who else in KDHE you have already included? Then I can forward to any others who should be in the loop. Please let me know - thanks! Liz
>
> _____
>
> Elizabeth Fabri Smith, PhD (she/her)
>
> Bureau of Water
>
> Kansas Department of Health and Environment
>
> Curtis Building, 1000 SW Jackson St., Suite 430
>
> Topeka, KS 66612-1367
>
> tel: (785) 296 - 4332
>
> elizabeth.smith@ks.gov
>
> https://www.kdhe.ks.gov/1204/Watershed-Planning-Monitoring-Assessment
>
> *** NOTE: our website is under construction ***
>
> ---
>
> **From:** David Kocour <dkocour@hgcons.com>
> **Sent:** Tuesday, March 14, 2023 3:06 PM
> **To:** Elizabeth Smith [KDHE] <Elizabeth.Smith@ks.gov>; terri.parton@wichitatribe.com <terri.parton@wichitatribe.com>
> **Cc:** Borchers, Jacob <Jacob.M.Borchers@wsp.com>; Mike Herleth <mherleth@burnsmcd.com>; Steve Wells <swells@hgcons.com>
> **Subject:** KDOT Project No. KA6099-02; K-96 Wichita, KS; Agency/Tribal Scoping Meeting
>
> *EXTERNAL*: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.
>
> Dear Mx:

It has come to my attention that your names were inadvertently left off our email list that was used to provide early information and an invitation to an agency/tribal scoping meeting we held on March 1, 2023 for the Kansas Department of Transportation project referenced above. I am attaching all previous documents that were sent to other agency/tribal contacts ahead of that meeting.

Later this week we will be sending out notes from that meeting, a link for a recording of that meeting, and a copy of our Agency Coordination Plan. We are still very early in the study process and welcome any comments you may have, but apologize for the oversight and any inconvenience this may have caused you. Thank you and feel free to reach out to me with any questions or concerns.

--
David L. Kocour, CEP, ENV SP
NEPA Task Manager
dkocour@hgcons.com
816.256.8584 (O)

KA609902_01_25_23_SummaryEnvironConstraintsTM_v...

--
David L. Kocour, CEP, ENV SP
Vice President
Sr. Environmental Scientist/Planner
Planning Department Manager
Hg Consult, Inc.
dkocour@hgcons.com
816.256.8584 (O)
913.747.8239 (M)
www.hgcons.com

Hg Consult Inc engineers planners

Re: KDOT K-96 Agency/Tribal Scoping Mtg Notes KA6099-02

1 message

David Kocour <dkocour@hgcons.com> Mon, Mar 20, 2023 at 1:38 PM
To: "Summerlin, Joe" <summerlin.joe@epa.gov>
Cc: "Tapp, Joshua" <Tapp.Joshua@epa.gov>
Bcc: David Kocour <dkocour@hgcons.com>, Steve Wells <swells@hgcons.com>, "Borchers, Jacob" <Jacob.M.Borchers@wsp.com>, Mike Herleth <mherleth@burnsmcd.com>, Jen Johnson <jjohnson@hgcons.com>, Chris Thomas <cthomas@hgcons.com>, "Albritton, Shane P." <spalbritton@garverusa.com>, Brett Pierson <bpierson@hgcons.com>

Understand. Thank you Joe. We will still include you in our emails and will understand if you don't respond.

On Thu, Mar 16, 2023 at 3:48 PM Summerlin, Joe <summerlin.joe@epa.gov> wrote:

> David,
>
> Thank you for sending the notes from the meeting. At this time, EPA is focusing on environmental impact statements and those environmental assessments that may have significant effects. We only have one NEPA reviewer at this time and will do our best to participate in any future meetings. Please reach out to me at summerlin.joe@epa.gov if you have any questions about the NEPA process and review.
>
> Sincerely,
>
> Joe Summerlin
>
> NEPA Reviewer
>
> EPA, Region 7
>
> ---
>
> **From:** David Kocour <dkocour@hgcons.com>
> **Sent:** Thursday, March 16, 2023 2:20 PM
> **To:** rnelson@achp.gov; mranslow@achp.gov; andrea.spillars@fema.dhs.gov; William.cleveland@dot.gov; Mokhtee.Ahmad@dot.gov; Reznicek, Sarah M CIV USARMY CENWK (US) <Sarah.M.Reznicek@usace.army.mil>; Karen.Woodrich@usda.gov; Cathy.lynn.lacy@census.gov; Davis, Jose R <Jose.R.Davis@hud.gov>; Natalie.M.Simms-Patton@hud.gov; Michele McNulty <michele_mcnulty@fws.gov>; bert_frost@nps.gov; Environmental_review@ios.doi.gov; mlarson@blm.gov; ccunningham@usbr.gov; amanda.wang@sol.doi.gov; Summerlin, Joe <summerlin.joe@epa.gov>; Karinda.eden@bia.gov; jdelisle@ku.edu; m.hoeme@kcc.ks.gov; laura.moody@ks.gov; julie coleman <julie.coleman@ks.gov>; kdhe.bwmweb@ks.gov; Leo Henning <leo.henning@ks.gov>; kari.goldston@ks.gov; riston.landwehr@ks.gov; Linda.lanterman@ks.gov; Zachary.cordes@ks.gov; Jennie.chinn@ks.gov; djacobson@ksturnpike.com; sara.maguire@kwo.ks.gov; wilsons@usd385.org;

bellr@usd385.org; dpotter@usd375.org; dlutz@bucoks.com; lmangus@andoverks.com; jconstantino@andoverks.com; aking@wichita.gov; joswald@wichita.gov; gjanzen@wichita.gov; swadle@wichita.gov; Lynn Packer <lynn.packer@sedgwick.gov>; jhutchison2@usd259.net; chad.parasa@wampo.org; MTann@wichita.gov; Mkundu@wichita.gov; Elizabeth Smith <elizabeth.smith@ks.gov>; Scott.Satterwaite@ks.gov; Katlynn Decker [KDHE] <Katlynn.Decker@ks.gov>; Karle Woodward [KDHE] <Karle.Woodward@ks.gov>; Scott.tener@faa.gov; ahunter@osagenation-nsn.gov; colleen.bell@osagenation-nsn.gov; deseray.helton@osagenation-nsn.gov; Caitlin.nichols@osagenation-nsn.gov; terri.parton@wichitatribe.com
Cc: edward.thornton@dot.gov; Ahumada, Javier (FHWA) <javier.ahumada@dot.gov>; Cliff Ehrlich [KDOT] <cliff.ehrlich@ks.gov>; Mike Herleth <mherleth@burnsmcd.com>; Albritton, Shane P. <spalbritton@garverusa.com>; Steve Wells <swells@hgcons.com>; Jen Johnson <jjohnson@hgcons.com>; Borchers, Jacob <Jacob.M.Borchers@wsp.com>; Liz Dipaola <dipaola.liz@gmail.com>
Subject: KDOT K-96 Agency/Tribal Scoping Mtg Notes KA6099-02

Thank you to all who attended the recent agency/tribal scoping meeting for the Kansas Department of Transportation's Kansas Highway 96 corridor study in Wichita. I am attaching the notes from that meeting. If someone would like to request it we also have a recorded version of the meeting, but it is a rather large file.

We will soon be sending you an Agency Coordination Plan that describes a number of items including the scoping meeting, future agency/tribal input points and timelines.

--

David L. Kocour, CEP, ENV SP

Vice President

Sr. Environmental Scientist/Planner

Planning Department Manager

Hg Consult, Inc.

dkocour@hgcons.com

816.256.8584 (O)

913.747.8239 (M)

www.hgcons.com

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS, KANSAS CITY DISTRICT
KANSAS STATE REGULATORY OFFICE
2710 NE SHADY CREEK ACCESS ROAD
EL DORADO, KANSAS 67042

February 24, 2023

Kansas State Regulatory Office
(NWK-2022-00320)

Mr. Kris Norton
PMC Coordinating Engineer
Kansas Department of Transportation
Eisenhower State Office Building
700 Southwest Harrison Street
Topeka, KS 66603-3745

Dear Mr. Norton:

This is in response to your recent letter regarding the initiation of an Environmental Assessment (EA) for the K-96 Improvements Project. The proposed project involves upgrading approximately 9.5 miles of K-96 to a 6-lane freeway, including pavement replacement from 21st Street to the K-96/U.S. 54/U.S. 400/ I-35 interchange and improvements at seven interchanges between Hillside and 21st Street. The project is in northeast Wichita in Sedgwick County, Kansas.

This project has been assigned Regulatory file number NWK-2023-00132 by our office. Please reference this number in all comments and/or inquiries to our office relating to this project. The Corps of Engineers has jurisdiction over all waters of the United States. Discharges of dredged or fill material in waters of the United States, including wetlands, require prior authorization from the Corps under Section 404 of the Clean Water Act (Title 33 United States Code Section1344). The implementing regulation for this Act is found at Title 33 Code of Federal Regulations Parts 320-332.

Should the proposed improvements require the discharge of dredged or fill material in any waters of the United States, including wetlands, a Department of the Army (DA) permit may be required. However, if the proposed improvements do not require the discharge of dredged or fill material in any waters of the United States, including wetlands, a DA permit will not be required.

Thank you for the invitation to attend the interagency coordination meeting on March 1, 2023. We accept your invitation to participate as a cooperating agency for this project. If you have any questions concerning this matter, please feel free to write or contact Ms. Sarah Reznicek at 816-389-3741 or email sarah.m.reznicek@usace.army.mil.

Sincerely,

Thomas L. Schumann
State Program Manager
Kansas State Regulatory Office

David Kocour <dkocour@hgcons.com>

FW: K-96 Improvement Project Environmental Assessment Participating Agency Status

1 message

Kris Norton [KDOT] <Kris.Norton@ks.gov> Tue, Feb 14, 2023 at 1:25 PM
To: "Herleth, Michael" <mherleth@burnsmcd.com>, Dave Kocour <dkocour@hgcons.com>, "Borchers, Jacob" <Jacob.M.Borchers@wsp.com>
Cc: "Albritton, Shane P." <spalbritton@garverusa.com>

FYI. KSN

From: Stroh, Terence L <TStroh@usbr.gov>
Sent: Tuesday, February 14, 2023 9:27 AM
To: Kris Norton [KDOT] <Kris.Norton@ks.gov>
Cc: Parish, Jeremy (Trent) <jparish@usbr.gov>; Gibbons, Jason C <jgibbons@usbr.gov>
Subject: K-96 Improvement Project Environmental Assessment Participating Agency Status

EXTERNAL: This email originated from outside of the organization. Do not click any links or open any attachments unless you trust the sender and know the content is safe.

Kris Norton,

Thank you for the invitation to serve as a Participating Agency for preparation of the location study and NEPA document for the K-96 Improvement Project.

The City of Wichita, KS is within our Oklahoma-Texas Area Office, but the location of the proposed project appears to have no impact on our only project in the area. Cheney Reservoir is west of Wichita, Kansas. Therefore, we do not foresee a need to be a Participating Agency.

If you have any questions, please feel free to contact me or reach out to Trent Parish in our Oklahoma-Texas Area Office at jparish@usbr.gov or 512-899-4157.

Thanks

Terry

Terence L Stroh

Regional NEPA Coordinator

Missouri Basin and Arkansas-Rio Grande-Texas Gulf Regions

U.S. Bureau of Reclamation

11056 W. County Road 18E

Loveland, Colorado 80537

970-461-5469 (Office)

970-210-3252 (Cell)

970-461-5316 (Fax)

K96-Participating-Agency-Letter_20230210.pdf
555K

David Kocour <dkocour@hgcons.com>

FW: Kansas Department of Transportation : K-96 Improvements Project Environmental Assessment - Invitation to be a Cooperating Agency

1 message

Kris Norton [KDOT] <Kris.Norton@ks.gov> Mon, Feb 13, 2023 at 1:06 PM
To: "Herleth, Michael" <mherleth@burnsmcd.com>
Cc: "Borchers, Jacob" <Jacob.M.Borchers@wsp.com>, Dave Kocour <dkocour@hgcons.com>

FYI. KSN

From: Tener, Scott (FAA) <scott.tener@faa.gov>
Sent: Monday, February 13, 2023 10:24 AM
To: Kris Norton [KDOT] <Kris.Norton@ks.gov>
Subject: RE: Kansas Department of Transportation : K-96 Improvements Project Environmental Assessment - Invitation to be a Cooperating Agency

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Kris,

We accept your invitation to be a Cooperating Agency. We will not be able to attend in person for your March 1 agency meeting, but we will participate virtually. Please send us a virtual meeting invite when available.

Please let me know if you have any questions,

Scott Tener

Environmental Program Manager

FAA Central Region Airports Division

901 Locust St., Room 364

Kansas City, Missouri 64106-2325

T 816.329.2639 | F 816.329.2611

http://www.faa.gov/airports/central/

From: Herleth, Michael <mherleth@burnsmcd.com>
Sent: Friday, February 10, 2023 2:46 PM
To: Tener, Scott (FAA) <scott.tener@faa.gov>
Cc: Kris Norton <kris.norton@ks.gov>; Borchers, Jacob <jacob.m.borchers@wsp.com>; dkocour <dkocour@hgcons.com>; Albritton, Shane P. <spalbritton@garverusa.com>
Subject: Kansas Department of Transportation : K-96 Improvements Project Environmental Assessment - Invitation to be a Cooperating Agency

The Kansas Department of Transportation (KDOT) is initiating the preparation of Environmental Assessment for the K-96 Corridor in Wichita. KDOT is inviting the Federal Aviation Administration (FAA) to be a Cooperating Agency due to proximity of the Jabara Airport.

Attached is information about the project and what is planned to be accomplished as a result of your participation. Also included is information on an upcoming Agency Scoping Meeting, scheduled for March 1, 2023.

Please contact Kris Norton, PMC Coordinating Engineer by email at kris.norton@ks.gov regarding any questions, or your participation as a Cooperating Agency.

Sincerely

Mike Herleth, PE

Project Manager
IKE Transportation Partners

Phone: (816) 627-6172

Mobile: (660) 651-0127

Email: mherleth@burnsmcd.com

2029 Becker Drive, Suite 222

Lawrence, Kansas 66047

www.ksdotike.org

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intended recipient and receive this communication, please contact the sender, and delete and purge this email from your email system and destroy any other electronic or printed copies.

Thank you for your cooperation.

Office of the Secretary
Curtis State Office Building
1000 SW Jackson St., Suite 540
Topeka, KS 66612-1367

Kansas
Department of Health and Environment

Phone: 785-296-0461
www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

Comments by: KDHE

Transmittal Date: May 22, 2023

This form provides notification and the opportunity for your agency to review and comments on this proposed project as required by Executive Order 12372. Review Agency, please complete Parts II and III as appropriate and return to the contact person listed below. Your prompt response will be appreciated.

Return To: Stephen Wells
Email: swells@hgcons.com

PART I **REVIEW AGENCIES/COMMISSION**

___ Aging	___ Education	___ State Forester
___ Agriculture	___ Geological Survey, KS	___ Transportation
___ Biological Survey	_X_ Health & Environment	___ Water Office, KS
___ Conservation Commission	___ Historical Society	___ Wildlife & Parks
___ Corporation Commission	___ Social & Rehabilitation	___ Commerce

PART II **AGENCY REVIEW COMMENTS**

(Attach additional sheet if necessary) Re: KA609902_K-96 Corridor Purpose
Kevin Heit, Bureau of Waste Management: Comments and an attachment are enclosed for this project.
Bureau of Environmental Remediation: Levi Crooke ,The Remedial Section comments are enclosed this project, Christopher Wierman; comments are enclosed for this project, Brett Tavener; comments are enclosed for this project, Delbert Smith; comments are enclosed for this project, Jesse Cutter, comments are enclosed for this project, Redevelopment Section: Jorge Jacobs; No comments at this time.
Connie Ellis, Bureau of Air: BOA has no comments at this time.
Erich Glave, Bureau of Environmental Field Services, BEFS has no comments.
Tom Stiles, Bureau of Water: Comments are enclosed for this project.

PART III **RECOMMENDED ACTION COMMENTS**

___ Clearance of the project should be granted.

___ Clearance of the project should not be granted.

___ Clearance of the project should be delayed until the issues or questions above have been clarified.

___ Request a State Process Recommendation in concurrence with the above comments

X Clearance of the project should not be delayed but the Applicant should (in the final application) address and clarify the question or concerns indicated above.

___ Request the opportunity to review final application prior to submission to the federal funding agency.

DIVISION/ AGENCY/ COMMISSION:
Judi Dunn, Division of Environment Director's Office
Phone: 785.291-3092
Email: Judi.Dunn@ks.gov

Division of Environment
Curtis State Office Building
1000 SW Jackson St., Suite 400
Topeka, KS 66612-1367

Kansas
Department of Health
and Environment

Phone: 785-296-1535
Fax: 785-559-4264
www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

CC: Julie Coleman, Amy Thompson

FROM: Kevin Heit – Bureau of Waste Management

DATE: May 5th, 2023

RE: Intergovernmental Agency Review requested by Kansas Department of Transportation (KDOT) for the K-96 Improvements Project, KDOT Project Number: 096-087 KA-6099-02 in Sedgwick County, KS.

The City of Isabel should be aware that there is one DWOP (Disposal without a Permit) site within the vicinity of the proposed construction area, (see attached map). The site should not be disturbed during the process of improvements. Additionally, The Kansas Department of Transportation and its contractor(s) should review the attached Technical Guidance Document and ensure all waste is properly disposed. Waste that does not meet the definition of clean rubble or construction/demolition waste should be disposed at a permitted municipal solid waste landfill. If further information is required, I may be reached via email at kevin.heit@ks.gov or by phone at (785) 296-1757.

Kansas Department of Health and Environment
Bureau of Waste Management
1000 SW Jackson, Suite 320, Topeka, Kansas 66612-1366

Construction and Demolition Wastes and Clean Rubble
Guidance Document

Construction and Demolition (C&D) waste is solid waste generated during construction or demolition activities. Clean rubble is also generated during construction or demolition activities, but it differs in composition from C&D waste. This document explains the definitions of C&D waste and clean rubble and acceptable methods for disposal of both.

Construction and Demolition Waste

Definition of C&D waste
C&D waste is defined in KSA 65-3402(u) as:
- solid waste resulting from the construction, remodeling, repair and demolition of structures, roads, sidewalks and utilities;
- untreated wood and untreated sawdust from any source;
- treated wood from construction or demolition projects;
- small amounts of municipal solid waste generated by the consumption of food and drinks at construction or demolition sites, including, but not limited to, cups, bags and bottles;
- furniture and appliances from which ozone depleting chlorofluorocarbons have been removed in accordance with the provisions of the federal clean air act;
- solid waste consisting of motor vehicle window glass; and
- solid waste consisting of vegetation from land clearing and grubbing, utility maintenance, and seasonal or storm related cleanup.

Such wastes include, but are not limited to, bricks, concrete, and other masonry materials, roofing materials, soil, rock, wood, wood products, wall or floor coverings, plaster, drywall, plumbing fixtures, electrical wiring, electrical components containing no hazardous materials, non-asbestos insulation and construction related packaging.

Other statutes and regulations further refine the definition:

Construction related packaging means small quantities of packaging wastes that are generated in the construction, remodeling or repair of structures and related appurtenances. "Construction related packaging" does not include packaging wastes that are generated at retail establishments selling construction materials, chemical containers generated from any source or packaging generated during maintenance of existing structures. *KSA 65-3402(dd)*

Furniture and appliances do not include computer monitors and other computer components, televisions, videocassette recorders, stereos, and similar waste electronics.
KAR 28-29-300(a)(4)(A)

Treated wood includes wood treated with any of the following:
(i) Creosote;
(ii) oil-borne preservatives, including pentachlorophenol and copper naphthenate;

(iii) waterborne preservatives, including chromated copper arsenate (CCA), ammoniacal copper zinc arsenate (ACZA), and ammoniacal copper quaternary compound (ACQ); or
(iv) any other chemical that poses risks to human health and the environment that are similar to the risks posed by the chemicals specified in paragraphs (i) through (iii).
KAR 28-29-300(a)(4)(B)

Untreated wood includes the following, if the wood has not been treated with any of the chemicals listed in the definition of treated wood:
(i) Coated wood, including wood that has been painted, stained, or varnished; and
(ii) engineered wood, including plywood, laminated wood, oriented-strand board, and particle board.
KAR 28-29-300(a)(4)(C)

Wastes which may be disposed of in a C&D landfill
In addition to the items *explicitly* identified as C&D waste in KSA 65-3402(u), the Kansas Department of Health and Environment (KDHE) considers the following materials as *acceptable* for disposal in a C&D landfill:

1. Uncontaminated wooden pallets;
2. Street sweepings (litter must be removed and concentrations of metals, volatile organic compounds, and other compounds must be below regulatory levels);
3. Floor tile, siding, and roofing material containing non-friable asbestos. This material should be:
   a. handled so it remains non-friable (e.g., may have to be manually removed prior to demolition of structure);
   b. transported wet (covered with a mist spray to suppress dust) or transported with tarp cover; and
   c. covered immediately at the landfill;
4. Trees, brush, sod, and incidental quantities of leaves and grass;
5. Ash and other residues from the burning of trees and brush (trees and brush must have been burned in accordance with KAR 28-19-647);
6. Metal scrap (e.g. tie strapping);
7. Mobile homes and trailers (except the tires and fuel tanks). KDHE encourages the recycling of metal components.

Dry mud trap solids from commercial car washes may be applied as cover at a C&D landfill. To be considered a solid the material must pass the paint filter test, EPA method SW 846/9095.

Wastes which may *not* be disposed of in a C&D landfill
Construction and demolition waste does not include waste material containing friable asbestos, garbage, appliances from which ozone depleting chlorofluorocarbons have not been removed in accordance with the provisions of the federal clean air act, electrical equipment containing hazardous materials, tires, drums and containers even though such wastes resulted from construction and demolition activities.
KSA 65-3402(u)

In addition to the items *explicitly* identified as not being C&D waste, KDHE considers the following wastes *unacceptable* for disposal in a C&D landfill:

1. Processed tires - i.e. cut or baled;
2. Mud trap wastes from businesses other than commercial car washes;
3. Bagged or bulk quantities of leaves and/or grass clippings;
4. Trash bags, unless demonstrated to contain only acceptable wastes.

Disposal options for C&D wastes
Acceptable C&D wastes may be disposed of in either a municipal solid waste landfill (MSWLF) or in a C&D landfill. Both MSWLFs and C&D landfills must be approved by KDHE through a permit process. But because of the relatively inert nature of the wastes disposed in C&D landfills, these landfills do not have to meet design standards as strict as those for MSWLFs.

Most C&D landfills will, on occasion, receive waste that is not appropriate for disposal. Therefore, all C&D landfills should conduct waste screening (i.e., inspect incoming waste and remove unacceptable materials) and maintain a dumpster or roll-off container onsite for unacceptable wastes which are received at the landfill. Waste screening is covered in Guidance Document Waste Screening and General Operations at Construction & Demolition Landfills, and storage of unapproved wastes screened from construction and demolition landfills is addressed in Bureau of Waste Management Policy 02-01.

Clean Rubble

Definition of clean rubble
According to KSA 65-3402(w), "Clean rubble means the following types of construction and demolition waste: concrete and concrete products including reinforcing steel, asphalt pavement, brick, rock and uncontaminated soil as defined in rules and regulations adopted by the secretary."

KSA 65-3415b lists "clean rubble" as a waste which is exempt from the state solid waste tonnage fee. The definition of "construction and demolition waste" in KSA 65-3402(u) states: "Clean rubble that is mixed with other construction and demolition waste during demolition or transportation shall be considered to be construction and demolition waste."

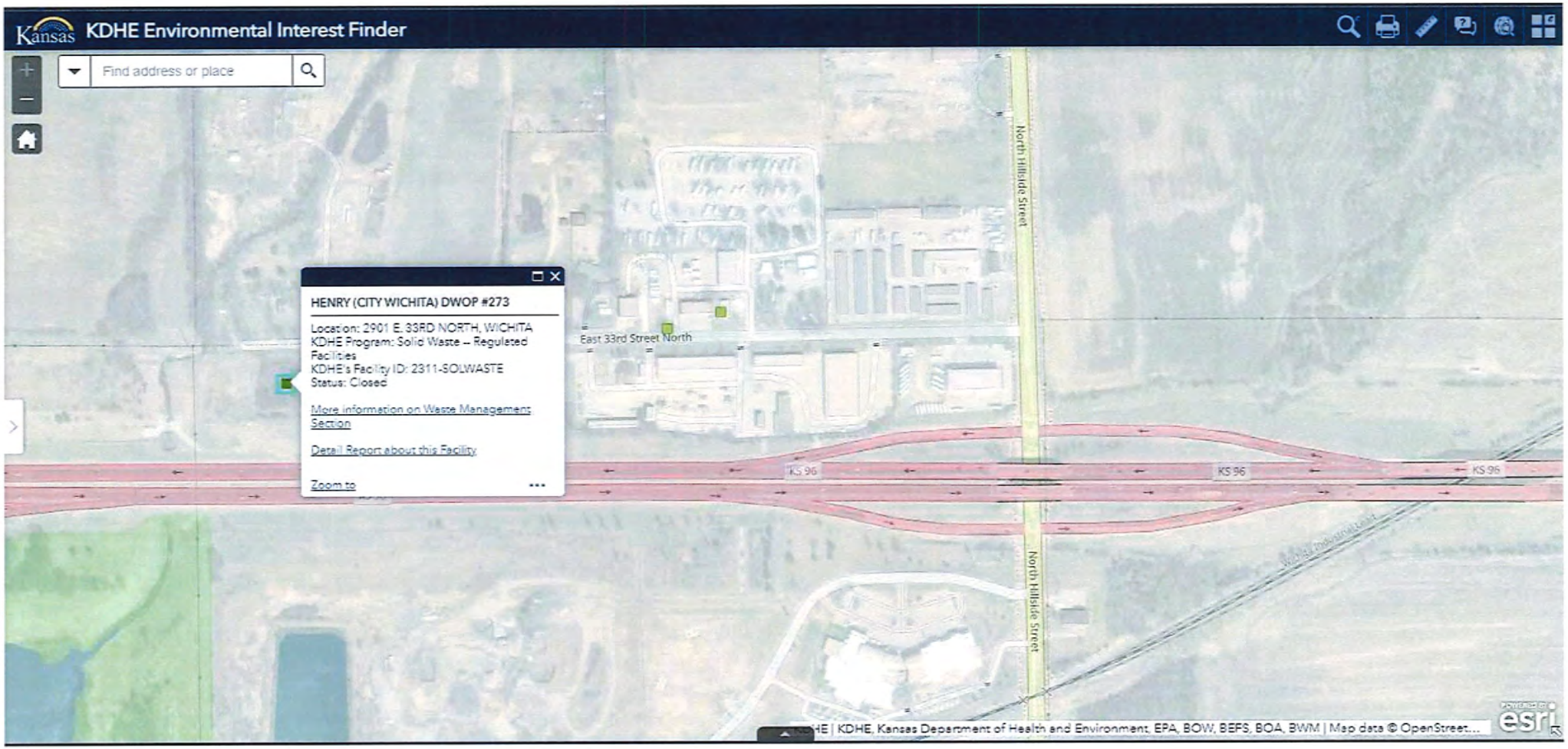
Clean rubble that is brought separately to a construction and demolition landfill or a municipal solid waste landfill is not subject to the tonnage fee, even if the clean rubble is mixed with construction and demolition waste or municipal solid waste upon disposal.

Disposal of clean rubble
The stable nature of the materials in clean rubble means it may be disposed of with C&D waste, or it may be disposed of separately at a clean rubble site. However, clean rubble that is mixed with other C&D waste during demolition or transportation is considered to be C&D waste and must be disposed of at either a MSWLF or at a C&D landfill.
Unlike a C&D landfill, state statutes do not require a solid waste permit for operation of a site that accepts only clean rubble. However, a clean rubble site may be subject to local city or county requirements such as local approval (zoning or land use) and local ordinances.

Approval from the Division of Water Resources (DWR) may be required if the site is located in the 100-year flood plain. The operation and appearance of the site must not create a public nuisance or adversely affect the public health or the environment.

Issued: 04/1994; Content revised 01/20/1998, 09/1998, 05/29/2002, 07/02/2002, 10/03/2007, and 09/29/2014; Revised 06/23/2022: updated formatting and contact information and added hyperlinks

For additional information regarding proper management of solid or hazardous waste in Kansas, you may contact the Bureau of Waste Management at (785) 296-1600 or the address at the top of this document, or visit the Bureau's website at www.kdhe.ks.gov/Waste.


KDHE Environmental Interest Finder
Find address or place
HENRY (CITY WICHITA) DWOP #273
Location: 2901 E. 33RD NORTH, WICHITA
KDHE Program: Solid Waste -- Regulated Facilities
KDHE's Facility ID: 2311-SOLWASTE
Status: Closed
More information on Waste Management Section
Detail Report about this Facility
Zoom to
East 33rd Street North
North Hillside Street
KS 96
KS 96
KS 96
North Hillside Street
esri

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Topeka, KS 66612-1367

Kansas
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Phone: 785-296-0461
www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Levi Crooke, P.G. - Bureau of Environmental Remediation - Remedial Section

DATE: May 22, 2023

RE: Ingergovernmental Agency Review for proposed K-96 Improvements Project, Wichita, Kansas

---

Kansas Department of Health and Environment (KDHE) Bureau of Environmental Remediation (BER), Remedial Section has identified multiple contaminated sites managed by the State Cooperative Program (SCP) within the vicinity of the proposed project area.

The proposed project may impact the monitoring wells networks for the North Industrial Corridor site (C2-087-70150), the Coleman Northeast site (C2-087-00678), and the Raytheon Aircraft Corp (Salvage Yard Site) site (C2-087-03013). Contamination at these sites includes VOCs, SVOCs, Heavy Metals, PCBs, Radionuclides, and Refined Petroleum products. Contamination from these sites may impact the planning and construction activities associated with the proposed K-96 Improvements Project. The monitoring well networks for these sites include a few wells that may be displaced by lane expansion activities. Please coordinate with KDHE Project Managers to determine if monitoring well networks will be impacted by lane expansion plans prior to implementing this proposed K-96 Improvements Project.

KDHE Project Manager contact information:

North Industrial Corridor & Coleman Northeast sites
Pamela Green
785/296.1935
pamela.green@ks.gov

Raytheon Aircraft Corp (Salvage Yard Site)
Mary Daily
785/296.8896
mary.daily@ks.gov

Please contact the appropriate KDHE Project Managers for the most up-to-date information regarding contaminant concentrations for planning and construction activities and to identify the locations of monitoring wells prior to implementing the proposed K-96 Improvements Project. For future K-96 Improvement Project workplans/drawings please consider including the locations of the monitoring wells to show if they will be impacted by the proposed lane expansion.

Staff members or representatives for the proposed K-96 Improvements Project or their consultants are welcome to view the KDHE BER site files in accordance with Kansas Open Records Act. Please contact me at 785/296.0225 or levi.crooke@ks.gov if you have any further questions or concerns.

Additional information for the contaminated sites may be found at the following webpages:

North Industrial Corridor site (C2-087-70150)
https://keap.kdhe.ks.gov/BER_ISL/ISL_Pub_Detail.aspx?ProjectCode=C208770150

Coleman Northeast site (C2-087-00678)
https://keap.kdhe.ks.gov/BER_ISL/ISL_Pub_Detail.aspx?ProjectCode=C208700678

Raytheon Aircraft Corp (Salvage Yard Site) site (C2-087-03013)
https://keap.kdhe.ks.gov/BER_ISL/ISL_Pub_Detail.aspx?ProjectCode=C208703013

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Kansas
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Phone: 785-296-1660
Fax: 785-559-4261
www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Christopher Wierman

DATE: May 18, 2023

RE: Intergovernmental Agency Review requested by Hg Consult, Inc. for the K-96 Expansion Project in the City of Wichita

---

The Kansas Department of Health and Environment Bureau of Environmental Remediation (KDHE/BER), Assessment and Restoration Section, Dry Cleaner / Superfund Unit, has not identified contaminated Drycleaner or Superfund sites within the vicinity of the proposed project.

Staff members or representatives for Hg Consult, Inc. WSP, or the City of Wichita are welcome to come and view the KDHE/BER files in accordance with the Kansas Open Records Act. Please contact me at (785) 296-5548 or by email at christopher.wierman@ks.gov if you have any questions.

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Topeka, KS 66612-1367

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www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Brett Tavener

DATE: May 5, 2023

RE: Intergovernmental Agency Review for Improvements to K-96 (including interchange improvements), Wichita, KS

The Kansas Department of Health and Environment Bureau of Environmental Remediation (KDHE/BER), Storage Tank Section, identified several storage tank facilities within the vicinity of the proposed project area(s). The tank facilities are listed by Interchange Improvement Areas. Clearance for the project should be granted.

- **Hillsdale St. Intersection**
  1. **U-Store-It (80040)** – one UST was removed in 1992. No petroleum contamination was detected. The site is closed. There are currently no registered tanks at this facility.
- **Oliver St. Intersection**
  1. **Quiktrip #322 (30576)** – there are currently 5 USTs in use at the facility. There have been no documented releases at this facility.
- **Woodlawn Blvd. Intersection**
  1. **Casey's General Store #3261 (29931)** – the facility had a gasoline leak in 2006. The site was investigated and was in groundwater monitoring until closed in 2009. There are currently 2 USTs in use at the facility.
- **Rock Rd. Intersection**
  1. **KS0021 (29740)** – there are currently 3 USTS in use at the facility. There have been no documented releases at this facility.
  2. **Total (28642)** – petroleum contaminated soil was discovered at the facility in 1992 during an assessment. The site was investigated and was in groundwater monitoring until closed in 2003. Three USTs were removed from the facility in 2004. There are currently no registered tanks at this facility.
- **Webb Rd. Intersection**
  1. **Wichita Fire Station #18 (30047)** – there is currently 1 UST in use at the facility. There have been no documented releases at this facility.
  2. **Kansas Surgery & Recovery Center (30358)** - there is currently 1 UST in use at the facility. There have been no documented releases at this facility.

3. **Century Mfg. Co., Inc. (42538)** – two ASTs were removed from service (no date is available). There have been no documented releases at this facility.
4. **Jabara Airport – Rage, Inc. (30107)** - there is currently 1 UST in use at the facility. There have been no documented releases at this facility.
5. **KS Spine & Specialty Hospital, LLC (30302)** - there is currently 1 UST in use at the facility. There have been no documented releases at this facility.

- **Greenwich Intersection – no documentation that shows tank facilities in this area.**
- **E. 21St N. St. Intersection**
    1. **Kensington Gardens (30105)** – two USTs were removed in 2020. No petroleum contamination was found, and the site was closed. There are currently no registered tanks at this facility.

KDHE/BER Storage Tank Section has queried the Kansas Environmental Interest Finder to provide a response concerning potential environmental contaminants located in the proposed project area(s). This information can be found at KDHE Environmental Interest Finder. Undiscovered or unreported environmental contaminants may be present in soil and groundwater at the proposed area(s) of work.

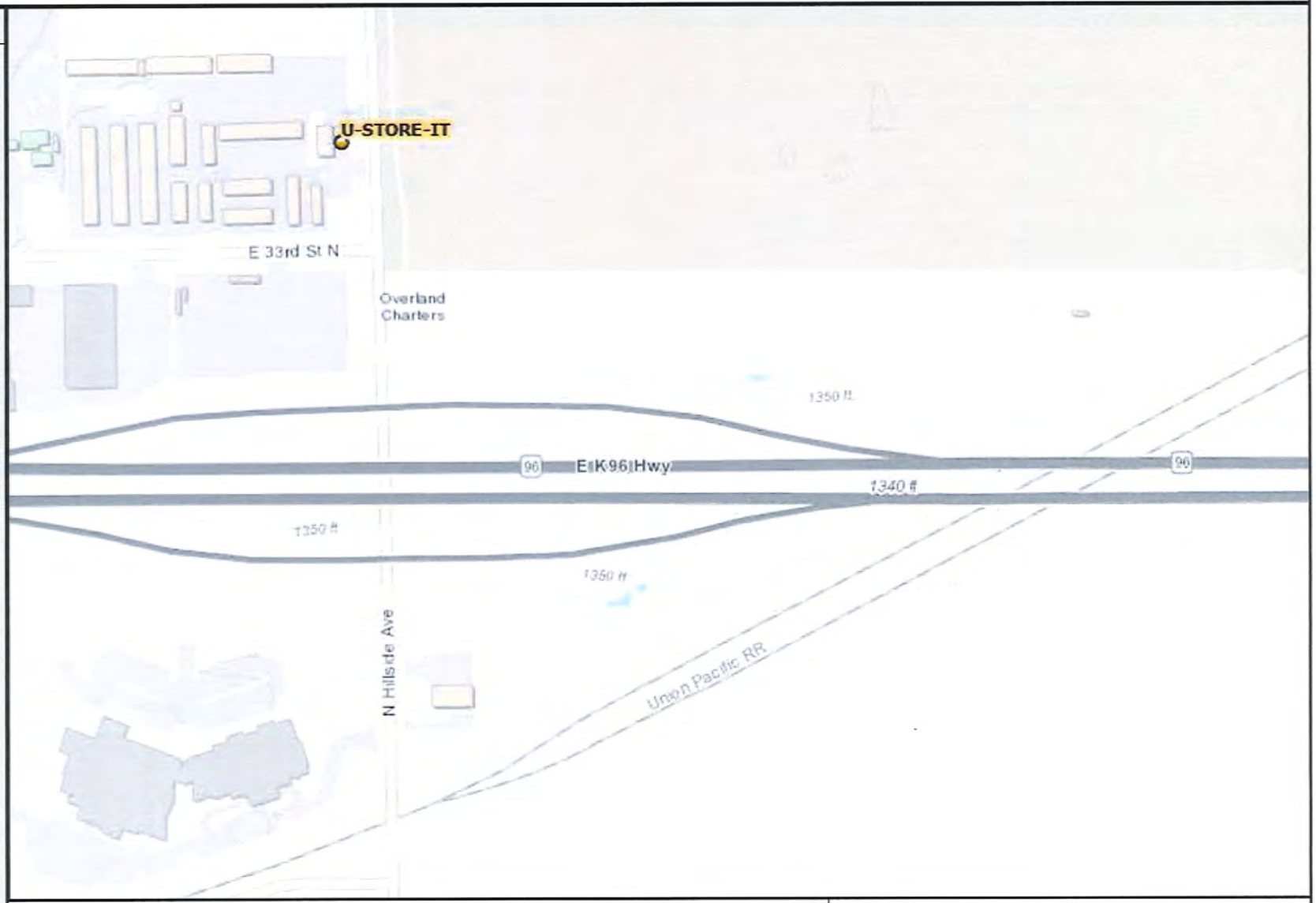
Staff members or representatives for the City of Wichita or their consultant are welcome to come and view the KDHE/BER files in accordance with the Kansas Open Records Act. Please contact me at 785-291-3105 or brett.tavener@ks.gov if you have any questions or concerns.

Kansas Department of Health and Environment

Hillsdale Ave. Intersection

Legend

- Tank Site Location
- \+ Tank Details
- Facility Center Name Label



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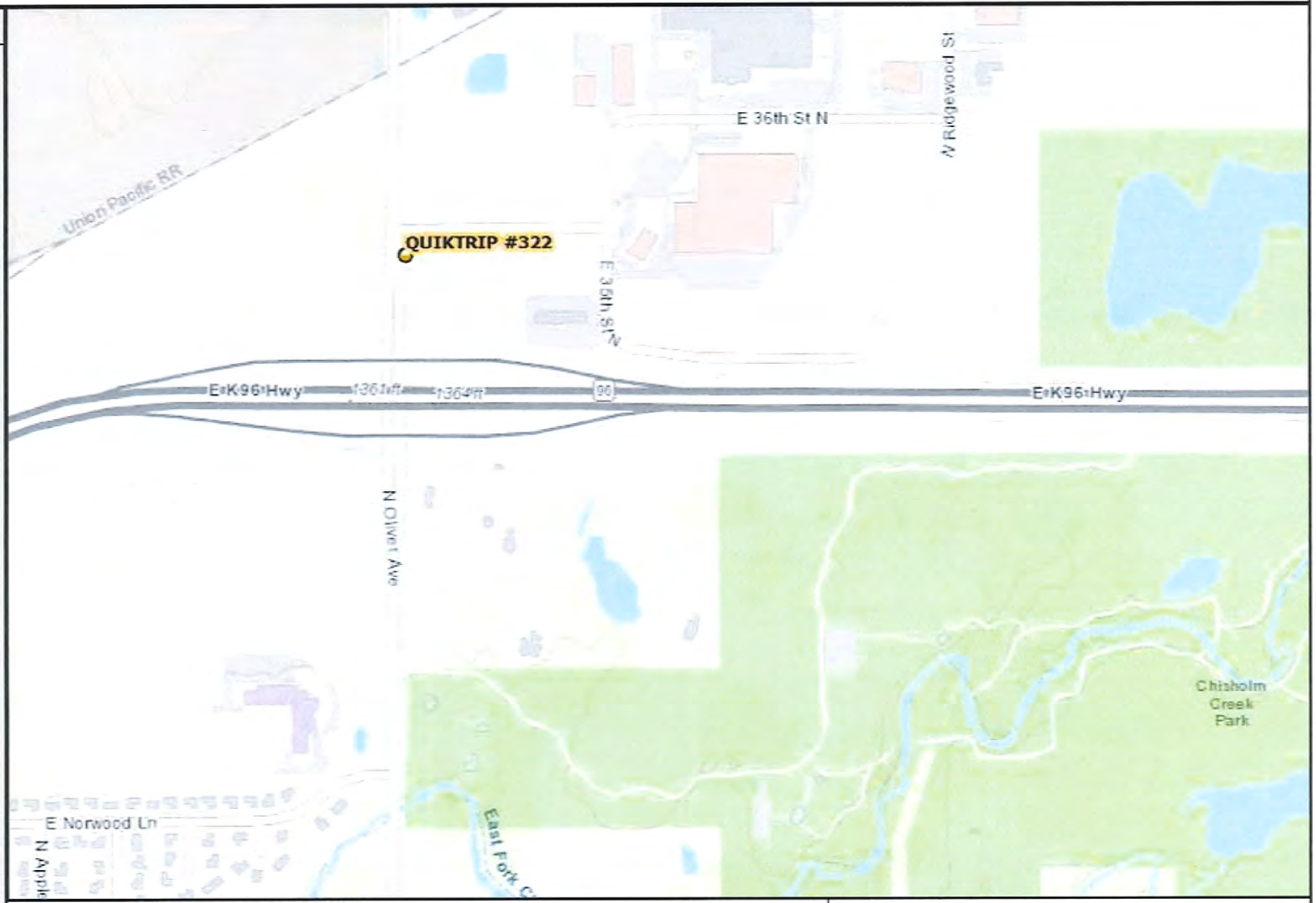
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Kansas Department of Health and Environment

N. Oliver Ave. Intersection

Legend

- Tank Site Location
- \+ Tank Details
- Facility Center Name Label



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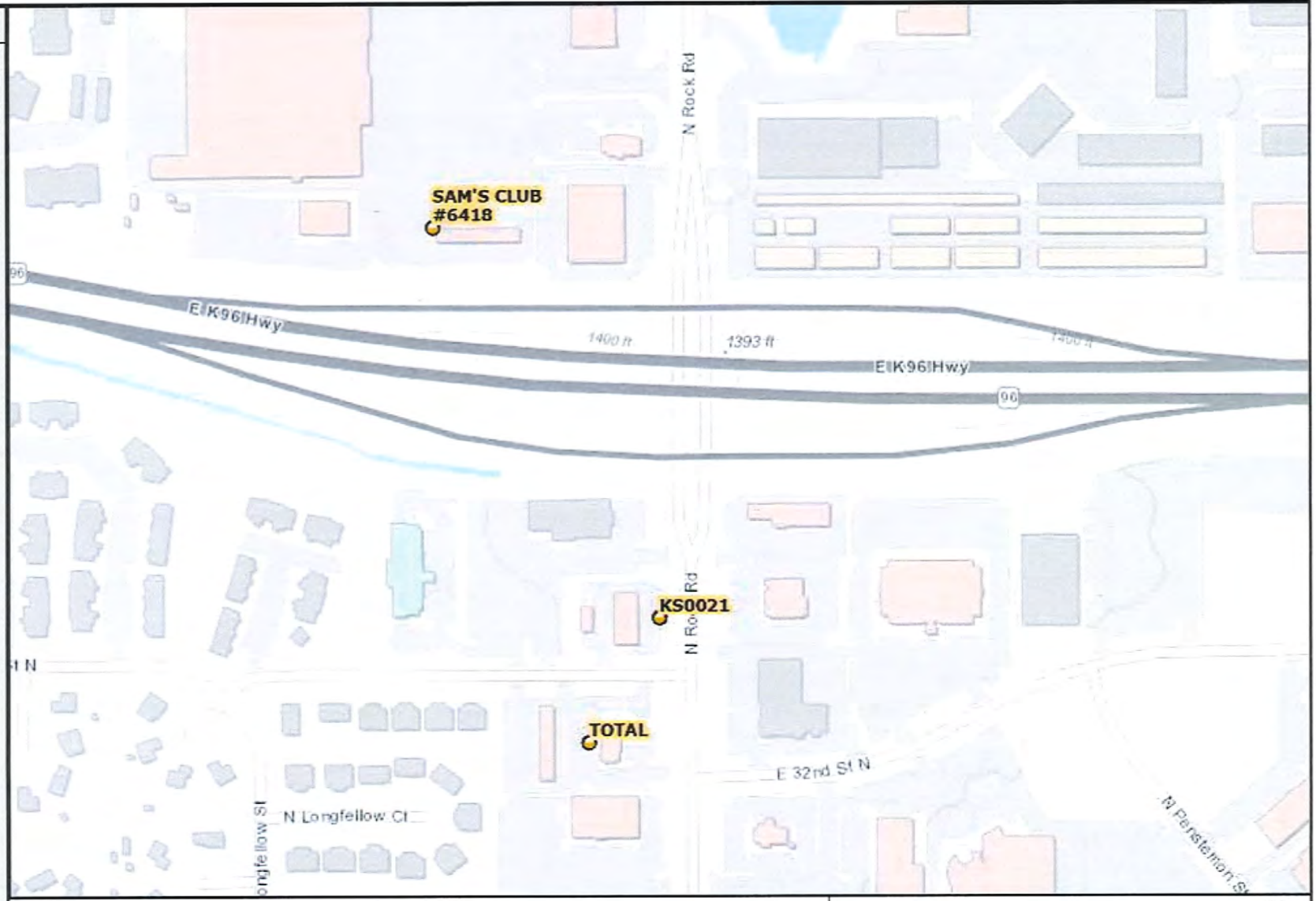
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Kansas Department of Health and Environment

Rock Rd. Intersection

Legend

- Tank Site Location
- \+ Tank Details
- Facility Center Name Label



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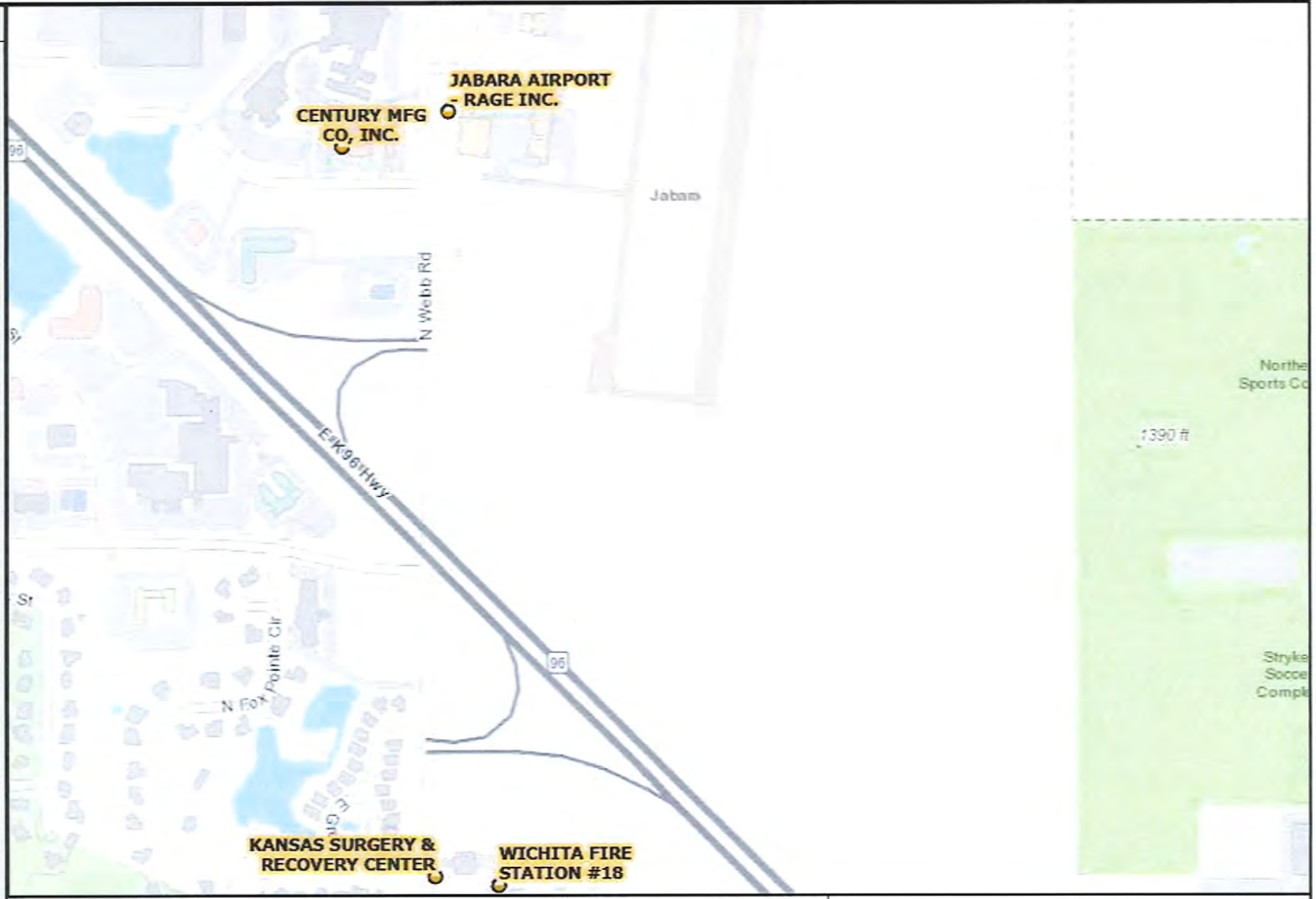
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Kansas Department of Health and Environment

Webb Rd. Intersection

Legend

- Tank Site Location
- \+ Tank Details
- Facility Center Name Label



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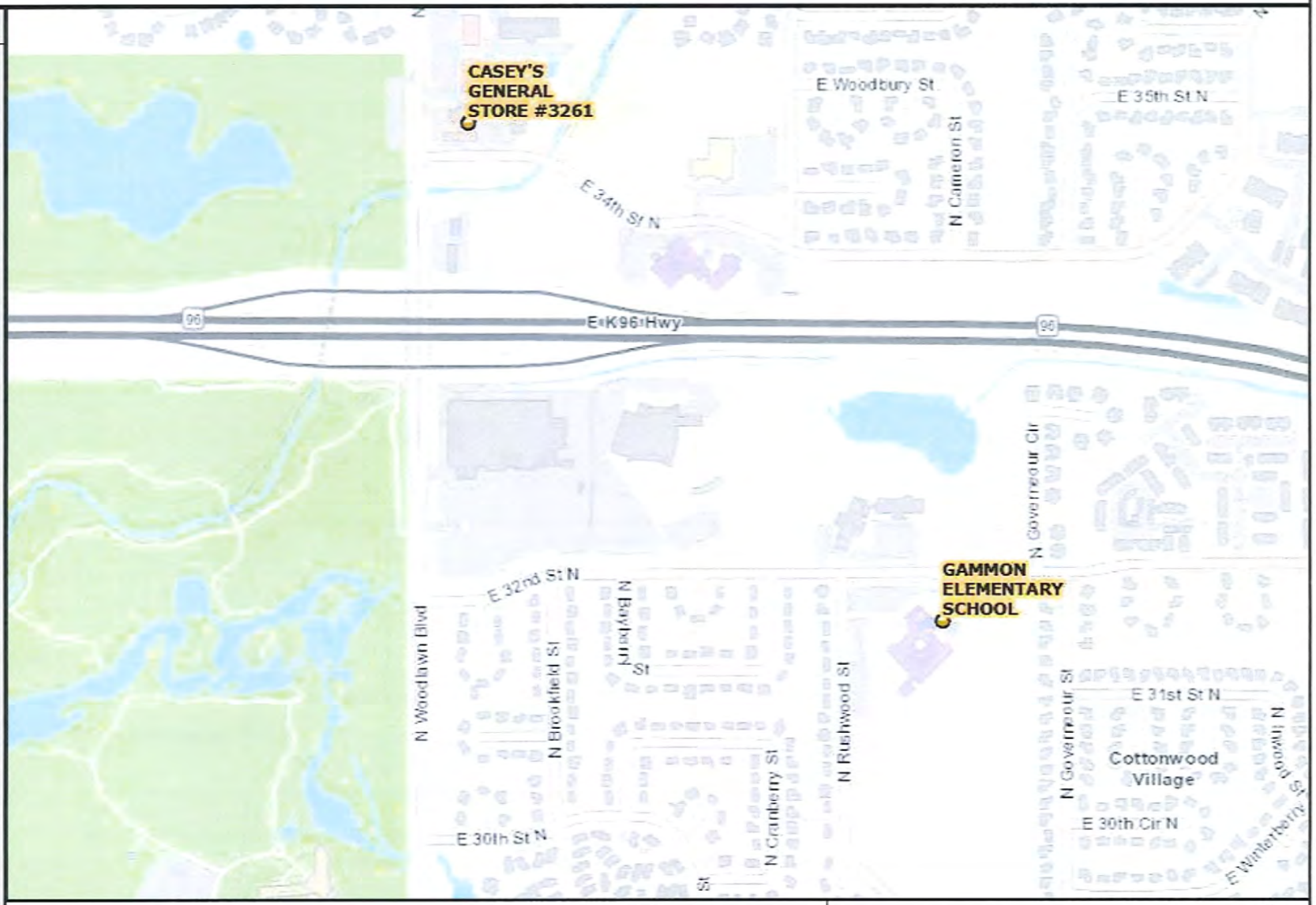
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Kansas Department of Health and Environment

Woodlawn Blvd. Intersection

Legend

- Tank Site Location
- \+ Tank Details
- Facility Center Name Label



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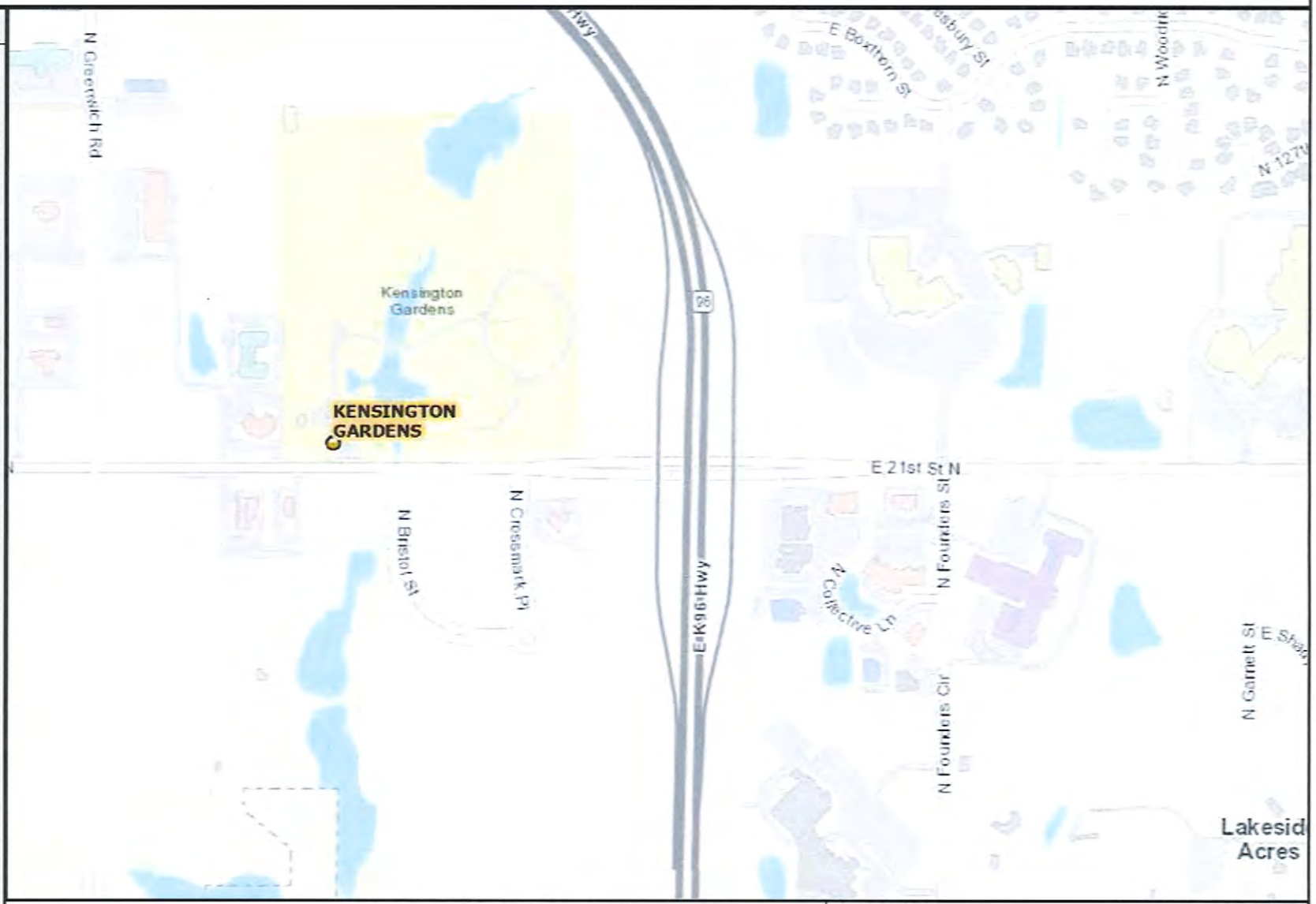
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Kansas Department of Health and Environment

E. 21st St. N. Intersection

Legend

- Tank Site Location
- Tank Details
- Facility Center Name Label



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www.kdheks.gov

Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Delbert Smith

DATE: May 8, 2023

RE: Intergovernmental Agency Review requested by Hg Consult, Inc. (K-96 Improvements Project - Wichita).

The Kansas Department of Health and Environment Bureau of Environmental Remediation (KDHE/BER), Assessment and Restoration Section, Spills Unit, has no identified contaminated spill sites within the vicinity of the proposed project.

Staff members or representatives for Hg Consult and the City of Wicita are welcome to come and view the KDHE/BER files in accordance with the Kansas Open Records Act. Please contact me at (785) 368-7301 or by email at delbert.smith@ks.gov if you have any questions.

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Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Jesse Cutter

DATE: May 16, 2023

RE: Intergovernmental Agency Review requested by HG Consult, Inc. on behalf of the Kansas Department of Transportation regarding the K-96 Corridor Project

---

The Kansas Department of Health and Environment Bureau of Environmental Remediation (KDHE/BER), Assessment and Restoration Section, Orphan Sites Unit, has not identified any sites within the vicinity of the project which would be impacted by or would impact the proposed project.

Staff members or representatives for HG Consult, Inc. are welcome to come and view the KDHE/BER files in accordance with the Kansas Open Records Act. Please contact me at (785) 296-1676 or by email at Jesse.Cutter@ks.gov if you have any questions.

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Janet Stanek, Secretary

Laura Kelly, Governor

MEMORANDUM

TO: Judi Dunn

FROM: Thomas C. Stiles

DATE: 5/11/2023

RE: K-96 Corridor Environmental Review Comments from BOW

No objections; Projects should obtain construction stormwater NPDES permits before beginning

Thomas C. Stiles
Director, Bureau of Water
Kansas Department of Health and Environment
1000 SW Jackson Street, Suite 420
Topeka, KS 66612
785-296-6170
Tom.stiles@ks.gov

900 SW Jackson Street, Suite 404
Topeka, KS 66612

Kansas Water Office

Phone: (785)-296-3185
Fax: (785)-296-0878
www.kwo.ks.gov

Connie Owen, Director

Laura Kelly, Governor

May 8, 2023

Steve Wells
c/o Hg Consulting, Inc.
9111 NE 79th Street
Kansas City, MO 64131

Dear Mr. Wells,

In reviewing the proposed road improvements to K-96 (KDOT Project No: 096-087 KA-6099-02) in Wichita, I did not see any issues of major concern. If the proposed project is approved, measures must be put in place during the entire project to prevent any contaminates from entering the areas surface and groundwater.

Thank you for the opportunity to comment on this project.

Sincerely,

Kirk Tjelmeland

Kirk Tjelmeland
KWO, Field Services Coordinator

Archeological Survey of KDOT Project 96-87 KA-6099-02 (KA-6099-RCNS-01) Sedgwick County, Kansas

by Barbara M. Crable
Contract Archeology Program, Cultural Resources Division
Kansas Historical Society
November 22, 2022

Introduction

The Kansas Department of Transportation (KDOT) proposes to carry out KDOT project number 96-87 KA-6099-02. The project consists of upgrading K-96 from a 4-lane to a 6-lane freeway from N. Hillside St to 13th Street and reconstructing the bridge (replacing the pavement from 21st Street to 13th Street) along K-96. The project area extends through multiple Sections (Table 1 and Figure 1).

Section	Township	Range
34	26 south	1 east
36	26 south	1 east
32	26 south	1 east
4	27 south	2 east
3	27 south	2 east

Table 1. Proposed project area's Sections, Townships, and Ranges.

The Contract Archeology Program (CAP) of the Kansas Historical Society (KSHS) recently completed an archeological field survey investigation of the proposed project area. The purpose of this investigation was to determine whether any significant archeological resources would be affected by the proposed project. This work is done in compliance with laws governing the treatment of cultural resources, particularly Section 106 of the National Historic Preservation Act and its implementing regulations, 36 CFR 800. This work was conducted following procedures outlined in a Memorandum of Agreement between the KSHS and KDOT, effective July 1, 2021.

A Phase I investigation (archival research) was requested by KDOT on August 25, 2022. In response, CAP submitted a Phase I report on September 26 to the State Historic Preservation Office recommending that a Phase II field survey investigation be performed (KSR&C # 22-08-223). SHPO concurred with that recommendation on April 21 and CAP notified KDOT of the recommendation. CAP archeologist Barb Crable carried out the recommended fieldwork on October 25 and 26. This report is submitted to KDOT and the Kansas SHPO. It describes the investigation and provide recommendations for project clearance regarding archeological resources.

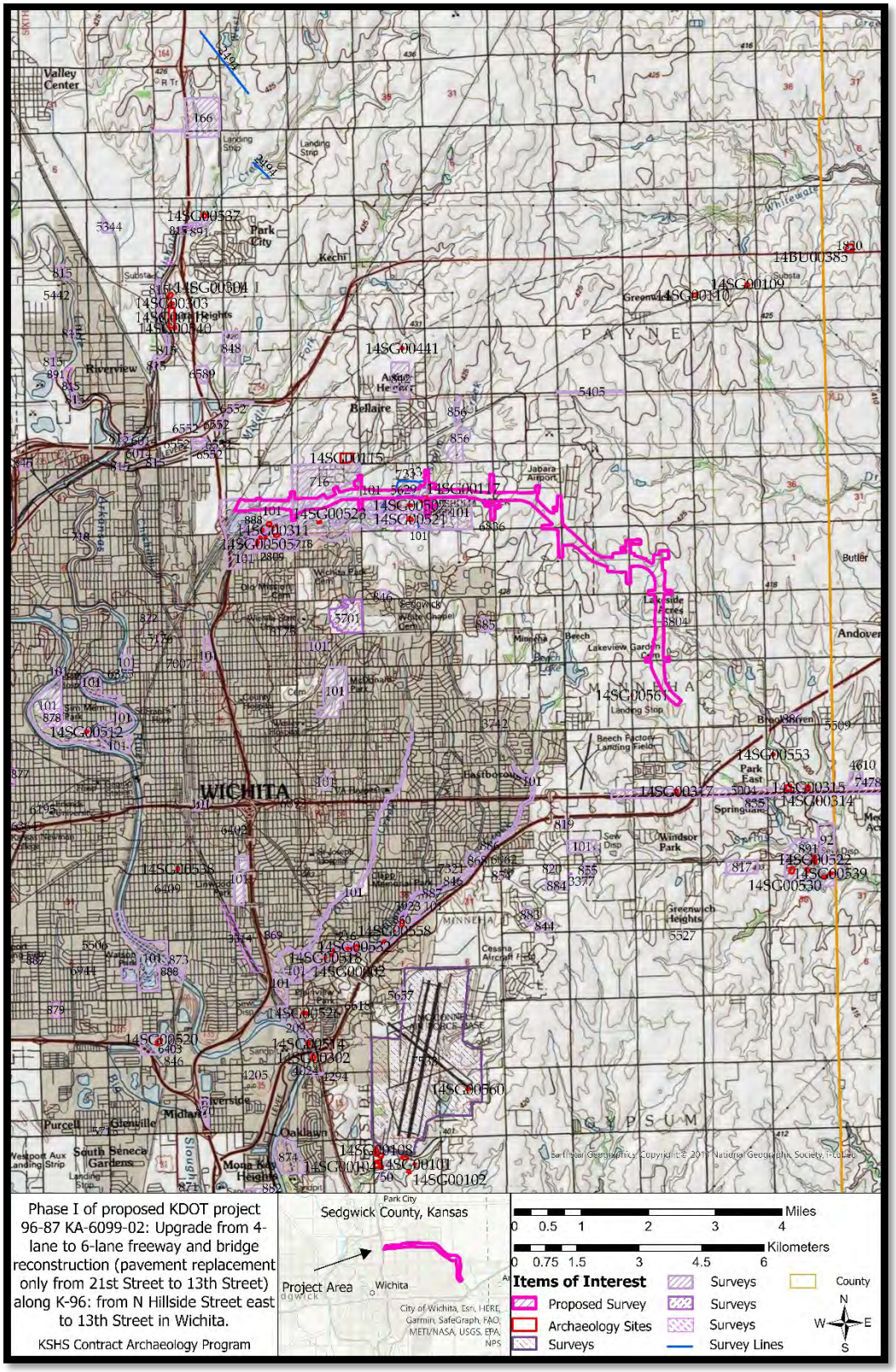


Figure 1. Topographic map of the project area and nearby archeological sites and surveys.

Environmental Setting

The project area lies within the Great Bend Lowland division of the Arkansas River Lowlands section of the Central Lowland province of the Interior Plains of North America (Schoewe 1949:292-296). The Great Bend Lowland is an undulating plain of little relief extending in a 15-60 km wide band along the great northerly bend of the Arkansas River from around Dodge City on the west through Great Bend and Wichita to Arkansas City on the east. It is a poorly drained area of sand dunes and sandy plains, among which are found salt marshes, ponds, and sloughs. The surface materials consist almost entirely of sands and gravels eroded from the Rocky Mountains during the Pleistocene and carried downstream by alluvial action of the Arkansas River, which flows through the area in a shallow channel bounded by a wide, flat, poorly drained river valley. The river is characterized by a braided pattern characteristic of an aggrading or depositing stream. Most of the stream flow of the river is underground; water is usually only barely visible on the surface except during times of flooding.

The vegetation of the Great Bend Lowland before the encroachment of Old-World populations consisted of sand prairie cut through by a thin band of floodplain forest or savanna along the Arkansas River and a few of its tributaries. Wedel noted that the "...low grass-grown banks..." of the Arkansas upstream of the Little Arkansas seem to have been "...largely treeless except for occasional cottonwoods..." and in his view this was probably true for most of the region west and south of the mainstream (1959:12). Kuchler (1974:597) states that the potential natural vegetation of the prairie mainly included big and little bluestem, sandreed, and switchgrass, with the forested areas containing hackberry, cottonwood, willow, and elm along with various shrubs and bushes. Tall trees and dense undergrowth were present in the extreme east, but the forests became narrower and lower westward, and often less dense, the ground covered by an impoverished version of bluestem prairie, creating a savanna effect. Due to the shifting sand bottom of the Arkansas River channel, timber was often absent for long stretches.

The Great Bend Lowland is known to have supported a wide variety of fauna including such large game animals as bison, elk, deer, antelope, and bear. Predators such as wolf, coyote, cougar, and wildcat were also present along with smaller mammals such as beaver, otter, porcupine, fox, ferret, badger, prairie dog, and rabbit as well as small rodents. Quail and wild turkey were limited to the available timber, but prairie chicken and grouse were plentiful throughout the region. Ducks, geese, and other water and shore birds could be found seasonally on marshy areas and sandhill lakes and ponds (Wedel 1959:12).

The proposed project area was surveyed in five tract segments (Figure 2). Tract 1 was east of K-96, west of the Lakeview Funeral Home and Cemetery, with a sidewalk walking path in the center of the survey area. There is a mixture of pasture grasses and an occasional cedar tree. Tract 2 is west of K-96, east of Chapel Hill United Methodist Church and a housing community. North of Four Mile Creek is a milo field with a Home2 Suites. Tract 3 is west of K-96 and east of Kensington Gardens. The survey area is a mixture of deciduous and cedar trees. Tract 4 is northeast of K-96 and is an airstrip space, the Colonel James Jabara Airport. Tract 5 is southwest of K-96 and north of Wichita Firehouse 18, the surface is of intermittent short grasses.

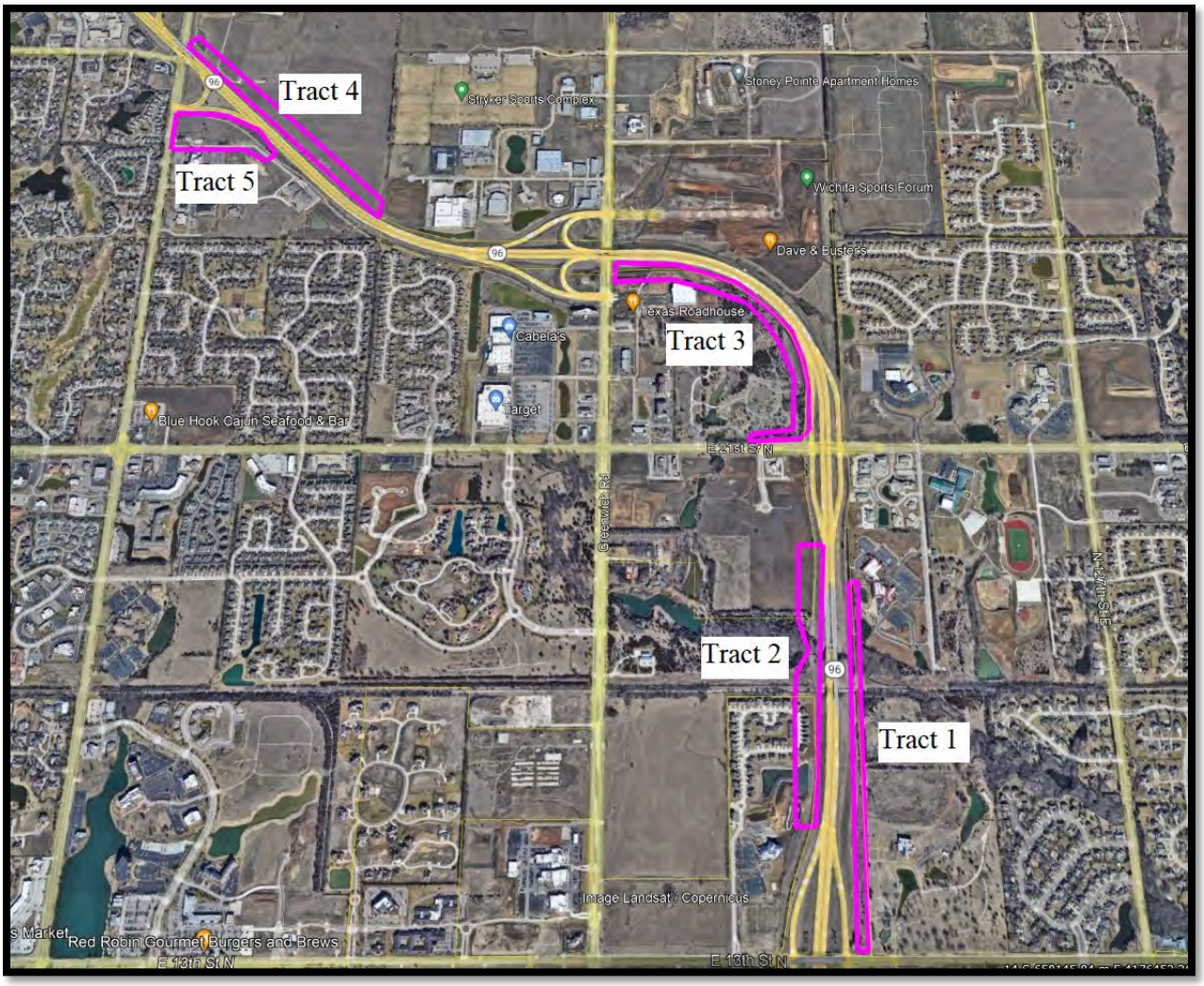


Figure 2. Surveyed tracts of the proposed project area.

Cultural-Historical Setting

Archeological research in this region of Kansas has yielded evidence of human occupation dating from more than 13,000 years ago up to the modern era and will continue yielding more evidence. Sites in the region include habitation areas, work areas, and human burials, as well as other types of sites. While the full extent of the area's archeological resources has yet to be determined, the region contains materials from all the major cultural periods thus far identified in Kansas. The cultural sequence for Kansas is shown in Table 2. These are general categories, and there is some temporal overlap between periods. Summaries of Kansas archeology include Brown and Simmons (1987), Hoard and Banks (2006), Lees (1989), Thies (1987), and Wedel (1959).

Cultural Period			Dates	Area of Kansas and Physiographic Provinces				Subsistence
				Northeast: Glaciated Region	Southeast: Osage Cuestas, Chautauqua Hills, Cherokee Lowlands	Central: Smoky Hills, Flint Hills, Red Hills, Wellington-McPherson Lowlands, Arkansas River Lowlands	West: High Plains, Smoky Hills, Arkansas River Lowlands	
Historic	Modern		Present	Americans, including Indian Nations, and immigrants of many cultures				Service economy, light industry, mineral & petroleum exploitation, farming, ranching
			1900 CE	Industrialization, Mechanized Agriculture				
	Historic		1870 CE	Kansa, Iowa, Sac & Fox, Kickapoo, Potawatomi, Delaware, Wyandotte, Shawnee	Kansa, Shawnee, Ottawa, Peoria & Kaskaskia, Wea & Piankeshaw, Chippewa, Miami, Quapaw	Pawnee, Osage, Kansa	Comanche, Cheyenne, Arapahoe, Kiowa, Kiowa-Apache, Sioux, Pawnee	Reservations, Equestrian Bison Hunting; Maize-based Horticulture East; Equestrian Nomads West
			1800 CE	Immigrant Tribes				
				Kansa	Osage, Kansa, Wichita	Pawnee, Kansa, Wichita, Comanche, Kiowa, Kiowa-Apache	Comanche, Cheyenne, Arapahoe, Kiowa, Kiowa-Apache, Pawnee	Equestrian Bison Hunting, Equestrian Nomadism; Maize-based Horticulture & Trapping East
Proto-historic			1700 CE	Late Prehistoric Oneota		Pawnee, Kansa, Wichita	Dismal River aspect	
Prehistoric	Late Ceramic				Neosho focus, Great Bend aspect	Great Bend aspect	Great Bend aspect	Hunting, Gathering; Maize Horticulture East; Some Supplemental Horticulture West
			1400 CE	White Rock phase		White Rock phase	White Rock phase	
	Middle Ceramic			Pomona variant, Nebraska & Steed Kisker phases	Pomona variant	Smoky Hill & Solomon River phases, Pratt & Bluff Creek complexes	Upper Republican & Odessa phases	
			1000 CE					
	Early Ceramic			Grasshopper Falls phase, Kansas City Hopewell	Grasshopper Falls & Cuesta phases	Grasshopper Falls & Greenwood phases, Valley variant,	Keith phase	Hunting, Gathering; Cultivation & Domestication of Native Plants East
			1 CE					
				Nebo Hill phase	Nebo Hill & El Dorado phases	Walnut & El Dorado phases	Unclassified Archaic Cultural Manifestations	
			1400 BCE					Hunting, Gathering; Incipient Cultivation of Native Plants East
			3000 BCE			Chelsea phase		
	Archaic		4000 BCE			Munkers Creek phase	McKean complex	
				Logan Creek phase	Stigenwalt complex	Logan Creek phase	Logan Creek phase	
			7000 BCE					Hunting, Gathering
	Paleoindian		10,000 BCE	Dalton, Cody Complex, Allen, Frederick				
			11,500 BCE	Clovis, Folsom, Plainview				

Table 2. Cultural sequence of Kansas by region. Adapted from Hoard and Banks 2006.

Previous Investigations

Sites In or Near the Project Area

Fourteen sites occur within one mile of the project area, 14SG115, 14SG117, 14SG311, 14SG312, 14SG503, 14SG505, 14SG506, 14SG507, 14SG521, 14SG523, 14SG542, 14SG551, 14SG559, and 14SG561 (Table 3 and Figure 3). The presence of these sites led CAP to recommend Phase II for the current project.

Site Number	Site Description	NRHP Eligibility	Distance from Project Area
14SG115	Historic structure, has been razed	n/a	0.6 mi north
14SG117	Sparse historic artifact scatter	n/a	0.1 mi south
14SG311	One projectile point, isolated find	n/a	0.5 mi south
14SG312	One projectile point, isolated find	n/a	0.5 mi south
14SG503	Surface scatter of small points, faunal remains	n/a	0.5 mi south
14SG505	Surface scatter	n/a	0.5 mi south
14SG506	Surface scatter	n/a	0.5 mi south
14SG507	Surface scatter of limestone, bone and lithics	n/a	0.1 mi south
14SG521	Surface scatter of lithic material	n/a	0.1 mi south
14SG523	Surface scatter of lithics	n/a	0.5 mi south
14SG542	Surface scatter of lithics	n/a	0.5 mi south
14SG551	Endscraper, flakes, 1 faunal bone	n/a	0.5 mi south
14SG559	Village, flakes, daub, charcoal, bones	n/a	0.5 mi south
14SG561	Pierpoint Cemetery, headstone fragments	n/a	0.5 mi west

Table 3. Sites In or Near the Project Area

Surveys In or Near the Project Area

Sirico (1982) completed a drive through survey of the Lisa Cole First Addition for a housing project. Sirico noted the area was completely transformed by construction of street and housing.

Sirico (1983) completed a pedestrian survey and shovel testing along Gypsum Creek, approximately 185 m south of Harry Street. No cultural materials were located.

Thies (1984) completed a Phase II investigation of the East Fork Chisholm Creek for a proposed roadway project. One fragment of a chert biface was identified, but was located outside of the proposed roadway and was not considered indicative to a prehistoric occupation of the area. The project was recommended to proceed.

Garcia (1986) completed a pedestrian survey of the Chisolm Creek valley area for projects listed in the 1985 – 1990 Capital Improvement Program. At the time of the reporting, there were 8 recorded archeological sites, it was recommended to have monitoring done while expressway construction was underway.

Williams (1990) completed a pedestrian survey for a borrow project. Archeological site 14SG307 was located during the survey and was excluded from the borrow project. No other cultural material was located.

Hughes and Hughes-Jones (2006) completed a Phase II investigation for a proposed Cricket Cell Telephone Tower. No cultural materials were encountered.

Hughes and Hauser (2015) completed a Phase II investigation for a proposed Wichita State University Innovation Campus development. The area surveyed was first developed into a golf course in 1921 and had been extensively modified to suit the needs of the course. A small copper vessel was identified in a shovel test, no other cultural material was identified.

Survey Methods and Results

The amount of land surveyed for the proposed project is 32 acres. Tract 1 consisted of a T1 terrace that has been borrowed for highway berm construction (Figure 4). A row of cedars flanks a walking pavement on the east and there is a dirt road with soil/rocks dumped along it. Extensive flooding has occurred at the creek, there were no cutbanks to inspect (Figure 5).



Figure 4. Tract 1, view is to the southwest.



Figure 5. Tract 1 at Four Mile Creek, view is to the west.

Tract 2 is parallel to the K-96 right of way with a berm in front of the Methodist Church. Two retention ponds are north of the church and south of a housing community. One shovel test was excavated north of the berm and southeast of the retention ponds. The soil was a yellow brown clay loam, it was determined the soils were contaminated by the nearby ponds and no further testing commenced. A milo field, north of Four Mile Creek, was pedestrian surveyed with north south transects at 10 m intervals. Recent rains provided 100% ground surface visibility, and there were no cultural materials encountered.

Track 3 is east of Kensington Garden Cemetery. An area of mixed deciduous and cedar trees was shovel tested with one transect at 15 m intervals (Table 4). No cultural materials were encountered.

Tract 4 was not surveyed, the Colonel James Jabara Airport, clearly for safety purposes there is a tall chain link fence directly next to the K-96 right of way.

Tract 5 is a small patch of short grasses southwest of the on-ramp to K-96, ground surface visibility was 75%. A pedestrian survey was conducted at 10m transects, and no cultural materials were encountered.

No significant cultural resources were found within the surveyed area. In terms of 36 CFR 800.4, the investigation produced a finding of "no historic properties affected."

Recommendations

Based on the amount of area surveyed and lack of cultural remains recovered, we recommend that the proposed project proceed as planned, with no additional investigations unless archeological discoveries are made during the project. We request the concurrence of the State Historic Preservation Office with this recommendation.

Due to the nature of archeological manifestations, it is always possible that buried cultural deposits could be encountered that were not detected during the Phase II investigation. If that occurs, construction must stop within five meters of the find spot and the Kansas State Historic Preservation Office must be notified.

Table 4. Shovel test log

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1990 Archeological Survey of Two Sedgwick County Contractor Furnished Borrow Areas for K-4030. Manuscript on file, Kansas Historical Society, Topeka.

APPENDIX I.

BC 1	Zone: 14S	N: 4176645	E: 658568
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 2	Zone: 14S	N: 4176659	E: 658574
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 3	Zone: 14S	N: 4176684	E: 658586
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 4	Zone: 14S	N: 4176703	E: 658584
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 5	Zone: 14S	N: 4176720	E: 658585
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 6	Zone: 14S	N: 4176737	E: 658587
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 7	Zone: 14S	N: 4176754	E: 658584
0-35cmbs dark gray silt loam 35-40cmbs brown sandy silt loam			
BC 8	Zone: 14S	N: 4176772	E: 658587
0-30cmbs dark gray silt loam 30-40cmbs light brown sandy silt loam			
BC 9	Zone: 14S	N: 4176788	E: 658591
0-30cmbs dark gray silt loam 30-40cmbs light brown sandy silt loam			
BC 10	Zone: 14S	N: 4176802	E: 658590
0-30cmbs dark gray silt loam 30-40cmbs light brown sandy silt loam			
BC 11	Zone: 14S	N: 4176820	E: 658593
0-30 cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 12	Zone: 14S	N: 4176837	E: 658595
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 13	Zone: 14S	N: 4176854	E: 658597
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 14	Zone: 14S	N: 4176869	E: 658595
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 15	Zone: 14S	N: 4176885	E: 658592
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			

BC 16	Zone: 14S	N: 4176899	E: 658586
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 17	Zone: 14S	N: 4176915	E: 658580
0-30cmbs brown silt loam 30-40cmbs light brown sandy silt loam			
BC 18	Zone: 14S	N: 4176932	E: 658579
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 19	Zone: 14S	N: 4176950	E: 658576
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 20	Zone: 14S	N: 4176964	E: 658570
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 21	Zone: 14S	N: 4176981	E: 658563
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 22	Zone: 14S	N: 4176997	E: 658556
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 23	Zone: 14S	N: 4177011	E: 658554
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 24	Zone: 14S	N: 4177027	E: 658547
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 25	Zone: 14S	N: 4177045	E: 658541
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 26	Zone: 14S	N: 4177060	E: 658523
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 27	Zone: 14S	N: 4177078	E: 658518
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 28	Zone: 14S	N: 4177097	E: 658512
0-25cmbs brown silt loam 25-40cmbs light brown sandy silt loam			
BC 29	Zone: 14S	N: 4177118	E: 658502
0-30cmbs gray silt loam 30-40cmbs brown silt loam			
BC 30	Zone: 14S	N: 4177137	E: 658480
0-30cmbs gray silt loam 30-40cmbs brown silt loam			

BC 31	Zone: 14S	N: 4177161	E: 658446
0-30cmbs gray silt loam 30-40cmbs brown silt loam			
BC32	Zone: 14S	N: 4177172	E: 658426
0-30cmbs gray silt loam 30-40cmbs brown silt loam			
BC 33	Zone: 14S	N: 4177195	E: 658409
0-30cmbs gray silt loam 30-40cmbs brown silt loam			
BC 34	Zone: 14S	N: 417199	E: 658359
0-30cmbs gray silt loam 30-40cmbs brown silt loam			

Shovel Test Log

Cultural Resources Division
State Historic Preservation Office
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Kansas Historical Society

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Patrick Zollner, Acting Executive Director

Laura Kelly, Governor

KSR&C # 22-08-223
March 22, 2023

Terry Blackwell
KDOT

Via email

Re: 96-87 KA-6099-02
ACNHP-A609(902)
Sedgwick County

Staff of the State Historic Preservation Office (SHPO) have reviewed the revised description and plans received October 18, 2022, regarding the above-referenced project in accordance with 36 CFR Part 800. This project was previously cleared by the SHPO on January 20, 2023, after the KSHS Contract Archeology Program (CAP) conducted a Phase II survey of the original APE. After the SHPO's Phase II request, the plans for the project area were extended to include portions of K-96 in the SE ¼ of S15-T27S-R2E and the NW ¼ of S23-T27S-R2E. The SHPO verbally cleared this portion of the project in communications with CAP and determined no survey was needed for this area. This letter affirms that verbal clearance for the project extension, and the SHPO has determined that the project will not adversely affect any property listed or determined eligible for listing in the National Register. As far as this office is concerned, the project may proceed.

Thank you for giving us the opportunity to comment on this proposal. Please refer to the Kansas State Review & Compliance number (KSR&C#) listed above on any future correspondence. Please submit any comments or questions regarding this review to Austin Main at 785-272-8681 ext. 228 or Austin.Main@ks.gov.

Sincerely,

Patrick Zollner

Patrick Zollner, Acting Executive Director and
State Historic Preservation Officer

Cultural Resources Division
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Patrick Zollner, Acting Executive Director

Laura Kelly, Governor

KSR&C # 22-08-223
January 20, 2023

Cliff Ehrlich, Chief of Environmental Services
Environmental Services Section
KDOT

Via Email

Re: 96-87 KA-6099-02
ACNHP-A609(902)
Sedgwick County

Staff review of the above referenced project has been completed at the Phase II level. Pursuant to 36 CFR 800.4, we concur with the finding of no historic properties affected for the above referenced undertaking. We therefore have no objection to implementation of the project.

Sincerely,

Patrick Zollner

Patrick Zollner, Acting Executive Director and
State Historic Preservation Officer

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Patrick Zollner, Acting Executive Director

Laura Kelly, Governor

KSR&C # 22-08-223
September 26, 2022

Terry Blackwell
KDOT
Via Email

Re: 96-87 KA-6099-02
ACNHP-A609(902)
Sedgwick County

We have reviewed the project description and plans received August 26, 2022 regarding project 96-87 KA-6099-02 in accordance with 36 CFR Part 800. This project will upgrade from 4-lane to 6-lane freeway and bridge reconstruction (pavement replacement only from 21st Street to 13th Street) along K-96: from N Hillside Street east to 13th Street in Wichita. Following an architectural review of structures in the project area, the SHPO has determined that the project will not adversely affect any property listed or determined eligible for listing in the National Register. As far as this office is concerned, the project may proceed.

Thank you for giving us the opportunity to comment on this proposal. Please refer to the Kansas State Review & Compliance number (KSR&C#) listed above on any future correspondence. Please submit any comments or questions regarding this review to Lauren Jones at lauren.jones@ks.gov.

Sincerely,

Patrick Zollner
Director, Cultural Resources Division
State Historic Preservation Officer

Chris Thomas <cthomas@hgcons.com>

K96 improvements heritage review

Delisle, Jennifer <jdelisle@ku.edu> Mon, Sep 11, 2023 at 11:28 AM
To: Chris Thomas <cthomas@hgcons.com>

Hi Chris;

I do receive periodic announcements about this project. The Kansas Natural Heritage Inventory contains no data on rare plants, animals or native vegetation communities along the project route. We have not conducted surveys along the route however, so absence of data should not be interpreted to mean that rare species or communities could not occur there.

Jennifer

Jennifer M. Delisle, Information Manager
Kansas Natural Heritage Inventory
Kansas Biological Survey and Center for Ecological Research
Takeru Higuchi Bldg., 2101 Constant Ave.
Lawrence, KS 66047
785-864-jdelisle@ku.edu

From: Chris Thomas <cthomas@hgcons.com>
Sent: Friday, September 8, 2023 2:51 PM
To: Delisle, Jennifer <jdelisle@ku.edu>
Subject: K96 improvements heritage review

[Quoted text hidden]

Osage Nation Historic Preservation Office

WA[A[E KOSY KY]EA

Date: **October 26, 2022**

RE: **KDOT, 96-87 KA-6099-02, ACNHP-A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas**

Kansas Department of Transportation
ATTN: Kris Norton, PMC Coordinating Engineer

Sent via email

Dear Mr. Norton,

The Osage Nation Historic Preservation Office has received notification and accompanying information for the proposed project listed as KDOT, 96-87 KA-6099-02, ACNHP-A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas.

The Osage Nation has not been notified of the project by KDOT's Environmental Division or the Kansas Division of FHWA only being made aware of the project through receipt of Mr. Norton's early coordination letter for the Environmental Assessment that is planned for the proposed project. The Osage Nation requests to know when the Section 106 process will be started, including formal Tribal Consultation, and takes this opportunity to remind KDOT that NEPA does not replace the Section 106 process.

The Osage Nation requests a kmz of the Study Area map shown in Mr. Norton's letter.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates initiation of the Section 106 process and formal Tribal Consultation along with the kmz of the Study Area Map for the proposed KDOT, 96-87 KA-6099-02, ACNHP-A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas.**

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Deseray Helton
Archaeologist

Copy:

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

Colleen Bell, Deputy Tribal Historic Preservation Officer
Javier Ahumada, FHWA Kansas Division
Cliff Ehrlich, Chief Environmental Services Section, Attn: Terry Blackwell

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Steve Wells <swells@hgcons.com>

FW: 96-87 KA-6099-02 (K-96 in Wichita) UPDATED project limits

1 message

Ahumada, Javier (FHWA) <javier.ahumada@dot.gov> Wed, Apr 26, 2023 at 11:05 AM
To: Steve Wells <swells@hgcons.com>

Steve, here are the two emails I sent to the Osage Nation that you may not have. Thanks again for putting together the meeting today.

Thanks,

Javier

From: Deseray Helton <deseray.helton@osagenation-nsn.gov>
Sent: Tuesday, January 24, 2023 12:50 PM
To: Ahumada, Javier (FHWA) <javier.ahumada@dot.gov>
Cc: Terry Blackwell [KDOT] <Terry.Blackwell@ks.gov>; Cliff Ehrlich [KDOT] <Cliff.Ehrlich@ks.gov>; Colleen A. Bell <colleen.bell@osagenation-nsn.gov>; 'kris.norton@ks.gov' <kris.norton@ks.gov>
Subject: RE: 96-87 KA-6099-02 (K-96 in Wichita) UPDATED project limits

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Mr. Ahumada,

I appreciate you providing the updated status report. I look forward to receiving the cultural resources survey for review and comment.

Thank you,

Deseray Wrynn
Pronouns: She/her/hers

Archaeologist, MA

Osage Nation Historic Preservation Office

627 Grandview Avenue,
Pawhuska, OK 74056

Office:918-287-9719 | Fax: 918-287-5376

deseray.helton@osagenation-nsn.gov

https://www.osageculture.com/culture/historic-preservation-office

Starting October 1, 2022 the Osage Nation Historic Preservation Office is changing the project notification process. **All project notifications and reports must be emailed to s106@osagenation-nsn.gov** Include the Lead Agency, Project Name and Number, and TCNS Number (if available) on the subject line.

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From: Ahumada, Javier (FHWA) <javier.ahumada@dot.gov>
Sent: Tuesday, January 24, 2023 12:04 PM
To: Deseray Helton <deseray.helton@osagenation-nsn.gov>
Cc: Terry Blackwell [KDOT] <Terry.Blackwell@ks.gov>; Cliff Ehrlich [KDOT] <Cliff.Ehrlich@ks.gov>; Colleen A. Bell <colleen.bell@osagenation-nsn.gov>; 'kris.norton@ks.gov' <kris.norton@ks.gov>
Subject: RE: 96-87 KA-6099-02 (K-96 in Wichita) UPDATED project limits

Ms. Wrynn,

I apologize; I am afraid I was mistaken about the status of the Section 106 consultation on this project. The letter that Mr. Norton sent on September 14, 2022 (attached) serves as initiation of the Section 106 consultation process for this project. I have been told that professional archaeologists as well as the Kansas SHPO have recently conducted their investigation and the report is under review by KDOT. This information will be sent to the Osage Nation in the near future. Once again, I am very sorry for relaying incorrect information to you; in the future, I will make sure to slow down and make sure my information is up to date before replying to you!

Thank you,

Javier Ahumada, CPM

Environmental and Innovation Coordinator
Federal Highway Administration | Kansas Division Office
6111 SW 29th St., Suite 100 | Topeka, KS 66614 | (785) 273-2649

Please consider the environment before printing this email.

From: Ahumada, Javier (FHWA)
Sent: Tuesday, January 24, 2023 10:37 AM
To: Deseray Helton <deseray.helton@osagenation-nsn.gov>
Cc: Terry Blackwell [KDOT] <Terry.Blackwell@ks.gov>; Cliff Ehrlich [KDOT] <Cliff.Ehrlich@ks.gov>; Colleen A. Bell <colleen.bell@osagenation-nsn.gov>; 'kris.norton@ks.gov' <kris.norton@ks.gov>
Subject: RE: 96-87 KA-6099-02 (K-96 in Wichita) UPDATED project limits

Ms. Wrynn,

I apologize that you have not received a timely response to your previous inquiry. I am attaching a KMZ file of the draft NEPA Study Limits as requested. As for the distinction between NEPA and Section 106, you are correct that NEPA does not replace the Section 106 process nor the formal Tribal Consultation it requires. KDOT and FHWA have requested Osage Nation involvement in the NEPA process for this project as a recognition of your interests in the area as ancestral lands. The NEPA process customarily does not have the same level of individual formal involvement that you are accustomed to with the Section 106 process, but I assure you that although the Section 106 process has not yet begun for this project, the Osage Nation will receive formal consultation and communication as is required and expected.

For an update on the project, the NEPA Notice of Intent which serves as the official start date of the Environmental Assessment has not been published yet, but is expected to in the next week or two with an Agency Scoping meeting expected to follow in February. The project team has begun work on drafting a project Purpose and Need Statement; is beginning early coordination on Section 6(f) impacts (this is for park property purchased with LWCF money); coordinating with FAA for possible impacts to the Jabara airport; conducting initial traffic modeling and tolling feasibility study; as well as preparing for the first open house public meeting to introduce the public to the project and EA.

I hope this alleviates the concerns of the Osage Nation that the Section 106 process is not being adhered to on this project; we simply haven't progressed to that point in the overall process yet, but can assure you we will be involving all Tribes interested in the area as well as the Kansas SHPO as required. As always, both Rick Backlund, FHWA Kansas Division Administrator, and I are always available to the Osage Nation should you want to discuss any questions, comments or concerns that you may have; please don't hesitate to reach out!

Thank you,

Javier Ahumada, CPM

Environmental and Innovation Coordinator
Federal Highway Administration | Kansas Division Office
6111 SW 29th St., Suite 100 | Topeka, KS 66614 | (785) 273-2649

Please consider the environment before printing this email.

From: Deseray Helton <deseray.helton@osagenation-nsn.gov>
Sent: Tuesday, January 24, 2023 9:42 AM
To: 'kris.norton@ks.gov' <kris.norton@ks.gov>
Cc: Terry Blackwell [KDOT] <Terry.Blackwell@ks.gov>; Cliff Ehrlich [KDOT] <Cliff.Ehrlich@ks.gov>; Colleen A. Bell <colleen.bell@osagenation-nsn.gov>; Ahumada, Javier (FHWA) <javier.ahumada@dot.gov>
Subject: 96-87 KA-6099-02 (K-96 in Wichita) UPDATED project limits
Importance: High

CAUTION: This email originated from outside of the Department of Transportation (DOT). Do not click on links or open attachments unless you recognize the sender and know the content is safe.

Mr. Norton,

The Osage Nation has received the updated letter you sent in regards to the updated project limits for pavement replacement on K-96. The Osage Nation has been inundated with surveying and monitoring efforts and apologizes for our delayed response but want it to be known that this project is of utmost importance to our office.

With that being said, The Osage Nation has not received an answer to our requests, from yourself nor KDOT's Environmental Services Section, stated in a formal response letter sent on October 26th, 2022. To date, with the exception of your most recent correspondence sent on December 21, 2022, our office has only received correspondences from the info@k96improvements.com email address indicating that a website has been created for the project, in which project updates and alerts about events and special announcements can be found. The fact that such an effort has been put into the creation of this webpage while at the same time there is a continued ignoring of the Osage Nation's requests is very concerning.

The Osage Nation requests a formal response from KDOT and Kansas FHWA in response to our concerns noted in the letter sent on October 26th, 2022 along with a project status update.

Thank you,

Deseray Wrynn
Pronouns: She/her/hers

Archaeologist, MA

Osage Nation Historic Preservation Office

627 Grandview Avenue,
Pawhuska, OK 74056

Office:918-287-9719 | Fax: 918-287-5376

deseray.helton@osagenation-nsn.gov

https://www.osageculture.com/culture/historic-preservation-office

Starting October 1, 2022 the Osage Nation Historic Preservation Office is changing the project notification process. **All project notifications and reports must be emailed to s106@osagenation-nsn.gov** Include the Lead Agency, Project Name and Number, and TCNS Number (if available) on the subject line.

Steve Wells <swells@hgcons.com>

KDOT, 96-87 KA-6099-02, ACNHP-A609(902) update

1 message

Ahumada, Javier (FHWA) <javier.ahumada@dot.gov> Tue, Jun 6, 2023 at 4:27 PM
To: Deseray Helton <deseray.helton@osagenation-nsn.gov>
Cc: Andrea Hunter <ahunter@osagenation-nsn.gov>, "Colleen A. Bell" <colleen.bell@osagenation-nsn.gov>, Sarah O'Donnell <sodonnell@osagenation-nsn.gov>, "Caitlin.nichols@osagenation-nsn.gov" <caitlin.nichols@osagenation-nsn.gov>, "Clarke, David (FHWA)" <david.clarke@dot.gov>, Mandy Ranslow <mranslow@achp.gov>, "Backlund, Richard (FHWA)" <Richard.Backlund@dot.gov>, "McDonald, Matthew (FHWA)" <matthew.mcdonald@dot.gov>, "Kris.Norton@ks.gov" <kris.norton@ks.gov>, "Cliff.Ehrlich@ks.gov" <cliff.ehrlich@ks.gov>, "Terry.Blackwell@ks.gov" <terry.blackwell@ks.gov>, "Chris.Eichman@ks.gov" <chris.eichman@ks.gov>

Ms. Wrynn,

I want to thank the Osage Nation for your patience as we reviewed the concerns and comments sent about the K-96 project, 96-87 KA-6099-02, ACNHP-A609(902), in Wichita, Kansas. For the sake of readability, I will address each of the comments in bulleted form below.

- **Comment:** 1. Draft Agency Coordination Plan did not capture the Osage Nation's response accepting participating agency status in the Environmental Assessment. 2. This outreach needs to be done through government to government consultation.
  - **Response:** Unfortunately, there was a disconnect in forwarding your response to the consultant and it was missed in the draft ACP. On behalf of the project team, I apologize for this oversight and as you now know from other projects we are collaborating on, I have now required that all correspondence to and from Tribal Nations relating to EA and EIS NEPA investigations and their subsequent Section 106 consultations will go through me as the FHWA representative. This will eliminate the potential for something like this that may occur on these large projects stemming from different consultants and project team members who have varying levels of knowledge with these consultations. KDOT will continue its Section 106 and NEPA procedures for categorical exclusions as you are accustomed to.
- **Comment:** The Osage Nation reiterates their acceptance of participating agency status, asks for a POC to address comments to and requests a formal consultation meeting.
  - **Response:** Thank you, we have updated the draft ACP to include the Osage Nation as a participating agency. I will be your contact for any comments or questions you have in review of any portion of the NEPA or Sec. 106 for this EA and any other EA/EIS in Kansas. As always, you may also contact me for any reason on any project. If you feel that you still want to meet, the project team would be happy to meet with the Osage Nation to discuss this project.
- **Comment:** The Osage Nation requests project plans and locations for these potential improvement locations for review for Osage Nation concerns.
  - **Response:** The project is still in the NEPA phase which means the project is still in the preliminary design phase so there are no plan sets available yet. The project team has sent a KMZ file of the NEPA project boundary to identify the areas of likely improvements. As a participating agency, you will receive more information as the NEPA process plays out.
- **Comment:** 1. The Osage Nation does not show receipt of the NOI being published. 2. Why was this not posted to the Federal Register?
  - **Response:** The NOI was published in the Kansas Register on February 16, 2023. NOIs for Environmental Assessments are not statutorily required to be published in the Federal Register. The NOI can be found here: https://sos.ks.gov/publications/Register/Volume-42/Issues/Issue-07/02-16-23-50889.html
- **Comment:** The Osage Nation does not show receipt of the Existing Conditions Technical Memorandum.
  - **Response:** I apologize if you didn't receive this document; it was emailed on February 22, 2023. I have attached another copy to this email for your review.
- **Comment:** The Osage Nation requests the appropriate POC within FHWA to submit formal responses to.
  - **Response:** I am the POC and will work to ensure that the Osage Nation receives all necessary correspondence for this project.
- **Comment:** 1. The Osage Nation did not receive a formal invitation to become a participating agency (pg 27 of this pdf). 2. The Osage Nation requests formal invitation from KDOT and FHWA to become a participating agency. 3. False. A formal invitation to become a participating agency was not received by the Osage Nation. 4. Effective

communication up to this point has been nonexistent. 5. The Osage Nation shows no receipt of this invitation to be a Participating Agency.
    - **Response:** Once again, I apologize that you did not receive the formal invitation that was sent out. Now that all correspondence on this project will be going through me, we hope to avoid any similar issues going forward. The Osage Nation is confirmed and valued as a participating agency for this project.
- **Comment:** 1. The Osage Nation is a sovereign nation and not the public. 2. The Osage Nation is not the public and requests government to government consultation.
    - **Response:** The FHWA and project team recognizes and appreciates that the Osage Nation is a sovereign nation. The Public Involvement Plan is a required portion of the NEPA process and the term "public" refers to community interests as opposed to private affairs. While it is a broad term, the Osage Nation is a community with its own interests and as such, is required by 40 CFR §1506.6(b)(3)(i-iii) to be included in the Public Involvement Plan to ensure that you aren't excluded. There is absolutely no disrespect intended and I apologize if there is any consternation with the terminology of NEPA. As always, the Osage Nation is welcome to request a one-on-one meeting to discuss the project at any time.
- **Comment:** List Participating Agencies including the Osage Nation.
    - **Response:** The list of participating agencies, including the Osage Nation, can be found in Table 3-1.

Once again, we appreciate the partnership of the Osage Nation in this project.

Thank you,

Javier Ahumada, CPM

Environmental, Civil Rights and Innovation Coordinator
Federal Highway Administration | Kansas Division Office
6111 SW 29th St., Suite 100 | Topeka, KS 66614 | (785) 273-2649

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Osage Nation Historic Preservation Office

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Date: July 12, 2023 **File: 2223-3380KS-10**

RE: KDOT, 96 -87 KA-6099-02, ACNHP-A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas_ONHPO Comments on 2022 CRS, Environmental Constraints Review Update, and NEPA Expanded Study Area.

FHWA-Kansas Division Office
Javier Ahumada, CPM

Sent via email

Dear Mr. Ahumada,

The Osage Nation Historic Preservation Office reviewed the cultural resource survey conducted by Ms. Barbara Crable on October 25-26, 2022, the Environmental Constraints Review Update, and the kmz which includes the expanded NEPA boundaries for the proposed project listed as KDOT, 96-87 KA-6099-02, ACNHP-A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas.

The Osage Nation recognizes that the APE is highly developed however, due to the presence of nearby water ways and large clusters of prehistoric sites (14SG311, 14SG312, 14SG506, 14SG507, 14SG521, 14SG523, 14SG552, and 14SG559) within a half-mile buffer of the project's APE, many with noted human remains (14SG503, 14SG507, 15SG551, and 14SG559), there needs to be monitoring of construction activities especially in Section 34 T26S R1E, Section 35 T26S R1E, and Section 36, T26S, R1E where sites 14SG503, 14SG507, 15SG551, and 14SG559 are located. The Osage Nation requests monitoring by an SOI qualified archaeologist along with daily monitoring reports.

The Osage Nation requests that the expanded study area south of E 13th Street identified in the NEPA study limits be subjected to a Phase II cultural resource survey with shovel testing as this project is located within the Osage Nation's former Kansas Reservation and there are no previous surveys indicated on the KSHS Map Viewer within that expanded study area.

In accordance with the National Historic Preservation Act, (NHPA) [54 U.S.C. § 300101 et seq.] 1966, undertakings subject to the review process are referred to in 54 U.S.C. § 302706 (a), which clarifies that historic properties may have religious and cultural significance to Indian tribes. Additionally, Section 106 of NHPA requires Federal agencies to consider the effects of their actions on historic properties (36 CFR Part 800) as does the National Environmental Policy Act (43 U.S.C. 4321 and 4331-35 and 40 CFR 1501.7(a) of 1969).

The Osage Nation has a vital interest in protecting its historic and ancestral cultural resources. **The Osage Nation anticipates KDOT/Kansas FHWA's response in regard to the monitoring request and Phase II of the expanded NEPA study area south of E 13th Street for the proposed KDOT, 96 -87 KA-6099-02, ACNHP-**

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

A609(902), K-96: Reconstruction and Expansion from four to six lanes with a bridge reconstruction, Sedgwick County, Kansas.

Should you have any questions or need any additional information please feel free to contact me at the number listed below. Thank you for consulting with the Osage Nation on this matter.

Andrea A. Hunter, Ph.D.
Director, Tribal Historic Preservation Officer

Deseray Helton
Archaeologist

cc: Eric Skov, Historic & Cultural Resource Specialist, KDOT
Austin Main, SHPO Archeologist, Kansas Historical Society

627 Grandview Ave. * Pawhuska, OK 74056 Telephone 918-287-5328 * Fax 918-287-5376
www.osagenation-nsn.gov/who-we-are/historic-preservation * HistoricPreservation@osagenation-nsn.gov

Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street
Topeka, KS 66603-3745

Kansas
Department of Transportation
Division of Program and Project Management

Phone: 785-409-3955
Fax: 785-296-8168
kdot#publicinfo@ks.gov
http://www.ksdot.org

Julie L. Lorenz, Secretary
Peter Van Sickle, Director

Laura Kelly, Governor

9/14/2022

Dr. Andrea Hunter
Director, Tribal Historic Preservation Officer
Osage Nation of Oklahoma
627 Grandview Avenue
Pawhuska, OK 74056

Dear Dr. Hunter:

Subject: KDOT Project No. 96-87 KA-6099-02
Federal Project No. ACNHP-A609(902)
Sedgwick County

In accordance with the National Historic Preservation Act we are contacting your tribe to identify any potential impacts the referenced project may have on properties that have religious and cultural significance. This project will also be reviewed by professional archeologists and by the Kansas State Historic Preservation Office. You will be notified if any sites of potential interest are identified during their review.

Tech Location - K-96: From North Hillside Street East to 13th Street Upgrade from four-lane to six-lane freeway and bridge reconstruction (pavement replacement only from 21st Street to 13th Street). A general description of the project is as follows: The Kansas Department of Transportation (KDOT), in cooperation with the Federal Highway Administration (FHWA), will prepare an Environmental Assessment (EA) for a proposal to reconstruct and expand a portion of K-96 in the city of Wichita from a four-lane to six-lane freeway (pavement replacement only from 21st Street to 13th Street). The EA has not yet commenced, and its exact start date has not yet been determined. Please consider this early coordination for the EA. Please see the enclosure which is the Study Area Map. A .kmz of this map is available upon request.

If you have any questions I can be reached by phone at (785) 368-6429, or my e-mail address is kris.norton@ks.gov

Please send any comments on this project to me using either the address shown above or my e-mail address, if preferred, within 60 days of the date of this letter.

Sincerely,

Kris Norton, P.E.
PMC Coordinating Engineer
Division of Program and Project Management

By e-mail: Javier Ahumada, FHWA Kansas Division
Peter Van Sickle, Division Director of Program and Project Management
Cliff Ehrlich, Chief Environmental Services Section, Attn: Terry Blackwell

Enclosure

96-87 KA-6099-02
ACNHP-A609(902)
Sedgwick County
Study Area Map

Study Area

Dwight D. Eisenhower State Office Building
700 S.W. Harrison Street
Topeka, KS 66603-3745

Kansas
Department of Transportation
Division of Program and Project Management

Phone: 785-409-3955
Fax: 785-296-8168
kdot#publicinfo@ks.gov
http://www.ksdot.org

Julie L. Lorenz, Secretary
Peter Van Sickle, Director

Laura Kelly, Governor

December 21, 2022

Ms. Terri Parton
President Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

Dear Ms. Parton:

Subject: KDOT Project No. 96-87 KA-6099-02 Update **Extended limits of pavement replacement**
Federal Project No. ACNHP-A609(902)
Sedgwick County

In accordance with the National Historic Preservation Act we are contacting your tribe to identify any potential impacts the referenced project may have on properties that have religious and cultural significance. This project will also be reviewed by professional archeologists and by the Kansas State Historic Preservation Office. You will be notified if any sites of potential interest are identified during their review. Since my letter to you dated September 14, 2022, the project limits have been extended approximately 1.5 miles to the south along K-96 from 13th Street to the I-35 Interchange (shown in blue on the study area map). These extended limits include pavement replacement only with no added lanes or capacity improvements.

Tech Location (updated) - K-96: From North Hillside Street East to 13th Street Upgrade from four-lane to six-lane freeway and bridge reconstruction (pavement replacement only from 21st Street to the I-35 Interchange). A general description of the project is as follows: The Kansas Department of Transportation (KDOT), in cooperation with the Federal Highway Administration (FHWA), will prepare an Environmental Assessment (EA) for a proposal to reconstruct and expand a portion of K-96 in the city of Wichita from a four-lane to six-lane freeway (pavement replacement only from 21st Street to the I-35 Interchange). The EA has not yet commenced, and its exact start date has not yet been determined. Please see the enclosure which is the updated Study Area Map. A .kmz of this map is available upon request.

If you have any questions I can be reached by phone at (785) 368-6429, or my e-mail address is kris.norton@ks.gov

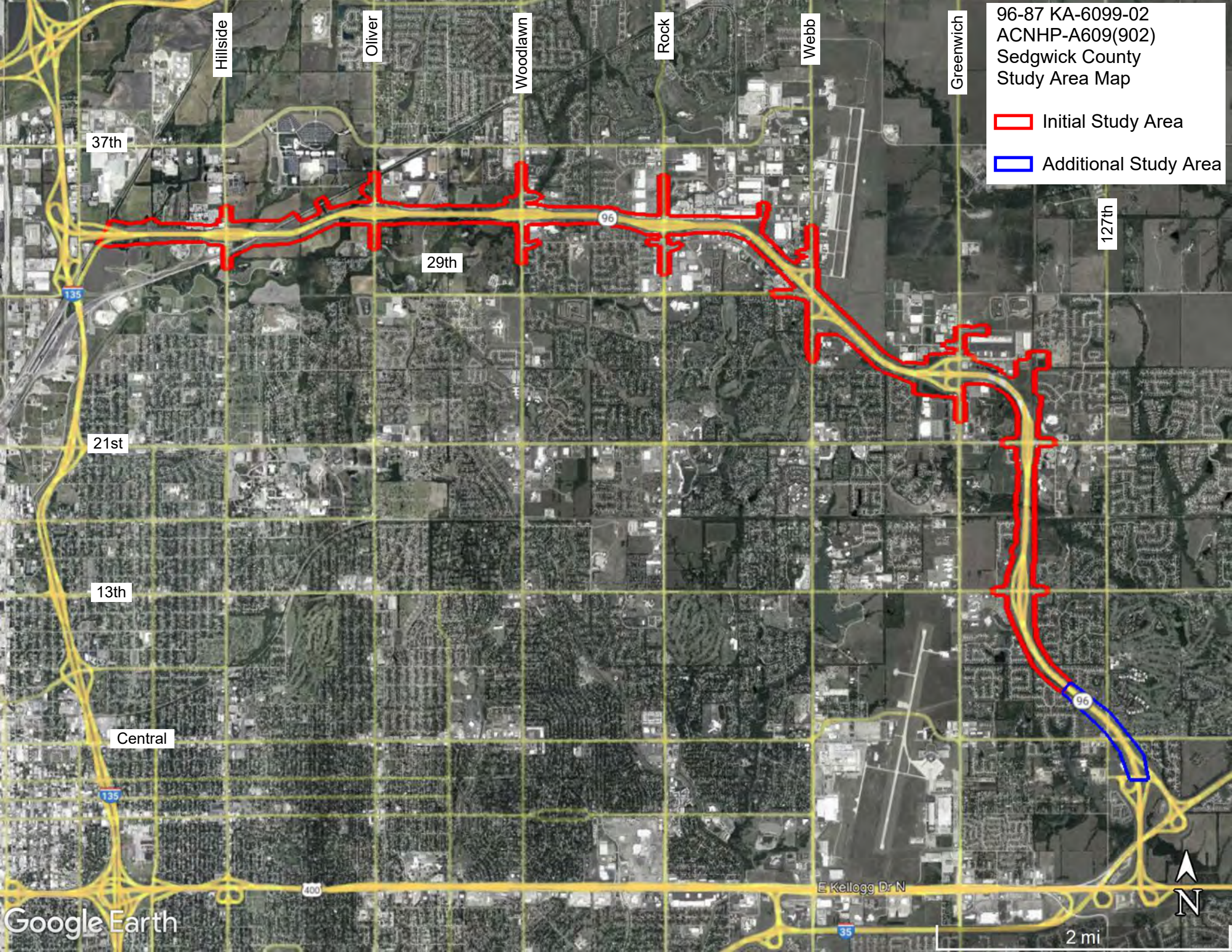
Please send any comments on this project to me using my e-mail address shown above.

Sincerely,

Kris Norton, P.E.
PMC Coordinating Engineer
Division of Program and Project Management

By e-mail: Javier Ahumada, FHWA Kansas Division
Peter Van Sickle, Division Director of Program and Project Management
Cliff Ehrlich, Chief Environmental Services Section, Attn: Terry Blackwell

Enclosure


96-87 KA-6099-02
ACNHP-A609(902)
Sedgwick County
Study Area Map
Initial Study Area
Additional Study Area
Hillside
Oliver
Woodlawn
Rock
Webb
Greenwich
37th
29th
21st
13th
Central
127th
96
135
400
35
E Kellogg Dr N
N
2 mi
Google Earth

Operations Office
512 SE 25th Ave.
Pratt, KS 67124-8174

Kansas
Department of
Wildlife and Parks

Phone: (620) 672-5911
Fax: (620) 672-6020
www.ksoutdoors.com

Brad Loveless, Secretary

Laura Kelly, Governor

December 07, 2023

Javier Ahumada, CPM
Federal Highway Administration
6111 SW 29th St., Suite 100
Topeka, KS 66614

Javier,

Before a conversion package can be submitted to the National Park Service for review, a few things need to first be completed and sent to our office.

- An appraisal for both the park area being converted and the entire replacement property following UASFLA standards.
- A letter of intent to sell from the current owner of the replacement piece if the piece is not already owned by the sponsor.
- Future development plans for the replacement property including the site's compatibility and usefulness to the community.

Once these items have been completed and submitted to KDWP, our staff will put together a conversion packet to be submitted for NPS approval. The NPS will conduct their own NEPA determinations. If the sponsor has previously completed an EA, FONSI or other relating documents, the NPS can use these to process the conversion in a quicker manner but these are not necessarily required for LWCF conversion purposes.

If you have any further questions about the LWCF Conversion process, please contact me.

Sincerely,

Riston Landwehr
Grant Coordinator
Kansas Department of Wildlife and Parks
620-672-0741

Date 2024-03-12T20:45:25Z

Subject 23-12-009 - KA-6099-RCNS-02

Body

23-12-009 - KA-6099-RCNS-02
Sedgwick County

Cliff Ehrlich
Chief of Environmental Services
Environmental Services Section
KDOT

96-87 KA-6099-02
ACNHP-A609(902)

This letter serves as a conditional clearance for the project until the completed survey report is submitted to the portal. Until that time, the project shall remain open in the portal, but this letter can be used by the project submitter in the interim. This survey identified on new archeological site, 14SG4, and revisited site 14SG117. Site 14SG4, is recorded as a historic dump site with a hedge post woven-wire fence. This site is not eligible for listing on the NRHP. Site 14SG117 was recorded as a result of an archeological survey conducted for improvements to the Chisholm Creek pathway in 2014. This site is a historic artifact scatter with wooden phone or electrical poles. The current survey identified three isolated finds within this site (see attached image). These finds include an artificial mound (IF1), a ceramic tile pipe (IF2), and a series of concrete blocks and broken stone, possibly a foundation from a now razed farmstead (IF3). These finds appear to be well outside of the proposed construction limits and should not be impacted by the current project. The SHPO concurs that the project will have no effect on NRHP-eligible historic properties as defined in 36 CFR 800. This office has no objection to the proposed project. Once the survey report is submitted the project will be closed in the portal.

This information is provided at your request to assist you in identifying historic properties, as specified in 36 CFR 800 for Section 106 consultation procedures.

Please let us know if you have any questions or concerns with this project review at shelby.beltz@ks.gov or call 785-272-8681, ext. 219.

On behalf of:
Katrina Ringler
Deputy State Historic Preservation Officer
Kansas Historical Society

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, KS 66502-2801
Phone: (785) 539-3474 Fax: (785) 539-8567

In Reply Refer To: 03/18/2024 18:18:03 UTC
Project Code: 2023-0127718
Project Name: KA 6099-02 | K-96 Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed, and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through IPaC by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological

evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts, see Migratory Bird Permit | What We Do | U.S. Fish & Wildlife Service (fws.gov).

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures, see https://www.fws.gov/library/collections/threats-birds.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/partner/council-conservation-migratory-birds.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

OFFICIAL SPECIES LIST

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Kansas Ecological Services Field Office
2609 Anderson Avenue
Manhattan, KS 66502-2801
(785) 539-3474

PROJECT SUMMARY

Project Code: 2023-0127718
Project Name: KA 6099-02 | K-96 Improvement Project
Project Type: Road/Hwy - Maintenance/Modification
Project Description: The K-96 Improvements Project is designing improvements to the freeway between the I-135 and I-35 Interchanges including the expansion from 4 to 6 lanes (between I-135 and 21st Street), pavement replacement (between 21st Street and I-35 Interchange), and reconfiguration of seven interchanges: Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@37.72023075,-97.19955006527918,14z



Counties: Sedgwick County, Kansas

ENDANGERED SPECIES ACT SPECIES

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

MAMMALS

NAME	STATUS
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

FISHES

NAME	STATUS
Peppered Chub *Macrhybopsis tetranema* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/532	Endangered

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

CRITICAL HABITATS

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPAC USER CONTACT INFORMATION

Agency: Kansas Department of Transportation
Name: Brett Pierson
Address: 7733 N Wallace Ave
City: Kansas City
State: MO
Zip: 64158
Email bpierson@hgcons.com
Phone: 8166659637

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration



KDOT is improving K-96 to prepare for and meet the demands of future growth in our city and region by enhancing safety, relieving congestion and increasing capacity.

The **K-96 Improvements Project** aims to upgrade the K-96 corridor between I-135 and I-35. Improvements are needed to keep Kansans moving. Through traffic engineering studies and environmental review, the project is exploring pavement replacement, adding new lanes and upgrading the Woodlawn, Rock and Webb interchanges.

Learn More



What We're Doing

Currently, the K-96 Improvements Project is in the Preliminary Design phase.

From increasing freeway capacity to making interchange improvements and coordinating traffic signals, these enhancements can help reduce queuing on

sideroads and ramps. This project is following a phased and deliberate process to engage the community in project solutions.

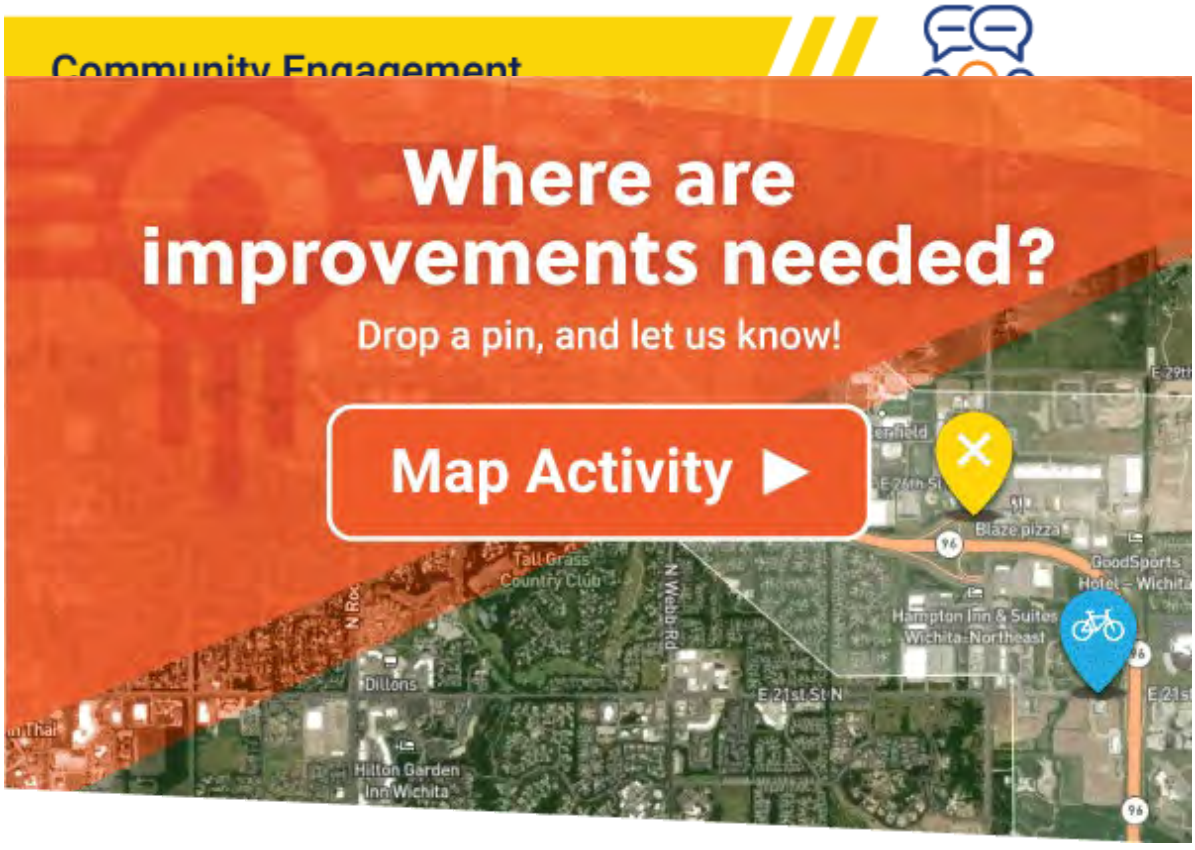
Project Timeline



The project is currently underway with early stages of investigative work. From 2022 to 2023 we will explore potential design concepts along with environmental review to assess environmental, economic and social impacts. We'll need your input on the findings from both the design and environmental review work – information on these meetings coming soon!
Sign up to join our mailing list for project updates.

Starting in 2024, we will finalize the design of the K-96 improvements and complete preconstruction activities. Construction could begin as early as 2026.

*The timeline is subject to change as the project evolves. While the project has an anticipated construction schedule, funding has not been allocated at this time. Following The Eisenhower Legacy Transportation Program (IKE Program) requirements, funding is not allocated for construction projects more than two years ahead of construction.



We Want To Hear From You

K-96 is an important link in our community for moving people and goods. We need your input to ensure that improvements reflect the needs of our diverse communities.

Visit our project website to participate in an interactive map, take a poll, or submit a comment. You can also call 316-290-9691 or email info@**K96**Improvements.com.



Sign-up to receive project updates! Stay involved and learn more about the K-96 Improvements Project by signing up to receive email updates about the project and upcoming events.

SIGN-UP and SUBSCRIBE!

K-96 Road Show

When you check out the K-96 project website, be sure to sign-up for updates to receive alerts about when the Design Team hits the road to talk about the project. From recent District Advisory Board meetings and WAMPO committees, to the upcoming Open House this winter, you won't want to miss a stop on the K-96 Road

Show. You can also engage with the project on social media on Facebook, Twitter, and



Technical Advisory Group (TAG) meets regularly and includes roadway design, traffic engineering, bridges, drainage, and pavement design professionals who plan the K-96 enhancements.



Corridor Outreach Group (COG) met in September with local businesses and community members.

Visit Website

Thank you,
The K-96 Improvements Project Team

316-290-9691 info@**K96**IMPROVEMENTS.com **K96**IMPROVEMENTS.com

This information can be made available in alternative accessible formats upon request. For information about obtaining an alternative format, contact the KDOT Communications Division: Eisenhower Building 700 SW Harrison St., 2nd Floor West, Topeka, KS, 66603-3745, or phone (785) 296-3585 (Voice)/Hearing Impaired – 711.

Twitter |



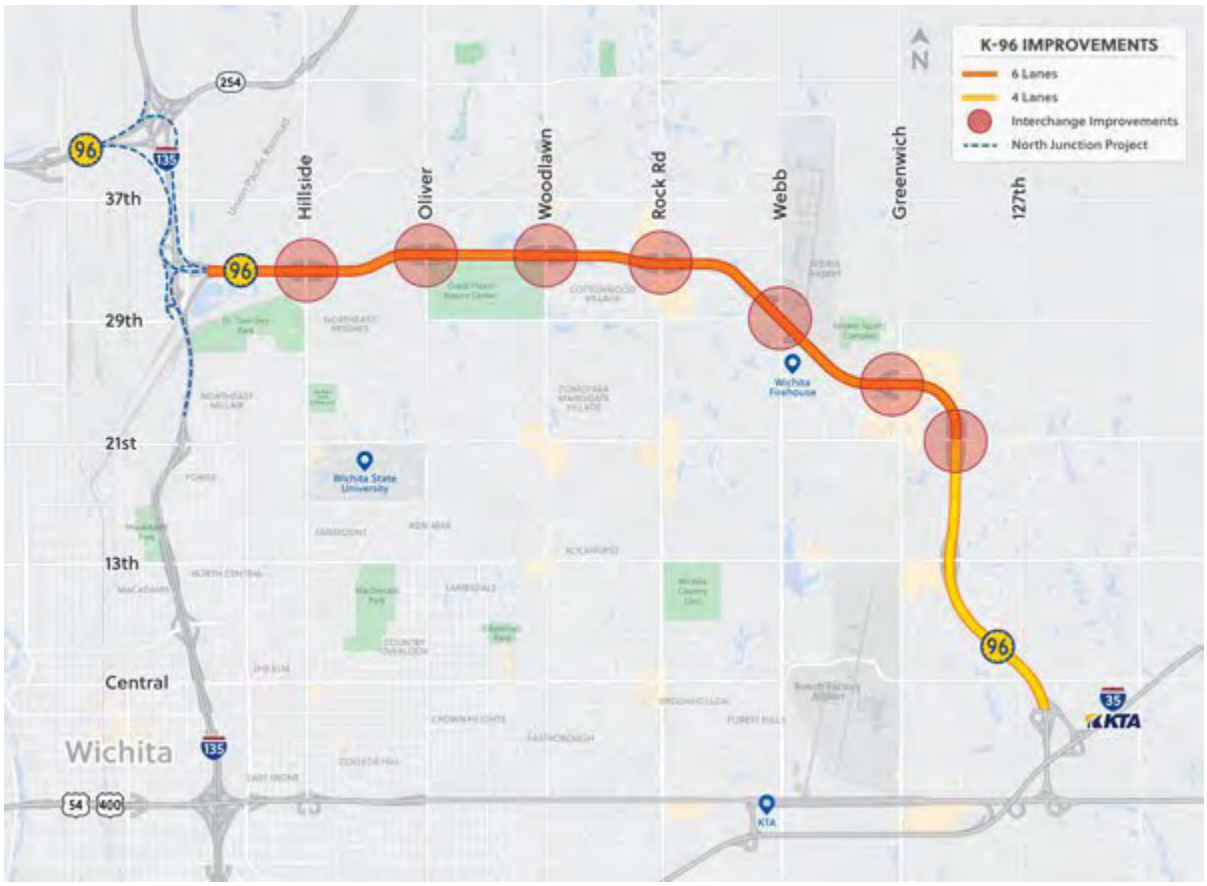
Thursday, February 2, 2023
5–7pm
Formal presentation starts at 6pm

National Center for Aviation Training (NCAT)
WSU Tech

4004 N. Webb Road
Wichita, KS 67226

Across from Administration Center Plaza (Building 100)
Free parking available. Just look for our signs!

The K-96 Improvements Project team is excited to share proposed design concepts for the K-96 corridor. This project is upgrading the freeway between the I-135 Interchange and I-35, including expanding the highway from 4 to 6 lanes, replacing existing pavement, and improving seven interchanges: Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st.



The project will enhance safety, improve capacity, provide travel time reliability and relieve congestion to *keep Kansans moving.*

Community Open House

What You Can Expect

Learn more about the corridor improvements planned for the K-96 Improvements Project at the Open House. Meet our Design Team and see project information. Review the benefits of the project, environmental assessments, and design

concepts.

K-96 Improvements Project Manager, Jake Borchers, will give a detailed briefing at 6pm on proposed interchange improvements along the corridor. We want to hear your questions and comments. Your input is vital to the success of this project.

Social Media Kit



Please help spread the word about the K-96 Improvements Project and Open House on Feb. 2

We make it easy to share the news with your networks. Use our Social Media Kit with shareable links for Facebook and Twitter, and just add your content to create your custom social media posts. Visit our website to download the kit and start using the K-96 Improvements Project Social Media Kit today!

We look forward to seeing you at the Open House!

Thank you,
The K-96 Improvements Project Team

316-290-9691 info@**K96**IMPROVEMENTS.com **K96**IMPROVEMENTS.com

This information can be made available in alternative accessible formats upon request. For information about obtaining an alternative format, contact the KDOT Communications Division: Eisenhower Building 700 SW Harrison St., 2nd Floor West, Topeka, KS, 66603-3745, or phone (785) 296-3585 (Voice)/Hearing Impaired – 711.

For more information, questions, or to request special accommodations such as language interpretation and/or ASL services for the public meeting, please contact the K-96 Improvements Project team by emailing info@K96improvements.com or calling (316)290-9691.

Twitter | Facebook | YouTube



Save the DATE

OPEN HOUSE

Join us to learn about the K-96 Improvements Project.



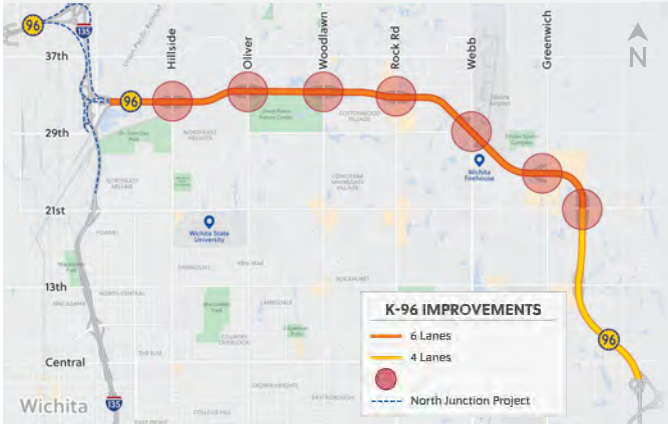
K-96 IMPROVEMENTS

Learn about the project and provide feedback on design alternatives.

February 2 Thursday

National Center for Aviation Training (NCAT), WSU Tech
4004 N. Webb Road
Wichita, KS 67226
Across from Administration Center Plaza (Building 100)

5 PM from to 7pm
Formal presentation starts at 6pm



The K-96 Improvements Project team is excited to share proposed design concepts for the K-96 corridor. This project is upgrading the freeway between the I-135 Interchange and I-35, including expanding the highway from 4 to 6 lanes, and reconfiguring seven interchanges: Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st. The project will enhance safety, improve capacity, provide travel time reliability and relieve congestion to **keep Kansans moving.**

See you on February 2 at 5pm!

Formal presentation starts at 6pm.
Free parking available. Just look for our signs!

Scan QR Code to visit website

Kansas
IKE
U.S. Department of Transportation
Federal Highway Administration
CITY OF WICHITA

For more information, questions, or to request special accommodations such as language interpretation and/or ASL services for the public meeting, please contact the K-96 Improvements Project team by emailing info@K96improvements.com or calling (316)290-9691.

COMMUNITY OPEN HOUSE





K-96 IMPROVEMENTS

WELCOME

Kansas Department of Transportation

KDOT IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

U.S. Department of Transportation
Federal Highway Administration

CITY OF WICHITA

COMMUNITY OPEN HOUSE





K-96 IMPROVEMENTS

SKIP THE LINE
SIGN IN ONLINE



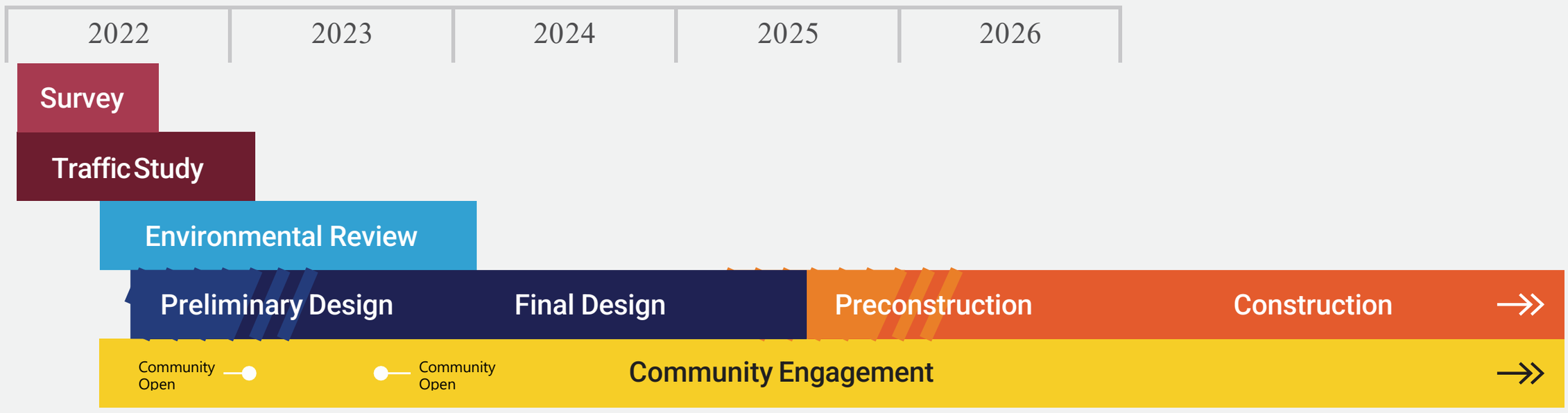
K-96 IMPROVEMENTS

WHAT IS THE K-96 IMPROVEMENTS PROJECT?

The K-96 Improvements Project aims to upgrade the corridor between I-135 and I-35. Improvements are needed to enhance safety, relieve traffic congestion, and increase capacity to keep Kansans moving.

Community engagement is important!
Get involved online with our Map Activity to help us identify areas where you think improvements are needed.

Project Timeline



**The timeline is subject to change as the project evolves. While the project has an anticipated construction schedule, funding has not been allocated at this time. Following The Eisenhower Legacy Transportation Program (IKE Program) requirements, funding is not allocated for construction projects more than two years ahead of construction.*

Kansas Department of Transportation

KDOT IKE THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

U.S. Department of Transportation
Federal Highway Administration

CITY OF WICHITA

K-96 IMPROVEMENTS

IMPROVEMENTS BENEFIT OUR COMMUNITIES



The K-96 Improvements Project extends from the K-96 and I-135 interchange (near Hydraulic Street) approximately 9.5 miles east/southeast to north of the K-96/US 54/400 interchange. The project will explore pavement replacement, adding new lanes and will include improvements to the Hillside, Oliver, Woodlawn, Rock, Webb, Greenwich, and 21st interchanges.

Expands K-96

K-96 has more than 50,000 vehicles today and is expected to have nearly 100,000 vehicles by 2050.

Better for you and the environment

Easing congestion will regulate travel during peak periods. Fewer cars idling on the roadway will decrease excess emissions.

Safer and reliable roadway for users

The project will ease growing safety, travel-time reliability and congestion issues, where on average more than 200 accidents have occurred per year from 2015 to 2020.

Access K-96 with ease

Improved interchanges will reduce queuing on side roads and ramps.



K-96 IMPROVEMENTS

This project is being delivered as part of

THE EISENHOWER LEGACY TRANSPORTATION PROGRAM

The Eisenhower Legacy Transportation Program, known as IKE, is a 10-year program that addresses highways, bridges, public transit, aviation, short-line rail and bike/pedestrian needs across Kansas. The program and associated projects are saving lives by making travel safer, reducing transportation costs for people and goods, and innovating our infrastructure to strengthen communities now and in the future.

IKE is a flexible, responsive, rolling program focused on right-sized, practical transportation improvements throughout the entire state. KDOT's goals are to leverage partnerships to foster economic growth, provide more transportations options to Kansans, and to be a strong problem-solving partner to communities by creating holistic transportation solutions.

IKE and its Program Management Consultant (PMC) model is making it possible for KDOT to advance $1.2 billion in projects. More projects – more work – is hitting the streets faster.

Learn more at www.ksdotike.org



K-96 IMPROVEMENTS

PURPOSE OF PUBLIC MEETINGS

TODAY'S OPEN HOUSE: FEBRUARY 2, 2023

- Inform community members of the Environmental Assessment process through the National Environmental Policy Act (NEPA)
- Collect feedback regarding the proposed K-96 Improvements Project
- Share design concepts for alternatives being studied for Phases 1 and 2
- Discuss ongoing environmental studies
- Gather feedback on alternative design options
- Discuss next steps in the NEPA process and project schedule

UPCOMING PUBLIC HEARING: SUMMER 2023

- Share environmental study findings
- Show preferred alternative design concept
- Gather feedback on the preferred alternative



K-96 IMPROVEMENTS

ENVIRONMENTAL ASSESSMENT

WHAT IS AN ENVIRONMENTAL ASSESSMENT?

The Federal National Environmental Policy Act (NEPA) requires KDOT to complete an Environmental Assessment (EA) to document the impacts a transportation project may have on the human and natural environment.

We will review existing and future land uses along the corridor, identify potential historical and archaeological sites, survey wetland and habitats along the creeks crossing the study area, and conduct modeling to determine potential traffic noise impacts.

Through this process, we will coordinate and document public and agency input on the purpose and need, proposed alternative, methods for determining impacts, and mitigation. If required, in addition to the public, the US Army Corps of Engineers, US Fish and Wildlife Service, Native American tribes, various state agencies, and local governments will be engaged in the study process.

STEPS OF AN ENVIRONMENTAL ASSESSMENT:

We Are Here!

Define Purpose & Need

- Define the study area
- Identify what problems or deficiencies need to be addressed
- Hold Community Open House: Feb. 2, 2023
- Hold Agency Scoping Meeting: late Feb./early Mar.

Develop Alternative

- Refine roadway alignment
- Review interchange and grade separation design options
- Develop conceptual cost estimates

Assess Impacts on the Environment

- Conduct analyses and field studies
- Coordinate with agencies
- Modify alternative(s) to avoid or minimize impacts
- Determine appropriate mitigation (if needed)

Develop EA Document

- Summarize study findings
- Identify preferred alternative
- Publish document for public review and comment
- Conduct public hearing
- Obtain Federal Highway Administration approval



K-96 IMPROVEMENTS

ONGOING ENVIRONMENTAL STUDIES

The National Environmental Policy Act (NEPA) requires federal agencies, including the Federal Highway Administration (FHWA), to consider the environmental effects of projects that use federal funds or require federal agency approvals. KDOT will use federal funds on this project.

Potential storm water runoff and management issues

Potential business and residential properties displaced

Potential incorporation of bike/pedestrian facilities and connections to existing/planned trail systems

Potential wetland impacts and where methods to avoid/minimize impacts should be considered

Changes in access to community facilities: YMCA, schools, places of worship, and more

Potential traffic noise impacts and where noise barriers/walls may be considered

PURPOSE & NEED

PURPOSE

The purpose of the project is to provide a safe, reliable, and sustainable transportation facility that supports mobility needs and is flexible for all users.

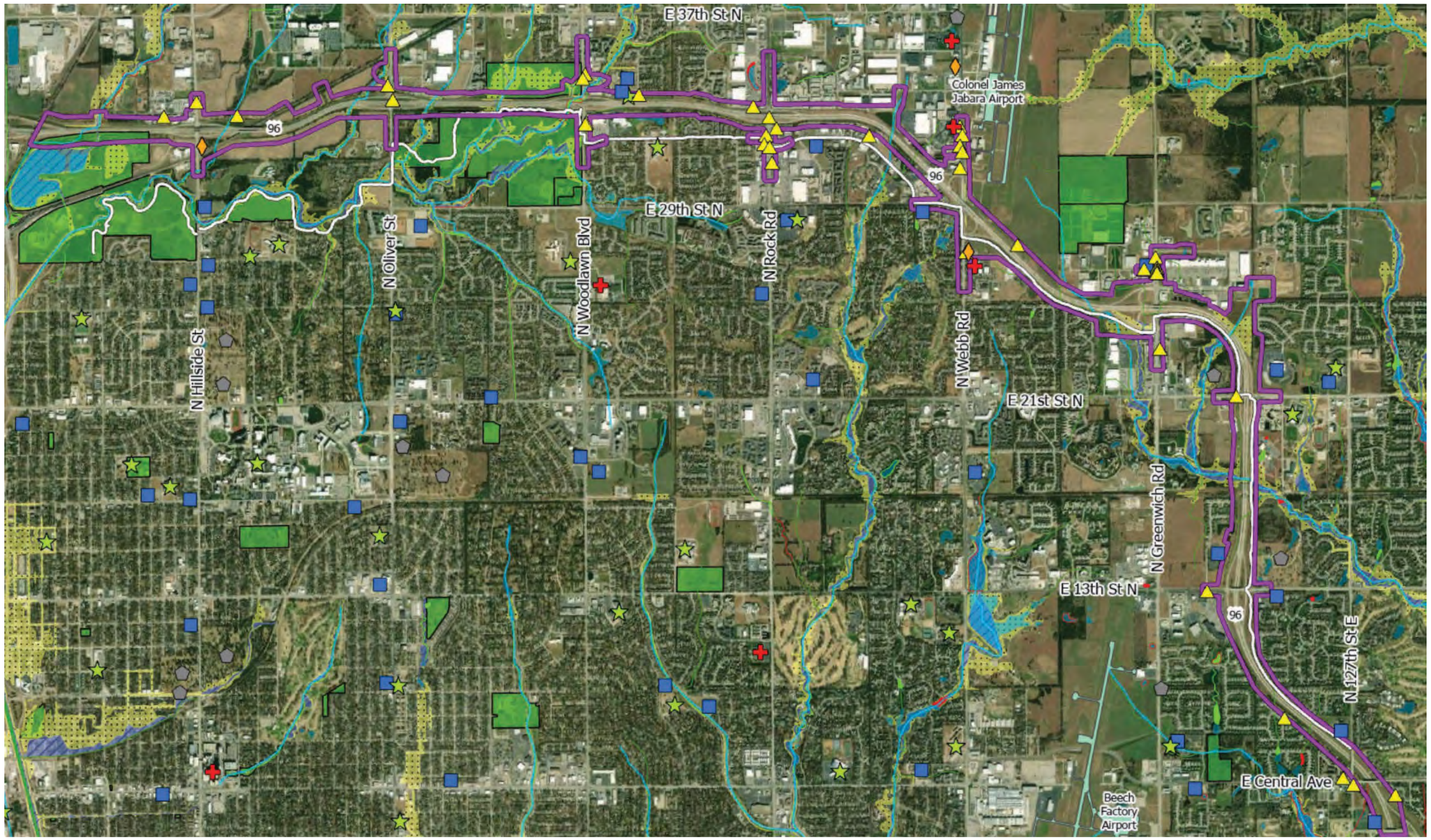
NEED

KDOT has identified the following initial needs along the K-96 Improvements Project corridor being studied:

- Improve safety and address crash frequency and severity within the corridor
- Replace aging pavement
- Reduce congestion and improve traffic operations to meet existing and future travel demands
- Provide flexible choices by promoting a transportation system that accommodates the needs for all users and modes
- Support local and regional growth through coordinated transportation improvements consistent with planned and proposed community land use

K-96 IMPROVEMENTS

KEY RESOURCES & CONSTRAINTS



N

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Mile

- Study Area
- Fire Station / EMS
- Medical Facility
- Hazardous Material Site
- Place of Worship
- School
- Cemetery
- K-96 Trail
- Stream (NHD)
- Airport
- Park
- 100 Year Floodplain (FEMA)
- Floodways (FEMA)
- Freshwater Emergent Wetland
- Freshwater Forested / Shrub Wetland
- Freshwater Pond
- Lake
- Riverine

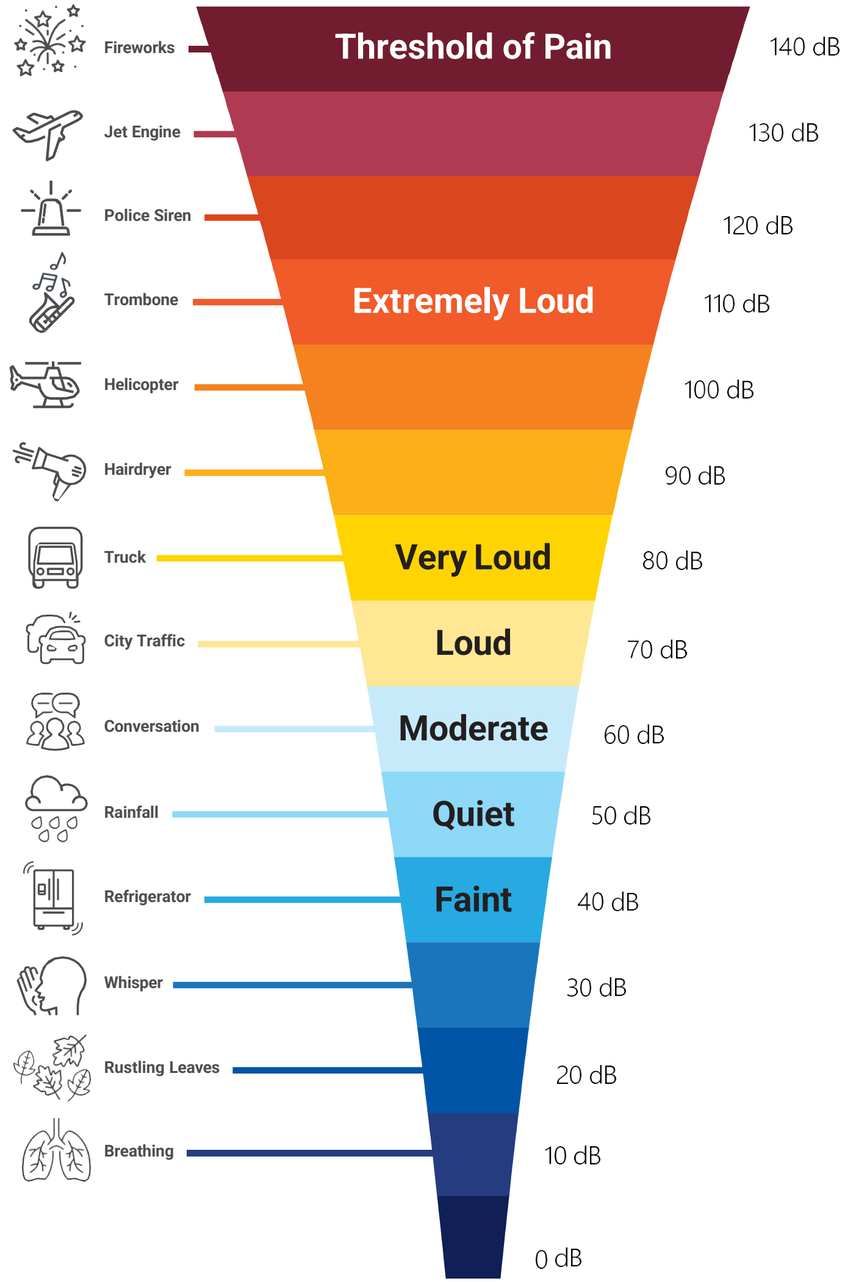
NOISE MODELING

As part of the Environmental Assessment process, KDOT is conducting noise modeling to determine if noise barriers are needed along the corridor.

TRAFFIC NOISE IMPACTS ARE IDENTIFIED WHEN:

1. **Locations where sound levels resulting from the project would exceed the Federal Highway Administration Noise Abatement Criteria, and/or**
2. **The increase in sound levels because of the project would be considered substantial – a 10 dB(A) or more increase over existing sound levels**

If highway traffic noise impacts are identified, KDOT will consider including noise barriers in the project to reduce traffic noise for affected properties.



KDOT HIGHWAY TRAFFIC NOISE POLICY

If traffic noise impacts are identified, KDOT will look at the following factors to evaluate whether to include noise barriers.

Feasibility

Safety & Maintenance

Accoustics

Reasonableness

Meets Noise Reduction Goals

Cost Effectiveness Measured per benefitted Receptor

Other Criteria

Presence of Utilities

Zoning / Land Use / Development Compatibility



K-96 IMPROVEMENTS

SHARE YOUR VISION FOR THE FUTURE

WHAT DO YOU LOVE ABOUT K-96?

WHAT CHALLENGES DO YOU EXPERIENCE?

Do you have questions or ideas you want to share?

WE WANT TO HEAR FROM YOU

Contact Us

Phone: 316-290-9691

Email: info@K96IMPROVEMENTS.com

Website: K96IMPROVEMENTS.com

Scan QR Code
to Submit
Comments Online

STAY CONNECTED!

Sign Up for Project Updates

Website: K96IMPROVEMENTS.com/register

For more information

Email: info@K96IMPROVEMENTS.com

Scan QR Code
to Sign Up for
Project Updates



KDOT and its partners hosted the first open house for the K-96 Improvements Project from 5-7 p.m. on Thursday, February 2, 2023.

We welcomed more than **120 community members** to meet KDOT and City of Wichita staff, as well as members of the design team. The open house provided the opportunity for community members to communicate directly with the design team, ask questions, and learn more about the project by viewing fact sheets, information, maps, and videos.

Information about the project was shared, including the project timeline, details about the Environmental Assessment process, and three-dimensional renderings demonstrating design concepts for the seven interchanges along the K-96 corridor. Neighborhood and community leaders, local elected officials, property owners, residents, business owners, and K-96 commuters brought their ideas for K-96 improvements, and the design team was available to listen and answer questions.

K-96 Improvements Project Manager Jake Borchers gave a presentation on the need and benefits of the project and introduced two interchange design concepts that would be new to Wichita: the Diverging Diamond Interchange (DDI) and the

Displaced Left Turn Interchange (DLT).

We are grateful to everyone who joined us and shared their comments to help make the K-96 Improvements Project a success!





Review + Comment

Leadership Spotlight

Jake Borchers

K-96 Improvements Project Manager



I am grateful to the community for joining us and participating in the K-96 Improvements Project open house. I learned a great deal about this project from the perspective of those who travel the corridor every day. My team and I heard your concerns, interests, and ideas, and we are considering them in the development of the final design concepts.

What We're Doing

...to Ensure Community-Informed Solutions

The K-96 Improvements Project team is reviewing the public feedback received at the open house and through the project website and considering the feedback as they create final design concepts, which will be presented to the public later this year. The formal Environmental Assessment process for the project has begun and is anticipated to be completed in early 2024. Starting in 2024, we will finalize the design of the K-96 Improvements Project and begin preconstruction. Construction could begin as early as 2026.

Project Timeline



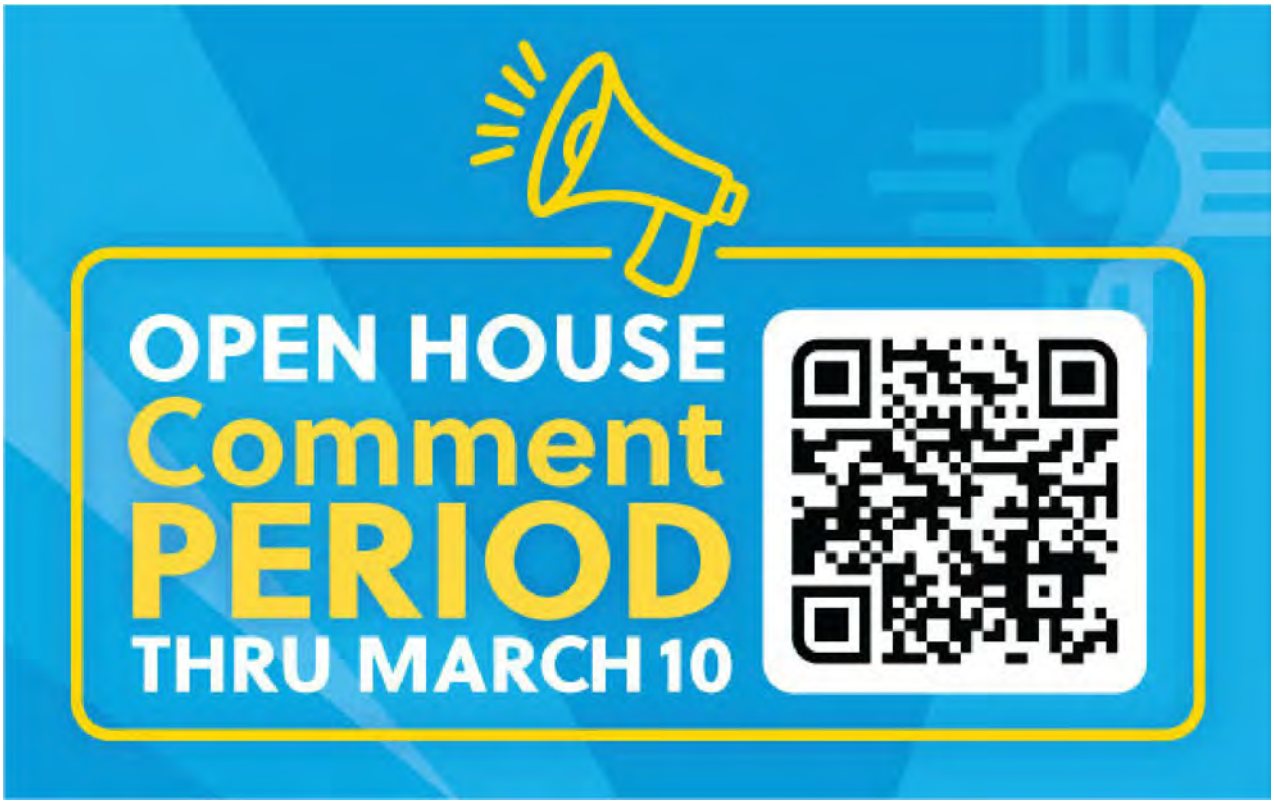
The timeline is subject to change as the project evolves. While the project has an anticipated construction schedule, funding has not been allocated at this time. Following the Eisenhower Legacy Transportation Program (IKE Program) requirements, funding is not allocated for construction projects more than two years ahead of construction.



We Want To Hear From You

If you were unable to attend the open house, or if you did join us but have more thoughts to share, it's not too late! Visit **K96**Improvements.com/open-house to view the materials from the event. From the display boards and table-top maps, to the educational and project overview videos, to the presentation, you can review them your convenience and *submit your feedback through March 10, 2023.*

You can also call 316-290-9691 or email info@**K96**Improvements.com with any questions or concerns.


OPEN HOUSE
Comment
PERIOD
THRU MARCH 10

Community Partnership Spotlight

The recorded video of the open house was provided by talented, local co[lege students as part of a pilot program in multi-·camera. live-switching producfon. Thank you to **WSU Elliott School of Communication** teacher Jessica N,ewman and her students, Elijah Maplesi Jacob Workent'ne, and Monique Ga·nesj for your t'me and creativity that wil help us share the K-96 mprovements Project!



View Presentation



K-96 Road Show

When you check out the K-96 Improvements Project website, be sure to sign-up for updates and see when the team hits the road to talk about the project.

From recent District Advisory Board meetings and WAMPO committees, to the upcoming Open House this winter, you won't want to miss a stop on the K-96 Road Show. You can also engage with the project on social media on Facebook, Twitter, and YouTube.







Thank you,

The K-96 Improvements Project Team

APPENDIX C

Noise Analysis Report



KDOT PROJECT NO: 096-087 KA-6099-02

K-96 IMPROVEMENTS PROJECT

Traffic Noise Study

3/8/24

Quality Management

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	3/8/24			
Prepared by	Gabriella Yanez-Uribe			
Reviewed by	Emily Robinson			
Reviewed by	Jacob Borchers			

Signatures

PREPARED BY

Gabriella Yanez-Uribe



Gabriella Yanez-Uribe, Environmental Engineer/Noise Analyst

REVIEWED BY

Emily Robinson 

Emily Robinson, Environmental Planning Engineer/Noise Analyst

REVIEWED BY

Jacob Borchers 

Jacob Borchers, Project Manager

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Figure 1: Project Location Map

Figures 2-1 – 2-20: Noise Analysis Map

Appendices

Appendix A: Ambient Noise Level Monitoring

Appendix B: Hourly Equivalent Traffic Noise Levels

Appendix C: Noise Barrier Analyses

Appendix D: Traffic Volumes

Acronyms and Abbreviations

CFR	Code of Federal Regulations
dB	Decibels
dBA	Decibels A-weighted
DHV	Design Hourly Volume
EA	Environmental Assessment
ERs	Equivalent Receptors
FHWA	Federal Highway Administration
KDOT	Kansas Department of Transportation
$L_{eq(h)}$	Hourly Equivalent A-Weighted Sound Level
MML	Midwest Median Lot
NAC	Noise Abatement Criteria
NEPA	National Environmental Policy Act
NSA	Noise Sensitive Areas
RCNM	Roadway Construction Noise Model
ROW	Right-of-way
TNM	Traffic Noise Model®

1. Executive Summary

The proposed project is located within the City of Wichita in Sedgwick County, Kansas. The project will upgrade K-96 from a 4-lane to a 6-lane freeway and extends from approximately the K-96/I-135 interchange 9.5 miles east/southeast to just north of the K-96/US-54/400 interchange. From East 21st Street to the project terminus, the project will replace pavement only. In addition, improvements at the interchanges of I-135, Hillside Street, Oliver Street, Woodlawn Boulevard, Rock Road, Webb Road, Greenwich Road, and 21st Street are included.

The project includes the K-96 improvements, KDOT Project No. KA-6099-02. This Noise Study Report pertains to the widening and improvements along a section of the K-96 corridor in Sedgwick County, Kansas. Per FHWA Title 23 CFR 772.5(2) and KDOT Traffic Noise Policy and Guidance (2022), the proposed project is "Type I" because it includes the addition of a through-traffic lane, substantial vertical and horizontal alterations, and interchange reconfigurations to K-96. A detailed description of the proposed roadway improvements can be found in Section 2.

The Date of Public Knowledge for the project will be based on the approval date of the K-96 Environmental Assessment. In accordance with KDOT Traffic Noise Policy, federal and state governments are not responsible for providing noise abatement measures for traffic noise impacts for which building permits were issued after the Date of Public Knowledge. KDOT advocates use of local government authority to regulate land development, planning, design, and construction in such a way that noise impacts are minimized.

Existing land use in the vicinity of the K-96 project is predominately single-family residences, multi-family residences, and commercial. Other land uses in the study area include restaurants, medical facilities, hotels, places of worship, parks, trails, cemeteries, athletic fields, playgrounds, farmland, and an airfield.

The project study area was divided in 19 different NSAs that were analyzed. A total of 223 noise impacts were identified under the future 2050 Build Alternative, with impacts located in 10 out of the 19 NSAs. All noise impacts were a result of approaching or exceeding the FHWA's NAC. No locations had future noise levels that were predicted to significantly exceed existing noise levels.

Consideration of noise abatement measures was given to all receptors impacted by the 2050 Build Alternative. Based on the preliminary project design noise walls NW4-1, NW5-2, NW6-1, NW6-2, and NW16-2 were determined to be feasible and reasonable and are recommended for inclusion in the K-96 Proposed Improvement Project. Noise wall locations are shown on Figures 2-1 through 2-20.

Construction noise impacts may occur due to the proximity of numerous noise-sensitive receptors to project construction activities. It is the recommendation of this traffic noise study that all reasonable efforts should be made to minimize exposure of noise-sensitive areas to construction noise impacts.

This Noise Study Report represents a detailed analysis of all traffic noise impacts and consideration of noise abatement measures for feasibility and reasonableness. This study documents the

methodologies, results, and recommendations of the study in compliance with the FHWA Title 23 CFR 772 Procedures for Abatement of Highway Traffic Noise and Construction Noise and the KDOT Traffic Noise Policy and Guidance. The final decision on the installation of noise abatement measures will be made upon completion of the final design and public involvement process. Any changes in noise abatement measures as detailed in this report must be approved by KDOT prior to implementation.

2. Project Description

In cooperation with the FHWA, the KDOT project KA-6099-02 proposes the widening and improvements along a 9.5-mile section of the K-96 corridor in the City of Wichita in Sedgwick County, Kansas beginning at approximately the K-96/I-135 interchange to just north of the K-96/US-54/400 interchange. From East 21st Street to the project terminus the project will replace pavement only.

The existing typical section is comprised of two 12-ft lanes in each direction with 6-ft inside shoulders and 10-ft outside shoulders. The proposed project will upgrade K-96 from a 4-lane to a 6-lane freeway (pavement replacement only from 21st Street to the K-96/I-35 Interchange). The proposed six lane expansion includes shifting the lanes with lane widening to the inside and outside of the existing roadway.

The Preferred Alternative improvements include:

- Reconfiguration of the northbound I-135 to eastbound K-96 ramp to incorporate a braided ramp system;
- Widening of K-96 from the Hillside interchange to the 21st Street interchange from four to six lanes;
- Pavement reconstruction of K-96 from the 21st Street interchange to the I-35 interchange; and
- Reconstruction of the existing Hillside Street, Oliver Street, Woodlawn Boulevard, Rock Road, Webb Road, Greenwich Road, and 21st Street interchanges and associated improvements along the city streets.

Per FHWA Title 23 CFR 772.5(2) and KDOT Highway Traffic Noise Policy and Guidance, the proposed project is "Type I" because it includes the addition of a through-traffic lane, substantial vertical and horizontal alteration, and interchange reconfigurations to K-96. A transportation improvement with any Type I work is a Type I Project and a traffic noise analysis is required for the entire project. The project location is shown in Figure 1.

3. Characteristics of Noise

Noise is defined as unwanted sound. It is emitted from many natural and man-made sources. Highway traffic noise is usually a composite of noises from engine exhaust, drive train, and tire-roadway interaction.

The magnitude of noise is usually described by a ratio of its sound pressure to a reference sound pressure, typically twenty micro-Pascals (20µPa). Since the range of sound pressure ratios varies greatly – over many orders of magnitude, a base-10 logarithmic scale is used to express sound levels in dimensionless units of decibels (dB). The commonly accepted limits of detectable human hearing sound magnitude is between the threshold of hearing at " 0" decibels and the threshold of pain at 140 decibels.

Sound frequencies are reported in units of Hertz (Hz), which correspond to the number of vibrations per second of a given tone. A cumulative 'sound level' is equivalent to ten times the base-10 logarithm of the ratio of the sum of the sound pressures of all frequencies to the reference sound pressure. To simplify the mathematical process of determining sound levels, sound frequencies are grouped into ranges, or 'bands.' Sound levels are then calculated by adding the cumulative sound pressure levels within each band – which are typically defined as one 'octave' or '1/3 octave' of the sound frequency spectrum.

The commonly accepted limitation of human hearing to detect sound frequencies is between 20 Hz and 20,000 Hz, and human hearing is most sensitive to the frequencies between 1,000 Hz – 6,000 Hz. Although people are generally not as sensitive to lower-frequency sounds as they are to higher frequencies, most people lose the ability to hear high-frequency sounds as they age. To accommodate varying receptor sensitivities, frequency sound levels are commonly adjusted, or 'filtered', before being logarithmically added and reported as a single 'sound level' magnitude of that filtering scale. The 'A-weighted' decibel filtering scale applies numerical adjustments to sound frequencies to emphasize the frequencies at which is shown for an example truck noise level spectrum in Table 1.

Table 1: Comparison of Unweighted vs. A-Weighted Sound Levels for a Truck

Octave-Band Center	A	B	C = A + B
Frequency (Hz)	Unweighted Sound Level from a Truck (dB)	A-Weighting Adjustment of Unweighted Sound to Reflect What Human Ear Perceives (dB)	Sound Level that Human Ear Perceives = A-Weighted Sound Level (dB(A))
31	75	-39	36
63	78	-26	52
125	83	-16	67
250	84	-9	75
500	81	-3	78
1000	7	0	75
2000	7	1	72
4000	6	1	64
8000	54	-1	53
Total Unweighted Sound Level in dB	89	Total A-Weighted Sound Level in dB(A)	82

The A-weighted scale is commonly used in highway traffic noise studies because the typical frequency spectrum of traffic noise is higher in magnitude at the frequencies at which human hearing is noise sensitive (1,000 Hz to 6,000 Hz).

Several examples of common noise levels expressed in dB(A) are listed in Table 2. A review of Table 2 indicates that most individuals are exposed to fairly high noise levels from many sources on a regular basis. In order to perceive sounds of greatly varying pressure levels, human hearing has a non-linear sensitivity to sound pressure exposure. For example, doubling the sound pressure results in a three decibel change in the noise level; however, variations of three decibels (3 dB(A)) or less are commonly considered “barely perceptible” to normal human hearing. A five decibel (5 dB(A)) change is more readily noticeable. By definition, a ten-fold increase in the sound pressure level correlates to a 10 decibel (10 dB(A)) noise level increase; however, it is judged by most people as only a doubling of the loudness – sounding “twice as loud”.

Table 2: Common Indoor and Outdoor Noise Levels

Common Outdoor Noise Levels	Noise Level (dB(A))	Common Indoor Noise Levels
	110	Rock Band
Jet Flyover at 1,000 feet	100	Inside Subway Train (NY)
Gas Lawn Mower at 3 feet		
Diesel Truck at 50 feet	90	Food Blender at 3 feet
Noisy Urban Daytime	80	Garbage Disposal at 3 feet
Gas Lawn Mower at 100 feet	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Small Theater, Large Conference Room (Background)
Quiet Suburban Nighttime		Library
	30	
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (Background)
	20	
		Broadcast and Recording Studio
	10	
	0	Threshold of Hearing

Adapted from Guide on Evaluation and Attenuation of Traffic Noise, American Association of State Highway and Transportation Officials (AASHTO). 1974 (revised 1993).

The degree of disturbance or annoyance from exposure to unwanted sound (noise) depends upon three factors:

1. The amount, nature, and duration of the intruding noise;
2. The relationship between the intruding noise and the existing (ambient) sound environment;
3. The situation in which the disturbing noise is heard.

In considering the first of these factors, it is important to note that individuals have varying sensitivity to noise. Loud noises bother some people more than other people. The time patterns and durations of noise(s) also affect the perception of whether noise is offensive. For example, noises that occur during nighttime (sleeping) hours are typically considered to be more offensive than the same noises occurring in the daytime.

Regarding the second factor, individuals tend to judge the annoyance of an unwanted noise in terms of its relationship to noise from other sources (background noise). A car horn blowing at night when background noise levels are low would generally be more objectionable than one blowing in the afternoon when background noise levels are typically higher. The response to noise stimulus is analogous to the response to turning on an interior light. During the daytime, an illuminated bulb simply adds to the ambient light, but when eyes are conditioned to the dark of night, a suddenly illuminated bulb can be temporarily blinding.

The third factor – situational noise – is related to the interference of noise with activities of individuals. In a 60 dB(A) environment, such as is commonly found in a large business office, normal conversation would be possible, while sleep might be difficult. Loud noises may easily interrupt activities that require a quiet setting for greater mental concentration or rest; however, the same loud noises may not interrupt activities requiring less mental focus or tranquility.

Over time, individuals tend to accept the noises that intrude into their lives on a regular basis. However, exposure to prolonged and/or extremely loud noise(s) can prevent use of exterior and interior spaces and has been theorized to pose health risks. Appropriately, regulations exist for noise control or mitigation from many particularly offensive sources, including airplanes, factories, railroads, and highways. For all "Type I" federal, state, or federal-aid highway projects in the State of Kansas, traffic noise impact analysis and abatement assessment is dictated by the KDOT Highway Traffic Noise Policy and Guidance (June 23, 2022).

4. Noise Abatement Criteria

The FHWA has developed NAC and procedures to be used in the planning and design of highways. The purpose of Title 23 CFR Part 772 is "to provide procedures for noise studies and noise abatement measures to help protect the public's health, welfare and livability, to supply noise abatement criteria, and to establish requirements for information to be given to local officials for use in the planning and design of highways approved pursuant to title 23 U.S.C."

The abatement criteria and procedures are set forth in Title 23 CFR Part 772, which also states, "In abating traffic noise impacts, a highway agency shall give primary consideration to exterior areas where frequent human use occurs." A summary of the NAC for various land uses is presented in Table 3.

Table 3: Noise Abatement Criteria

Hourly Equivalent A-Weighted Sound Level (decibels (dB(A))			
Activity Category	Activity Criteria[1] $L_{eq}(h)$[2]	Evaluation Location	Activity Description
A	57	Exterior	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[3]	67	Exterior	Residential
C[3]	67	Exterior	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, daycare centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section4(f) sites, schools, television studios, trails, and trail crossings.
D	52	Interior	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E[3]	72	Exterior	Hotels, motels, offices, restaurants/bars, and other developed lands, properties or activities not included in A- D or F.
F	--	--	Agriculture, airports, bus yards, emergency services, industrial, logging maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G	--	--	Undeveloped lands that are not permitted

[1] The $L_{eq(h)}$ Activity Criteria values are for impact determination only and are not design standards for noise abatement measures.

[2] The equivalent steady-state sound level which in a stated period of time contains the same acoustic energy as the time-varying sound level during the same time period, with $L_{eq(h)}$ being the hourly value of L_{eq}.

[3] Includes undeveloped lands permitted for this activity category.

Source: FHWA Title 23 CFR Part 772, July 2010.

The KDOT Traffic Noise Policy and Guidance (2022) establishes official state policy on highway noise. This policy describes the KDOT process that is used in determining traffic noise impacts and abatement measures and the equitable and cost-effective expenditure of public funds for traffic noise abatement to comply with NEPA. Where the FHWA has given highway agencies flexibility in implementing the Title 23 CFR 772 standards, this policy describes the KDOT approach to implementation.

The two categories of traffic noise impacts are defined as (1) those that "approach" (defined by the KDOT Policy as one decibel below the levels shown for the NAC in questions) or exceed the FHWA NAC, as shown in Table 3, and (2) those that "substantially exceed" existing noise levels as defined by KDOT. An impact "substantially exceeds" NAC criteria when comparison of the existing noise level [$L_{eq}(h)$] with the predicted noise levels in the design year results in an increase of 10 dB(A) or more per the KDOT Traffic Noise Policy.

5. Identification of Noise-Sensitive Land Uses and Noise Study Areas

The noise-sensitive land uses within the project study area are primarily residential along with non-residential land uses such as medical facilities, restaurants, hotels, places of worship, parks, trails, cemeteries, athletic fields, farmland, playgrounds and an airfield. To group noise-sensitive land uses that are geographically close to one another and exposed to similar noise sources, the project study area was segmented into 19 discrete NSAs. An NSA might represent a single isolated property or an entire neighborhood.

The locations of the 19 NSAs identified along the project corridor are shown in Figures 2-1 through 2-20 and described below. The location of residential and non-residential noise-sensitive receptors within the NSAs are also shown in Figures 2-1 through 2-20 and described in the tables provided in Appendix B.

- NSA 1 is located south of K-96 between I-135 and Hillside Street. The NSA represents a park with lake access.
- NSA 2 is located north of K-96 between I-135 and Hillside Street. The NSA represents single-family residences.
- NSA 3 is located south of K-96 between Oliver Street and Woodlawn Boulevard. The NSA represents single-family residences, a park, and a trail.
- NSA 4 is located north of K-96 between Oliver Street and Woodlawn Boulevard. The NSA represents multi-family residences, a park, and a trail.
- NSA 5 is located south of K-96 between Woodlawn Boulevard and Rock Road. The NSA represents single-family residences, multi-family residences, and a YMCA with associated sporting fields.
- NSA 6 is located north of K-96 between Woodlawn Boulevard and Rock Road. The NSA represents single-family residences, multi-family residences, and a school playground.
- NSA 7 is located south of K-96 between Rock Road and Webb Road. The NSA represents a medical facility.
- NSA 8 is located north of K-96 west of Webb Road. The NSA represents a hotel.
- NSA 9 is located south of K-96 west of Webb Road. The NSA represents single-family residences and a hotel.
- NSA 10 is located south of K-96 between Webb Road and Greenwich Road. The NSA represents single-family residences and a trail.

- NSA 11 is located southwest of K-96 between Greenwich Road and 21st Street. The NSA represents a park and a trail.

- NSA 12 is located northeast of K-96 between Greenwich Road and 21st Street. The NSA represents single-family residences and a place of worship.

- NSA 13 is located east of K-96 between 21st Street and 13th Street. The NSA represents a cemetery and a trail.

- NSA 14 is located west of K-96 between 21st Street and 13th Street. The NSA represents single-family residences, multi-family residences, and a playground.

- NSA 15 is located northeast of K-96 between 13th Street and 127th Street. The NSA represents single-family residences, a trail, and a place of worship.

- NSA 16 is located southwest of K-96 between 13th Street and 127th Street. The NSA represents single-family residences and multi-family residences.

- NSA 17 is located northeast of K-96 between 127th Street and Central Avenue. The NSA represents single-family residences and a place of worship.

- NSA 18 is located east of K-96 and south of Central Avenue. The NSA represents single-family residences.

- NSA 19 is located west of K-96 and south of Central. The NSA represents a place of worship.

Equivalent Receptors are calculated for land uses other than single-family dwelling units like parks, trails, schools, etc. In accordance with KDOT Noise Policy, the number of "equivalent receptors" for Activity Category C and E receptors was calculated following Table 2 of the KDOT Highway Traffic Noise Policy and Guidance (2022) criteria. The calculations of equivalent receptors to residences for this noise analysis were approved by KDOT on 9/13/23, included below:

- For trails areas - the 12,000 square-foot Midwest Median Lot (MML) was used to place receptors along the length of the trail and at the crossings;
- Park Areas – single receivers were placed at the park's areas of public outdoor use;
- YMCA - single receivers were placed at the pools, soccer fields, and baseball fields; and
- Kensington Gardens – a single receiver was placed along the access road.

6. Existing Noise Levels and Model Validation

Existing traffic noise exposure varies within the K-96 project study area depending on proximity from the roadway and shielding from localized terrain features. K-96 is the dominant noise source for receptors in the overall study area.

This Noise Study Report utilized computer models created with FHWA's TNM version 2.5 software to predict Base Year 2022 hourly equivalent traffic noise levels, $L_{eq(h)}$. The existing condition TNM models were developed using project survey data, design data, georeferenced aerial imagery, parcel data from Sedgwick County, and topographic data from the USGS National Elevation Dataset for areas outside the limits of the project survey. This data was used to model all relevant roadways, barriers, terrain lines, ground zones, buildings, and receptors.

6.1 Ambient Noise Measurement Details

Ambient noise measurements were performed from November 14 to November 16, 2022, at 17 locations, collecting two long-term measurements and 15 short-term measurements. The measurements from the short-term ambient noise measurements were utilized to validate the TNM models created for the K-96 project existing conditions. The ambient noise level monitoring is documented in Appendix A.

6.1.1 Short-Term Data Collection

Field noise monitoring was completed as part of the traffic noise study. The purpose of noise monitoring is to gather data to compare with the output obtained from the noise prediction model. This exercise is performed to validate the existing condition TNM model for local conditions so that it can be used with confidence to predict the future noise levels.

Data was gathered during noise measurements to construct a validated noise model, including traffic volumes, vehicle mixes and speeds, weather conditions, foliage types and density, identification of noise sources other than traffic, and a record of any abnormal events which if included in the data would skew the results. All 15 short-term noise field measurement locations were included in the TNM noise validation models. TNM validation models were developed by inputting the measurement locations as receptors and adding field-collected traffic volumes (by vehicle class) and speeds to the models. Short-term ambient noise measurements were conducted at the locations previously approved by KDOT in the K-96 Noise Field Measurement Plan in October 2022.

The short-term (15-minute duration) measured levels at the 15 individual monitoring locations are shown in Table 4. Noise levels at the measurement locations ranged from 61.4 dBA to 72.5 dBA. Detailed information about the ambient noise measurements (field data sheets, monitoring location pictures, and sound level meter calibration certificates) are included in Appendix A.

6.1.2 Long-Term Data Collection

Long-term measurements were completed at two (2) locations identified as sites LT-1 and LT-2. Sound level meters were set up and left unattended for approximately 47-hours at each site to measure long-term noise levels throughout the morning and/or afternoon peak traffic periods. Appendix A includes information referenced to the long-term measurements.

The purpose of the long-term measurements is to characterize the ambient noise conditions in sections of the project area that may be dominated by something other than traffic noise, such as airport noise or railway noise. The Federal Highway Administration requires highway traffic noise analyses include noise from all sources, including other transportation modes such as rail and air traffic. After discussions with KDOT, it was determined that the low train volume and air traffic determines these noise sources as infrequent and not a dominant steady state noise source in the project area. Ambient noise levels near these sources confirmed this assumption.

6.2 TNM Validation

In accordance with the KDOT Highway Traffic Noise policy and Guidance (2022), computer models were created using the FHWA TNM v2.5 to predict existing traffic noise levels within the project study area. The model was validated to verify its accuracy.

The results of the ambient short-term noise measurements were used to validate the existing conditions TNM model. A TNM model was created for each ambient short-term noise measurement location, with a receptor placed at the location of the measurement location. TNM roadways were loaded with the one-hour equivalent observed traffic volumes and speeds.

Predicted sound levels for the receptor points representing the sound meter locations were compared to the field measured sound levels. If the predicted versus measured results have a difference less than +/- 3 dB(A), then the measurement location is considered validated.

TNM predicted hourly equivalent traffic noise levels were within ±3 dB(A) for 13 of the 15 monitoring locations for which traffic was the dominant source. TNM can only predict traffic related noise levels. Due to extenuating circumstances, TNM could not accurately predict sites ST-4 and ST-14. TNM overpredicted ST-4 due to the reduction in speed for the ramp traffic exiting K-96 not being accounted for in the field and could not be modeled in the TNM model, increasing the predicted noise level. TNM underpredicted ST-14 due to the reflections from the 8-foot brick privacy wall to the left of the noise meter increasing the measured L_{eq}. Table 4 presents a summary of the validation results.

Table 4: Noise Model Validation Results

Noise Monitoring Short-Term	Monitoring Location	Measured $L_{eq}(h)$	TNM Predicted $L_{eq}(h)$	Validation
Reading (ID)		dBA(A)	dB(A)[1]	Delta
ST-1	3313 N Hillside Street	67.0	66.0	1.0
ST-2	N Oliver Avenue	63.1	62.9	0.2
ST-3	3450 N Ridgewood Street	71.9	73.5	-1.6
ST-4	6655 E 34th Street North	68.3	72.7	-4.4[2]
ST-5	3330 N Woodlawn Boulevard	71.0	71.0	0.0
ST-6	3333 N Governeour Circle	69.4	71.9	-2.5
ST-7	3020 N Cypress Street	70.2	71.5	-1.3
ST-8	9444 E 29th Street North	64.5	64.1	0.4
ST-9	10612 E Mainsgate Street	66.9	64.9	2.0
ST-10	12200 E 21st Street North	67.2	65.7	1.5
ST-11	1716 N Bedford Street	63.8	62.7	1.1
ST-12	12100 E 13th Street North	70.3	67.8	2.5
ST-13	937 N White Tail Circle	72.5	71.0	1.5
ST-14	12526 E Central Avenue	72.1	68.8	3.3[3]
ST-15	338 N 127th Street East	61.4	62.3	-0.9
Measurement Site Validated			Measurement Site Not Validated	

Notes:

1. Hourly equivalent noise levels, $L_{eq}(h)$, are expressed to the nearest one-tenth decibels to ensure that TNM-predicted noise levels validate to within ± 3.0 dB(A) of measured noise levels without the benefits of rounding.
2. The TNM predicted traffic noise level at this measurement site was not within +/-3dB(A) due to the reduction in speed for the ramp traffic exiting K-96 not being accounted for in the field and could not be modeled in the TNM model, increasing the predicted noise level.
3. The TNM predicted traffic noise level at this measurement site was not within +/-3dB(A) due to the reflections from the 8-foot brick privacy wall to the left of the noise meter increasing the measured L_{eq}.

6.3 Existing Noise Levels

Existing noise levels were then predicted using the validated TNM models by utilizing traffic volumes from the project traffic forecast that result in the "worst-case" traffic data per KDOT Highway Traffic Noise Policy and Guidance. As determined with KDOT, the noise analysis identified the average of the AM and PM peak traffic data per direction (EB/WB/NB/SB) as the loudest condition. The average traffic was calculated for each individual roadway link along the K-96 corridor, ramps, and cross streets. Appendix D provides further information on the project traffic forecasts and loudest hour traffic volumes used in this study.

7. Determination of Future Sound Levels

To determine the worst hourly noise levels in the 2050 Build Alternative, the existing TNM models were modified to represent the Preferred Alternative based on preliminary roadway design plans for the K-96 Improvements project. Design data that was available to use for the Build condition noise modeling included the proposed roadway alignment, edge of travel lanes and shoulders, proposed roadway profile, location of proposed bridge structures, and location of proposed roadway barriers.

The build condition TNM models were updated to include future Design Year 2050 Traffic volumes resulting in the loudest predicted hourly-equivalent traffic noise level, the average of the AM and PM peak traffic data, as discussed in Section 6.3. Traffic volumes utilized for the build condition noise modeling are included in Appendix D. Appendix B shows the predicted Design Year 2050 Build Alternative hourly equivalent traffic noise levels at all receptor locations.

8. Impact Determination Analysis

Traffic noise impacts occur when the predicted traffic noise levels either: (1) approach or exceed the FHWA NAC, with "approach" defined in the KDOT Noise Policy as reaching one decibel less than the NAC values listed in Table 3, or (2) substantially exceed the existing noise levels, defined as a 10-decibel increase, according to KDOT criteria. FHWA and KDOT require that feasible and reasonable measures be considered to abate traffic noise at all predicted traffic noise impacts.

8.1 Summary of Traffic Noise Impacts

As shown in Table 5, the Build Alternative is predicted to result in 223 traffic noise impact due to Design Year 2050 noise levels approaching or exceeding the NAC and based on a substantial noise increase above existing noise levels. No additional impacts are predicted based on a substantial noise increase above existing noise levels.

Table 5: Traffic Noise Impact Summary for 2050 Build Condition

Reason for Noise Impact	Summary of Impacted Receptors By Activity Category							
	A	B	C	D	E	F[5]	G[6]	All Activity Categories
Based on NAC Criteria Only[1]	0	189	34	0	0	0	0	223
Based on Substantial Increase Criteria Only[2]	0	0	0	0	0	0	0	0
Based on Both Criteria[3]	0	0	0	0	0	0	0	0
Total Build Alternative Impacts[4]	0	189	34	0	0	0	0	223

Notes:

1. Predicted traffic noise level impacts due to design year worst hour build-condition noise levels approaching or exceeding the KDOT Noise Abatement Criteria (NAC).
2. Predicted design year worst hour noise levels exceeding existing worst hour noise levels by 10 dB(A) or greater (KDOT Substantial Increase Criteria).
3. Predicted traffic noise level impacts due to both 1 and 2 above.
4. Only one of the Note 1 or Note 2 conditions must be met for an impact to exist.
5. There are no impact criteria for land use facilities in this activity category and no analysis of noise impacts are required.
6. There are no impact criteria for undeveloped lands, but some noise levels may need to be provided to local officials to aid them in future land use planning efforts.

9. Noise Abatement Evaluation

The 23 CFR Part 772 procedures and KDOT's traffic noise policy require that noise abatement measures must be considered when traffic noise impacts are identified for Type I projects. Noise abatement measures must be both feasible and reasonable to be eligible for construction.

The Feasibility Criteria represents an initial assessment for a noise barrier. If the design meets feasibility criteria, then Reasonable Criteria will be evaluated. Reasonable criteria pertain to social, economic and environmental factors. Feasibility is the combination of acoustical and engineering factors considered in the evaluation of a noise barrier. If any conditions for feasible or reasonable criteria do not comply, the barrier design is deemed not feasible or reasonable.

Noise abatement measures were considered and evaluated for the benefited traffic noise impacts of the Build Alternative. Tables B.1-B.18 in Appendix B and Figures 2-1 through 2-20 show the receptor sites that are impacted by the Build Alternative.

9.1 Noise Barrier Feasibility

Feasibility refers to the combination of acoustical and engineering factors considered in the evaluation of a noise abatement measure. It generally deals with whether it is possible to build an abatement measure given site constraints and whether the abatement measure provides a minimum reduction in noise levels. Engineering feasibility can be limited by topography, access requirements, other noise sources, drainage, utilities, maintenance, and more. In general, if these factors are too extreme or cannot be accommodated to meet the minimum noise reduction, noise abatement will be deemed infeasible.

KDOT's policy requires that an acoustically feasible noise barrier must have a minimum of three first row (first parcel that exhibits a noise sensitive site that is directly adjacent to the roadway) impacted receptors and must achieve at least a five (5) dBA highway traffic noise reduction for 80% of first row impacted receptors. Receptors that achieve the 5 dBA are then considered benefited by the barrier.

9.2 Noise Barrier Reasonableness

Reasonableness refers to the combination of social, economic, and environmental factors considered in the evaluation of a noise abatement measure. KDOT's traffic noise policy was used to determine whether noise abatement would be reasonable for impacted receptors. Reasonableness criteria specifically include:

- Insertion Loss - A minimum of five (5) dBA insertion loss per receptor is counted as one benefited receptor. Other receptors not impacted but receiving a five (5) dBA benefit are counted as non-impacted benefited receptors. The benefited receptors are utilized in calculations for cost-effectiveness;
- Noise Reduction Design Goal - The noise barrier must achieve a minimum of seven (7) dBA insertion loss for the majority (>50%) of benefited receptors or a minimum of an eight (8) dBA insertion loss for at least one impacted Activity Category B receptor that will benefit from the

noise barrier;

- Barrier cost-effectiveness - For a noise barrier to meet the cost effectiveness criteria, barrier cost effectiveness shall not exceed 1,200 square feet per benefited receptor and shall be calculated by taking the total area of a proposed noise wall divided by the number of benefited receptors determined for the noise wall;
- Viewpoints of owners and residents of the benefitted receptors will be obtained. Public approval of benefitted receptors will be solicited via a ballot to determine final construction of a barrier.

9.3 Noise Barrier Evaluations

This section summarizes the noise barrier evaluations conducted for this study. A detailed analysis of final noise barrier designs can be found in Appendix C. All noise walls were evaluated up to a height of 20 feet, KDOT's maximum allowable noise wall height to avoid excessive wind load.

Noise barriers were analyzed within the NSAs identified along the project corridor that included predicted noise receptors to be impacted in the Build alternative. The noise barriers were analyzed along the shoulder of K-96 or near the right-of-way line depending on the topography of the area. For multi-residential receptors (apartment complex), the ground floor locations were evaluated under the feasibility criteria of KDOT's Noise Policy to determine first row impacts. The balconies on floors above were evaluated under the reasonable criteria to determine if those balcony locations were benefited receptors.

In addition, noise abatement was also considered at the following receptors:

- Receptor R-5-142 in NSA 5
- Receptors R9-11, R9-12, R9-13, and R9-14 in NSA 9
- Receptors RT10-2 and RT10-6 in NSA 10
- Receptors RT11-1, RT11-2, RT11-3, and RT11-4 in NSA 11
- Receptors RT13-1, RT13-2, RT13-5, and RT13-7 in NSA 13
- Receptors RT15-1 and RT15-5 in NSA 15

These receptors are predicted to be impacted in the Build condition but are geographically isolated from other impacted receptors. A noise wall(s) at these locations would not meet feasibility criteria due to the number of impacted receptors. As result, noise abatement was not feasible at these locations.

A total of 11 noise walls have been evaluated for the Build Alternative using TNM, as discussed below. Additional information on individual noise wall analyses can be found in Appendix C, and the locations of the feasible and reasonable barriers are shown in Figures 2-1 through 2-20.

Noise Wall 3 (NW3)

NW3 would provide abatement for a park and trail in NSA 3, south of K-96 between N. Oliver Street and N. Woodlawn Boulevard. Five (5) total impacted receptors were identified in the NSA.

The optimized NW3 design, which was 35,784 square feet, was found to be feasible. However, due to the low density of noise sensitive receptors in the area and distances from the roadway, the optimized NW3 design only benefits 3 total receptors and meets the 5 dBA feasibility criteria for 80% of first-row, first-floor benefitted receptors. The barrier averages 11,928 square feet per benefitted receptor and exceeds the maximum allowed of 1,200; therefore, NW3 is not reasonable. NW3 is not recommended for construction.

Noise Wall 4-1 (NW4-1)

NW4 would provide abatement for multi-family residences in NSA 4, north of K-96 between N. Oliver Street and N. Woodlawn Boulevard. A total of 44 impacted receptors were identified in the NSA. NW4-1 assessed abatement for 42 impacted receptors.

The optimized NW4-1 design, which was 30,600 square feet, was found to be feasible. The optimized NW4-1 design benefits 49 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 624 square feet per benefited receptor which is below the maximum allowed area of 1,200 square feet per benefited receptor and meets the noise reduction goal at 55% of benefits greater than 7 dBA; therefore, NW4 is reasonable. NW4 is recommended for construction.

Noise Wall 4-2 (NW4-2)

NW4-2 would provide abatement for a trail in NSA 4, north of K-96 between N. Oliver Street and N. Woodlawn Boulevard. Forty-four (44) total impacted receptors were identified in the NSA. NW4-2 assessed abatement for two (2) impacted receptors.

The optimized NW4-2 design, which was 41,807 square feet, was not found to be feasible. The optimized NW4-2 design benefits 2 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row. The barrier averages 20,904 square feet per benefited receptor and exceeds the maximum allowed area of 1,200 square feet per benefited receptor; therefore, NW4-2 is not reasonable. NW4-2 is not recommended for construction.

Noise Wall 5-1 (NW5-1)

NW5-1 would provide abatement for the YMCA sports fields in NSA 5, south of K-96 between the N. Woodlawn Boulevard and N. Rock Road. A total of 21 impacted receptors were identified in the NSA. NW5-1 assessed abatement for eight (8) impacted receptors.

The optimized NW5-1 design, which was 16,916 square feet, was found to be feasible. The optimized NW5-1 design benefits 10 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 1,692 square feet per benefited receptor and exceeds the maximum allowed area of 1,200 square feet per benefited receptor; therefore, NW5-1 is not reasonable. NW5-1 is not recommended for construction.

Noise Wall 5-2 (NW5-2)

NW5-2 would provide abatement for single-family and multi-family residences in NSA 5, south of K-96 between the N. Woodlawn Boulevard and N. Rock Road. Twenty-one (21) total impacted receptors were identified in the NSA. NW5-2 assessed abatement for 12 impacted receptors.

The optimized NW5-2 design, which was 10,404 square feet, was found to be feasible. The optimized NW5-2 design benefits 17 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 612 square feet per benefited receptor which is below the maximum allowed area of 1,200 square feet per benefited receptor and meets the noise reduction goal at 71% of benefits greater than 7 dBA; therefore, NW5-2 is reasonable. NW5-2 is recommended for construction.

Noise Wall 6-1 (NW6-1)

NW6-1 would provide abatement for multi-family residences and a place for worship in NSA 6, north of K-96 east of N. Woodlawn Boulevard. Per KDOT guidance on safety and clear zone issues, NW 6-1 was evaluated at the right-of-way (ROW) location. Ninety-two (92) total impacted receptors were identified in the NSA. NW6-1 assessed abatement for 31 impacted receptors.

The optimized NW6-1 design at the ROW, which was 18,164 square feet, was found to be feasible. The optimized NW6-1 design benefits 25 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 727 square feet per benefited receptor which is below the maximum allowed area of 1,200 square feet per benefited receptor and meets reasonableness criteria of 5 impacts benefiting greater than 8 dBA; therefore, NW6-1 is reasonable. NW6-1 is recommended for construction.

Noise Wall 6-2 (NW6-2)

NW6-2 would provide abatement for residences in NSA 6, north of K-96 west of N. Rock Road. Ninety-two (92) total impacted receptors were identified in the NSA. NW6-2 assessed abatement for 61 impacted receptors.

The optimized NW6-2 design, which was 27,118 square feet, was found to be feasible. The optimized NW6-2 design benefits 85 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 319 square feet per benefited receptor which is below the maximum allowed area of 1,200 square feet per benefited receptor and meets the noise reduction goal at 69% of benefits greater than 7 dBA; therefore, NW6-2 is reasonable. NW6-2 is recommended for construction.

Noise Wall 10 (NW10)

NW10 provides abatement for single-family residences and a trail in NSA 10, south of K-96 west of the N. Greenwich Road / K-96 interchange. NW 10 was originally evaluated at the shoulder and was found to meet the feasible and reasonable criteria. However, per KDOT guidance on safety and clear zone issues, KDOT requested for NW 10 to be moved and evaluated at the right-of-way (ROW) location. Fourteen (14) total impacted receptors were identified in the NSA. NW10 assessed abatement for eleven (11) impacted receptors.

The optimized NW10 design at the ROW, which was 28,661 square feet, was found to be feasible. The optimized NW10 design benefits 13 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 2,205 square feet per benefited receptor and exceeds the maximum allowed area of 1,200 square feet per benefited receptor; therefore, NW10 is not reasonable. NW10 is not recommended for construction.

Noise Wall 15 (NW15)

NW15 would provide abatement for single-family residences and a trail in NSA 15, north of K-96 between E. 13th street and N. 127th street. Fifteen (15) total impacted receptors were identified in the NSA. NW15 assessed abatement for fourteen (14) impacted receptors.

The optimized NW15 design, which was 41,386 square feet, was found to be feasible. The optimized NW15 design benefits 14 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 2,956 square feet per benefited receptor and exceeds the maximum allowed area of 1,200 square feet per benefited receptor; therefore, NW15 is not reasonable. NW15 is not recommended for construction.

Noise Wall 16-1 (NW16-1)

NW16-1 would provide abatement for residences in NSA 16, south of K-96 east of E. 13th Street. Twenty (20) total impacted receptors were identified in the NSA. NW16-1 assessed abatement for three (3) impacted.

The optimized NW16-1 design, which was 10,402 square feet, was found to be feasible. NW16-1 design benefits 6 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 1,734 square feet per benefited receptor and exceeds the maximum allowed area of 1,200 square feet per benefited receptor, NW16-1 is not reasonable. NW16-1 is not recommended for construction.

Noise Wall 16-2 (NW16-2)

NW16-2 would provide abatement for multi-family residences in NSA 16, south of K-96 west of N. 127th street. Twenty (20) total impacted receptors were identified in the NSA. NW16-2 assessed abatement for 17 impacted receptors.

The optimized NW16-2 design, which was 8,590 square feet, was found to be feasible. The optimized NW16-2 design benefits 14 total receptors and meets the 5 dBA noise reduction design goal for 80% of first-row, first-floor benefitted receptors. The barrier averages 614 square feet per benefited receptor which is below the maximum allowed area of 1,200 square feet per benefited receptor and meets the noise reduction goal at 57% of benefits greater than 7 dBA; therefore, NW16-2 is reasonable. NW16-2 is recommended for construction.

9.4 Noise Barriers Summary

A total of 11 noise walls have been evaluated for the Build Alternative using TNM. Five (5) of the 11 noise walls meet the KDOT feasibility and reasonableness criteria and are recommended for

construction: NW4-1, NW5-2, NW6-1, NW6-2 and NW16-2. Table 6 provides a summary of the feasible and reasonable noise walls that are recommended for construction, pending public approval, as part of the project. Six (6) of the 11 noise walls do not meet the feasible and reasonableness criteria and are not recommended for construction: NW3, NW4-2, NW5-1, NW10, NW15 and NW16-1. Appendix C contains additional information on each noise wall analysis. The final decision on construction of noise walls will be made upon completion of final design and the public involvement process.

A parallel barrier analyses will not be necessary for the recommended noise walls, NW5-2 and NW6-2 per KDOT direction.

Table 6: Recommended Noise Barriers

Barrier Name	Benefited Noise Study Area (NSA)	Average Height (feet)	Length (feet)	Area (square feet)	Number of Impacted Receptors	Total Number of Benefits	Quantity of Wall per Benefit (square feet)	Allowable Quantity (square feet)
NW4-1	4	19	1,600	30,600	42	49	624	1,200
NW5-2	5	11	1,000	10,404	12	17	612	1,200
NW6-1	6	18	998	18,164	31	25	727	1,200
NW6-2	6	19	1,405	27,118	61	85	319	1,200
NW16-2	16	12	698	8,590	17	14	614	1,200
		TOTALS	5,701	94,876	163	190	----	----

10. Construction Noise

Calculation of construction noise levels is usually not necessary for highway traffic noise analyses due to construction noise being temporary in nature. For large urban transportation improvements, the FHWA RCNM may be incorporated into the project, if there is project specific input. However, for the majority of KDOT transportation improvements, low-cost easy-to-implement measures for abating noise are incorporated into the plans and specifications of a project. These may include limiting times of construction, muffler requirements of equipment, location of haul roads, eliminating tail gate banging, ambient sensitive back-up alarms, community rapport, and mechanisms for bringing forth concerns about a project.

11. Conclusion

Traffic noise and temporary construction noise can be consequences of transportation projects, especially in areas near existing high-volume and high-speed steady-state traffic noise sources. This Noise Study Report utilized computer models created with the FHWA TNM version 2.5 software, previously validated with field-collected traffic noise monitoring data, to predict Design Year 2050 noise levels and to define impacted receptors along the proposed K-96 Improvements Project.

The Build Alternative is predicted to result in 223 traffic noise impacts. Consideration for noise abatement measures was given to all impacted receptors. For the proposed project, traffic noise abatement measures have been determined to be feasible and reasonable at five (5) locations: NW4-1, NW5-2, NW6-1, NW6-2 and NW16-2 – for the benefit of 190 receptors.

Furthermore, construction noise impacts may occur due to the proximity of noise-sensitive residential receptors to project construction activities. It is the recommendation of this Noise Study Report that reasonable efforts should be made to reduce exposure of noise-sensitive areas to construction noise impacts.

In accordance with the KDOT Highway Traffic Noise Policy and Guidance (2022), the recommended noise walls for the Build Alternative meet feasibility and reasonableness requirements and are recommended to be incorporated into the project. The final decision on feasibility and reasonableness of the noise wall will be made upon completion of final design and the public involvement process. Any changes in noise abatement measures as detailed in this report must be approved by KDOT prior to implementation.

12. References

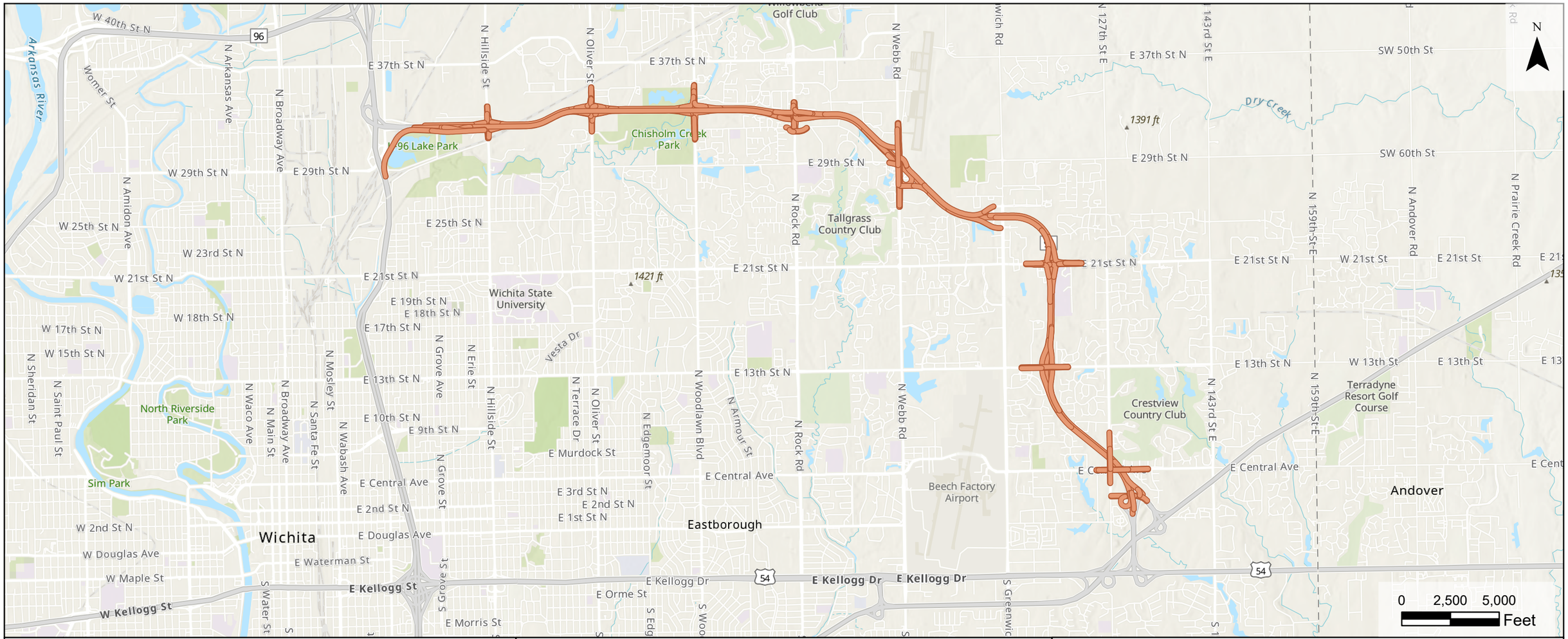
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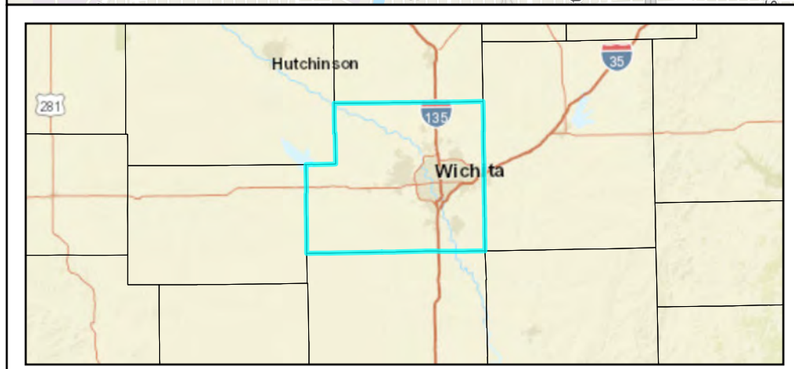
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K-96 Improvements Project Location Map



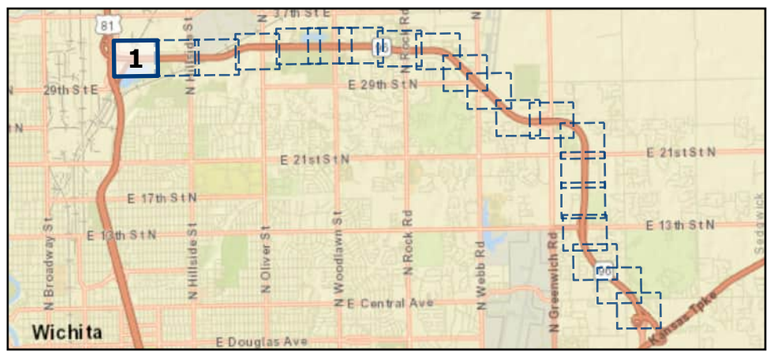


Proposed Centerlines

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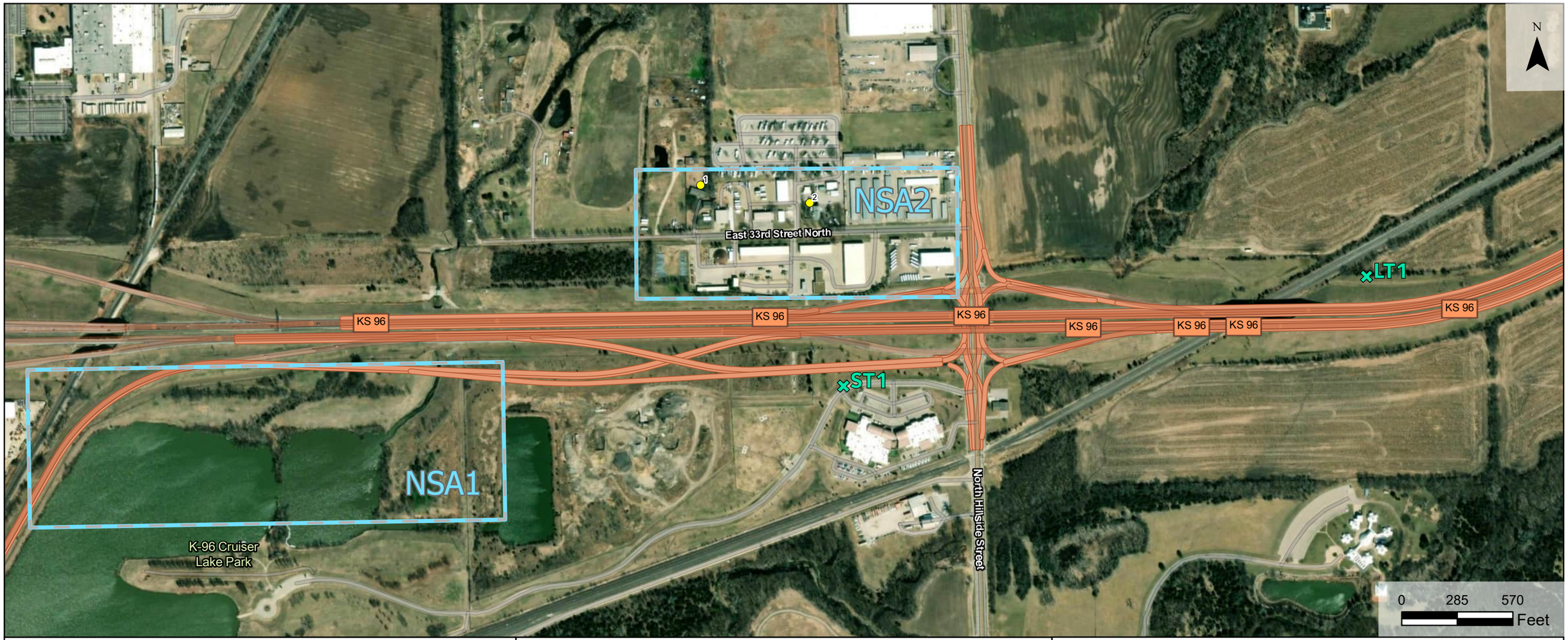
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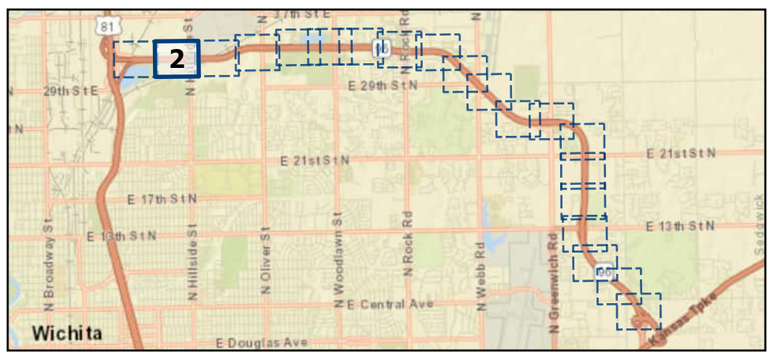
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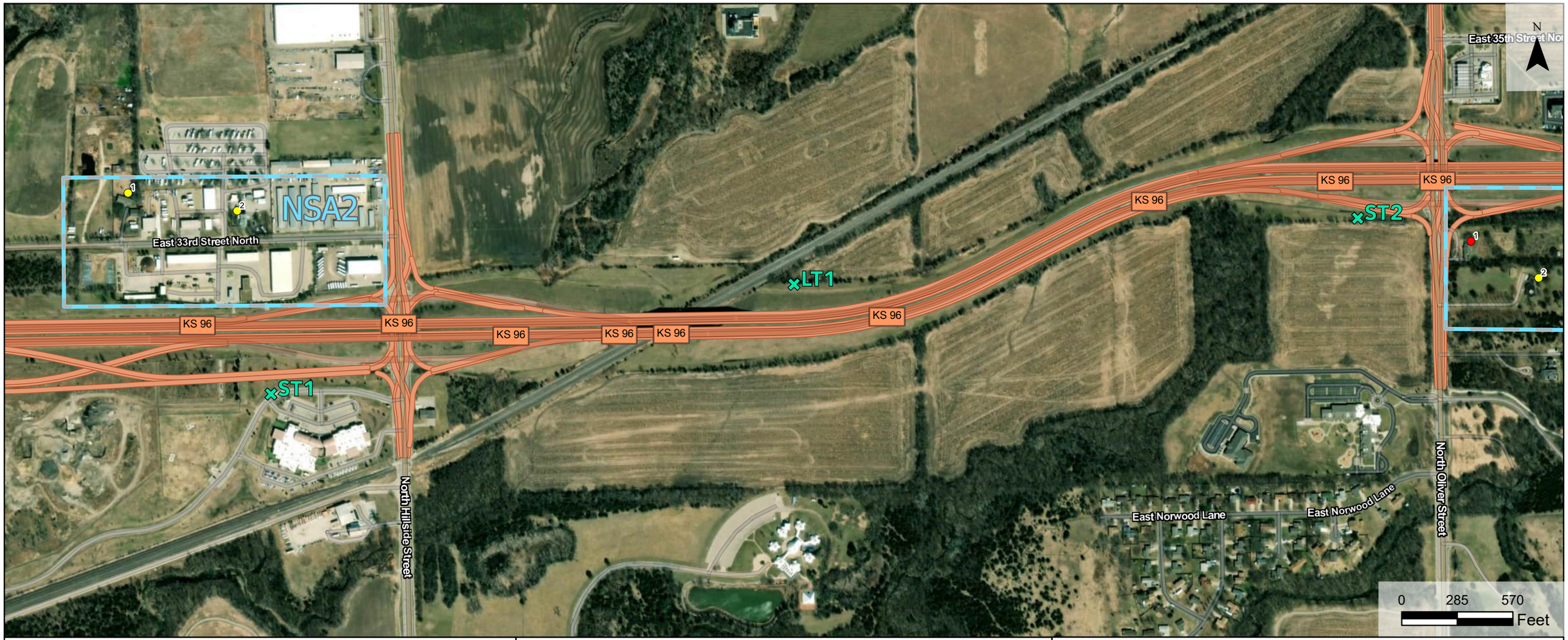
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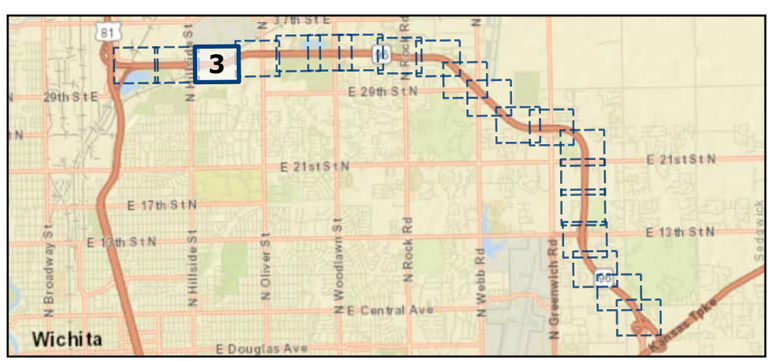
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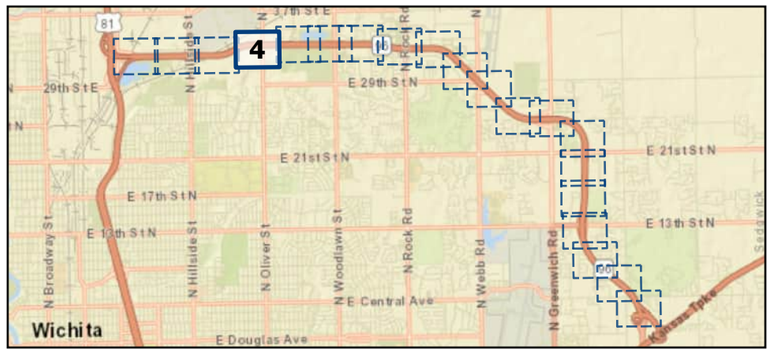
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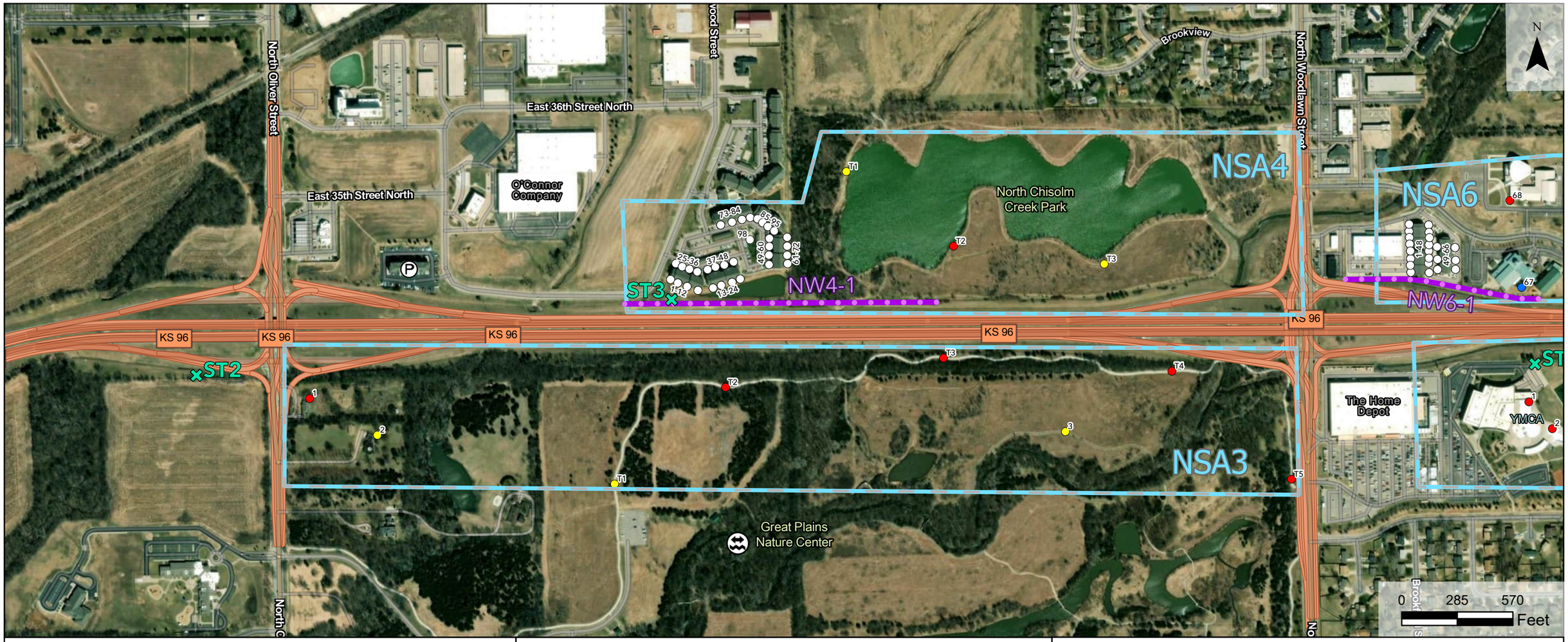
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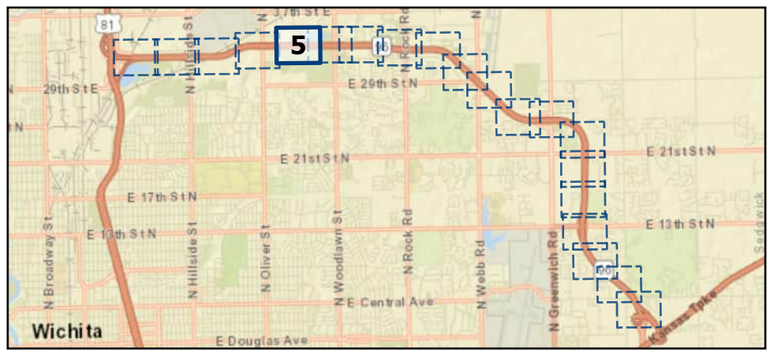
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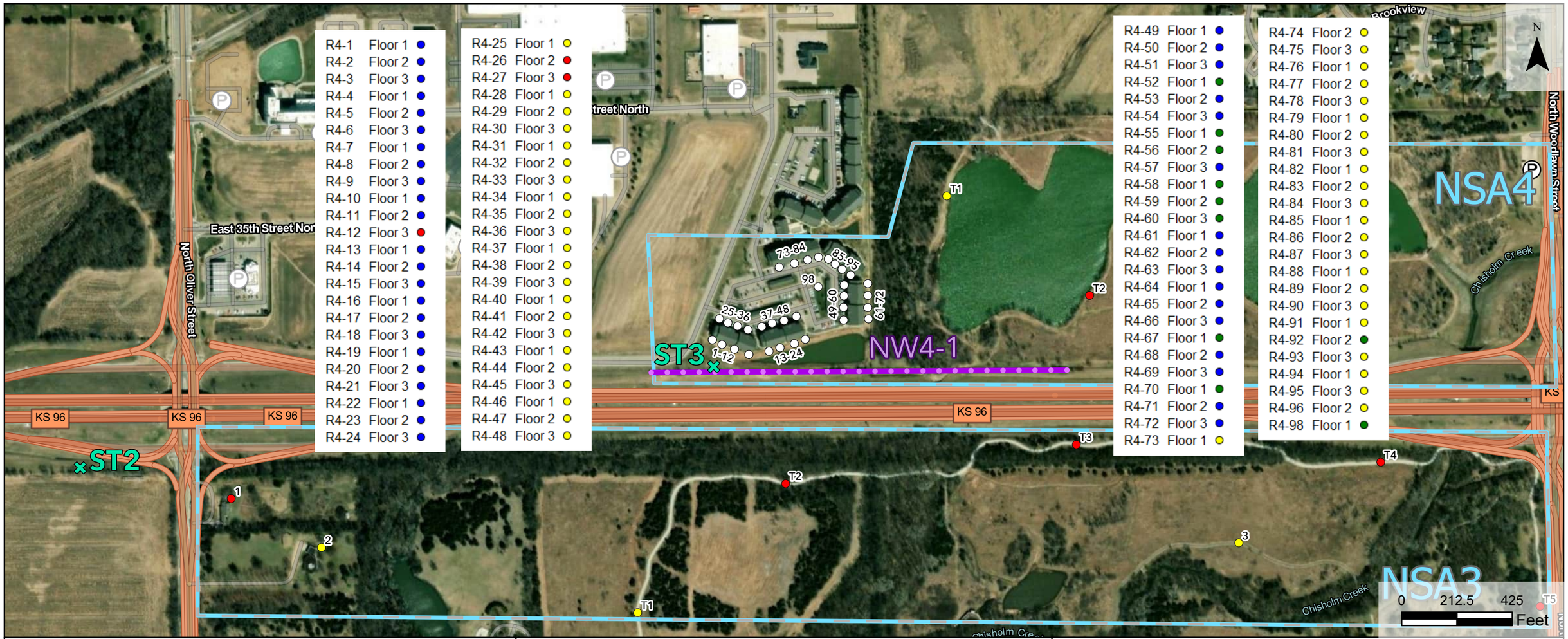
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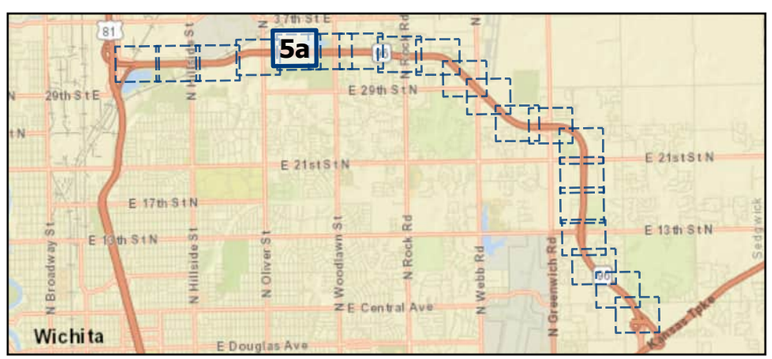
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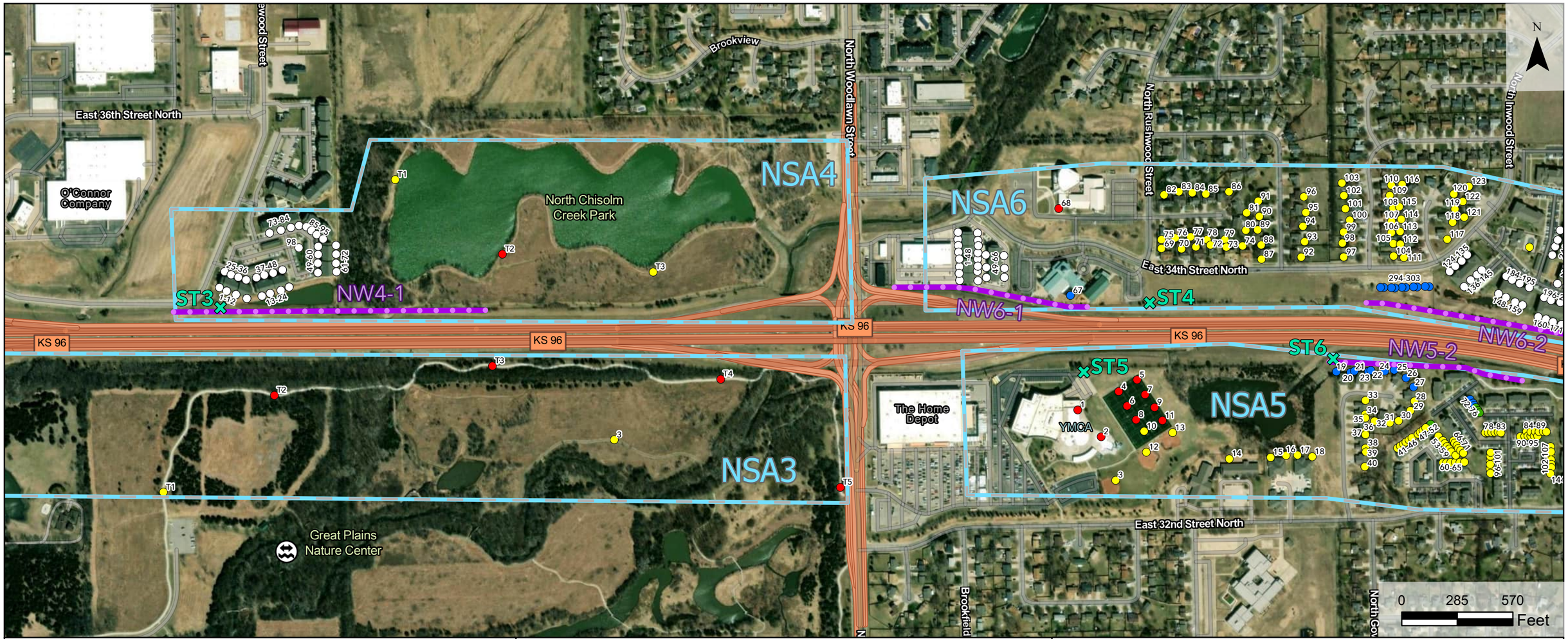
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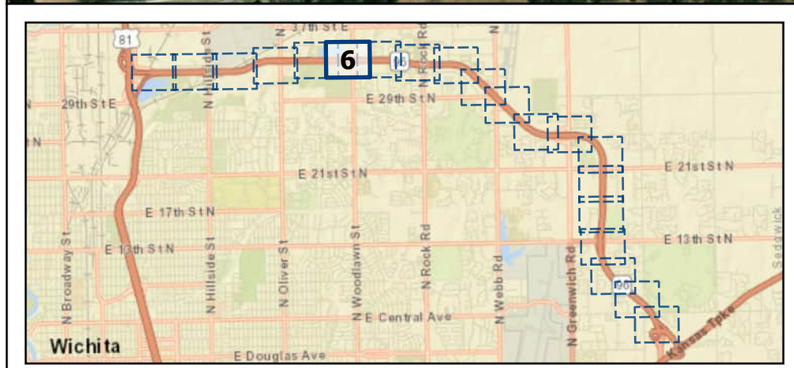
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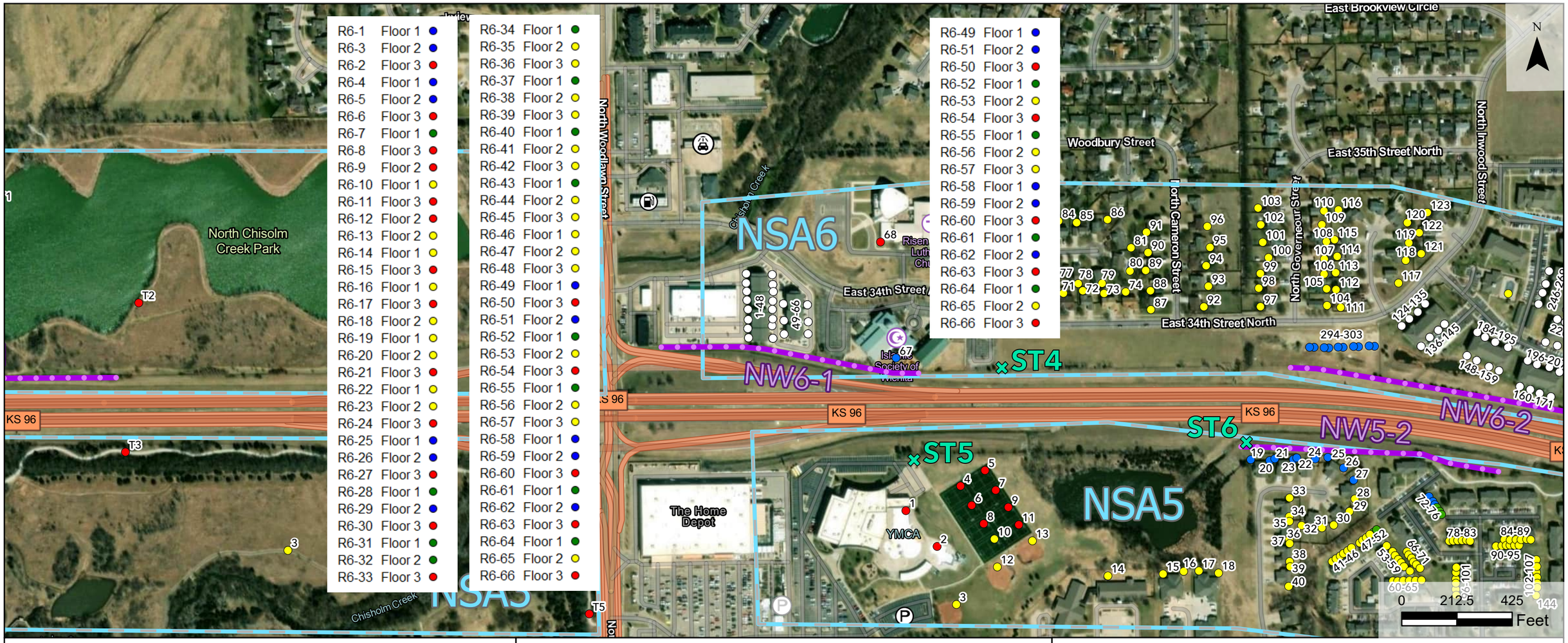
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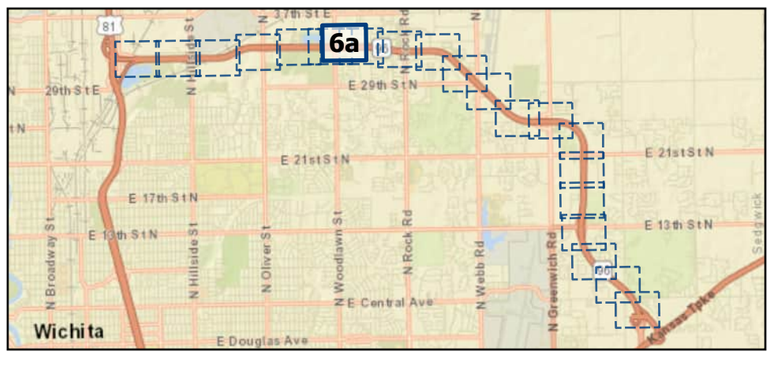
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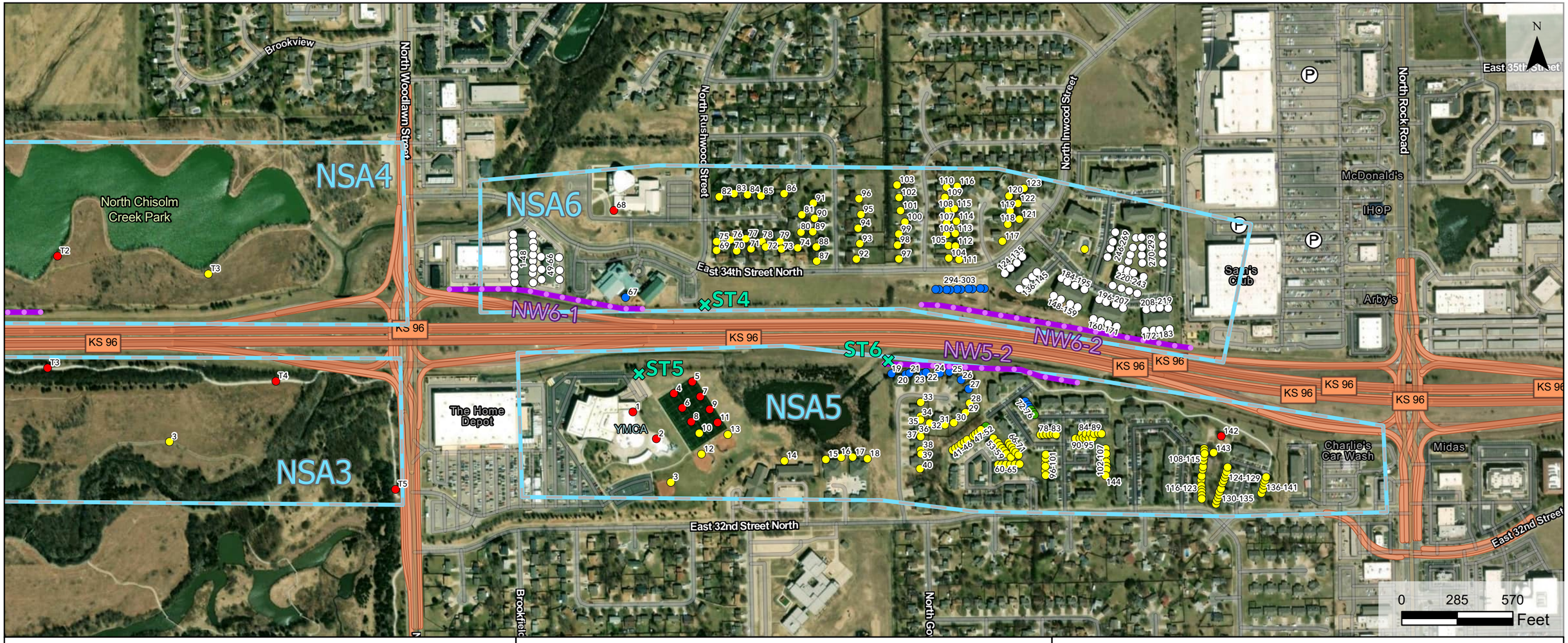
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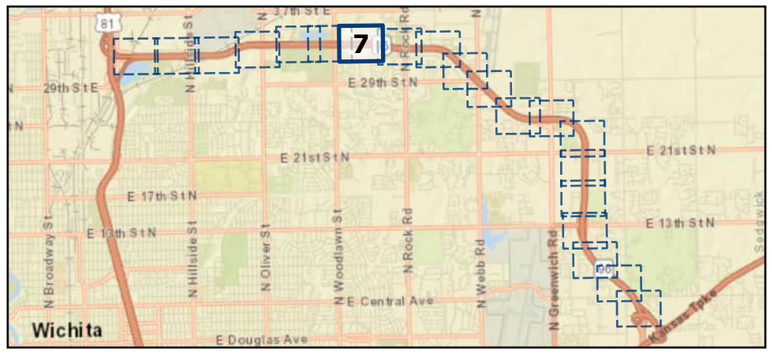
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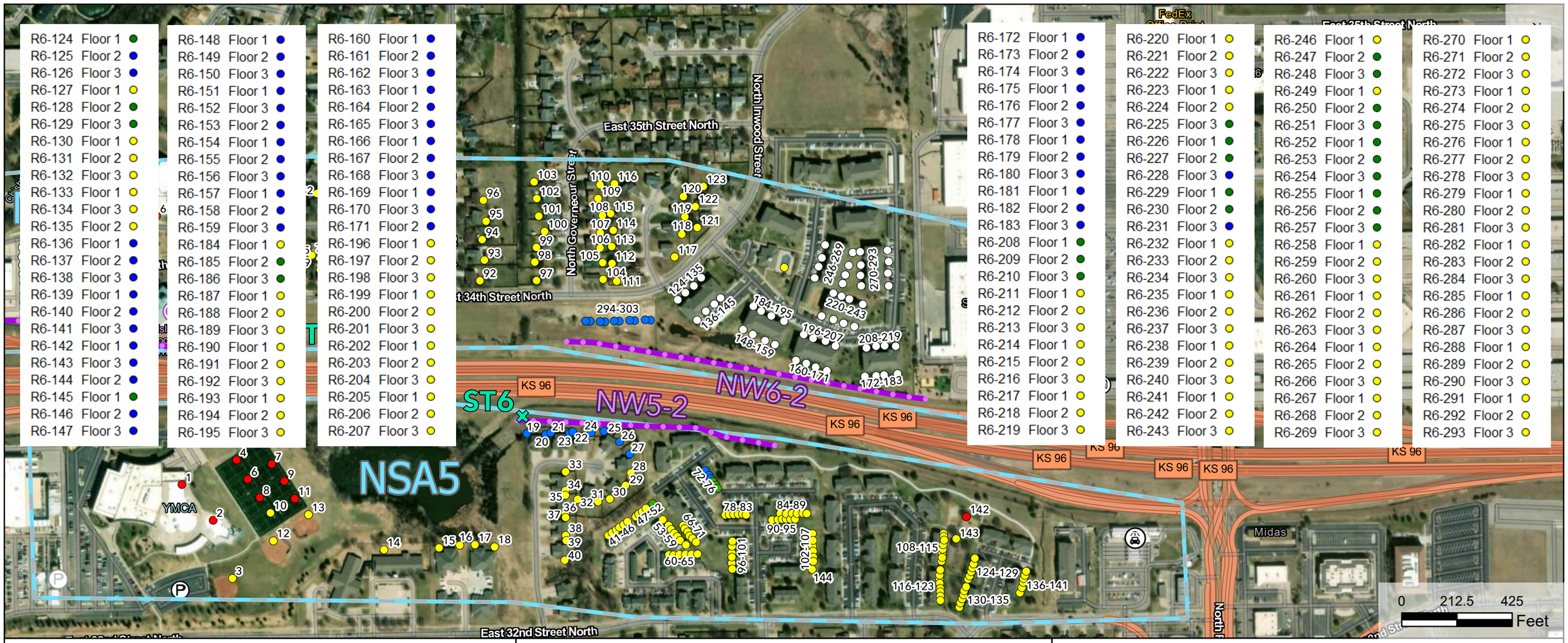
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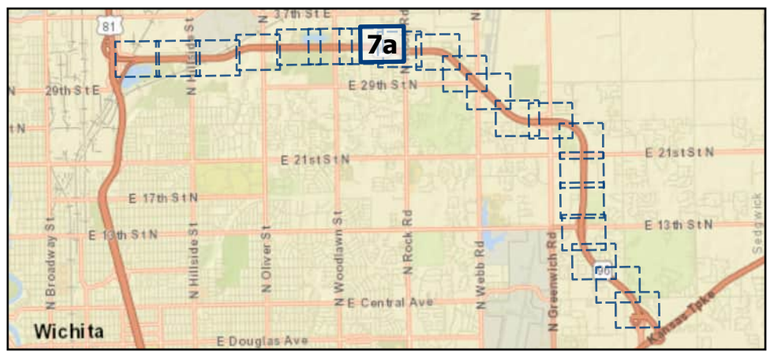
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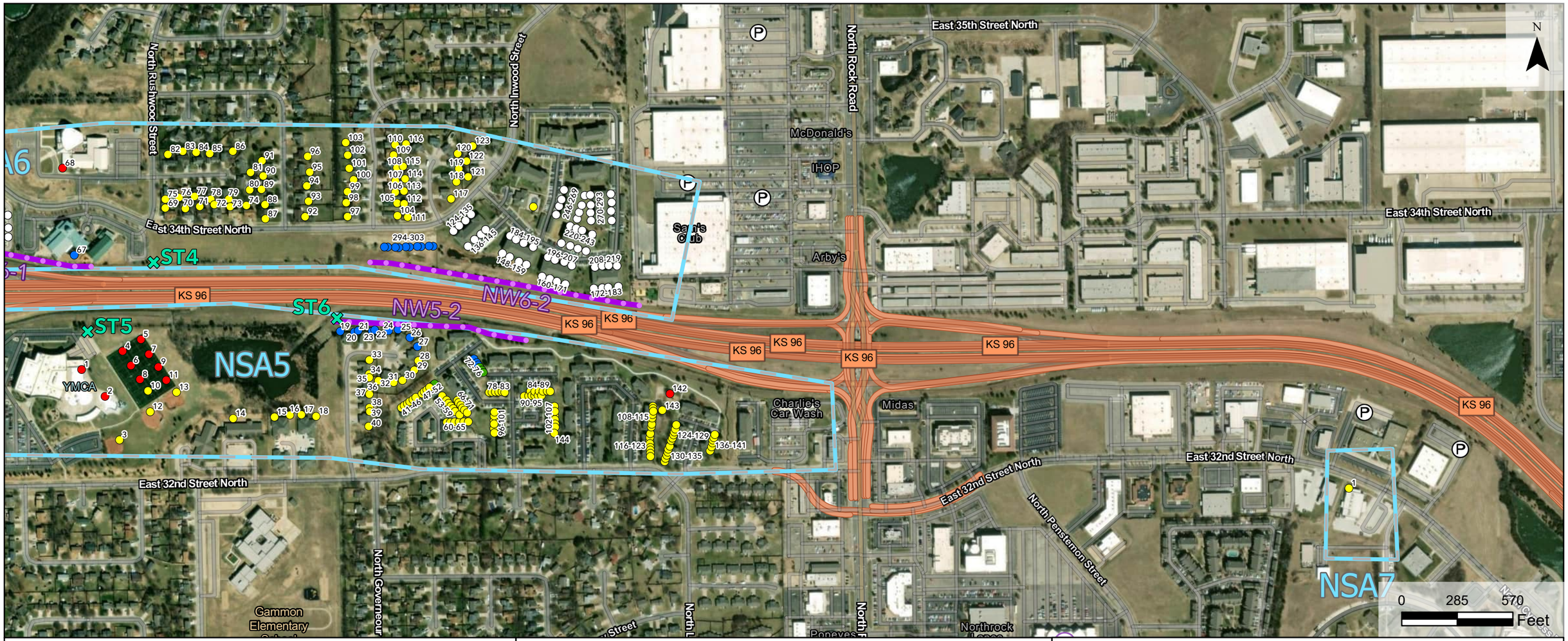
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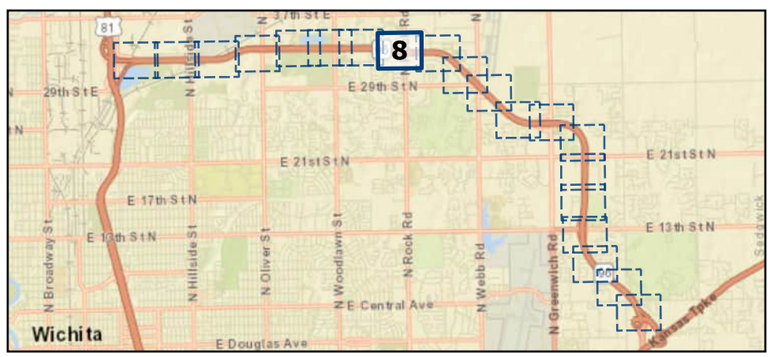
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- Right of Way Take
- Apartments (Multiple Stories)

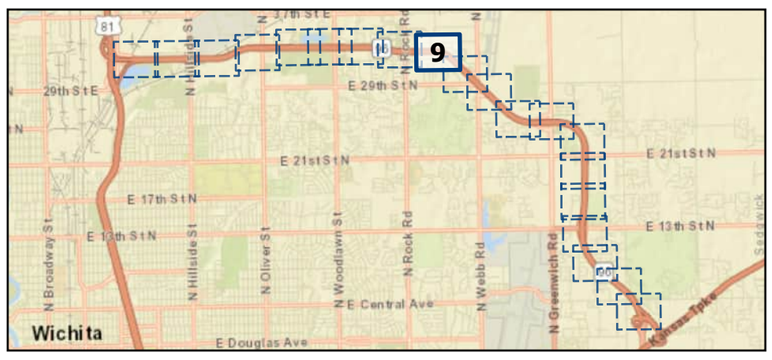
- Noise Sensitive Areas
- Noise Walls (F&R)
- Proposed Centerlines
- Monitoring Sites

K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

- Impacted, Benefited
- Not Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Not Benefited
- Right of Way Take
- Apartments (Multiple Stories)

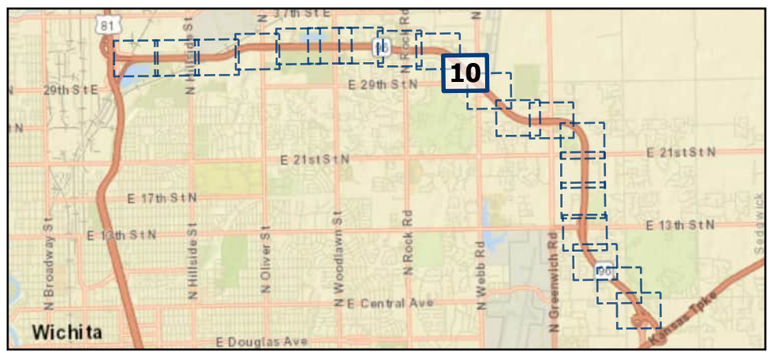
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





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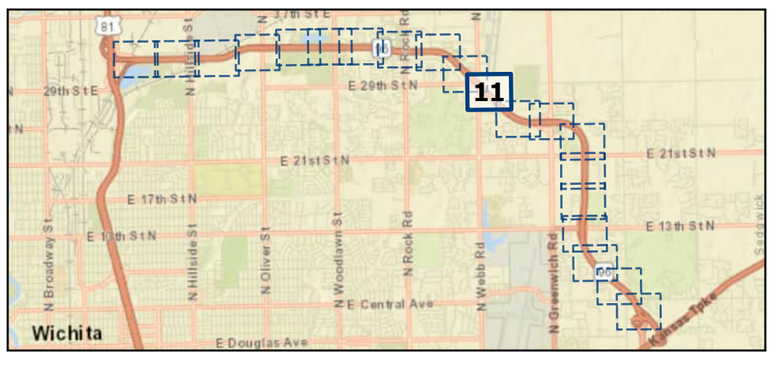
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





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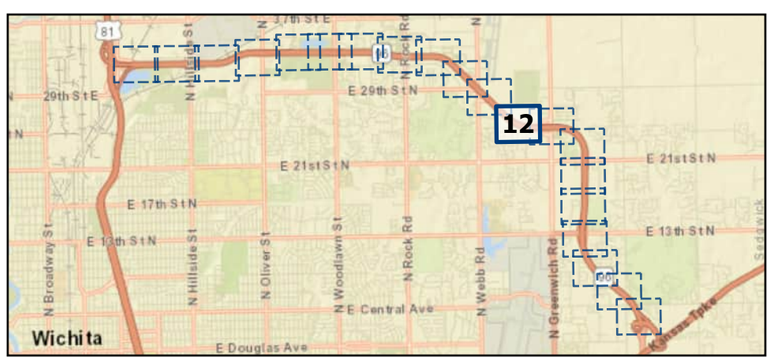
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

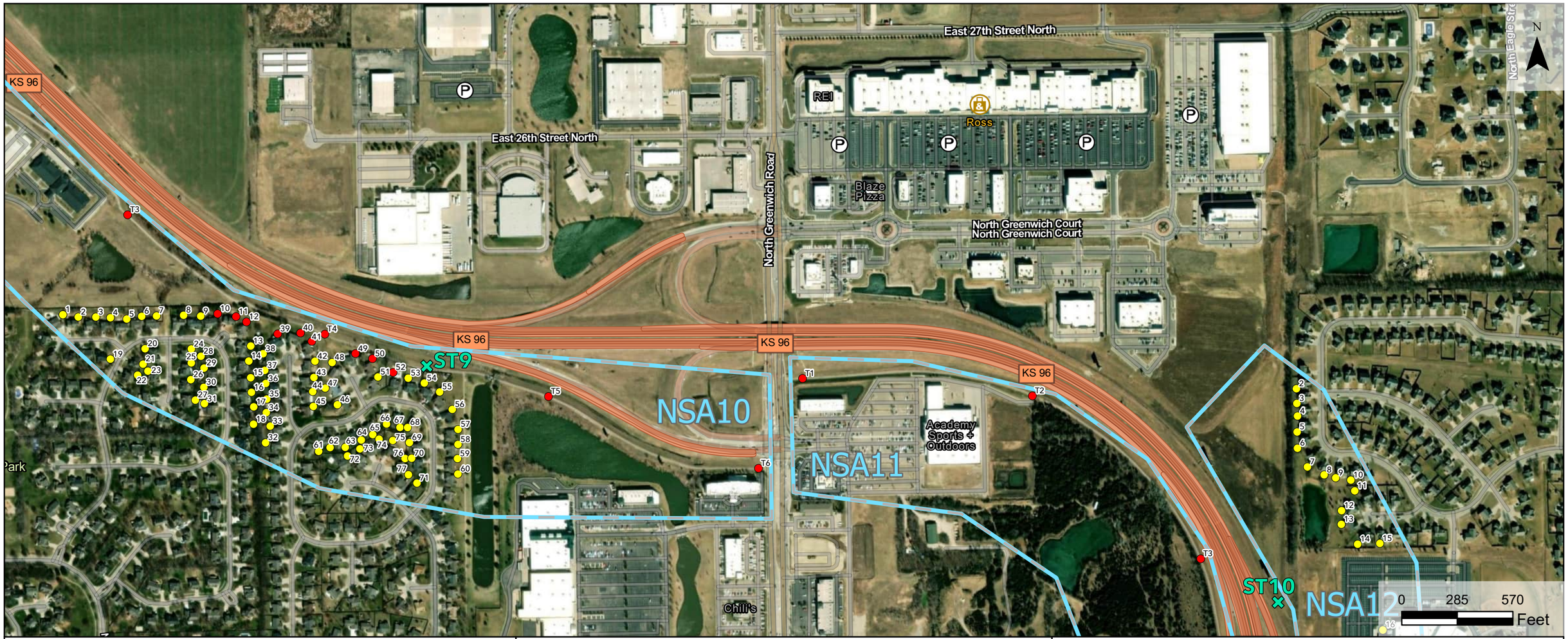
- Impacted, Benefited
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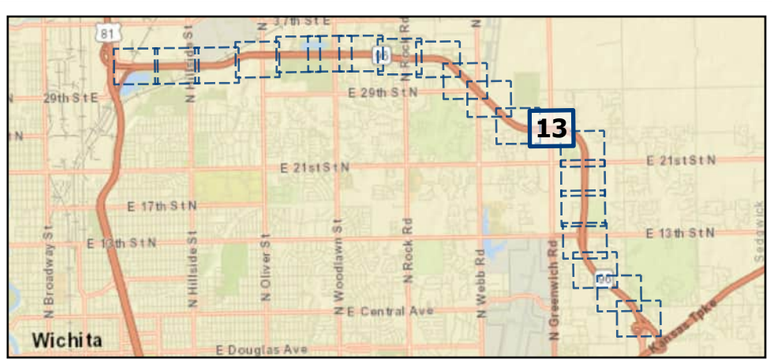
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- Monitoring Sites

K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

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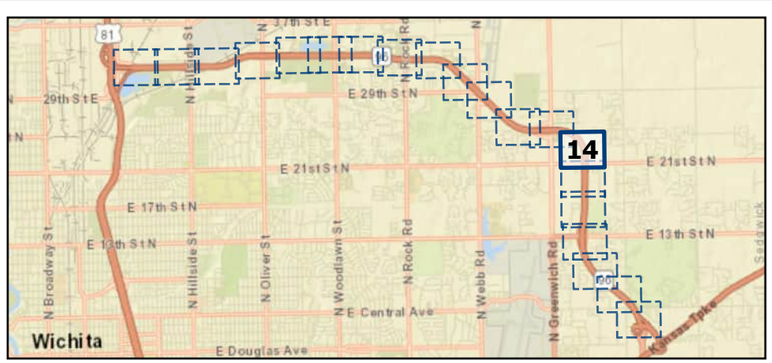
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





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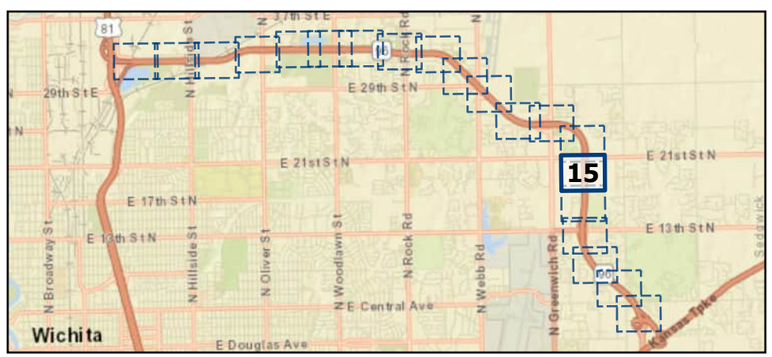
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





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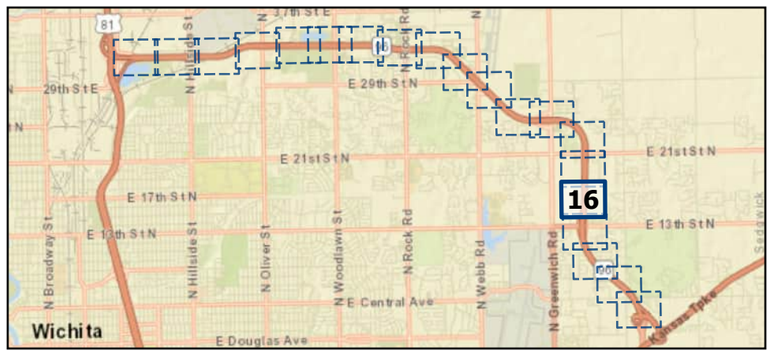
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

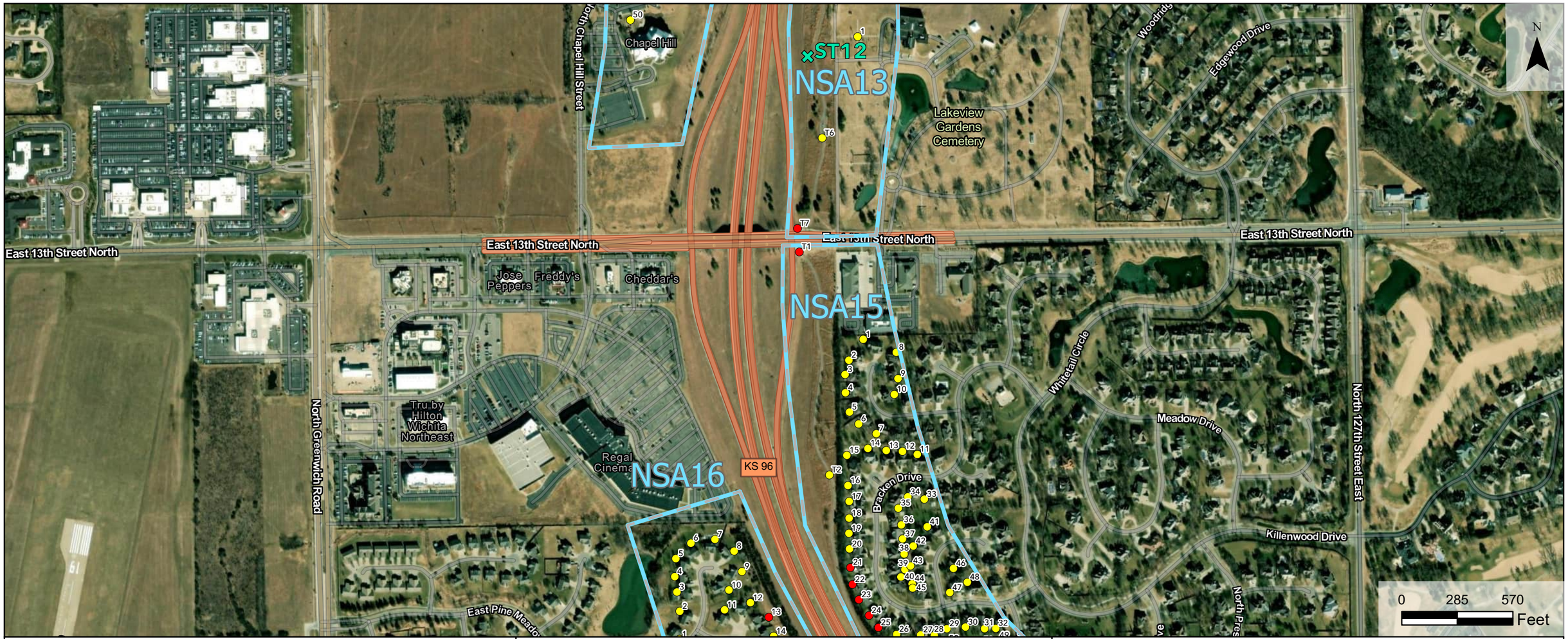
- Impacted, Benefited
- Not Impacted, Benefited
- Impacted, Not Benefited
- Not Impacted, Not Benefited
- Right of Way Take
- Apartments (Multiple Stories)

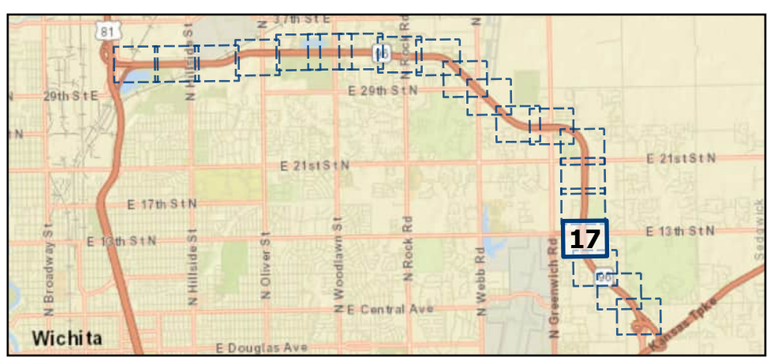
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

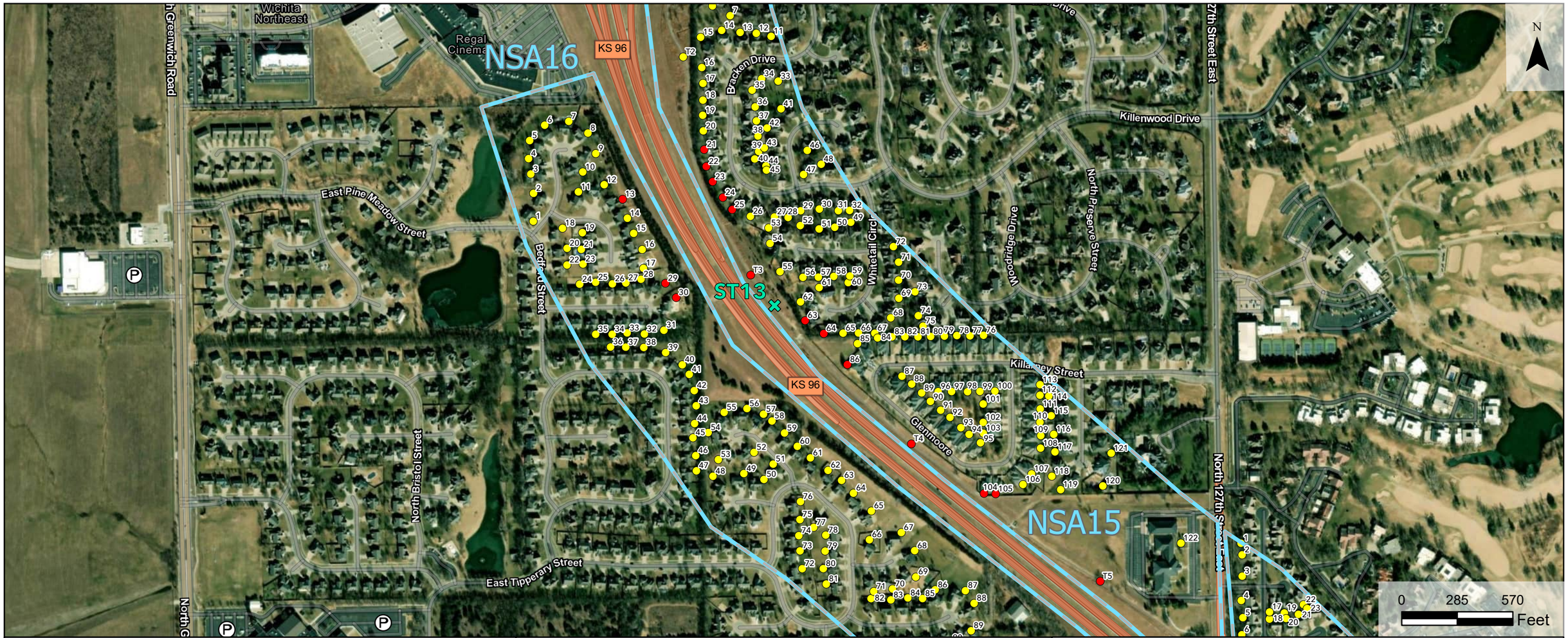
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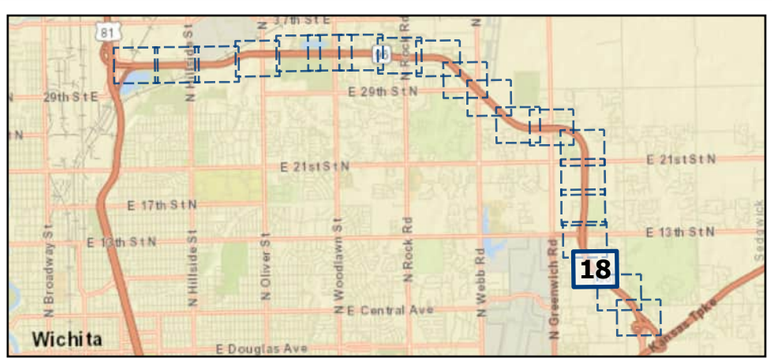
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





Receptor

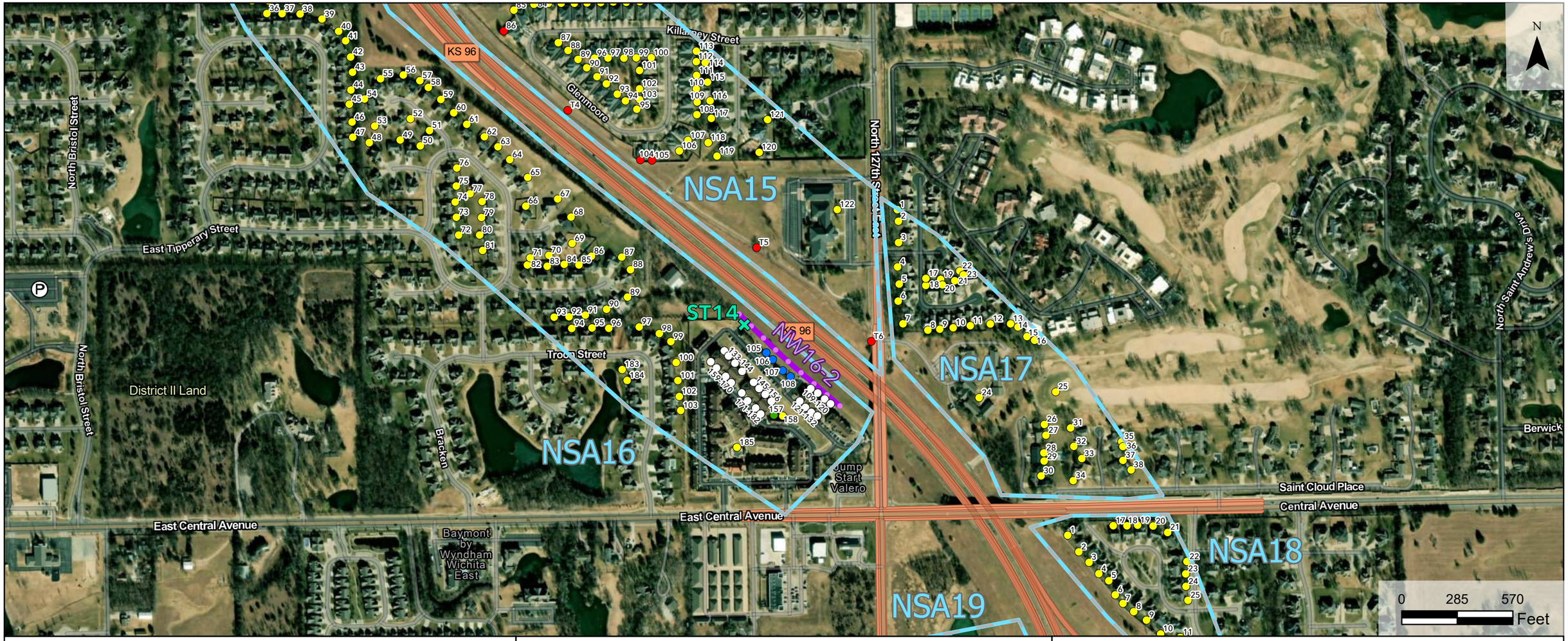
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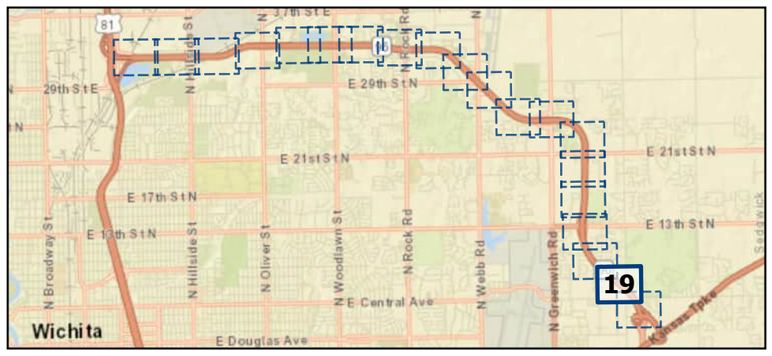
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K-96 IMPROVEMENTS

March 2024

K-96 Improvements Noise Analysis Map





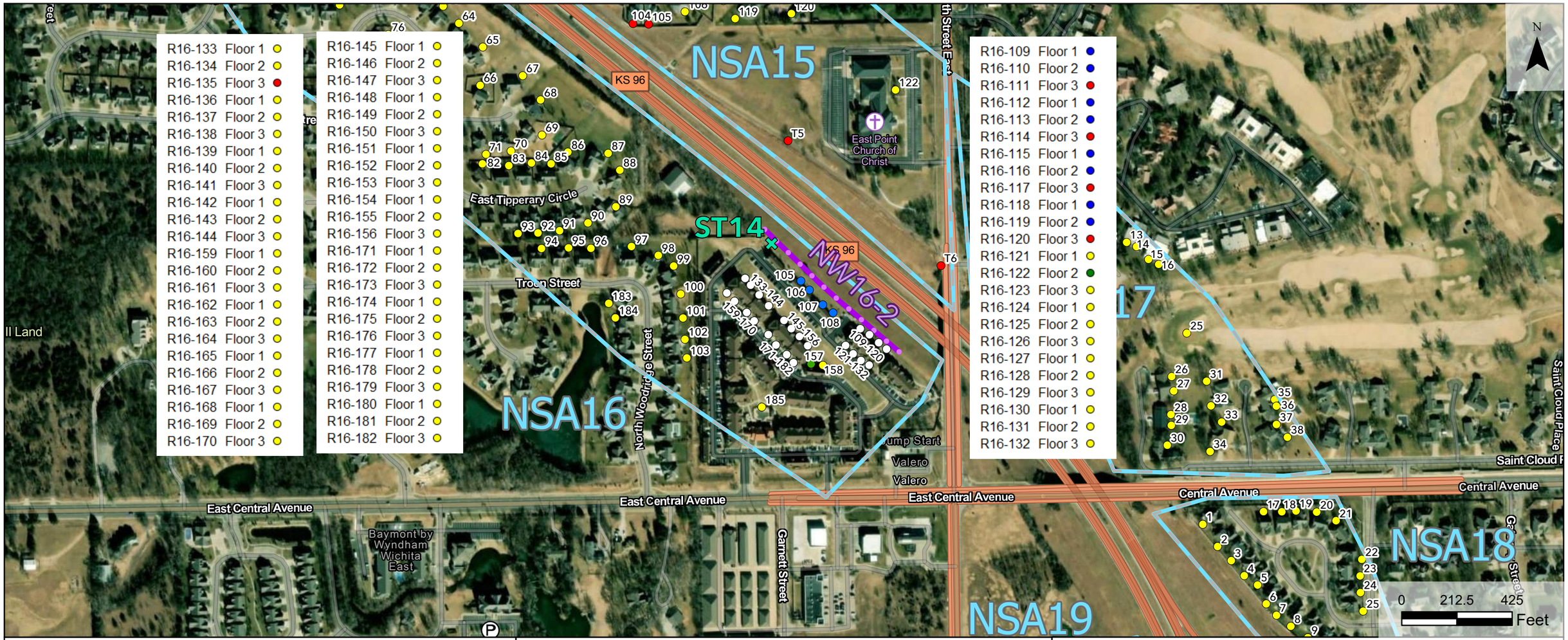
Receptor

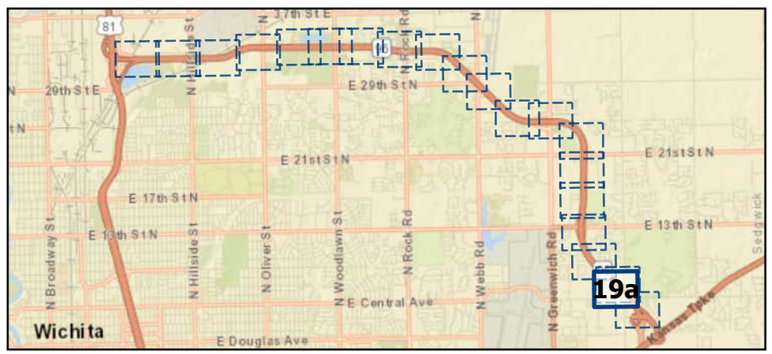
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K-96 IMPROVEMENTS

K-96 Improvements Noise Analysis Map





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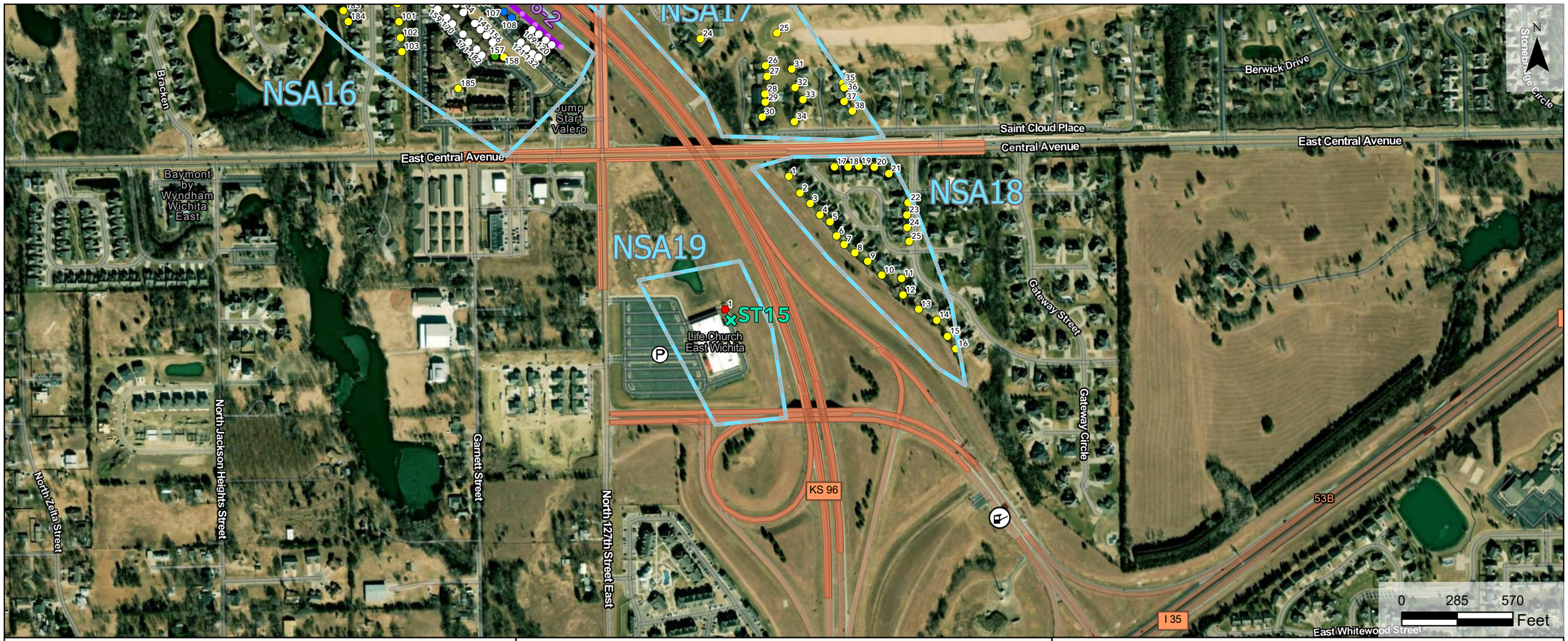
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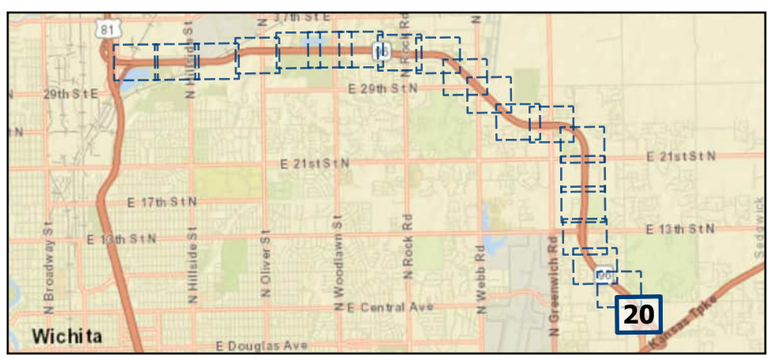
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K-96 IMPROVEMENTS

March 2024

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K-96 IMPROVEMENTS

March 2024

Appendix A

Ambient Noise Level Monitoring

This Appendix summarizes the results of ambient noise data collection for the K-96 Improvement Project in Sedgwick County, Kansas.

Ambient noise measurements were performed from November 14 to November 16, 2022, at 17 locations, two (2) long-term measurements and 15 short-term measurements, following the objectives described on the Field Measurement Plan (10/21/2022) approved by KDOT.

1. Short-Term Data Collection

Short-term ambient noise measurements were conducted at 15 locations. Noise measurements taken along existing traffic noise sources were 15-minutes in duration. Data was gathered during the noise measurements, noise sources other than traffic were identified and a record of any abnormal events were noted which if included in the data would skew the results. Traffic volumes and speeds were collected during measurement periods and taken on hand-held traffic clickers. Traffic speeds were observed through driving the project corridor at multiple times a day. Traffic volumes and speeds can be found in the field data sheets. Simultaneous, weather data was collected at the sites during each ambient noise measurement using a handheld weather station.

Table A- 1 presents the short-term ambient equivalent sound levels obtained. The 15-minute short-term ambient equivalent sound levels presented in Table A-1 range from 61.4 dB(A) at ST-15 to 72.5 dB(A) at ST-13.

Table A-1 – Short-Term Ambient Sound Levels

Noise Monitoring Short-Term Reading (ID)	Land Use/ Activity Category	Roadway Noise Source (s)	Date	Start time	L_{eq}(h) (dB(A))
ST-1	Commercial / NAC E	K-96 / Ramp	11/15/2022	8:44:00 AM	67.0
ST-2	Agricultural / NAC F	K-96 / Ramp	11/15/2022	9:27:00 AM	63.1
ST-3	Residential / NAC B	K-96	11/14/2022	2:18:00 PM	71.9
ST-4	School / NAC C	K-96	11/16/2022	10:53:00 AM	68.3
ST-5	YMCA / NAC C	K-96	11/15/2022	10:15:00 AM	71.0
ST-6	Residential / NAC B	K-96	11/16/2022	11:46:00 AM	69.4
ST-7	Commercial / NAC E	K-96	11/15/2022	10:59:00 AM	70.2
ST-8	Hotel / NAC C	K-96	11/15/2022	11:29:00 AM	64.5
ST-9	Residential/ NAC B	K-96	11/15/2022	1:17:00 PM	66.9
ST-10	Church / NAC D	K-96 / Ramp	11/15/2022	2:03:00 PM	67.2
ST-11	Residential/ NAC B	K-96	11/15/2022	2:33:00 PM	63.8
ST-12	Cemetery / NAC C	K-96 / Ramp	11/15/2022	3:24:00 PM	70.3
ST-13	Residential / NAC B	K-96	11/16/2022	8:57:00 AM	72.5
ST-14	Residential / NAC B	K-96	11/16/2022	9:31:00 AM	72.1
ST-15	Church / NAC D	K-96	11/16/2022	10:03:00 AM	61.4

2. Long-Term Data Collection

Long-term measurements were completed at two (2) locations identified as sites LT-1 and LT-2. Sound level meters were set up and left unattended for approximately 47-hours at each site to measure long-term noise levels throughout the morning and/or afternoon peak traffic periods. The purpose of the long-term measurements is to characterize the ambient noise conditions in sections of the project area that may be dominated by something other than traffic noise, such as airport noise or railway noise.

The long-term data was reviewed and summarized to determine the loudest 1-hour ambient noise level was between 4:00 pm and 5:00 pm at an average of 66.8 dB(A) between the two (2) sites. The results of the summarized long-term data can be seen in Table A- 2 below.

Table A-2 – Long-Term Ambient Sound Levels

Peak Hour	Long-Term Noise Monitoring Reading (ID)	
	LT-1	LT-2
Peak hour AM	8:00	8:00
Peak hour PM	16:00	16:00
L_{eq} (dBA)	LT-1	LT-2
L_{eq} AM min (dBA)	64.5	67.8
L_{eq} AM max (dBA)	64.9	67.9
L_{eq} AM log avg (dBA)	64.7	67.9
L_{eq} PM min (dBA)	65.7	67.7
L_{eq} PM max (dBA)	65.8	67.9
L_{eq} PM log avg (dBA)	65.8	67.8

The Federal Highway Administration requires highway traffic noise analyses include noise from all sources, including other transportation modes such as rail and air traffic. After discussions with KDOT, it was determined that the low train volume and air traffic determines these noise sources as infrequent and not a dominant steady state noise source in the project area. Ambient noise levels near these sources confirmed this assumption.

Ambient Noise Monitoring Site Pictures

Long -Term Noise Monitoring Location – LT-1







Long -Term Noise Monitoring Location – LT-2







Noise Monitoring Location – ST-1





Noise Monitoring Location – ST-2







Noise Monitoring Location – ST-3







Noise Monitoring Location – ST-4







Noise Monitoring Location – ST-5







Noise Monitoring Location – ST-6









Noise Monitoring Location – ST-7







Noise Monitoring Location – ST-8







Noise Monitoring Location – ST-9







Noise Monitoring Location – ST-10







Noise Monitoring Location – ST-11









Noise Monitoring Location – ST-12







Noise Monitoring Location – ST-13







Noise Monitoring Location – ST-14









Noise Monitoring Location – ST-15







Field Noise Measurement Data Sheets

PROJECT: KDOT - K-96 Expansion

MEAS SITE: LT1

DATE: 11-14 to 11-16 STAFF: ER/BS

	MEAS NO	LT1		
11-14	START TIME	Meter 13:39	Left @	13:42
11-16	END TIME	17:28	Arrived @	17:25
	INSTRUMENT			
	BATTERY	102%		113%
	LEQ			
	FILE NAME			
	CALIBRATION	/	/	/

TRAFFIC

ROADWAY			
VEH SPEED			
AUTO	N/A		
MT			
HT			
BUS			
MOTO			
ROADWAY			
VEH SPEED			
AUTO			
MT	N/A		
HT			
BUS			
MOTO			
ROADWAY			
VEH SPEED			
AUTO	N/A		
MT			
HT			
BUS			
MOTO			

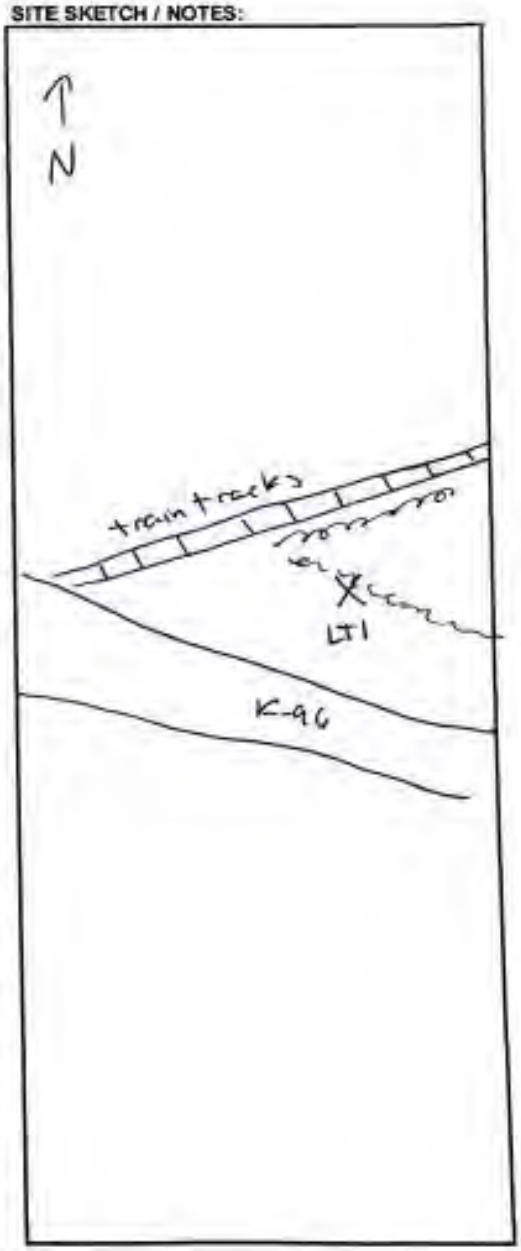
WEATHER

GENERAL	
TEMP	
% RH	
WIND SPD/DIR	
ROAD COND.	

SITE

LATITUDE	37.74813999	
LONGITUDE	-97.29209962	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, trains

PROJECT: KDOT - K-96 Expansion

MEAS SITE: LT2

DATE: 11-14 to 11-16 STAFF: ER/BS

	MEAS NO	LT2		
11-14	START TIME	Meter @ 13:56	Left @ 13:59	
11-16	END TIME	Use @ 12:16	Arrived @ 12:15	
	INSTRUMENT			
	BATTERY	116.5%		
	LEQ			
	FILE NAME			
	CALIBRATION	/	/	/

TRAFFIC

ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

WEATHER

GENERAL	
TEMP	
% RH	
WIND SPD/DIR	
ROAD COND.	

SITE

LATITUDE	37.7576486	
LONGITUDE	-97.2766835	
PICTURES	✓	

SITE SKETCH / NOTES:

NOISE SOURCES:

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-1

DATE: 11-15-22 **STAFF:** ER/BS

MEAS NO	ST-1		
START TIME	Meter @ 8:49	Traffic @ 8:44	
END TIME	@ 9:00	8:51	
INSTRUMENT			
BATTERY			
LEQ			
FILE NAME	.199		
CALIBRATION	114.0 / 0.02	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	372		
MT	11		
HT	10		
BUS	5		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	334		
MT	22		
HT	10		
BUS	4		
MOTO	0		
ROADWAY	K-96 Off-ramp		
VEH SPEED			
AUTO	49		
MT	1		
HT	1		
BUS	0		
MOTO	0		

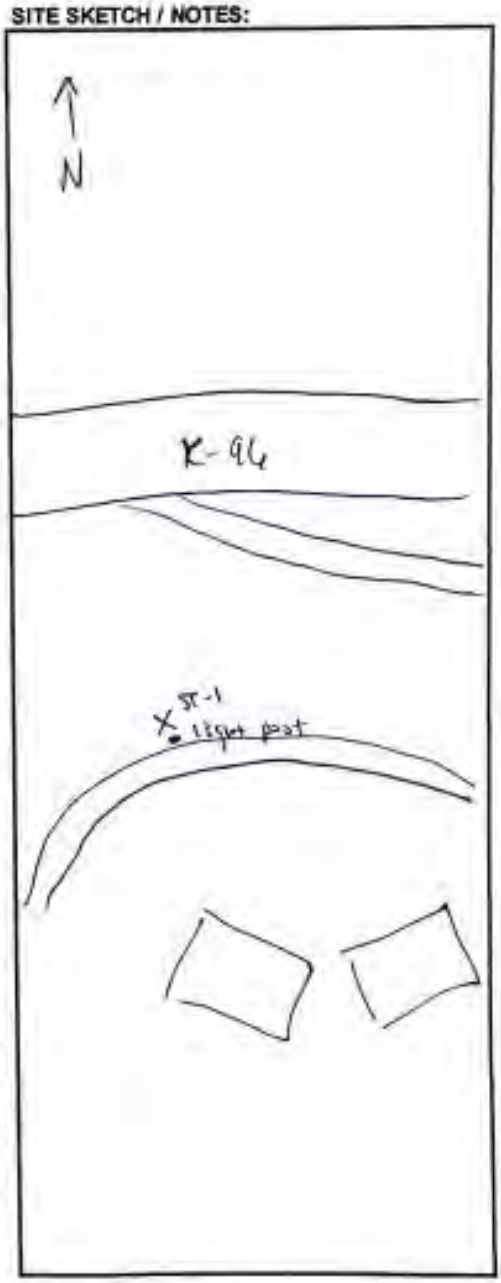
WEATHER

GENERAL	Sunny
TEMP	28°F
% RH	43
WIND SPD/DIR	1.3
ROAD COND.	dry

SITE

LATITUDE	37.742684	
LONGITUDE	-97.391402	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

+ traffic

EVENT LOG

MEASUREMENT SITE: ST-1

START TIME: 8:44

MINUTE	EVENT DESCRIPTION
8:44	Ambulance
8:45	2 cars on Human Society Road
8:48	1 car on " " "
8:52	1 car on " " "
8:54	1 car on " " "
8:56	1 car on " " "
8:52	Train horn

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-2

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-2		
START TIME	Meter @ 10:26	Traffic @ 9:27	
END TIME	@ 10:46		@ 10:46
INSTRUMENT			
BATTERY	59.8		
LEQ			
FILE NAME	.151		
CALIBRATION	114.0/-0.08	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	383		
MT	12		
HT	9		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	338		
MT	14		
HT	15		
BUS	0		
MOTO	0		
ROADWAY	K-96 OFF RAMP		
VEH SPEED			
AUTO	41		
MT	3		
HT	1		
BUS	0		
MOTO	0		

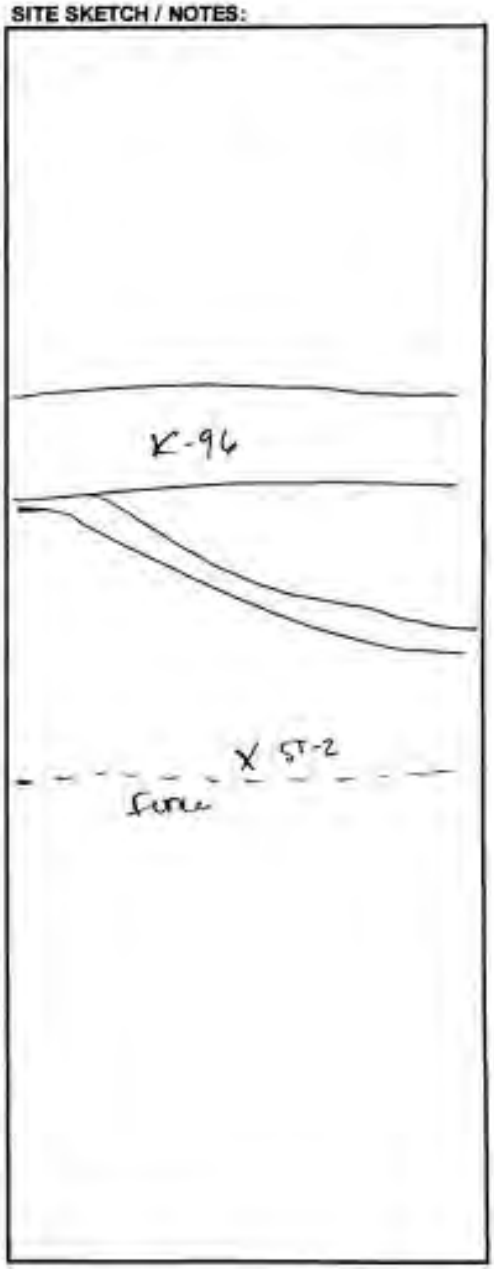
WEATHER

GENERAL	Sunny
TEMP	31
% RH	47
WIND SPD/DIR	2.5
ROAD COND.	Dry

SITE

LATITUDE	37.744978		
LONGITUDE	-97.282090		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-3

DATE: 11-14-22 STAFF: ER/BS

MEAS NO	ST-3		
START TIME	Meter @ 14:17	Traffic @	14:18
END TIME	@ 14:31	@	14:33
INSTRUMENT	LD 831C		
BATTERY	95.9%		
LEQ			
FILE NAME	.146		
CALIBRATION	114.0 1-0.3	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	448		
MT	19		
HT	11		
BUS	3		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	467		
MT	17		
HT	13		
BUS	3		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

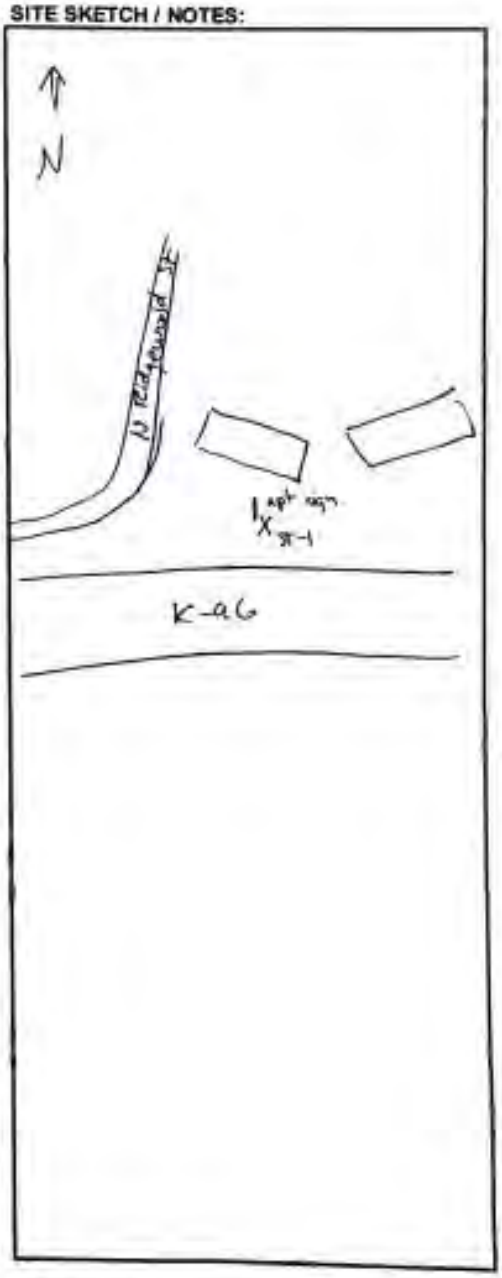
WEATHER

GENERAL	Overcast
TEMP	@ 56°F
% RH	27
WIND SPD/DIR	1.9 E
ROAD COND.	Dry

SITE

LATITUDE	37.745947		
LONGITUDE	-97.27363 28		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES: traffic, geese

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-4

DATE: 11-16-22 STAFF: ER/BS

MEAS NO	ST-4		
START TIME	Meter @ 10:52	Traffic @ 10:53	
END TIME	11:08		11:08
INSTRUMENT			
BATTERY	68.1%		
LEQ			
FILE NAME	.U62		
CALIBRATION	114.0 / 1-0-08	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	382		
MT	10		
HT	6		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	334		
MT	22		
HT	14		
BUS	1		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

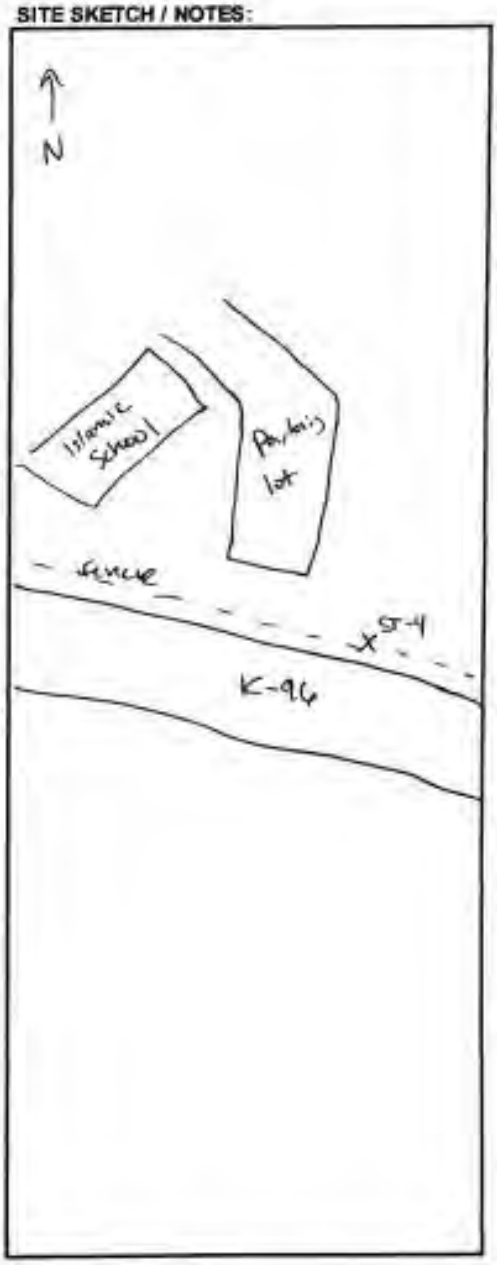
WEATHER

GENERAL	Sunny
TEMP	41°F
% RH	29%
WIND SPD/DIR	5 mph
ROAD COND.	DRY

SITE

LATITUDE	37.745817	
LONGITUDE	-97.257148	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

+ traffic

EVENT LOG

MEASUREMENT SITE: ST-4

START TIME: 10:53

MINUTE	EVENT DESCRIPTION
11:07	truck horn

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-5

DATE: 11-15-22 **STAFF:** ER/BS

MEAS NO	ST-5		
START TIME	Meter @ 1112	Traffic @ 10:15	
END TIME			10:30
INSTRUMENT			
BATTERY	40.8%		
LEQ			
FILE NAME	.152		
CALIBRATION	114.0 / 0.23	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	347		
MT	15		
HT	22		
BUS	2		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	288		
MT	9		
HT	11		
BUS	1		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

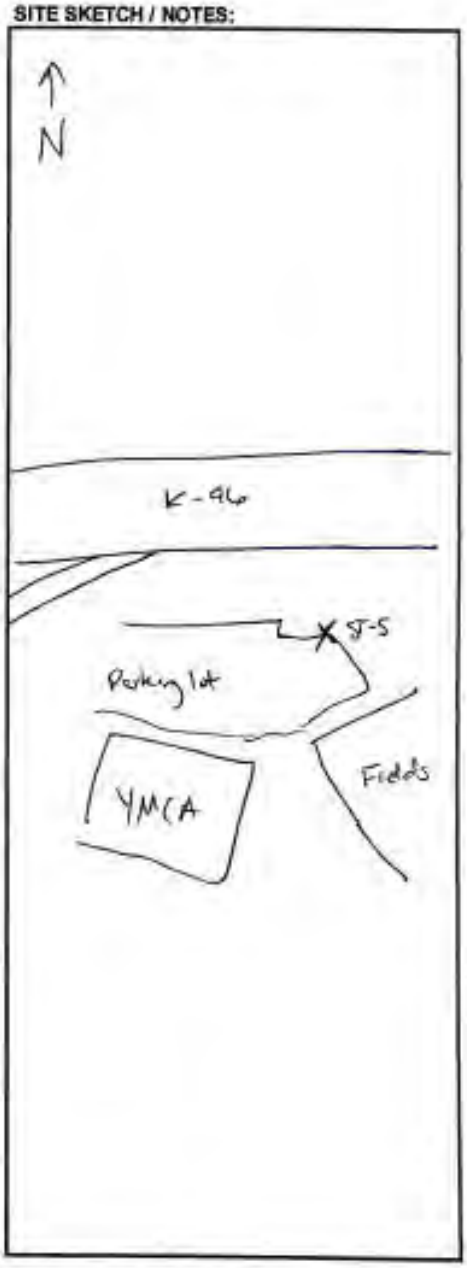
WEATHER

GENERAL	Sunny
TEMP	32°F
% RH	51
WIND SPD/DIR	2 mph
ROAD COND.	Dry

SITE

LATITUDE	37.744 8811		
LONGITUDE	-97.75[illegible]		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, geese

EVENT LOG

MEASUREMENT SITE: ST-5

START TIME: 10:15

MINUTE	EVENT DESCRIPTION
10:18	Police Sirens

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-6

DATE: 11-16-22 STAFF: ER/BS

MEAS NO	ST-6		
START TIME	Meter @ 11:43	Traffic @ 11:46	
END TIME	12:04		12:01
INSTRUMENT			
BATTERY	63%		
LEQ			
FILE NAME	163		
CALIBRATION	114.01 dB	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	478		
MT	8		
HT	15		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	435		
MT	12		
HT	9		
BUS	1		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

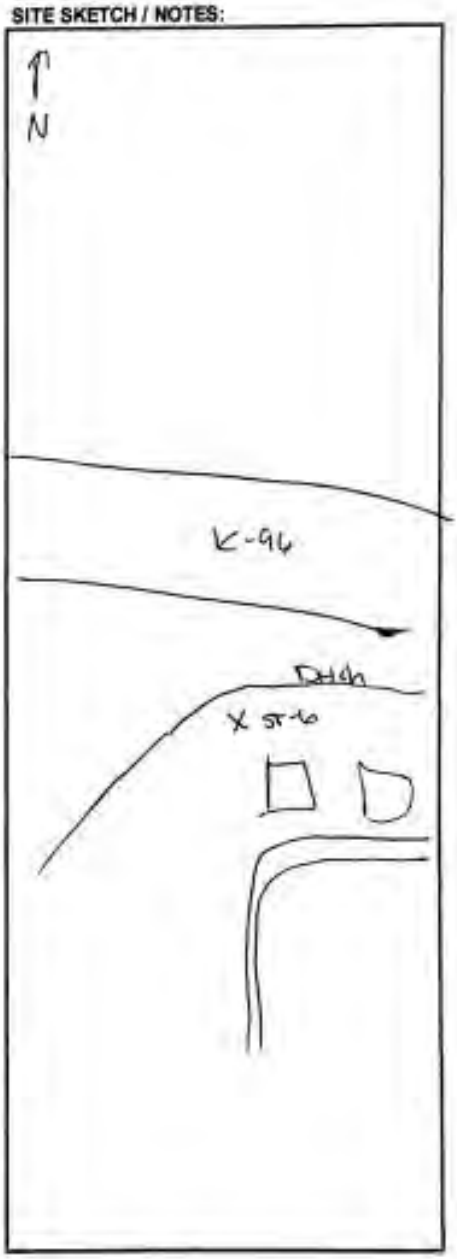
WEATHER

GENERAL	Sunny
TEMP	35°F
% RH	35%
WIND SPD/DIR	8 mph
ROAD COND.	dry

SITE

LATITUDE	37.74504	
LONGITUDE	-97.2539027	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

EVENT LOG

MEASUREMENT SITE: ST-6

START TIME: 11:46

MINUTE	EVENT DESCRIPTION
11:47	Plane overhead

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-7

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-7		
START TIME	Meter @ 10:57	Traffic @ 10:59	
END TIME			@ 11:14
INSTRUMENT			
BATTERY	39.5%		
LEQ			
FILE NAME	.153		
CALIBRATION	114.0/-0.13	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	290		
MT	11		
HT	6		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	284		
MT	6		
HT	12		
BUS	2		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

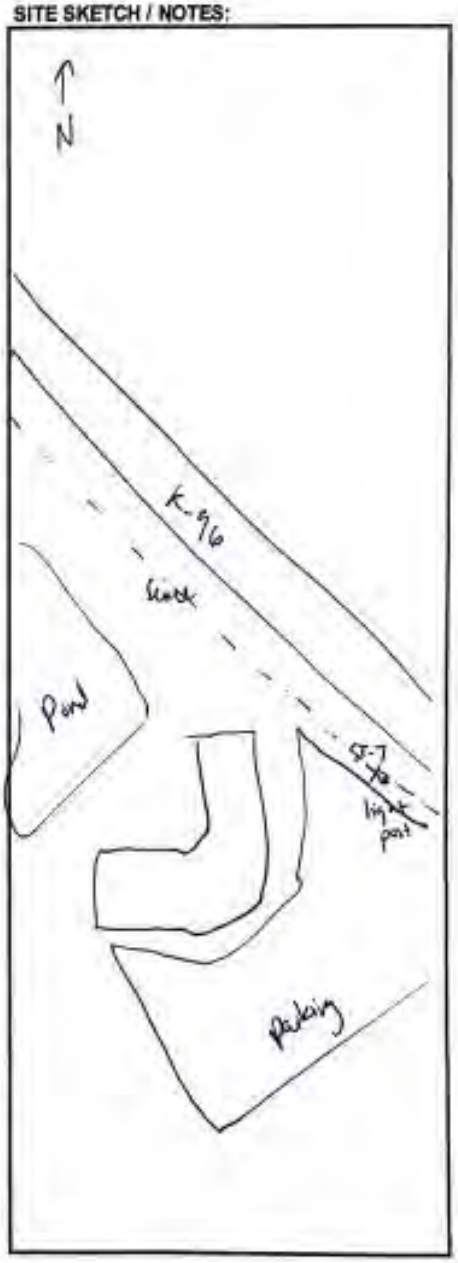
WEATHER

GENERAL	Sunny
TEMP	36° F
% RH	45.5
WIND SPD/DIR	1.3 mph
ROAD COND.	Dry

SITE

LATITUDE	37.7409311		
LONGITUDE	-97.2302233		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, airport

EVENT LOG

MEASUREMENT SITE: ST-7

START TIME: 10:59

MINUTE	EVENT DESCRIPTION
11:00	Plane landing
11:09	Car horn in parking lot
11:13	Plane landing

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-8

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-8		
START TIME	Meter @	11:28	Traffic @ 11:29
END TIME	@	11:44	@ 11:44
INSTRUMENT			
BATTERY	29.2 %		
LEQ			
FILE NAME	.154		
CALIBRATION	114.0 / -909	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	33		
MT	11		
HT	4		
BUS	2		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	204		
MT	5		
HT	19		
BUS	0		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

WEATHER

GENERAL	Sunny
TEMP	38°F
% RH	45.3
WIND SPD/DIR	7.4 mph
ROAD COND.	dry

SITE

LATITUDE	37.737205		
LONGITUDE	-97.228218		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

EVENT LOG

MEASUREMENT SITE: ST-8

START TIME: 11:29

MINUTE	EVENT DESCRIPTION
11:40-43	Weird unidentified humming / maybe hotel heating unit?
11:37	plane landing

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-9

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-9		
START TIME	Meter @	13:12	Traffic @ 13:19
END TIME			13:32
INSTRUMENT			
BATTERY	100.5%		
LEQ			
FILE NAME	.155		
CALIBRATION	114.0 / 0.11	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	260		
MT	3		
HT	13		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	121		
MT	9		
HT	14		
BUS	0		
MOTO	2		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

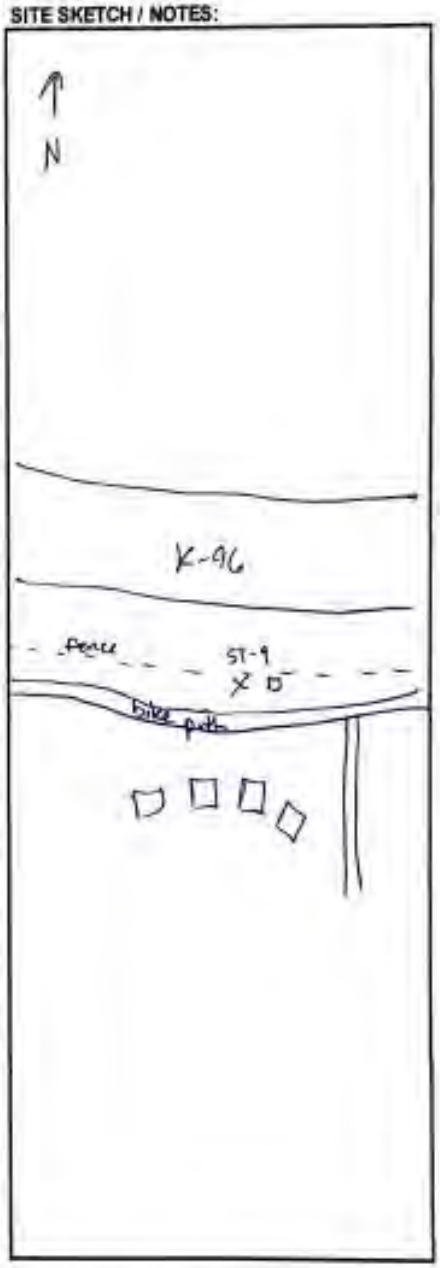
WEATHER

GENERAL	Sunny
TEMP	46°F
% RH	49%
WIND SPD/DIR	10.5 mph E
ROAD COND.	dry

SITE

LATITUDE	37.729[illegible]	
LONGITUDE	-97.2141237	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, weeds rustling

EVENT LOG

MEASUREMENT SITE: ST-9

START TIME: 13:17

MINUTE	EVENT DESCRIPTION
13:18	plane

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-10

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-10		14:03
START TIME	Meter @ 14:09	Traffic @	
END TIME			14:18
INSTRUMENT			
BATTERY	96.9%		
LEQ			
FILE NAME	.130		
CALIBRATION	114.0 / -0.02	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	216		
MT	6		
HT	14		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	131		
MT	5		
HT	6		
BUS	1		
MOTO	0		
ROADWAY	K-96 On Ramp		
VEH SPEED			
AUTO	57		
MT	0		
HT	0		
BUS	0		
MOTO	0		

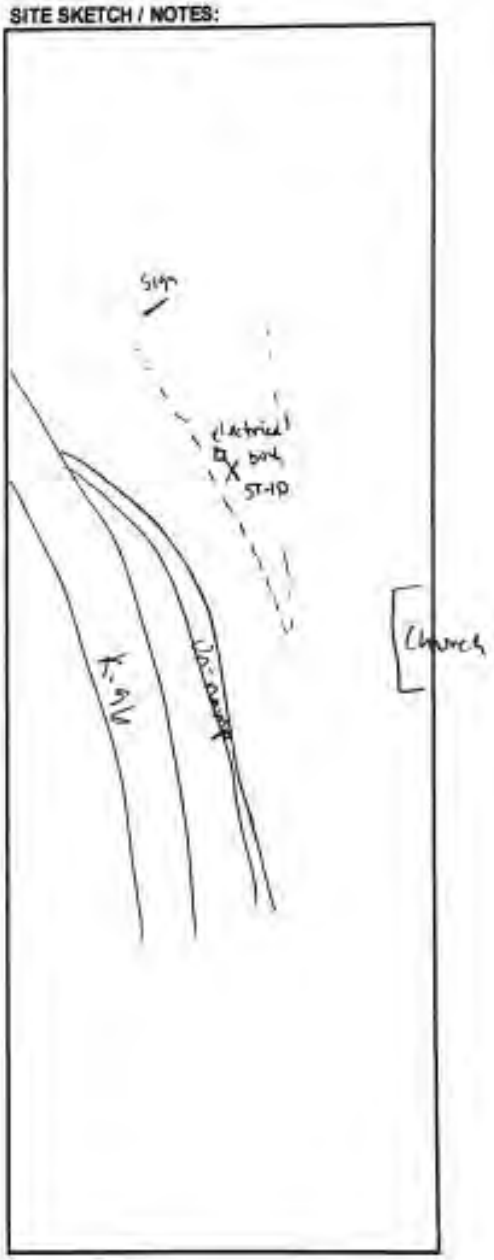
WEATHER

GENERAL	Partly cloudy
TEMP	52°F
% RH	63%
WIND SPD/DIR	6.4 mph
ROAD COND.	Dry

SITE

LATITUDE	37.725990		
LONGITUDE	-97.199081		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

Traffic

EVENT LOG

MEASUREMENT SITE: ST-10

START TIME: 14:03

MINUTE	EVENT DESCRIPTION
14:12	plane landing
14:13	noisy exhaust

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-11

DATE: 11-15-22 **STAFF:** ER/BS

MEAS NO	ST-11		
START TIME	Meter @ 14:32	Traffic @ 14:33	
END TIME	14:49		14:48
INSTRUMENT			
BATTERY	92.8%		
LEQ			
FILE NAME	.157		
CALIBRATION	114.0 / -0.03	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	220		
MT	3		
HT	3		
BUS	4		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	215		
MT	10		
HT	13		
BUS	0		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

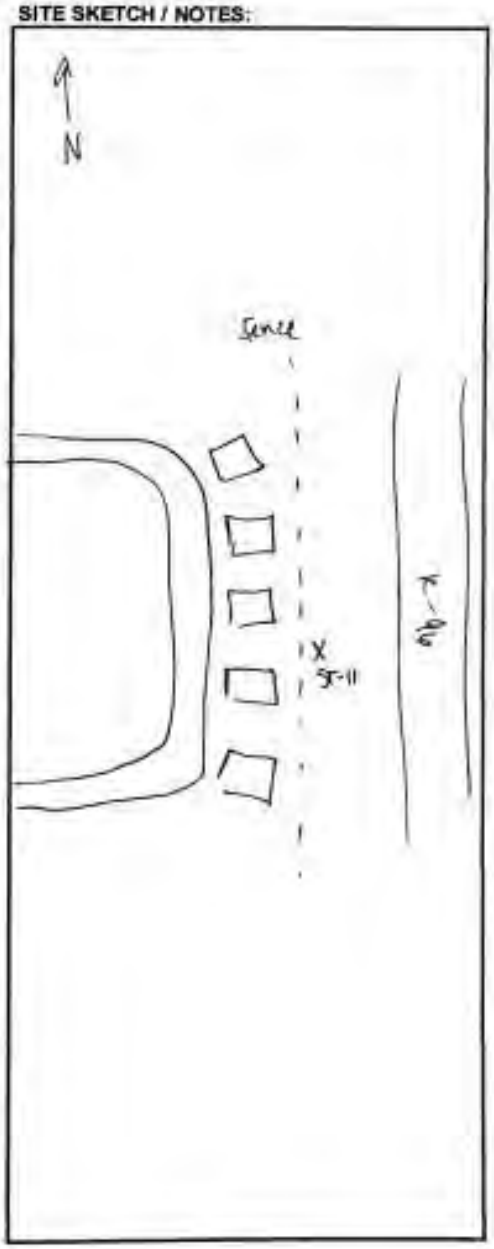
WEATHER

GENERAL	Sunny / partly cloudy
TEMP	44°F
% RH	38%
WIND SPD/DIR	1 mph
ROAD COND.	Dry

SITE

LATITUDE	37.7144317		
LONGITUDE	-97.2003157		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, weeds rustling

EVENT LOG

MEASUREMENT SITE: ST-11

START TIME: 14:37

MINUTE	EVENT DESCRIPTION
14:37	Plane overhead

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-12

DATE: 11-15-22 STAFF: ER/BS

MEAS NO	ST-12		
START TIME	Meter @ 15:22	Traffic @ 15:24	
END TIME	15:40		15:39
INSTRUMENT			
BATTERY	90.3%		
LEQ			
FILE NAME	.158		
CALIBRATION	114.0 / 00	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	303		
MT	3		
HT	9		
BUS	1		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	156		
MT	9		
HT	3		
BUS	1		
MOTO	0		
ROADWAY	K-96 Or Ramp		
VEH SPEED			
AUTO	93		
MT	0		
HT	1		
BUS	0		
MOTO	0		

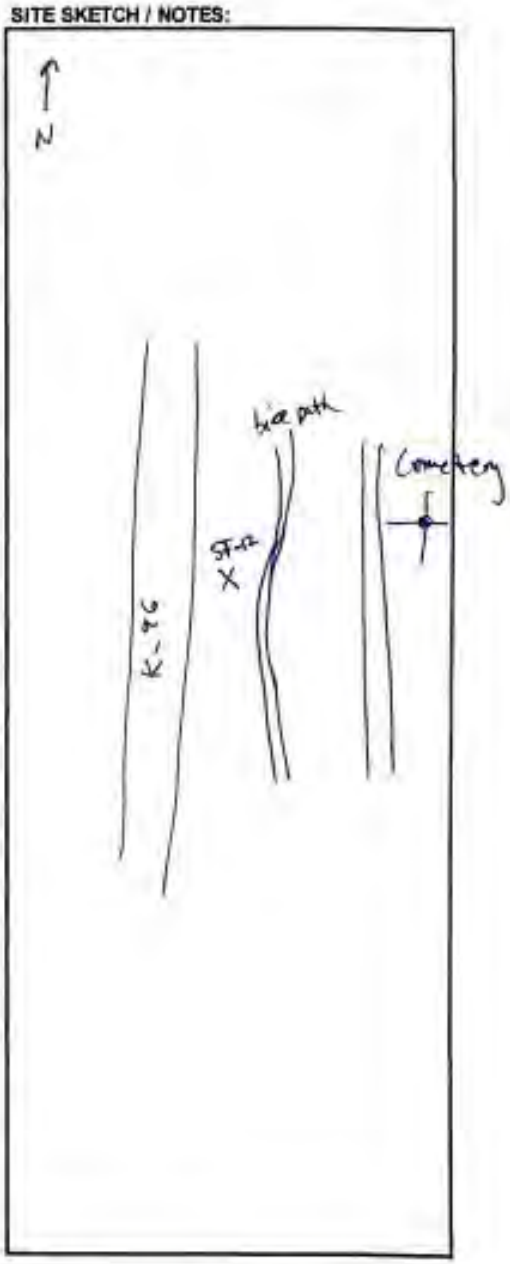
WEATHER

GENERAL	Partly cloudy
TEMP	49°F
% RH	34%
WIND SPD/DIR	4.3 mph
ROAD COND.	Dry

SITE

LATITUDE	37.741094		
LONGITUDE	-97.199251		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic, weeds rustling

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-13

DATE: 11-16-22 STAFF: ER/BS

MEAS NO	ST-13		
START TIME	Meter @ 8:54	Traffic @ 8:57	
END TIME	9:13	9:12	
INSTRUMENT			
BATTERY	84.1%		
LEQ			
FILE NAME	.159		
CALIBRATION	114.0 / -0.2	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	127		
MT	6		
HT	15		
BUS	1		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	194		
MT	4		
HT	12		
BUS	2		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

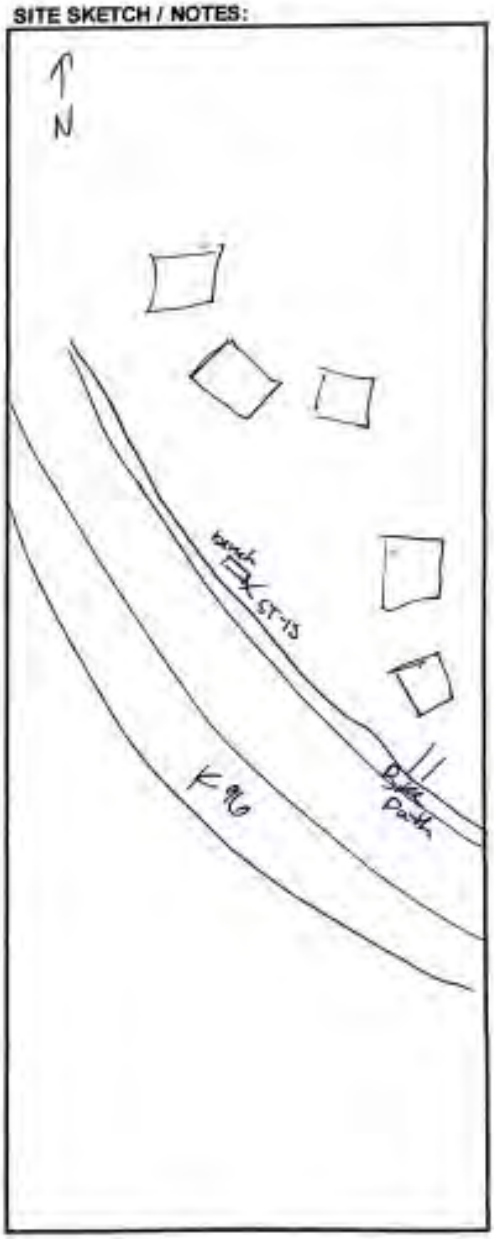
WEATHER

GENERAL	Sunny
TEMP	35°F
% RH	21%
WIND SPD/DIR	9 mph
ROAD COND.	Dry

SITE

LATITUDE	37.70|6708		
LONGITUDE	-97.19|7404|		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

EVENT LOG

MEASUREMENT SITE: ST -13

START TIME: 8:57

MINUTE	EVENT DESCRIPTION
9:11	Rumble strips

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-14

DATE: 11-16-22 STAFF: ER/BS

MEAS NO	ST-14		
START TIME	Meter @ 9:30	Traffic @ 9:31	
END TIME	9:46		9:46
INSTRUMENT			
BATTERY	76.4%		
LEQ			
FILE NAME	160		
CALIBRATION	114.0 / 0.13	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	135		
MT	5		
HT	5		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	145		
MT	1		
HT	11		
BUS	0		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

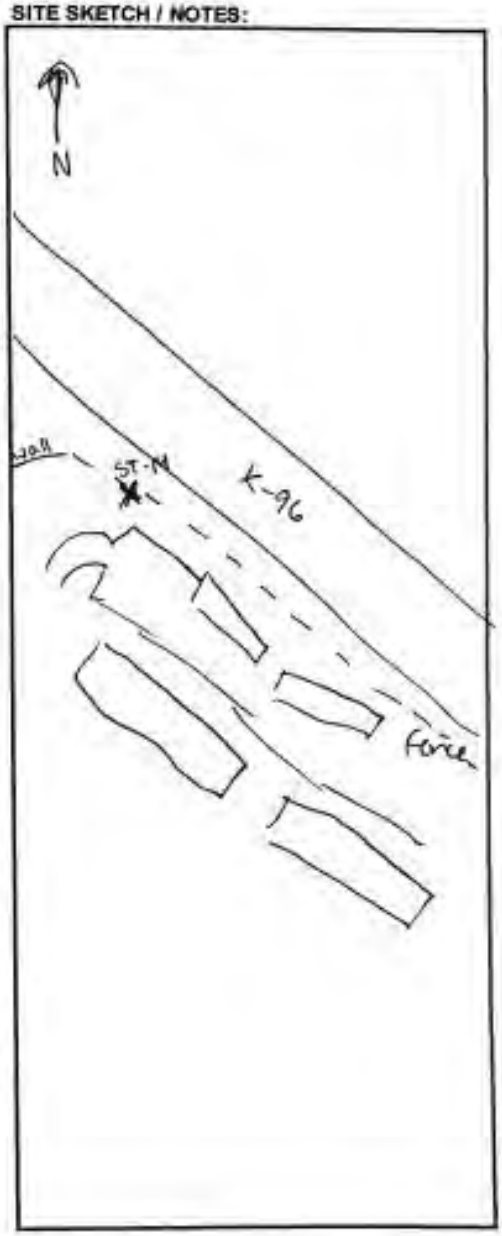
WEATHER

GENERAL	Sunny
TEMP	39°F
% RH	26%
WIND SPD/DIR	9 mph
ROAD COND.	Dry

SITE

LATITUDE	37.6966389	
LONGITUDE	-97.1919753	
PICTURES	✓	

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

PROJECT: KDOT - K-96 Expansion

MEAS SITE: ST-15

DATE: 11-16-22 STAFF: ER/BS

MEAS NO	ST-15		
START TIME	Meter @10:00		Traffic @ 10:03
END TIME	10:18		10:18
INSTRUMENT			
BATTERY	68%		
LEQ			
FILE NAME	161		
CALIBRATION	114.0 / 0.11	/	/

TRAFFIC

ROADWAY	K-96 EB		
VEH SPEED			
AUTO	124		
MT	6		
HT	4		
BUS	0		
MOTO	0		
ROADWAY	K-96 WB		
VEH SPEED			
AUTO	146		
MT	2		
HT	9		
BUS	0		
MOTO	0		
ROADWAY			
VEH SPEED			
AUTO			
MT			
HT			
BUS			
MOTO			

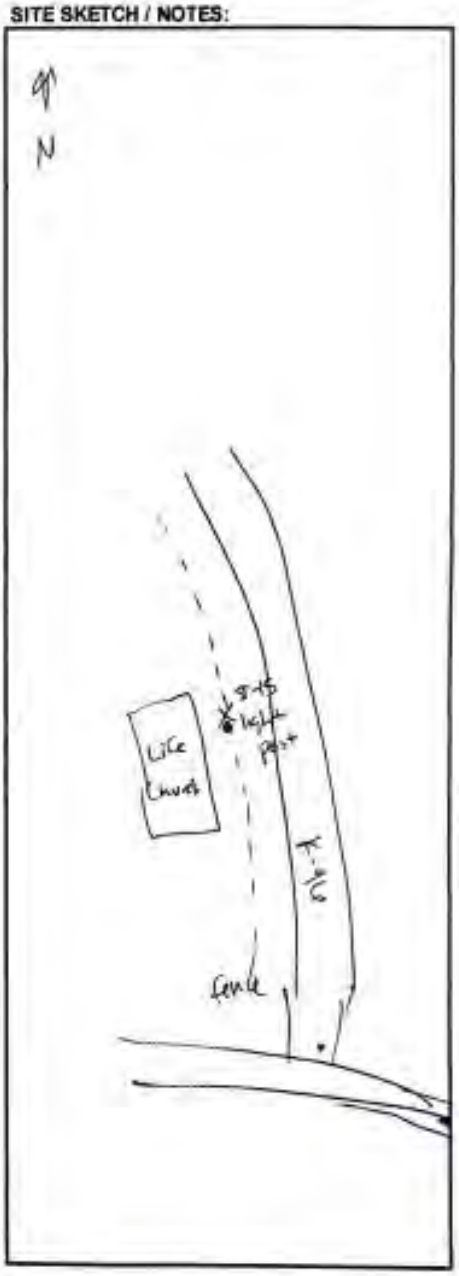
WEATHER

GENERAL	Sunny
TEMP	72°F
% RH	47.2%
WIND SPD/DIR	7.8 mph
ROAD COND.	Dry

SITE

LATITUDE	37.6913919		
LONGITUDE	-97.1827315		
PICTURES	✓		

SITE SKETCH / NOTES:



NOISE SOURCES:

traffic

EVENT LOG

MEASUREMENT SITE: ST-15

START TIME:

MINUTE	EVENT DESCRIPTION
10:03	Plane overhead
10:07	Plane overhead
~10:08	Workers in road pulling traffic

Sound Level Meter Calibration Certificates

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

PRECISION INTEGRATING SOUND LEVEL METER

Manufactured by:	LARSON DAVIS
Model No:	831C
Serial No:	10313
Calibration Recall No:	32681

Submitted By:

Customer:	EMILY ROBINSON
Company:	WSP USA, INC.
Address:	2714 NEWBOLDT ST
	RALEIGH NC 27603

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 831C LARS

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule: A=(L-(U95)), where A is the acceptance criteria, L is manufacturer specifications, and U95 is confidence level of 95% at k=2. The decision rule has been communicated and approved by customer during contract review. Measurements marked with (*) are not covered by the scope of current A2LA accreditation.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements: ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate. Report of Calibration is included.

Approved by:

James Zhu
Quality Manager

Calibration Date:	12-Jan-22
Certificate Issue Date:	19-Jan-22
Certificate No:	32681 - 1

QA Doc. #1051 Rev. 3.0 5/29/20

Certificate Page 1 of 1

ISO/IEC 17025

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

MICROPHONE

Manufactured by:	**PCB PIEZOTRONICS**
Model No:	**377C20**
Serial No:	**173837**
Calibration Recall No:	**32681**

Submitted By:

Customer:	**EMILY ROBINSON**
Company:	**WSP USA, INC.**
Address:	**2714 NEWBOLDT ST**
	RALEIGH NC 27603

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. 377C20 PCB PI

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule: A=(L-(U95)), where A is the acceptance criteria, L is manufacturer specifications, and U95 is confidence level of 95% at k=2. The decision rule has been communicated and approved by customer during contract review. Measurements marked with (*) are not covered by the scope of current A2LA accreditation.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements: ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by:

James Zhu

Quality Manager

Calibration Date:	**12-Jan-22**
Certificate Issue Date:	**19-Jan-22**
Certificate No:	**32681 - 2**

QA Doc. #1051 Rev. 3.0 5/29/20

Certificate Page 1 of 1

ISO/IEC 17025

ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

West Caldwell Calibration Laboratories Inc.

Certificate of Calibration

for

PRECISION ACOUSTIC CALIBRATOR

Manufactured by:	LARSON DAVIS
Model No:	CAL200
Serial No:	15187
Calibration Recall No:	32681

Submitted By:

Customer:	EMILY ROBINSON
Company:	WSP USA, INC.
Address:	2714 NEWBOLDT ST
	RALEIGH NC 27603

The subject instrument was calibrated to the indicated specification using standards traceable to the SI through the National Institute of Standards and Technology or to accepted values of natural physical constants. This document certifies that the instrument met the following specification upon its return to the submitter.

West Caldwell Calibration Laboratories Procedure No. CAL200 LARS

Upon receipt for Calibration, the instrument was found to be:

Within (X)

tolerance of the indicated specification. See attached Report of Calibration.
The information supplied certifies that the item listed above meets acceptance criteria under the decision rule: A=(L-(U95)), where A is the acceptance criteria, L is manufacturer specifications, and U95 is confidence level of 95% at k=2. The decision rule has been communicated and approved by customer during contract review. Measurements marked with (*) are not covered by the scope of current A2LA accreditation.

West Caldwell Calibration Laboratories' calibration control system meets the following requirements: ANSI/NCSL Z540-1, ISO 9001, and ISO 17025.

Note: With this Certificate, Report of Calibration is included.

Approved by:

James Zhu
Quality Manager

Calibration Date:	12-Jan-22
Certificate Issue Date:	19-Jan-22
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ACCREDITED

Calibration Lab. Cert. # 1533.01

West Caldwell Calibration Laboratories, Inc.
uncompromised calibration
1575 State Route 96, Victor, NY 14564, U.S.A.

Appendix B

HOURLY EQUIVALENT TRAFFIC NOISE LEVELS

Table B-1: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 1 - 2									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R2-1	Residential	B	1	2730 E 33rd St N	1	53.3	55.3	59.3	6.0
R2-2	Residential	B	1	2918 E 33rd St	1	56.6	58.6	61.3	4.7
Predicted NSA 1-2 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-2: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 3									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R3-1	Residential	B	1	3332 N OLIVER AVE	1	65.0	66.8	67.6	2.6
R3-2	Residential	B	1	3316 N OLIVER AVE	1	61.1	62.9	62.9	1.8
R3-3	Park	C	1	3238 N Oliver Ave	1	61.4	63.3	63.5	2.1
RT3-1	Trail	C	1	3238 N Oliver Ave	1	58.1	59.9	58.7	0.6
RT3-2	Trail	C	1	3238 N Oliver Ave	1	65.8	67.5	70.1	4.3
RT3-3	Trail	C	1	3238 N Oliver Ave	1	72.8	74.4	76.0	3.2
RT3-4	Trail	C	1	3238 N Oliver Ave	1	67.5	69.3	70.1	2.6
RT3-5	Trail	C	1	3238 N Oliver Ave	1	65.8	68.5	71.2	5.4
Predicted NSA 3 Traffic Noise Impacts[1]:									5[2]
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 4									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R4-1	Residential	B	1	3450 N RIDGEWOOD ST	1	69.1	70.8	72.4	3.3
R4-2	Restaurant	B	1	3450 N RIDGEWOOD ST	2	71.8	73.5	73.2	1.4
R4-3	Residential	B	1	3450 N RIDGEWOOD ST	3	72.7	74.4	74.2	1.5
R4-4	Residential	B	1	3450 N RIDGEWOOD ST	1	70	71.7	73.1	3.1
R4-5	Residential	B	1	3450 N RIDGEWOOD ST	2	72.4	74.2	73.7	1.3
R4-6	Residential	B	1	3450 N RIDGEWOOD ST	3	73.2	74.9	74.9	1.7
R4-7	Residential	B	1	3450 N RIDGEWOOD ST	1	70.8	72.6	73.8	3
R4-8	Residential	B	1	3450 N RIDGEWOOD ST	2	73.1	74.9	74.3	1.2
R4-9	Residential	B	1	3450 N RIDGEWOOD ST	3	73.7	75.4	75.5	1.8
R4-10	Residential	B	1	3450 N RIDGEWOOD ST	1	71.9	73.7	74.6	2.7
R4-11	Residential	B	1	3450 N RIDGEWOOD ST	2	74	75.8	75.2	1.2
R4-12	Residential	B	1	3450 N RIDGEWOOD ST	3	74.4	76.1	76.3	1.9
R4-13	Residential	B	1	3450 N RIDGEWOOD ST	1	71.3	73	74.1	2.8
R4-14	Residential	B	1	3450 N RIDGEWOOD ST	2	73.6	75.3	74.7	1.1
R4-15	Residential	B	1	3450 N RIDGEWOOD ST	3	74	75.7	75.5	1.5
R4-16	Residential	B	1	3450 N RIDGEWOOD ST	1	70.6	72.3	73.6	3
R4-17	Residential	B	1	3450 N RIDGEWOOD ST	2	73	74.8	74.2	1.2
R4-18	Restaurant	B	1	3450 N RIDGEWOOD ST	3	73.6	75.4	75.1	1.5
R4-19	Restaurant	B	1	3450 N RIDGEWOOD ST	1	69.8	71.6	73.1	3.3
R4-20	Residential	B	1	3450 N RIDGEWOOD ST	2	72.5	74.2	73.8	1.3
R4-21	Residential	B	1	3450 N RIDGEWOOD ST	3	73.2	75	74.1	0.9
R4-22	Residential	B	1	3450 N RIDGEWOOD ST	1	69	70.8	72.5	3.5
R4-23	Residential	B	1	3450 N RIDGEWOOD ST	2	71.9	73.6	73.3	1.4
R4-24	Residential	B	1	3450 N RIDGEWOOD ST	3	72.8	74.5	73.6	0.8

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 4									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R4-25	Residential	B	1	3450 N RIDGEWOOD ST	1	61	62.8	64.7	3.7
R4-26	Residential	B	1	3450 N RIDGEWOOD ST	2	64.1	65.8	66.1	2
R4-27	Residential	B	1	3450 N RIDGEWOOD ST	3	65.3	67	66.9	1.6
R4-28	Residential	B	1	3450 N RIDGEWOOD ST	1	52.9	54.6	56.2	3.3
R4-29	Residential	B	1	3450 N RIDGEWOOD ST	2	53.1	54.8	55.5	2.4
R4-30	Residential	B	1	3450 N RIDGEWOOD ST	3	54.9	56.6	57.1	2.2
R4-31	Residential	B	1	3450 N RIDGEWOOD ST	1	53.2	54.9	55.7	2.5
R4-32	Residential	B	1	3450 N RIDGEWOOD ST	2	52.5	54.2	54.9	2.4
R4-33	Residential	B	1	3450 N RIDGEWOOD ST	3	54.8	56.5	57.2	2.4
R4-34	Residential	B	1	3450 N RIDGEWOOD ST	1	53.3	55.1	54.9	1.6
R4-35	Residential	B	1	3450 N RIDGEWOOD ST	2	52.1	53.9	54.2	2.1
R4-36	Residential	B	1	3450 N RIDGEWOOD ST	3	54.9	56.6	57.1	2.2
R4-37	Residential	B	1	3450 N RIDGEWOOD ST	1	53.4	55.2	55.4	2
R4-38	Residential	B	1	3450 N RIDGEWOOD ST	2	52	53.8	54.4	2.4
R4-39	Residential	B	1	3450 N RIDGEWOOD ST	3	54.6	56.3	56.9	2.3
R4-40	Residential	B	1	3450 N RIDGEWOOD ST	1	52.9	54.7	56	3.1
R4-41	Residential	B	1	3450 N RIDGEWOOD ST	2	51.9	53.6	54.6	2.7
R4-42	Residential	B	1	3450 N RIDGEWOOD ST	3	54.3	56	56.7	2.4
R4-43	Residential	B	1	3450 N RIDGEWOOD ST	1	53	54.7	54.8	1.8
R4-44	Residential	B	1	3450 N RIDGEWOOD ST	2	52	53.7	54.2	2.2
R4-45	Residential	B	1	3450 N RIDGEWOOD ST	3	54.2	56	56.4	2.2
R4-46	Residential	B	1	3450 N RIDGEWOOD ST	1	57.2	59	61.1	3.9
R4-47	Residential	B	1	3450 N RIDGEWOOD ST	2	60.8	62.5	62.8	2
R4-48	Residential	B	1	3450 N RIDGEWOOD ST	3	62	63.7	63.5	1.5

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 4									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R4-49	Residential	B	1	3450 N RIDGEWOOD ST	1	64.9	66.7	69.1	4.2
R4-50	Residential	B	1	3450 N RIDGEWOOD ST	2	69.1	70.8	70.8	1.7
R4-51	Residential	B	1	3450 N RIDGEWOOD ST	3	70.2	71.9	71.1	0.9
R4-52	Residential	B	1	3450 N RIDGEWOOD ST	1	61.5	63.3	65.7	4.2
R4-53	Residential	B	1	3450 N RIDGEWOOD ST	2	65.8	67.6	67.6	1.8
R4-54	Residential	B	1	3450 N RIDGEWOOD ST	3	66.8	68.5	67.8	1
R4-55	Residential	B	1	3450 N RIDGEWOOD ST	1	60.1	61.9	64	3.9
R4-56	Residential	B	1	3450 N RIDGEWOOD ST	2	64.1	65.8	65.9	1.8
R4-57	Residential	B	1	3450 N RIDGEWOOD ST	3	64.9	66.6	66.1	1.2
R4-58	Residential	B	1	3450 N RIDGEWOOD ST	1	59.3	61	62.9	3.6
R4-59	Residential	B	1	3450 N RIDGEWOOD ST	2	62.8	64.6	64.7	1.9
R4-60	Residential	B	1	3450 N RIDGEWOOD ST	3	63.6	65.4	65	1.4
R4-61	Residential	B	1	3450 N RIDGEWOOD ST	1	64.4	66.1	68.2	3.8
R4-62	Residential	B	1	3450 N RIDGEWOOD ST	2	67.9	69.7	69.6	1.7
R4-63	Residential	B	1	3450 N RIDGEWOOD ST	3	69	70.7	70	1
R4-64	Residential	B	1	3450 N RIDGEWOOD ST	1	62.1	63.9	66.2	4.1
R4-65	Residential	B	1	3450 N RIDGEWOOD ST	2	66.2	68	68	1.8
R4-66	Residential	B	1	3450 N RIDGEWOOD ST	3	67.2	68.9	68.4	1.2
R4-67	Residential	B	1	3450 N RIDGEWOOD ST	1	60.9	62.7	64.9	4
R4-68	Residential	B	1	3450 N RIDGEWOOD ST	2	65.4	67.1	67.2	1.8
R4-69	Residential	B	1	3450 N RIDGEWOOD ST	3	66.3	68	67.6	1.3
R4-70	Residential	B	1	3450 N RIDGEWOOD ST	1	59.9	61.7	63.6	3.7
R4-71	Residential	B	1	3450 N RIDGEWOOD ST	2	64.4	66.1	66.4	2
R4-72	Residential	B	1	3450 N RIDGEWOOD ST	3	65.4	67.1	66.9	1.5

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 4									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R4-73	Residential	B	1	3450 N RIDGEWOOD ST	1	59.7	61.4	62.8	3.1
R4-74	Residential	B	1	3450 N RIDGEWOOD ST	2	61.6	63.3	64	2.4
R4-75	Residential	B	1	3450 N RIDGEWOOD ST	3	62.8	64.5	64.5	1.7
R4-76	Residential	B	1	3450 N RIDGEWOOD ST	1	59.8	61.5	62.8	3
R4-77	Residential	B	1	3450 N RIDGEWOOD ST	2	61.7	63.4	64	2.3
R4-78	Residential	B	1	3450 N RIDGEWOOD ST	3	62.8	64.5	64.5	1.7
R4-79	Residential	B	1	3450 N RIDGEWOOD ST	1	59.4	61.1	62.9	3.5
R4-80	Residential	B	1	3450 N RIDGEWOOD ST	2	61.1	62.9	63.9	2.8
R4-81	Residential	B	1	3450 N RIDGEWOOD ST	3	62.4	64.2	64.3	1.9
R4-82	Residential	B	1	3450 N RIDGEWOOD ST	1	59	60.7	62.2	3.2
R4-83	Residential	B	1	3450 N RIDGEWOOD ST	2	60.8	62.5	63.2	2.4
R4-84	Residential	B	1	3450 N RIDGEWOOD ST	3	62.1	63.9	63.8	1.7
R4-85	Residential	B	1	3450 N RIDGEWOOD ST	1	59.3	61	61.9	2.6
R4-86	Residential	B	1	3450 N RIDGEWOOD ST	2	60.6	62.4	63.2	2.6
R4-87	Residential	B	1	3450 N RIDGEWOOD ST	3	62.1	63.8	63.8	1.7
R4-88	Residential	B	1	3450 N RIDGEWOOD ST	1	59.2	60.9	61.9	2.7
R4-89	Residential	B	1	3450 N RIDGEWOOD ST	2	60.8	62.6	63.4	2.6
R4-90	Residential	B	1	3450 N RIDGEWOOD ST	3	62.2	63.9	63.9	1.7
R4-91	Residential	B	1	3450 N RIDGEWOOD ST	1	59.1	60.8	61.8	2.7
R4-92	Residential	B	1	3450 N RIDGEWOOD ST	2	61.2	63	63.5	2.3
R4-93	Residential	B	1	3450 N RIDGEWOOD ST	3	62.4	64.1	63.9	1.5
R4-94	Residential	B	1	3450 N RIDGEWOOD ST	1	47.8	49.6	49.7	1.9
R4-95	Residential	B	1	3450 N RIDGEWOOD ST	3	50.8	52.6	52.5	1.7
R4-96	Residential	B	1	3450 N RIDGEWOOD ST	2	48.2	49.9	50	1.8

Table B-3: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 4									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R4-98	Basketball Court	C	1	3450 N Ridgewood St	1	60.8	62.5	64.5	3.7
RT4-1	Trail	C	1	6319 Brookview Ct	1	60.2	61.9	61.9	1.7
RT4-2	Trail	C	1	6319 Brookview Ct	1	63.7	65.5	67.2	3.5
RT4-3	Trail	C	1	6319 Brookview Ct	1	66.5	68.3	68.9	2.4
Predicted NSA 4 Traffic Noise Impacts[1]:								44[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-1	YMCA Pool	C	1	3330 N Woodlawn St	1	64.7	66.6	66.7	2
R5-2	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	62	63.9	64.2	2.2
R5-3	YMCA Baseball Field	C	1	3330 N Woodlawn St	1	58.5	60.4	60.5	2
R5-4	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	68.5	70.4	70.7	2.2
R5-5	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	70.7	72.6	72.7	2
R5-6	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	66.5	68.3	68.7	2.2
R5-7	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	67.8	69.7	69.9	2.1
R5-8	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	64.6	66.5	66.9	2.3
R5-9	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	65.6	67.5	68.1	2.5
R5-10	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	63.2	65.1	65.6	2.4
R5-11	YMCA Soccer Field	C	1	3330 N Woodlawn St	1	63.8	65.7	66.2	2.4
R5-12	YMCA Baseball Field	C	1	3330 N Woodlawn St	1	60.8	62.8	63	2.2
R5-13	YMCA Baseball Field	C	1	3330 N Woodlawn St	1	62.2	64.1	64.6	2.4
R5-14	Daycare	C	1	6868 E 32ND ST N	1	59.5	61.4	62	2.5
R5-15	Residential	B	1	6908 E 32ND ST N	1	58.8	60.8	61.5	2.7
R5-16	Residential	B	1	6908 E 32ND ST N	1	58.5	60.5	61.2	2.7
R5-17	Residential	B	1	6916 E 32ND ST N	1	57.8	59.7	60.5	2.7
R5-18	Residential	B	1	6916 E 32ND ST N	1	57.4	59.4	60.1	2.7
R5-19	Residential	B	1	3333 N GOVERNEOUR CIR	1	70.9	72.8	74.3	3.4
R5-20	Residential	B	1	3335 N GOVERNEOUR CIR	1	70.7	72.6	73.8	3.1
R5-21	Residential	B	1	3343 N GOVERNEOUR CIR	1	71.4	73.4	74.7	3.3
R5-22	Residential	B	1	3345 N GOVERNEOUR CIR	1	71.4	73.4	74.5	3.1
R5-23	Residential	B	1	3353 N GOVERNEOUR CIR	1	71.8	73.7	75	3.2
R5-24	Residential	B	1	3355 N GOVERNEOUR CIR	1	71.7	73.7	74.8	3.1

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-25	Residential	B	1	3363 N GOVERNEOUR CIR	1	72.1	74.1	75.3	3.2
R5-26	Residential	B	1	3365 N GOVERNEOUR CIR	1	69.7	71.6	72.8	3.1
R5-27	Residential	B	1	3371 N GOVERNEOUR CIR	1	67.2	69.2	71.1	3.9
R5-28	Residential	B	1	3373 N GOVERNEOUR CIR	1	57.8	59.8	61.5	3.7
R5-29	Residential	B	1	3372 N GOVERNEOUR CIR	1	57.2	59.3	61.3	4.1
R5-30	Residential	B	1	3370 N GOVERNEOUR CIR	1	52.7	54.8	56.6	3.9
R5-31	Residential	B	1	3362 N GOVERNEOUR CIR	1	54.5	56.5	58.6	4.1
R5-32	Residential	B	1	3360 N GOVERNEOUR CIR	1	56.2	58.2	60.3	4.1
R5-33	Residential	B	1	3352 N GOVERNEOUR CIR	1	58.7	60.7	62.4	3.7
R5-34	Residential	B	1	3350 N GOVERNEOUR CIR	1	54.9	56.9	59	4.1
R5-35	Residential	B	1	3342 N GOVERNEOUR CIR	1	56.4	58.3	60.2	3.8
R5-36	Residential	B	1	3340 N GOVERNEOUR CIR	1	50.4	52.4	53.3	2.9
R5-37	Residential	B	1	3334 N GOVERNEOUR CIR	1	54.1	56.1	57.1	3
R5-38	Residential	B	1	3332 N GOVERNEOUR CIR	1	50.5	52.6	54.1	3.6
R5-39	Residential	B	1	3324 N GOVERNEOUR CIR	1	54	56	57.3	3.3
R5-40	Residential	B	1	3322 N GOVERNEOUR CIR	1	50.8	52.8	53.8	3
R5-41	Residential	B	1	7400 E 32ND ST N 101	1	53.9	56	57.3	3.4
R5-42	Residential	B	1	7400 E 32ND ST N 101	1	54.3	56.3	57.8	3.5
R5-43	Residential	B	1	7400 E 32ND ST N 101	1	54.3	56.3	58	3.7
R5-44	Residential	B	1	7400 E 32ND ST N 101	1	54.4	56.5	58.2	3.8
R5-45	Residential	B	1	7400 E 32ND ST N 101	1	54.8	56.8	58.6	3.8
R5-46	Residential	B	1	7400 E 32ND ST N 101	1	55.2	57.2	59.1	3.9
R5-47	Residential	B	1	7400 E 32ND ST N 101	1	56.2	58.2	60.1	3.9
R5-48	Residential	B	1	7400 E 32ND ST N 101	1	56.8	58.8	60.9	4.1

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-49	Residential	B	1	7400 E 32ND ST N 101	1	57	59.1	61.4	4.4
R5-50	Residential	B	1	7400 E 32ND ST N 101	1	57.5	59.6	61.8	4.3
R5-51	Residential	B	1	7400 E 32ND ST N 101	1	57.8	59.8	62.2	4.4
R5-52	Residential	B	1	7400 E 32ND ST N 101	1	58.1	60.1	62.6	4.5
R5-53	Residential	B	1	7400 E 32ND ST N 101	1	47.5	49.5	50.9	3.4
R5-54	Residential	B	1	7400 E 32ND ST N 101	1	51.5	53.5	55.8	4.3
R5-55	Residential	B	1	7400 E 32ND ST N 101	1	51.4	53.4	55.6	4.2
R5-56	Residential	B	1	7400 E 32ND ST N 101	1	51	53	54.9	3.9
R5-57	Residential	B	1	7400 E 32ND ST N 101	1	50.5	52.5	54.5	4
R5-58	Residential	B	1	7400 E 32ND ST N 101	1	50.1	52.1	54	3.9
R5-59	Residential	B	1	7400 E 32ND ST N 101	1	49.1	51.1	52.9	3.8
R5-60	Residential	B	1	7400 E 32ND ST N 101	1	46.2	48.2	48.9	2.7
R5-61	Residential	B	1	7400 E 32ND ST N 101	1	46.9	48.9	49.6	2.7
R5-62	Residential	B	1	7400 E 32ND ST N 101	1	47.6	49.6	50.3	2.7
R5-63	Residential	B	1	7400 E 32ND ST N 101	1	50.7	52.8	54.1	3.4
R5-64	Residential	B	1	7400 E 32ND ST N 101	1	50	52	53.4	3.4
R5-65	Residential	B	1	7400 E 32ND ST N 101	1	49.2	51.2	52.5	3.3
R5-66	Residential	B	1	7450 E 32ND ST N 1301	1	48	50	52.1	4.1
R5-67	Residential	B	1	7450 E 32ND ST N 1301	1	47.7	49.6	51.6	3.9
R5-68	Residential	B	1	7450 E 32ND ST N 1301	1	46.9	48.9	51	4.1
R5-69	Residential	B	1	7450 E 32ND ST N 1301	1	48.3	50.2	50.5	2.2
R5-70	Residential	B	1	7450 E 32ND ST N 1301	1	46.1	48	49.9	3.8
R5-71	Residential	B	1	7450 E 32ND ST N 1301	1	45.5	47.5	49.1	3.6
R5-72	Residential	B	1	7450 E 32ND ST N 1301	1	66	68.1	68.8	2.8

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-73	Residential	B	1	7450 E 32ND ST N 1301	1	64.9	67	67.8	2.9
R5-74	Residential	B	1	7450 E 32ND ST N 1301	1	63.9	66	66.8	2.9
R5-75	Residential	B	1	7450 E 32ND ST N 1301	1	62.9	65	65.8	2.9
R5-76	Residential	B	1	7450 E 32ND ST N 1301	1	61.9	64	64.7	2.8
R5-77	Residential	B	1	7450 E 32ND ST N 101	1	60.8	62.9	63.8	3
R5-78	Residential	B	1	7450 E 32ND ST N 101	1	47.2	49.2	50.7	3.5
R5-79	Residential	B	1	7450 E 32ND ST N 101	1	45.6	47.6	49.3	3.7
R5-80	Residential	B	1	7450 E 32ND ST N 101	1	45.3	47.3	48.9	3.6
R5-81	Residential	B	1	7450 E 32ND ST N 101	1	45	47.1	48.7	3.7
R5-82	Residential	B	1	7450 E 32ND ST N 101	1	44.9	47	48.4	3.5
R5-83	Residential	B	1	7450 E 32ND ST N 101	1	52.2	54.3	54.7	2.5
R5-84	Residential	B	1	7450 E 32ND ST N 101	1	46.8	48.9	49.8	3
R5-85	Residential	B	1	7450 E 32ND ST N 101	1	47.1	49.2	49.9	2.8
R5-86	Residential	B	1	7450 E 32ND ST N 101	1	47.2	49.2	49.9	2.7
R5-87	Residential	B	1	7450 E 32ND ST N 101	1	47.1	49.1	49.7	2.6
R5-88	Residential	B	1	7450 E 32ND ST N 101	1	46.8	48.8	49.3	2.5
R5-89	Residential	B	1	7450 E 32ND ST N 101	1	53.4	55.5	55.7	2.3
R5-90	Residential	B	1	7450 E 32ND ST N 101	1	53.6	55.7	57.2	3.6
R5-91	Residential	B	1	7450 E 32ND ST N 101	1	51	53	54	3
R5-92	Residential	B	1	7450 E 32ND ST N 101	1	49.3	51.3	52.3	3
R5-93	Residential	B	1	7450 E 32ND ST N 101	1	48.7	50.7	51.8	3.1
R5-94	Residential	B	1	7450 E 32ND ST N 101	1	48.1	50.2	50.9	2.8
R5-95	Residential	B	1	7450 E 32ND ST N 101	1	48.1	50.1	50.8	2.7
R5-96	Residential	B	1	7450 E 32ND ST N 1101	1	49.6	51.6	53.8	4.2

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-97	Residential	B	1	7450 E 32ND ST N 1101	1	48.9	50.8	52.7	3.8
R5-98	Residential	B	1	7450 E 32ND ST N 1101	1	49.3	51.2	53	3.7
R5-99	Residential	B	1	7450 E 32ND ST N 1101	1	49.1	51.1	52.7	3.6
R5-100	Residential	B	1	7450 E 32ND ST N 1101	1	48.9	50.9	52.5	3.6
R5-101	Residential	B	1	7450 E 32ND ST N 1101	1	48.6	50.6	52.1	3.5
R5-102	Residential	B	1	7450 E 32ND ST N 101	1	55.9	58	59.8	3.9
R5-103	Residential	B	1	7450 E 32ND ST N 101	1	54.9	57	58.6	3.7
R5-104	Residential	B	1	7450 E 32ND ST N 101	1	54.3	56.4	58	3.7
R5-105	Residential	B	1	7450 E 32ND ST N 101	1	52.9	55	56.6	3.7
R5-106	Residential	B	1	7450 E 32ND ST N 101	1	52.1	54.2	55.8	3.7
R5-107	Residential	B	1	7450 E 32ND ST N 101	1	51.7	53.8	55.3	3.6
R5-108	Residential	B	1	7650 E 32ND ST N 201	1	61.2	63.2	63	1.8
R5-109	Residential	B	1	7650 E 32ND ST N 201	1	60.8	62.8	62.7	1.9
R5-110	Residential	B	1	7650 E 32ND ST N 201	1	60.3	62.4	62.4	2.1
R5-111	Residential	B	1	7650 E 32ND ST N 201	1	59.6	61.6	61.6	2
R5-112	Residential	B	1	7650 E 32ND ST N 201	1	58.8	60.9	61	2.2
R5-113	Residential	B	1	7650 E 32ND ST N 201	1	58.1	60.2	60.3	2.2
R5-114	Residential	B	1	7650 E 32ND ST N 201	1	57.6	59.6	59.8	2.2
R5-115	Residential	B	1	7650 E 32ND ST N 201	1	57	59.1	59.3	2.3
R5-116	Residential	B	1	7650 E 32ND ST N 201	1	56	58.1	58.5	2.5
R5-117	Residential	B	1	7650 E 32ND ST N 201	1	55.7	57.8	58	2.3
R5-118	Residential	B	1	7650 E 32ND ST N 201	1	55.3	57.4	57.5	2.2
R5-119	Residential	B	1	7650 E 32ND ST N 201	1	54.8	56.9	57.1	2.3
R5-120	Residential	B	1	7650 E 32ND ST N 201	1	54.4	56.5	56.4	2

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R5-121	Residential	B	1	7650 E 32ND ST N 201	1	54.2	56.3	56.2	2
R5-122	Residential	B	1	7650 E 32ND ST N 201	1	53.9	56	55.8	1.9
R5-123	Residential	B	1	7650 E 32ND ST N 201	1	53.4	55.6	55.4	2
R5-124	Residential	B	1	7650 E 32ND ST N 201	1	58.5	60.6	60.8	2.3
R5-125	Residential	B	1	7650 E 32ND ST N 201	1	57.7	59.8	59.6	1.9
R5-126	Residential	B	1	7650 E 32ND ST N 201	1	57.2	59.3	58.7	1.5
R5-127	Residential	B	1	7650 E 32ND ST N 201	1	56.6	58.7	58.2	1.6
R5-128	Residential	B	1	7650 E 32ND ST N 201	1	56.1	58.1	57.7	1.6
R5-129	Residential	B	1	7650 E 32ND ST N 201	1	55.7	57.8	57.3	1.6
R5-130	Residential	B	1	7650 E 32ND ST N 201	1	55	57.1	56.7	1.7
R5-131	Residential	B	1	7650 E 32ND ST N 201	1	54.6	56.7	56.3	1.7
R5-132	Residential	B	1	7650 E 32ND ST N 201	1	54	56.1	55.8	1.8
R5-133	Residential	B	1	7650 E 32ND ST N 201	1	53.5	55.6	55.3	1.8
R5-134	Residential	B	1	7650 E 32ND ST N 201	1	53.2	55.3	55	1.8
R5-135	Residential	B	1	7650 E 32ND ST N 201	1	52.8	54.9	54.7	1.9
R5-136	Residential	B	1	7650 E 32ND ST N 201	1	55.9	58	58.6	2.7
R5-137	Residential	B	1	7650 E 32ND ST N 201	1	55	57.2	57.9	2.9
R5-138	Residential	B	1	7650 E 32ND ST N 201	1	54.6	56.8	57.5	2.9
R5-139	Residential	B	1	7650 E 32ND ST N 201	1	54.2	56.4	57.2	3
R5-140	Residential	B	1	7650 E 32ND ST N 201	1	53.7	55.9	56.7	3
R5-141	Residential	B	1	7650 E 32ND ST N 201	1	53.2	55.4	56.2	3
R5-142	Park	C	1	7650 E 32ND ST N 201	1	64.6	66.5	67	2.4
R5-143	Park	C	1	7650 E 32ND ST	1	61.3	63.3	63.4	2.1
R5-144	Park	C	1	7450 E 32ND ST	1	51.4	53.5	55	3.6

Table B-4: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 5									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
Predicted NSA 5 Traffic Noise Impacts[1]:								21[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-1	Residential	B	1	6545 E 34TH ST N Bldg C	1	65	67	68	3
R6-2	Residential	B	1	6545 E 34TH ST N Bldg C	3	70.5	72.4	72.4	1.9
R6-3	Residential	B	1	6545 E 34TH ST N Bldg C	2	69	71	71.8	2.8
R6-4	Residential	B	1	6545 E 34TH ST N Bldg C	1	63.3	65.3	66.6	3.3
R6-5	Residential	B	1	6545 E 34TH ST N Bldg C	2	66.7	68.7	69.7	3
R6-6	Residential	B	1	6545 E 34TH ST N Bldg C	3	68.3	70.2	70.5	2.2
R6-7	Residential	B	1	6545 E 34TH ST N Bldg C	1	62.5	64.5	65.5	3
R6-8	Residential	B	1	6545 E 34TH ST N Bldg C	3	66.4	68.4	69.4	3
R6-9	Residential	B	1	6545 E 34TH ST N Bldg C	2	65.1	67.1	68.4	3.3
R6-10	Residential	B	1	6545 E 34TH ST N Bldg C	1	60.1	62.1	63.2	3.1
R6-11	Residential	B	1	6545 E 34TH ST N Bldg C	3	65.3	67.2	68.4	3.1
R6-12	Residential	B	1	6545 E 34TH ST N Bldg C	2	62.7	64.6	66.3	3.6
R6-13	Residential	B	1	6545 E 34TH ST N Bldg C	2	60.4	62.3	63.5	3.1
R6-14	Residential	B	1	6545 E 34TH ST N Bldg C	1	57.7	59.6	60.6	2.9
R6-15	Residential	B	1	6545 E 34TH ST N Bldg C	3	64.4	66.3	67.7	3.3
R6-16	Residential	B	1	6545 E 34TH ST N Bldg C	1	56.4	58.4	59.3	2.9
R6-17	Residential	B	1	6545 E 34TH ST N Bldg C	3	63.6	65.5	67	3.4
R6-18	Residential	B	1	6545 E 34TH ST N Bldg C	2	59	61	61.8	2.8
R6-19	Residential	B	1	6545 E 34TH ST N Bldg C	1	56.8	58.8	60.2	3.4
R6-20	Residential	B	1	6545 E 34TH ST N Bldg C	2	59	61	61.7	2.7
R6-21	Residential	B	1	6545 E 34TH ST N Bldg C	3	63.1	65.1	66.5	3.4
R6-22	Residential	B	1	6545 E 34TH ST N Bldg C	1	56.8	58.8	60	3.2
R6-23	Residential	B	1	6545 E 34TH ST N Bldg C	2	59.3	61.3	62.2	2.9

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-24	Residential	B	1	6545 E 34TH ST N Bldg C	3	62.7	64.6	66	3.3
R6-25	Residential	B	1	6545 E 34TH ST N Bldg C	1	66	68	68.1	2.1
R6-26	Residential	B	1	6545 E 34TH ST N Bldg C	2	69.7	71.7	71.6	1.9
R6-27	Residential	B	1	6545 E 34TH ST N Bldg C	3	70.8	72.7	72.1	1.3
R6-28	Residential	B	1	6545 E 34TH ST N Bldg C	1	61.6	63.6	63.8	2.2
R6-29	Residential	B	1	6545 E 34TH ST N Bldg C	2	66	68	67.1	1.1
R6-30	Residential	B	1	6545 E 34TH ST N Bldg C	3	67	69	67.9	0.9
R6-31	Residential	B	1	6545 E 34TH ST N Bldg C	1	60.7	62.7	63	2.3
R6-32	Residential	B	1	6545 E 34TH ST N Bldg C	2	64.4	66.3	65.4	1
R6-33	Residential	B	1	6545 E 34TH ST N Bldg C	3	65.4	67.3	66.2	0.8
R6-34	Residential	B	1	6545 E 34TH ST N Bldg C	1	59.2	61.2	61.4	2.2
R6-35	Residential	B	1	6545 E 34TH ST N Bldg C	2	62.3	64.2	63.2	0.9
R6-36	Residential	B	1	6545 E 34TH ST N Bldg C	3	63.2	65.2	64.1	0.9
R6-37	Residential	B	1	6545 E 34TH ST N Bldg C	1	58.1	60.1	60.4	2.3
R6-38	Residential	B	1	6545 E 34TH ST N Bldg C	2	60.8	62.7	61.6	0.8
R6-39	Residential	B	1	6545 E 34TH ST N Bldg C	3	61.8	63.7	62.6	0.8
R6-40	Residential	B	1	6545 E 34TH ST N Bldg C	1	57.1	59	59.1	2
R6-41	Residential	B	1	6545 E 34TH ST N Bldg C	2	59.3	61.2	60.1	0.8
R6-42	Residential	B	1	6545 E 34TH ST N Bldg C	3	60.3	62.2	61.2	0.9
R6-43	Residential	B	1	6545 E 34TH ST N Bldg C	1	56.4	58.3	58.4	2
R6-44	Residential	B	1	6545 E 34TH ST N Bldg C	2	58.4	60.3	59.3	0.9
R6-45	Residential	B	1	6545 E 34TH ST N Bldg C	3	59.4	61.3	60.3	0.9
R6-46	Residential	B	1	6545 E 34TH ST N Bldg C	1	56.2	58.1	58.6	2.4

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-47	Residential	B	1	6545 E 34TH ST N Bldg C	2	57.9	59.8	59.6	1.7
R6-48	Residential	B	1	6545 E 34TH ST N Bldg C	3	59.1	61.1	61	1.9
R6-49	Residential	B	1	6545 E 34TH ST N Bldg C	1	64.7	66.7	67.1	2.4
R6-50	Residential	B	1	6545 E 34TH ST N Bldg C	3	69.8	71.7	71.1	1.3
R6-51	Residential	B	1	6545 E 34TH ST N Bldg C	2	68.7	70.6	70.5	1.8
R6-52	Residential	B	1	6545 E 34TH ST N Bldg C	1	61.5	63.5	63.1	1.6
R6-53	Residential	B	1	6545 E 34TH ST N Bldg C	2	64.4	66.3	65.7	1.3
R6-54	Residential	B	1	6545 E 34TH ST N Bldg C	3	65.5	67.5	66.6	1.1
R6-55	Residential	B	1	6545 E 34TH ST N Bldg C	1	58.6	60.6	60.9	2.3
R6-56	Residential	B	1	6545 E 34TH ST N Bldg C	2	61.2	63.1	62.2	1
R6-57	Residential	B	1	6545 E 34TH ST N Bldg C	3	62.2	64.2	63.1	0.9
R6-58	Residential	B	1	6545 E 34TH ST N Bldg C	1	67	68.9	68.6	1.6
R6-59	Residential	B	1	6545 E 34TH ST N Bldg C	2	69.5	71.5	70.6	1.1
R6-60	Residential	B	1	6545 E 34TH ST N Bldg C	3	70.3	72.3	71.2	0.9
R6-61	Residential	B	1	6545 E 34TH ST N Bldg C	1	63.9	65.9	65.6	1.7
R6-62	Residential	B	1	6545 E 34TH ST N Bldg C	2	66.4	68.3	67.3	0.9
R6-63	Residential	B	1	6545 E 34TH ST N Bldg C	3	67.3	69.3	68.3	1
R6-64	Residential	B	1	6545 E 34TH ST N Bldg C	1	61.7	63.7	63.5	1.8
R6-65	Residential	B	1	6545 E 34TH ST N Bldg C	2	64.1	66.1	65.1	1
R6-66	Residential	B	1	6545 E 34TH ST N Bldg C	3	65	66.9	66	1
R6-67	Church Playground	C	1	6655 E 34TH ST N	1	72	73.9	73	1
R6-68	Church	D	1	6770 E 34th St N	1	32.4	34.3	34.8	2.4
R6-69	Residential	B	1	6910 E 34TH ST N	1	60.3	62.3	62.6	2.3

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-70	Residential	B	1	6920 E 34TH ST N	1	59.2	61.2	62.2	3
R6-71	Residential	B	1	6930 E 34TH ST N	1	54.7	56.7	57.1	2.4
R6-72	Residential	B	1	6940 E 34TH ST N	1	54.6	56.5	57.2	2.6
R6-73	Residential	B	1	6950 E 34TH ST N	1	53.1	55	55.9	2.8
R6-74	Residential	B	1	6960 E 34TH ST N	1	53.7	55.7	56.7	3
R6-75	Residential	B	1	3506 N RUSHWOOD CT	1	59.6	61.5	61.9	2.3
R6-76	Residential	B	1	3514 N RUSHWOOD CT	1	57.2	59.2	59.3	2.1
R6-77	Residential	B	1	3522 N RUSHWOOD CT	1	56.5	58.4	58.9	2.4
R6-78	Residential	B	1	3530 N RUSHWOOD CT	1	55.1	57.1	57.6	2.5
R6-79	Residential	B	1	3538 N RUSHWOOD CT	1	54.4	56.3	57.1	2.7
R6-80	Residential	B	1	3544 N RUSHWOOD CT	1	53.7	55.7	56.5	2.8
R6-81	Residential	B	1	3548 N RUSHWOOD CT	1	51.5	53.4	54.5	3
R6-82	Residential	B	1	3588 N RUSHWOOD CT	1	55.2	57.1	57.1	1.9
R6-83	Residential	B	1	3584 N RUSHWOOD CT	1	51.2	53.1	53.9	2.7
R6-84	Residential	B	1	3566 N RUSHWOOD CT	1	49.9	51.9	53.2	3.3
R6-85	Residential	B	1	3558 N RUSHWOOD CT	1	49.3	51.3	52.6	3.3
R6-86	Residential	B	1	3552 N RUSHWOOD CT	1	49.7	51.7	52.7	3
R6-87	Residential	B	1	3505 N CAMERON ST	1	61.6	63.5	64	2.4
R6-88	Residential	B	1	3515 N CAMERON ST	1	56.3	58.3	59.5	3.2
R6-89	Residential	B	1	3525 N CAMERON ST	1	54.2	56.1	57	2.8
R6-90	Residential	B	1	3525 N CAMERON ST	1	53	54.9	55.6	2.6
R6-91	Residential	B	1	3545 N CAMERON ST	1	51.3	53.3	54.1	2.8
R6-92	Residential	B	1	3510 N CAMERON ST	1	58.6	60.6	61.2	2.6

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-93	Residential	B	1	3520 N CAMERON ST	1	55	56.9	57.6	2.6
R6-94	Residential	B	1	3530 N CAMERON ST	1	52.9	54.9	55.5	2.6
R6-95	Residential	B	1	3540 N CAMERON ST	1	51	53	54.1	3.1
R6-96	Residential	B	1	3550 N CAMERON ST	1	49.5	51.4	53	3.5
R6-97	Residential	B	1	3501 N GOVERNEOUR ST	1	59.6	61.6	62	2.4
R6-98	Residential	B	1	3505 N GOVERNEOUR ST	1	57.2	59.1	59.8	2.6
R6-99	Residential	B	1	3509 N GOVERNEOUR ST	1	54.9	56.8	57.6	2.7
R6-100	Residential	B	1	3513 N GOVERNEOUR ST	1	53.2	55.1	55.8	2.6
R6-101	Residential	B	1	3517 N GOVERNEOUR ST	1	51.7	53.7	54.4	2.7
R6-102	Residential	B	1	3521 N GOVERNEOUR ST	1	50.7	52.7	53.5	2.8
R6-103	Residential	B	1	3525 N GOVERNEOUR ST	1	50	51.9	52.9	2.9
R6-104	Residential	B	1	3502 N GOVERNEOUR ST	1	54.6	56.6	57	2.4
R6-105	Residential	B	1	3506 N GOVERNEOUR ST	1	51.4	53.4	54.3	2.9
R6-106	Residential	B	1	3510 N GOVERNEOUR ST	1	52	54	55	3
R6-107	Residential	B	1	3514 N GOVERNEOUR ST	1	49	51	52.3	3.3
R6-108	Residential	B	1	3518 N GOVERNEOUR ST	1	47.9	49.9	51	3.1
R6-109	Residential	B	1	3522 N GOVERNEOUR ST	1	48.1	50.1	51.3	3.2
R6-110	Residential	B	1	3526 N GOVERNEOUR ST	1	49.2	51.2	52.1	2.9
R6-111	Residential	B	1	3501 N INWOOD CT	1	56.9	58.9	59.6	2.7
R6-112	Residential	B	1	3505 N INWOOD CT	1	53.5	55.5	56.2	2.7
R6-113	Residential	B	1	3509 N INWOOD CT	1	52.1	54.1	55.1	3
R6-114	Residential	B	1	3513 N INWOOD CT	1	50.1	52	53.3	3.2
R6-115	Residential	B	1	3517 N INWOOD CT	1	48.8	50.8	52.1	3.3

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-116	Residential	B	1	3521 N INWOOD CT	1	47.9	49.9	51	3.1
R6-117	Residential	B	1	3541 N INWOOD CT	1	52.9	54.9	55.5	2.6
R6-118	Residential	B	1	3537 N INWOOD CT	1	49.7	51.7	52.5	2.8
R6-119	Residential	B	1	3533 N INWOOD CT	1	47.9	49.9	50.3	2.4
R6-120	Residential	B	1	3529 N INWOOD CT	1	47.7	49.7	50.3	2.6
R6-121	Residential	B	1	3545 N INWOOD CT	1	49.9	51.9	52.3	2.4
R6-122	Residential	B	1	3549 N INWOOD CT	1	47.4	49.4	50.3	2.9
R6-123	Residential	B	1	3553 N INWOOD CT	1	45.6	47.6	49	3.4
R6-124	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	57.4	59.4	59.1	1.7
R6-125	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	64.2	66.2	66.6	2.4
R6-126	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	65.3	67.2	67.8	2.5
R6-127	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	52.5	54.5	54.8	2.3
R6-128	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	60	62	62.8	2.8
R6-129	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	61.5	63.4	64.2	2.7
R6-130	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	51.2	53.1	53.7	2.5
R6-131	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	57.1	59	59.8	2.7
R6-132	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	59.3	61.3	62	2.7
R6-133	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.6	52.6	53.2	2.6
R6-134	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	58.1	60.1	60.9	2.8
R6-135	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	55.4	57.3	57.6	2.2
R6-136	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	66.1	68.1	69.6	3.5
R6-137	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	70.3	72.3	72.6	2.3
R6-138	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	71.3	73.3	73.5	2.2

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-139	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	64.5	66.5	67.9	3.4
R6-140	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	68.6	70.6	70.7	2.1
R6-141	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	69.6	71.6	71.8	2.2
R6-142	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	63.6	65.6	67	3.4
R6-143	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	68.5	70.5	70.7	2.2
R6-144	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	67.6	69.6	69.6	2
R6-145	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	62	64	65.4	3.4
R6-146	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	66.3	68.3	68.4	2.1
R6-147	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	67.2	69.2	69.4	2.2
R6-148	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	67.7	69.7	70.8	3.1
R6-149	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	70.8	72.9	72.9	2.1
R6-150	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	71.6	73.7	73.8	2.2
R6-151	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	68.4	70.4	71.4	3
R6-152	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	71.9	74	74.1	2.2
R6-153	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	71.2	73.3	73.3	2.1
R6-154	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	69.4	71.5	72	2.6
R6-155	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	71.8	73.8	73.8	2
R6-156	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	72.3	74.4	74.5	2.2
R6-157	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	70	72	72.3	2.3
R6-158	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	72	74	74.1	2.1
R6-159	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	72.4	74.5	74.7	2.3
R6-160	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	72.3	74.4	74.3	2
R6-161	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	73.8	75.8	76.1	2.3

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-162	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	74	76.1	76.3	2.3
R6-163	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	72.7	74.8	74.5	1.8
R6-164	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	73.9	76	76.2	2.3
R6-165	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	74.1	76.2	76.5	2.4
R6-166	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	73.1	75.2	74.9	1.8
R6-167	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	74.2	76.2	76.5	2.3
R6-168	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	74.3	76.4	76.7	2.4
R6-169	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	73.3	75.4	75.1	1.8
R6-170	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	74.5	76.5	76.9	2.4
R6-171	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	74.3	76.4	76.7	2.4
R6-172	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	72.9	75	74.9	2
R6-173	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	74	76	76.4	2.4
R6-174	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	74.2	76.3	76.6	2.4
R6-175	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	72.4	74.5	74.3	1.9
R6-176	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	73.6	75.6	76	2.4
R6-177	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	73.8	75.9	76.2	2.4
R6-178	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	72	74.1	73.9	1.9
R6-179	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	73.2	75.3	75.7	2.5
R6-180	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	73.6	75.6	76	2.4
R6-181	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	71.3	73.5	73.3	2
R6-182	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	72.7	74.8	75.2	2.5
R6-183	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	73.1	75.2	75.5	2.4
R6-184	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	51.3	53.4	53.7	2.4

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-185	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	56	58	59.2	3.2
R6-186	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	58	60	60.9	2.9
R6-187	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	49.8	51.9	52.3	2.5
R6-188	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	49.6	51.7	52.4	2.8
R6-189	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	52.2	54.3	55	2.8
R6-190	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.1	52.2	52.8	2.7
R6-191	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	49.6	51.7	52.5	2.9
R6-192	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	52.6	54.7	55.3	2.7
R6-193	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.3	52.4	53	2.7
R6-194	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	50.3	52.4	53.1	2.8
R6-195	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	52.6	54.6	55.2	2.6
R6-196	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.4	52.4	52.7	2.3
R6-197	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	50.5	52.5	52.7	2.2
R6-198	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	52.5	54.5	54.8	2.3
R6-199	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.7	52.7	53.3	2.6
R6-200	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	50.1	52.1	52.7	2.6
R6-201	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	53	55.1	55.5	2.5
R6-202	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.9	52.9	54.1	3.2
R6-203	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	50.2	52.3	53.7	3.5
R6-204	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	53.2	55.2	56.3	3.1
R6-205	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	53.8	55.8	56	2.2
R6-206	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	54.8	56.8	57	2.2
R6-207	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	56	58	58.4	2.4

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-208	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	57.7	59.8	58.4	0.7
R6-209	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	59.9	61.9	61.1	1.2
R6-210	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	60.7	62.7	63	2.3
R6-211	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.8	52.8	53.4	2.6
R6-212	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	50.6	52.6	53.1	2.5
R6-213	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	53.2	55.3	55.9	2.7
R6-214	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.9	53.1	53.6	2.7
R6-215	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	51.3	53.6	54	2.7
R6-216	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	53.8	56	56.6	2.8
R6-217	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	55	57.4	59.3	4.3
R6-218	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	57.8	60.1	61.4	3.6
R6-219	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	59.4	61.6	62.7	3.3
R6-220	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	57.1	59.2	61.7	4.6
R6-221	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	59.5	61.6	62.2	2.7
R6-222	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	60.1	62.2	62.8	2.7
R6-223	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	58.3	60.4	61.9	3.6
R6-224	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	60.7	62.8	62.9	2.2
R6-225	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	61.3	63.3	63.6	2.3
R6-226	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	60.6	62.7	63.6	3
R6-227	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	63.2	65.2	65.2	2
R6-228	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	63.7	65.8	66	2.3
R6-229	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	60.6	62.7	64	3.4
R6-230	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	63.5	65.5	65.9	2.4

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-231	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	64.3	66.3	66.7	2.4
R6-232	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	44.5	46.6	47.5	3
R6-233	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	44.8	46.9	47.9	3.1
R6-234	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	47.7	49.9	51.3	3.6
R6-235	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	45	47.1	47.9	2.9
R6-236	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	44.7	46.9	47.9	3.2
R6-237	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	48.4	50.6	51.5	3.1
R6-238	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	45.4	47.5	48.3	2.9
R6-239	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	45.1	47.3	48.2	3.1
R6-240	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	49	51.2	52.1	3.1
R6-241	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	47.5	49.7	51.4	3.9
R6-242	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	49.8	52.1	53.1	3.3
R6-243	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	52	54.2	55.5	3.5
R6-245	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	55.2	57.3	58.4	3.2
R6-246	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	54.5	56.6	56.6	2.1
R6-247	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	56.7	58.7	58.7	2
R6-248	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	58	60	60	2
R6-249	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	52.1	54.1	54.4	2.3
R6-250	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	55.2	57.2	57.7	2.5
R6-251	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	57.3	59.3	59.5	2.2
R6-252	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	52.5	54.6	54.8	2.3
R6-253	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	55.4	57.5	57.6	2.2
R6-254	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	57.6	59.7	59.4	1.8

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-255	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	50.9	53	53.3	2.4
R6-256	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	53.6	55.6	56.5	2.9
R6-257	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	56.2	58.2	58.6	2.4
R6-258	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	49.4	51.7	53.4	4
R6-259	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	52.1	54.4	55.7	3.6
R6-260	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	53.7	56	57	3.3
R6-261	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	51.1	53.4	54.4	3.3
R6-262	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	54	56.3	57.1	3.1
R6-263	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	55.1	57.3	57.8	2.7
R6-264	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	43.3	45.3	46.1	2.8
R6-265	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	44.2	46.3	46.8	2.6
R6-266	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	45.3	47.4	47.9	2.6
R6-267	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	41.8	43.9	43.5	1.7
R6-268	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	42.4	44.5	44.4	2
R6-269	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	42.8	44.9	45	2.2
R6-270	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	49.8	51.8	52.5	2.7
R6-271	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	51.1	53.2	53.6	2.5
R6-272	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	51.5	53.7	54	2.5
R6-273	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	44.8	46.6	45.7	0.9
R6-274	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	44	46	45.3	1.3
R6-275	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	44.5	46.5	46.5	2
R6-276	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	41.1	43.2	43.6	2.5
R6-277	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	41.6	43.6	44.1	2.5

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-278	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	43.2	45.2	45.8	2.6
R6-279	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	39.9	42	42.5	2.6
R6-280	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	41	43	43.6	2.6
R6-281	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	42.2	44.3	44.9	2.7
R6-282	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	57.5	59.6	59.8	2.3
R6-283	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	60.4	62.5	62.6	2.2
R6-284	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	61.3	63.4	63.5	2.2
R6-285	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	55.1	57.2	58	2.9
R6-286	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	57.8	60	60.3	2.5
R6-287	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	58.9	61.1	61.2	2.3
R6-288	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	54.2	56.3	57.3	3.1
R6-289	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	56.7	58.8	59.4	2.7
R6-290	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	58	60.2	60.4	2.4
R6-291	Residential	B	1	3540 N INWOOD ST APT OFFICE	1	53.5	55.6	56.7	3.2
R6-292	Residential	B	1	3540 N INWOOD ST APT OFFICE	2	55.9	58.1	58.6	2.7
R6-293	Residential	B	1	3540 N INWOOD ST APT OFFICE	3	57.3	59.5	59.7	2.4
R6-294	Residential	B	1	7303 E 34th St N	1	67.3	69.3	72.1	4.8
R6-295	Residential	B	1	7305 E 34th St N	1	67.4	69.4	72	4.6
R6-296	Residential	B	1	7309 E 34th St N	1	67.6	69.6	72	4.4
R6-297	Residential	B	1	7311 E 34th St N	1	67.6	69.6	71.9	4.3
R6-298	Residential	B	1	7315 E 34th St N	1	67	69	70.5	3.5
R6-299	Residential	B	1	7317 E 34th St N	1	67	69	70.6	3.6
R6-300	Residential	B	1	7321 E 34th St N	1	66.7	68.6	70.1	3.4

Table B-5: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 6									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R6-301	Residential	B	1	7323 E 34th St N	1	66.6	68.6	70.2	3.6
R6-302	Residential	B	1	7327 E 34th St N	1	66.3	68.3	69.9	3.6
R6-303	Residential	B	1	7329 E 34th St N	1	66.3	68.3	69.9	3.6
Predicted NSA 6 Traffic Noise Impacts[1]:								92[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-6: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 7									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R7-1	Medical Facility	D	1	8725 E 32nd St N	1	31.9	34.3	34.0	2.1
Predicted NSA 7 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-7: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 8									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R8-1	Hotel	C	1	3141 N WEBB RD	1	59.0	61.3	61.6	2.6
Predicted NSA 8 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-8: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 9									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R9-1	Hotel	C	1	9444 E 29TH ST N	1	60.0	62.2	60.9	0.9
R9-2	Residential	B	1	2925 N FOX POINTE CT	1	62.2	64.5	64.2	2.0
R9-3	Residential	B	1	2921 N FOX POINTE CT	1	59.6	62.0	61.8	2.2
R9-4	Residential	B	1	2917 N FOX POINTE CT	1	54.9	57.3	57.4	2.5
R9-5	Residential	B	1	2913 N FOX POINTE CIR	1	53.7	56.0	56.1	2.4
R9-6	Residential	B	1	2914 N FOX POINTE CIR	1	57.5	59.8	59.8	2.3
R9-7	Residential	B	1	2827 N PLUMTHICKET CIR	1	55.2	57.5	58.0	2.8
R9-8	Residential	B	1	2831 N PLUMTHICKET CIR	1	56.5	58.8	58.4	1.9
R9-9	Residential	B	1	2833 N PLUMTHICKET CIR	1	55.8	58.1	58.3	2.5
R9-10	Residential	B	1	2837 N PLUMTHICKET CIR	1	59.4	61.7	61.4	2.0
R9-11	Residential	B	1	2834 N PLUMTHICKET CIR	1	64.3	66.5	66.0	1.7
R9-12	Residential	B	1	2830 N PLUMTHICKET CIR	1	68.1	70.3	69.1	1.0
R9-13	Restaurant	B	1	2826 N PLUMTHICKET CIR	1	66.6	68.7	68.0	1.4
R9-14	Restaurant	B	1	2822 N PLUMTHICKET CIR	1	65.6	67.7	67.5	1.9
Predicted NSA 9 Traffic Noise Impacts[1]:								4[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-9: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 10									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
RT10-1	Trail	C	1	2808 N Webb Rd	1	69.4	71.5	R/W	R/W
RT10-2	Trail	C	1	2808 N Webb Rd	1	71.4	73.8	73.1	1.7
RT10-3	Trail	C	1	2808 N Webb Rd	1	69.9	72.3	69.8	-0.1
RT10-4	Trail	C	1	2808 N Webb Rd	1	68.0	70.4	70.0	2.0
RT10-5	Trail	C	1	2808 N Webb Rd	1	63.8	66.1	70.6	6.8
RT10-6	Trail	C	1	2808 N Webb Rd	1	65.9	69.9	70.7	4.8
R10-1	Residential	B	1	10106 E WINDEMERE CIR	1	55.2	57.6	57.0	1.8
R10-2	Residential	B	1	10110 E WINDEMERE CIR	1	55.9	58.3	57.5	1.6
R10-3	Residential	B	1	10114 E WINDEMERE CIR	1	56.0	58.4	58.2	2.2
R10-4	Residential	B	1	10118 E WINDEMERE CIR	1	56.5	58.9	58.8	2.3
R10-5	Residential	B	1	10122 E WINDEMERE CIR	1	57.0	59.4	59.3	2.3
R10-6	Residential	B	1	10202 E WINDEMERE ST	1	58.2	60.6	60.4	2.2
R10-7	Residential	B	1	10206 E WINDEMERE ST	1	59.2	61.6	61.2	2.0
R10-8	Residential	B	1	10214 E WINDEMERE ST	1	61.3	63.6	63.2	1.9
R10-9	Residential	B	1	10302 E WINDEMERE ST	1	62.4	64.8	64.7	2.3
R10-10	Residential	B	1	10306 E WINDEMERE CT	1	64.8	67.2	66.8	2.0
R10-11	Residential	B	1	10310 E WINDEMERE CT	1	66.4	68.8	68.4	2.0
R10-12	Residential	B	1	10314 E WINDEMERE CT	1	65.7	68.0	68.1	2.4
R10-13	Residential	B	1	10318 E WINDEMERE ST	1	59.2	61.6	62.0	2.8
R10-14	Residential	B	1	2522 N LINDBERG ST	1	55.9	58.3	58.9	3.0
R10-15	Residential	B	1	2518 N LINDBERG ST	1	52.7	55.0	55.5	2.8
R10-16	Residential	B	1	2514 N LINDBERG ST	1	51.0	53.4	53.9	2.9

Table B-9: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 10									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R10-17	Residential	B	1	2510 N LINDBERG ST	1	50.7	53.1	53.8	3.1
R10-18	Residential	B	1	2506 N LINDBERG ST	1	49.3	51.7	52.2	2.9
R10-19	Residential	B	1	10115 E WINDEMERE CIR	1	51.5	53.8	53.5	2.0
R10-20	Residential	B	1	10207 E WINDEMERE CT	1	53.0	55.4	55.0	2.0
R10-21	Residential	B	1	10203 E WINDEMERE ST	1	51.3	53.7	53.9	2.6
R10-22	Residential	B	1	2518 N CRANBROOK ST	1	49.3	51.7	52.1	2.8
R10-23	Residential	B	1	10211 E WINDEMERE CT	1	51.0	53.4	53.5	2.5
R10-24	Residential	B	1	10243 E WINDEMERE CT	1	53.3	55.7	55.6	2.3
R10-25	Residential	B	1	10239 E WINDEMERE CT	1	52.5	54.9	54.8	2.3
R10-26	Residential	B	1	10235 E WINDEMERE CT	1	51.2	53.6	53.7	2.5
R10-27	Residential	B	1	10231 E WINDEMERE CT	1	49.8	52.1	52.5	2.7
R10-28	Residential	B	1	10307 E WINDEMERE ST	1	52.8	55.1	55.5	2.7
R10-29	Residential	B	1	2519 N LINDBERG ST	1	51.8	54.1	54.2	2.4
R10-30	Residential	B	1	2515 N LINDBERG ST	1	50.9	53.3	53.4	2.5
R10-31	Residential	B	1	2511 N LINDBERG ST	1	49.9	52.2	52.4	2.5
R10-32	Residential	B	1	2429 N BRANDON ST	1	49.6	52.0	52.6	3.0
R10-33	Residential	B	1	2501 N BRANDON CIR	1	49.8	52.1	52.7	2.9
R10-34	Residential	B	1	2505 N BRANDON CIR	1	49.8	52.1	52.6	2.8
R10-35	Residential	B	1	2509 N BRANDON CIR	1	50.6	53.0	53.1	2.5
R10-36	Residential	B	1	2513 N BRANDON CIR	1	51.5	53.9	54.2	2.7
R10-37	Residential	B	1	2517 N BRANDON CIR	1	53.7	56.1	56.2	2.5
R10-38	Residential	B	1	2521 N BRANDON CIR	1	57.4	59.8	59.7	2.3
R10-39	Residential	B	1	2525 N BRANDON CIR	1	64.9	67.3	67.0	2.1

Table B-9: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 10									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R10-40	Residential	B	1	2524 N BRANDON CIR	1	66.4	68.8	68.8	2.4
R10-41	Residential	B	1	2520 N BRANDON CIR	1	66.7	69.1	68.6	1.9
R10-42	Residential	B	1	2516 N BRANDON CIR	1	61.7	64.0	64.3	2.6
R10-43	Residential	B	1	2512 N BRANDON CIR	1	57.6	60.0	60.8	3.2
R10-44	Residential	B	1	2508 N BRANDON CIR	1	55.1	57.5	58.4	3.3
R10-45	Residential	B	1	2504 N BRANDON CIR	1	53.7	56.1	56.6	2.9
R10-46	Residential	B	1	10502 E MAINSGATE CT	1	51.3	53.7	54.6	3.3
R10-47	Residential	B	1	10506 E MAINSGATE CT	1	55.6	58.0	58.1	2.5
R10-48	Residential	B	1	10510 E MAINSGATE CT	1	62.9	65.3	65.7	2.8
R10-49	Residential	B	1	10514 E MAINSGATE CT	1	66.3	68.7	68.5	2.2
R10-50	Residential	B	1	10518 E MAINSGATE CT	1	66.0	68.4	68.4	2.4
R10-51	Residential	B	1	10522 E MAINSGATE CT	1	62.3	64.6	64.4	2.1
R10-52	Residential	B	1	10604 E MAINSGATE ST	1	64.4	66.7	66.5	2.1
R10-53	Residential	B	1	10608 E MAINSGATE ST	1	63.8	66.2	65.6	1.8
R10-54	Residential	B	1	10612 E MAINSGATE ST	1	63.4	65.8	65.3	1.9
R10-55	Residential	B	1	2438 N REGENCY LAKES ST	1	62.1	64.4	64.3	2.2
R10-56	Residential	B	1	2434 N REGENCY LAKES ST	1	60.1	62.5	62.3	2.2
R10-57	Residential	B	1	2430 N REGENCY LAKES ST	1	58.0	60.4	60.3	2.3
R10-58	Residential	B	1	2426 N REGENCY LAKES ST	1	56.6	59.0	59.0	2.4
R10-59	Residential	B	1	2422 N REGENCY LAKES ST	1	55.8	58.2	58.2	2.4
R10-60	Residential	B	1	2418 N REGENCY LAKES ST	1	54.9	57.3	57.6	2.7
R10-61	Residential	B	1	2424 N BRANDON ST	1	49.0	51.5	52.2	3.2
R10-62	Residential	B	1	10503 E MAINSGATE ST	1	48.0	50.4	51.5	3.5

Table B-9: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 10									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R10-63	Residential	B	1	10507 E MAINSGATE ST	1	49.9	52.3	52.9	3.0
R10-64	Residential	B	1	10511 E MAINSGATE ST	1	50.1	52.6	53.1	3.0
R10-65	Residential	B	1	10515 E MAINSGATE ST	1	49.5	51.9	52.8	3.3
R10-66	Residential	B	1	10519 E MAINSGATE ST	1	50.4	52.8	53.3	2.9
R10-67	Residential	B	1	10609 E MAINSGATE ST	1	49.7	52.1	53.0	3.3
R10-68	Residential	B	1	2467 N REGENCY LAKES ST	1	48.6	51.0	52.2	3.6
R10-69	Residential	B	1	2463 N REGENCY LAKES ST	1	51.6	54.0	54.8	3.2
R10-70	Residential	B	1	2459 N REGENCY LAKES ST	1	49.7	52.1	52.9	3.2
R10-71	Residential	B	1	2455 N REGENCY LAKES CT	1	50.2	52.7	53.6	3.4
R10-72	Residential	B	1	2431 N REGENCY LAKES CT	1	50.5	52.9	53.5	3.0
R10-73	Residential	B	1	2435 N REGENCY LAKES CT	1	51.6	54.0	54.5	2.9
R10-74	Residential	B	1	2439 N REGENCY LAKES CT	1	51.8	54.2	54.5	2.7
R10-75	Residential	B	1	2443 N REGENCY LAKES CT	1	52.2	54.6	55.2	3.0
R10-76	Residential	B	1	2447 N REGENCY LAKES CT	1	50.3	52.8	53.4	3.1
R10-77	Residential	B	1	2451 N REGENCY LAKES CT	1	50.0	52.4	53.9	3.9
Predicted NSA 10 Traffic Noise Impacts[1]:									14[2]
Impact = [redacted] Right-of-Way Acquisition = [redacted]									

1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).
2. Predicted traffic noise level impact due to approaching or exceeding NAC.

Table B-10: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 11									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
RT11-1	Trail	C	1	2565 N Greenwich Rd	1	64.1	67.5	68.4	4.3
RT11-2	Trail	C	1	2566 N Greenwich Rd	1	72.5	74.9	74.5	2.0
RT11-3	Trail	C	1	2567 N Greenwich Rd	1	72.2	74.6	75.1	2.9
RT11-4	Trail	C	1	2568 N Greenwich Rd	1	67.9	70.2	71.7	3.8
R11-1	Residential	C	1	11500 E 21st St N	1	60.7	63.4	62.8	2.1
Predicted NSA 11 Traffic Noise Impacts[1]:								4[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-11: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 12									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R12-2	Residential	B	1	12002 E MAINSGATE ST	1	54.0	56.5	55.7	1.7
R12-3	Residential	B	1	12001 E BOXTHORN ST	1	54.5	56.9	56.3	1.8
R12-4	Residential	B	1	12005 E BOXTHORN ST	1	55.1	57.4	56.8	1.7
R12-5	Residential	B	1	12009 E BOXTHORN ST	1	55.5	57.7	57.2	1.7
R12-6	Residential	B	1	12013 E BOXTHORN ST	1	56.1	58.2	57.7	1.6
R12-7	Residential	B	1	12017 E BOXTHORN ST	1	56.0	58.2	57.8	1.8
R12-8	Residential	B	1	12021 E BOXTHORN ST	1	55.3	57.7	57.4	2.1
R12-9	Residential	B	1	12025 E BOXTHORN ST	1	55.1	57.5	57.0	1.9
R12-10	Residential	B	1	12101 E BOXTHORN ST	1	54.2	56.7	56.4	2.2
R12-11	Residential	B	1	12117 E BOXTHORN CT	1	54.2	56.6	56.4	2.2
R12-12	Residential	B	1	12121 E BOXTHORN CT	1	55.0	57.5	57.3	2.3
R12-13	Residential	B	1	12125 E BOXTHORN CT	1	55.2	57.7	57.5	2.3
R12-14	Residential	B	1	12129 E BOXTHORN CT	1	54.9	57.4	57.4	2.5
R12-15	Residential	B	1	12133 E BOXTHORN CT	1	54.5	57.0	57.1	2.6
R12-16	Church	C	1	12200 E 21ST ST N	1	55.9	58.5	58.6	2.7
Predicted NSA 12 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-12: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 13									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R13-1	Cemetery	C	1	12100 E 13th St N	1	59.8	62.6	62.7	2.9
RT13-1	Trail	C	1	12111 E 21st St N	1	71.2	73.7	72.2	1.0
RT13-2	Trail	C	1	12112 E 21st St N	1	65.9	69.0	69.2	3.3
RT13-3	Trail	C	1	12113 E 21st St N	1	61.1	64.2	64.3	3.2
RT13-5	Trail	C	1	12115 E 21st St N	1	64.9	67.7	67.7	2.8
RT13-6	Trail	C	1	12116 E 21st St N	1	62.1	64.7	64.9	2.8
RT13-7	Trail	C	1	12117 E 21st St N	1	71.6	74.2	74.5	2.9
RT13-4	Trail	C	1	12114 E 21st St N	1	61.7	64.8	64.7	3.0
Predicted NSA 13 Traffic Noise Impacts[1]:								4[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-13: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 14									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R14-1	Residential	B	1	11614 E SUMMERFIELD ST	1	54.2	57.2	56.7	2.5
R14-2	Residential	B	1	11616 E SUMMERFIELD ST	1	54.7	57.7	57.1	2.4
R14-3	Residential	B	1	11702 E SUMMERFIELD ST	1	55.3	58.4	57.8	2.5
R14-4	Residential	B	1	11702 E SUMMERFIELD ST	1	56	59.1	58.5	2.5
R14-5	Restaurant	B	1	11706 E SUMMERFIELD ST	1	56.5	59.6	59	2.5
R14-6	Residential	B	1	11706 E SUMMERFIELD ST	1	57.2	60.3	59.6	2.4
R14-7	Residential	B	1	11712 E SUMMERFIELD ST	1	57.9	60.9	60.3	2.4
R14-8	Residential	B	1	11712 E SUMMERFIELD ST	1	59.1	62.1	61.5	2.4
R14-9	Residential	B	1	11714 E SUMMERFIELD ST	1	59.9	62.9	62.4	2.5
R14-10	Residential	B	1	11714 E SUMMERFIELD ST	1	61	64.1	63.6	2.6
R14-11	Residential	B	1	1720 N BEDFORD ST	1	60.9	64	63.5	2.6
R14-12	Residential	B	1	1720 N BEDFORD ST	1	62.2	65.3	64.8	2.6
R14-13	Residential	B	1	1716 N BEDFORD ST	1	62.2	65.3	64.9	2.7
R14-14	Residential	B	1	1716 N BEDFORD ST	1	62.5	65.5	65.2	2.7
R14-15	Residential	B	1	1712 N BEDFORD ST	1	62.2	65.2	65	2.8
R14-16	Residential	B	1	1712 N BEDFORD ST	1	61.5	64.5	64.2	2.7
R14-17	Residential	B	1	1708 N BEDFORD ST	1	62.5	65.5	65.2	2.7
R14-18	Residential	B	1	1708 N BEDFORD ST	1	63.1	66	65.8	2.7
R14-19	Residential	B	1	1704 N BEDFORD ST	1	62.9	65.8	65.5	2.6
R14-20	Residential	B	1	1704 N BEDFORD ST	1	61	63.9	63.5	2.5
R14-21	Residential	B	1	11715 E CRESTWOOD ST	1	62.3	65.2	65.1	2.8
R14-22	Residential	B	1	11715 E CRESTWOOD ST	1	61.9	64.8	64.7	2.8
R14-23	Residential	B	1	11711 E CRESTWOOD ST	1	59.4	62.3	62.3	2.9

Table B-13: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 14									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R14-24	Residential	B	1	11711 E CRESTWOOD ST	1	58.7	61.5	61.5	2.8
R14-25	Restaurant	B	1	11707 E CRESTWOOD ST	1	58.1	60.9	61	2.9
R14-26	Residential	B	1	11707 E CRESTWOOD ST	1	57.2	60	60	2.8
R14-27	Residential	B	1	11703 E CRESTWOOD ST	1	57.1	60	59.9	2.8
R14-28	Residential	B	1	11703 E CRESTWOOD ST	1	56.4	59.2	59.2	2.8
R14-29	Residential	B	1	11707 E SUMMERFIELD ST	1	56.2	59.2	59	2.8
R14 -30	Residential	B	1	11707 E SUMMERFIELD ST	1	55.2	58.3	58.1	2.9
R14-31	Residential	B	1	11713 E SUMMERFIELD ST	1	50.2	53.2	53.1	2.9
R14-32	Residential	B	1	11713 E SUMMERFIELD ST	1	52.1	55.1	55	2.9
R14-33	Residential	B	1	11719 E SUMMERFIELD ST	1	55.3	58.3	58.3	3
R14-34	Restaurant	B	1	11719 E SUMMERFIELD ST	1	57.7	60.8	60.7	3
R14-35	Residential	B	1	11727 E SUMMERFIELD ST	1	59.3	62.3	62.2	2.9
R14-36	Residential	B	1	11727 E SUMMERFIELD ST	1	58.7	61.7	61.5	2.8
R14-37	Residential	B	1	11733 E SUMMERFIELD ST	1	58	61	60.9	2.9
R14-38	Residential	B	1	11733 E SUMMERFIELD ST	1	57.6	60.6	60.5	2.9
R14-39	Residential	B	1	1711 N BEDFORD ST	1	55.9	58.9	58.7	2.8
R14-40	Residential	B	1	1711 N BEDFORD ST	1	55.9	58.9	58.6	2.7
R14-41	Residential	B	1	1707 N BEDFORD ST	1	55.2	58.2	58	2.8
R14-42	Residential	B	1	1707 N BEDFORD ST	1	56.7	59.7	59.5	2.8
R14-43	Residential	B	1	11716 E CRESTWOOD ST	1	57.6	60.6	60.4	2.8
R14-44	Residential	B	1	11716 E CRESTWOOD ST	1	58	61	60.9	2.9
R14-45	Residential	B	1	11714 E CRESTWOOD ST	1	58	61.1	60.9	2.9
R14-46	Residential	B	1	11714 E CRESTWOOD ST	1	57.4	60.5	60.4	3

Table B-13: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 14									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R14-47	Residential	B	1	11708 E CRESTWOOD ST	1	56.7	59.8	59.7	3
R14-48	Residential	B	1	11704 E CRESTWOOD ST	1	55	58.1	58.1	3.1
R14-49	Residential	B	1	11704 E CRESTWOOD ST	1	54.3	57.4	57.3	3
R14-50	Church	C	1	1550 N CHAPEL HILL ST	1	55.5	58.3	58.4	2.9
Predicted NSA 14 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-1	Residential	B	1	1253 N BRACKEN CT	1	52.4	54.9	55.2	2.8
R15-2	Residential	B	1	1251 N BRACKEN CT	1	53.9	56.4	56.7	2.8
R15-3	Residential	B	1	1249 N BRACKEN CT	1	54.1	56.7	56.9	2.8
R15-5	Residential	B	1	1245 N BRACKEN CT	1	51.9	54.5	54.6	2.7
R15-6	Residential	B	1	1243 N BRACKEN CT	1	49.6	52.1	52.2	2.6
R15-7	Residential	B	1	1241 N BRACKEN CT	1	47.3	49.8	49.5	2.2
R15-8	Residential	B	1	1255 N BRACKEN CT	1	46.2	48.8	49.2	3
R15-9	Residential	B	1	1257 N BRACKEN CT	1	44.8	47.4	47.7	2.9
R15-10	Residential	B	1	1259 N BRACKEN CT	1	46.4	48.9	49.2	2.8
R15-11	Residential	B	1	1229 N BRACKEN ST	1	45.5	48.1	48.3	2.8
R15-12	Residential	B	1	1225 N BRACKEN ST	1	44.7	47.2	47.4	2.7
R15-13	Residential	B	1	1221 N BRACKEN CT	1	45.5	48	48.1	2.6
R15-14	Residential	B	1	1215 N BRACKEN CT	1	47.1	49.6	49.3	2.2
R15-15	Residential	B	1	1209 N BRACKEN CT	1	53.8	56.3	56.3	2.5
R15-16	Residential	B	1	1201 N BRACKEN CT	1	54.9	57.4	57.1	2.2
R15-17	Residential	B	1	1169 N BRACKEN ST	1	56.5	58.9	58.5	2
R15-18	Residential	B	1	1159 N BRACKEN ST	1	60.2	62.6	61.8	1.6
R15-19	Residential	B	1	1149 N BRACKEN ST	1	62.7	65.2	63.7	1
R15-20	Residential	B	1	1139 N BRACKEN ST	1	64.9	67.4	65.9	1
R15-21	Residential	B	1	1125 N BRACKEN ST	1	66.7	69.2	68.7	2

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-22	Residential	B	1	1117 N BRACKEN ST	1	68.2	70.7	70.6	2.4
R15-23	Residential	B	1	1109 N BRACKEN ST	1	68.4	70.9	70.9	2.5
R15-24	Residential	B	1	1101 N BRACKEN ST	1	67.8	70.3	70.4	2.6
R15-25	Residential	B	1	12001 E KILLENWOOD ST	1	65.4	67.9	67.9	2.5
R15-26	Residential	B	1	12011 E KILLENWOOD ST	1	59.5	62	62	2.5
R15-27	Residential	B	1	12021 E KILLENWOOD ST	1	53.6	56	55.9	2.3
R15-28	Residential	B	1	12101 E KILLENWOOD ST	1	51.1	53.6	53.6	2.5
R15-29	Residential	B	1	12111 E KILLENWOOD ST	1	48.3	50.8	50.7	2.4
R15-30	Residential	B	1	12121 E KILLENWOOD ST	1	46.7	49.2	49.2	2.5
R15-31	Residential	B	1	12201 E KILLENWOOD ST	1	46.1	48.5	48.5	2.4
R15-32	Residential	B	1	12203 E KILLENWOOD ST	1	46.4	48.9	48.9	2.5
R15-33	Residential	B	1	1228 N BRACKEN ST	1	44.7	47.2	47.2	2.5
R15-34	Residential	B	1	1224 N BRACKEN ST	1	44.3	46.8	47.1	2.8
R15-35	Residential	B	1	1168 N BRACKEN ST	1	46.6	49.1	48.7	2.1
R15-36	Residential	B	1	1158 N BRACKEN ST	1	45.5	48	48.1	2.6
R15-37	Residential	B	1	1148 N BRACKEN ST	1	46.7	49.2	49.3	2.6
R15-38	Residential	B	1	1138 N BRACKEN ST	1	45.9	48.4	48.5	2.6
R15-39	Residential	B	1	1128 N BRACKEN ST	1	46.5	49	49	2.5
R15-40	Residential	B	1	1118 N BRACKEN ST	1	47.3	49.7	49.8	2.5
R15-41	Residential	B	1	12108 E KILLENWOOD CT	1	46.3	48.8	48.7	2.4
R15-42	Residential	B	1	12106 E KILLENWOOD CT	1	45.9	48.4	48.4	2.5
R15-43	Residential	B	1	12104 E KILLENWOOD CT	1	47.3	49.8	49.7	2.4
R15-44	Residential	B	1	12102 E KILLENWOOD CT	1	50.2	52.7	52.6	2.4

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-45	Residential	B	1	12100 E KILLENWOOD CT	1	51	53.5	53.4	2.4
R15-46	Residential	B	1	12124 E KILLENWOOD CT	1	46.8	49.3	49.3	2.5
R15-47	Residential	B	1	12126 E KILLENWOOD ST	1	46.7	49.2	49.2	2.5
R15-48	Residential	B	1	12128 E KILLENWOOD ST	1	45.1	47.6	47.6	2.5
R15-49	Residential	B	1	1059 N WHITE TAIL CT	1	45.9	48.4	48.4	2.5
R15-50	Residential	B	1	1051 N WHITE TAIL CT	1	46.1	48.6	48.7	2.6
R15-51	Residential	B	1	1049 N WHITE TAIL CT	1	47.2	49.7	49.9	2.7
R15-52	Residential	B	1	1041 N WHITE TAIL CT	1	50	52.5	52.6	2.6
R15-53	Residential	B	1	1039 N WHITE TAIL CT	1	56	58.5	58.5	2.5
R15-54	Residential	B	1	1035 N WHITE TAIL CT	1	56.1	58.6	58.3	2.2
R15-55	Residential	B	1	1029 N WHITE TAIL CT	1	55.3	57.8	57.5	2.2
R15-56	Residential	B	1	1025 N WHITE TAIL CT	1	56.7	59.1	59.2	2.5
R15-57	Residential	B	1	1017 N WHITE TAIL CT	1	53.5	55.9	55.8	2.3
R15-58	Residential	B	1	1009 N WHITE TAIL CT	1	50.4	52.9	52.8	2.4
R15-59	Residential	B	1	969 N WHITE TAIL CIR	1	50.2	52.7	52.6	2.4
R15-60	Residential	B	1	953 N WHITE TAIL CIR	1	51.7	54.1	54.1	2.4
R15-61	Residential	B	1	945 N WHITE TAIL CIR	1	52.4	54.9	54.8	2.4
R15-62	Residential	B	1	937 N WHITE TAIL CIR	1	63	65.5	65.6	2.6
R15-63	Residential	B	1	938 N WHITE TAIL CIR	1	68.2	70.6	70.8	2.6
R15-64	Residential	B	1	944 N WHITE TAIL CIR	1	66.7	69.1	69.2	2.5
R15-65	Residential	B	1	948 N WHITE TAIL CIR	1	62.6	65	65	2.4
R15-66	Residential	B	1	954 N WHITE TAIL CT	1	59.7	62.1	62.1	2.4
R15-67	Residential	B	1	958 N WHITE TAIL CT	1	57.2	59.7	59.7	2.5

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-68	Residential	B	1	964 N WHITE TAIL CT	1	51.9	54.3	54.3	2.4
R15-69	Residential	B	1	968 N WHITE TAIL CT	1	49.2	51.6	51.6	2.4
R15-70	Residential	B	1	974 N WHITE TAIL CIR	1	48.7	51.2	51.1	2.4
R15-71	Residential	B	1	1000 N WHITE TAIL CIR	1	46.8	49.3	49.2	2.4
R15-72	Residential	B	1	1018 N WHITE TAIL CIR	1	47.1	49.6	49.5	2.4
R15-73	Residential	B	1	949 N WOODRIDGE CT	1	49.4	51.8	51.8	2.4
R15-74	Residential	B	1	947 N WOODRIDGE CT	1	51	53.5	53.3	2.3
R15-75	Residential	B	1	945 N WOODRIDGE CT	1	49.9	52.4	52.3	2.4
R15-76	Residential	B	1	12414 E KILLARNEY ST	1	46	48.4	48.5	2.5
R15-77	Residential	B	1	12410 E KILLARNEY ST	1	46.2	48.7	48.7	2.5
R15-78	Residential	B	1	12406 E KILLARNEY ST	1	46.6	49.1	49.1	2.5
R15-79	Residential	B	1	12402 E KILLARNEY ST	1	47	49.4	49.4	2.4
R15-80	Residential	B	1	12318 E KILLARNEY ST	1	47.8	50.2	50.2	2.4
R15-81	Residential	B	1	12314 E KILLARNEY ST	1	48.7	51.1	51.1	2.4
R15-82	Residential	B	1	12310 E KILLARNEY ST	1	49.9	52.4	52.3	2.4
R15-83	Residential	B	1	12306 E KILLARNEY ST	1	51.6	54.1	54.1	2.5
R15-84	Residential	B	1	12302 E KILLARNEY ST	1	56.6	59	59	2.4
R15-85	Residential	B	1	12218 E KILLARNEY ST	1	61.5	63.9	63.9	2.4
R15-86	Residential	B	1	12214 E KILLARNEY ST	1	67.7	70.1	70.2	2.5
R15-87	Residential	B	1	842 N GLENMOOR ST	1	50.9	53.3	53.3	2.4
R15-88	Residential	B	1	838 N GLENMOOR ST	1	49.3	51.8	51.8	2.5
R15-89	Residential	B	1	834 N GLENMOOR ST	1	49.5	51.9	51.9	2.4
R15-90	Residential	B	1	830 N GLENMOOR ST	1	49.6	52	52	2.4

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-91	Residential	B	1	826 N GLENMOOR ST	1	49.3	51.8	51.8	2.5
R15-92	Residential	B	1	822 N GLENMOOR ST	1	49.4	51.8	51.8	2.4
R15-93	Residential	B	1	818 N GLENMOOR ST	1	49.4	51.8	51.8	2.4
R15-94	Residential	B	1	814 N GLENMOOR ST	1	49	51.5	51.5	2.5
R15-95	Residential	B	1	810 N GLENMOOR ST	1	52.6	55.1	54.1	1.5
R15-96	Residential	B	1	12401 E KILLARNEY ST	1	49.5	52	51.8	2.3
R15-97	Residential	B	1	12405 E KILLARNEY ST	1	50.4	52.8	52.6	2.2
R15-98	Residential	B	1	12409 E KILLARNEY ST	1	49.9	52.4	52.2	2.3
R15-99	Residential	B	1	12413 E KILLARNEY ST	1	49.5	51.9	51.7	2.2
R15-100	Residential	B	1	12417 E KILLARNEY ST	1	46.4	48.8	48.9	2.5
R15-101	Residential	B	1	813 N WOODRIDGE ST	1	49.6	52	52	2.4
R15-102	Residential	B	1	809 N WOODRIDGE ST	1	50.7	53.1	53	2.3
R15-103	Residential	B	1	805 N WOODRIDGE ST	1	53.1	55.5	55.3	2.2
R15-104	Residential	B	1	809 N GLENMOOR ST	1	70.7	73.2	73.3	2.6
R15-105	Residential	B	1	805 N GLENMOOR ST	1	68.5	70.9	71	2.5
R15-106	Residential	B	1	801 N GLENMOOR ST	1	61.8	64.3	64.1	2.3
R15-107	Residential	B	1	802 N WOODRIDGE ST	1	58.2	60.6	60.2	2
R15-108	Residential	B	1	806 N WOODRIDGE ST	1	53.1	55.5	54.6	1.5
R15-109	Residential	B	1	810 N WOODRIDGE ST	1	50.9	53.3	52.4	1.5
R15-110	Residential	B	1	814 N WOODRIDGE ST	1	49.4	51.8	50.9	1.5
R15-111	Residential	B	1	818 N WOODRIDGE ST	1	48.1	50.5	49.8	1.7
R15-112	Residential	B	1	822 N WOODRIDGE ST	1	47.4	49.9	49.2	1.8
R15-113	Residential	B	1	826 N WOODRIDGE ST	1	47.3	49.8	49.3	2

Table B-14: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 15									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R15-114	Residential	B	1	12515 E KILLARNEY CT	1	47.5	50	49.7	2.2
R15-115	Residential	B	1	12517 E KILLARNEY CT	1	49.2	51.7	51.4	2.2
R15-116	Residential	B	1	12521 E KILLARNEY CT	1	51.3	53.8	53.7	2.4
R15-117	Residential	B	1	12525 E KILLARNEY CT	1	53.1	55.5	55.5	2.4
R15-118	Residential	B	1	12529 E KILLARNEY CT	1	57.9	60.3	59.8	1.9
R15-119	Residential	B	1	12533 E KILLARNEY CT	1	59	61.5	61	2
R15-120	Residential	B	1	12609 E KILLARNEY CT	1	56.2	58.7	57.3	1.1
R15-121	Residential	B	1	12613 E KILLARNEY CT	1	50.6	53.1	51.2	0.6
R15-122	Church	C	1	747 N 127TH ST E	1	51.9	54.3	54.2	2.3
R15-4	Residential	B	1	1247 N BRACKEN CT	1	53.3	55.9	56.1	2.8
RT15-1	Trail	C	1	12001 E 13th St N	1	69.2	71.7	72.3	3.1
RT15-2	Trail	C	1	12002 E 13th St N	1	64.8	67.3	64.9	0.1
RT15-3	Trail	C	1	12003 E 13th St N	1	71.3	73.7	74.3	3
RT15-4	Trail	C	1	12004 E 13th St N	1	73	75.4	75.6	2.6
RT15-5	Trail	C	1	12005 E 13th St N	1	69.5	71.9	71.7	2.2
RT15-6	Trail	C	1	12006 E 13th St N	1	69.6	72	72.1	2.5
Predicted NSA 15 Traffic Noise Impacts[1]:								15[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-1	Residential	B	1	1101 N BEDFORD CIR	1	48.7	51.1	50	1.3
R16-2	Residential	B	1	1105 N BEDFORD CIR	1	47.7	50.2	50	2.3
R16-3	Residential	B	1	1109 N BEDFORD CIR	1	44.8	47.4	47	2.2
R16-4	Residential	B	1	1113 N BEDFORD CIR	1	46.6	49.1	48.3	1.7
R16-5	Residential	B	1	1117 N BEDFORD CIR	1	53.5	56	53.5	0
R16-6	Residential	B	1	1121 N BEDFORD CIR	1	57.6	60.1	56.5	-1.1
R16-7	Residential	B	1	1126 N BEDFORD CIR	1	61.7	64.2	58.2	-3.5
R16-8	Residential	B	1	1122 N BEDFORD CIR	1	65.3	67.7	62.4	-2.9
R16-9	Residential	B	1	1118 N BEDFORD CIR	1	65.2	67.7	62.1	-3.1
R16-10	Residential	B	1	1114 N BEDFORD CIR	1	59.5	61.9	57.1	-2.4
R16-11	Residential	B	1	1110 N BEDFORD CT	1	54.9	57.4	53.2	-1.7
R16-12	Residential	B	1	1106 N BEDFORD CT	1	64.4	66.8	61.8	-2.6
R16-13	Residential	B	1	1102 N BEDFORD CT	1	66.8	69.3	66.8	0
R16-14	Residential	B	1	1098 N BEDFORD CT	1	65.9	68.4	65.8	-0.1
R16-15	Residential	B	1	1094 N BEDFORD CT	1	65.5	68	65.8	0.3
R16-16	Residential	B	1	1090 N BEDFORD CT	1	65.1	67.6	65.6	0.5
R16-17	Residential	B	1	1086 N BEDFORD CT	1	63.1	65.5	63.5	0.4
R16-18	Residential	B	1	1070 N BEDFORD ST	1	48.8	51.3	51	2.2
R16-19	Residential	B	1	1074 N BEDFORD CT	1	50.7	53.3	51.7	1
R16-20	Residential	B	1	1066 N BEDFORD ST	1	46.8	49.3	48.5	1.7
R16-21	Residential	B	1	1078 N BEDFORD CT	1	45.6	48.1	47.9	2.3
R16-22	Residential	B	1	1062 N BEDFORD ST	1	46	48.5	47.1	1.1
R16-23	Residential	B	1	1082 N BEDFORD CT	1	44.1	46.6	46.3	2.2

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-24	Residential	B	1	1054 N BEDFORD CT	1	47.2	49.7	49.4	2.2
R16-25	Residential	B	1	1050 N BEDFORD CT	1	49.8	52.2	51.4	1.6
R16-26	Residential	B	1	1046 N BEDFORD CT	1	52	54.5	53.3	1.3
R16-27	Residential	B	1	1042 N BEDFORD CT	1	54.8	57.2	55.4	0.6
R16-28	Residential	B	1	1038 N BEDFORD CT	1	60.3	62.7	60.5	0.2
R16-29	Residential	B	1	1034 N BEDFORD CT	1	65.2	67.6	66.9	1.7
R16-30	Residential	B	1	1030 N BEDFORD CT	1	65.1	67.5	66.8	1.7
R16-31	Residential	B	1	1026 N BEDFORD CT	1	58.2	60.6	60.1	1.9
R16-32	Residential	B	1	1022 N BEDFORD CT	1	53.6	56.1	55.4	1.8
R16-33	Residential	B	1	1018 N BEDFORD CT	1	50.6	53.1	52.6	2
R16-34	Residential	B	1	1014 N BEDFORD CT	1	48.9	51.4	50.9	2
R16-35	Residential	B	1	1010 N BEDFORD CT	1	47.2	49.7	49.4	2.2
R16-36	Residential	B	1	11820 E KILLARNEY ST	1	48.7	51.2	50.7	2
R16-37	Residential	B	1	11824 E KILLARNEY ST	1	50.8	53.3	52.6	1.8
R16-38	Residential	B	1	11904 E KILLARNEY ST	1	55	57.4	57.1	2.1
R16-39	Residential	B	1	11910 E KILLARNEY ST	1	57.2	59.6	59	1.8
R16-40	Residential	B	1	11914 E KILLARNEY ST	1	58	60.5	59.3	1.3
R16-41	Residential	B	1	830 N RITCHFIELD ST	1	57.8	60.3	59	1.2
R16-42	Residential	B	1	824 N RITCHFIELD ST	1	56.7	59.2	57.9	1.2
R16-43	Residential	B	1	818 N RITCHFIELD ST	1	55.6	58	57	1.4
R16-44	Residential	B	1	812 N RITCHFIELD ST	1	53.6	56	55.3	1.7
R16-45	Residential	B	1	808 N RITCHFIELD ST	1	51.6	54	53.5	1.9
R16-46	Residential	B	1	734 N RITCHFIELD ST	1	50.2	52.6	52.2	2

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-47	Residential	B	1	728 N RITCHFIELD ST	1	49.5	52	51.9	2.4
R16-48	Residential	B	1	817 N BRACKEN CT	1	50	52.4	51.9	1.9
R16-49	Residential	B	1	821 N BRACKEN CT	1	51	53.4	53.4	2.4
R16-50	Residential	B	1	825 N BRACKEN CT	1	49.4	51.8	51.6	2.2
R16-51	Residential	B	1	829 N BRACKEN CIR	1	53.7	56.1	56	2.3
R16-52	Residential	B	1	833 N BRACKEN CIR	1	54.6	57.1	56.9	2.3
R16-53	Residential	B	1	837 N BRACKEN CIR	1	48.2	50.7	50.3	2.1
R16-54	Residential	B	1	841 N BRACKEN CIR	1	52.4	54.8	53.9	1.5
R16-55	Residential	B	1	845 N BRACKEN CIR	1	57.2	59.6	58.5	1.3
R16-56	Residential	B	1	846 N BRACKEN CIR	1	59.7	62.1	60.7	1
R16-57	Residential	B	1	842 N BRACKEN CIR	1	60.5	62.9	62.1	1.6
R16-58	Residential	B	1	838 N BRACKEN CIR	1	60.4	62.9	62.4	2
R16-59	Residential	B	1	834 N BRACKEN CIR	1	60.3	62.8	62.5	2.2
R16-60	Residential	B	1	830 N BRACKEN CIR	1	59.8	62.2	62	2.2
R16-61	Residential	B	1	826 N BRACKEN CIR	1	59.3	61.8	61.6	2.3
R16-62	Residential	B	1	838 N WHITE TAIL ST	1	59.9	62.4	62.2	2.3
R16-63	Residential	B	1	834 N WHITE TAIL ST	1	59.5	62	61.8	2.3
R16-64	Residential	B	1	830 N WHITE TAIL ST	1	58.5	60.9	60.8	2.3
R16-65	Residential	B	1	826 N WHITE TAIL ST	1	56.9	59.3	59.2	2.3
R16-66	Residential	B	1	822 N WHITE TAIL CT	1	51.5	54	53.9	2.4
R16-67	Residential	B	1	818 N WHITE TAIL CT	1	57.3	59.7	59.6	2.3
R16-68	Residential	B	1	814 N WHITE TAIL CT	1	56.7	59.1	59	2.3
R16-69	Residential	B	1	810 N WHITE TAIL CT	1	54.7	57.1	57.1	2.4

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-70	Residential	B	1	806 N WHITE TAIL CT	1	50.6	53	53	2.4
R16-71	Residential	B	1	802 N WHITE TAIL CT	1	49.1	51.5	51.5	2.4
R16-72	Residential	B	1	12106 E TIPPERARY ST	1	49.1	51.5	51.4	2.3
R16-73	Residential	B	1	804 N BRACKEN ST	1	49.2	51.7	51.6	2.4
R16-74	Residential	B	1	808 N BRACKEN ST	1	50	52.4	52.3	2.3
R16-75	Residential	B	1	812 N BRACKEN ST	1	51.2	53.7	53.6	2.4
R16-76	Residential	B	1	816 N BRACKEN ST	1	51.8	54.3	54.2	2.4
R16-77	Residential	B	1	817 N WHITE TAIL ST	1	47.9	50.4	50.3	2.4
R16-78	Residential	B	1	815 N WHITE TAIL ST	1	49.2	51.6	51.5	2.3
R16-79	Residential	B	1	809 N WHITE TAIL ST	1	47.8	50.3	50.2	2.4
R16-80	Residential	B	1	805 N WHITE TAIL ST	1	47.4	49.8	49.7	2.3
R16-81	Residential	B	1	801 N WHITE TAIL ST	1	46.5	48.9	48.8	2.3
R16-82	Residential	B	1	742 N WHITE TAIL ST	1	48.5	50.9	50.9	2.4
R16-83	Residential	B	1	12210 E TIPPERARY CIR	1	50.1	52.5	52.5	2.4
R16-84	Residential	B	1	12302 E TIPPERARY CIR	1	51	53.5	53.4	2.4
R16-85	Residential	B	1	12306 E TIPPERARY CIR	1	51.4	53.9	53.8	2.4
R16-86	Residential	B	1	12310 E TIPPERARY CIR	1	55.2	57.7	57.6	2.4
R16-87	Residential	B	1	12314 E TIPPERARY CIR	1	59.5	62	61.9	2.4
R16-88	Residential	B	1	12317 E TIPPERARY CIR	1	58.9	61.3	61.2	2.3
R16-89	Residential	B	1	12313 E TIPPERARY CIR	1	55.2	57.6	57.6	2.4
R16-90	Residential	B	1	12309 E TIPPERARY CIR	1	48.4	50.8	50.8	2.4
R16-91	Residential	B	1	12305 E TIPPERARY CIR	1	46.5	49	48.9	2.4
R16-92	Residential	B	1	12301 E TIPPERARY CIR	1	47.1	49.5	49.5	2.4

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-93	Residential	B	1	12213 E TIPPERARY CIR	1	45.7	48.2	48.2	2.5
R16-94	Residential	B	1	12302 E TROON ST	1	46.3	48.8	48.7	2.4
R16-95	Residential	B	1	12306 E TROON ST	1	47.3	49.7	49.7	2.4
R16-96	Residential	B	1	12310 E TROON ST	1	50.4	52.9	52.9	2.5
R16-97	Residential	B	1	12402 E TROON ST	1	53	55.4	55.4	2.4
R16-98	Residential	B	1	12406 E TROON ST	1	53.5	55.9	55.9	2.4
R16-99	Residential	B	1	606 N WOODRIDGE ST	1	52.5	55	54.9	2.4
R16-100	Residential	B	1	602 N WOODRIDGE ST	1	50	52.4	52.4	2.4
R16-101	Residential	B	1	530 N WOODRIDGE ST	1	48.1	50.5	50.5	2.4
R16-102	Residential	B	1	526 N WOODRIDGE ST	1	46.4	48.9	48.9	2.5
R16-103	Residential	B	1	522 N WOODRIDGE ST	1	45.2	47.7	47.7	2.5
R16-105	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.4	71.8	71.7	2.3
R16-106	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.1	71.6	71.5	2.4
R16-107	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	68.7	71.1	71	2.3
R16-108	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	68.7	71.1	71	2.3
R16-109	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	67.6	70.1	70	2.4
R16-110	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.4	71.9	71.8	2.4
R16-111	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	70	72.4	72.3	2.3
R16-112	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	68	70.4	70.3	2.3
R16-113	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.7	72.1	72	2.3
R16-114	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	70.1	72.5	72.4	2.3
R16-115	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	68	70.4	70.3	2.3
R16-116	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.7	72.1	72	2.3

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-117	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	70.1	72.5	72.4	2.3
R16-118	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	67.8	70.2	70.1	2.3
R16-119	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	69.7	72.1	72	2.3
R16-120	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	70.1	72.6	72.4	2.3
R16-121	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	51.7	54.2	54.2	2.5
R16-122	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	55.9	58.4	58.3	2.4
R16-123	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	57.3	59.8	59.7	2.4
R16-124	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	48.1	50.5	50.4	2.3
R16-125	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	49.7	52.2	51.9	2.2
R16-126	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	51.6	54.1	54	2.4
R16-127	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	48.1	50.6	50.3	2.2
R16-128	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	48.9	51.4	51.1	2.2
R16-129	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	51.1	53.6	53.5	2.4
R16-130	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	48	50.5	50	2
R16-131	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	48.5	51	50.6	2.1
R16-132	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	50.5	53	52.9	2.4
R16-133	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	55.1	57.5	57.5	2.4
R16-134	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	61.3	63.7	63.7	2.4
R16-135	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	64	66.4	66.4	2.4
R16-136	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	54.7	57.1	57	2.3
R16-137	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	60.5	62.9	62.9	2.4
R16-138	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	63.1	65.6	65.5	2.4
R16-139	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	54.5	56.9	56.9	2.4

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-140	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	59.7	62.2	62.2	2.5
R16-141	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	62.4	64.8	64.7	2.3
R16-142	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	53.9	56.4	56.4	2.5
R16-143	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	58.7	61.2	61.2	2.5
R16-144	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	61.3	63.7	63.7	2.4
R16-145	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	53.6	56.1	56	2.4
R16-146	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	58	60.5	60.5	2.5
R16-147	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	60.4	62.8	62.7	2.3
R16-148	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	53.4	55.8	55.8	2.4
R16-149	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	57.7	60.1	60.1	2.4
R16-150	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	60.1	62.5	62.5	2.4
R16-151	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	53.2	55.6	55.6	2.4
R16-152	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	57.6	60	60.1	2.5
R16-153	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	60	62.5	62.4	2.4
R16-154	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	53.2	55.6	55.6	2.4
R16-155	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	57.8	60.3	60.3	2.5
R16-156	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	60.4	62.9	62.8	2.4
R16-157	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	53.9	56.3	56.5	2.6
R16-158	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	56.5	58.9	59	2.5
R16-159	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	46.3	48.8	48.7	2.4
R16-160	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	52	54.5	54.5	2.5
R16-161	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	58.9	61.4	61.3	2.4
R16-162	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	45.4	47.8	47.8	2.4

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R16-163	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	47.6	50	50	2.4
R16-164	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	54.2	56.6	56.5	2.3
R16-165	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	45.1	47.5	47.4	2.3
R16-166	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	46.6	49.1	49	2.4
R16-167	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	51.4	53.8	53.7	2.3
R16-168	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	44.6	47	47	2.4
R16-169	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	46	48.5	48.4	2.4
R16-170	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	50.3	52.7	52.6	2.3
R16-171	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	40.3	42.7	42.6	2.3
R16-172	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	41.3	43.8	43.7	2.4
R16-173	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	46.2	48.7	48.6	2.4
R16-174	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	41.4	43.9	43.8	2.4
R16-175	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	41.2	43.7	43.6	2.4
R16-176	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	46.4	48.8	48.8	2.4
R16-177	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	41.6	44	44	2.4
R16-178	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	41.5	44	43.9	2.4
R16-179	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	46.4	48.9	48.8	2.4
R16-180	Residential	B	1	12526 E CENTRAL AVE CLBHSE	1	41.5	43.9	43.9	2.4
R16-181	Residential	B	1	12526 E CENTRAL AVE CLBHSE	2	42.2	44.6	44.6	2.4
R16-182	Residential	B	1	12526 E CENTRAL AVE CLBHSE	3	46.3	48.7	48.7	2.4
R16-183	Residential	B	1	601 N WOODRIDGE ST	1	45.1	47.6	47.6	2.5
R16-184	Residential	B	1	529 N WOODRIDGE ST	1	42.7	45.1	45.1	2.4
R16-185	Apartment Pool	C	1	4200 E SKELLY DR	1	38.8	41.3	41.2	2.4

Table B-15: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 16									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
Predicted NSA 16 Traffic Noise Impacts[1]:								20[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-16: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 17									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R17-1	Residential	B	1	715 N CREST RIDGE CT	1	49.8	52.3	50.9	1.1
R17-2	Residential	B	1	707 N CREST RIDGE CT	1	50.3	52.7	50.7	0.4
R17-3	Residential	B	1	701 N CREST RIDGE CT	1	52	54.4	51.5	-0.5
R17-4	Residential	B	1	665 N CREST RIDGE CT	1	53.9	56.4	53.4	-0.5
R17-5	Residential	B	1	663 N CREST RIDGE CT	1	54.1	56.5	55.6	1.5
R17-6	Residential	B	1	655 N CREST RIDGE CT	1	55.9	58.3	58.1	2.2
R17-7	Residential	B	1	649 N CREST RIDGE CT	1	57.8	60.2	60.2	2.4
R17-8	Residential	B	1	643 N CREST RIDGE CT	1	54.8	57.3	56.9	2.1
R17-9	Residential	B	1	639 N CREST RIDGE CT	1	52.6	55	54.6	2
R17-10	Residential	B	1	635 N CREST RIDGE CT	1	50.9	53.3	53	2.1
R17-11	Residential	B	1	631 N CREST RIDGE CT	1	48.8	51.2	51	2.2
R17-12	Residential	B	1	629 N CREST RIDGE CT	1	45.9	48.3	48.2	2.3
R17-13	Residential	B	1	82 E VIA VERDE DR	1	45.3	47.7	47.6	2.3
R17-14	Residential	B	1	81 E VIA VERDE DR	1	45.2	47.7	47.5	2.3
R17-15	Residential	B	1	80 E VIA VERDE ST	1	45.6	48	47.8	2.2
R17-16	Residential	B	1	79 E VIA VERDE DR	1	45.8	48.2	48.1	2.3
R17-17	Residential	B	1	12801 E CREST RIDGE CIR	1	45.8	48.2	46.7	0.9
R17-18	Residential	B	1	644 N CREST RIDGE CT	1	45.2	47.7	47.7	2.5
R17-19	Residential	B	1	12811 E CREST RIDGE CIR	1	44.4	46.8	44.6	0.2
R17-20	Residential	B	1	638 N CREST RIDGE CT	1	41.4	43.9	44.1	2.7
R17-21	Residential	B	1	634 N CREST RIDGE CT	1	42.7	45.2	44.4	1.7
R17-22	Residential	B	1	12821 E CREST RIDGE CIR	1	41.2	43.7	43.7	2.5
R17-23	Residential	B	1	628 N CREST RIDGE CT	1	41.8	44.3	44.4	2.6

Table B-16: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 17									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R17-24	Residential	B	1	600 N 127TH ST E	1	50	52.4	52.3	2.3
R17-25	Trail	C	1	1000 N 127th St E	1	48	50.4	50.3	2.3
R17-26	Residential	B	1	2 E SAINT CLOUD PL	1	45.4	47.8	47.6	2.2
R17-27	Residential	B	1	4 E SAINT CLOUD PL	1	46.4	48.8	48.6	2.2
R17-28	Residential	B	1	6 E SAINT CLOUD PL	1	48.5	50.9	50.8	2.3
R17-29	Residential	B	1	8 E SAINT CLOUD PL	1	48.8	51.3	51.1	2.3
R17-30	Residential	B	1	10 E SAINT CLOUD PL	1	50.9	53.2	53.1	2.2
R17-31	Residential	B	1	14 E SAINT CLOUD PL	1	46.7	49.2	49.1	2.4
R17-32	Residential	B	1	16 E SAINT CLOUD PL	1	47.7	50.1	49.8	2.1
R17-33	Residential	B	1	18 E SAINT CLOUD PL	1	46.6	49.1	48.9	2.3
R17-34	Residential	B	1	20 E SAINT CLOUD PL	1	51.8	54.2	54	2.2
R17-35	Residential	B	1	22 E SAINT CLOUD PL	1	41.6	44.1	44.1	2.5
R17-36	Residential	B	1	24 E SAINT CLOUD PL	1	41.8	44.2	44.2	2.4
R17-37	Residential	B	1	26 E SAINT CLOUD PL	1	42	44.5	44.4	2.4
R17-38	Residential	B	1	28 E SAINT CLOUD PL	1	43.5	45.9	45.8	2.3
Predicted NSA 17 Traffic Noise Impacts[1]:								0[2]	
Impact = [redacted] Right-of-Way Acquisition = [redacted]									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-17: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 18									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R18-1	Residential	B	1	13101 E BRIDGEFIELD PL	1	63.1	65.5	65.2	2.1
R18-2	Residential	B	1	13105 E BRIDGEFIELD PL	1	63	65.4	65.1	2.1
R18-3	Residential	B	1	13109 E BRIDGEFIELD PL	1	60.2	62.6	62.2	2
R18-4	Residential	B	1	13113 E BRIDGEFIELD PL	1	57.8	60.2	59.9	2.1
R18-5	Residential	B	1	13117 E BRIDGEFIELD PL	1	57.1	59.5	59.1	2
R18-6	Residential	B	1	13201 E BRIDGEFIELD PL	1	59.5	61.9	61.3	1.8
R18-7	Residential	B	1	13201 E BRIDGEFIELD PL	1	58.9	61.4	60.8	1.9
R18-8	Residential	B	1	13205 E BRIDGEFIELD PL	1	55	57.4	57.1	2.1
R18-9	Residential	B	1	13209 E BRIDGEFIELD PL	1	52	54.5	54.3	2.3
R18-10	Residential	B	1	13213 E BRIDGEFIELD PL	1	51	53.6	53.4	2.4
R18-11	Residential	B	1	13217 E BRIDGEFIELD PL	1	48.8	51.4	51.6	2.8
R18-12	Residential	B	1	327 N BRIDGEFIELD ST	1	50.6	53.3	53.6	3
R18-13	Residential	B	1	323 N BRIDGEFIELD ST	1	51.2	53.9	54.7	3.5
R18-14	Residential	B	1	319 N BRIDGEFIELD ST	1	50	53	54.2	4.2
R18-15	Residential	B	1	315 N BRIDGEFIELD ST	1	50.9	53.8	55.2	4.3
R18-16	Residential	B	1	311 N BRIDGEFIELD ST	1	50.6	53.7	55.2	4.6
R18-17	Residential	B	1	13114 E BRIDGEFIELD PL	1	47.4	49.8	49.7	2.3
R18-18	Residential	B	1	13118 E BRIDGEFIELD PL	1	46	48.5	48.3	2.3
R18-19	Residential	B	1	13202 E BRIDGEFIELD PL	1	46	48.4	48.3	2.3
R18-20	Residential	B	1	13206 E BRIDGEFIELD PL	1	44.2	46.7	46.6	2.4
R18-21	Residential	B	1	13210 E BRIDGEFIELD PL	1	43.3	45.8	45.7	2.4
R18-22	Residential	B	1	13214 E BRIDGEFIELD PL	1	40.7	43.4	43.9	3.2
R18-23	Residential	B	1	13218 E BRIDGEFIELD PL	1	40.9	43.6	44.2	3.3
R18-24	Residential	B	1	13222 E BRIDGEFIELD PL	1	41.4	44.1	44.8	3.4

Table B-17: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 18									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R18-25	Residential	B	1	13226 E BRIDGEFIELD PL	1	44	46.7	47	3
Predicted NSA 18 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Table B-18: Noise-Sensitive Receptors and Hourly Equivalent Noise Levels - NSA 19									
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))			
ID #	Land Use	NAC	No. Dwelling Units/ ERs	Address	Floor No.	2022 Existing	2050 No Build	2050 Build	Build - Existing (Delta)
R19-1	Church	D	1	338 N 127TH ST E	1	38.9	41.4	41.3	2.4
Predicted NSA 19 Traffic Noise Impacts[1]:								0[2]	
Impact = Right-of-Way Acquisition =									
1. The number of predicted impacts is not duplicated if receptors are predicted to be impacted by more than one criterion (e.g., if a receptor is impacted by NAC "C" and NAC "D", it is counted as only one impact).									
2. Predicted traffic noise level impact due to approaching or exceeding NAC.									

Appendix C

Noise Barrier Analyses

A total of 11 noise walls have been evaluated for the Build Alternative using TNM.

Five (5) of the 11 noise walls meet the KDOT feasibility and reasonableness criteria and are recommended for construction: NW4-1, NW5-2, NW6-1, NW6-2, and NW16-2. Six (6) of the 11 noise walls do not meet the feasible and reasonableness criteria and are not recommended for construction: NW3, NW4-2, NW5-1, NW10, NW15 and NW16-1.

The heights, lengths, surface areas, noise level reductions, and benefits cited in this Noise Study Report represent a detailed assessment of noise wall feasibility and reasonableness. A final decision on noise wall construction will be made following completion of the public involvement process.

Each of the noise walls that were evaluated are summarized below.

Noise Wall NW3 (Noise Study Area 3)

Location: South of K-96 between N. Oliver Street and N. Woodlawn Boulevard.

NW3 meets KDOT noise abatement feasibility criteria but does not meet the reasonableness criteria. NW3 is not recommended for construction.

NW3- Acoustical Performance Summary							
Barrier:	NW3_D3		Feasibility				
Description:	shoulder		No. 1st row impacts:	3	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	3		No. 1st row imp w/ NLR >= 5 dBA:	3	receptors		
Height:	13.3	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	2,699	ft	Feasible:	Yes			
Surface area:	35,784	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	1			
Total Impacts:	4	receptors	NRDG (50% of benefits >= 7dBA)	33%			
Total Imp & Benefited:	3	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	0			
Total Benefits:	3	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	0		SA/Benefit	11,928	square-feet/BR		
TNM Barrier Analysis:	NW3_D3		Reasonable:	No			

NW3 Analysis Results - NSA(s) 3 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R3-3	C	1	1		3238 N Oliver Ave	63.6	59.6	4
RT3-1	C	1	1		3238 N Oliver Ave	58.7	57.6	1.1
RT3-2	C	1	1	yes	3238 N Oliver Ave	70.1	64.3	5.8
RT3-3	C	1	1	yes	3238 N Oliver Ave	76.1	65.6	10.5
RT3-4	C	1	1	yes	3238 N Oliver Ave	70	65	5
RT3-5	C	1	1		3238 N Oliver Ave	71.2	71.2	0
					Predicted "Build-Condition" With-Barrier Benefits[1]:			3
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW4-1 (Noise Study Area 4)

Location: North of K-96 between N. Oliver Street and N. Woodlawn Boulevard.

NW4-1 meets KDOT noise abatement feasibility criteria and the reasonableness criteria.
NW4-1 is recommended for construction.

NW4-1 - Acoustical Performance Summary							
Barrier:	NW4-1_D4		Feasibility				
Description:	ROW		No. 1st row impacts:	10	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	4		No. 1st row imp w/ NLR >= 5 dBA:	10	receptors		
Height:	19.1	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	1,600	ft	Feasible:	Yes			
Surface area:	30,600	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	27			
Total Impacts:	42	receptors	NRDG (50% of benefits >= 7dBA)	55%			
Total Imp & Benefited:	39	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	19			
Total Benefits:	49	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	10		SA/Benefit	624	square-feet/BR		
TNM Barrier Analysis:	NW4-1_D4		Reasonable:	Yes			

NW4-1 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R4-1	B	1	1	yes	3450 N RIDGEWOOD ST	72.4	64	8.4
R4-2	B	1	2		3450 N RIDGEWOOD ST	73.2	65.8	7.4
R4-3	B	1	3		3450 N RIDGEWOOD ST	74.2	69	5.2
R4-4	B	1	1	yes	3450 N RIDGEWOOD ST	73.1	63.5	9.6
R4-5	B	1	2		3450 N RIDGEWOOD ST	73.8	65.5	8.3
R4-6	B	1	3		3450 N RIDGEWOOD ST	74.9	69.7	5.2
R4-7	B	1	1	yes	3450 N RIDGEWOOD ST	73.8	63.1	10.7
R4-8	B	1	2		3450 N RIDGEWOOD ST	74.3	65.2	9.1
R4-9	B	1	3		3450 N RIDGEWOOD ST	75.5	70.5	5
R4-10	B	1	1	yes	3450 N RIDGEWOOD ST	74.7	62.6	12.1
R4-11	B	1	2		3450 N RIDGEWOOD ST	75.2	65.4	9.8
R4-12	B	1	3		3450 N RIDGEWOOD ST	76.3	72.3	4
R4-13	B	1	1	yes	3450 N RIDGEWOOD ST	74.1	61.5	12.6
R4-14	B	1	2		3450 N RIDGEWOOD ST	74.7	64.2	10.5
R4-15	B	1	3		3450 N RIDGEWOOD ST	75.6	70.6	5
R4-16	B	1	1	yes	3450 N RIDGEWOOD ST	73.6	61.3	12.3
R4-17	B	1	2		3450 N RIDGEWOOD ST	74.2	63.7	10.5
R4-18	B	1	3		3450 N RIDGEWOOD ST	75.1	69.5	5.6
R4-19	B	1	1	yes	3450 N RIDGEWOOD ST	73.1	61.1	12
R4-20	B	1	2		3450 N RIDGEWOOD ST	73.8	63.6	10.2
R4-21	B	1	3		3450 N RIDGEWOOD ST	74.2	68.4	5.8
R4-22	B	1	1	yes	3450 N RIDGEWOOD ST	72.6	61	11.6

NW4-1 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R4-23	B	1	2		3450 N RIDGEWOOD ST	73.3	63.3	10
R4-24	B	1	3		3450 N RIDGEWOOD ST	73.7	67.6	6.1
R4-25	B	1	1		3450 N RIDGEWOOD ST	64.7	63.1	1.6
R4-26	B	1	2		3450 N RIDGEWOOD ST	66.1	64.1	2
R4-27	B	1	3		3450 N RIDGEWOOD ST	66.9	65.3	1.6
R4-28	B	1	1		3450 N RIDGEWOOD ST	56.2	56.1	0.1
R4-29	B	1	2		3450 N RIDGEWOOD ST	55.6	55.4	0.2
R4-30	B	1	3		3450 N RIDGEWOOD ST	57.1	56.9	0.2
R4-31	B	1	1		3450 N RIDGEWOOD ST	55.5	55.4	0.1
R4-32	B	1	2		3450 N RIDGEWOOD ST	54.8	54.7	0.1
R4-33	B	1	3		3450 N RIDGEWOOD ST	57.2	57	0.2
R4-34	B	1	1		3450 N RIDGEWOOD ST	54.9	54.9	0
R4-35	B	1	2		3450 N RIDGEWOOD ST	54.2	54.2	0
R4-36	B	1	3		3450 N RIDGEWOOD ST	57.1	57.1	0
R4-37	B	1	1		3450 N RIDGEWOOD ST	55.4	55.3	0.1
R4-38	B	1	2		3450 N RIDGEWOOD ST	54.4	54.2	0.2
R4-39	B	1	3		3450 N RIDGEWOOD ST	57	56.8	0.2
R4-40	B	1	1		3450 N RIDGEWOOD ST	55.8	55.8	0
R4-41	B	1	2		3450 N RIDGEWOOD ST	54.5	54.5	0
R4-42	B	1	3		3450 N RIDGEWOOD ST	56.7	56.7	0
R4-43	B	1	1		3450 N RIDGEWOOD ST	54.8	54.7	0.1
R4-44	B	1	2		3450 N RIDGEWOOD ST	54.2	54.2	0

NW4-1 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R4-45	B	1	3		3450 N RIDGEWOOD ST	56.4	56.4	0
R4-46	B	1	1		3450 N RIDGEWOOD ST	61.1	57.4	3.7
R4-47	B	1	2		3450 N RIDGEWOOD ST	62.8	59.2	3.6
R4-48	B	1	3		3450 N RIDGEWOOD ST	63.5	60.8	2.7
R4-49	B	1	1	yes	3450 N RIDGEWOOD ST	69.2	58.5	10.7
R4-50	B	1	2		3450 N RIDGEWOOD ST	70.8	60.6	10.2
R4-51	B	1	3		3450 N RIDGEWOOD ST	71.1	63.9	7.2
R4-52	B	1	1		3450 N RIDGEWOOD ST	65.7	56.6	9.1
R4-53	B	1	2		3450 N RIDGEWOOD ST	67.6	57.6	10
R4-54	B	1	3		3450 N RIDGEWOOD ST	67.8	60.1	7.7
R4-55	B	1	1		3450 N RIDGEWOOD ST	64.1	57	7.1
R4-56	B	1	2		3450 N RIDGEWOOD ST	65.9	57.6	8.3
R4-57	B	1	3		3450 N RIDGEWOOD ST	66.1	59.2	6.9
R4-58	B	1	1		3450 N RIDGEWOOD ST	63	57.6	5.4
R4-59	B	1	2		3450 N RIDGEWOOD ST	64.7	58	6.7
R4-60	B	1	3		3450 N RIDGEWOOD ST	65	59	6
R4-61	B	1	1	yes	3450 N RIDGEWOOD ST	68.2	59.6	8.6
R4-62	B	1	2		3450 N RIDGEWOOD ST	69.6	62.2	7.4
R4-63	B	1	3		3450 N RIDGEWOOD ST	70	64.9	5.1
R4-64	B	1	1		3450 N RIDGEWOOD ST	66.2	58.6	7.6
R4-65	B	1	2		3450 N RIDGEWOOD ST	68	61.4	6.6
R4-66	B	1	3		3450 N RIDGEWOOD ST	68.4	63.3	5.1

NW4-1 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R4-67	B	1	1		3450 N RIDGEWOOD ST	64.8	58.2	6.6
R4-68	B	1	2		3450 N RIDGEWOOD ST	67.2	61.2	6
R4-69	B	1	3		3450 N RIDGEWOOD ST	67.6	62.6	5
R4-70	B	1	1		3450 N RIDGEWOOD ST	63.7	57.8	5.9
R4-71	B	1	2		3450 N RIDGEWOOD ST	66.5	60.8	5.7
R4-72	B	1	3		3450 N RIDGEWOOD ST	66.9	61.9	5
R4-73	B	1	1		3450 N RIDGEWOOD ST	62.9	60.7	2.2
R4-74	B	1	2		3450 N RIDGEWOOD ST	64.1	61.4	2.7
R4-75	B	1	3		3450 N RIDGEWOOD ST	64.6	62.1	2.5
R4-76	B	1	1		3450 N RIDGEWOOD ST	62.8	60.1	2.7
R4-77	B	1	2		3450 N RIDGEWOOD ST	64	60.7	3.3
R4-78	B	1	3		3450 N RIDGEWOOD ST	64.5	61.6	2.9
R4-79	B	1	1		3450 N RIDGEWOOD ST	62.9	60.1	2.8
R4-80	B	1	2		3450 N RIDGEWOOD ST	63.9	60.3	3.6
R4-81	B	1	3		3450 N RIDGEWOOD ST	64.4	61	3.4
R4-82	B	1	1		3450 N RIDGEWOOD ST	62.2	58.7	3.5
R4-83	B	1	2		3450 N RIDGEWOOD ST	63.2	59	4.2
R4-84	B	1	3		3450 N RIDGEWOOD ST	63.8	60.1	3.7
R4-85	B	1	1		3450 N RIDGEWOOD ST	62.1	59	3.1
R4-86	B	1	2		3450 N RIDGEWOOD ST	63.3	59.1	4.2
R4-87	B	1	3		3450 N RIDGEWOOD ST	63.8	60.1	3.7
R4-88	B	1	1		3450 N RIDGEWOOD ST	62.1	58.4	3.7

NW4-1 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R4-89	B	1	2		3450 N RIDGEWOOD ST	63.4	58.5	4.9
R4-90	B	1	3		3450 N RIDGEWOOD ST	63.9	59.5	4.4
R4-91	B	1	1		3450 N RIDGEWOOD ST	61.9	58	3.9
R4-92	B	1	2		3450 N RIDGEWOOD ST	63.5	58.2	5.3
R4-93	B	1	3		3450 N RIDGEWOOD ST	63.9	59.3	4.6
R4-94	B	1	1		3450 N RIDGEWOOD ST	49.7	48.5	1.2
R4-95	B	1	3		3450 N RIDGEWOOD ST	52.5	51.2	1.3
R4-96	B	1	2		3450 N RIDGEWOOD ST	50	48.6	1.4
R4-98	C	1	1		3450 N Ridgewood St	64.5	59.5	5
					Predicted “Build-Condition” With-Barrier Benefits[1]:			49
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW4-2 (Noise Study Area 4)

Location: North of K-96 between N. Oliver Street and N. Woodlawn Boulevard.

NW4-2 does not meet KDOT the noise abatement feasibility criteria or the reasonableness criteria. NW4-2 is not recommended for construction.

NW4-2 - Acoustical Performance Summary							
Barrier:	NW4-2_D2		Feasibility				
Description:	ROW		No. 1st row impacts:	2	receptors	A min of 3 first row receptors impacted:	No
NSA:	4		No. 1st row imp w/ NLR >= 5 dBA:	2	receptors		
Height:	19	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	2,198	ft	Feasible:	No			
Surface area:	41,807	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	2			
Total Impacts:	2	receptors	NRDG (50% of benefits >= 7dBA)	100%			
Total Imp & Benefited:	2	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	0			
Total Benefits:	2	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	0		SA/Benefit	20,904	square-feet/BR		
TNM Barrier Analysis:	NW4-2_D2		Reasonable:	No			

NW4-2 Analysis Results - NSA(s) 4 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
RT4-1	C	1	1		6319 Brookview Ct	61.9	57.6	4.3
RT4-2	C	1	1	yes	6319 Brookview Ct	67.1	60.0	7.1
RT4-3	C	1	1	yes	6319 Brookview Ct	68.9	60.6	8.3
					Predicted "Build-Condition" With-Barrier Benefits[1]:			2
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW5-1 (Noise Study Area 5)

Location: South of K-96 between the N. Woodlawn Boulevard and N. Rock Road.

NW5-1 meets KDOT noise abatement feasibility criteria but does not meet the reasonableness criteria. NW5-1 is not recommended for construction.

NW5-1- Acoustical Performance Summary							
Barrier:	NW5-1_D3		Feasibility				
Description:	shoulder		No. 1st row impacts:	3	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	5		No. 1st row imp w/ NLR >= 5 dBA:	3	receptors		
Height:	15.4	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	1,100	ft	Feasible:	Yes			
Surface area:	16,916	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	3			
Total Impacts:	8	receptors	NRDG (50% of benefits >= 7dBA)	30%			
Total Imp & Benefited:	8	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	0			
Total Benefits:	10	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	2		SA/Benefit	1,692	square-feet/BR		
TNM Barrier Analysis:	NW5-1_D3		Reasonable:	No			

NW5-1 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-1	C	1	1	yes	3330 N Woodlawn St	66.7	59.5	7.2
R5-2	C	1	1		3330 N Woodlawn St	64.2	57.9	6.3
R5-3	C	1	1		3330 N Woodlawn St	60.5	57.3	3.2
R5-4	C	1	1	yes	3330 N Woodlawn St	70.7	63.6	7.1
R5-5	C	1	1	yes	3330 N Woodlawn St	72.7	64.7	8
R5-6	C	1	1		3330 N Woodlawn St	68.8	62.2	6.6
R5-7	C	1	1		3330 N Woodlawn St	70	63.2	6.8
R5-8	C	1	1		3330 N Woodlawn St	67	61.4	5.6
R5-9	C	1	1		3330 N Woodlawn St	68.1	62.1	6
R5-10	C	1	1		3330 N Woodlawn St	65.6	60.6	5
R5-11	C	1	1		3330 N Woodlawn St	66.3	61.3	5
R5-12	C	1	1		3330 N Woodlawn St	63	58.4	4.6
R5-13	C	1	1		3330 N Woodlawn St	64.7	61.2	3.5
					Predicted “Build-Condition” With-Barrier Benefits[1]:			10
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW5-2 (Noise Study Area 5)

Location: South of K-96 between the N. Woodlawn Boulevard and N. Rock Road.

NW5-2 meets KDOT noise abatement feasibility criteria and the reasonableness criteria. NW5-2 is recommended for construction.

NW5-2 - Acoustical Performance Summary							
Barrier:	NW5-2_D2		Feasibility				
Description:	ROW		No. 1st row impacts:	8	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	5		No. 1st row imp w/ NLR >= 5 dBA:	8	receptors		
Height:	10.6	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	1,000	ft	Feasible:	Yes			
Surface area:	10,404	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	12			
Total Impacts:	12	receptors	NRDG (50% of benefits >= 7dBA)	71%			
Total Imp & Benefited:	12	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	8			
Total Benefits:	17	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	5		SA/Benefit	612	square-feet/BR		
TNM Barrier Analysis:	NW5-2_D2		Reasonable:	Yes			

NW5-2 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-19	B	1	1	yes	3333 N GOVERNEOUR CIR	74	69	5
R5-20	B	1	1	yes	3335 N GOVERNEOUR CIR	72.4	63.1	9.3
R5-21	B	1	1	yes	3343 N GOVERNEOUR CIR	74.3	64.9	9.4
R5-22	B	1	1	yes	3345 N GOVERNEOUR CIR	73.4	63.6	9.8
R5-23	B	1	1	yes	3353 N GOVERNEOUR CIR	74.5	63.6	10.9
R5-24	B	1	1	yes	3355 N GOVERNEOUR CIR	74.5	63.4	11.1
R5-25	B	1	1	yes	3363 N GOVERNEOUR CIR	75.1	63.6	11.5
R5-26	B	1	1	yes	3365 N GOVERNEOUR CIR	71.9	61.4	10.5
R5-27	B	1	1		3371 N GOVERNEOUR CIR	68.6	60.6	8
R5-28	B	1	1		3373 N GOVERNEOUR CIR	59.9	56.4	3.5
R5-29	B	1	1		3372 N GOVERNEOUR CIR	59.2	55.8	3.4
R5-30	B	1	1		3370 N GOVERNEOUR CIR	56.5	53.3	3.2
R5-31	B	1	1		3362 N GOVERNEOUR CIR	56.3	54.2	2.1
R5-32	B	1	1		3360 N GOVERNEOUR CIR	58.2	56.3	1.9
R5-33	B	1	1		3352 N GOVERNEOUR CIR	61	58.7	2.3
R5-34	B	1	1		3350 N GOVERNEOUR CIR	56.7	54.3	2.4
R5-35	B	1	1		3342 N GOVERNEOUR CIR	58.4	57	1.4
R5-36	B	1	1		3340 N GOVERNEOUR CIR	53.2	52.7	0.5
R5-37	B	1	1		3334 N GOVERNEOUR CIR	56.4	55.1	1.3
R5-38	B	1	1		3332 N GOVERNEOUR CIR	53.9	51.9	2
R5-39	B	1	1		3324 N GOVERNEOUR CIR	57	56.1	0.9
R5-40	B	1	1		3322 N GOVERNEOUR CIR	53.8	52.7	1.1

NW5-2 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-41	B	1	1		7400 E 32ND ST N 101	56	53.1	2.9
R5-42	B	1	1		7400 E 32ND ST N 101	56.5	53.4	3.1
R5-43	B	1	1		7400 E 32ND ST N 101	56.7	53.7	3
R5-44	B	1	1		7400 E 32ND ST N 101	56.9	53.5	3.4
R5-45	B	1	1		7400 E 32ND ST N 101	57.2	53.4	3.8
R5-46	B	1	1		7400 E 32ND ST N 101	57.5	53.2	4.3
R5-47	B	1	1		7400 E 32ND ST N 101	58.5	54.3	4.2
R5-48	B	1	1		7400 E 32ND ST N 101	58.9	54.6	4.3
R5-49	B	1	1		7400 E 32ND ST N 101	59.3	54.7	4.6
R5-50	B	1	1		7400 E 32ND ST N 101	59.6	54.7	4.9
R5-51	B	1	1		7400 E 32ND ST N 101	59.9	54.9	5
R5-52	B	1	1		7400 E 32ND ST N 101	60.3	55.3	5
R5-53	B	1	1		7400 E 32ND ST N 101	50.1	48.9	1.2
R5-54	B	1	1		7400 E 32ND ST N 101	52.5	49.6	2.9
R5-55	B	1	1		7400 E 32ND ST N 101	52.3	49.4	2.9
R5-56	B	1	1		7400 E 32ND ST N 101	51.8	48.9	2.9
R5-57	B	1	1		7400 E 32ND ST N 101	51.4	48.5	2.9
R5-58	B	1	1		7400 E 32ND ST N 101	51	48.1	2.9
R5-59	B	1	1		7400 E 32ND ST N 101	50.6	48.4	2.2
R5-60	B	1	1		7400 E 32ND ST N 101	48.9	48.9	0
R5-61	B	1	1		7400 E 32ND ST N 101	49.6	49.6	0
R5-62	B	1	1		7400 E 32ND ST N 101	50.3	50.2	0.1

NW5-2 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-63	B	1	1		7400 E 32ND ST N 101	52.2	51.3	0.9
R5-64	B	1	1		7400 E 32ND ST N 101	51.7	51	0.7
R5-65	B	1	1		7400 E 32ND ST N 101	51.3	51	0.3
R5-66	B	1	1		7450 E 32ND ST N 1301	49.9	48.2	1.7
R5-67	B	1	1		7450 E 32ND ST N 1301	49.4	47.6	1.8
R5-68	B	1	1		7450 E 32ND ST N 1301	48.9	47.3	1.6
R5-69	B	1	1		7450 E 32ND ST N 1301	48.4	46.8	1.6
R5-70	B	1	1		7450 E 32ND ST N 1301	48	46.5	1.5
R5-71	B	1	1		7450 E 32ND ST N 1301	47.7	46.3	1.4
R5-72	B	1	1		7450 E 32ND ST N 1301	68.6	61.5	7.1
R5-73	B	1	1		7450 E 32ND ST N 1301	67.6	59.7	7.9
R5-74	B	1	1		7450 E 32ND ST N 1301	66.7	59	7.7
R5-75	B	1	1		7450 E 32ND ST N 1301	65.7	58.7	7
R5-76	B	1	1		7450 E 32ND ST N 1301	64.5	58	6.5
R5-77	B	1	1		7450 E 32ND ST N 101	63.6	57.7	5.9
R5-78	B	1	1		7450 E 32ND ST N 101	50.7	50.1	0.6
R5-79	B	1	1		7450 E 32ND ST N 101	49.3	48.8	0.5
R5-80	B	1	1		7450 E 32ND ST N 101	48.9	48.6	0.3
R5-81	B	1	1		7450 E 32ND ST N 101	48.7	48.5	0.2
R5-82	B	1	1		7450 E 32ND ST N 101	48.4	48.3	0.1
R5-83	B	1	1		7450 E 32ND ST N 101	54.7	54.7	0
R5-84	B	1	1		7450 E 32ND ST N 101	49.8	49.8	0

NW5-2 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-85	B	1	1		7450 E 32ND ST N 101	49.9	49.9	0
R5-86	B	1	1		7450 E 32ND ST N 101	49.9	49.9	0
R5-87	B	1	1		7450 E 32ND ST N 101	49.7	49.8	-0.1
R5-88	B	1	1		7450 E 32ND ST N 101	49.4	49.4	0
R5-89	B	1	1		7450 E 32ND ST N 101	55.7	55.7	0
R5-90	B	1	1		7450 E 32ND ST N 101	57	56.5	0.5
R5-91	B	1	1		7450 E 32ND ST N 101	53.6	53.4	0.2
R5-92	B	1	1		7450 E 32ND ST N 101	51.7	51.7	0
R5-93	B	1	1		7450 E 32ND ST N 101	51.3	51.2	0.1
R5-94	B	1	1		7450 E 32ND ST N 101	50.9	50.9	0
R5-95	B	1	1		7450 E 32ND ST N 101	50.8	50.8	0
R5-96	B	1	1		7450 E 32ND ST N 1101	52.2	51.3	0.9
R5-97	B	1	1		7450 E 32ND ST N 1101	51.4	49.8	1.6
R5-98	B	1	1		7450 E 32ND ST N 1101	51.8	50	1.8
R5-99	B	1	1		7450 E 32ND ST N 1101	51.9	50	1.9
R5-100	B	1	1		7450 E 32ND ST N 1101	51.9	49.8	2.1
R5-101	B	1	1		7450 E 32ND ST N 1101	51.6	49.6	2
R5-102	B	1	1		7450 E 32ND ST N 101	59.9	59.9	0
R5-103	B	1	1		7450 E 32ND ST N 101	58.7	58.7	0
R5-104	B	1	1		7450 E 32ND ST N 101	58.2	58.2	0
R5-105	B	1	1		7450 E 32ND ST N 101	56.9	56.9	0
R5-106	B	1	1		7450 E 32ND ST N 101	56	56	0

NW5-2 Analysis Results - NSA(s) 5 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R5-107	B	1	1		7450 E 32ND ST N 101	55.5	55.5	0
R5-144	C	1	1		7450 E 32ND ST	55.1	55.1	0
					Predicted "Build-Condition" With-Barrier Benefits[1]:			17
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW6-1 (Noise Study Area 6)

Location: North of K-96 east of N. Woodlawn Boulevard.

NW6-1 meets KDOT noise abatement feasibility criteria and the reasonableness criteria.
NW6-1 is recommended for construction.

NW6-1 - Acoustical Performance Summary								
Barrier:	NW6-1_D3		Feasibility					
Description:	ROW		No. 1st row impacts:	5	receptors	A min of 3 first row receptors impacted:	Yes	
NSA:	6		No. 1st row imp w/ NLR >= 5 dBA:	5	receptors			
Height:	18.2	ft	80% 1st row impacts >= 5dBA)	Yes				
Length:	998	ft	Feasible:	Yes				
Surface area:	18,164	sq-ft	Reasonableness					
			No. Benefited Receptors >= 7 dBA	12				
Total Impacts:	31	receptors	NRDG (50% of benefits >= 7dBA)	48%				
Total Imp & Benefited:	13	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	5				
Total Benefits:	25	receptors	Allowable Area	1,200	square-feet/BR			
Total Non-impacted Benefits:	12		SA/Benefit	727	square-feet/BR			
TNM Barrier Analysis:	NW6-1_D3		Reasonable:	Yes				

NW6-1 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-1	B	1	1	yes	6545 E 34TH ST N Bldg C	68.1	59.8	8.3
R6-2	B	1	3		6545 E 34TH ST N Bldg C	72.4	72.3	0.1
R6-3	B	1	2		6545 E 34TH ST N Bldg C	71.9	63.9	8
R6-4	B	1	1		6545 E 34TH ST N Bldg C	66.7	60.4	6.3
R6-5	B	1	2		6545 E 34TH ST N Bldg C	69.8	64.7	5.1
R6-6	B	1	3		6545 E 34TH ST N Bldg C	70.5	70.4	0.1
R6-7	B	1	1		6545 E 34TH ST N Bldg C	65.7	60.7	5
R6-8	B	1	3		6545 E 34TH ST N Bldg C	69.4	69.3	0.1
R6-9	B	1	2		6545 E 34TH ST N Bldg C	68.6	65.3	3.3
R6-10	B	1	1		6545 E 34TH ST N Bldg C	63.5	58.6	4.9
R6-11	B	1	3		6545 E 34TH ST N Bldg C	68.5	68.3	0.2
R6-12	B	1	2		6545 E 34TH ST N Bldg C	66.5	64.1	2.4
R6-13	B	1	2		6545 E 34TH ST N Bldg C	63.6	60.7	2.9
R6-14	B	1	1		6545 E 34TH ST N Bldg C	60.6	56.2	4.4
R6-15	B	1	3		6545 E 34TH ST N Bldg C	67.7	67.6	0.1
R6-16	B	1	1		6545 E 34TH ST N Bldg C	59.2	55.5	3.7
R6-17	B	1	3		6545 E 34TH ST N Bldg C	67	67	0
R6-18	B	1	2		6545 E 34TH ST N Bldg C	62	59.6	2.4
R6-19	B	1	1		6545 E 34TH ST N Bldg C	60.2	57.2	3
R6-20	B	1	2		6545 E 34TH ST N Bldg C	61.9	60.4	1.5
R6-21	B	1	3		6545 E 34TH ST N Bldg C	66.5	66.5	0
R6-22	B	1	1		6545 E 34TH ST N Bldg C	60	58	2

NW6-1 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-23	B	1	2		6545 E 34TH ST N Bldg C	62.3	61.5	0.8
R6-24	B	1	3		6545 E 34TH ST N Bldg C	66.1	66.1	0
R6-25	B	1	1	yes	6545 E 34TH ST N Bldg C	68.1	59.7	8.4
R6-26	B	1	2		6545 E 34TH ST N Bldg C	71.6	63.8	7.8
R6-27	B	1	3		6545 E 34TH ST N Bldg C	72.1	71.9	0.2
R6-28	B	1	1		6545 E 34TH ST N Bldg C	63.9	56.7	7.2
R6-29	B	1	2		6545 E 34TH ST N Bldg C	67.2	61.1	6.1
R6-30	B	1	3		6545 E 34TH ST N Bldg C	67.9	67.6	0.3
R6-31	B	1	1		6545 E 34TH ST N Bldg C	63.3	55.9	7.4
R6-32	B	1	2		6545 E 34TH ST N Bldg C	65.5	60.2	5.3
R6-33	B	1	3		6545 E 34TH ST N Bldg C	66.3	66	0.3
R6-34	B	1	1		6545 E 34TH ST N Bldg C	61.7	54.7	7
R6-35	B	1	2		6545 E 34TH ST N Bldg C	63.4	58.7	4.7
R6-36	B	1	3		6545 E 34TH ST N Bldg C	64.2	64	0.2
R6-37	B	1	1		6545 E 34TH ST N Bldg C	60.5	53.9	6.6
R6-38	B	1	2		6545 E 34TH ST N Bldg C	61.8	57.5	4.3
R6-39	B	1	3		6545 E 34TH ST N Bldg C	62.7	62.4	0.3
R6-40	B	1	1		6545 E 34TH ST N Bldg C	59.1	53.1	6
R6-41	B	1	2		6545 E 34TH ST N Bldg C	60.4	56.6	3.8
R6-42	B	1	3		6545 E 34TH ST N Bldg C	61.3	61	0.3
R6-43	B	1	1		6545 E 34TH ST N Bldg C	58.4	53.3	5.1
R6-44	B	1	2		6545 E 34TH ST N Bldg C	59.5	56.2	3.3

NW6-1 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-45	B	1	3		6545 E 34TH ST N Bldg C	60.5	60.2	0.3
R6-46	B	1	1		6545 E 34TH ST N Bldg C	58.3	54.7	3.6
R6-47	B	1	2		6545 E 34TH ST N Bldg C	59.7	57.5	2.2
R6-48	B	1	3		6545 E 34TH ST N Bldg C	61	60.7	0.3
R6-49	B	1	1	yes	6545 E 34TH ST N Bldg C	67.4	59.3	8.1
R6-50	B	1	3		6545 E 34TH ST N Bldg C	71.1	71	0.1
R6-51	B	1	2		6545 E 34TH ST N Bldg C	70.6	64.2	6.4
R6-52	B	1	1		6545 E 34TH ST N Bldg C	63.7	56.5	7.2
R6-53	B	1	2		6545 E 34TH ST N Bldg C	65.9	61.7	4.2
R6-54	B	1	3		6545 E 34TH ST N Bldg C	66.6	66.5	0.1
R6-55	B	1	1		6545 E 34TH ST N Bldg C	61.6	54.9	6.7
R6-56	B	1	2		6545 E 34TH ST N Bldg C	62.7	58.7	4
R6-57	B	1	3		6545 E 34TH ST N Bldg C	63.5	63.4	0.1
R6-58	B	1	1	yes	6545 E 34TH ST N Bldg C	68.5	60.3	8.2
R6-59	B	1	2		6545 E 34TH ST N Bldg C	70.6	65	5.6
R6-60	B	1	3		6545 E 34TH ST N Bldg C	71.2	70.9	0.3
R6-61	B	1	1		6545 E 34TH ST N Bldg C	65.5	58.5	7
R6-62	B	1	2		6545 E 34TH ST N Bldg C	67.3	62.3	5
R6-63	B	1	3		6545 E 34TH ST N Bldg C	68.3	67.5	0.8
R6-64	B	1	1		6545 E 34TH ST N Bldg C	63.5	57.4	6.1
R6-65	B	1	2		6545 E 34TH ST N Bldg C	65.1	60.6	4.5
R6-66	B	1	3		6545 E 34TH ST N Bldg C	66	64.4	1.6

NW6-1 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-67	C	1	1	yes	6655 E 34TH ST N	73	65.9	7.1
R6-68	D	1	1		6770 E 34th St N	34.7	33.4	1.3
					Predicted "Build-Condition" With-Barrier Benefits[1]:			25
Impact =			5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =		
1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).								

Noise Wall NW6-2 (Noise Study Area 6)

Location: north of K-96 west of N. Rock Road.

NW6-2 meets KDOT noise abatement feasibility criteria and the reasonableness criteria.
NW6-2 is recommended for construction.

NW6-2 - Acoustical Performance Summary							
	NW6-2_D3		Feasibility				
Description:	ROW		No. 1st row impacts:	23	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	6		No. 1st row imp w/ NLR >= 5 dBA:	23	receptors		
Height:	19.4	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	1,405	ft	Feasible:	Yes			
Surface area:	27,118	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	59			
Total Impacts:	61	receptors	NRDG (50% of benefits >= 7dBA)	69%			
Total Imp & Benefited:	61	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	44			
Total Benefits:	85	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	24		SA/Benefit	319	square-feet/BR		
TNM Barrier Analysis:	NW6-2_D3		Reasonable:	Yes			

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-97	B	1	1		3501 N GOVERNEOUR ST	61.9	61.5	0.4
R6-98	B	1	1		3505 N GOVERNEOUR ST	59.7	59.5	0.2
R6-99	B	1	1		3509 N GOVERNEOUR ST	57.6	57.5	0.1
R6-100	B	1	1		3513 N GOVERNEOUR ST	55.9	55.7	0.2
R6-101	B	1	1		3517 N GOVERNEOUR ST	54.4	54.2	0.2
R6-102	B	1	1		3521 N GOVERNEOUR ST	53.4	53.2	0.2
R6-103	B	1	1		3525 N GOVERNEOUR ST	52.8	52.6	0.2
R6-104	B	1	1		3502 N GOVERNEOUR ST	57	54.8	2.2
R6-105	B	1	1		3506 N GOVERNEOUR ST	54.4	52.8	1.6
R6-106	B	1	1		3510 N GOVERNEOUR ST	55.1	54.1	1
R6-107	B	1	1		3514 N GOVERNEOUR ST	52.5	51.1	1.4
R6-108	B	1	1		3518 N GOVERNEOUR ST	51	49.4	1.6
R6-109	B	1	1		3522 N GOVERNEOUR ST	51.4	50.7	0.7
R6-110	B	1	1		3526 N GOVERNEOUR ST	52.2	51.5	0.7
R6-111	B	1	1		3501 N INWOOD CT	59.6	58.1	1.5
R6-112	B	1	1		3505 N INWOOD CT	56.2	54.7	1.5
R6-113	B	1	1		3509 N INWOOD CT	55.1	54	1.1
R6-114	B	1	1		3513 N INWOOD CT	53.4	52.3	1.1
R6-115	B	1	1		3517 N INWOOD CT	52.1	50.9	1.2
R6-116	B	1	1		3521 N INWOOD CT	51	50.3	0.7
R6-117	B	1	1		3541 N INWOOD CT	55.5	52	3.5
R6-118	B	1	1		3537 N INWOOD CT	52.6	50.2	2.4

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-119	B	1	1		3533 N INWOOD CT	50.3	49.1	1.2
R6-120	B	1	1		3529 N INWOOD CT	50.3	49.5	0.8
R6-121	B	1	1		3545 N INWOOD CT	52.3	50	2.3
R6-122	B	1	1		3549 N INWOOD CT	50.3	48.6	1.7
R6-123	B	1	1		3553 N INWOOD CT	48.9	47.8	1.1
R6-124	B	1	1		3540 N INWOOD ST APT OFFICE	58.9	53.1	5.8
R6-125	B	1	2		3540 N INWOOD ST APT OFFICE	66.3	54.5	11.8
R6-126	B	1	3		3540 N INWOOD ST APT OFFICE	67.9	56.3	11.6
R6-127	B	1	1		3540 N INWOOD ST APT OFFICE	54.7	51.6	3.1
R6-128	B	1	2		3540 N INWOOD ST APT OFFICE	61.2	53.4	7.8
R6-129	B	1	3		3540 N INWOOD ST APT OFFICE	64.2	55	9.2
R6-130	B	1	1		3540 N INWOOD ST APT OFFICE	53.7	52.5	1.2
R6-131	B	1	2		3540 N INWOOD ST APT OFFICE	58.9	56.3	2.6
R6-132	B	1	3		3540 N INWOOD ST APT OFFICE	62.1	57.3	4.8
R6-133	B	1	1		3540 N INWOOD ST APT OFFICE	53.2	52.3	0.9
R6-134	B	1	3		3540 N INWOOD ST APT OFFICE	60.9	56	4.9
R6-135	B	1	2		3540 N INWOOD ST APT OFFICE	57.2	54.7	2.5
R6-136	B	1	1	yes	3540 N INWOOD ST APT OFFICE	69.5	60.7	8.8
R6-137	B	1	2		3540 N INWOOD ST APT OFFICE	72.6	61.3	11.3
R6-138	B	1	3		3540 N INWOOD ST APT OFFICE	73.5	62.9	10.6
R6-139	B	1	1		3540 N INWOOD ST APT OFFICE	67.9	58.8	9.1
R6-140	B	1	2		3540 N INWOOD ST APT OFFICE	70.7	59.5	11.2

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-141	B	1	3		3540 N INWOOD ST APT OFFICE	71.8	60.7	11.1
R6-142	B	1	1		3540 N INWOOD ST APT OFFICE	67.2	58	9.2
R6-143	B	1	3		3540 N INWOOD ST APT OFFICE	70.7	59.6	11.1
R6-144	B	1	2		3540 N INWOOD ST APT OFFICE	69.6	58.5	11.1
R6-145	B	1	1		3540 N INWOOD ST APT OFFICE	65.3	56.4	8.9
R6-146	B	1	2		3540 N INWOOD ST APT OFFICE	68.3	56.8	11.5
R6-147	B	1	3		3540 N INWOOD ST APT OFFICE	69.4	57.8	11.6
R6-148	B	1	1	yes	3540 N INWOOD ST APT OFFICE	70.6	61	9.6
R6-149	B	1	2		3540 N INWOOD ST APT OFFICE	72.9	61.6	11.3
R6-150	B	1	3		3540 N INWOOD ST APT OFFICE	73.8	63.4	10.4
R6-151	B	1	1	yes	3540 N INWOOD ST APT OFFICE	71.2	59.9	11.3
R6-152	B	1	3		3540 N INWOOD ST APT OFFICE	74.1	63.7	10.4
R6-153	B	1	2		3540 N INWOOD ST APT OFFICE	73.3	61.2	12.1
R6-154	B	1	1	yes	3540 N INWOOD ST APT OFFICE	71.9	59.5	12.4
R6-155	B	1	2		3540 N INWOOD ST APT OFFICE	73.8	61.1	12.7
R6-156	B	1	3		3540 N INWOOD ST APT OFFICE	74.6	64.5	10.1
R6-157	B	1	1	yes	3540 N INWOOD ST APT OFFICE	72.2	59.6	12.6
R6-158	B	1	2		3540 N INWOOD ST APT OFFICE	74.1	61.3	12.8
R6-159	B	1	3		3540 N INWOOD ST APT OFFICE	74.8	65.2	9.6
R6-160	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74.3	61	13.3
R6-161	B	1	2		3540 N INWOOD ST APT OFFICE	76.1	63.5	12.6
R6-162	B	1	3		3540 N INWOOD ST APT OFFICE	76.4	69.6	6.8

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-163	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74.5	61.1	13.4
R6-164	B	1	2		3540 N INWOOD ST APT OFFICE	76.3	63.5	12.8
R6-165	B	1	3		3540 N INWOOD ST APT OFFICE	76.5	69.9	6.6
R6-166	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74.8	61.2	13.6
R6-167	B	1	2		3540 N INWOOD ST APT OFFICE	76.6	63.7	12.9
R6-168	B	1	3		3540 N INWOOD ST APT OFFICE	76.8	71.1	5.7
R6-169	B	1	1	yes	3540 N INWOOD ST APT OFFICE	75.1	61.2	13.9
R6-170	B	1	3		3540 N INWOOD ST APT OFFICE	76.9	71.9	5
R6-171	B	1	2		3540 N INWOOD ST APT OFFICE	76.8	63.9	12.9
R6-172	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74.9	61.9	13
R6-173	B	1	2		3540 N INWOOD ST APT OFFICE	76.5	64.5	12
R6-174	B	1	3		3540 N INWOOD ST APT OFFICE	76.6	71.6	5
R6-175	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74.4	62.6	11.8
R6-176	B	1	2		3540 N INWOOD ST APT OFFICE	76.1	65.2	10.9
R6-177	B	1	3		3540 N INWOOD ST APT OFFICE	76.3	71	5.3
R6-178	B	1	1	yes	3540 N INWOOD ST APT OFFICE	74	63.4	10.6
R6-179	B	1	2		3540 N INWOOD ST APT OFFICE	75.7	65.8	9.9
R6-180	B	1	3		3540 N INWOOD ST APT OFFICE	76	70.5	5.5
R6-181	B	1	1	yes	3540 N INWOOD ST APT OFFICE	73.4	65.2	8.2
R6-182	B	1	2		3540 N INWOOD ST APT OFFICE	75.2	67.3	7.9
R6-183	B	1	3		3540 N INWOOD ST APT OFFICE	75.6	70.4	5.2
R6-184	B	1	1		3540 N INWOOD ST APT OFFICE	53.5	51.8	1.7

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-185	B	1	2		3540 N INWOOD ST APT OFFICE	57.6	52.2	5.4
R6-186	B	1	3		3540 N INWOOD ST APT OFFICE	61	53.9	7.1
R6-187	B	1	1		3540 N INWOOD ST APT OFFICE	52.3	50.5	1.8
R6-188	B	1	2		3540 N INWOOD ST APT OFFICE	52.4	50.5	1.9
R6-189	B	1	3		3540 N INWOOD ST APT OFFICE	55	53	2
R6-190	B	1	1		3540 N INWOOD ST APT OFFICE	52.8	51.3	1.5
R6-191	B	1	2		3540 N INWOOD ST APT OFFICE	52.5	51	1.5
R6-192	B	1	3		3540 N INWOOD ST APT OFFICE	55.3	53.7	1.6
R6-193	B	1	1		3540 N INWOOD ST APT OFFICE	53	51.9	1.1
R6-194	B	1	2		3540 N INWOOD ST APT OFFICE	53.1	51.9	1.2
R6-195	B	1	3		3540 N INWOOD ST APT OFFICE	55.2	53.9	1.3
R6-196	B	1	1		3540 N INWOOD ST APT OFFICE	52.7	52.2	0.5
R6-197	B	1	2		3540 N INWOOD ST APT OFFICE	52.6	52	0.6
R6-198	B	1	3		3540 N INWOOD ST APT OFFICE	54.7	54.2	0.5
R6-199	B	1	1		3540 N INWOOD ST APT OFFICE	53.3	52.8	0.5
R6-200	B	1	2		3540 N INWOOD ST APT OFFICE	52.7	52.1	0.6
R6-201	B	1	3		3540 N INWOOD ST APT OFFICE	55.5	54.9	0.6
R6-202	B	1	1		3540 N INWOOD ST APT OFFICE	54.1	53	1.1
R6-203	B	1	2		3540 N INWOOD ST APT OFFICE	53.7	52.4	1.3
R6-204	B	1	3		3540 N INWOOD ST APT OFFICE	56.3	55.3	1
R6-205	B	1	1		3540 N INWOOD ST APT OFFICE	56.2	53.1	3.1
R6-206	B	1	2		3540 N INWOOD ST APT OFFICE	57.1	53.2	3.9

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-207	B	1	3		3540 N INWOOD ST APT OFFICE	58.4	55.6	2.8
R6-208	B	1	1		3540 N INWOOD ST APT OFFICE	58.4	53.4	5
R6-209	B	1	2		3540 N INWOOD ST APT OFFICE	61.1	53.6	7.5
R6-210	B	1	3		3540 N INWOOD ST APT OFFICE	63	56	7
R6-211	B	1	1		3540 N INWOOD ST APT OFFICE	53.4	53	0.4
R6-212	B	1	2		3540 N INWOOD ST APT OFFICE	53.1	52.8	0.3
R6-213	B	1	3		3540 N INWOOD ST APT OFFICE	55.9	55.5	0.4
R6-214	B	1	1		3540 N INWOOD ST APT OFFICE	53.6	53.3	0.3
R6-215	B	1	2		3540 N INWOOD ST APT OFFICE	54.1	53.8	0.3
R6-216	B	1	3		3540 N INWOOD ST APT OFFICE	56.6	56.3	0.3
R6-217	B	1	1		3540 N INWOOD ST APT OFFICE	59.4	59.3	0.1
R6-218	B	1	2		3540 N INWOOD ST APT OFFICE	61.4	61.3	0.1
R6-219	B	1	3		3540 N INWOOD ST APT OFFICE	62.7	62.6	0.1
R6-220	B	1	1		3540 N INWOOD ST APT OFFICE	61.5	58.6	2.9
R6-221	B	1	2		3540 N INWOOD ST APT OFFICE	62.2	57.6	4.6
R6-222	B	1	3		3540 N INWOOD ST APT OFFICE	62.7	57.9	4.8
R6-223	B	1	1		3540 N INWOOD ST APT OFFICE	61.9	58.5	3.4
R6-224	B	1	2		3540 N INWOOD ST APT OFFICE	62.9	58.1	4.8
R6-225	B	1	3		3540 N INWOOD ST APT OFFICE	63.6	58.5	5.1
R6-226	B	1	1		3540 N INWOOD ST APT OFFICE	63.6	58.6	5
R6-227	B	1	2		3540 N INWOOD ST APT OFFICE	65.2	58.6	6.6
R6-228	B	1	3		3540 N INWOOD ST APT OFFICE	66	59.3	6.7

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-229	B	1	1		3540 N INWOOD ST APT OFFICE	63.9	58.8	5.1
R6-230	B	1	2		3540 N INWOOD ST APT OFFICE	65.9	58.9	7
R6-231	B	1	3		3540 N INWOOD ST APT OFFICE	66.7	59.8	6.9
R6-232	B	1	1		3540 N INWOOD ST APT OFFICE	47.5	46.6	0.9
R6-233	B	1	2		3540 N INWOOD ST APT OFFICE	47.9	47	0.9
R6-234	B	1	3		3540 N INWOOD ST APT OFFICE	51.3	50.6	0.7
R6-235	B	1	1		3540 N INWOOD ST APT OFFICE	47.9	47	0.9
R6-236	B	1	2		3540 N INWOOD ST APT OFFICE	47.8	47	0.8
R6-237	B	1	3		3540 N INWOOD ST APT OFFICE	51.5	50.8	0.7
R6-238	B	1	1		3540 N INWOOD ST APT OFFICE	48.3	47.4	0.9
R6-239	B	1	2		3540 N INWOOD ST APT OFFICE	48.2	47.4	0.8
R6-240	B	1	3		3540 N INWOOD ST APT OFFICE	52.1	51.4	0.7
R6-241	B	1	1		3540 N INWOOD ST APT OFFICE	51.4	51	0.4
R6-242	B	1	2		3540 N INWOOD ST APT OFFICE	53.2	52.9	0.3
R6-243	B	1	3		3540 N INWOOD ST APT OFFICE	55.5	55.2	0.3
R6-245	B	1	1		3540 N INWOOD ST APT OFFICE	57.8	54.9	2.9
R6-246	B	1	1		3540 N INWOOD ST APT OFFICE	56.3	52.8	3.5
R6-247	B	1	2		3540 N INWOOD ST APT OFFICE	58.4	52.3	6.1
R6-248	B	1	3		3540 N INWOOD ST APT OFFICE	59.7	52.4	7.3
R6-249	B	1	1		3540 N INWOOD ST APT OFFICE	54.1	50.5	3.6
R6-250	B	1	2		3540 N INWOOD ST APT OFFICE	57.4	51.2	6.2
R6-251	B	1	3		3540 N INWOOD ST APT OFFICE	59	51.7	7.3

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-252	B	1	1		3540 N INWOOD ST APT OFFICE	54.4	49.4	5
R6-253	B	1	2		3540 N INWOOD ST APT OFFICE	57.2	50.2	7
R6-254	B	1	3		3540 N INWOOD ST APT OFFICE	58.8	51.2	7.6
R6-255	B	1	1		3540 N INWOOD ST APT OFFICE	53.3	48.3	5
R6-256	B	1	2		3540 N INWOOD ST APT OFFICE	55.9	49.2	6.7
R6-257	B	1	3		3540 N INWOOD ST APT OFFICE	58	50.4	7.6
R6-258	B	1	1		3540 N INWOOD ST APT OFFICE	53.5	53.3	0.2
R6-259	B	1	2		3540 N INWOOD ST APT OFFICE	55.7	55.6	0.1
R6-260	B	1	3		3540 N INWOOD ST APT OFFICE	57	56.9	0.1
R6-261	B	1	1		3540 N INWOOD ST APT OFFICE	54.5	54.4	0.1
R6-262	B	1	2		3540 N INWOOD ST APT OFFICE	57.1	57	0.1
R6-263	B	1	3		3540 N INWOOD ST APT OFFICE	57.8	57.7	0.1
R6-264	B	1	1		3540 N INWOOD ST APT OFFICE	46.2	45.1	1.1
R6-265	B	1	2		3540 N INWOOD ST APT OFFICE	46.8	45.9	0.9
R6-266	B	1	3		3540 N INWOOD ST APT OFFICE	47.9	47	0.9
R6-267	B	1	1		3540 N INWOOD ST APT OFFICE	43.5	41.9	1.6
R6-268	B	1	2		3540 N INWOOD ST APT OFFICE	44.4	43.1	1.3
R6-269	B	1	3		3540 N INWOOD ST APT OFFICE	45	43.9	1.1
R6-270	B	1	1		3540 N INWOOD ST APT OFFICE	52.6	52.1	0.5
R6-271	B	1	2		3540 N INWOOD ST APT OFFICE	53.6	53.4	0.2
R6-272	B	1	3		3540 N INWOOD ST APT OFFICE	54	53.7	0.3
R6-273	B	1	1		3540 N INWOOD ST APT OFFICE	45.8	44.3	1.5

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-274	B	1	2		3540 N INWOOD ST APT OFFICE	45.4	44.1	1.3
R6-275	B	1	3		3540 N INWOOD ST APT OFFICE	46.5	45.3	1.2
R6-276	B	1	1		3540 N INWOOD ST APT OFFICE	43.6	41.2	2.4
R6-277	B	1	2		3540 N INWOOD ST APT OFFICE	44.1	41.9	2.2
R6-278	B	1	3		3540 N INWOOD ST APT OFFICE	45.8	44	1.8
R6-279	B	1	1		3540 N INWOOD ST APT OFFICE	42.5	40.6	1.9
R6-280	B	1	2		3540 N INWOOD ST APT OFFICE	43.6	42	1.6
R6-281	B	1	3		3540 N INWOOD ST APT OFFICE	44.9	43.6	1.3
R6-282	B	1	1		3540 N INWOOD ST APT OFFICE	59.8	58.2	1.6
R6-283	B	1	2		3540 N INWOOD ST APT OFFICE	62.6	60.6	2
R6-284	B	1	3		3540 N INWOOD ST APT OFFICE	63.5	61.3	2.2
R6-285	B	1	1		3540 N INWOOD ST APT OFFICE	57.9	56.3	1.6
R6-286	B	1	2		3540 N INWOOD ST APT OFFICE	60.3	59	1.3
R6-287	B	1	3		3540 N INWOOD ST APT OFFICE	61.2	60	1.2
R6-288	B	1	1		3540 N INWOOD ST APT OFFICE	57.2	55.9	1.3
R6-289	B	1	2		3540 N INWOOD ST APT OFFICE	59.4	58.2	1.2
R6-290	B	1	3		3540 N INWOOD ST APT OFFICE	60.4	59.2	1.2
R6-291	B	1	1		3540 N INWOOD ST APT OFFICE	56.7	55.3	1.4
R6-292	B	1	2		3540 N INWOOD ST APT OFFICE	58.7	57.4	1.3
R6-293	B	1	3		3540 N INWOOD ST APT OFFICE	59.8	58.5	1.3
R6-294	B	1	1	yes	7303 E 34th St N	68.3	63.3	5
R6-295	B	1	1	yes	7305 E 34th St N	68.6	63.1	5.5

NW6-2 Analysis Results - NSA(s) 6 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R6-296	B	1	1	yes	7309 E 34th St N	68.8	62.3	6.5
R6-297	B	1	1	yes	7311 E 34th St N	69	62	7
R6-298	B	1	1	yes	7315 E 34th St N	68.8	61.9	6.9
R6-299	B	1	1	yes	7317 E 34th St N	69	61.3	7.7
R6-300	B	1	1	yes	7321 E 34th St N	69	60.9	8.1
R6-301	B	1	1	yes	7323 E 34th St N	69.1	60.7	8.4
R6-302	B	1	1	yes	7327 E 34th St N	68.8	60.4	8.4
R6-303	B	1	1	yes	7329 E 34th St N	68.9	60.4	8.5
					Predicted "Build-Condition" With-Barrier Benefits[1]:			85

Impact = 5 to 7 dB(A) NLR = ≥ 7 dB(A) NLR =

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW10 (Noise Study Area 10)

Location: South of K-96 west of the N. Greenwich Road / K-96 interchange.

NW10 meets KDOT noise abatement feasibility criteria but does not meet the reasonableness criteria. NW10 is not recommended for construction.

NW10- Acoustical Performance Summary							
Barrier:	NW10_D3		Feasibility				
Description:	ROW		No. 1st row impacts:	12	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	10		No. 1st row imp w/ NLR >= 5 dBA:	11	receptors		
Height:	15.9	ft	80% 1st row impacts >= 5 dBA)	Yes			
Length:	1,801	ft	Feasible:	Yes			
Surface area:	28,661	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	3			
Total Impacts:	12	receptors	NRDG (50% of benefits >= 7 dBA)	23%			
Total Imp & Benefited:	11	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	0			
Total Benefits:	13	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	2		SA/Benefit	2,205	square-feet/BR		
TNM Barrier Analysis:	NW10_D3		Reasonable:	No			

NW10 Analysis Results - NSA(s) 10 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R10-1	B	1	1		10106 E WINDEMERE CIR	57	56.3	0.7
R10-2	B	1	1		10110 E WINDEMERE CIR	57.5	56.9	0.6
R10-3	B	1	1		10114 E WINDEMERE CIR	58.2	57.6	0.6
R10-4	B	1	1		10118 E WINDEMERE CIR	58.8	58.2	0.6
R10-5	B	1	1		10122 E WINDEMERE CIR	59.3	58.6	0.7
R10-6	B	1	1		10202 E WINDEMERE ST	60.4	59.4	1
R10-7	B	1	1		10206 E WINDEMERE ST	61.2	59.9	1.3
R10-8	B	1	1		10214 E WINDEMERE ST	63.2	61	2.2
R10-9	B	1	1		10302 E WINDEMERE ST	64.7	61.2	3.5
R10-10	B	1	1	yes	10306 E WINDEMERE CT	66.8	61.8	5
R10-11	B	1	1	yes	10310 E WINDEMERE CT	68.4	61.7	6.7
R10-12	B	1	1	yes	10314 E WINDEMERE CT	68.1	61.3	6.8
R10-13	B	1	1		10318 E WINDEMERE ST	62	57	5
R10-14	B	1	1		2522 N LINDBERG ST	58.9	55.4	3.5
R10-15	B	1	1		2518 N LINDBERG ST	55.5	53.7	1.8
R10-16	B	1	1		2514 N LINDBERG ST	53.9	52.7	1.2
R10-17	B	1	1		2510 N LINDBERG ST	53.8	53.3	0.5
R10-18	B	1	1		2506 N LINDBERG ST	52.2	51.8	0.4
R10-19	B	1	1		10115 E WINDEMERE CIR	53.5	53.2	0.3
R10-20	B	1	1		10207 E WINDEMERE CT	55	54.6	0.4
R10-21	B	1	1		10203 E WINDEMERE ST	53.9	53.8	0.1
R10-22	B	1	1		2518 N CRANBROOK ST	52.1	52	0.1

NW10 Analysis Results - NSA(s) 10 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R10-23	B	1	1		10211 E WINDEMERE CT	53.5	53.4	0.1
R10-24	B	1	1		10243 E WINDEMERE CT	55.6	54.2	1.4
R10-25	B	1	1		10239 E WINDEMERE CT	54.8	53.5	1.3
R10-26	B	1	1		10235 E WINDEMERE CT	53.7	52.8	0.9
R10-27	B	1	1		10231 E WINDEMERE CT	52.5	51.9	0.6
R10-28	B	1	1		10307 E WINDEMERE ST	55.5	53.9	1.6
R10-29	B	1	1		2519 N LINDBERG ST	54.2	53.3	0.9
R10-30	B	1	1		2515 N LINDBERG ST	53.4	52.8	0.6
R10-31	B	1	1		2511 N LINDBERG ST	52.4	51.9	0.5
R10-32	B	1	1		2429 N BRANDON ST	52.6	52.3	0.3
R10-33	B	1	1		2501 N BRANDON CIR	52.7	52.4	0.3
R10-34	B	1	1		2505 N BRANDON CIR	52.6	52	0.6
R10-35	B	1	1		2509 N BRANDON CIR	53.1	52.2	0.9
R10-36	B	1	1		2513 N BRANDON CIR	54.2	52.9	1.3
R10-37	B	1	1		2517 N BRANDON CIR	56.2	54.4	1.8
R10-38	B	1	1		2521 N BRANDON CIR	59.7	56.2	3.5
R10-39	B	1	1	yes	2525 N BRANDON CIR	67	60.5	6.5
R10-40	B	1	1	yes	2524 N BRANDON CIR	68.8	61.2	7.6
R10-41	B	1	1	yes	2520 N BRANDON CIR	68.6	62	6.6
R10-42	B	1	1		2516 N BRANDON CIR	64.3	59.8	4.5
R10-43	B	1	1		2512 N BRANDON CIR	60.8	57.4	3.4
R10-44	B	1	1		2508 N BRANDON CIR	58.4	56.1	2.3

NW10 Analysis Results - NSA(s) 10 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R10-45	B	1	1		2504 N BRANDON CIR	56.6	55.1	1.5
R10-46	B	1	1		10502 E MAINSGATE CT	54.6	53.4	1.2
R10-47	B	1	1		10506 E MAINSGATE CT	58.1	55.7	2.4
R10-48	B	1	1		10510 E MAINSGATE CT	65.7	60.7	5
R10-49	B	1	1	yes	10514 E MAINSGATE CT	68.5	61.7	6.8
R10-50	B	1	1	yes	10518 E MAINSGATE CT	68.4	61.3	7.1
R10-51	B	1	1		10522 E MAINSGATE CT	64.4	60.3	4.1
R10-52	B	1	1	yes	10604 E MAINSGATE ST	66.5	61.4	5.1
R10-53	B	1	1	yes	10608 E MAINSGATE ST	65.6	61.9	3.7
R10-54	B	1	1	yes	10612 E MAINSGATE ST	65.3	63.4	1.9
R10-55	B	1	1	yes	2438 N REGENCY LAKES ST	64.3	63.9	0.4
R10-56	B	1	1		2434 N REGENCY LAKES ST	62.3	62.4	-0.1
R10-57	B	1	1		2430 N REGENCY LAKES ST	60.3	60.5	-0.2
R10-58	B	1	1		2426 N REGENCY LAKES ST	59	59.2	-0.2
R10-59	B	1	1		2422 N REGENCY LAKES ST	58.2	58.3	-0.1
R10-60	B	1	1		2418 N REGENCY LAKES ST	57.6	57.6	0
R10-61	B	1	1		2424 N BRANDON ST	52.2	52.1	0.1
R10-62	B	1	1		10503 E MAINSGATE ST	51.5	51.7	-0.2
R10-63	B	1	1		10507 E MAINSGATE ST	52.9	52.9	0
R10-64	B	1	1		10511 E MAINSGATE ST	53.1	53.2	-0.1
R10-65	B	1	1		10515 E MAINSGATE ST	52.8	52.9	-0.1
R10-66	B	1	1		10519 E MAINSGATE ST	53.3	52.7	0.6

NW10 Analysis Results - NSA(s) 10 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R10-67	B	1	1		10609 E MAINSGATE ST	53	53	0
R10-68	B	1	1		2467 N REGENCY LAKES ST	52.2	52.1	0.1
R10-69	B	1	1		2463 N REGENCY LAKES ST	54.8	54.9	-0.1
R10-70	B	1	1		2459 N REGENCY LAKES ST	52.9	52.6	0.3
R10-71	B	1	1		2455 N REGENCY LAKES CT	53.6	53.3	0.3
R10-72	B	1	1		2431 N REGENCY LAKES CT	53.5	53.4	0.1
R10-73	B	1	1		2435 N REGENCY LAKES CT	54.5	54.2	0.3
R10-74	B	1	1		2439 N REGENCY LAKES CT	54.5	54.2	0.3
R10-75	B	1	1		2443 N REGENCY LAKES CT	55.2	54.7	0.5
R10-76	B	1	1		2447 N REGENCY LAKES CT	53.4	52.8	0.6
R10-77	B	1	1		2451 N REGENCY LAKES CT	53.9	53.6	0.3
RT10-5	C	1	1	yes	2808 N Webb Rd	70.6	70.6	0
RT10-4	C	1	1	yes	2808 N Webb Rd	70	60.6	9.4
RT10-3	C	1	1	yes	2808 N Webb Rd	69.8	64.7	5.1
					Predicted “Build-Condition” With-Barrier Benefits[1]:			13

Impact = 5 to 7 dB(A) NLR = ≥ 7 dB(A) NLR =

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW 15 (Noise Study Area 15)

Location: North of K-96 between E. 13th street and N. 127th street

NW 15 meets KDOT noise abatement feasibility criteria but does not meet the reasonableness criteria. NW 15 is not recommended for construction.

Barrier:	NW15_D3		Feasibility				
Description:	shoulder		No. 1st row impacts:	13	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	15		No. 1st row imp w/ NLR >= 5 dBA:	12	receptors		
Height:	13.8	ft	80% 1st row impacts >= 5dBA)	Yes			
Length:	3,003	ft	Feasible:	Yes			
Surface area:	41,386	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dBA	6			
Total Impacts:	13	receptors	NRDG (50% of benefits >= 7dBA)	43%			
Total Imp & Benefited:	12	receptors	No. NAC "B" imp Benefited Receptors >= 8 dBA	1			
Total Benefits:	14	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	2		SA/Benefit	2,956	square-feet/BR		
TNM Barrier Analysis:	NW15_D3		Reasonable:	No			

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-1	B	1	1	yes	1253 N BRACKEN CT	55.2	55.2	0
R15-2	B	1	1	yes	1251 N BRACKEN CT	56.7	56.7	0
R15-3	B	1	1	yes	1249 N BRACKEN CT	56.9	56.8	0.1
R15-4	B	1	1	yes	1247 N BRACKEN CT	56.1	56	0.1
R15-5	B	1	1	yes	1245 N BRACKEN CT	54.6	54.5	0.1
R15-6	B	1	1	yes	1243 N BRACKEN CT	52.2	52.1	0.1
R15-7	B	1	1		1241 N BRACKEN CT	49.5	49.6	-0.1
R15-8	B	1	1		1255 N BRACKEN CT	49.2	49.2	0
R15-9	B	1	1		1257 N BRACKEN CT	47.7	47.6	0.1
R15-10	B	1	1		1259 N BRACKEN CT	49.2	49.3	-0.1
R15-11	B	1	1		1229 N BRACKEN ST	48.3	48.1	0.2
R15-12	B	1	1		1225 N BRACKEN ST	47.4	47.4	0
R15-13	B	1	1		1221 N BRACKEN CT	48.1	48.1	0
R15-14	B	1	1		1215 N BRACKEN CT	49.3	49.3	0
R15-15	B	1	1	yes	1209 N BRACKEN CT	56.3	55.9	0.4
R15-16	B	1	1	yes	1201 N BRACKEN CT	57.1	56.2	0.9
R15-17	B	1	1	yes	1169 N BRACKEN ST	58.5	56.7	1.8
R15-18	B	1	1	yes	1159 N BRACKEN ST	61.8	58.7	3.1
R15-19	B	1	1	yes	1149 N BRACKEN ST	63.7	58.7	5
R15-20	B	1	1	yes	1139 N BRACKEN ST	65.9	59.1	6.8
R15-21	B	1	1	yes	1125 N BRACKEN ST	68.7	60.8	7.9
R15-22	B	1	1	yes	1117 N BRACKEN ST	70.6	62.5	8.1

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-23	B	1	1	yes	1109 N BRACKEN ST	70.9	63.5	7.4
R15-24	B	1	1	yes	1101 N BRACKEN ST	70.4	62.9	7.5
R15-25	B	1	1	yes	12001 E KILLENWOOD ST	67.9	61.8	6.1
R15-26	B	1	1	yes	12011 E KILLENWOOD ST	62	59.2	2.8
R15-27	B	1	1		12021 E KILLENWOOD ST	55.9	55.3	0.6
R15-28	B	1	1		12101 E KILLENWOOD ST	53.6	52.7	0.9
R15-29	B	1	1		12111 E KILLENWOOD ST	50.7	50.4	0.3
R15-30	B	1	1		12121 E KILLENWOOD ST	49.2	48.9	0.3
R15-31	B	1	1		12201 E KILLENWOOD ST	48.5	48.1	0.4
R15-32	B	1	1		12203 E KILLENWOOD ST	48.9	48.5	0.4
R15-33	B	1	1		1228 N BRACKEN ST	47.2	46.8	0.4
R15-34	B	1	1		1224 N BRACKEN ST	47.1	46.9	0.2
R15-35	B	1	1		1168 N BRACKEN ST	48.7	48.2	0.5
R15-36	B	1	1		1158 N BRACKEN ST	48.1	47.6	0.5
R15-37	B	1	1		1148 N BRACKEN ST	49.3	48.6	0.7
R15-38	B	1	1		1138 N BRACKEN ST	48.5	48.2	0.3
R15-39	B	1	1		1128 N BRACKEN ST	49	48.4	0.6
R15-40	B	1	1		1118 N BRACKEN ST	49.8	48.7	1.1
R15-41	B	1	1		12108 E KILLENWOOD CT	48.7	48	0.7
R15-42	B	1	1		12106 E KILLENWOOD CT	48.4	48.2	0.2
R15-43	B	1	1		12104 E KILLENWOOD CT	49.7	49.1	0.6
R15-44	B	1	1		12102 E KILLENWOOD CT	52.6	51.1	1.5

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-45	B	1	1		12100 E KILLENWOOD CT	53.4	51.8	1.6
R15-46	B	1	1		12124 E KILLENWOOD CT	49.3	48.3	1
R15-47	B	1	1		12126 E KILLENWOOD ST	49.2	48.8	0.4
R15-48	B	1	1		12128 E KILLENWOOD ST	47.6	47.6	0
R15-49	B	1	1		1059 N WHITE TAIL CT	48.4	48.2	0.2
R15-50	B	1	1		1051 N WHITE TAIL CT	48.7	48	0.7
R15-51	B	1	1		1049 N WHITE TAIL CT	49.9	48.8	1.1
R15-52	B	1	1		1041 N WHITE TAIL CT	52.6	51.3	1.3
R15-53	B	1	1		1039 N WHITE TAIL CT	58.5	56.5	2
R15-54	B	1	1	yes	1035 N WHITE TAIL CT	58.3	57	1.3
R15-55	B	1	1	yes	1029 N WHITE TAIL CT	57.5	56.1	1.4
R15-56	B	1	1		1025 N WHITE TAIL CT	59.2	58.2	1
R15-57	B	1	1		1017 N WHITE TAIL CT	55.8	55.4	0.4
R15-58	B	1	1		1009 N WHITE TAIL CT	52.8	52.2	0.6
R15-59	B	1	1		969 N WHITE TAIL CIR	52.6	52.1	0.5
R15-60	B	1	1		953 N WHITE TAIL CIR	54.1	53.1	1
R15-61	B	1	1		945 N WHITE TAIL CIR	54.8	54.4	0.4
R15-62	B	1	1	yes	937 N WHITE TAIL CIR	65.6	62.1	3.5
R15-63	B	1	1	yes	938 N WHITE TAIL CIR	70.8	65.8	5
R15-64	B	1	1	yes	944 N WHITE TAIL CIR	69.2	63.9	5.3
R15-65	B	1	1		948 N WHITE TAIL CIR	65	61.6	3.4
R15-66	B	1	1		954 N WHITE TAIL CT	62.1	59.8	2.3

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-67	B	1	1		958 N WHITE TAIL CT	59.7	58	1.7
R15-68	B	1	1		964 N WHITE TAIL CT	54.3	52.8	1.5
R15-69	B	1	1		968 N WHITE TAIL CT	51.6	51.1	0.5
R15-70	B	1	1		974 N WHITE TAIL CIR	51.1	51.7	-0.6
R15-71	B	1	1		1000 N WHITE TAIL CIR	49.2	49.1	0.1
R15-72	B	1	1		1018 N WHITE TAIL CIR	49.5	50.4	-0.9
R15-73	B	1	1		949 N WOODRIDGE CT	51.8	50.5	1.3
R15-74	B	1	1		947 N WOODRIDGE CT	53.3	52.1	1.2
R15-75	B	1	1		945 N WOODRIDGE CT	52.3	51.6	0.7
R15-76	B	1	1		12414 E KILLARNEY ST	48.5	48.2	0.3
R15-77	B	1	1		12410 E KILLARNEY ST	48.7	48.4	0.3
R15-78	B	1	1		12406 E KILLARNEY ST	49.1	48.8	0.3
R15-79	B	1	1		12402 E KILLARNEY ST	49.4	49.3	0.1
R15-80	B	1	1		12318 E KILLARNEY ST	50.2	50	0.2
R15-81	B	1	1		12314 E KILLARNEY ST	51.1	51.2	-0.1
R15-82	B	1	1		12310 E KILLARNEY ST	52.3	52.2	0.1
R15-83	B	1	1		12306 E KILLARNEY ST	54.1	53.5	0.6
R15-84	B	1	1		12302 E KILLARNEY ST	59	57.6	1.4
R15-85	B	1	1		12218 E KILLARNEY ST	63.9	60.9	3
R15-86	B	1	1	yes	12214 E KILLARNEY ST	70.2	64.1	6.1
R15-87	B	1	1	yes	842 N GLENMOOR ST	53.3	51.5	1.8
R15-88	B	1	1	yes	838 N GLENMOOR ST	51.8	50.3	1.5

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-89	B	1	1	yes	834 N GLENMOOR ST	51.9	50.6	1.3
R15-90	B	1	1	yes	830 N GLENMOOR ST	52	50.8	1.2
R15-91	B	1	1	yes	826 N GLENMOOR ST	51.8	50.6	1.2
R15-92	B	1	1	yes	822 N GLENMOOR ST	51.8	50.6	1.2
R15-93	B	1	1	yes	818 N GLENMOOR ST	51.8	50.5	1.3
R15-94	B	1	1	yes	814 N GLENMOOR ST	51.5	50.4	1.1
R15-95	B	1	1	yes	810 N GLENMOOR ST	54.1	52.8	1.3
R15-96	B	1	1		12401 E KILLARNEY ST	51.8	50.6	1.2
R15-97	B	1	1		12405 E KILLARNEY ST	52.6	51.2	1.4
R15-98	B	1	1		12409 E KILLARNEY ST	52.2	50.5	1.7
R15-99	B	1	1		12413 E KILLARNEY ST	51.7	50.1	1.6
R15-100	B	1	1		12417 E KILLARNEY ST	48.9	48.2	0.7
R15-101	B	1	1		813 N WOODRIDGE ST	52	50.4	1.6
R15-102	B	1	1		809 N WOODRIDGE ST	53	51.5	1.5
R15-103	B	1	1		805 N WOODRIDGE ST	55.3	53.7	1.6
R15-104	B	1	1	yes	809 N GLENMOOR ST	73.3	67.2	6.1
R15-105	B	1	1	yes	805 N GLENMOOR ST	71	65.9	5.1
R15-106	B	1	1		801 N GLENMOOR ST	64.1	61	3.1
R15-107	B	1	1		802 N WOODRIDGE ST	60.2	58.2	2
R15-108	B	1	1		806 N WOODRIDGE ST	54.6	53.6	1
R15-109	B	1	1		810 N WOODRIDGE ST	52.4	51.6	0.8
R15-110	B	1	1		814 N WOODRIDGE ST	50.9	50.9	0

NW15 Analysis Results - NSA(s) 15 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R15-111	B	1	1		818 N WOODRIDGE ST	49.8	49.6	0.2
R15-112	B	1	1		822 N WOODRIDGE ST	49.2	48.9	0.3
R15-113	B	1	1		826 N WOODRIDGE ST	49.3	48.8	0.5
R15-114	B	1	1		12515 E KILLARNEY CT	49.7	48.5	1.2
R15-115	B	1	1		12517 E KILLARNEY CT	51.4	49.8	1.6
R15-116	B	1	1		12521 E KILLARNEY CT	53.7	51.7	2
R15-117	B	1	1		12525 E KILLARNEY CT	55.5	53.6	1.9
R15-118	B	1	1		12529 E KILLARNEY CT	59.8	58.2	1.6
R15-119	B	1	1		12533 E KILLARNEY CT	61	59.3	1.7
R15-120	B	1	1		12609 E KILLARNEY CT	57.3	56.3	1
R15-121	B	1	1		12613 E KILLARNEY CT	51.2	50.5	0.7
R15-122	C	1	1		747 N 127TH ST E	54.2	54.2	0
RT15-2	C	1	1	yes	12002 E 13th St N	64.9	64.8	0.1
RT15-3	C	1	1	yes	12003 E 13th St N	74.3	64.5	9.8
RT15-4	C	1	1	yes	12004 E 13th St N	75.6	63.8	11.8
RT15-5	C	1	1	yes	12005 E 13th St N	71.7	71.7	0
					Predicted "Build-Condition" With-Barrier Benefits[1]:			14

Impact = 5 to 7 dB(A) NLR = ≥ 7 dB(A) NLR =

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW 16-1 (Noise Study Area 16-1)

Location: South of K-96 east of E. 13th Street.

NW 16-1 meets KDOT noise abatement feasibility criteria but does not meet the reasonableness criteria. NW 16-1 is not recommended for construction.

NW16-1 - Acoustical Performance Summary							
Barrier:	NW16-1_D3		Feasibility				
Description:	shoulder		No. 1st row impacts:	3	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	16		No. 1st row imp w/ NLR >= 5 dB:	3	receptors		
Height:	13	ft	80% 1st row impacts >= 5dB)	Yes			
Length:	802	ft	Feasible:	Yes			
Surface area:	10,402	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dB	0			
Total Impacts:	3	receptors	NRDG (50% of benefits >= 7dB)	0%			
Total Imp & Benefited:	3	receptors	No. NAC "B" imp Benefited Receptors >= 8 dB	0.0			
Total Benefits:	6	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	3		SA/Benefit	1,734	square-feet/BR		
TNM Barrier Analysis:	NW16-1_D3		Reasonable:	No			

NW16-1 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-1	B	1	1		1101 N BEDFORD CIR	50	49.2	0.8
R16-2	B	1	1		1105 N BEDFORD CIR	50	49.7	0.3
R16-3	B	1	1		1109 N BEDFORD CIR	47	46.9	0.1
R16-4	B	1	1		1113 N BEDFORD CIR	48.3	48.2	0.1
R16-5	B	1	1		1117 N BEDFORD CIR	53.5	53.5	0
R16-6	B	1	1		1121 N BEDFORD CIR	56.5	56.1	0.4
R16-7	B	1	1		1126 N BEDFORD CIR	58.2	58.2	0
R16-8	B	1	1	yes	1122 N BEDFORD CIR	62.4	61.9	0.5
R16-9	B	1	1	yes	1118 N BEDFORD CIR	62.1	61.2	0.9
R16-10	B	1	1		1114 N BEDFORD CIR	57.1	56.1	1
R16-11	B	1	1		1110 N BEDFORD CT	53.2	53.1	0.1
R16-12	B	1	1		1106 N BEDFORD CT	61.8	59.5	2.3
R16-13	B	1	1	yes	1102 N BEDFORD CT	66.8	61.2	5.6
R16-14	B	1	1	yes	1098 N BEDFORD CT	65.8	59.7	6.1
R16-15	B	1	1	yes	1094 N BEDFORD CT	65.8	59.4	6.4
R16-16	B	1	1	yes	1090 N BEDFORD CT	65.6	59	6.6
R16-17	B	1	1	yes	1086 N BEDFORD CT	63.5	59.1	4.4
R16-18	B	1	1		1070 N BEDFORD ST	51	49.2	1.8
R16-19	B	1	1		1074 N BEDFORD CT	51.7	49.8	1.9
R16-20	B	1	1		1066 N BEDFORD ST	48.5	47.7	0.8
R16-21	B	1	1		1078 N BEDFORD CT	47.9	47.4	0.5
R16-22	B	1	1		1062 N BEDFORD ST	47.1	46.7	0.4

NW16-1 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-23	B	1	1		1082 N BEDFORD CT	46.3	45.9	0.4
R16-24	B	1	1		1054 N BEDFORD CT	49.4	47.2	2.2
R16-25	B	1	1		1050 N BEDFORD CT	51.4	49	2.4
R16-26	B	1	1		1046 N BEDFORD CT	53.3	50	3.3
R16-27	B	1	1		1042 N BEDFORD CT	55.4	50.7	4.7
R16-28	B	1	1		1038 N BEDFORD CT	60.5	55.7	4.8
R16-29	B	1	1	yes	1034 N BEDFORD CT	66.9	60.7	6.2
R16-30	B	1	1	yes	1030 N BEDFORD CT	66.8	61.7	5.1
R16-31	B	1	1		1026 N BEDFORD CT	60.1	58.6	1.5
R16-32	B	1	1		1022 N BEDFORD CT	55.4	54.9	0.5
R16-33	B	1	1		1018 N BEDFORD CT	52.6	52.3	0.3
R16-34	B	1	1		1014 N BEDFORD CT	50.9	50.6	0.3
R16-35	B	1	1		1010 N BEDFORD CT	49.4	49.3	0.1
R16-36	B	1	1		11820 E KILLARNEY ST	50.7	50.2	0.5
R16-37	B	1	1		11824 E KILLARNEY ST	52.6	52.2	0.4
R16-38	B	1	1		11904 E KILLARNEY ST	57.1	56.1	1
R16-39	B	1	1		11910 E KILLARNEY ST	59	58	1
R16-40	B	1	1	yes	11914 E KILLARNEY ST	59.3	58.7	0.6
R16-41	B	1	1	yes	830 N RITCHFIELD ST	59	58.6	0.4
R16-42	B	1	1	yes	824 N RITCHFIELD ST	57.9	57.7	0.2
R16-43	B	1	1		818 N RITCHFIELD ST	57	56.5	0.5
R16-44	B	1	1		812 N RITCHFIELD ST	55.3	54.9	0.4

NW16-1 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
					Predicted "Build-Condition" With-Barrier Benefits[1]:			6
Impact =		5 to 7 dB(A) NLR =			≥ 7 dB(A) NLR =			

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

Noise Wall NW16-2 (Noise Study Area 16)

Location: South of K-96 west of N. 127th street.

NW16-2 meets KDOT noise abatement feasibility criteria and the reasonableness criteria. NW16-2 is recommended for construction.

NW16-2 - Acoustical Performance Summary								
Barrier:	NW16-2_D3		Feasibility				
Description:	ROW		No. 1st row impacts:	4	receptors	A min of 3 first row receptors impacted:	Yes
NSA:	16		No. 1st row imp w/ NLR >= 5 dB:	4	receptors		
Height:	12.3	ft	80% 1st row impacts >= 5dB)	Yes			
Length:	698	ft	Feasible:	Yes			
Surface area:	8,590	sq-ft	Reasonableness				
			No. Benefited Receptors >= 7 dB	8			
Total Impacts:	17	receptors	NRDG (50% of benefits >= 7dB)	57%			
Total Imp & Benefited:	12	receptors	No. NAC "B" imp Benefited Receptors >= 8 dB	5.0			
Total Benefits:	14	receptors	Allowable Area	1,200	square-feet/BR		
Total Non-impacted Benefits:	2		SA/Benefit	614	square-feet/BR		
TNM Barrier Analysis:	NW16-2_D3		Reasonable:	Yes			

NW16-2 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-105	B	1	2		12526 E CENTRAL AVE CLBHSE	71.7	66.3	5.4
R16-106	B	1	2		12526 E CENTRAL AVE CLBHSE	71.5	64.9	6.6
R16-107	B	1	2		12526 E CENTRAL AVE CLBHSE	71	63.1	7.9
R16-108	B	1	2		12526 E CENTRAL AVE CLBHSE	71	63	8
R16-109	B	1	1	yes	12526 E CENTRAL AVE CLBHSE	70	57.6	12.4
R16-110	B	1	2		12526 E CENTRAL AVE CLBHSE	71.8	64.1	7.7
R16-111	B	1	3		12526 E CENTRAL AVE CLBHSE	72.3	72.3	0
R16-112	B	1	1	yes	12526 E CENTRAL AVE CLBHSE	70.3	57.3	13
R16-113	B	1	2		12526 E CENTRAL AVE CLBHSE	72	65.4	6.6
R16-114	B	1	3		12526 E CENTRAL AVE CLBHSE	72.4	72.5	-0.1
R16-115	B	1	1	yes	12526 E CENTRAL AVE CLBHSE	70.3	57.3	13
R16-116	B	1	2		12526 E CENTRAL AVE CLBHSE	72	65.6	6.4
R16-117	B	1	3		12526 E CENTRAL AVE CLBHSE	72.4	72.5	-0.1
R16-118	B	1	1	yes	12526 E CENTRAL AVE CLBHSE	70.1	57.3	12.8
R16-119	B	1	2		12526 E CENTRAL AVE CLBHSE	72	65.9	6.1
R16-120	B	1	3		12526 E CENTRAL AVE CLBHSE	72.4	72.5	-0.1
R16-121	B	1	1		12526 E CENTRAL AVE CLBHSE	54.2	51.1	3.1
R16-122	B	1	2		12526 E CENTRAL AVE CLBHSE	58.3	53.1	5.2
R16-123	B	1	3		12526 E CENTRAL AVE CLBHSE	59.7	55.9	3.8
R16-124	B	1	1		12526 E CENTRAL AVE CLBHSE	50.4	50.4	0
R16-125	B	1	2		12526 E CENTRAL AVE CLBHSE	51.9	51.9	0
R16-126	B	1	3		12526 E CENTRAL AVE CLBHSE	54	54	0

NW16-2 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-127	B	1	1		12526 E CENTRAL AVE CLBHSE	50.3	50.3	0
R16-128	B	1	2		12526 E CENTRAL AVE CLBHSE	51.1	51.1	0
R16-129	B	1	3		12526 E CENTRAL AVE CLBHSE	53.5	53.5	0
R16-130	B	1	1		12526 E CENTRAL AVE CLBHSE	50	50	0
R16-131	B	1	2		12526 E CENTRAL AVE CLBHSE	50.6	50.6	0
R16-132	B	1	3		12526 E CENTRAL AVE CLBHSE	52.9	52.9	0
R16-133	B	1	1		12526 E CENTRAL AVE CLBHSE	57.5	57.3	0.2
R16-134	B	1	2		12526 E CENTRAL AVE CLBHSE	63.7	63.5	0.2
R16-135	B	1	3		12526 E CENTRAL AVE CLBHSE	66.4	66.2	0.2
R16-136	B	1	1		12526 E CENTRAL AVE CLBHSE	57	56.8	0.2
R16-137	B	1	2		12526 E CENTRAL AVE CLBHSE	62.9	62.5	0.4
R16-138	B	1	3		12526 E CENTRAL AVE CLBHSE	65.5	65.1	0.4
R16-139	B	1	1		12526 E CENTRAL AVE CLBHSE	56.9	56.5	0.4
R16-140	B	1	2		12526 E CENTRAL AVE CLBHSE	62.2	61	1.2
R16-141	B	1	3		12526 E CENTRAL AVE CLBHSE	64.7	63.5	1.2
R16-142	B	1	1		12526 E CENTRAL AVE CLBHSE	56.4	55.6	0.8
R16-143	B	1	2		12526 E CENTRAL AVE CLBHSE	61.2	59.6	1.6
R16-144	B	1	3		12526 E CENTRAL AVE CLBHSE	63.7	61.9	1.8
R16-145	B	1	1		12526 E CENTRAL AVE CLBHSE	56	54.8	1.2
R16-146	B	1	2		12526 E CENTRAL AVE CLBHSE	60.5	58.3	2.2
R16-147	B	1	3		12526 E CENTRAL AVE CLBHSE	62.7	60.4	2.3
R16-148	B	1	1		12526 E CENTRAL AVE CLBHSE	55.8	54.4	1.4

NW16-2 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-149	B	1	2		12526 E CENTRAL AVE CLBHSE	60.1	57.5	2.6
R16-150	B	1	3		12526 E CENTRAL AVE CLBHSE	62.5	59.6	2.9
R16-151	B	1	1		12526 E CENTRAL AVE CLBHSE	55.6	54.1	1.5
R16-152	B	1	2		12526 E CENTRAL AVE CLBHSE	60.1	57.1	3
R16-153	B	1	3		12526 E CENTRAL AVE CLBHSE	62.4	59.1	3.3
R16-154	B	1	1		12526 E CENTRAL AVE CLBHSE	55.6	53.7	1.9
R16-155	B	1	2		12526 E CENTRAL AVE CLBHSE	60.3	56.6	3.7
R16-156	B	1	3		12526 E CENTRAL AVE CLBHSE	62.8	58.6	4.2
R16-157	B	1	2		12526 E CENTRAL AVE CLBHSE	56.5	49.5	7
R16-158	B	1	2		12526 E CENTRAL AVE CLBHSE	59	55.1	3.9
R16-159	B	1	1		12526 E CENTRAL AVE CLBHSE	48.7	48.8	-0.1
R16-160	B	1	2		12526 E CENTRAL AVE CLBHSE	54.5	54.6	-0.1
R16-161	B	1	3		12526 E CENTRAL AVE CLBHSE	61.3	61.3	0
R16-162	B	1	1		12526 E CENTRAL AVE CLBHSE	47.8	47.5	0.3
R16-163	B	1	2		12526 E CENTRAL AVE CLBHSE	50	49.8	0.2
R16-164	B	1	3		12526 E CENTRAL AVE CLBHSE	56.5	56.4	0.1
R16-165	B	1	1		12526 E CENTRAL AVE CLBHSE	47.4	47.1	0.3
R16-166	B	1	2		12526 E CENTRAL AVE CLBHSE	49	48.7	0.3
R16-167	B	1	3		12526 E CENTRAL AVE CLBHSE	53.7	53.5	0.2
R16-168	B	1	1		12526 E CENTRAL AVE CLBHSE	47	46.6	0.4
R16-169	B	1	2		12526 E CENTRAL AVE CLBHSE	48.4	48	0.4
R16-170	B	1	3		12526 E CENTRAL AVE CLBHSE	52.6	52.3	0.3

NW16-2 Analysis Results - NSA(s) 16 2050 Build Condition								
Receptors						Predicted Noise Levels, $L_{eq(h)}$ (dB(A))		
ID #	NAC	No. Dwelling Units/ ERs	Floor No.	First Row	Address	Build	Build With-Bar	NLR
R16-171	B	1	1		12526 E CENTRAL AVE CLBHSE	42.6	40.7	1.9
R16-172	B	1	2		12526 E CENTRAL AVE CLBHSE	43.7	42.2	1.5
R16-173	B	1	3		12526 E CENTRAL AVE CLBHSE	48.6	47.3	1.3
R16-174	B	1	1		12526 E CENTRAL AVE CLBHSE	43.8	42.2	1.6
R16-175	B	1	2		12526 E CENTRAL AVE CLBHSE	43.6	41.8	1.8
R16-176	B	1	3		12526 E CENTRAL AVE CLBHSE	48.8	47.3	1.5
R16-177	B	1	1		12526 E CENTRAL AVE CLBHSE	44	42.5	1.5
R16-178	B	1	2		12526 E CENTRAL AVE CLBHSE	43.9	42.5	1.4
R16-179	B	1	3		12526 E CENTRAL AVE CLBHSE	48.8	47.1	1.7
R16-180	B	1	1		12526 E CENTRAL AVE CLBHSE	43.9	42.2	1.7
R16-181	B	1	2		12526 E CENTRAL AVE CLBHSE	44.6	43.2	1.4
R16-182	B	1	3		12526 E CENTRAL AVE CLBHSE	48.7	46.8	1.9
R16-185	C	1	1		4200 E SKELLY DR	41.2	41	0.2
						Predicted “Build-Condition” With-Barrier Benefits[1]:		14

Impact = 5 to 7 dB(A) NLR = ≥ 7 dB(A) NLR =

1. A receptor is considered benefited if the predicted Noise Level Reduction (NLR) is at least 5 dB(A).

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Appendix D

Noise Traffic Volumes

The Traffic Noise Study analysis utilized traffic volumes from the project traffic forecast that result in the "worst-case" traffic data per KDOT Highway Traffic Noise Policy and Guidance. As determined with KDOT, the noise analysis identified the average of the AM and PM peak traffic data per direction (EB/WB/NB/SB) as the loudest condition. The average traffic was calculated for each individual roadway link along the K-96 corridor, ramps, and cross streets based on the turning movement diagrams.

Tables D-1 through D-3 show the traffic volumes and vehicle classification percentages utilized in the TNM modeling.

Table D-1: Base Year 2022 Traffic Volumes – Existing Condition

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
MAINLINE FREEWAY								
K96 EB	West of Hydraulic Ave	1,758	1,555	1,657	65	95.0	2.0	3.0
K96 EB	Hydraulic Ave to Hillside Ave	3,321	3,330	3,326	65	95.0	2.0	3.0
K96 EB	Hillside Ave between Ramps	2,986	3,183	3,085	65	95.0	2.0	3.0
K96 EB	Hillside Ave to Oliver St	3,201	3,521	3,361	65	95.0	2.0	3.0
K96 EB	Oliver St between Ramps	2,792	3,066	2,929	65	95.0	2.0	3.0
K96 EB	Oliver St to Woodlawn Blvd	3,041	3,620	3,331	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd between Ramps	2,476	2,767	2,622	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd to Rock Rd	2,709	3,120	2,915	65	95.0	2.0	3.0
K96 EB	Rock between Ramps	1,718	2,185	1,952	65	95.0	2.0	3.0
K96 EB	Rock Rd to Webb Rd	1,911	2,642	2,277	65	95.0	2.0	3.0
K96 EB	Webb Rd between Ramps	1,053	2,178	1,616	65	95.0	2.0	3.0
K96 EB	Webb Rd to Greenwich Rd	1,245	2,703	1,974	65	95.0	2.0	3.0
K96 EB	Greenwich Rd between Ramps	862	1,812	1,337	65	95.0	2.0	3.0
K96 EB	Greenwich R to 21st Street	956	2,039	1,498	65	95.0	2.0	3.0
K96 EB	21st Street between Ramps	622	1,501	1,062	65	95.0	2.0	3.0
K96 EB	21st Street to 13th Street	837	1,853	1,345	65	95.0	2.0	3.0
K96 EB	13th Street between Ramps	603	1,376	990	65	95.0	2.0	3.0
K96 EB	13th Street between Ramps	764	1,575	1,170	65	95.0	2.0	3.0
K96 EB	13th to Service Ramp	829	1,267	1,048	65	95.0	2.0	3.0
K96 EB	South of Service Ramp	829	1,267	1,048	65	95.0	2.0	3.0
K96 WB	Hydraulic between Ramps	2036	2,361	2,199	65	95.0	2.0	3.0
K96 WB	Hydraulic Ave to Hillside Ave	2,318	2,997	2,658	65	95.0	2.0	3.0

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 WB	Hillside between Ramps	2,202	2,806	2,504	65	95.0	2.0	3.0
K96 WB	Hillside Ave to Oliver St	2,545	3,127	2,836	65	95.0	2.0	3.0
K96 WB	Oliver St between Ramps	2,051	2,695	2,373	65	95.0	2.0	3.0
K96 WB	Oliver St to Woodlawn Blvd	2,688	3,026	2,857	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd between Ramps	2,053	2,326	2,190	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd to Rock Rd	2,261	2,638	2,450	65	95.0	2.0	3.0
K96 WB	Rock Rd between Ramps	1,672	1,715	1,694	65	95.0	2.0	3.0
K96 WB	Rock Rd to Webb Rd	1,975	2,088	2,032	65	95.0	2.0	3.0
K96 WB	Webb Rd between Ramps	1,629	1,394	1,512	65	95.0	2.0	3.0
K96 WB	Webb Rd to Greenwich Rd	2,262	1,620	1,941	65	95.0	2.0	3.0
K96 WB	Greenwich Rd between Ramps	1,856	1,040	1,448	65	95.0	2.0	3.0
K96 WB	Greenwich Rd to 21st Street	2,013	1,332	1,673	65	95.0	2.0	3.0
K96 WB	21st Street between Ramps	924	940	932	65	95.0	2.0	3.0
K96 WB	21st Street to 13th Street	1,349	1,219	1,284	65	95.0	2.0	3.0
K96 WB	13th Street between Ramps	1,550	1,042	1,296	65	95.0	2.0	3.0
K96 WB	13th to Service Ramp	1,282	925	1,104	65	95.0	2.0	3.0
K96 WB	South of Service Ramp	1,282	925	1,104	65	95.0	2.0	3.0
RAMPS								
K96 On Ramp	Hydraulic Ave to K96 EB	286	400	343	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hydraulic Ave	282	636	459	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Hillside Ave	335	147	241	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 EB	215	338	277	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 WB	116	191	154	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hillside Ave	343	321	332	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Oliver St	409	455	432	40	99.0	0.5	0.5
K96 On Ramp	Oliver St to K96 EB	249	554	402	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 On Ramp	Oliver St to K96 WB	494	432	463	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Oliver St	637	331	484	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Woodlawn Blvd	565	853	709	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 EB	233	353	293	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 WB	635	700	668	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Woodlawn Blvd	208	312	260	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Rock Rd	991	935	963	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 EB	193	457	325	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 WB	589	923	756	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Rock Rd	303	373	338	40	99.0	0.5	0.5
K96 Off Loop	K96 EB to Webb Rd	858	464	661	30	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 EB	192	525	359	40	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 WB	346	694	520	40	99.0	0.5	0.5
K96 Off Loop	K96 WB to Webb Rd	633	226	430	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Greenwich Rd	383	891	637	40	99.0	0.5	0.5
K96 On Loop	Greenwich Rd to K96 EB	94	475	285	30	99.0	0.5	0.5
K96 On Ramp	Greenwich Rd to K96 WB	406	580	493	40	99.0	0.5	0.5
K96 Off loop	K96 WB to Greenwich Rd	157	292	225	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 21st St	334	538	436	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 EB	285	352	319	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 WB	589	392	491	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 21st St	425	279	352	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 13th St	234	477	356	40	99.0	0.5	0.5
K96 On Ramp	13th St to K96 EB	87	185	136	40	99.0	0.5	0.5
K96 On Ramp	13th St to K96 WB	451	318	385	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 13th St	175	194	185	40	99.0	0.5	0.5
SIDE ROADS								

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
Hydraulic Ave NB	North of K96			489	40	99.0	0.5	0.5
Hydraulic Ave NB	Between Ramps			242	40	99.0	0.5	0.5
Hydraulic Ave NB	South of K96			409	40	99.0	0.5	0.5
Hydraulic Ave SB	North of K96			371	40	99.0	0.5	0.5
Hydraulic Ave SB	Between Ramps			536	40	99.0	0.5	0.5
Hydraulic Ave SB	South of K96			366	40	99.0	0.5	0.5
Hillside Ave NB	North of K96			517	40	99.0	0.5	0.5
Hillside Ave NB	Between Ramps			406	40	99.0	0.5	0.5
Hillside Ave NB	South of K96			430	40	99.0	0.5	0.5
Hillside Ave SB	North of K96			405	40	99.0	0.5	0.5
Hillside Ave SB	Between Ramps			492	40	99.0	0.5	0.5
Hillside Ave SB	South of K96			477	40	99.0	0.5	0.5
Oliver St NB	North of K96			945	40	99.0	0.5	0.5
Oliver St NB	Between Ramps			781	40	99.0	0.5	0.5
Oliver St NB	South of K96			636	40	99.0	0.5	0.5
Oliver St SB	North of K96			947	40	99.0	0.5	0.5
Oliver St SB	Between Ramps			849	40	99.0	0.5	0.5
Oliver St SB	South of K96			742	40	99.0	0.5	0.5
Woodlawn Blvd NB	North of K96			945	40	99.0	0.5	0.5
Woodlawn Blvd NB	Between Ramps			1,085	40	99.0	0.5	0.5
Woodlawn Blvd NB	South of K96			903	40	99.0	0.5	0.5
Woodlawn Blvd SB	North of K96			1,070	40	99.0	0.5	0.5
Woodlawn Blvd SB	Between Ramps			771	40	99.0	0.5	0.5
Woodlawn Blvd SB	South of K96			997	40	99.0	0.5	0.5
Rock Rd NB	North of K96			1,138	40	98.0	1.0	1.0
Rock Rd NB	Between Ramps			1,290	40	98.0	1.0	1.0
Rock Rd NB	South of K96			916	40	98.0	1.0	1.0

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
Rock Rd SB	North of K96			828	40	98.0	1.0	1.0
Rock Rd SB	Between Ramps			961	40	98.0	1.0	1.0
Rock Rd SB	South of K96			1,347	40	98.0	1.0	1.0
Webb Rd NB	North of K96			955	40	98.0	1.0	1.0
Webb Rd NB	Between N Ramp and 29th			999	40	98.0	1.0	1.0
Webb Rd NB	Between 29th and S Ramp			1,051	40	98.0	1.0	1.0
Webb Rd NB	South of K96			828	40	98.0	1.0	1.0
Webb Rd SB	North of K96			878	40	98.0	1.0	1.0
Webb Rd SB	Between N Ramp and 29th			815	40	98.0	1.0	1.0
Webb Rd SB	Between 29th and S Ramp			917	40	98.0	1.0	1.0
Webb Rd SB	South of K96			992	40	98.0	1.0	1.0
Greenwich Rd NB	North of K96			659	40	99.0	0.5	0.5
Greenwich Rd NB	Between Ramps			717	40	99.0	0.5	0.5
Greenwich Rd NB	South of K96			510	40	99.0	0.5	0.5
Greenwich Rd SB	North of K96			577	40	99.0	0.5	0.5
Greenwich Rd SB	Between Ramps			639	40	99.0	0.5	0.5
Greenwich Rd SB	South of K96			484	40	99.0	0.5	0.5
21st St NB	North of K96			1,085	40	99.0	0.5	0.5
21st St NB	Between Ramps			878	40	99.0	0.5	0.5
21st St NB	South of K96			576	40	99.0	0.5	0.5
21st St SB	North of K96			1,127	40	99.0	0.5	0.5
21st St SB	Between Ramps			771	40	99.0	0.5	0.5
21st St SB	South of K96			593	40	99.0	0.5	0.5
13th St NB	North of K96			646	40	99.0	0.5	0.5
13th St NB	Between Ramps			714	40	99.0	0.5	0.5
13th St NB	South of K96			594	40	99.0	0.5	0.5
13th St SB	North of K96			700	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
13th St SB	Between Ramps			570	40	99.0	0.5	0.5
13th St SB	South of K96			665	40	99.0	0.5	0.5

Table D-2: No Build 2050 Traffic Volumes – Future No Build Condition

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
MAINLINE FREEWAY								
K96 EB	West of Hydraulic Ave	2202	2,498	2,350	65	95.0	2.0	3.0
K96 EB	Hydraulic Ave to Hillside Ave	4,906	4,969	4,938	65	95.0	2.0	3.0
K96 EB	Hillside Ave between Ramps	4,369	4,705	4,537	65	95.0	2.0	3.0
K96 EB	Hillside Ave to Oliver St	4,751	5,419	5,085	65	95.0	2.0	3.0
K96 EB	Oliver St between Ramps	3,800	4,660	4,230	65	95.0	2.0	3.0
K96 EB	Oliver St to Woodlawn Blvd	4,291	5,406	4,849	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd between Ramps	3,630	4,257	3,944	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd to Rock Rd	4,107	4,756	4,432	65	95.0	2.0	3.0
K96 EB	Rock between Ramps	2,972	3,694	3,333	65	95.0	2.0	3.0
K96 EB	Rock Rd to Webb Rd	3,261	4,341	3,801	65	95.0	2.0	3.0
K96 EB	Webb Rd between Ramps	1,956	3,668	2,812	65	95.0	2.0	3.0
K96 EB	Webb Rd to Greenwich Rd	2,335	4,487	3,411	65	95.0	2.0	3.0
K96 EB	Greenwich Rd between Ramps	1,627	3,195	2,411	65	95.0	2.0	3.0
K96 EB	Greenwich R to 21st Street	1,828	3,538	2,683	65	95.0	2.0	3.0
K96 EB	21st Street between Ramps	1,196	2,657	1,927	65	95.0	2.0	3.0
K96 EB	21st Street to 13th Street	2,230	3,080	2,655	65	95.0	2.0	3.0
K96 EB	13th Street between Ramps	1,613	2,086	1,850	65	95.0	2.0	3.0
K96 EB	13th to Service Ramp	1,769	2,361	2,065	65	95.0	2.0	3.0
K96 EB	South of Service Ramp	1,672	1,802	1,737	65	95.0	2.0	3.0
K96 WB	Hydraulic between Ramps	3,114	3,395	3,255	65	95.0	2.0	3.0
K96 WB	Hydraulic Ave to Hillside Ave	3,515	4,306	3,911	65	95.0	2.0	3.0
K96 WB	Hillside between Ramps	3,339	4,072	3,706	65	95.0	2.0	3.0

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 WB	Hillside Ave to Oliver St	4,123	4,803	4,463	65	95.0	2.0	3.0
K96 WB	Oliver St between Ramps	3,425	4,085	3,755	65	95.0	2.0	3.0
K96 WB	Oliver St to Woodlawn Blvd	4,255	4,466	4,361	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd between Ramps	3,424	3,549	3,487	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd to Rock Rd	3,818	4,134	3,976	65	95.0	2.0	3.0
K96 WB	Rock Rd between Ramps	2,997	2,962	2,980	65	95.0	2.0	3.0
K96 WB	Rock Rd to Webb Rd	3,479	3,495	3,487	65	95.0	2.0	3.0
K96 WB	Webb Rd between Ramps	2,938	2,450	2,694	65	95.0	2.0	3.0
K96 WB	Webb Rd to Greenwich Rd	3,843	2,843	3,343	65	95.0	2.0	3.0
K96 WB	Greenwich Rd between Ramps	3,026	1,749	2,388	65	95.0	2.0	3.0
K96 WB	Greenwich Rd to 21st Street	3,400	2,205	2,803	65	95.0	2.0	3.0
K96 WB	21st Street between Ramps	2,368	1,572	1,970	65	95.0	2.0	3.0
K96 WB	21st Street to 13th Street	3,213	2,270	2,742	65	95.0	2.0	3.0
K96 WB	13th Street between Ramps	2,469	1,605	2,037	65	95.0	2.0	3.0
K96 WB	13th to Service Ramp	2,586	1,915	2,251	65	95.0	2.0	3.0
K96 WB	South of Service Ramp	1,886	1,586	1,736	65	95.0	2.0	3.0
RAMPS								
K96 On Ramp	Hydraulic Ave to K96 EB	1,987	1,835	1,911	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hydraulic Ave	401	911	656	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Hillside Ave	537	264	401	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 EB	382	715	549	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 WB	177	234	206	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hillside Ave	784	731	758	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Oliver St	951	759	855	40	99.0	0.5	0.5
K96 On Ramp	Oliver St to K96 EB	491	746	619	40	99.0	0.5	0.5
K96 On Ramp	Oliver St to K96 WB	698	718	708	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 Off Ramp	K96 WB to Oliver St	830	381	606	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Woodlawn Blvd	661	1,149	905	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 EB	477	499	488	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 WB	831	916	874	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Woodlawn Blvd	394	585	490	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Rock Rd	1,135	1,062	1,099	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 EB	289	647	468	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 WB	821	1,173	997	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Rock Rd	482	533	508	40	99.0	0.5	0.5
K96 Off Loop	K96 EB to Webb Rd	1,305	672	989	30	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 EB	380	819	600	40	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 WB	542	1,044	793	40	99.0	0.5	0.5
K96 Off Loop	K96 WB to Webb Rd	906	393	650	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Greenwich Rd	708	1,292	1,000	40	99.0	0.5	0.5
K96 On Loop	Greenwich Rd to K96 EB	201	344	273	30	99.0	0.5	0.5
K96 On Ramp	Greenwich Rd to K96 WB	818	1,094	956	40	99.0	0.5	0.5
K96 Off loop	K96 WB to Greenwich Rd	374	456	415	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 21st St	632	882	757	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 EB	1,034	423	729	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 WB	1,032	633	833	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 21st St	845	698	772	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 13th St	617	994	806	40	99.0	0.5	0.5
K96 On Ramp	13th St to K96 EB	155	275	215	40	99.0	0.5	0.5
K96 On Ramp	13th St to K96 WB	744	665	705	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 13th St	116	310	213	40	99.0	0.5	0.5
K96 On Ramp	Service to K96 WB	754	518	636	40	99.0	0.5	0.5
K96 Off loop	K96 EB to Service Ramp	245	691	468	30	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
SIDE ROADS								
Hydraulic Ave NB	North of K96	838	1,273	1056	40	99.0	0.5	0.5
Hydraulic Ave NB	Between Ramps	539	630	585	40	99.0	0.5	0.5
Hydraulic Ave NB	South of K96	706	978	842	40	99.0	0.5	0.5
Hydraulic Ave SB	North of K96	894	755	825	40	99.0	0.5	0.5
Hydraulic Ave SB	Between Ramps	966	1,022	994	40	99.0	0.5	0.5
Hydraulic Ave SB	South of K96	446	733	590	40	99.0	0.5	0.5
Hillside Ave NB	North of K96	1,111	1,668	1,390	40	99.0	0.5	0.5
Hillside Ave NB	Between Ramps	779	1,200	990	40	99.0	0.5	0.5
Hillside Ave NB	South of K96	509	1,277	893	40	99.0	0.5	0.5
Hillside Ave SB	North of K96	1,100	981	1,041	40	99.0	0.5	0.5
Hillside Ave SB	Between Ramps	1,375	1,010	1,193	40	99.0	0.5	0.5
Hillside Ave SB	South of K96	1,261	636	949	40	99.0	0.5	0.5
Oliver St NB	North of K96	1,328	1,278	1,303	40	99.0	0.5	0.5
Oliver St NB	Between Ramps	1,076	1,340	1,208	40	99.0	0.5	0.5
Oliver St NB	South of K96	774	1,025	900	40	99.0	0.5	0.5
Oliver St SB	North of K96	1,277	1,474	1,376	40	99.0	0.5	0.5
Oliver St SB	Between Ramps	1,157	1,199	1,178	40	99.0	0.5	0.5
Oliver St SB	South of K96	1,314	897	1,106	40	99.0	0.5	0.5
Woodlawn Blvd NB	North of K96	1,174	2,314	1,744	40	99.0	0.5	0.5
Woodlawn Blvd NB	Between Ramps	1,253	2,434	1,844	40	99.0	0.5	0.5
Woodlawn Blvd NB	South of K96	1,174	2,031	1,603	40	99.0	0.5	0.5
Woodlawn Blvd SB	North of K96	1,908	2,049	1,979	40	99.0	0.5	0.5
Woodlawn Blvd SB	Between Ramps	1,551	1,839	1,695	40	99.0	0.5	0.5
Woodlawn Blvd SB	South of K96	1,655	2,086	1,871	40	99.0	0.5	0.5
Rock Rd NB	North of K96	1,282	1,784	1,533	40	98.0	1.0	1.0
Rock Rd NB	Between Ramps	1,340	2,081	1,711	40	98.0	1.0	1.0

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
Rock Rd NB	South of K96	981	1,985	1,483	40	98.0	1.0	1.0
Rock Rd SB	North of K96	1,624	1,876	1,750	40	98.0	1.0	1.0
Rock Rd SB	Between Ramps	1,343	1,534	1,439	40	98.0	1.0	1.0
Rock Rd SB	South of K96	1,832	1,853	1,843	40	98.0	1.0	1.0
Webb Rd NB	North of K96	1,883	1,338	1,611	40	98.0	1.0	1.0
Webb Rd NB	Between N Ramp and 29th	1,606	1,621	1,614	40	98.0	1.0	1.0
Webb Rd NB	Between 29th and S Ramp	1,788	1,602	1,695	40	98.0	1.0	1.0
Webb Rd NB	South of K96	1,169	1,485	1,327	40	98.0	1.0	1.0
Webb Rd SB	North of K96	1,362	1,901	1,632	40	98.0	1.0	1.0
Webb Rd SB	Between N Ramp and 29th	1,450	1,533	1,492	40	98.0	1.0	1.0
Webb Rd SB	Between 29th and S Ramp	1,379	1,739	1,559	40	98.0	1.0	1.0
Webb Rd SB	South of K96	1,685	1,476	1,581	40	98.0	1.0	1.0
Greenwich Rd NB	North of K96	1,621	2,034	1,828	40	99.0	0.5	0.5
Greenwich Rd NB	Between Ramps	1,539	2,686	2,113	40	99.0	0.5	0.5
Greenwich Rd NB	South of K96	990	1,798	1,394	40	99.0	0.5	0.5
Greenwich Rd SB	North of K96	1,705	1,983	1,844	40	99.0	0.5	0.5
Greenwich Rd SB	Between Ramps	1,219	1,779	1,499	40	99.0	0.5	0.5
Greenwich Rd SB	South of K96	1,206	1799	1,503	40	99.0	0.5	0.5
21st St NB	North of K96	1,554	2,248	1,901	40	99.0	0.5	0.5
21st St NB	Between Ramps	939	1,738	1,339	40	99.0	0.5	0.5
21st St NB	South of K96	505	1,025	765	40	99.0	0.5	0.5
21st St SB	North of K96	2,621	1,449	2,035	40	99.0	0.5	0.5
21st St SB	Between Ramps	1,820	1,005	1,413	40	99.0	0.5	0.5
21st St SB	South of K96	984	751	868	40	99.0	0.5	0.5
13th St NB	North of K96	902	1,612	1,257	40	99.0	0.5	0.5
13th St NB	Between Ramps	1,081	1,725	1,403	40	99.0	0.5	0.5
13th St NB	South of K96	828	1,345	1,087	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
13th St SB	North of K96	1,387	1,121	1,254	40	99.0	0.5	0.5
13th St SB	Between Ramps	938	879	909	40	99.0	0.5	0.5
13th St SB	South of K96	1,146	1,217	1,182	40	99.0	0.5	0.5
29th EB		527	648	587.5	40	99.0	0.5	0.5
29th WB		761	429	595	40	99.0	0.5	0.5

Table D-3: Design Year 2050 Traffic Volumes – Future Build Condition

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
MAINLINE FREEWAY								
K96 EB	West of Hydraulic Ave	2,329	2,537	2,433	65	95.0	2.0	3.0
K96 EB	Hydraulic Ave to Hillside Ave	5,570	5,494	5,532	65	95.0	2.0	3.0
K96 EB	Hillside Ave between Ramps	4,963	5,188	5,076	65	95.0	2.0	3.0
K96 EB	Hillside Ave to Oliver St	5,343	5,895	5,619	65	95.0	2.0	3.0
K96 EB	Oliver St between Ramps	4,464	5,018	4,741	65	95.0	2.0	3.0
K96 EB	Oliver St to Woodlawn Blvd	4,995	5,816	5,406	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd between Ramps	4,143	4,581	4,362	65	95.0	2.0	3.0
K96 EB	Woodlawn Blvd to Rock Rd	4,626	5,088	4,857	65	95.0	2.0	3.0
K96 EB	Rock between Ramps	3,371	3,945	3,658	65	95.0	2.0	3.0
K96 EB	Rock Rd to Webb Rd	3,647	4,590	4,119	65	95.0	2.0	3.0
K96 EB	Webb Rd between Ramps	2,185	3,835	3,010	65	95.0	2.0	3.0
K96 EB	Webb Rd to Greenwich Rd	2,552	4,623	3,588	65	95.0	2.0	3.0
K96 EB	Greenwich Rd between Ramps	1,803	3,234	2,519	65	95.0	2.0	3.0
K96 EB	Greenwich R to 21st Street	2,029	3,598	2,814	65	95.0	2.0	3.0
K96 EB	21st Street between Ramps	1,347	2,580	1,964	65	95.0	2.0	3.0
K96 EB	21st Street to 13th Street	2,156	3,455	2,806	65	95.0	2.0	3.0
K96 EB	13th Street between Ramps	1,216	1,942	1,579	65	95.0	2.0	3.0
K96 EB	13th Street to Service Ramp	1,503	2,236	1,870	65	95.0	2.0	3.0
K96 EB	South of Service Ramp	1,272	1,636	1,454	65	95.0	2.0	3.0
K96 WB	West of Hydraulic	1,248	1812	1,530	65	95.0	2.0	3.0
K96 WB	Hydraulic between Ramps	3,262	3,489	3376	65	95.0	2.0	3.0
K96 WB	Hydraulic Ave to Hillside Ave	3,682	4,457	4,070	65	95.0	2.0	3.0
K96 WB	Hillside between Ramps	3,549	4,240	3,895	65	95.0	2.0	3.0

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 WB	Hillside Ave to Oliver St	4,386	5,029	4,708	65	95.0	2.0	3.0
K96 WB	Oliver St between Ramps	3,770	4,321	4,046	65	95.0	2.0	3.0
K96 WB	Oliver St to Woodlawn Blvd	4,710	4,811	4,761	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd between Ramps	3,856	3,838	3,847	65	95.0	2.0	3.0
K96 WB	Woodlawn Blvd to Rock Rd	4,241	4,426	4,334	65	95.0	2.0	3.0
K96 WB	Rock Rd between Ramps	3,350	3,195	3,273	65	95.0	2.0	3.0
K96 WB	Rock Rd to Webb Rd	3,883	3,723	3,803	65	95.0	2.0	3.0
K96 WB	Webb Rd between Ramps	3,273	2,555	2,914	65	95.0	2.0	3.0
K96 WB	Webb Rd to Greenwich Rd	4,238	2,947	3,593	65	95.0	2.0	3.0
K96 WB	Greenwich Rd between Ramps	3,361	1,856	2,609	65	95.0	2.0	3.0
K96 WB	Greenwich Rd to 21st Street	3,687	2,317	3,002	65	95.0	2.0	3.0
K96 WB	21st Street between Ramps	2,557	1,671	2,114	65	95.0	2.0	3.0
K96 WB	21st Street to 13th Street	3,497	2,354	2,926	65	95.0	2.0	3.0
K96 WB	13th Street between Ramps	2,693	1,633	2,163	65	95.0	2.0	3.0
K96 WB	13th to Service Ramp	2,889	1,951	2,420	65	95.0	2.0	3.0
K96 WB	South of Service Ramp	2,202	1,309	1,756	65	95.0	2.0	3.0
I-135	to east K96	2,455	2,261	2,358	65	95.0	2.0	3.0
I-135	to Hillside Ave	364	153	259	65	95.0	2.0	3.0
I-135	to K96 EB	2,091	2,110	2,101	65	95.0	2.0	3.0
RAMPS								
K96 On Ramp	Hydraulic Ave to K96 EB	785	696	741	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hydraulic Ave	420	968	694	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Hillside Ave	607	306	457	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 EB	380	707	544	40	99.0	0.5	0.5
K96 On Ramp	Hillside Ave to K96 WB	133	218	176	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Hillside Ave	837	789	813	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 Off Ramp	K96 EB to Oliver St	879	877	878	40	99.0	0.5	0.5
K96 On Ramp	Oliver St to K96 EB	531	799	665	40	99.0	0.5	0.5
K96 On Ramp	Oliver St to K96 WB	616	708	662	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Oliver St	940	490	715	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Woodlawn Blvd	852	1,235	1,044	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 EB	483	507	495	40	99.0	0.5	0.5
K96 On Ramp	Woodlawn Blvd to K96 WB	854	973	914	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Woodlawn Blvd	385	589	487	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Rock Rd	1,255	1,144	1,200	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 EB	276	646	461	40	99.0	0.5	0.5
K96 On Ramp	Rock Rd to K96 WB	890	1,232	1,061	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Rock Rd	533	529	531	40	99.0	0.5	0.5
K96 Off ramp	K96 EB to Webb Rd SB	769	433	601	30	99.0	0.5	0.5
K96 Off Loop	K96 EB to Webb Rd NB	692	323	508	30	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 EB	367	788	578	40	99.0	0.5	0.5
K96 On Ramp	Webb Rd to K96 WB	610	1168	889	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to Webb Rd	965	391	678	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to Greenwich Rd	750	1,389	1,070	40	99.0	0.5	0.5
K96 On Loop	Greenwich Rd to K96 EB	227	364	296	30	99.0	0.5	0.5
K96 On Ramp	Greenwich Rd to K96 WB	877	1,091	984	40	99.0	0.5	0.5
K96 Off loop	K96 WB to Greenwich Rd	326	461	394	30	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 21st St	682	1,019	851	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 EB	809	875	842	40	99.0	0.5	0.5
K96 On Ramp	21st St to K96 WB	1,130	646	888	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 21st St	940	683	812	40	99.0	0.5	0.5
K96 Off Ramp	K96 EB to 13th St	940	1,513	1,227	40	99.0	0.5	0.5
K96 On Ramp	13th ST to K96 EB	287	294	291	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
K96 On Ramp	13th St to K96 WB	804	721	763	40	99.0	0.5	0.5
K96 Off Ramp	K96 WB to 13th St	196	318	257	40	99.0	0.5	0.5
K96 On Ramp	I-135 to K96 WB	687	642	665	40	99.0	0.5	0.5
SIDE ROADS								
Hydraulic Ave NB	North of K96	869	1,293	1,081	40	99.0	0.5	0.5
Hydraulic Ave NB	Between Ramps	556	602	579	40	99.0	0.5	0.5
Hydraulic Ave NB	South of K96	741	970	856	40	99.0	0.5	0.5
Hydraulic Ave SB	North of K96	926	776	851	40	99.0	0.5	0.5
Hydraulic Ave SB	Between Ramps	1,033	1,053	1,043	40	99.0	0.5	0.5
Hydraulic Ave SB	South of K96	432	725	579	40	99.0	0.5	0.5
Hillside Ave NB	North of K96	1,230	1,726	1,478	40	99.0	0.5	0.5
Hillside Ave NB	Between Ramps	811	1202	1,007	40	99.0	0.5	0.5
Hillside Ave NB	South of K96	477	1258	868	40	99.0	0.5	0.5
Hillside Ave SB	North of K96	1,095	948	1,022	40	99.0	0.5	0.5
Hillside Ave SB	Between Ramps	1,380	996	1,188	40	99.0	0.5	0.5
Hillside Ave SB	South of K96	1,273	651	962	40	99.0	0.5	0.5
Oliver St NB	North of K96	1,377	1,363	1,370	40	99.0	0.5	0.5
Oliver St NB	Between Ramps	1,027	1,371	1,199	40	99.0	0.5	0.5
Oliver St NB	South of K96	741	1,024	883	40	99.0	0.5	0.5
Oliver St SB	North of K96	1,273	1,505	1,389	40	99.0	0.5	0.5
Oliver St SB	Between Ramps	1247	1294	1,271	40	99.0	0.5	0.5
Oliver St SB	South of K96	1,308	1,026	1,167	40	99.0	0.5	0.5
Woodlawn Blvd NB	North of K96	1,221	2,325	1,773	40	99.0	0.5	0.5
Woodlawn Blvd NB	Between Ramps	1,314	2,488	1,901	40	99.0	0.5	0.5
Woodlawn Blvd NB	South of K96	1,168	2,046	1,607	40	99.0	0.5	0.5
Woodlawn Blvd SB	North of K96	1,886	2,029	1,958	40	99.0	0.5	0.5
Woodlawn Blvd SB	Between Ramps	1,151	1,807	1,479	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
Woodlawn Blvd SB	South of K96	1,732	2,093	1,913	40	99.0	0.5	0.5
Rock Rd NB	North of K96	1,339	1,806	1,573	40	98.0	1.0	1.0
Rock Rd NB	Between Ramps	1,407	2,127	1,767	40	98.0	1.0	1.0
Rock Rd NB	South of K96	993	1,973	1,483	40	98.0	1.0	1.0
Rock Rd SB	North of K96	1,597	1,855	1,726	40	98.0	1.0	1.0
Rock Rd SB	Between Ramps	1,308	1,473	1,391	40	98.0	1.0	1.0
Rock Rd SB	South of K96	1,873	1,829	1,851	40	98.0	1.0	1.0
Webb Rd NB	North of K96	1,915	1,332	1,624	40	98.0	1.0	1.0
Webb Rd NB	Between N Ramp and 29th	1,710	1,673	1,692	40	98.0	1.0	1.0
Webb Rd NB	Between 29th and S Ramp	1,825	1,656	1,741	40	98.0	1.0	1.0
Webb Rd NB	South of K96	1,132	1,484	1,308	40	98.0	1.0	1.0
Webb Rd SB	North of K96	1,407	1,965	1,686	40	98.0	1.0	1.0
Webb Rd SB	Between N Ramp and 29th	1,556	1,530	1,543	40	98.0	1.0	1.0
Webb Rd SB	Between 29th and S Ramp	1,409	1,743	1,576	40	98.0	1.0	1.0
Webb Rd SB	South of K96	1,811	1,538	1,675	40	98.0	1.0	1.0
Greenwich Rd NB	North of K96	1,623	2,334	1,979	40	99.0	0.5	0.5
Greenwich Rd NB	Between Ramps	1,594	2,705	2,150	40	99.0	0.5	0.5
Greenwich Rd NB	South of K96	1,000	1,727	1,364	40	99.0	0.5	0.5
Greenwich Rd SB	North of K96	1,720	2,046	1,883	40	99.0	0.5	0.5
Greenwich Rd SB	Between Ramps	1,181	1,833	1,507	40	99.0	0.5	0.5
Greenwich Rd SB	South of K96	1,140	1,836	1,488	40	99.0	0.5	0.5
21st St NB	North of K96	1,739	2,246	1,993	40	99.0	0.5	0.5
21st St NB	Between Ramps	1,013	1,720	1,367	40	99.0	0.5	0.5
21st St NB	South of K96	454	986	720	40	99.0	0.5	0.5
21st St SB	North of K96	2,607	1,764	2,186	40	99.0	0.5	0.5
21st St SB	Between Ramps	1,691	1,276	1,484	40	99.0	0.5	0.5
21st St SB	South of K96	1,005	685	845	40	99.0	0.5	0.5

Roadway	Segment	AM Peak Hour Volume (vph)	PM Peak Hour Volume (vph)	PEAK Noise Hour Volume (vph)	Design Speed (mph)	Vehicle Percentages		
						Auto	Medium Truck	Heavy Truck
13th St NB	North of K96	1,177	1,862	1,520	40	99.0	0.5	0.5
13th St NB	Between Ramps	1,295	1,903	1,599	40	99.0	0.5	0.5
13th St NB	South of K96	832	1,144	988	40	99.0	0.5	0.5
13th St SB	North of K96	1,424	1,299	1,362	40	99.0	0.5	0.5
13th St SB	Between Ramps	934	936	935	40	99.0	0.5	0.5
13th St SB	South of K96	1,124	1,397	1,261	40	99.0	0.5	0.5
29th St EB	West of Webb	527	650	589	40	99.0	0.5	0.5
29th St WB	West of Webb	769	433	601	40	99.0	0.5	0.5

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PARTIAL PROPERTY ACQUISTIONS

Appendix D: Preferred Alternative Potential Partial Property Acquisitions

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
n/a – Residential	3240 N OLIVER	MALZAHN PHYLLIS A REV TRUST	< 0.1	R1
n/a – Residential	NO ADDRESS	MALZAHN PHYLLIS A REV TRUST	0.3	R2
n/a – Residential	3316 N OLIVER AVE	JACKSON FRANCES	0.3	R3
n/a – Residential	3332 N OLIVER ST	VLAMIS ENTERPRISES	0.8	R4
n/a – Residential	3333 N GOVERNEOUR CIR	S D LONDON RENTALS LLC	< 0.1	R5
n/a – Residential	3335 N GOVERNEOUR CIR	S D LONDON RENTALS LLC	< 0.1	R6
n/a – Residential	3343 N GOVERNEOUR CIR	SLATTERY RICHARD PHILIP FAM TRUST	< 0.1	R7
n/a – Residential	3345 N GOVERNEOUR CIR	SLATTERY RICHARD PHILIP FAM TRUST	< 0.1	R8
n/a – Residential	3353 N GOVERNEOUR CIR	HAYDON JAMES & KERRY	< 0.1	R9
n/a – Residential	3355 N GOVERNEOUR CIR	HAYDON JAMES & KERRY	< 0.1	R10
n/a – Residential	3363 N GOVERNEOUR CIR	TALLGRASS CORPORATE LODGING LLC	< 0.1	R11
n/a – Residential	3365 N GOVERNEOUR CIR	WAMBACH AMBER	< 0.1	R12
n/a – Residential	3371 N GOVERNEOUR CIR	PHILHART KYMBERLY J & PAUL M	< 0.1	R13
n/a – Residential	7450 E 32ND ST N 1301	MIMG CCXXII CROSS CREEK SUB LLC	0.2	R14

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
n/a – Residential	7450 E 32ND ST N 101	MIMG CCXXII CROSS CREEK SUB LLC	0.5	R15
n/a – Residential	7610 E 32ND ST N 101	MIMG CCXXII CROSS CREEK SUB LLC	< 0.1	R16
n/a – Residential	7610 E 32ND ST N 201	MIMG CCXXII CROSS CREEK SUB LLC	0.3	R17
n/a – Residential	7650 E 32ND ST N 201	MIMG CCXXII CROSS CREEK SUB LLC	0.3	R18
n/a – Residential	7303 E 34TH ST N	ISLAMIC SOCIETY OF WICHITA INC	< 0.1	R19
n/a – Residential	7309 E 34TH ST N	ISLAMIC SOCIETY OF WICHITA INC	< 0.1	R20
n/a – Residential	7315 E 34TH ST N	ISLAMIC SOCIETY OF WICHITA INC	< 0.1	R21
n/a – Residential	7321 E 34TH ST N	ISLAMIC SOCIETY OF WICHITA INC	< 0.1	R22
n/a – Residential	7327 E 34TH ST N	ISLAMIC SOCIETY OF WICHITA INC	< 0.1	R23
n/a – Residential	3540 N INWOOD ST APT OFFICE	CITY OF WICHITA	0.6	R24
n/a – Residential	818 N WHITE TAIL CT	CONLEY TIM E & KIMBERLY D	< 0.1	R25
n/a – Residential	814 N WHITE TAIL CT	STAEHR BRETT H & JULIE L	< 0.1	R26
n/a – Residential	12314 E TIPPERARY CIR	HAND JOSEPH R & STACY	< 0.1	R27
Total Acreage of Potential Partial Residential Property Acquisitions			**3.7**	
None	NO ADDRESS	City of Wichita	5.4	C1
Sedgwick County Animal Shelter	3303 N HILLSIDE AVE	City of Wichita	4.3	C2

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
City of Wichita Public Works Station	2901 E 33RD ST N	City of Wichita	< 0.1	C3
Camp The Range RV Park	2918 E 33RD ST N	RVINO-USI LLC	0.8	C4
Kansas General Wire & Supply	3505 N HILLSIDE AVE	RAY & ROD LLC	1.2	C5
Peoples Choice Storage Wichita	3401 N HILLSIDE AVE	PEOPLES CHOICE STORAGE WICHITA LLC	0.2	C6
Overland Charters	3333 N HILLSIDE AVE	FANKHAUSER KELLY	< 0.1	C7
Koch Campus	4027 E 37TH ST N D	KOCH REAL ESTATE HOLDINGS INC	0.5	C8
Sedgwick County EMS Post 12	100 N BROADWAY AVE	SEDGWICK COUNTY	1.1	C9
None	3302 N HILLSIDE AVE	KOCH REAL ESTATE HOLDINGS INC	0.8	C10
None	NO ADDRESS	CITY OF WICHITA	< 0.1	C11
None	3553 N OLIVER ST	KOCH REAL ESTATE HOLDINGS INC	1.5	C12
None	NO ADDRESS	KOCH REAL ESTATE HOLDINGS INC	0.3	C13
QuikTrip	3520 N OLIVER AVE	EWF INVESTMENTS LLC	0.1	C14
None	E 35TH ST N	GREAT PLAINS VENTURES INC	< 0.1	C15
Extended Stay America Select Suites – Wichita – North	3401 N GREAT PLAINS ST	TIGER WICHITA NORTH LLC	< 0.1	C16
Home Depot & Funky Monkeys Shaved Ice	3350 N WOODLAWN BLVD	HD DEVELOPMENT OF MARYLAND INC	1.1	C17
Meineke Car Care Center	3430 N WOODLAWN BLVD	AIR CAPITAL 8 REAL ESTATE LLC	< 0.1	C18

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
Wichita Family Crisis Center	7824 E 32ND ST N	WICHITA FAM CRISIS CENTER INC	< 0.1	C19
Charlie's Car Wash	3323 N ROCK RD	REALTY INCOME CORPORATION	< 0.1	C20
Phillips 66	3311 N ROCK RD	LGP REALTY HOLDINGS LP	< 0.1	C21
Five Star Car Wash, Wichita, KS	3237 N ROCK RD	CROWN HEIGHTS INVESTORS LLC	0.2	C22
Subway	3233 N ROCK RD	ROTTINGHAUS REAL ESTATE LLC	0.3	C23
Chuck E. Cheese	3223 N ROCK RD	NATIONAL RETAIL PROPERTIES LP	< 0.1	C24
Backyard Specialists	3407 N ROCK RD	CAIRO LLC	< 0.1	C25
Party City	3411 N ROCK RD	REDDI RAGHUNATH P DESCENDANTS TRUST	< 0.1	C26
Arby's	3421 N ROCK RD	MDC COAST 12 LLC	< 0.1	C27
Multiple	3450 N ROCK RD 100	NORTHROCK PROPERTIES LLC	< 0.1	C28
None	NO ADDRESS	ANDERSON KEITH L	< 0.1	C29
U-Stor Self Storage	3420 N ROCK RD	KEITH ANDERSON ENTERPRISES ET AL	0.2	C30
Multiple	3236 N ROCK RD	HAYS PARTNERS II LLC	< 0.1	C31
Dairy Queen Grill & Chill	3248 N ROCK RD	TRIPLE C PROPERTIES LLC	< 0.1	C32
None – Internal Roadway	NO ADDRESS	HAYS PARTNERS II LLC	< 0.1	C33
Multiple	3242 N ROCK RD	NR6 LLC	< 0.1	C34
Multiple	8111 E 32ND ST N 100	NR6 LLC	< 0.1	C35

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
None	NO ADDRESS	DEVLIN REALTY INC	< 0.1	C36
Georges Elhomsy, MD	8110 E 32ND ST N	8110 LLC	< 0.1	C37
None	NO ADDRESS	NFC LAND & CATTLE LLC	< 0.1	C38
Multiple	3300 N ROCK RD	NFC LAND & CATTLE LLC	< 0.1	C39
Multiple	3300 N ROCK RD	NFC LAND & CATTLE LLC	< 0.1	C40
Autozone Auto Parts	3320 N ROCK RD	CAP PARTNERSHIP LLC	< 0.1	C41
Midas Auto Repair Shop	3330 N ROCK RD	3330 ROCK RD WICHITA LLC	< 0.1	C42
None	NO ADDRESS	CREDIT UNION OF AMERICA	< 0.1	C43
Credit Union of America	8200 E 32ND ST N	CREDIT UNION OF AMERICA	0.2	C44
None	NO ADDRESS	MCIB PARTNERS	0.1	C45
PBS Kansas Channel 8	8710 E 32ND ST N	KANSAS PUBLIC TELECOMMUNICATION SERVICE INC	0.1	C46
Social Security Administration	3216 N CYPRESS ST	TEP WICHITA I KANSAS LLC	< 0.1	C47
None	NO ADDRESS	WRG REAL ESTATE HOLDINGS LLC	0.2	C48
None	NO ADDRESS	CORNERSTONE HOMES OF KANSAS	0.1	C49
Multiple	3020 N CYPRESS S	HJH WICHITA 2 LLC	0.3	C50
Multiple	9300 E 29TH ST N 300	CHCT KANSAS LLC	0.1	C51
Multiple	9300 E 29TH ST N 201	WRG REAL ESTATE HOLDINGS LLC	< 0.1	C52

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
TownePlace Suites by Marriott Wichita East	9444 E 29TH ST N	WEBB HOTEL PARTNERS LLC	0.4	C53
MidAmerican Credit Union	2993 N WEBB RD	MID-AMERICAN CREDIT UNION	< 0.1	C54
Kansas Perio & Dental Implants	2981 N WEBB RD	WAGLE PROPERTIES LLC	< 0.1	C55
Courtyard by Marriott Wichita East	2975 N WEBB RD	APPLE EIGHT HOSPITALITY MIDWEST	< 0.1	C56
None	NO ADDRESS	FOX POINTE GARDEN HOA	< 0.1	C57
None	8833 E 34TH ST N	U S BUSINESS CENTERS LLC	0.2	C58
None	N TOBEN ST	DJC INVESTMENTS LLC	0.1	C59
Los Compadres Mexican Grill	3213 N TOBEN ST	LYON MITCHELL T REV TRUST	< 0.1	C60
MainStay Suites Wichita Northeast	3141 N WEBB RD	GC KANSAS HOTELS LLC	0.1	C61
None	NO ADDRESS	CODA II Partnership	0.2	C62
Eddy's Volvo Cars of Wichita	3211 N WEBB RD	STEVEN ENTERPRISES LLC	< 0.1	C63
Multiple Businesses	3161 N WEBB RD	WEBB AT 96 LLC	< 0.1	C64
Colonel James Jabara Airport	3512 N JABARA RD	WICHITA AIRPORT AUTHORITY	3.0	C65
None	NO ADDRESS	WICHITA AIRPORT AUTHORITY	< 0.1	C66
None	NO ADDRESS	KANSAS SURGERY & RECOVERY CENTER LP	< 0.1	C67

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
None	NO ADDRESS	KANSAS SURGERY & RECOVERY CENTER LP	< 0.1	C68
Kansas Surgery & Recovery Center	2770 N WEBB RD	KANSAS SURGERY & RECOVERY CENTER LP	0.2	C69
None	NO ADDRESS	KANSAS SURGERY & RECOVERY CENTER LP	< 0.1	C70
None	NO ADDRESS	VIA CHRISTI PROPERTY SERVICES	0.2	C73
Kansas Joint & Spine Specialists	10100 E SHANNON WOODS CIR Ste 108	OCTOBER HOLDING LLC	< 0.1	C74
Kansas Joint & Spine Specialists	10100 E SHANNON WOODS CIR	CT SHANNON WOODS LLC	< 0.1	C75
Kansas Joint & Spine Specialists	10100 E SHANNON WOODS CIR Ste 100	OSMC BOARD LLC	0.1	C76
None	NO ADDRESS	RESS ALLIANCE LLC	0.2	C77
Multiple	10821 E 26TH ST N	CRH LIMITED COMPANY	0.1	C78
None	NO ADDRESS	GREENWICH BUSINESS PARK ASSOC	< 0.1	C79
Kensington Gardens Cemetery	E 21ST ST	KENSINGTON GARDENS LLC	1.4	C80
None	NO ADDRESS	WICHITA DESTINATION DEVELOPERS INC	0.4	C81
None	NO ADDRESS	NEWSPRING CHURCH INC	< 0.1	C82

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
None	NO ADDRESS	NEWSPRING CHURCH INC	0.1	C83
None	NO ADDRESS	NEWSPRING CHURCH INC	1.1	C84
None	NO ADDRESS	NEWSPRING CHURCH INC	< 0.1	C85
Trinity Academy	12345 E 21ST ST N	TRINITY ACADEMY INC	< 0.1	C86
Reserve 'A'	NO ADDRESS	INTEGRATED HEALTHCARE SYSTEMS INC	< 0.1	C87
Simmons Bank	12121 E 21ST ST N	SIMMONS FIRST NATIONAL BANK	< 0.1	C88
Multiple Businesses	12111 E 21ST ST N	EQUISSET LLC	< 0.1	C89
None	NO ADDRESS	SLAWSON EAST INC	< 0.1	C90
None	NO ADDRESS	SLAWSON EAST INC	< 0.1	C91
Reserve 'G'	NO ADDRESS	SLAWSON EAST INC	< 0.1	C92
Meritrust Credit Union – Cross Pointe	11737 E 21ST ST N	BOEING WICHITA CREDIT UNION	< 0.1	C93
None	NO ADDRESS	SLAWSON EAST INC	0.5	C94
None	NO ADDRESS	SLAWSON EAST INC	< 0.1	C95
Home2 Suites by Hilton – Wichita Northeast	2102 N CROSSMARK PL	WICHITA NORTHEAST HOTEL LLC	< 0.1	C96
None	NO ADDRESS	1500 GREENWICH LLC	< 0.1	C97
None	NO ADDRESS	1500 GREENWICH LLC	0.1	C98
None	2002 N GREENWICH RD	CBTL LLC	< 0.1	C99

Business Name	Address	Landowner Name	Partial Acquisition (approx. acres)	Map ID
None	NO ADDRESS	CBTL LLC	0.2	C100
None	NO ADDRESS	BRD OF TRUSTEES OF CHAPEL HILL	< 0.1	C101
Total Acreage of Potential Partial Commercial Property Acquisitions			**29.8**	
n/a – K-96 Lake Park	3317 N HILLSIDE ST	City of Wichita	0.8	P1
n/a – Chisholm Creek Park South	N WOODLAWN BLVD	CITY OF WICHITA BOARD OF PARK COMMISSIONERS	1.8	P2
n/a – Chisholm Creek Park North	N WOODLAWN BLVD	CITY OF WICHITA BOARD OF PARK COMMISSIONERS	1.3	P3
Total Acreage of Potential Partial Parkland Property Acquisitions			**3.9**	
Total Acreage of Potential Partial Property Acquisitions			**37.4**	