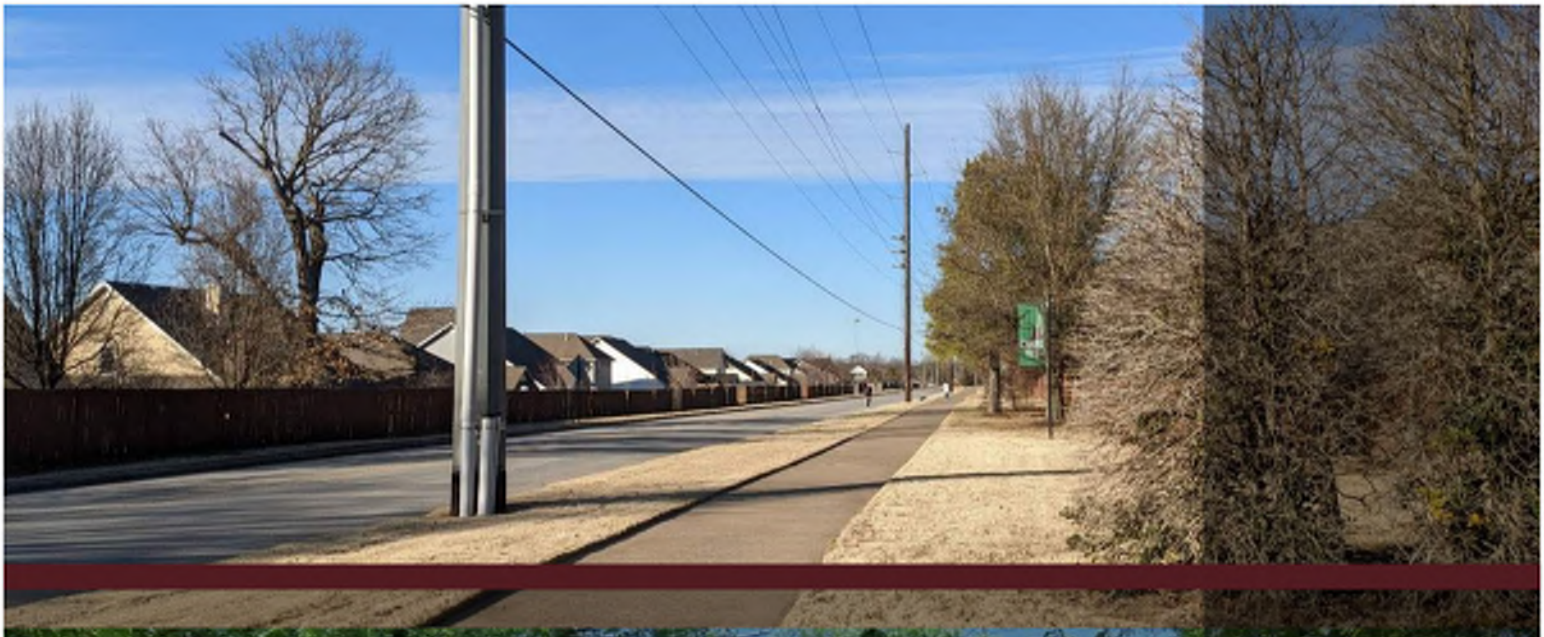
Appendix G

Aquatic Resources Assessment



Preliminary Wetland Delineation

Northeast J Street Interchange

Prepared For:

The City of Bentonville

July 2023

GARVER

GarverUSA.com

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Introduction

The City of Bentonville (City) in Benton County, Arkansas has initiated an Environmental Assessment (EA) for the Northeast J Street (NE J St.) Interchange Project that would consist of the construction of a new interchange along Interstate 49 (I-49). Improvements would be made to NE J St. between Tiger Boulevard and I-49 that would include an extension on new location from about 350 feet south of Shewmaker Creek to I-49 and include the construction of two bridges. The project is currently in the planning stages of its development and the City has retained Garver to conduct a preliminary wetland delineation and completion of a National Environmental Policy Act (NEPA) Environmental Assessment. Site visits were completed on May 17th and 18th of 2022 and on January 17th of 2023. This report summarizes our findings.

1.1 Project Area

The study area includes the proposed limits of disturbance and is comprised of approximately 104 acres. The intersection of Tiger Boulevard and NE J St. comprises the southern limit of the study area. From the southern terminus, the study area parallels NE J St. north for 2/3 mile and transitions from developed neighborhoods into woodland. Shewmaker Creek dissects the area east-to-west approximately 350 ft. north of the sharp eastward turn on NE J St. The study area continues north to I-49 primarily along a moderate south-facing slope. I-49 is situated east-to-west in the northern section of the study area between Slaughter Pen Road underpass and NE J St. overpass. From the I-49 corridor, the study area extends north approximately 875 feet to the northern boundary of the study area and then tapers in either direction as it approaches Slaughter Pen Road underpass and NE J St. overpass. The area north of I-49 consists of both open pasture and woodlands. The project location is provided in **Appendix A**.

The study area is within the Ozark Highlands Springfield Plateau and Springfield Plateau-Elk River Hills ecoregions. Both ecoregions are characterized by cherty limestone and dolomite lithology and include karst features such as springs, sinkholes, and caves. The topography varies from steep cherty escarpments to rolling plateaus in which cold, spring-fed perennial streams are common. The dominant plant communities in these ecoregions are oak-hickory and oak-hickory-pine forests, as well as prairies converted for agricultural use (Woods et. al. 2004). Based on site

investigations, wetlands are uncommon and appear to occur mostly as the result of anthropological alterations to hydrology.

1.1.1 Hydrology

According to the Centerton 1.0 E weather station, the project area received approximately 5.29 inches of rain between May 4th and May 18th, 2022, and approximately 0.64 inches between January 3rd and January 16th, 2023 (see **Appendix G**). The United States Army Corp of Engineers (USACE) Antecedent Precipitation Tool (APT) yielded wetter than normal results existing in the study area during the initial site visits on May 17th and May 18th, 2022, and normal conditions during the following site visit on January 17th, 2023. Topography in the study area provided good drainage other than floodplains and areas of anthropogenic altered hydrology (e.g., roads and farm ponds). The study area is located in a karst terrain which has produced several springs and seeps that contribute to multiple streams in the area. Hydrology indicators within aquatic features are described in Wetland Delineation Data Forms found in **Appendix E**.

1.1.2 Vegetation

Vegetation within the open areas of the study area were significantly disturbed by agriculture (e.g., planting, mowing, and cattle grazing) along the I-49 corridor. Broom sedge (*Andropogon virginicus*) and orchard grass (*Dactylis glomerata*) were abundant in agricultural areas along with several other mixed herbaceous plants. Forested areas primarily consisted of white oak (*Quercus abla*), hickory (*Carya sp.*), coralberry (*Symphoricarpos orbiculatus*), trillium (*Trilium sp.*), brambles (*Rubus sp.*), and river oats (*Chasmanthium latifolium*). Wooded riparian areas and lowlands primarily exhibited hackberry (*Celtis occidentalis*), American sycamore (*Platanus occidentalis*), green ash (*Fraxinus pennsylvanica*), Osage orange (*Maclura pomifera*), boxelder (*Acer negundo*), eastern redbud (*Cercis canadensis*), northern spicebush (*Lindera benzoin*), Virginia creeper (*Parthenocissus quinquefolia*), wild grape (*Vitis sp.*), switchgrass (*Panicum* sp.), common wheat (*Triticum aestivum*), and jewelweed (*Impatiens sp.*). Wetlands were dominated by flat sedge (*Cyperus sp.*), American elm (*Ulmus americana*), boxelder, slippery elm (*Ulmus rubra*), and silver maple (*Acer saccharinum*). Vegetation within aquatic features is described in Wetland Delineation Data Forms found in **Appendix E**.

1.1.3 Soils

Soils in the study area are comprised mostly of moderately well drained to well drained soils frequently formed from cherty limestone or dolomite. The soil series present in the study area include Clarksville, Captina, Tonti, Nixa, Elash, Noark, Linker, and Secesh (listed in order of decreasing abundance). Soils in upland areas did not exhibit a hydric component. Soils present in the flood plains of Shewmaker Creek include those of the Elash and Secesh Series, both of which are listed on the NRCS Hydric Soils List and exhibit a hydric rating of 5. See **Appendix C** for all soil units in the study area including those at datapoints (DPs). Soil information at DPs, including type, texture and other notes, can also be found in Wetland Delineation Data Forms found in **Appendix E.**

1.2 Regulatory Basis

Discharges of dredged or fill material into waters of the United States are regulated under Section 404 of the Clean Water Act. Any such action proposed in wetlands or other waters of the U.S. are subject to review by USACE and other federal and state agencies and require authorization by USACE. For jurisdictional purposes, USACE and the U.S. Environmental Protection Agency (EPA) jointly define wetlands as follows: *Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas* (USACE 1987).

Methodology

Initial field investigations were performed by Ryan Mountain and Joe Rujawitz of Garver on May 18th and May 19th, 2022. Revisions to the study area later in the design process required a second site visit was performed by Colby Marshall and Joe Rujawitz of Garver on January 17th, 2023, to inspect areas absent in the original study area. The study area was visually inspected to locate areas of potentially jurisdictional wetlands and waterways. Detailed delineation exhibits are provided in **Appendix C**. Detailed information was collected at 6 locations to document the

wetland and upland characteristics observed in the study area. Wetland determinations were made using observable vegetation, hydrology, and soils in accordance with the routine approach described in the USACE Wetland Delineation Manual (1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Eastern Mountains and Piedmont Region (Version 2.0).

The U.S. Fish and Wildlife Service (USFWS) in cooperation with Cowardin, et al. (1979) have identified a classification system that is widely accepted by the USACE and USFWS in relation to classifying wetland and stream habitats (i.e., *Classification of Wetlands and Deepwater Habitats of the United States*). Wetlands and streams in the study area have been identified utilizing the methodology presented in this classification system. The Federal Emergency Management Agency (FEMA) provides a public source for flood hazard information and was reviewed as part of this delineation. A FEMA floodplain map and USFWS National Wetlands Inventory (NWI) map can be found in **Appendix D**. Garver also reviewed United States Geological Survey (USGS) topographic quadrangle maps for the presence of streams and other waterbodies as well as the Natural Resources Conservation Service Soil Data (**Appendix C**). Photographs of the aquatic features present on the site were taken during the wetland delineation and are provided in **Appendix F**.

Results

3.1 Wetlands & Ponds

Wetland 1 (W 1) is classified as PFO1J (Palustrine, Forested, Broad-Leaved Deciduous, Intermittently Flooded) wetland and is located to the immediate east of NE J St. in the southern portion of the study area. Primary hydrology indicators included surface water, saturation, and drift deposits. Dominant vegetation observed included silver maple, slippery elm, box elder, and flat sedges (*Cyperus sp.*). This area exhibited hydric soils (10YR 4/2 and 3/2 with depleted matrix). W 1 is 0.04 acres in size and appears to be fed by the runoff of OW 1 from the south and discharges to OW 2 through a culvert to the north. Wetland hydrology is likely due to poor drainage as a result of road construction at the north end of W 1.

Pond 1 (P 1) is classified as PUB (Palustrine, Unconsolidated Bottom) and is located north of I-49 within a forested corridor. It is approximately 0.06 acres in size. P 1 does not appear to have any connectivity to other waters nearby and is likely not subject to regulation by the USACE.

3.2 Other Waters

Other Water 1 (OW 1) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 1 was observed to be ephemeral and exhibited no flow on the day of the site visit. OW 1 flows north, parallel to NE J St., in the southern portion of the project area. The stream appears to originate from the roadside ditch along NE J St. and flows into W 1. The substrate of OW 1 consisted of gravel and cobble. On average, the ordinary high water marks (OHWMs) were observed to be 3 ft. in width and 0.3 ft. in depth. Approximately 309 linear feet (LF) of OW 1 occurs within the study area.

Other Water 2 (OW 2) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 2 crosses the study area in two distinct reaches: OW 2a and OW 2b. Both streams were observed to be ephemeral. OW 2a exhibited no flow on the day of the site visit, but OW 2b exhibited a steady flow resulting from a seep outside of the study area. OW 2a originates from the intersection of NE J St. and Brewer Circle and flows northwest out of the study area. OW 2a is fed by runoff from NE J Street. OW 2b enters the study area to the south of Shewmaker Creek and flows north into the floodplain of Shewmaker Creek. OW 2b is fed by runoff from NE J Street, Spring 2, and seeps outside of the study area. OW 2 is a continuation of OW 1, however debris near the culvert inlet under NE J St. prevents hydrological connectivity between the two OWs. Outside of the study area between OW 2a and OW 2b, OW 2 exhibited losing stream characteristics. The substrate of OW 2a consisted of gravel and cobble and the substrate of OW 2b consisted of gravel, cobble, and silt. On average, OHWMs were observed to be 10 ft. in width and 1 ft. in depth for OW 2a and 1 ft. in width and 0.25 ft in depth for OW 2b . Approximately 535 LF and 67 LF of OW 2a and OW 2b, respectively, occurs within the study area, with a combined total of 602 occurring overall.

Other Water 3 (OW 3) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 3 is made up of two distinct streams in the study area: OW 3a and OW 3b. Both streams

were observed to be ephemeral. OW 3a originates at a spring box (Spring 1) directly north of the sharp eastward turn of NE J St. and flows north. OW 3a appeared to have little flow on the day of the site visit and could not be traced directly to OW 3b. OW 3b originated approximately 30 feet downhill from OW 3a and flows north into the floodplain of Shewmaker Creek. OW 3b also appeared to have little flow on the day of investigation. The substrate of both consisted primarily of silt and gravel. No OHWMs were observed in either stream. Approximately 14 and 102 LF of OW 3a and OW 3b, respectively, occurred within the study area, with a combined total of 116 LF occurring overall.

Other Water 4 (OW 4 Shewmaker Creek) is a USGS-mapped perennial stream which flows west through the project area. The stream exhibited riffle pool features and the water was clear on the day of site visit. Central stonerollers (*Campostoma anomalum*), darters (*Etheostoma sp.*), minnows (*Notropis sp.*), chubs (*Cyprinidae sp.*), banded sculpin (*Cottus carolinae*) and crayfish were observed. The substrate consisted primarily of bedrock, boulders, gravel, and cobble. On average, OHWMs were observed to be 30 ft. in width and 3.5 ft. in depth. Approximately 327 LF of Shewmaker Creek occurs within the study area.

Other Water 5 (OW 5) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 5 was observed as an intermittent stream during field investigation and exhibited little to no flow on the day of site visit. OW 5 originates just south of I-49 and flows south into the floodplain of Shewmaker Creek. Seep 1 and Spring 3 were observed within the drainage feature. Salamanders were observed in some of the pooled areas within the stream. The substrate consisted of bedrock, boulders, cobble, and gravel. On average, OHWMs were observed to be 4 ft. in width and 0.5 ft. in depth. Approximately 1,241 LF of OW 5 occurs within the study area.

Other Water 6 (OW 6) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 6 was observed as an ephemeral stream and exhibited no flow on the day of the site visit. OW 6 originates just south of I-49 and flows south into OW 5. The substrate consisted of silt. No OHWMs were observed on this stream. Approximately 53 LF of OW 6 occurs within the study area.

Other Water 7 (OW 7) is an unnamed tributary to OW 5 that is not mapped by USGS. OW 7 was observed as an ephemeral stream and exhibited no flow on the day of the site visit. OW 7 originates just south of I-49 and flows south into OW 5. The substrate consisted of silt. No OHWMs were observed on this stream. Approximately 181 LF of OW 7 occurs within the study area.

Other Water 8 (OW 8) is an unnamed tributary that is not mapped by USGS within the study area. OW 8 is made up of three distinct reaches in the study area: OW 8a, OW 8b, and OW 8c. OW 8a and OW 8c appeared as ephemeral and OW 8b appeared as intermittent on the day of the site visit. OW 8 occurs north of I-49 and flows north outside the study area. OW 8a appeared to have little flow on the day of investigation. A spring box (Spring 4) and Seeps 2-4 were located at the beginning of OW 8b and appeared to have steady flow on the day of investigation, then lost flow at OW 8c, possibly due to karst features. The substrate of all streams consisted primarily of gravel and cobble. On average, OHWMs were observed to be 3 ft. in width and 0.3 ft. in depth for OW 8a, 8 ft. in width and 0.5 ft. in depth for OW 8b, and 5.5 ft. x 0.3 ft. for OW 8c. in. Approximately 194, 287, and 163 LF of OW 8a, OW 8b, and OW 8c, respectively, occurs within the study area, with a combined total of 644 LF occurring overall.

Other Water 9 (OW 9) is an unnamed stream that is not mapped by USGS. OW 9 is made up of two distinct streams in the study area: OW 9a and OW 9b. OW 9a and OW 9b appeared as ephemeral and intermittent, respectively, on the day of the site visit. OW 9 occurs north of I-49 and flows northwest into OW 8. OW 9a appeared to have little flow on the day of investigation. A seep was located near the confluence of OW 9b and OW 8 and appeared to have steady flow on the day of investigation. The substrate of both consisted primarily of gravel and cobble. OHWMs were absent for OW 9a. On average, OHWMs were observed to be 2.5 ft. in width and 0.3 ft. in depth for OW 9b. Approximately 229 and 333 LF of OW 9a and OW 9b, respectively, occurred within the study area, with a combined total of 562 LF occurring overall.

Other Water 10 (OW 10) is an unnamed stream that is not mapped by USGS. OW 10 was observed as an ephemeral stream and exhibited no flow on the day of the site visit. OW 10 originates north of I-49 and flows west into OW 9. The substrate consisted of gravel, cobble, and

silt. On average, OHWMs were observed to be 2 ft. in width and 0.3 ft. in depth for OW 10. Approximately 194 LF of OW 10 occurs within the study area.

Other Water 11 (OW 11) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 11 was observed as an ephemeral stream and exhibited no flow on the day of the site visit. OW 11 originates south of I-49 and flows south into Shewmaker Creek outside of the study area. The stream is fed by surface runoff from I-49. The substrate consisted of gravel, cobble, and silt. On average, OHWMs were observed to be 12 ft. in width and 0.25 ft. in depth for OW 11. Approximately 255 LF of OW 11 occurs within the study area.

Other Water 12 (OW 12) is an unnamed tributary of Shewmaker Creek that is not mapped by USGS. OW 12 was observed as an ephemeral stream and exhibited no flow on the day of the site visit. OW 12 occurs south of I-49 and flows west into OW 11. The substrate consisted of cobble and gravel. On average, OHWMs were observed to be 3.0 ft. in width and 0.25 feet in depth for OW 12. Approximately 103 LF of OW 12 occurs within the study area.

3.3 Springs

Four springs were identified in the study area. Springs 1, 2, and 4 originated from spring boxes. All springs exhibited flow on the days of the site visits. Spring 1 occurred between the sharp turn on NE J Street and Shewmaker Creek and was the origin of water flow in OW 3a and OW 3b. Spring 2 occurred to the immediate west of Spring 1 on the western boundary of the study area and was the origin of water flow in OW 2b. Spring 3 occurred at the confluence of OW 7 with OW 5 and contributed to the water flow in OW 5. Spring 4 occurred north of I-49 and contributed to the water flow in OW 8b.

Summary

In summary, one wetland and one pond were identified within the study area (Table 1). Additionally, 12 streams were classified (Table 2). This report is to be presented to the USACE for concurrence and determination of appropriate 404 permitting. Impact determination and permitting will be pursued after issuance of a Preliminary Jurisdictional Determination and the study area can be refined to minimize impacts to wetlands and other waters.

4.1 Table 1: Potentially Jurisdictional Wetlands and Ponds

Wetland	Cowardin Classification	Latitude, Longitude (decimal degrees)	Acreage in Study Area
W 1	PFO1J	36.396491°,-94.195863	0.04
P 1	PUB	36.404521°, -94.193698°	0.06
		Total	**0.10**

4.2 Table 2: Potentially Jurisdictional Other Waters

Stream Identification Number	Stream Classification	Latitude, Longitude (decimal degrees)	Ordinary High Water Mark (width x depth)	Length in Study Area (LF)
OW 1	Ephemeral	36.396131°, -94.195906°	3.0 ft. x 0.3 ft.	309
OW 2a	Ephemeral	36.396792°, -94.196104°	10.0 ft. x 1.0 ft.	535
OW 2b	Ephemeral	36.398821°, -94.196660°	1.0 ft. x 0.25 ft.	67
OW 3a	Ephemeral	36.398401°, -94.196050°	-	14
OW 3b	Ephemeral	36.398516°, -94.195978°	-	102
OW 4 (Shewmaker Creek)	Perennial	36.398922°, -94.196036°	30.0 ft. x 3.5 ft.	327
OW 5	Intermittent	36.400355°, -94.195212°	4.0 ft. x 0.5 ft.	1,241
OW 6	Ephemeral	36.401239°, -94.194329°	-	53
OW 7	Ephemeral	36.401499°, -94.194415°	-	181
OW 8a	Ephemeral	36.404206°, -94.193821°	3.0 ft. x 0.3 ft.	194
OW 8b	Intermittent	36.404859°, -94.193417°	8.0 ft. x 0.5 ft.	287
OW 8c	Ephemeral	36.405280°, -94.193347°	5.5 ft. x 0.3 ft.	163

Stream Identification Number	Stream Classification	Latitude, Longitude (decimal degrees)	Ordinary High Water Mark (width x depth)	Length in Study Area (LF)
OW 9a	Ephemeral	36.403521°, -94.192850°	-	229
OW 9b	Intermittent	36.404426°, -94.193430°	2.5 ft. x 0.3 ft.	333
OW 10	Ephemeral	36.403804°, -94.192535°	2.0 ft. x 0.3 ft.	194
OW 11	Ephemeral	36.401181°, -94.190779°	12.0 ft. x 0.25 ft.	255
OW 12	Ephemeral	36.401013°, -94.190657°	3.0 ft x 0.25 ft.	103
			Total	**4,587**

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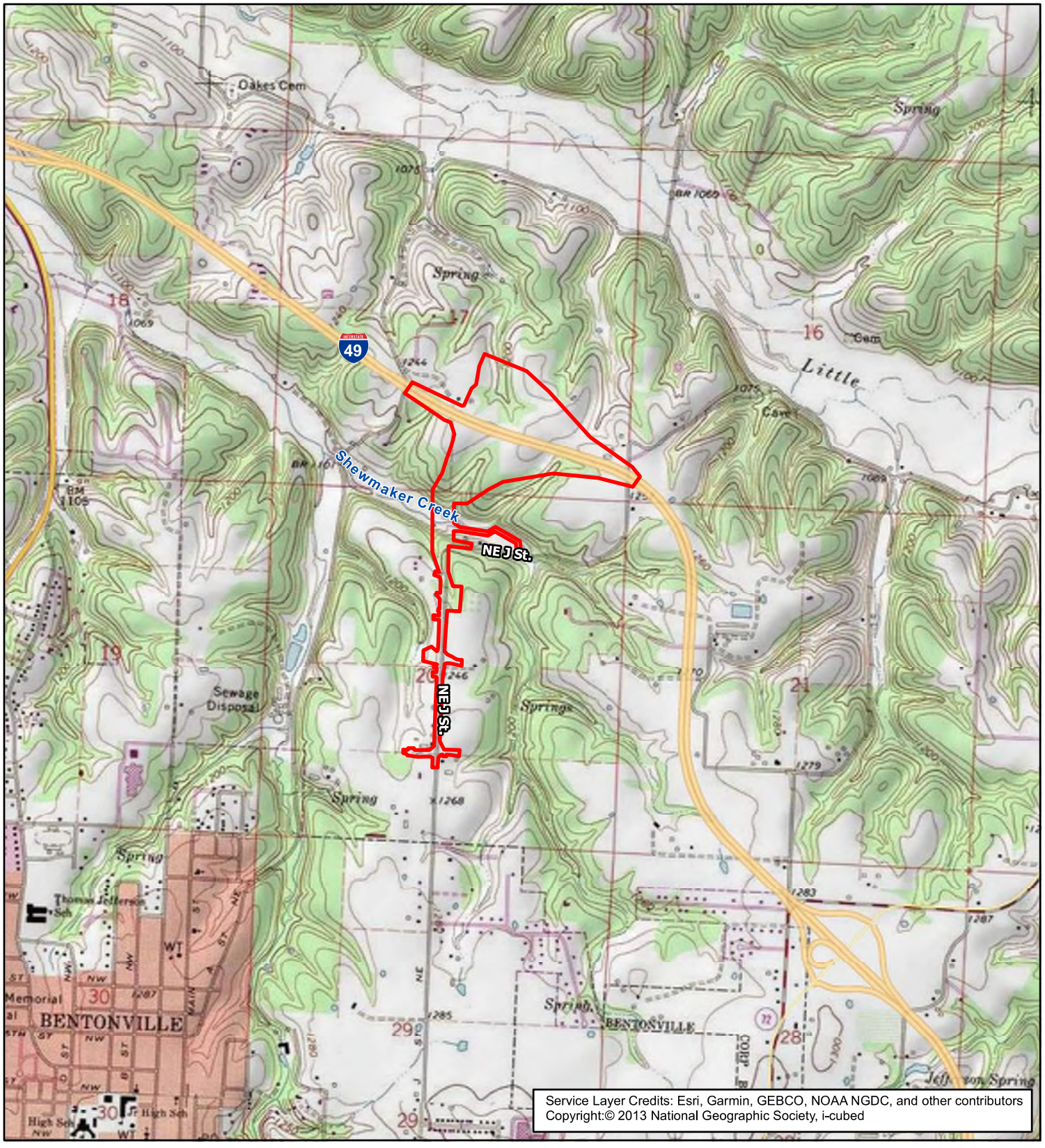
Woods A.J., Foti, T.L., Chapman, S.S., Omernik, J.M., Wise, J.A., Murray, E.O., Prior, W.L., Pagan, J.B., Jr., Comstock, J.A., and Radford, M., 2004, Ecoregions of Arkansas (color poster with map, descriptive text, summary tables, and photographs): Reston, Virginia, U.S. Geological Survey (map scale 1:1,000,000).

APPENDIX A

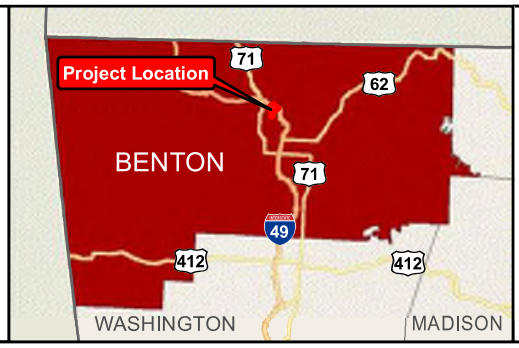
Project Location Map



Study Area

0 1,050 2,100
Feet

N



NE J STREET INTERCHANGE
Appendix A - Project Location
USGS Quadrangle (1:24,000)

CITY OF BENTONVILLE
BENTON COUNTY

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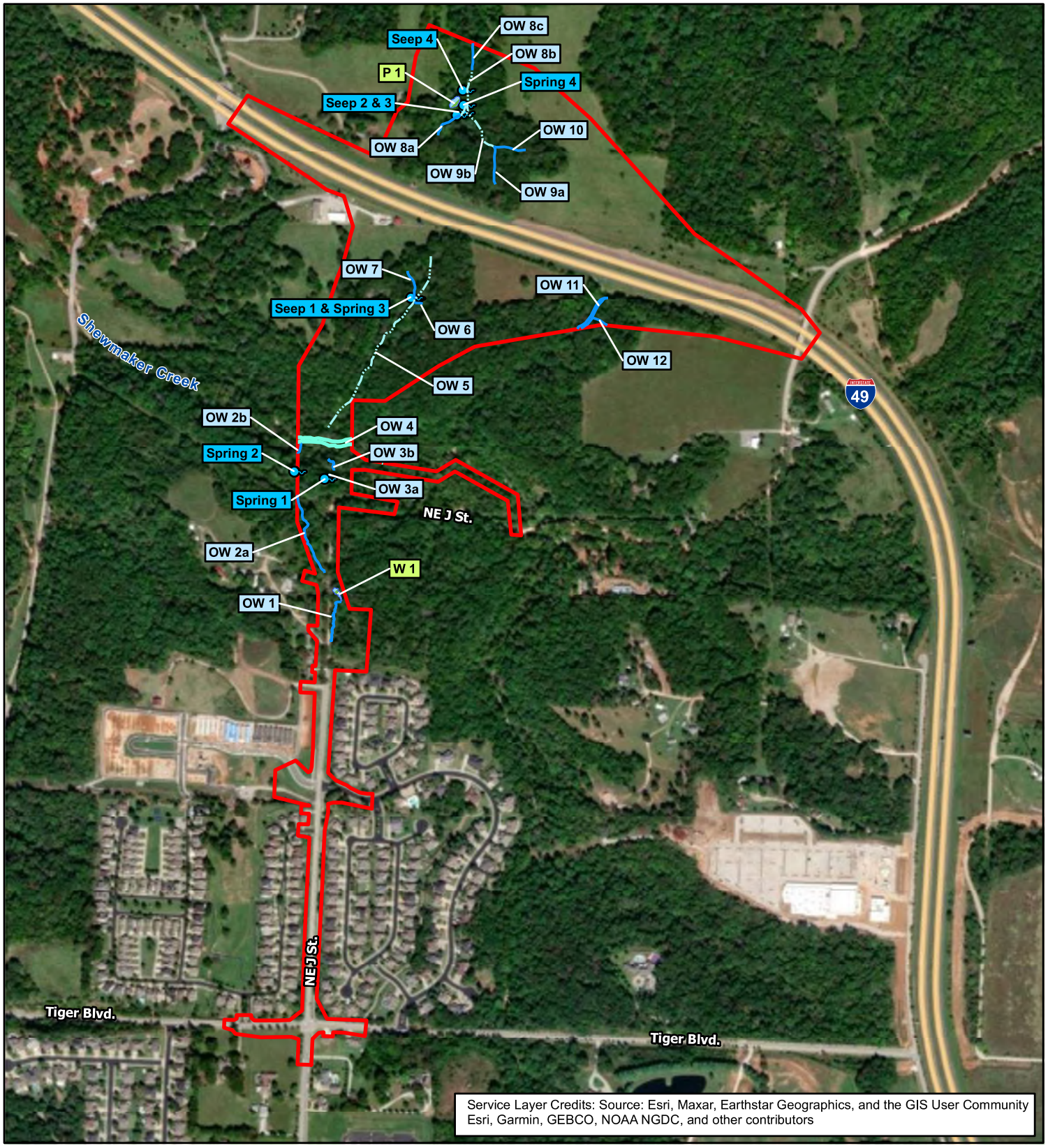
APPENDIX B

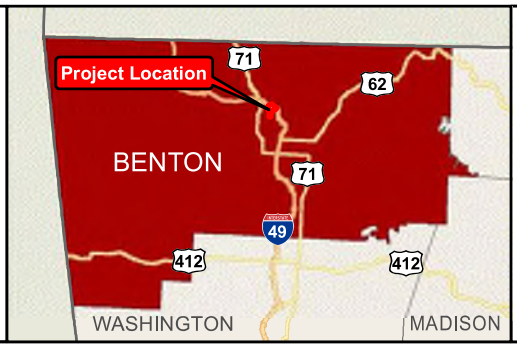
Hydrology Features Overview Map



Study Area
Delineated Wetland
Spring / Seep
Ephemeral Stream
Intermittent Stream
Perennial Stream

0 500 1,000
Feet

N



NE J STREET INTERCHANGE
Hydrology Features Overview

CITY OF BENTONVILLE
BENTON COUNTY

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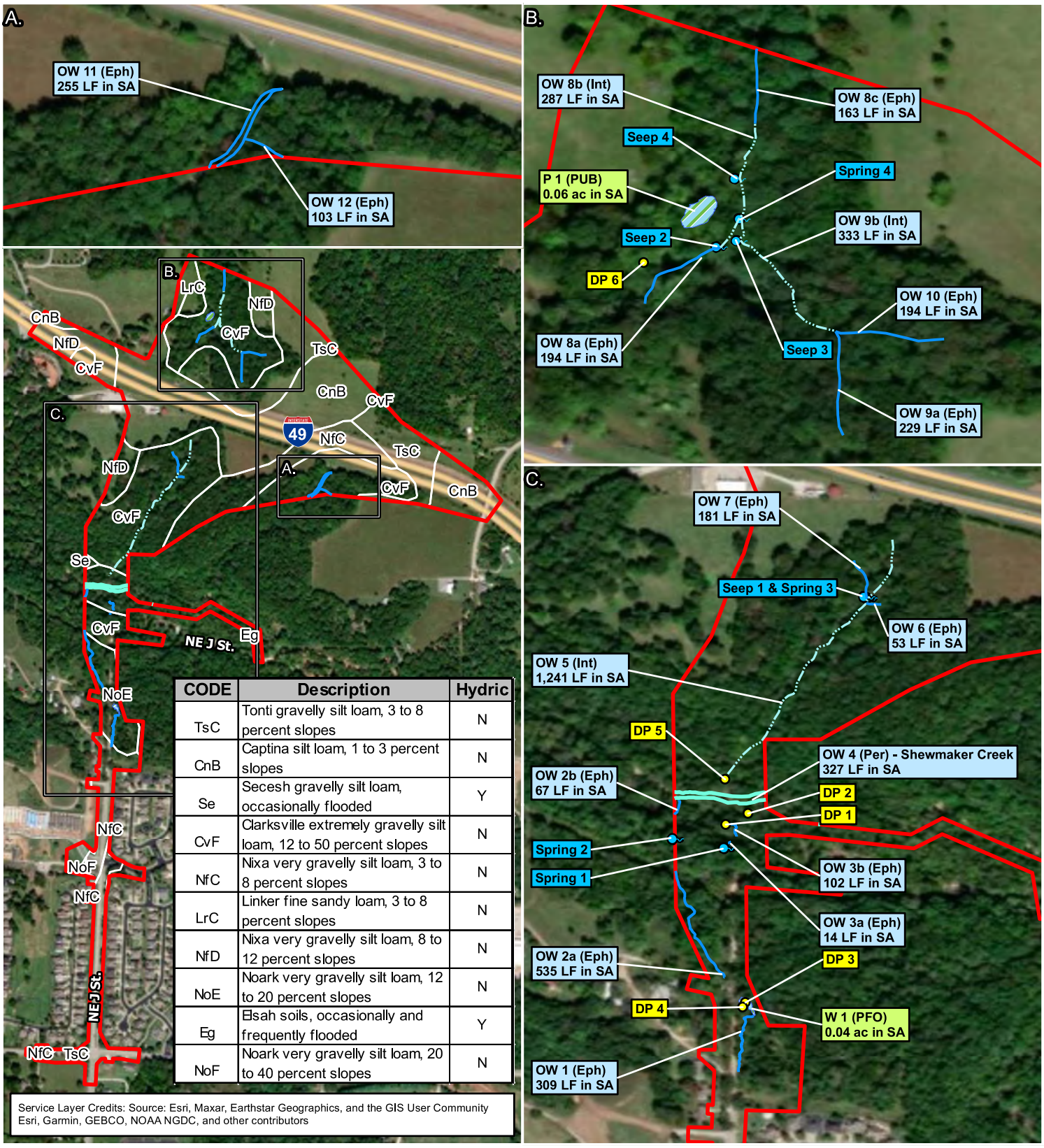
APPENDIX C

Hydrology Features & NRCS Soils Detailed Map



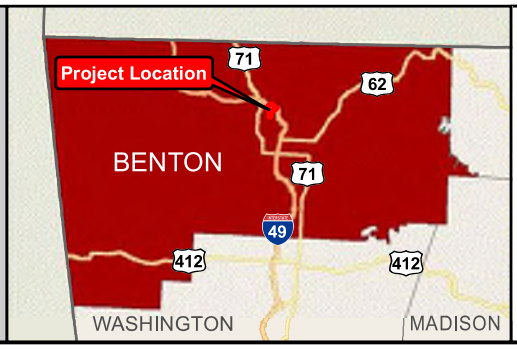
CODE	Description	Hydric
TsC	Tonti gravelly silt loam, 3 to 8 percent slopes	N
CnB	Captina silt loam, 1 to 3 percent slopes	N
Se	Secesh gravelly silt loam, occasionally flooded	Y
CvF	Clarksville extremely gravelly silt loam, 12 to 50 percent slopes	N
NfC	Nixa very gravelly silt loam, 3 to 8 percent slopes	N
LrC	Linker fine sandy loam, 3 to 8 percent slopes	N
NfD	Nixa very gravelly silt loam, 8 to 12 percent slopes	N
NoE	Noark very gravelly silt loam, 12 to 20 percent slopes	N
Eg	Elsah soils, occasionally and frequently flooded	Y
NoF	Noark very gravelly silt loam, 20 to 40 percent slopes	N

Service Layer Credits: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community
Esri, Garmin, GEBCO, NOAA NGDC, and other contributors

Study Area (SA)
Ephemeral Stream (Eph)
Intermittent Stream (Int)
Perennial Stream (Per)
NRCS Soil Unit
Delineated Wetland
Data Point (DP)
Spring / Seep

0 500 1,000
Feet

N



NE J STREET INTERCHANGE
Appendix C - Hydrology Features & NRCS Soils Detailed

CITY OF BENTONVILLE
BENTON COUNTY

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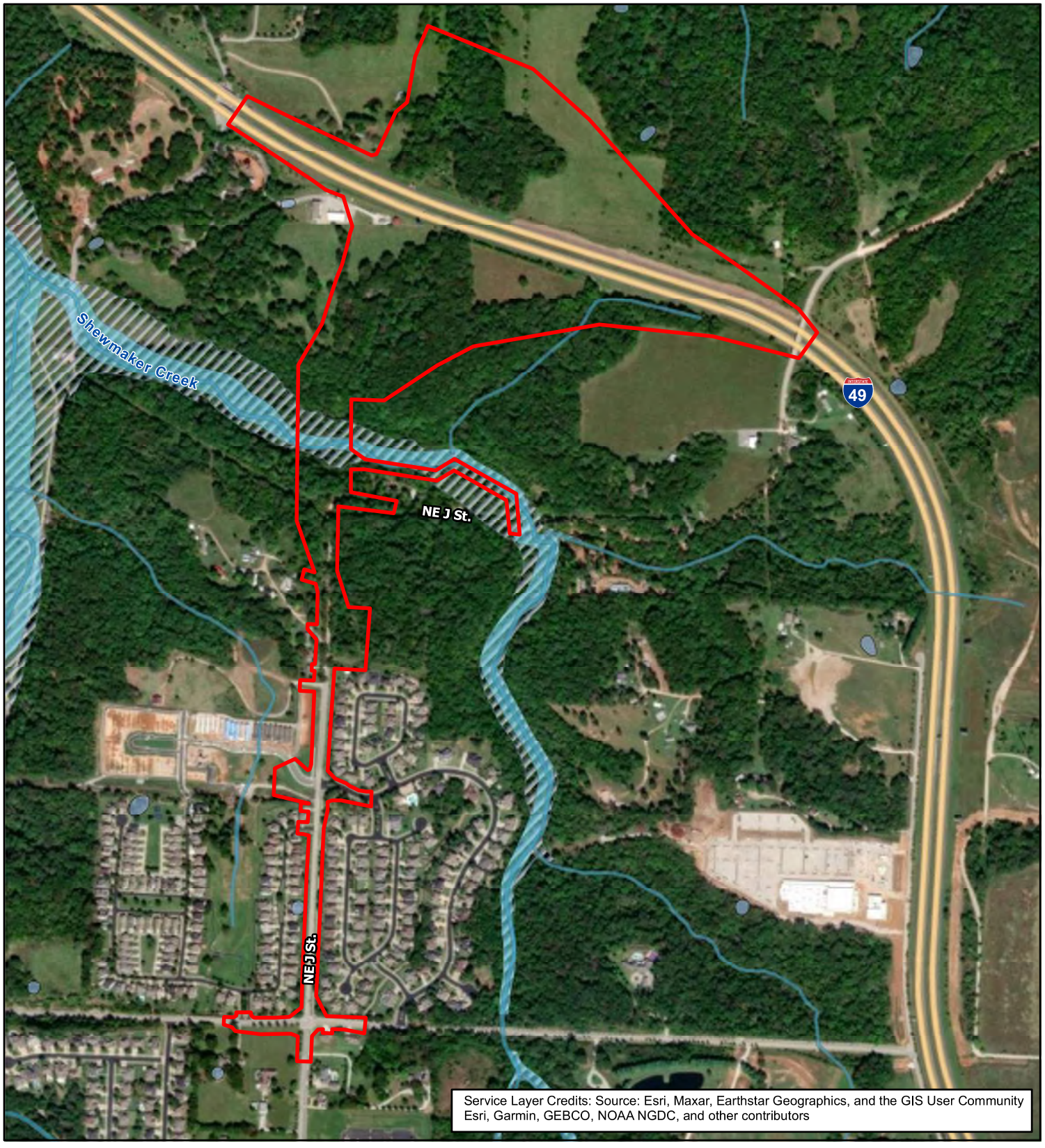
APPENDIX D

USFWS NWI & FEMA Floodplain Map



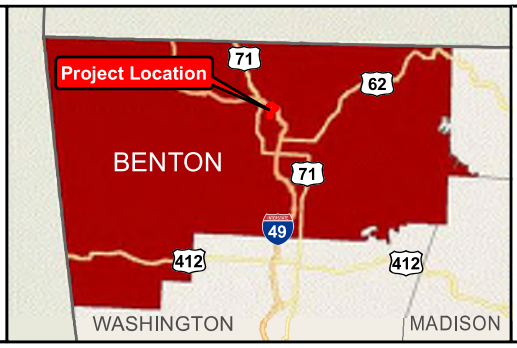
Study Area
100-Year Floodplain (FEMA)
Floodway

NWI Wetland Type

Freshwater Pond
Riverine

0 500 1,000
Feet

N



NE J STREET INTERCHANGE
Appendix D
USFWS NWI & FEMA Floodplain

CITY OF BENTONVILLE
BENTON COUNTY

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APPENDIX E

Wetland Data Forms

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/18/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 1

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S20 T20N R30W

Landform (hillslope, terrace, etc.): access road Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.398612° Long: -94.196097° Datum: WGS 84

Soil Map Unit Name: Elsah soils, occasionally and frequently flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Site does not meet all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☑ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-1
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site meets wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 1

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. Acer negundo	10	Y	FAC
2. Cercis canadensis	10	Y	FACU
3. *Juglans nigra*	10	Y	FACU
4.			
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	25	Y	FAC
2. *Acer negundo*	2	N	FACU
3. *Rosa multiflora*	2	N	FACU
4. *Asimina triloba*	1	N	FAC
5.			
6.			
7.			
8.			
	30	= Total Cover	
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. *Triticum aestivum*	75	Y	UPL
2. *Eupatorium sp**	20	N	FAC
3. *Euphorbia sp.***	20	N	FACU
4. *Cyperus sp.****	15	N	FACW
5. *Symphoricarpos orbiculatus*	10	N	FACU
6. *Impatiens capensis*	5	N	FACW
7. *Urtica chamaedryoides*	5	N	FACU
8. *Eupatorium sp. 2**	3	N	FAC
9.			
10.			
11.			
12.			
	153	= Total Cover	
50% of total cover: 76.5	20% of total cover: 31		
Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 40% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (If observed, list morphological adaptations below).

*Of the 7 species of Eupatorium listed on the 2020 USACE Wetlands Plants List for EMP in AR, 86% are FAC or wetter with the majority being FAC.

**Of the 11 species of Euphorbia listed on the 2020 USACE Wetlands Plants List for EMP in AR, 18% are FAC or wetter with the majority being FACU.

*** Of the 30 species of Cyperus listed on the 2020 USACE Wetlands Plants List for EMP in AR, 90% are FAC or wetter with the majority being FACW.

Site does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-10"	10YR 3/2	70					gravelly clay loam	Gravel makes up other 30%

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks: Site does not meet hydric soil criteria.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/18/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 2

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S20 T20N R30W

Landform (hillslope, terrace, etc.): bottomland Local relief (concave, convex, none): none Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.398744° Long: -94.195832° Datum: WGS 84

Soil Map Unit Name: Elsah soils, occasionally and frequently flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Site does not meet all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site does not meet wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 2

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Ulmus rubra*	80	Y	FAC
2. *Acer negundo*	30	N	FAC
3. *Platanus occidentalis*	30	N	FACW
4. *Cercis canadensis*	10	N	FACU
5. Cornus drummondii	5	N	FAC
6. *Ostrya virginiana*	5	N	FACU
7.			
8.			
	160 = Total Cover		
50% of total cover: 80	20% of total cover: 32		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	70	Y	FAC
2. *Asimina triloba*	5	N	FAC
3. *Fraxinus pennsylvanica*	5	N	FACW
4. *Ligustrum sinense*	5	N	FACU
5.			
6.			
7.			
8.			
	75 = Total Cover		
50% of total cover: 37.5	20% of total cover: 15		

Herb Stratum (Plot size: 5')			
1. *Euphorbia sp.**	20	Y	FACU
2. *Galium sp.***	5	Y	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	25 = Total Cover		
50% of total cover: 12.5	20% of total cover: 5		

Woody Vine Stratum (Plot size: 30')			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ____ No X

Remarks: (If observed, list morphological adaptations below).

*Of the 11 species of Euphorbia listed on the 2020 USACE Wetlands Plants List for EMP in AR, 18% are FAC or wetter with the majority being FACU.

**Of the 9 species of Galium listed on the 2020 USACE Wetlands Plants List for EMP in AR, 33% are FAC or wetter with the majority being FACU.

Site does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-1"	10YR 2/2	100					silty loam	
1-12"	10YR 3/2	80					clay loam	20% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks: Site does not meet hydric soil criteria.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/18/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 3

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S20 T20N R30W

Landform (hillslope, terrace, etc.): drainageway Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.396491° Long: -94.195863° Datum: WGS 84

Soil Map Unit Name: Noark very gravelly silt loam, 12 to 20 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X	No _____	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Site appears to have been partially filled in the past.

Site meets all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☑ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes X	No _____	Depth (inches): 0-3"
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes X	No _____	Depth (inches): 0

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site meets wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 3

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Acer saccharinum*	10	Y	FACW
2. *Ulmus rubra*	10	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	20 = Total Cover		
50% of total cover: 10	20% of total cover: 4		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Acer nigrum*	25	Y	FAC
2. *Ulmus americana*	5	N	FACW
3.			
4.			
5.			
6.			
7.			
8.			
	30 = Total Cover		
50% of total cover: 15	20% of total cover: 6		
Herb Stratum (Plot size: 5')			
1. *Cyperus sp.**	5	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	5 = Total Cover		
50% of total cover: 2.5	20% of total cover: 1		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

*Of the 30 species of Cyperus listed on the 2020 USACE Wetlands Plants List for EMP in AR, 90% are FAC or wetter with the majority being FACW.

Site meets hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4"	10YR 4/2	95	10YR 5/8	5	C	M	clay loam	
4-10"	10YR 4/2	90					clay loam	mixed soil
	10 YR 3/2	10					clay loam	
10-12"	10 YR 4/2	95					gravelly clay loam	5% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☑ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks: Site meets hydric soil criteria.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/18/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 4

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S20 T20N R30W

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 15

Subregion (LRR or MLRA): LRR N Lat: 36.396434° Long: -94.195895° Datum: WGS 84

Soil Map Unit Name: Noark very gravelly silt loam, 12 to 20 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

Site does not meet all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☐ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes _____ No X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site does not meet wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 4

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Quercus alba*	40	Y	FACU
2. *Fraxinus pennsylvanica*	5	N	FACW
3. *Acer saccharinum*	5	N	FACW
4. *Acer negundo*	5	N	FAC
5. *Albizia julibrissin*	5	N	UPL
6.			
7.			
8.			
	60 = Total Cover		
50% of total cover: 30	20% of total cover: 12		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Cercis canadensis*	20	Y	FACU
2. *Ulmus rubra*	10	Y	FACU
3. *Platanus occidentalis*	5	N	FACW
4. *Acer negundo*	5	N	FAC
5.			
6.			
7.			
8.			
	40 = Total Cover		
50% of total cover: 20	20% of total cover: 8		
Herb Stratum (Plot size: 5')			
1. *Microstegium vimineum*	20	Y	FAC
2. *Galium sp.**	20	Y	FACU
3. *Cyperus sp.* **	5	N	FACW
4. *Triticum aestivum*	2	N	UPL
5. *Rosa multiflora*	2	N	FACU
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	49 = Total Cover		
50% of total cover: 24.5	20% of total cover: 10		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
	= Total Cover		
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☐ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes ☐ No ☒

Remarks: (If observed, list morphological adaptations below).

*Of the 9 species of Galium listed on the 2020 USACE Wetlands Plants List for EMP in AR, 33% are FAC or wetter with the majority being FACU.

**Of the 30 species of Cyperus listed on the 2020 USACE Wetlands Plants List for EMP in AR, 90% are FAC or wetter with the majority being FACW.

Site does not meet hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8"	10YR 3/1	90					gravelly loam	10% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes _____ **No** X

Remarks: Site does not meet hydric soil criteria.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/18/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 5

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S20 T20N R30W

Landform (hillslope, terrace, etc.): bottomland Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.399152° Long: -94.196105° Datum: WGS 84

Soil Map Unit Name: Elsah soils, occasionally and frequently flooded NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Site does not meet all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☐ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site meets wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 5

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Maclura pomifera*	50	Y	UPL
2. *Acer negundo*	25	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		

Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	50	Y	FAC
2. *Acer negundo*	15	Y	FAC
3. *Celtis occidentalis*	5	N	FACU
4.			
5.			
6.			
7.			
8.			
	70	= Total Cover	
50% of total cover: 35	20% of total cover: 14		

Herb Stratum (Plot size: 5')			
1. *Triticum aestivum*	50	Y	UPL
2. *Panicum sp.**	15	Y	FAC
3. *Eupatorium sp.***	5	N	FAC
4. *Symphoricarpos orbiculatus*	5	N	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		

Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

*Of the 10 species of Panicum listed on the 2020 USACE Wetlands Plants List for EMP in AR, 90% are FAC or wetter with the majority being FAC.

**Of the 7 species of Eupatorium listed on the 2020 USACE Wetlands Plants List for EMP in AR, 86% are FAC or wetter with the majority being FAC.

Site meets hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-3"	10YR 2/2	100					Clay loam	
3-12"	10YR 3/2	95					gravelly clay loam	5% gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks: Site does not meet hydric soil criteria.

WETLAND DETERMINATION DATA FORM – Atlantic and Gulf Coastal Plain Region

Project/Site: NE J St Interchange City/County: Bentonville/Benton Sampling Date: 5/19/2022

Applicant/Owner: City of Bentonville State: AR Sampling Point: DP 6

Investigator(s): Ryan Mountain; Joseph Rujawitz Section, Township, Range: S17 T20N R30W

Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR or MLRA): LRR N Lat: 36.404232° Long: -94.194021° Datum: WGS 84

Soil Map Unit Name: Clarksville extremely gravelly silt loam, 12 to 50 percent slopes NWI classification: n/a

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes X	No _____	

Remarks:

Site does not meet all wetland criteria.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)
- ☑ Sediment Deposits (B2)
- ☑ Drift Deposits (B3)
- ☐ Algal Mat or Crust (B4)
- ☐ Iron Deposits (B5)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Aquatic Fauna (B13)
- ☐ Marl Deposits (B15) **(LRR U)**
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Tilled Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Surface Soil Cracks (B6)
- ☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Drainage Patterns (B10)
- ☐ Moss Trim Lines (B16)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☑ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Sphagnum moss (D8) **(LRR T, U)**

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches): _____
Water Table Present?	Yes _____	No X	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches): _____

Wetland Hydrology Present? Yes X No _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Site meets wetland hydrology criteria.

VEGETATION (Four Strata) – Use scientific names of plants. Sampling Point: DP 6

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Indicator Status
1. *Platanus occidentalis*	100	Y	FACW
2. *Ulmus rubra*	50	Y	FAC
3.			
4.			
5.			
6.			
7.			
8.			
	150	= Total Cover	
50% of total cover: 75	20% of total cover: 30		
Sapling/Shrub Stratum (Plot size: 15')			
1. *Lindera benzoin*	10	Y	FAC
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	10	= Total Cover	
50% of total cover: 5	20% of total cover: 2		
Herb Stratum (Plot size: 5')			
1. *Persicaria sp.**	70	Y	OBL
2. *Viola sp.**	5	N	FACU
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
12.			
	75	= Total Cover	
50% of total cover: 37.5	20% of total cover: 15		
Woody Vine Stratum (Plot size:)			
1.			
2.			
3.			
4.			
5.			
		= Total Cover	
50% of total cover:	20% of total cover:		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:
OBL species	x 1 =
FACW species	x 2 =
FAC species	x 3 =
FACU species	x 4 =
UPL species	x 5 =
Column Totals: (A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators:

- ☐ 1 - Rapid Test for Hydrophytic Vegetation
- ☑ 2 - Dominance Test is >50%
- ☐ 3 - Prevalence Index is ≤3.0[1]
- ☐ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Definitions of Four Vegetation Strata:

Tree – Woody plants, excluding vines, 3 in. (7.6 cm) or more in diameter at breast height (DBH), regardless of height.

Sapling/Shrub – Woody plants, excluding vines, less than 3 in. DBH and greater than 3.28 ft (1 m) tall.

Herb – All herbaceous (non-woody) plants, regardless of size, and woody plants less than 3.28 ft tall.

Woody vine – All woody vines greater than 3.28 ft in height.

Hydrophytic Vegetation Present? Yes X No

Remarks: (If observed, list morphological adaptations below).

*Of the 14 species of Persicaria listed on the 2020 USACE Wetlands Plant List for EMP in AR, 93% are FAC or wetter with the majority being OBL.

**Of the 19 species of Viola listed on the 2020 USACE Wetlands Plant List for EMP in AR, 42% are FAC or wetter with the majority being FACU.

Site meets hydrophytic vegetation criteria.

SOIL

Sampling Point: DP 6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-1"	10YR 3/3	100					Clay loam	
1-12"	10YR 4/3	100					Rocky loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)
- ☐ Organic Bodies (A6) **(LRR P, T, U)**
- ☐ 5 cm Mucky Mineral (A7) **(LRR P, T, U)**
- ☐ Muck Presence (A8) **(LRR U)**
- ☐ 1 cm Muck (A9) **(LRR P, T)**
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Coast Prairie Redox (A16) **(MLRA 150A)**
- ☐ Sandy Mucky Mineral (S1) **(LRR O, S)**
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Dark Surface (S7) **(LRR P, S, T, U)**
- ☐ Polyvalue Below Surface (S8) **(LRR S, T, U)**
- ☐ Thin Dark Surface (S9) **(LRR S, T, U)**
- ☐ Loamy Mucky Mineral (F1) **(LRR O)**
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Marl (F10) **(LRR U)**
- ☐ Depleted Ochric (F11) **(MLRA 151)**
- ☐ Iron-Manganese Masses (F12) **(LRR O, P, T)**
- ☐ Umbric Surface (F13) **(LRR P, T, U)**
- ☐ Delta Ochric (F17) **(MLRA 151)**
- ☐ Reduced Vertic (F18) **(MLRA 150A, 150B)**
- ☐ Piedmont Floodplain Soils (F19) **(MLRA 149A)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 149A, 153C, 153D)**

Indicators for Problematic Hydric Soils[3]:

- ☐ 1 cm Muck (A9) **(LRR O)**
- ☐ 2 cm Muck (A10) **(LRR S)**
- ☐ Reduced Vertic (F18) **(outside MLRA 150A,B)**
- ☐ Piedmont Floodplain Soils (F19) **(LRR P, S, T)**
- ☐ Anomalous Bright Loamy Soils (F20) **(MLRA 153B)**
- ☐ Red Parent Material (TF2)
- ☐ Very Shallow Dark Surface (TF12)
- ☐ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks: Site does not meet hydric soil criteria.

APPENDIX F

Site Photographs

1	
Wetland 1	
	
Description	Wetland 1 at DP 3 facing north. Surface hydrology present and vegetation dominated by silver maples and green ash.
2	
DP 3	
	
Description	View of hydric soils at DP 3.

3	
Pond 1	
	
Description	View of farm pond (Pond 1) facing north.
4	
OW 1 - Upstream	
	
Description	View of output of OW 1 at Wetland 1 looking upstream. No water present.

5	
OW 1 - Downstream	
	
Description	View of OW 1 downstream towards Wetland 1. No water present.
6	
OW 2a - Upstream	
	
Description	View of OW 2a upstream towards NE J Street. No water present.

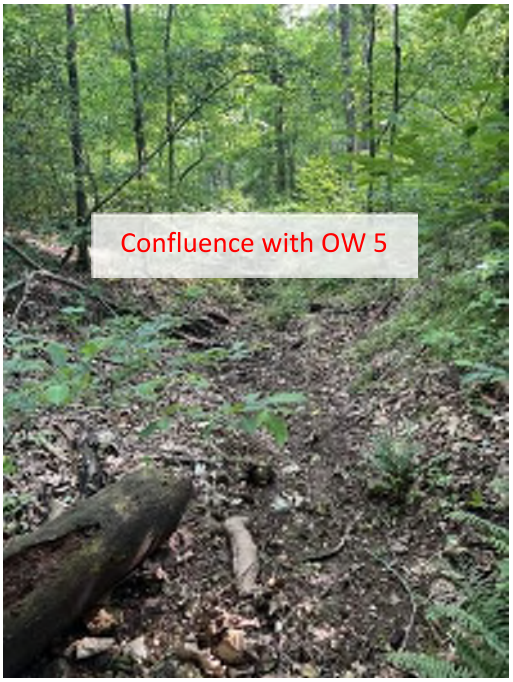
7	
OW 2b - Upstream	
	
Description	View of OW 2b upstream from Shewmaker Creek floodplain. Steady flow from seep outside of the study area. Above woody debris, the stream lost water connectivity to the rest of OW 2.
8	
Spring 2 Box	
	
Description	Spring box at Spring 2. Spring exhibited steady flow during site investigation.

9	
OW 3a - Spring 1	
	
Description	View of OW 3a facing downstream from above the spring box at Spring 1. Spring 1 trickled down slope towards easement road before becoming untraceable. Further downhill, flow resurfaced at OW 3b. Arrow denotes direction of flow.
10	
OW 3a - Spring	
	
Description	View of OW 3a facing upstream towards Spring 1. No OHWMs present.

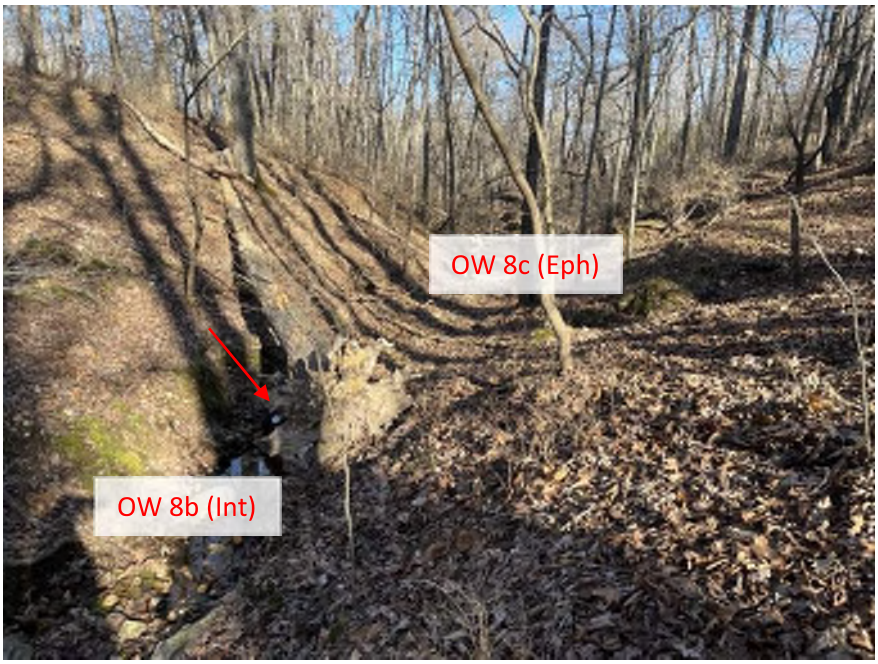
11	
OW 3b – Easement Road Output	
	
Description	View of easement road at the output of OW 3b. Located in the floodplain of Shewmaker Creek. Arrow denotes direction of flow.
12	
OW 4 (Shewmaker Creek) - Upstream	
	
Description	View of OW 4 (Shewmaker Creek) looking upstream at the eastern edge of the study area.

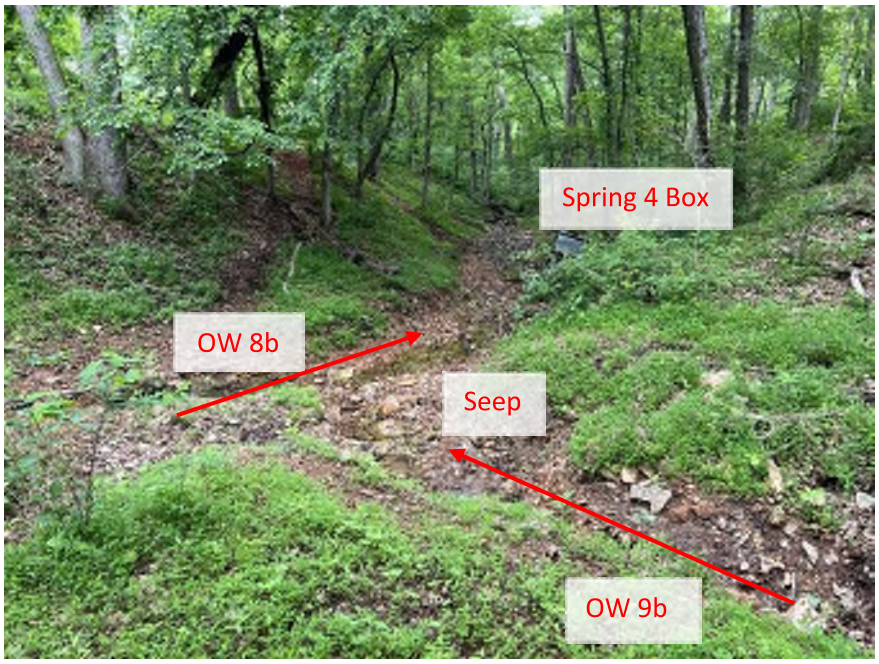
13	
OW 4 (Shewmaker Creek) - Downstream	
	
Description	View of OW 4 (Shewmaker Creek) looking downstream at the western edge of the study area.
14	
OW 5 - Output	
	
Description	View upstream of OW 5 from output location in the Shewmaker Creek floodplain. Note lack of any OHWMs at this section. Arrow denotes direction of flow.

15	
OW 5 - Seep 1	
	
Description	Seep 1 located in OW 5.
16	
OW 5 - Confluence	
	
Description	View looking upstream of OW 5. OW 5 continues to the right, OW 7 enters from the left. Note Seep 1 located at the base of the confluence and Spring 3 runoff from OW 7. Arrows denote direction of flow.

17	
OW 7 - Downstream	
	
Description	View of OW 7 downstream towards the confluence with OW 5. Note lack of OHWMs. No water present.
18	
OW 8a - Upstream	
	
Description	View facing upstream of OW 8a. No water present.

19	
OW 8b - Spring 4 Box	
	
Description	View of Spring 4 Box located in OW 8b looking downstream. Water was flowing steadily on day of site visit.
20	
OW 8b - Downstream	
	
Description	View of OW 8b facing downstream. Note the increase of flow and presence of OHWMs.

21	
OW 8c - Upstream	
	
Description	View of OW 8b looking north (downstream) towards OW 8c. Surface water stops at the arrow.
22	
OW 9a - Downstream	
	
Description	View of OW 9a near origin facing downstream. No water present. Note lack of OHWMs.

23	
OW 9b - Confluence	
	
Description	View of OW 9b flowing into OW 8b. Seep located near confluence. Arrows denote direction of flow.
24	
OW 10 - Upstream	
	
Description	View of OW 10 looking upstream. No water present.

25	
OW 11 - Upstream	
	
Description	View of OW 11 looking upstream. Stream receives water runoff from I-49. No water present.

APPENDIX G

Weather Data

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 1267 ft. Lat: 36.3609° N Lon: -94.2663° W
Station: **CENTERTON 1.0 E, AR US US1ARBT0057**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

Generated on 05/31/2022

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F)			Precipitation					Evaporation		Soil Temperature (F)					
			24 Hrs. Ending at Observation Time		At Obs.	24 Hour Amounts Ending at Observation Time				At Obs. Time	24 Hour Wind Movement (mi)	Amount of Evap. (in)	4 in. Depth			8 in. Depth		
			Max.	Min.		Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	Snow, Ice Pellets, Hail, Ice on Ground (in)			Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2022	05	01				0.00		0.0										
2022	05	02				0.06												
2022	05	03				1.61												
2022	05	04				0.00		0.0										
2022	05	05				4.48												
2022	05	06				0.59												
2022	05	07				0.00		0.0										
2022	05	08				0.00		0.0										
2022	05	09				0.00		0.0										
2022	05	10				0.00		0.0										
2022	05	11				0.00		0.0										
2022	05	12				0.00		0.0										
2022	05	13				0.00		0.0										
2022	05	14				0.00		0.0										
2022	05	15				0.04												
2022	05	16				0.12												
2022	05	17				0.00		0.0										
2022	05	18				0.06												
2022	05	19				0.00		0.0										
2022	05	20				0.00		0.0										
2022	05	21				0.51												
2022	05	22				1.21												
2022	05	23				0.00		0.0										
2022	05	24				0.17												
2022	05	25				1.03												
2022	05	26				0.78												
2022	05	27																
2022	05	28																
2022	05	29																
2022	05	30																
2022	05	31																
Summary						10.66		0.0										

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

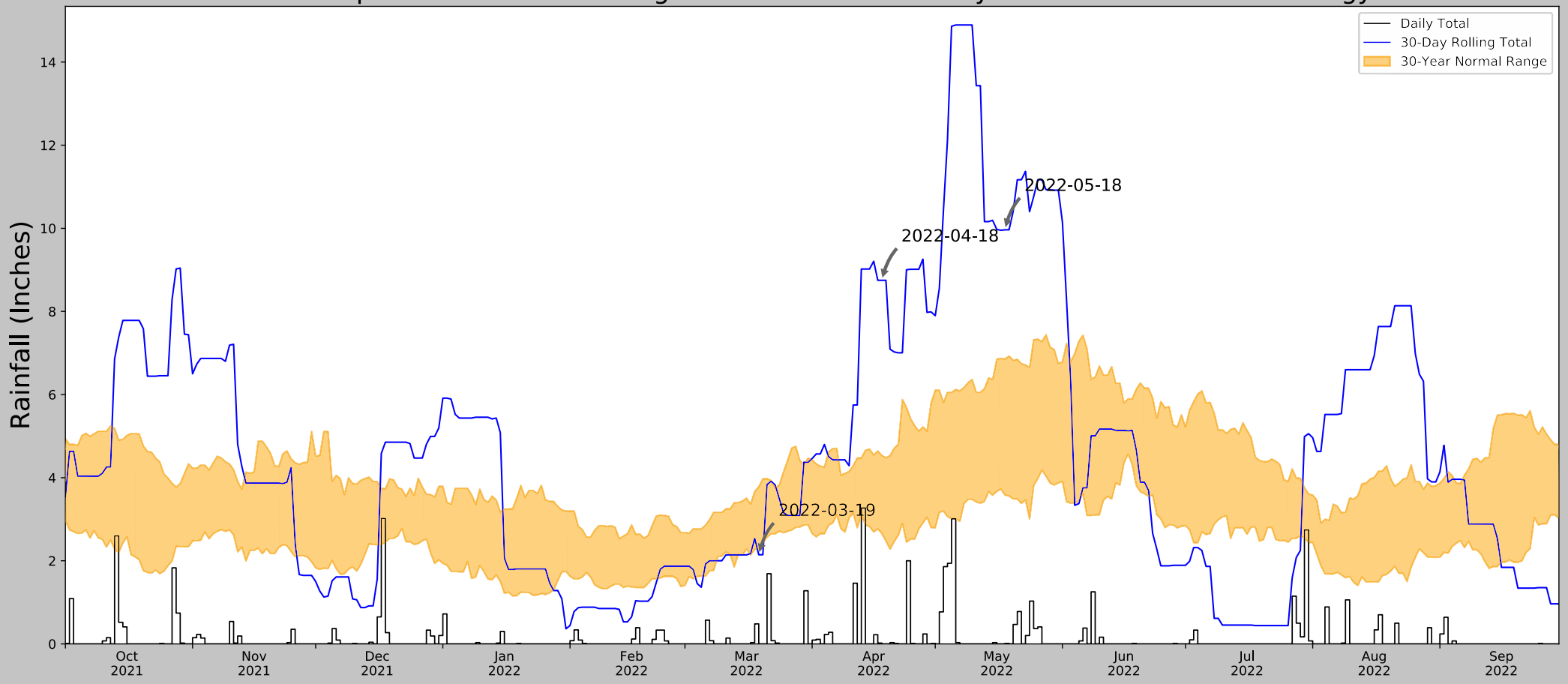
"s" This data value failed one of NCDC's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.398689, -94.196208
Observation Date	2022-05-18
Elevation (ft)	1116.82
Drought Index (PDSI)	Mild wetness
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30^{th} %ile (in)	70^{th} %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2022-05-18	3.579921	6.855118	9.964567	Wet	3	3	9
2022-04-18	2.652756	4.533465	8.748032	Wet	3	2	6
2022-03-19	2.289764	3.78189	2.145669	Dry	1	1	1
Result							Wetter than Normal - 16

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FAYETTEVILLE SPRINGDALE NW AR	36.2897, -94.3114	1277.887	9.89	161.067	6.043	8168	89
BENTONVILLE 6.6 SSW	36.2788, -94.2437	1234.908	3.845	42.979	1.896	2	1
CENTERTON 0.8 WSW	36.3573, -94.2992	1307.087	4.72	29.2	2.262	2	0
BENTONVILLE 2.8 SSW	36.3344, -94.2328	1261.155	5.356	16.732	2.5	1	0
BENTONVILLE 4 S	36.3219, -94.215	1220.144	5.81	57.743	2.95	3171	0
GRAVETTE	36.4261, -94.4481	1259.843	12.111	18.044	5.668	9	0

U.S. Department of Commerce
National Oceanic & Atmospheric Administration
National Environmental Satellite, Data, and Information Service

Current Location: Elev: 1267 ft. Lat: 36.3609° N Lon: -94.2663° W
Station: **CENTERTON 1.0 E, AR US US1ARBT0057**

Record of Climatological Observations

These data are quality controlled and may not be identical to the original observations.

Generated on 01/18/2023

National Centers for Environmental Information
151 Patton Avenue
Asheville, North Carolina 28801

Observation Time Temperature: Unknown Observation Time Precipitation: Unknown

Year	Month	Day	Temperature (F)			Precipitation					Evaporation		Soil Temperature (F)					
			24 Hrs. Ending at Observation Time		At Obs.	24 Hour Amounts Ending at Observation Time				At Obs. Time	24 Hour Wind Movement (mi)	Amount of Evap. (in)	4 in. Depth			8 in. Depth		
			Max.	Min.		Rain, Melted Snow, Etc. (in)	Flag	Snow, Ice Pellets, Hail (in)	Flag	Snow, Ice Pellets, Hail, Ice on Ground (in)			Ground Cover (see *)	Max.	Min.	Ground Cover (see *)	Max.	Min.
2023	01	01																
2023	01	02																
2023	01	03				0.58												
2023	01	04				0.00		0.0										
2023	01	05				0.00		0.0										
2023	01	06				0.00		0.0										
2023	01	07				0.00		0.0										
2023	01	08				0.00		0.0										
2023	01	09				0.00		0.0										
2023	01	10				0.00		0.0										
2023	01	11				0.00		0.0										
2023	01	12				0.06												
2023	01	13				0.00		0.0										
2023	01	14				0.00		0.0										
2023	01	15				0.00		0.0										
2023	01	16																
2023	01	17																
2023	01	18																
2023	01	19																
2023	01	20																
2023	01	21																
2023	01	22																
2023	01	23																
2023	01	24																
2023	01	25																
2023	01	26																
2023	01	27																
2023	01	28																
2023	01	29																
2023	01	30																
2023	01	31																
Summary						0.64		0.0										

Empty, or blank, cells indicate that a data observation was not reported.

*Ground Cover: 1=Grass; 2=Fallow; 3=Bare Ground; 4=Brome grass; 5=Sod; 6=Straw mulch; 7=Grass muck; 8=Bare muck; 0=Unknown

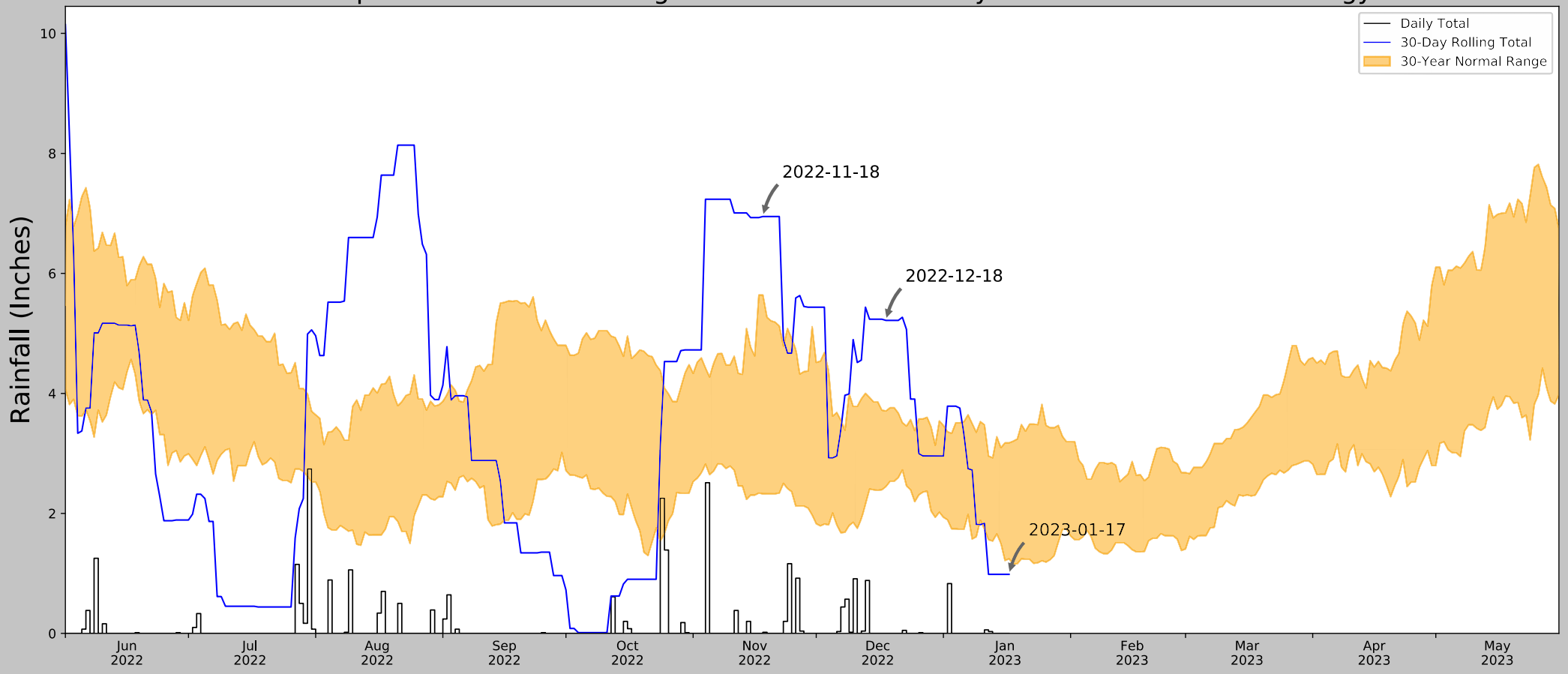
"s" This data value failed one of NCDC's quality control tests. "At Obs." = Temperature at time of observation

"T" values in the Precipitation or Snow category above indicate a "trace" value was recorded.

"A" values in the Precipitation Flag or the Snow Flag column indicate a multiday total, accumulated since last measurement, is being used.

Data value inconsistency may be present due to rounding calculations during the conversion process from SI metric units to standard imperial units.

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	36.398689, -94.196208
Observation Date	2023-01-17
Elevation (ft)	1116.82
Drought Index (PDSI)	Not available
WebWIMP H_2O Balance	Wet Season

30 Days Ending	30th %ile (in)	70th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-01-17	1.242913	3.175984	0.984252	Dry	1	3	3
2022-12-18	2.447638	3.70748	5.216536	Wet	3	2	6
2022-11-18	2.324803	5.638977	6.948819	Wet	3	1	3
Result							Normal Conditions - 12

Figure and tables made by the **Antecedent Precipitation Tool** Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
FAYETTEVILLE SPRINGDALE NW AR	36.2897, -94.3114	1277.887	9.89	161.067	6.043	8532	88
BENTONVILLE 6.6 SSW	36.2788, -94.2437	1234.908	3.845	42.979	1.896	3	0
GENTRY 5.6 ENE	36.2933, -94.3886	1341.864	4.306	63.977	2.213	0	1
CENTERTON 0.8 WSW	36.3573, -94.2992	1307.087	4.72	29.2	2.262	2	0
BENTONVILLE 2.8 SSW	36.3344, -94.2328	1261.155	5.356	16.732	2.5	1	0
BENTONVILLE 4 S	36.3219, -94.215	1220.144	5.81	57.743	2.95	2808	0
GRAVETTE	36.4261, -94.4481	1259.843	12.111	18.044	5.668	7	0
Linear Interpolation	N/A	N/A	N/A	N/A	N/A	0	1


GARVER

Appendix H

Protected Species

ARKANSAS DEPARTMENT OF TRANSPORTATION
ArDOT.gov | IDriveArkansas.com | Lorie H. Tudor, P.E., Director
ENVIRONMENTAL DIVISION
10324 Interstate 30 | P.O. Box 2261 | Little Rock, AR 72203-2261 | Phone: 501.569.2281 | Fax: 501.569.2009

June 14, 2023

Lindsey Lewis, ARDOT Liaison
U.S. Fish and Wildlife Service
110 South Amity Road, Ste. 300
Conway, AR 72032
#501-513-4489; Lindsey_Lewis@fws.gov

SUBJECT: Arkansas Department of Transportation (ARDOT) – NE J Street Interchange
ARDOT Job 090676
Section 7 Consultation Package – Geotech Access
Consultation Code: 2022-0030877

Dear Mr. Lewis:

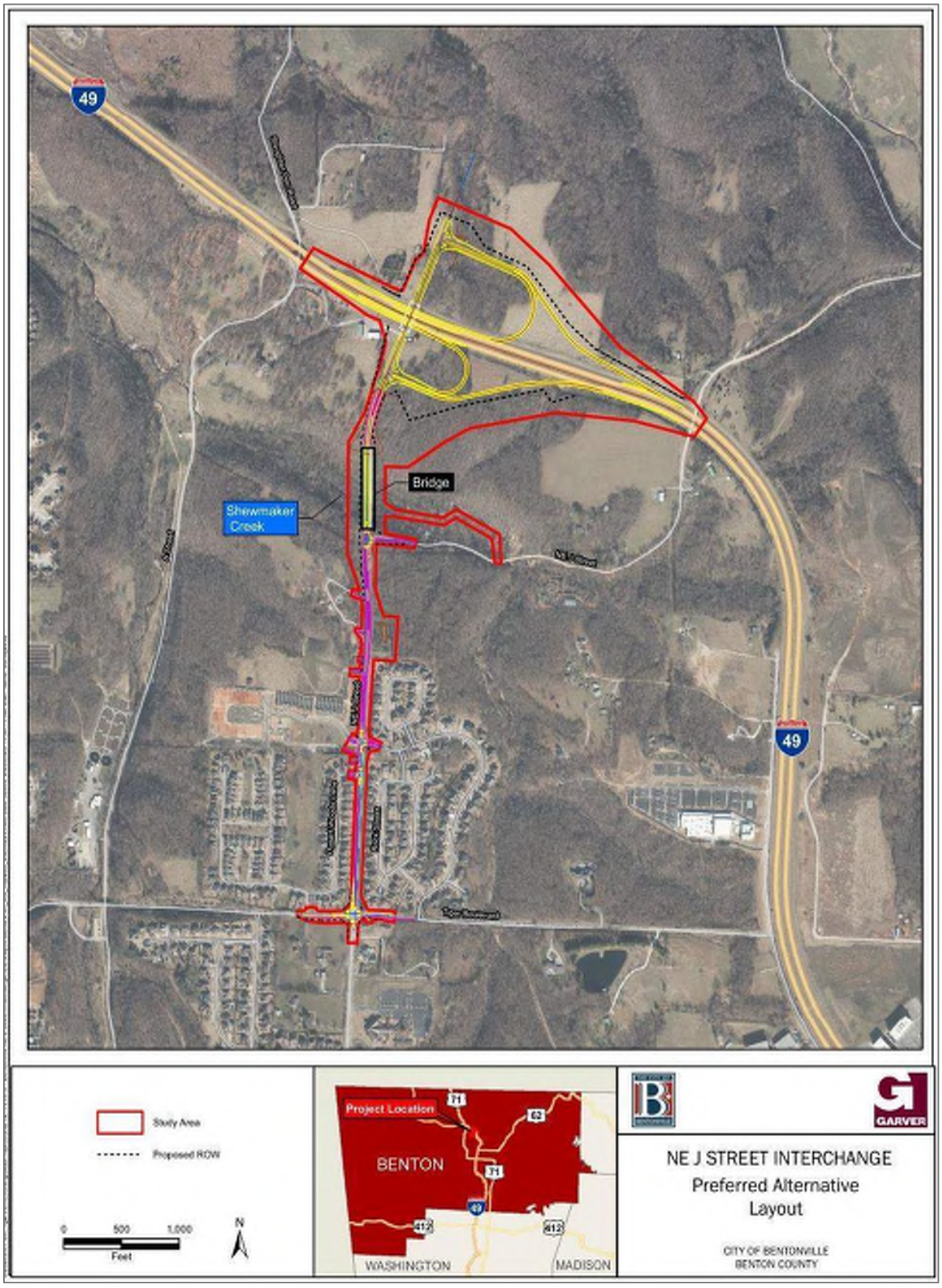
This letter serves to provide a project status update, schedule, and effects determinations for the federally protected threatened or endangered species listed on the official species list provided by the US Fish and Wildlife Service (USFWS) for **geotechnical borings required for project design**.

The Federal Highway Administration (FHWA), in cooperation with the Arkansas Department of Transportation (ARDOT) and City of Bentonville, is currently preparing an Environmental Assessment (EA) for the proposed new interchange along Interstate 49 (I-49) that would provide a connection to NE J Street in Bentonville, Benton County, Arkansas.

Preferred Alternative
The Preferred Alternative, as shown in **Figure 1** and **Attachment 1**, would begin near the intersection of Tiger Boulevard and NE J Street and continue along the existing roadway until the sharp turn approximately 0.6 mile north. Left turn lanes would be provided on NE J Street at local side streets as required for access to neighborhoods. The proposed NE J Street and Tiger Boulevard intersection would be signalized with dedicated left and right turn lanes on the approaches as required to meet future traffic demands. From the sharp turn, NE J Street would extend northeastward on new alignment for approximately 0.55 mile before bridging I-49. At I-49, the proposed interchange would consist of a folded diamond interchange with I-49 southbound vehicles exiting I-49 via a loop ramp and entering I-49 via an on-ramp in the southeast quadrant. I-49 northbound vehicles would exit I-49 via an off-ramp and enter I-49 via a loop ramp in the northeast quadrant. Improvements to NE J Street along the entire proposed alignment consist of two 11-foot-wide travel lanes in each direction, a 5-foot-wide sidewalk, and a 12-foot-wide multi-use path. Two bridges would be required for the Preferred Alternative at Shewmaker Creek and I-49. The design speeds along the extension would be 45 miles per hour.

Section 7 Consultation – Geotechnical Borings
June 14, 2023
Page 2 of 6

Figure 1 – Preferred Alternative Layout and General Study Area



Site investigations of the Preferred Alternative were conducted in May of 2022 and January of 2023. Please refer to overview and detailed maps located in **Attachment 2**. **For this phase of the project, only potential areas to be impacted by geotechnical boring activity is considered**. No suitable habitats for the Piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus rufa*), Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*), Alligator Snapping Turtle (*Macrochelys temminckii*), or Missouri bladderpod (*Physaria filiformis*) were observed. Suitable habitats for the Indiana Bat (*Myotis sodalis*), Northern Long-eared Bat (*Myotis septentrionalis*), Gray Bat (*Myotis grisescens*), Ozark Big-eared Bat (*Corynorhinus townsendii*), Tricolored Bat (*Perimyotis subflavus*), Ozark Cavefish (*Amblyopsis rosae*), and Monarch Butterfly (*Danaus* plexippus) were identified within the project's Study Area. Refer to **Attachment 3** for on-site habitat photographs. Refer to **Table 1** for the species, habitat requirements, and preliminary effects determinations identified for this project's geotechnical boring access activities. The USFWS official species list and consistency letters (for the overall NE J Street project) are provided in **Attachment 4**. Additionally, the following agencies/entities were contacted for the overall project and their responses (if any) are noted below:

- Arkansas Game and Fish Commission – No response.
- Arkansas Natural Heritage Commission – No elements related to listed bat species or hibernacula were provided in their files.
- US Geological Survey – Confirmation that the project lies within a karst area.
- Ozark Underground Laboratory – Civil War Cave (2 miles west of Bentonville), unnamed tributaries within the study area could provide water to local springs. The unnamed tributary intersects the Presumptive Habitat Area for the Civil War Cave approximately 6,400 feet downstream.

Suitable forested summer foraging habitat for the listed bat species included live and dead trees/snags with peeling bark, cracks, hollow limbs or trunks, and cavities. Total forested area for this phase of the project is approximately 0.4 acre. Bat habitat structures suitable for roosting, such as buildings, outbuildings, and bridges, are not located within the study area for this project phase. Habitat for the Ozark Cavefish, such as springs, seeps, and losing streams are not located in the action area although one is located within 10 feet of the clearing path and 50 feet of a boring site. The project is located in a karst area; therefore, unknown habitat could be present. There are no mapped recharge areas or caves within or near the Preferred Alternative. Large fields in the Study Area may provide suitable habitat for the Monarch Butterfly; however, the fields appear to be maintained pastureland and are thus not likely conducive to healthy populations of milkweed and other flowering plants. No critical habitat is located within the Study Area. **Attachments 2** depicts the listed species' suitable or preferred habitat delineated within the Study Area.

<u>Bat Habitat Impacts</u>
Direct impacts associated with summer tree roosting of listed bat species habitat includes tree clearing. Direct impacts associated with roosting activities of cave-obligate listed bat species are anticipated to be minor as no caves were identified within the project footprint. Direct impacts to summer foraging habitat along stream corridors would be limited to tree removal to provide a 12-foot-wide corridor for geotechnical boring access. Approximately 0.4 acre of tree removal is required. Indirect impacts may include vibration from construction equipment near off-site forested areas and suitable roosting structures. Other indirect impacts may include temporary or permanent lighting, incidental take, disturbance due to tree cutting activities, and temporary disruption of foraging corridors during boring activities.

Aquatic Species Habitat

Direct impacts to springs and seeps within the proposed ROW may occur due to heavy equipment usage which could compact surrounding soils. The introduction of sediment and degraded water quality into these systems during equipment access and boring may indirectly impact cave obligate species habitat. Potential sedimentation to streams may occur during tree clearing, equipment access, and boring.

Avoidance, Minimization, and Mitigation

Based on coordination with your office, the following recommended best management practices (BMPs) and avoidance and minimization measures (AMMs) are proposed to be implemented in the project design.

- ARDOT Special Provisions (SP), which are provided in **Attachment 5,** will include:
  - Off-site Restraining Conditions for Indiana and Northern Long-eared Bats
  - Water Pollution Control – Select BMPs as identified below may be implemented before construction, maintained during construction, and temporary BMPs will be removed after construction.
  - Cave Discovery – Including construction methods and procedures upon cave discovery.
- BMPs will be installed and maintained. This plan will include BMPs listed below.
- Maintaining vegetated buffer zones of 25 feet from waterways and 50 feet from sensitive streams to the extent possible.
- Implementation of the following erosion and sediment control BMPs in compliance with the National Pollutant Discharge Elimination System (NPDES) permit and current version of the *ARDOT Erosion and Sediment Control Design and Construction Manual*.
  - Silt fence
  - Seeding and/or sodding
  - Rock and sandbag ditch checks

Table 1: T&E Listed Species and Habitat Requirements

Species/Status	Habitat Requirements	Suitable Habitat Impacts within Study Area	Effects Determination
Gray Bat (*Myotis grisescens*) Endangered	The Gray Bat occurs in limestone karst areas and primarily uses caves throughout the year, although they move from one cave to another seasonally. Smaller colonies also occasionally roost under bridge structures.	Forested summer foraging habitat: 0.4 acre	May affect, not likely to adversely affect
		Suitable roosting structures*: Not Impacted	
		Bluff lines: Not Impacted	
Indiana Bat (*Myotis sodalis*) Endangered	The Indiana Bat hibernates in cool caves and mines in the winter and wooded areas in the spring and summer. During summer, colonies are found behind slabs of exfoliating bark of dead trees, often in bottomland or floodplain habitats, but also in upland situations.	Forested summer roost or foraging habitat: 0.4 acre	May affect, not likely to adversely affect
		Suitable roosting structures*: Not Impacted	
		Bluff lines: Not Impacted	

Species/Status	Habitat Requirements	Suitable Habitat Impacts within Study Area	Effects Determination
Northern Long-eared Bat (*Myotis septentrionalis*) Endangered	In winter, Northern Long-eared Bats use caves, mine portals, abandoned tunnels, protected sites along cliff lines and similar situations that afford protection from cold. During the summer they roost singly or in colonies underneath bark, in cavities, or in crevices of both live and dead trees.	Forested summer roost or foraging habitat: 0.4 acre Suitable roosting structures*: Not Impacted Bluff lines: Not Impacted	May affect, not likely to adversely affect
Ozark Big-eared Bat (*Corynorhinus townsendii ingens*) Endangered	The Ozark Big-eared Bat inhabits caves year-round, typically located in oak-hickory hardwood forests.	Bluff lines: Not Impacted	No effect
Tricolored Bat (*Perimyotis subflavus)* Proposed Endangered	In winter, Tricolored Bats hibernate in caves, mine portals, and man-made structures such as box culverts. During the summer they prefer to roost in the clumps of dead leaves of oak trees within complex oak forests greater than 50 years old. Less commonly, they will roost in clumps of dead pine needles attached to living trees. They commonly forage along riparian corridors.	Forested summer roost or foraging habitat: 0.4 acre Suitable roosting structures*: Not Impacted Bluff lines: Not Impacted	Not likely to jeopardize the continued existence
Piping Plover (*Charadrius melodus*) Threatened	Piping Plovers are usually found along sandbars of major rivers, salt flats, and mudflats of reservoirs.	No sandbars, salt flats, or mudflats are located within or adjacent to the Study Area.	No effect
Alligator Snapping Turtle (*Macrochelys temminckii)* Proposed Threatened	Alligator Snapping Turtles inhabit medium to large slow-moving rivers or associated lakes, sloughs, or oxbows. They will sometimes in habitat tributaries or ponds with a nexus to forementioned rivers.	No medium to large slow-moving rivers or associated aquatic resources are in or adjacent to the Study Area.	Not likely to jeopardize the continued existence
Red Knot (*Calidris cantus rufa)* Threatened	Red Knots are usually found along mudflats associated with reservoirs.	No mudflats are located within or adjacent to the Study Area.	No effect
Eastern Black Rail (*Laterallus jamaicensis*) Threatened	Eastern Black Rails typically inhabit emergent shallow wetlands. They require dense vegetative cover that allows movement underneath the canopy such as rushes, sedges, and grasses.	No emergent shallow wetlands with dense vegetation located within or adjacent to the Study Area.	No effect
Ozark Cavefish (*Amblyopsis rosae*) Threatened	The Ozark Cavefish occurs in dark cave waters, primarily clear upwelling streams with chert or rubble substrate, and occasionally in pools over silt and sand. They have also been found in wells, springs, and sinkholes.	Karst region with documented caves in Benton County. Adjacent springs and seeps will not be impacted.	May affect, not likely to adversely affect

Species/Status	Habitat Requirements	Suitable Habitat Impacts within Study Area	Effects Determination
Monarch Butterfly (*Danaus plexippus*) Candidate	Monarch Butterflies require the presence of milkweed (*Asclepias sp.*), flowering or potentially flowering nectar plants (defined as forbs that can provide nectar for monarchs at some point in the growing season), and additional native habitat such as meadows, prairies, and grasslands.	Grassland Habitat: 0.7 acre	Not likely to jeopardize the continued existence
Missouri Bladderpod (*Physaria filiformis*) Threatened	Missouri bladderpods are usually found in open limestone glades, barrens, and outcrops within unglaciated prairie areas. Glades are naturally dry, treeless areas with shallow, loose soil and areas of exposed rock. They are occasionally in dolomitic glades and are often associated with grazed pastures. Cedar invasion of glade sites is common. Sometimes the bladderpod is found on highway right of way and pastures where mowing and grazing have kept the area open. Occasionally it is found in open rocky woods.	No dry limestone or dolomitic glades or barrens occur within the Study Area.	No effect

*Suitable structure habitat includes barns, abandoned buildings, and bridges.

A presence/absence survey for threatened/endangered bat species is not anticipated due to the 0.4 acre of tree removal needed to take place for access to geotechnical boring sites. Geotechnical data is required to complete project design.

We respectfully request concurrence of the effects determinations presented in this Section 7 consultation package for the listed threatened and endangered species. Thank you for your assistance. Please call Kayti Ewing of my staff at (501-569-2522) or email (Kayti.Ewing@ardot.gov) if you have any questions or need any additional information.

Sincerely,

John Fleming
Division Head
Environmental Division

Copies To: Kayti Ewing – ARDOT
Mickey Mathews – ARDOT
Bill McAbee – Garver

Attachments:
Attachment 1 – Preferred Alternative Layout
Attachment 2 – Habitat Assessment Overview and Detailed Views
Attachment 3 – Habitat Photographs
Attachment 4 – USFWS IPaC Official Species List and Consistency Letters
Attachment 5 – ARDOT Special Provisions

ATTACHMENT 1
PREFERRED ALTERNATIVE LAYOUT

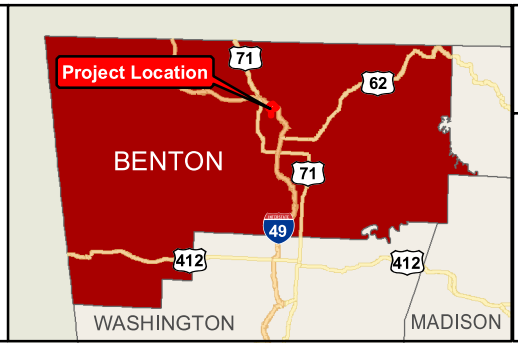
Study Area

Proposed ROW

0 500 1,000

Feet

N



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NE J STREET INTERCHANGE
Habitat Overview

CITY OF BENTONVILLE
BENTON COUNTY

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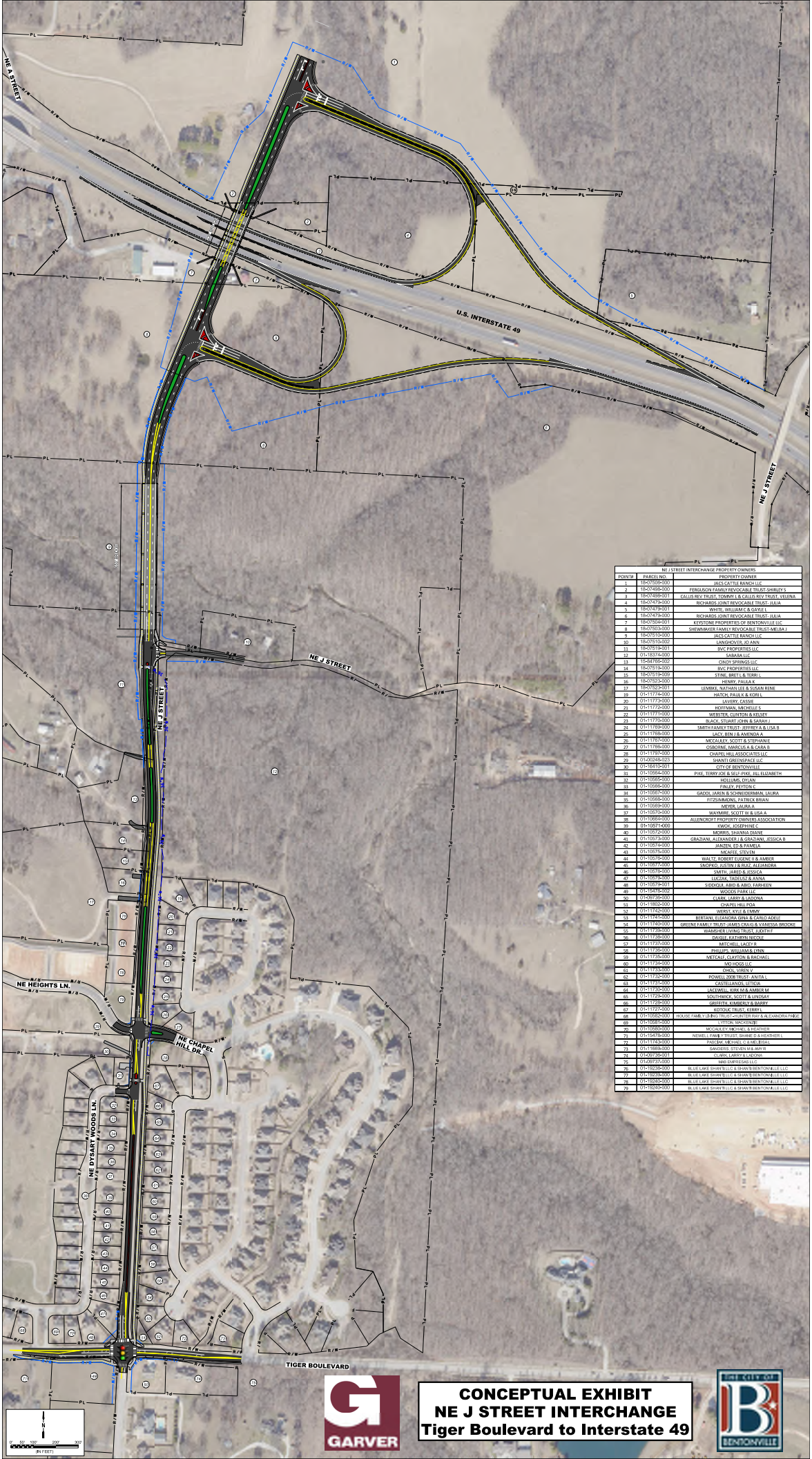


NE J STREET INTERCHANGE PROPERTY OWNERS

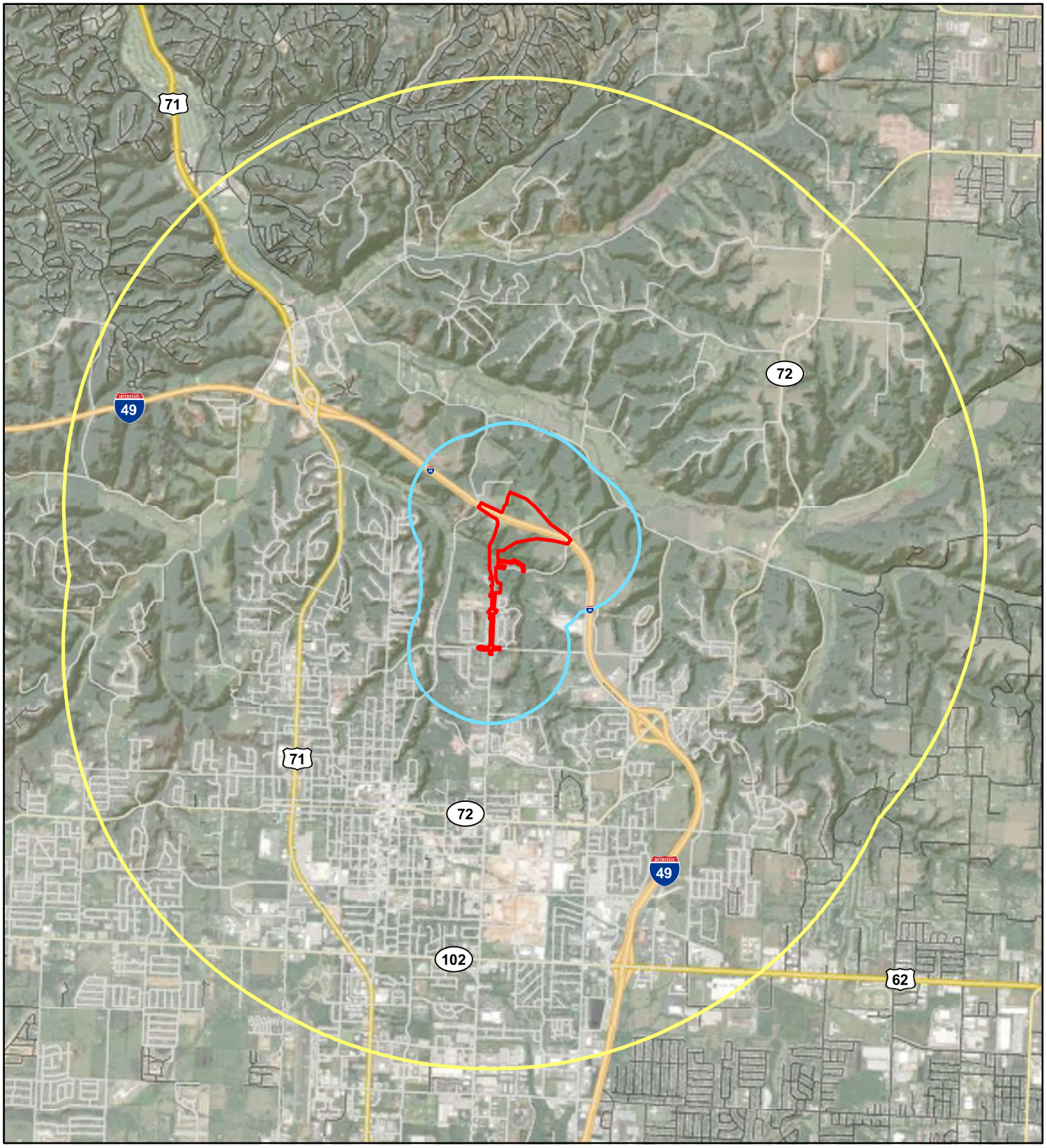
POINT#	PARCEL NO.	PROPERTY OWNER
1	18-07509-000	JACS CATTLE RANCH LLC
2	18-07488-000	FERGUSON FAMILY REVOCABLE TRUST-SHIRLEY S
3	18-07488-001	CALLIS REV TRUST, TOMMY L & CALLIS REV TRUST, VELENA
4	18-07479-000	RICHARDS JOINT REVOCABLE TRUST- JULIA
5	18-07479-001	WHITE, WILLIAM C & GAYLE L
6	18-07479-000	RICHARDS JOINT REVOCABLE TRUST- JULIA
7	18-07504-001	KEYSTONE PROPERTIES OF BENTONVILLE LLC
8	18-07503-000	SHEWMAKER FAMILY REVOCABLE TRUST-MELBA J
9	18-07510-000	JACS CATTLE RANCH LLC
10	18-07510-002	LANGHOVER, JO ANN
11	18-07519-001	BVC PROPERTIES LLC
12	01-18374-000	SABABA LLC
13	18-84789-002	CINDY SPRINGS LLC
14	18-07519-000	BVC PROPERTIES LLC
15	18-07519-009	STINE, BRET L & TORI L
16	18-07523-000	HENRY, PALKA K
17	18-07523-001	LEMBKE, NATHAN LEE & SUSAN RENE
18	01-11774-000	HATCH, PAULA K & KORI L
19	01-11773-000	LAVERY, CASSIE
20	01-11772-000	HOFFMAN, MICHELLE S
21	01-11771-000	WEBSTER, CLINTON & KELSEY
22	01-11770-000	BLACK, STUART JOHN & SARAH J
23	01-11769-000	SMITH FAMILY TRUST- JEFFREY A & LISA B
24	01-11768-000	LACY, BEN J & AMENDA A
25	01-11767-000	MCCAULEY, SCOTT & STEPHANIE
26	01-11766-000	OSBORNE, MARCUS A & CARA B
27	01-11787-000	CHAPEL HILL ASSOCIATES LLC
28	01-11789-000	SHANTI GREENSPACE LLC
29	01-90248-023	CITY OF BENTONVILLE
30	01-10410-001	PIKE, TERRY JOE & SELF-PIKE, JILL ELIZABETH
31	01-10584-000	HOLLUMS, DYLAN
32	01-10585-000	FINLEY, PEYTON C
33	01-10586-000	GADDI, JAREN & SCHNEIDERMAN, LAURA
34	01-10587-000	FITZSIMMONS, PATRICK BRIAN
35	01-10588-000	MEYER, LAURA A
36	01-10589-000	WAYMIRE, SCOTT W & LISA A
37	01-10570-000	ALLENCROFT PROPERTY OWNERS ASSOCIATION
38	01-10569-000	KWOK, JOSEPHINE C
39	01-10571-000	MORRIS, SHANNA DIANE
40	01-10572-000	GRAZIANI, ALEXANDER J & GRAZIANI, JESSICA B
41	01-10573-000	JANZEN, ED & PAMELA
42	01-10574-000	MCAFEE, STEVEN
43	01-10575-000	WALTZ, ROBERT EUGENE II & AMBER
44	01-10576-000	SNOPKO, JUSTIN J & RUIZ, ALEJANDRA
45	01-10577-000	SMITH, JARED & JESSICA
46	01-10578-000	LUCAS, TADEUSZ & ANNA
47	01-10579-000	SIDDIQUI, ABID & ABID, FARHEEN
48	01-10579-001	WOODS PARK LLC
49	01-11478-002	CLARK, LARRY & LADONA
50	01-29735-000	CHAPEL HILL POA
51	01-11802-000	WERST, KYLE & EMMY
52	01-11742-000	BERTANI, ELEANORA GINA & CARLO ADELE
53	01-11741-000	GREENE FAMILY TRUST- JAMES CRAIG & VANESSA BRODKE
54	01-11740-000	WAMSHER LIVING TRUST, JUDITH F
55	01-11739-000	DAIGLE, KATHRYN NICOLE
56	01-11738-000	MITCHELL, LACEY B
57	01-11737-000	PHILLIPS, WILLIAM & LYNN
58	01-11736-000	METCALF, CLAYTON & RACHAEL
59	01-11735-000	MO HOGS LLC
60	01-11734-000	OHOL, VIREN V
61	01-11733-000	POWELL 2008 TRUST- ANITA L
62	01-11732-000	CASTELLANOS, LETICIA
63	01-11731-000	LACEWELL, KIRK M & AMBER M
64	01-11730-000	SOUTHWICK, SCOTT & LINDSAY
65	01-11729-000	GRIFFITH, KIMBERLY & BARRY
66	01-11728-000	KOTOLC TRUST, KERRY L
67	01-11727-000	HOUSE FAMILY LIVING TRUST-HUNTER RAY & ALEXANDRA PARIE
68	01-10582-000	LYTTON, MACKENZIE
69	01-10581-000	MCCAULEY, MICHAEL & HEATHER
70	01-10580-000	NEWELL FAMILY TRUST, SHANE D & HEATHER L
71	01-10579-000	PAELEW, MICHAEL C & MELISSA L
72	01-11743-000	SANDERS, STEVEN M & AMY R
73	01-11688-000	CLARK, LARRY & LADONA
74	01-29736-001	MID DIPPEDAY LLC
75	01-29737-000	BLUE LAKE SHANTI LLC & SHANTI BENTONVILLE LLC
76	01-10238-000	BLUE LAKE SHANTI LLC & SHANTI BENTONVILLE LLC
77	01-10239-000	BLUE LAKE SHANTI LLC & SHANTI BENTONVILLE LLC
78	01-10240-000	BLUE LAKE SHANTI LLC & SHANTI BENTONVILLE LLC
79	01-10240-000	

GARVER

CONCEPTUAL EXHIBIT
NE J STREET INTERCHANGE
Tiger Boulevard to Interstate 49

THE CITY OF BENTONVILLE

ATTACHMENT 2
HABITAT ASSESSMENT OVERVIEW
AND
DETAILED VIEWS



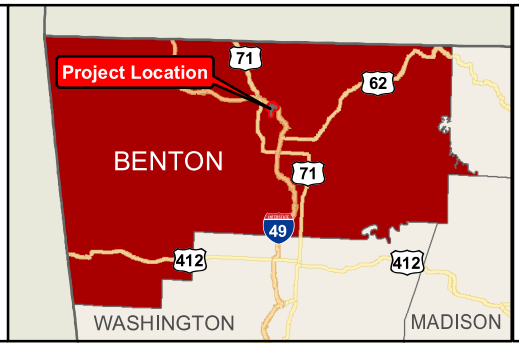
Study Area

0.5-Mile Buffer

3-Mile Buffer

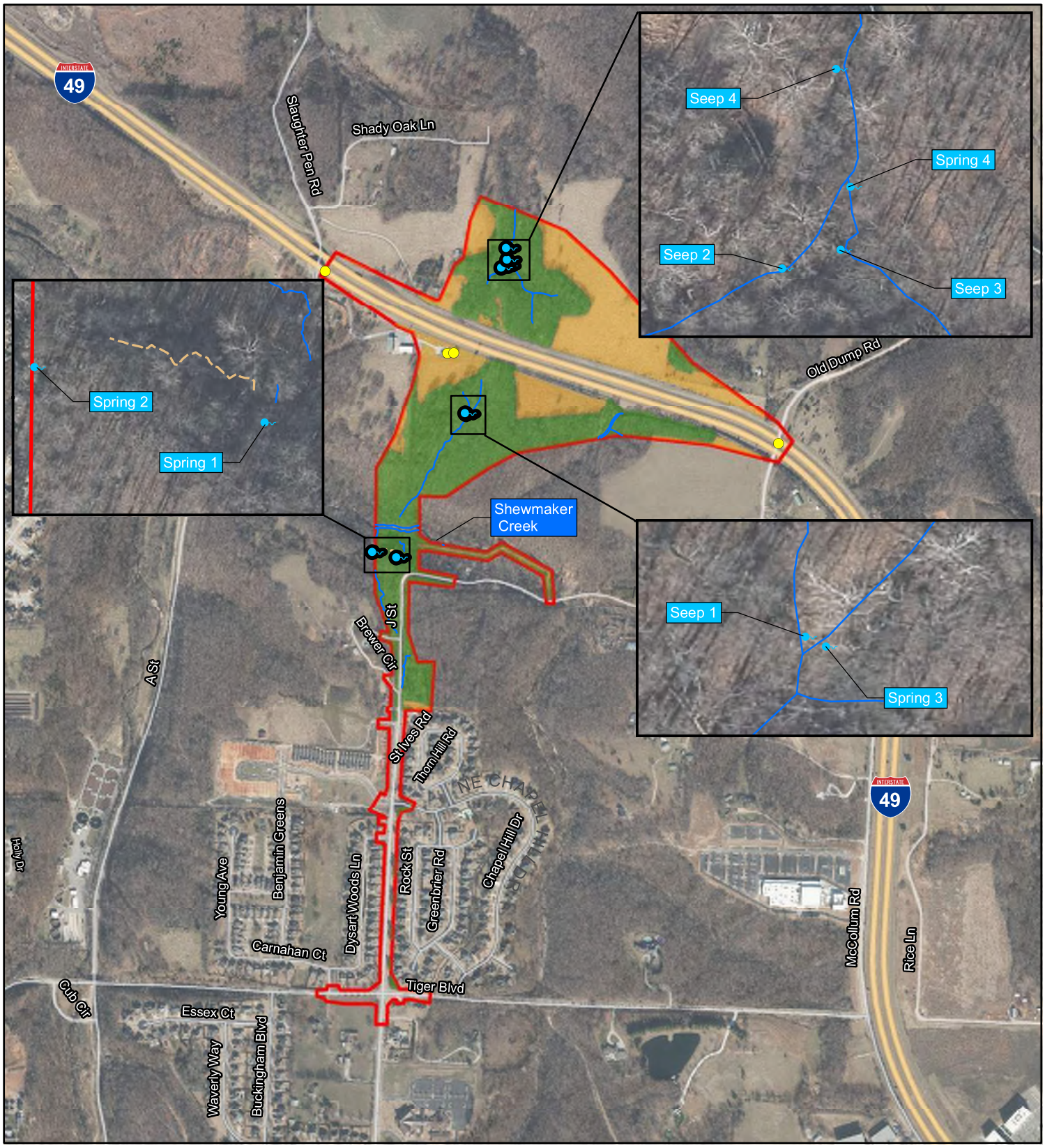
0 0.5 1
Miles

N



NE J STREET INTERCHANGE
Study Area With Buffers

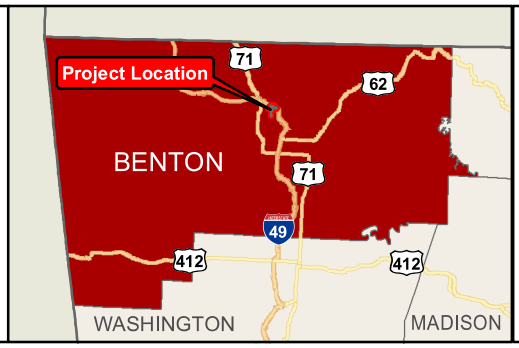
CITY OF BENTONVILLE
BENTON COUNTY



Study Area
Forest Habitat
Grassland Habitat
Streams
Springs and Seeps
Structures
Bluff Line

0 500 1,000
Feet

N



NE J STREET INTERCHANGE
Habitat Overview

CITY OF BENTONVILLE
BENTON COUNTY

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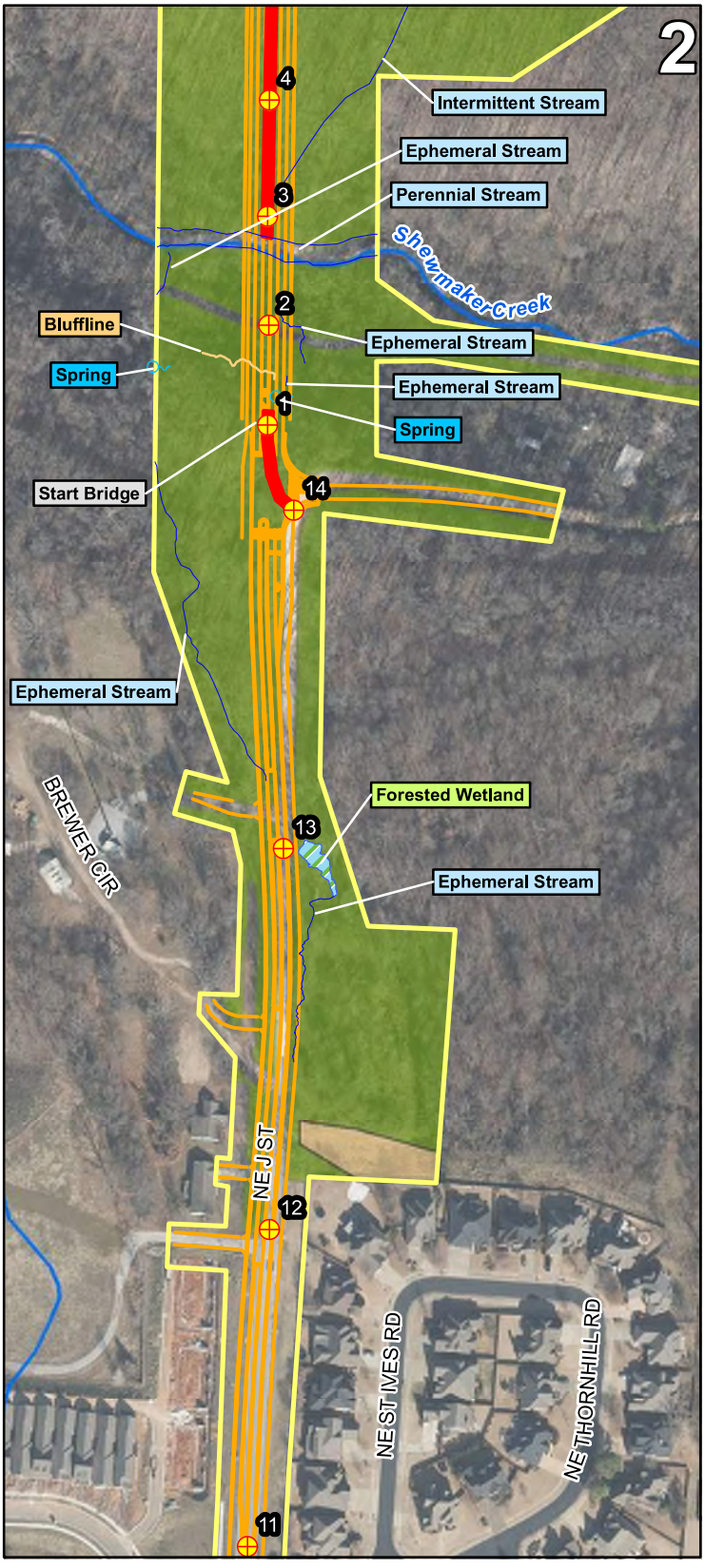
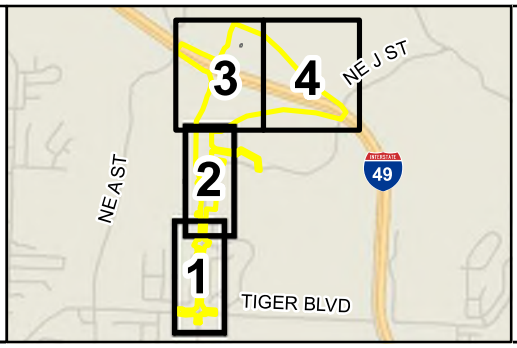


Study Area
Tree Removal (0.36 ac)
Bore Location (Approximate)
Summer Bat Roosting Habitat
Potential Monarch Butterfly Habitat
Wetland
Stream
Springs & Seeps

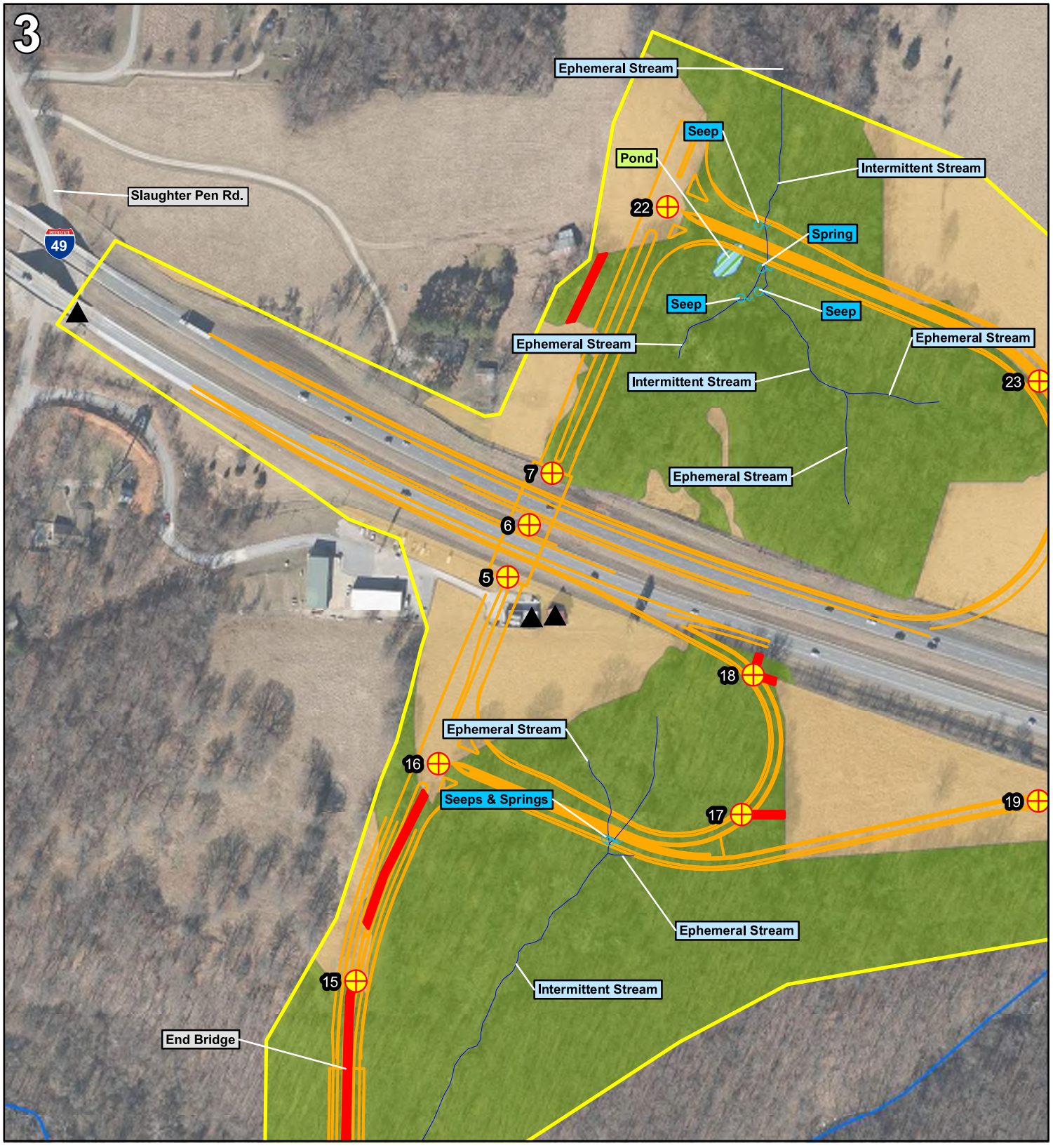
0 100 200
Feet

N

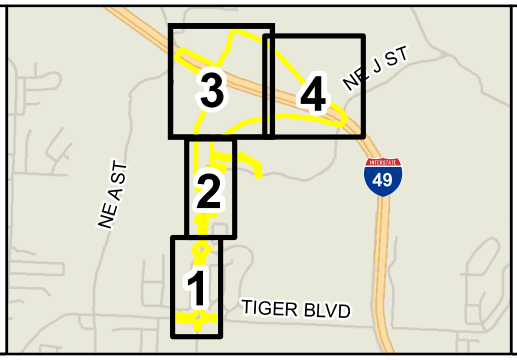


NE J STREET INTERCHANGE
Detailed View 1 of 3

CITY OF BENTONVILLE
BENTON COUNTY

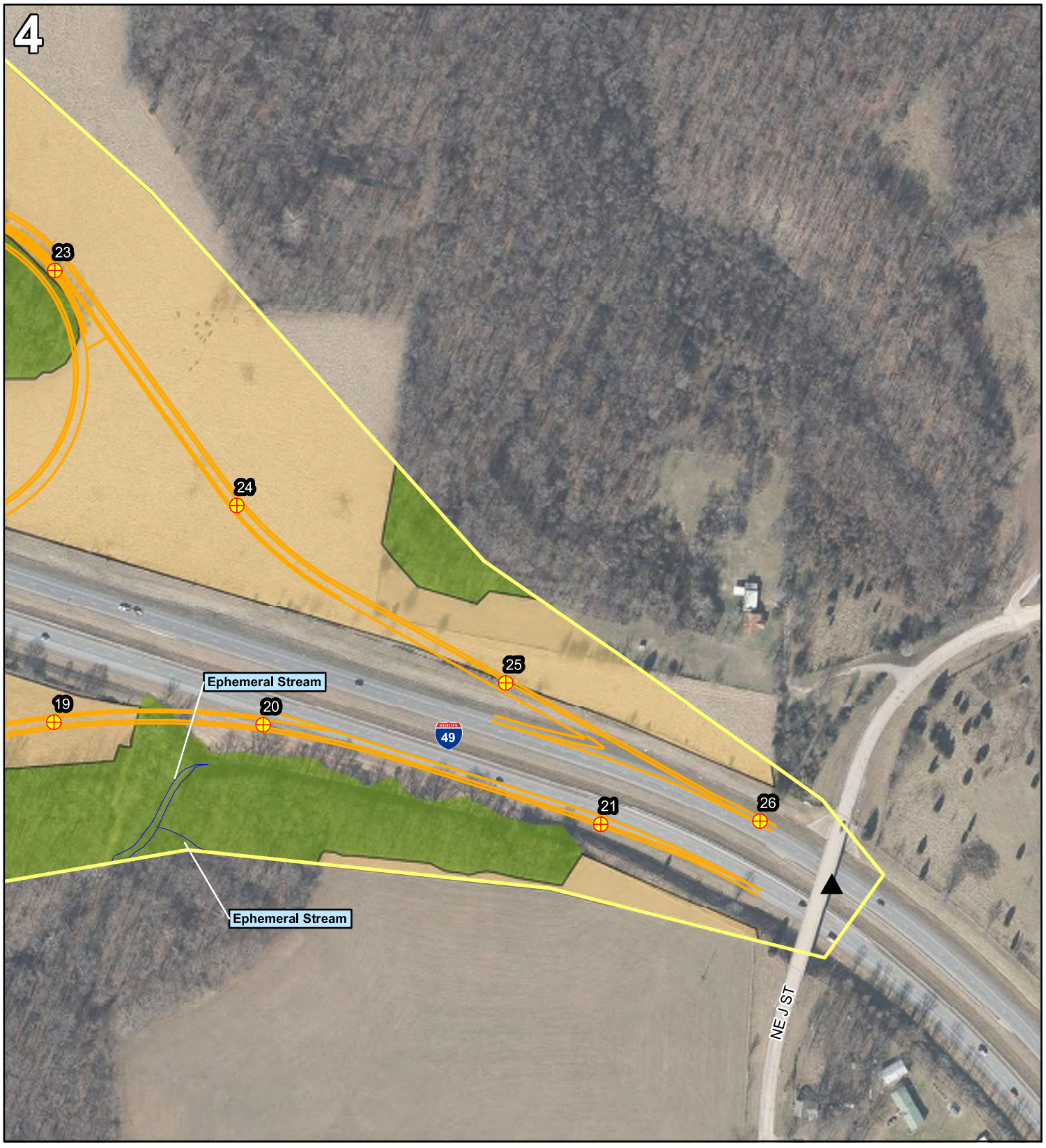


Study Area
Tree Removal (0.36 ac)
Bore Location (Approximate)
Summer Bat Roosting Habitat
Potential Bat Roosting Structures
Potential Monarch Butterfly Habitat
Wetlands
Stream
Springs & Seeps
0 100 200
Feet
N



NE J STREET INTERCHANGE
Detailed View 2 of 3

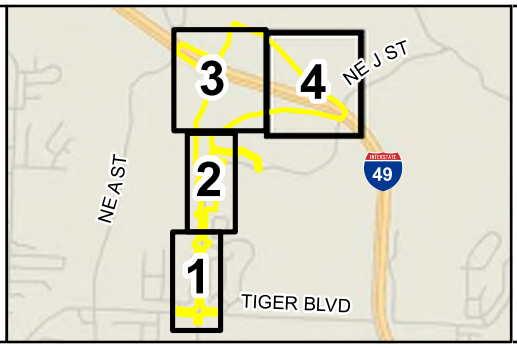
CITY OF BENTONVILLE
BENTON COUNTY



Study
Bore Location (Approximate)
Summer Bat Roosting Habitat
Bat Roosting Structures
Potential Monarch Butterfly Habitat
Stream

N

0 100 200
Feet



NE J STREET INTERCHANGE
Detailed View 3 of 3

CITY OF BENTONVILLE
BENTON COUNTY

ATTACHMENT 3
HABITAT PHOTOGRAPHS

Attachment 3
Photographs Taken Summer of 2022
Page 1 of 7

Typical Upland Forested Area	1
	
Description	Bat foraging and potential summer roosting habitat.
Typical Bottomland Forested Area	**2**
	
Description	Bat foraging and potential summer roosting habitat.

Attachment 3
Photographs Taken Summer of 2022
Page 2 of 7

Typical Riparian Zone	3

Description	Bat foraging and potential summer roosting habitat along Shewmaker Creek.

Typical Roosting Habitat	4

Description	Potential bat summer roosting habitat along Shewmaker Creek.

Attachment 3
Photographs Taken Summer of 2022
Page 3 of 7

Typical Roosting Habitat	5
	
Description	Potential bat summer roosting habitat.

Rock Shelf Roosting Habitat	6
	
Description	Potential bat summer roosting habitat within rock shelf.

Attachment 3
Photographs Taken Summer of 2022
Page 4 of 7

Spring Box	7

Description	Spring box located at Spring 1 – Lat. 36.398334°, Long. -94.196073°

Spring Box	8

Description	Spring box located at Spring 2 – Lat. 36.398441°, Long. -94.196686°

Attachment 3
Photographs Taken Summer of 2022
Page 5 of 7

Spring Box	9

Description	Spring box located at Spring 4 – Lat. 36.404493°, Long. -94.193429°

Seep	10

Description	Seep 1 – Lat. 36.401325°, Long. -94.194406°

Attachment 3
Photographs Taken Summer of 2022
Page 6 of 7

Seep	11
	
Description	Seep 4 – Lat. 36.404733°, Long. -94.193458°

Roosting Structure	12
	
Description	Possible bat roosting habitat on J St. bridge over I-49.

Attachment 3
Photographs Taken Summer of 2022
Page 7 of 7

Roosting Structure	13
	
Description	Possible bat roosting habitat on I-49 bridge at Slaughter Pen Road underpass.

Roosting Structure	14
	
Description	Possible bat roosting habitat under awning. Shed behind fence to the right also could provide potential bat roosting habitat.

ATTACHMENT 4
USFWS Official Species List and Consistency Letters

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: May 04, 2023
Project Code: 2022-0030877
Project Name: NE J Street Interchange 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 ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system 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:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.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 https://www.fws.gov/birds/policies-and-regulations.php.

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/birds/bird-enthusiasts/threats-to-birds.php.

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/birds/policies-and-regulations/executive-orders/e0-13186.php.

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:

Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
(501) 513-4470

PROJECT SUMMARY

Project Code: 2022-0030877
Project Name: NE J Street Interchange Project
Project Type: New Constr - Above Ground
Project Description: The City of Bentonville, Arkansas has initiated an Environmental Assessment (EA) for the NE J Street Interchange Project located in Benton County, Arkansas that would consist of the construction of a new interchange along Interstate 49 (I-49). Additionally, improvements would be made to NE J Street between Tiger Boulevard and I-49 that would include an extension on new location from about 350 feet south of Shoemaker Creek to I-49 and include the construction of two bridges. The study area is shown on the attached maps.

Project Location:

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.397148,-94.19616026031805,14z

Counties: Benton County, Arkansas

ENDANGERED SPECIES ACT SPECIES

There is a total of 12 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.

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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
Gray Bat *Myotis grisescens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6329	Endangered
Indiana Bat *Myotis sodalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5949	Endangered
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Endangered
Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/7245	Endangered
Tricolored Bat *Perimyotis subflavus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10515	Proposed Endangered

BIRDS

NAME	STATUS
Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/10477	
Piping Plover *Charadrius melodus*	Threatened
Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	
Red Knot *Calidris canutus rufa*	Threatened
There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	

REPTILES

NAME	STATUS
Alligator Snapping Turtle *Macrochelys temminckii*	Proposed Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/4658	

FISHES

NAME	STATUS
Ozark Cavefish *Amblyopsis rosae*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6490	

INSECTS

NAME	STATUS
Monarch Butterfly *Danaus plexippus*	Candidate
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	

FLOWERING PLANTS

NAME	STATUS
Missouri Bladderpod *Physaria filiformis*	Threatened
No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5361	

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: Garver
Name: Garver LLC
Address: 4300 South J.B Hunt Drive, Suite 240
Address Line 2: Suite 240
City: Rogers
State: AR
Zip: 72758
Email arbiologist@garverusa.com
Phone: 5018230751

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: May 24, 2023
Project code: 2022-0030877
Project Name: NE J Street Interchange Project

Subject: Consistency letter for 'NE J Street Interchange Project' for specified federally threatened and endangered species and designated critical habitat that may occur in your proposed project area consistent with the Arkansas Determination Key for project review and guidance for federally listed species (Arkansas Dkey).

Dear Garver LLC:

The U.S. Fish and Wildlife Service (Service) received on **May 24, 2023** your effect determination(s) for the 'NE J Street Interchange Project' (the Action) using the Arkansas DKey within the Information for Planning and Consultation (IPaC) system. The Service developed this system in accordance with the Endangered Species Act of 1973 (ESA) (87 Stat.884, as amended; 16 U.S.C. 1531 et seq.).

Based on your answers and the assistance in the Service's Arkansas DKey, you made the following effect determination(s) for the proposed Action:

Species	Listing Status	Determination
Eastern Black Rail (*Laterallus jamaicensis ssp. jamaicensis*)	Threatened	No effect
Gray Bat (*Myotis grisescens*)	Endangered	NLAA
Indiana Bat (*Myotis sodalis*)	Endangered	May affect
Missouri Bladderpod (*Physaria filiformis*)	Threatened	NLAA
Ozark Big-eared Bat (*Corynorhinus (=Plecotus) townsendii ingens*)	Endangered	May affect
Ozark Cavefish (*Amblyopsis rosae*)	Threatened	May affect
Piping Plover (*Charadrius melodus*)	Threatened	No effect
Red Knot (*Calidris canutus rufa*)	Threatened	No effect

Status

Consultation with the Service is not complete. Further consultation or coordination with the Arkansas Ecological Services Office is necessary for those species with a determination of "may affect" (MA) listed above. Please contact our office at 501-513-4470, arkansas_es_clearance@fws.gov, or your agency point of contact in the Arkansas Ecological Services Office to discuss methods to avoid or minimize potential adverse effects to those species.

The Service concurs with the NLAA determination(s) for the species listed above. Your agency has met consultation requirements by informing the Service of the "No Effect" determinations. No further consultation for this project is required for these species. This letter confirms you may rely on effect determinations provided in the Arkansas Determination Key for project review and guidance for federally listed species to satisfy agency consultation requirements under Section 7(a)(2) of the Endangered Species Act of 1973 (87 Stat. 884, as amended 16 U.S.C. 1531 et seq.; ESA).

FHWA projects should not use the Arkansas Dkey for the Northern Long-eared Bat (NLEB) or Indiana Bat. Please complete the FHWA, FRA, FTA Programmatic Consultation for Transportation Projects affecting NLEB or Indiana Bat determination key. This key is intended for projects funded or authorized by FHWA, FRA, or FTA, that may affect the endangered Indiana bat and/or the threatened NLEB, which requires consultation with the Service under Section 7 of the ESA.

The Service recommends that your agency contact the Arkansas Ecological Services Field Office or re-evaluate this key in IPaC if: 1) the scope, timing, duration, or location of the proposed project changes, 2) new information reveals the action may affect listed species or designated critical habitat; 3) a new species is listed or critical habitat designated. If any of the above conditions occurs, additional consultation with the Arkansas Ecological Services Field Office should take place before project changes are final or resources committed.

This letter only covers the listed species in the above table. The following species may also occur in the Action area:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Monarch Butterfly *Danaus plexippus* Candidate
- Northern Long-eared Bat *Myotis septentrionalis* Endangered
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

If you determine your project may affect additional listed or proposed listed species not covered by the Arkansas ESFO DKey, please contact our office at 501-513-4470, arkansas_es_clearance@fws.gov, or your agency point of contact Arkansas ESFO to discuss methods to avoid or minimize potential adverse effects to those species. Candidate species are not afforded protection under the ESA; however, we recommend they be considered in project planning and that conservation measures be implemented to avoid or minimize impacts to individuals or their habitat as much as possible.

Bald and Golden Eagle Protection Act: The following resources are provided to project proponents and consulting agencies as additional information. Bald and golden eagles are not included in this section 7(a)(2) consultation and this information does not constitute a determination of effects by the Service.

The Service developed the National Bald Eagle Management Guidelines to advise landowners, land managers, and others who share public and private lands with Bald Eagles when and under what circumstances the protective provisions of the Bald and Golden Eagle Protection Act may apply to their activities. The guidelines should be consulted prior to conducting new or intermittent activity near an eagle nest. Activity specific guidelines begin on page 10 of the document. To access a copy of the National Bald Eagle Management Guidelines please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Guidance and Tools section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

If the recommendations detailed in the National Bald Eagle Management Guidelines cannot be followed, you may apply for a permit to authorize removal or relocation of an eagle nest in certain instances. To obtain an application form or contact information for Regional Migratory Bird Permit Offices please visit the Service's Bald and Golden Eagle Management webpage and scroll down to the Permits section: https://www.fws.gov/library/collections/bald-and-golden-eagle-management

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

NE J Street Interchange Project

2. Description

The following description was provided for the project 'NE J Street Interchange Project':

> The City of Bentonville, Arkansas has initiated an Environmental Assessment (EA) for the NE J Street Interchange Project located in Benton County, Arkansas that would consist of the construction of a new interchange along Interstate 49 (I-49). Additionally, improvements would be made to NE J Street between Tiger Boulevard and I-49 that would include an extension on new location from about 350 feet south of Shoemaker Creek to I-49 and include the construction of two bridges. The study area is shown on the attached maps.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.397148,-94.19616026031805,14z

Species Protection Measures

QUALIFICATION INTERVIEW

1. Have you made an effects determination of "no effect" for all species in the area of the project? A "no effect" determination means the project will have no beneficial effect, no short-term adverse effects, and no long-term adverse effects on any of the species on the IPaC-generated species list for the proposed project or those species habitat. A project with effects that cannot be meaningfully measured, detected or evaluated, effects that are extremely unlikely to occur, or entirely beneficial effects should not have a "no effect" determination. (If unsure, select "No").

   No

2. Is the action authorized, funded, or being carried out by a Federal agency?

   Yes

3. Are you the the action agency or the designated non-federal representative?

   Yes

4. Choose the agency you represent in this consultation with the U.S. Fish and Wildlife Service:

   d. Federal Highway Administration

5. Will project proponents follow Special Provisions for avoidance and minimization measures for listed species in Arkansas?

   Yes

6. [Semantic] Does the project intersect designated critical habitat for the Leopard Darter?

   Automatically answered
   No

7. [Semantic] Does the project intersect designated critical habitat for the Neosho Mucket?

   Automatically answered
   No

8. [Semantic] Does the project intersect designated critical habitat for Yellowcheek Darter?

   Automatically answered
   No

9. [Semantic] Does the project intersect designated critical habitat for Rabbitsfoot?

   Automatically answered
   No

10. [Semantic] Does the project intersect the American burying beetle consultation area?

    Automatically answered
    No

11. [Semantic] Does the project intersect the red-cockaded woodpecker AOI?

    Automatically answered
    No

12. [Semantic] Does the project intersect the Eastern black rail AOI?

    Automatically answered
    Yes
13. Will the project take place in freshwater herbaceous wetlands and/or wet prairies?

    No
14. [Semantic] Does the project intersect the red knot AOI?

    Automatically answered
    Yes
15. Will the project affect sand and gravel areas or shorelines along rivers, lakes, or reservoirs?

    No
16. Does the project take place in marshy or flooded open field habitat?

    No
17. [Semantic] Does the project intersect the Piping Plover AOI?

    Automatically answered
    Yes
18. [Semantic] Does the project intersect the Whooping Crane AOI?

    Automatically answered
    No
19. [Semantic] Does the project intersect the interior least tern AOI?

    Automatically answered
    No
20. [Semantic] Does the project intersect the Gray Bat AOI?

    Automatically answered
    Yes
21. Does the project involve changes to an existing bridge or large culvert?

    No
22. [Semantic] Does the project intersect the Ozark Big-eared Bat AOI?

    Automatically answered
    Yes
23. Are there any caves within 0.5 mile of the project area?

    No
24. Does the project occur in a subdivision or urban area?

    No
25. Does the project involve blasting of any type or tree removal of greater than 10 acres?

    Yes
26. [Semantic] Does the project intersect the Indiana bat AOI?

    Automatically answered
    Yes

27. [Semantic] Does the project intersect the Benton County Cave Crayfish AOI?

    Automatically answered
    No

28. [Semantic] Does the project intersect the Hell Creek Cave Crayfish AOI?

    Automatically answered
    No

29. [Semantic] Does the project intersect the Ozark cavefish AOI?

    Automatically answered
    Yes

30. Does the project involve boring?

    Yes

31. [Semantic] Does the project intersect the Missouri bladderpod AOI?

    Automatically answered
    Yes

32. [Semantic] Does the project intersect the Geocarpon AOI?

    Automatically answered
    No

33. [Semantic] Does the project intersect the running buffalo clover AOI?

    Automatically answered
    No

34. [Semantic] Does the project intersect the Pondberry AOI?

    Automatically answered
    No

IPAC USER CONTACT INFORMATION

Agency: Bentonville city
Name: Garver LLC
Address: 4300 South J.B Hunt Drive, Suite 240
Address Line 2: Suite 240
City: Rogers
State: AR
Zip: 72758
Email arbiologist@garverusa.com
Phone: 4792874628

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Arkansas Ecological Services Field Office
110 South Amity Suite 300
Conway, AR 72032-8975
Phone: (501) 513-4470 Fax: (501) 513-4480

In Reply Refer To: June 08, 2023
Project code: 2022-0030877
Project Name: NE J Street Interchange Project

Federal Nexus: yes
Federal Action Agency (if applicable): Federal Highway Administration

Subject: Technical assistance for 'NE J Street Interchange Project'

Dear Garver LLC:

This letter records your determination using the Information for Planning and Consultation (IPaC) system provided to the U.S. Fish and Wildlife Service (Service) on June 08, 2023, for 'NE J Street Interchange Project' (here forward, Project). This project has been assigned Project Code 2022-0030877 and all future correspondence should clearly reference this number. **Please carefully review this letter. Your Endangered Species Act (Act) requirements are not complete.**

Ensuring Accurate Determinations When Using IPaC

The Service developed the IPaC system and associated species' determination keys in accordance with the Endangered Species Act of 1973 (ESA; 87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.) and based on a standing analysis. All information submitted by the Project proponent into the IPaC must accurately represent the full scope and details of the Project. **Failure to accurately represent or implement the Project as detailed in IPaC or the Northern Long-eared Bat Rangewide Determination Key (Dkey), invalidates this letter.**

Determination for the Northern Long-Eared Bat

Based on your IPaC submission and the standing analysis for the Dkey, your project has reached the determination of "May Affect" the northern long-eared bat.

Next Steps

Your action may qualify for the Interim Consultation Framework for the northern long-eared bat. To determine if it qualifies, review the Interim Consultation Framework posted here https://www.fws.gov/library/collections/interim-consultation-framework-northern-long-eared-bat. If you

determine it meets the requirements of the Interim Consultation Framework, follow the procedures outlined there to complete section 7 consultation.

If your project does **not** meet the requirements of the Interim Consultation Framework, please contact the Arkansas Ecological Services Field Office for further coordination on this project. Further consultation or coordination with the Service is necessary for those species or designated critical habitats with a determination of “May Affect”.

Other Species and Critical Habitat that May be Present in the Action Area

The IPaC-assisted determination for the northern long-eared bat does not apply to the following ESA-protected species and/or critical habitat that also may occur in your Action area:

- Alligator Snapping Turtle *Macrochelys temminckii* Proposed Threatened
- Eastern Black Rail *Laterallus jamaicensis ssp. jamaicensis* Threatened
- Gray Bat *Myotis grisescens* Endangered
- Indiana Bat *Myotis sodalis* Endangered
- Missouri Bladderpod *Physaria filiformis* Threatened
- Monarch Butterfly *Danaus plexippus* Candidate
- Ozark Big-eared Bat *Corynorhinus (=Plecotus) townsendii ingens* Endangered
- Ozark Cavefish *Amblyopsis rosae* Threatened
- Piping Plover *Charadrius melodus* Threatened
- Red Knot *Calidris canutus rufa* Threatened
- Tricolored Bat *Perimyotis subflavus* Proposed Endangered

You may coordinate with our Office to determine whether the Action may cause prohibited take of the species listed above.

Action Description
You provided to IPaC the following name and description for the subject Action.

1. Name

NE J Street Interchange Project

2. Description

The following description was provided for the project 'NE J Street Interchange Project':

> The City of Bentonville, Arkansas has initiated an Environmental Assessment (EA) for the NE J Street Interchange Project located in Benton County, Arkansas that would consist of the construction of a new interchange along Interstate 49 (I-49). Additionally, improvements would be made to NE J Street between Tiger Boulevard and I-49 that would include an extension on new location from about 350 feet south of Shoemaker Creek to I-49 and include the construction of two bridges. The study area is shown on the attached maps.

The approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@36.397148,-94.19616026031805,14z

DETERMINATION KEY RESULT

Based on the answers provided, the proposed Action is consistent with a determination of "may affect" for the Endangered northern long-eared bat (*Myotis septentrionalis*).

QUALIFICATION INTERVIEW

1. Does the proposed project include, or is it reasonably certain to cause, intentional take of the northern long-eared bat or any other listed species?

   Note: Intentional take is defined as take that is the intended result of a project. Intentional take could refer to research, direct species management, surveys, and/or studies that include intentional handling/encountering, harassment, collection, or capturing of any individual of a federally listed threatened, endangered or proposed species?

   No

2. Do you have post-white nose syndrome occurrence data that indicates that northern long-eared bats (NLEB) are likely to be present in the action area?

   Bat occurrence data may include identification of NLEBs in hibernacula, capture of NLEBs, tracking of NLEBs to roost trees, or confirmed acoustic detections. With this question, we are looking for data that, for some reason, may have not yet been made available to U.S. Fish and Wildlife Service.

   No

3. Does any component of the action involve construction or operation of wind turbines?

   Note: For federal actions, answer 'yes' if the construction or operation of wind power facilities is either (1) part of the federal action or (2) would not occur but for a federal agency action (federal permit, funding, etc.).

   No

4. Is the proposed action authorized, permitted, licensed, funded, or being carried out by a Federal agency in whole or in part?

   Yes

5. Is the Federal Highway Administration (FHWA), Federal Railroad Administration (FRA), or Federal Transit Administration (FTA) funding or authorizing the proposed action, in whole or in part?

   Yes

6. FHWA, FRA, and FTA have completed a range-wide programmatic consultation for transportation- related actions within the range of the Indiana bat and northern long-eared bat.

   Does your proposed action fall within the scope of this programmatic consultation?

   Note:If you have **previously consulted** on your proposed action with the Service under the NLEB 4dRule, answer 'no' to this question and proceed with using this key. If you have **not yet consulted** with the Service on your proposed action and are unsure whether your proposed action falls within the scope of the FHWA, FRA, FTA range-wide programmatic consultation, please select "Yes" and use the FHWA, FRA, FTA Assisted Determination Key in IPaC to determine if the programmatic consultation is applicable to your action. Return to this key and answer ‘no’ to this question if it is not.

   No

7. Are you an employee of the federal action agency or have you been officially designated in writing by the agency as its designated non-federal representative for the purposes of Endangered Species Act Section 7 informal consultation per 50 CFR § 402.08?

   Note: This key may be used for federal actions and for non-federal actions to facilitate section 7 consultation and to help determine whether an incidental take permit may be needed, respectively. This question is for information purposes only.

   Yes

8. Is the lead federal action agency the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC)? Is the Environmental Protection Agency (EPA) or Federal Communications Commission (FCC) funding or authorizing the proposed action, in whole or in part?

   No

9. Is the lead federal action agency the Federal Energy Regulatory Commission (FERC)?

   No

10. Have you determined that your proposed action will have no effect on the northern long-eared bat? Remember to consider the effects of any activities that would not occur but for the proposed action.

    If you think that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, answer "No" below and continue through the key. If you have determined that the northern long-eared bat does not occur in your project's action area and/or that your project will have no effects whatsoever on the species despite the potential for it to occur in the action area, you may make a "no effect" determination for the northern long-eared bat.

    Note: Federal agencies (or their designated non-federal representatives) must consult with USFWS on federal agency actions that may affect listed species [50 CFR 402.14(a)]. Consultation is not required for actions that will not affect listed species or critical habitat. Therefore, this determination key will not provide a consistency or verification letter for actions that will not affect listed species. If you believe that the northern long-eared bat may be affected by your project or if you would like assistance in deciding, please answer "No" and continue through the key. Remember that this key addresses only effects to the northern long-eared bat. Consultation with USFWS would be required if your action may affect another listed species or critical habitat. The definition of Effects of the Action can be found here: https://www.fws.gov/media/northern-long-eared-bat-assisted-determination-key-selected-definitions

    No

11. Does the action area contain any caves (or associated sinkholes, fissures, or other karst features), mines, rocky outcroppings, or tunnels that could provide habitat for hibernating northern long-eared bats?

    Yes

12. Have you conducted, or will you conduct, a voluntary Phase 1 habitat assessment for potentially suitable hibernacula in accordance with the guidance in Appendix H of the USFWS' current Range-wide Indiana bat and Northern long-eared bat Survey Guidelines?

    Note: The survey guidelines can be found at: https://www.fws.gov/library/collections/range-wide-indiana-bat-and-northern-long-eared-bat-survey-guidelines.

    No

13. Will the proposed action result in the cutting or other means of knocking down, bringing down, or trimming of any trees suitable for northern long-eared bat roosting?

    Note: Suitable northern long-eared bat roost trees are live trees and/or snags ≥3 inches dbh that have exfoliating bark, cracks, crevices, and/or cavities.

    Yes

PROJECT QUESTIONNAIRE

Enter the extent of the action area (in acres) from which trees will be removed - round up to the nearest tenth of an acre. For this question, include the entire area where tree removal will take place, even if some live or dead trees will be left standing.

28.9

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the inactive (hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

28.9

In what extent of the area (in acres) will trees be cut, knocked down, or trimmed during the active (non-hibernation) season for northern long-eared bat? **Note:** Inactive Season dates for spring staging/fall swarming areas can be found here: https://www.fws.gov/media/inactive-season-dates-swarming-and-staging-areas

0

Will all potential northern long-eared bat (NLEB) roost trees (trees ≥3 inches diameter at breast height, dbh) be cut, knocked, or brought down from any portion of the action area greater than or equal to 0.1 acre? If all NLEB roost trees will be removed from multiple areas, select 'Yes' if the cumulative extent of those areas meets or exceeds 0.1 acre.

Yes

Enter the extent of the action area (in acres) from which all potential NLEB roost trees will be removed. If all NLEB roost trees will be removed from multiple areas, entire the total extent of those areas. Round up to the nearest tenth of an acre.

28.9

For the area from which all potential northern long-eared bat (NLEB) roost trees will be removed, on how many acres (round to the nearest tenth of an acre) will trees be allowed to regrow? Enter '0' if the entire area from which all potential NLEB roost trees are removed will be developed or otherwise converted to non-forest for the foreseeable future.

0

Will any snags (standing dead trees) ≥3 inches dbh be left standing in the area(s) in which all northern long-eared bat roost trees will be cut, knocked down, or otherwise brought down?

No

Will all project activities by completed by April 1, 2024?

No

IPAC USER CONTACT INFORMATION

Agency: Bentonville city
Name: Garver LLC
Address: 4300 South J.B Hunt Drive, Suite 240
Address Line 2: Suite 240
City: Rogers
State: AR
Zip: 72758
Email arbiologist@garverusa.com
Phone: 4792874628

LEAD AGENCY CONTACT INFORMATION

Lead Agency: Federal Highway Administration

ATTACHMENT 5
ARDOT SPECIAL PROVISIONS

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 090676

CAVE DISCOVERY

DESCRIPTION: This Special Provision shall be supplemental to Section 107.10 of the Standard Specifications, 2014 Edition, and concerns the procedure to be followed upon discovery of a cave.

CONSTRUCTION METHODS: In the event the construction operations encounter any indications that a cave has been discovered, the Contractor shall notify the Engineer immediately of the location, and work will be discontinued in the area. If any opening into a cave is discovered, access shall be denied and the area secured to prevent unauthorized entry. The Environmental Division shall be contacted for a determination of the proper procedures to be followed.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 090676

OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS

Section 107.10 of the Standard Specifications for Highway Construction, Edition of 2014, is hereby amended as follows:

The following is added to **Section 107.10(c)(2) Non-commercially Operated Site**:

DESCRIPTION: The Indiana Bat (IBAT), *Myotis sodalis*, and Northern Long-eared Bat (NLEB), *Myotis septentrionalis*, are protected under the Federal Endangered Species Act and may use forested areas near the project for roosting, feeding and pup rearing.

The current U.S. Fish and Wildlife Service (USFWS) guidance for the IBAT allows tree clearing activities as long as those activities do not occur during the summer active period, March 15 – November 15 or within 0.5 mile of any IBAT hibernaculum.

The current USFWS guidance for the NLEB allows tree clearing activities as long as those activities do not occur within 150 feet of any known occupied maternity roost tree during the pup rearing season (defined as May 1-July 31) or within 0.25 mile of any NLEB hibernaculum.

The Contractor shall, in all operations, make provisions to minimize any impacts to the bats resulting from work performed on off-site areas as described in the following information.

CONSTRUCTION METHODS: If an off-site area for this project will require tree cutting during the active summer season of March 15 through November 15, the Contractor shall submit a technical assistance request to the Arkansas Ecological Services Field Office of the USFWS. The recommended method for submittals is the online IPAC Information for Planning and Conservation system, which can be accessed at the following website https://ecos.fws.gov/ipac/. Alternatively, requests may be submitted by letter to the Arkansas Ecological Service Field Office), 110 South Amity Road Suite 300, Conway, AR 72032, phone (501) 513-4470.

The request shall include detailed project information including: (1) the off-site area location with boundaries marked and labeled in latitude and longitude points; (2) a detailed map with the limits of the off-site area clearly defined; (3) the acreage to be cleared; (4) the timing of clearing activities; and (5) a request to determine if NLEB maternity roosts or hibernacula occur in the proximity of the submitted area. Any detailed map is sufficient; however, the IPAC project design and map creator system is recommended to create the map and make requests.

The clearing of trees will be permitted unless the USFWS determines from their records that the submitted area and activity is likely to adversely affect either species.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 090676

OFF-SITE RESTRAINING CONDITIONS FOR INDIANA AND NORTHERN LONG-EARED BATS

The USFWS will submit a response within 30 days of receipt of the request. All clearances or responses obtained by the Contractor from USFWS shall be submitted to the Engineer for approval before site preparation begins.

The Contractor will be assessed the amount of any and all fines and penalties assessed against and costs incurred by the Department which are the result of the Contractor's failure to comply with this Special Provision. The Department will not be responsible for any delays or costs due to the Contractor's failure to comply with this Special Provision. The Contractor will not be granted additional compensation or contract time due to the procurement of an off-site location.

METHOD OF MEASUREMENT AND BASIS OF PAYMENT: All costs incurred in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 090676

SPECIAL CLEARING REQUIREMENTS

Section 201 Subsection 201.03 of the Standard Specifications for Highway Construction, 2014 Edition, is hereby amended by the addition of the following:

The Federally designated endangered Indiana bat (*Myotis sodalis*) and threatened northern long-eared bat (*Myotis septentrionalis*) have the potential to occur within the project area. When not in hibernation, Indiana and northern long-eared bats utilize hardwood forests for foraging, roosting and maternal activities. In an effort to avoid potential impacts to endangered species, the clearing of trees is prohibited from March 15 through November 15. However, grubbing activities will be allowed during the entire calendar year.

The Contractor will be restricted from working in areas that were not cleared during the time period described. Failure to clear work areas will not be considered a cause for extending contract time and working days will continue to be assessed.

ARKANSAS DEPARTMENT OF TRANSPORTATION

SPECIAL PROVISION

JOB 090676

WATER POLLUTION CONTROL

Section 110 of the Standard Specifications for Highway Construction, Edition of 2014 is hereby amended as follows:

The following is added to **Section 110**:

Sedimentation, turbidity, and other water pollution shall be carefully controlled and minimized on this project due to Federally designated endangered and threatened species. The Contractor shall, in all operations, make provisions to prevent as much material or debris, resulting from work performed on this project, as practical from entering the waterway. Required actions of the Contractor shall include, but are not limited to, the following:

- **If material or debris resulting from Contractor operations enters the waterway, the Engineer shall determine whether it shall remain. If it is determined that the material is to be removed from the waterway, the Engineer must preapprove the Contractor's method of removal. Methods of removal that would contribute to increased turbidity, such as dredging, shall be avoided.**
- **Fording of streams shall not be allowed.**

METHOD OF MEASUREMENT AND BASIS OF PAYMENT: The work involved in complying with this Special Provision will not be measured or paid for separately, but will be considered included in the contract unit prices bid for other items of the contract.

Appendix I

Induced-Growth Effects and Cumulative Impact Assessments

Induced Growth and Reasonably Foreseeable Effects Technical Report

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NE J Street Interchange
Garver Project No. 21T21070

City of Bentonville

October 2023

Prepared by:
Garver

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1.0 Introduction

1.1 Project Overview

The City of Bentonville, Arkansas has initiated an Environmental Assessment (EA) for the purpose of providing an interchange at Interstate 49 (I-49) that would provide a connection to NE J Street. This project will provide access from I-49 directly to NE J Street, which currently serves as a major north-south arterial street throughout the entire city. This will result in a more direct route from I-49 to major attractions such as Crystal Bridges Museum of American Art, Scott Family Amazeum, and the downtown district. The improvements would be made to NE J Street between Tiger Boulevard and I-49 that would include the extension of NE J Street on new location about 350 feet south of Shewmaker Creek to I-49 and include the construction of two bridges. The project location is shown on **Figure 1**.

1.2 Project Alternatives

The following alternatives are considered and evaluated.

- Build Alternative
- No Action Alternative

As shown in **Figure 2**, the Build Alternative would extend from Tiger Boulevard approximately 1.1 miles northward on new alignment and cross I-49. A 12-foot-wide multiuse side path and/or a 5-foot-wide sidewalk would also be located along the road. Two bridges would be constructed for this project, one crossing Shewmaker Creek and the other would be constructed across I-49. On and off loop ramps would be constructed at I-49. Diagonal ramps would provide access to I-49.

The No Action Alternative is also evaluated in the EA document. The No Action Alternative would not involve extension of NE J Street or construction of an interchange; however, it would include normal maintenance activities and planned improvements to area roadways that currently provide access to the NE J Street. The No Action Alternative would not result in changes to any existing resources of the natural, cultural, or project environments. The No Action Alternative would have no adverse impacts directly, indirectly, or from reasonably foreseeable actions from the proposed project. No mitigation is necessary. Therefore, only the action alternative is discussed and evaluated for the remainder of this report.

1.3 Purpose of this Report

The purpose of this technical report is to evaluate potential impacts from induced growth and reasonably foreseeable actions associated with the proposed project.

Section 2 outlines the methodology and study area used for the analyses presented in Sections 3 and 4. Section 3 focuses on the induced growth effects analysis and Section 4 focuses on the effects from reasonably foreseeable actions. Both analyses evaluate the Build Alternative.

Figure 1: Project Location Map

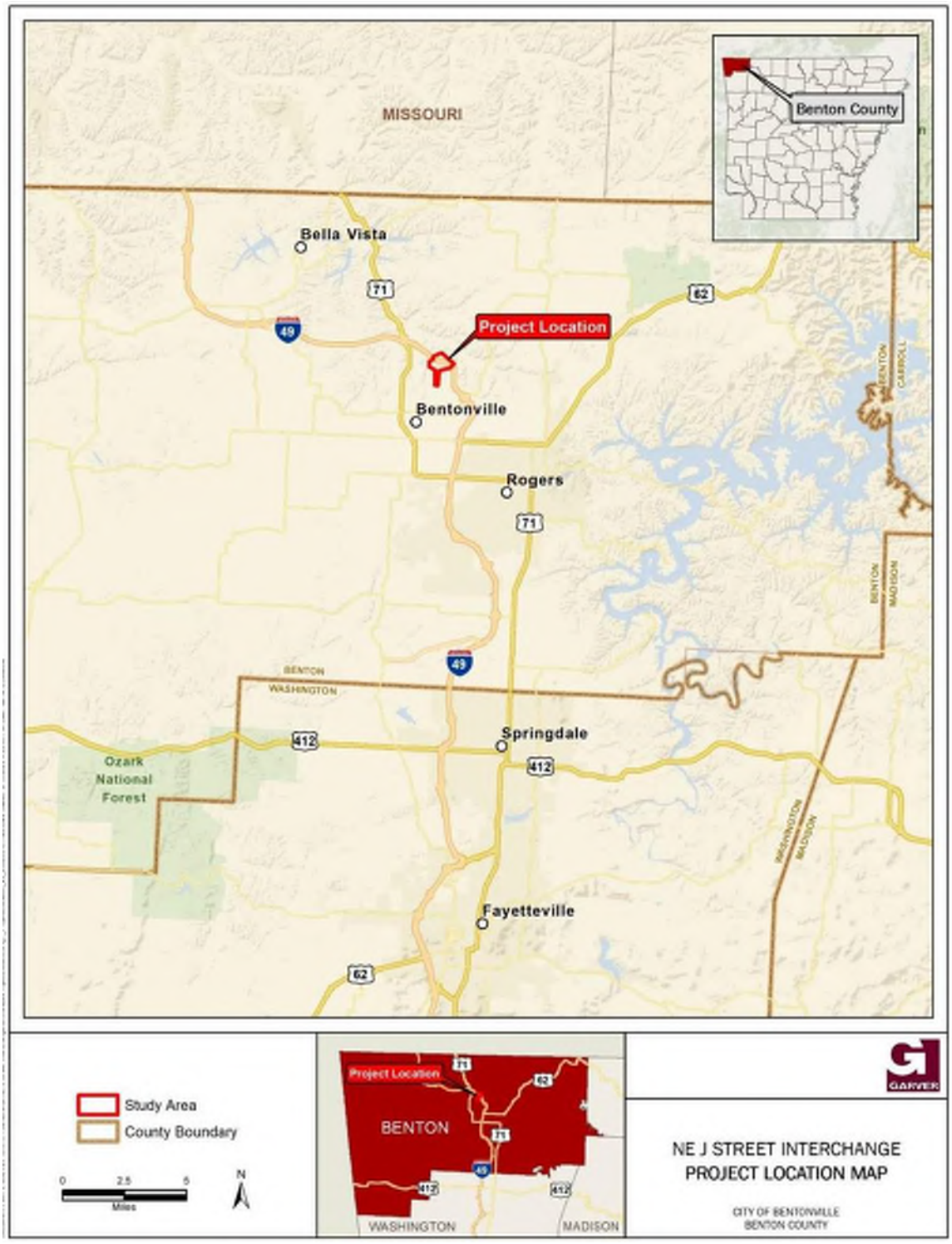


Figure 2: Build Alternative

2.0 Chapter 2 – Scoping and Methodology

2.1 Regulatory Guidance and Definitions

The Council of Environmental Quality (CEQ) and the Federal Highway Administration (FHWA) regulations require that potential impacts be considered during the National Environmental Policy Act (NEPA) process.

For this assessment, the following CEQ definitions (40 CFR 1508.1[g]) were used:

- Effects or impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives. Effects do not include those effects that the agency has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

- Reasonably foreseeable is an action that is sufficiently likely to occur (excludes effects that are possible but not probable [e.g., "tabled" plans]) such that a person of ordinary prudence would take it into account in reaching a decision. Impacts that are merely possible, or that are considered "speculative," are not reasonably foreseeable.

- A "but for" causal relationship is insufficient to make an agency responsible for a particular effect under NEPA. Effects should generally not be considered if they are remote in time, geographically remote, or the product of a lengthy causal chain.

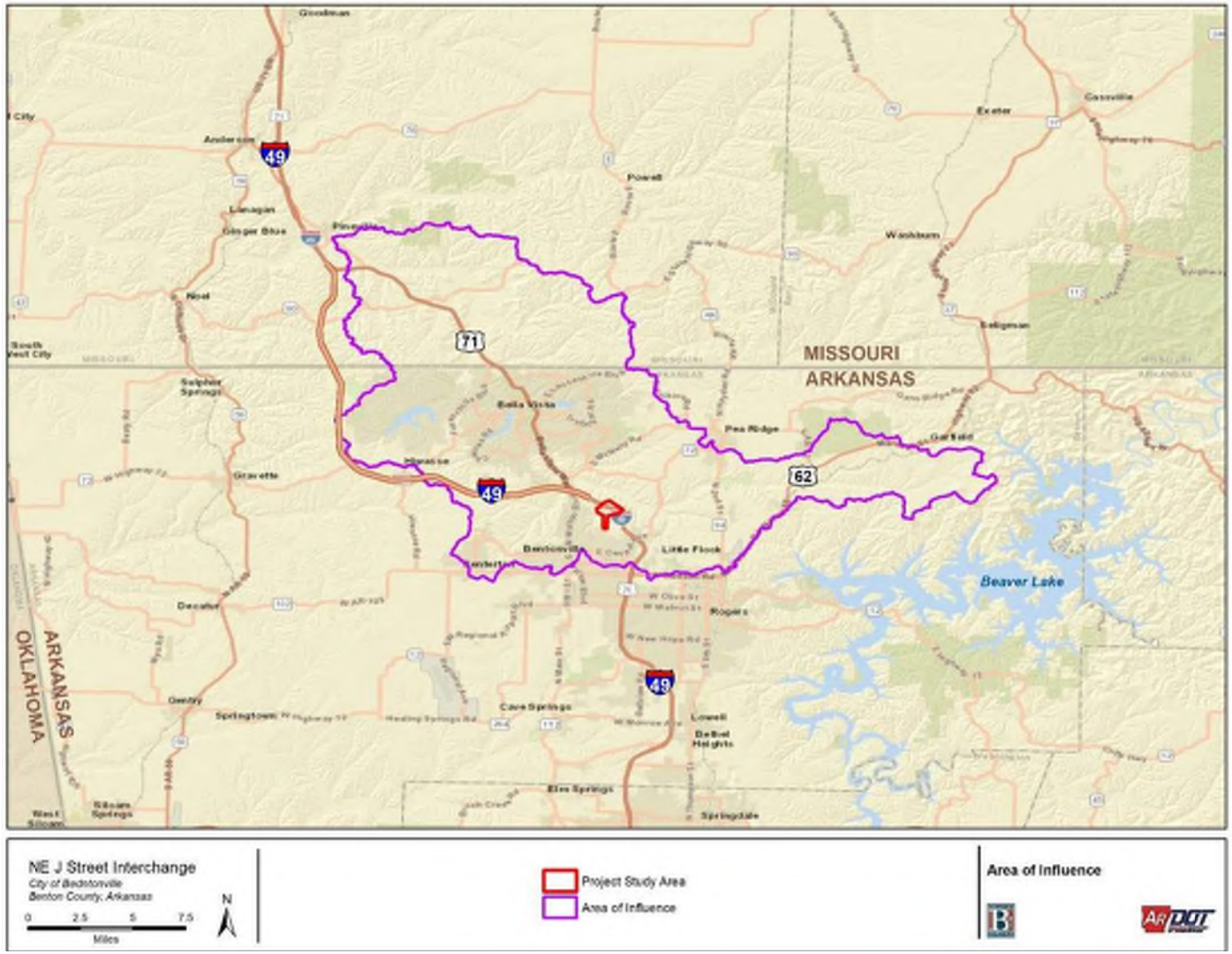
2.2 General Methodology for Analyses

This assessment of effects from induced growth and reasonably foreseeable actions are based on the American Association of State Highway and Transportation Officials (AASHTO) Practitioner's Handbook 12: Assessing Indirect Effects and Cumulative Impacts Under NEPA (August 2016). The specific methodology of each assessment is outlined in the respective sections for each analysis. Induced growth effects are discussed in Section 3 and reasonably foreseeable actions are discussed in Section 4.

2.3 Area of Influence (AOI) and Time Horizon

The time frame of both analyses extends to 2045, the design year of the proposed project. A study area, or Area of Influence (AOI), was determined and used for the induced growth and reasonably foreseeable action effects analyses. The AOI was determined using the natural feature of watershed boundaries and a combination of hydrological units. The AOI includes the six 10-digit hydrological unit areas that are associated with the action alternative to ensure that affected resources most likely affected by potential developments are included and evaluated for effects. The AOI, which is located in northwest Arkansas and southwest Missouri, is shown in **Figure 3**.

Figure 3: Area of Influence (AOI)



Interviews with city and regional planners allowed for input on the resulting AOI boundary and provided feedback on the project's anticipated induced growth effects. The questionnaire provided to city and regional planners is provided in **Attachment A** and responses are included in **Attachment B**.

The AOI consists of approximately 125,638 acres. Using the latest National Land Cover Database (NLCD) data (2019), the AOI consists of various land use types, which are listed by acreage in **Table 1**.

Table 1: Area of Influence Land Use Types

Land Use Type	Acreage	Percentage of AOI
Deciduous Forest	63,919	50.9%
Pasture/Hay	28,396	22.6%
Developed, Open Space	14,703	11.7%
Developed, Low Intensity	5,867	4.7%
Developed, Medium Intensity	3,765	3.0%
Mixed Forest	3,523	2.8%
Grassland/Herbaceous	1,797	1.4%
Open Water	1,032	0.8%
Developed, High Intensity	967	0.8%
Evergreen Forest	652	0.5%
Shrub/Scrub	562	0.4%
Barren Land (Rock/Sand/Clay)	308	0.2%
Woody Wetlands	125	0.1%
Emergent Herbaceous Wetlands	19	<0.1%
Cultivated Crops	5	<0.1%
Total	**125,638**	**100.0%**

Source: NLCD, 2019.

As shown in **Table 1,** the AOI is dominated by deciduous forest and pastureland (approximately 73%). Developed land (consisting of open space, low intensity, medium intensity, and high intensity development) cover approximately 20% of the AOI. The remaining approximate 7% consists of a combination of mixed forest, grassland, open water, evergreen forest, scrub/shrub, barren land, woody wetlands, emergent herbaceous wetlands, and cultivated crops, with the latter two types comprising less than 0.02% of the AOI.

3.0 Chapter 3 – Induced Growth Effects

Induced growth effects are changes in the location, magnitude, or pace of future development that result from changes in accessibility caused by the project effects later in time and farther removed in distance with a reasonably close causal relationship to the proposed project (AASHTO, 2016). For gathering and analyzing data for the induced growth effects analysis, the local planner interviews and geographic information systems (GIS) data were used in consideration of sources and data that were available at the time of analysis. The following sections follow the four-step approach used to evaluate induced growth effects.

3.1 Step One - Assess the Potential for Increased Accessibility

Access to previously inaccessible properties is the essential first step for induced growth development to occur. A discussion on the accessibility potential of the action alternative and general assumptions is provided in this section.

The Build Alternative is assessed for the potential for increased accessibility, which would determine the potential for induce growth. The Build Alternative would provide access from I-49 directly to NE J Street, which currently serves as a major north-south arterial street throughout the entire city. As the Build Alternative would extend an existing arterial street, direct access along the length of NE J Street would be maintained where currently available and new direct access to NE J Street will be provided as needed. However, the street classification, as an arterial boulevard may limit the number of access points to the street, potentially resulting in less accessibility adjacent to the project area. Additionally, direct access to areas adjacent to NE J Street would not be provided along the proposed bridge over Shewmaker Creek, nor along the proposed bridge over I-49.

With exception of the bridged areas and interchange ramps, the proposed interchange has the potential to increase accessibility in the immediate vicinity of the proposed project, which now grants direct access to undeveloped land immediately north and south of I-49. Thus, the area along I-49 in the immediate vicinity of the proposed interchange would experience the highest increased accessibility and would experience improvement in reduced travel time to reach nearby attractions.

3.2 Step Two - Assess the Potential for Induced Growth

To assess the potential for induced growth, interviews with local city staff and planners were conducted (see **Appendix B**). According to planners and staff, the proposed project is not anticipated to result in induced growth within the Town of Avoca, City of Bella Vista, City of Garfield, City of Gravette, City of Little Flock, McDonald County, City of Pea Ridge, or City of Rogers. However, feedback received from Benton County, the City of Bentonville, and the City of Pineville indicated induced growth is anticipated in select locations if the Build Alternative was constructed.

Northwest Arkansas continues to grow with unprecedented development throughout the region and will do so independently of the proposed project. Feedback from city planners indicates support for the idea that

regional growth will occur regardless of the proposed project (see attached city planner questionnaire responses included in **Attachment B**). Areas that are anticipated to have less growth or limited development opportunities would be those with terrain challenges and areas without public water, public sewer, reliable high-speed internet, public access. Natural features such as floodplains and wetlands also pose as constraints for development. These areas are less likely to be developed due to regulations in place intended to minimize impacts to these features. Areas with existing development are also unlikely to experience induced growth. Other constraints for development are the lack of infrastructure and utilities for such development. Installation of infrastructure and utilities can be an added expense and may prohibit the potential for development in new locations. The City of Bentonville provided feedback regarding this proposed project (see the City Planner Questionnaire responses provided in **Attachment B**). The Bentonville City Planner stated that the "only areas that are least likely to develop are those with steeper terrains. Otherwise, we anticipate other areas are highly likely to develop over the next 20 years."

Overall, the City of Bentonville specifically indicated that the action alternative would increase the rate and intensity of development in the area. Bentonville City planners also suggested anticipated land use changes and commercial development along the interstate as a result of the proposed project; however, development is expected in conjunction with the continued growth of the Northwest Arkansas region and would be unlikely along the entire roadway and other areas within the AOI due to steep terrains. Benton County planners indicated that the proposed project could positively affected development due to increased public access availability. The City of Pineville, MO also indicated that the proposed project may induce restaurant and gas station development within Pineville, but that it might also slow down the rate of development in the Pineville area. As Pineville is located approximately 21 miles (via I-49) from the proposed action and city planners considered the proposed action may slow the rate of development, induced growth within Pineville is considered unlikely. Areas identified as potential induced growth areas specific to the proposed action alternative are shown in **Figure 4**.

3.3 Step Three - Assess the Potential for Impacts on Sensitive Resources

Increases in accessibility are primarily localized to areas around the proposed interchange that lack steep terrain, and these areas are anticipated to have induced growth effects resulting from the proposed project. The purpose of Step 3 is to identify potential impacts to sensitive resources within these induced growth areas as a result of the proposed Build Alternative.

Few sensitive resources are present within the induced-growth areas surrounding the proposed interchange. These resources include wildlife species habitat including potential habitat for federally-listed bat species, and important farmland (i.e., prime farmland or farmland of statewide importance). Induced growth impacts also would include temporary construction noise. The induced growth areas surrounding the proposed interchange total to approximately 58 acres.

The 58 acres of potential induced growth areas for the Build Alternative include wildlife habitat consisting of approximately 42 acres of open grassland and 16 acres of mixed forests, the later of which could provide suitable habitat for federally-listed bat species. The induced growth areas also include 39 acres of important farmland, some of which are currently used for pastureland or as hayfields.

Figure 4: Potential Induced Growth Areas

3.4 Step Four - Assess Potential Minimization and Mitigation Measures

General minimization and mitigation measures such as erosion and sedimentation best management practices (BMPs) as a part of the Stormwater Pollution Prevention Plan (SWPPP) would be required for developments and would be implemented by the developer or the contractor. These BMPs would help protect water quality within this region and as a result, also help protect topsoil and general wildlife habitats and/or habitats potentially utilized by threatened and endangered species. The Arkansas Department of Energy and Environment, Division of Environmental Quality (DEQ) is the agency responsible for authorizing General Construction Stormwater permits and their associated SWPPPs.

As the induced growth areas occur in a non-urban area (as defined by the US Census Bureau), the Farmland Protection Policy Act would apply to any project undergoing the National Environmental Policy Act (NEPA) process.

Furthermore, any development projects within the induced-growth areas would be required to comply with the Clean Water Act (CWA). Section 404 of the CWA is regulated by the US Army Corps of Engineers (USACE) and protects Waters of the United States, such as streams and wetlands. For any project requiring a Section 404 permit, Section 401 of the CWA will also be required, as will Section 7 of the Endangered Species Act (ESA) if federal funding/permitting is utilized. Section 401 requires water quality certification and is regulated by DEQ. Section 7 of the ESA requires an assessment of impacts to federally-listed species and consultation with the US Fish and Wildlife Service.

For potential loss of habitat and species potentially affected from increased magnitude of growth, BMPs could be implemented to minimize impacts to these resources. Local entities and developers could be responsible for incorporating BMPs for potential development activities. Examples of BMPs would be requirements for contractors to avoid harming species if encountered, seeding, replanting, and landscaping with specifications that would minimize soil disturbance where possible.

Land use planning and regulatory guidelines could help manage induced growth impacts within the AOI, including impacts related to an accelerated rate of development and/or redevelopment. Examples of regulatory guidelines and planning techniques include subdivision regulations, zoning ordinances, land development regulations, and ordinances. The City of Bentonville has established planning guidelines in place for areas within the city limits. The responsibility of transportation providers, such as ARDOT, local and regional transit agencies, and local municipalities, would be to implement a transportation system to complement land use or development management techniques currently in place.

3.5 Summary and Conclusion

In conclusion, increased accessibility near the Build Alternative is anticipated by City of Bentonville planners to increase the rate and intensity of future development within the AOI. These anticipated induced growth effects are expected to occur near the proposed interchange, adjacent to I-49, and limited to areas with less steep terrain. The improved accessibility within the project limits could indirectly alter traffic operations and growth patterns on existing highways. The increased rate of commercial development in these areas could potentially impact wildlife habitat or important farmland soils. However, measures such as BMPs,

permitting guidelines, agency coordination, and regulatory requirements in cooperation with appropriate stakeholders and entities would help to mitigate or minimize some potential adverse induced-growth impacts for these sensitive resources. The increased rate of development resulting from the proposed project could also result in positive economic impacts due to increased property taxes and sales tax revenues.

4.0 Reasonably Foreseeable Effects

The following sections are organized by the following AASHTO five-step approach to evaluate impacts for reasonably foreseeable actions:

1. Describe Resource Conditions and Trends
2. Summarize Effects of the Proposed Action on Key Resources
3. Describe Other Actions and Their Effects on Key Resources
4. Estimate Combined Effects on Key Resources
5. Consider Minimization and Mitigation

Reasonably foreseeable effects are analyzed in terms of the specific resource being affected. The key resources of the analysis are identified using resources discussed in the EA. To identify potential issues, the resource is considered if it is protected by legislation or resource management plans, ecologically important, culturally important, economically important, or important to the well-being of a human community.

Applying the above criteria, the resources or environmental issues considered are listed in **Table 2**. The use of indicators such as a resource's health, abundance, and/or integrity are helpful tools in formulating quantitative or qualitative metrics for characterizing overall impacts to resources. These indicators are also key aspects of each resource that have already been evaluated in terms of the project's direct and induced growth impacts and facilitate greater consistency and objectivity in the analysis of reasonably foreseeable effects.

Table 2: Resources and Topics Considered for the Reasonably Foreseeable Effects Analysis

Resource	Are there Substantial Adverse Direct or Induced Growth Impacts?	Is Resource/ Issue at Risk or in Poor or Declining Health?	Is Resource/ Issue Included for Further Analysis?	Reason for Including or Excluding for Further Analysis
Water Resources	Yes	Yes. The total area/quantity of water resources is in decline or at risk from development.	Yes	The potential direct impacts to water resources (i.e., wetlands, streams) would warrant further analysis. The bridge crossing of the floodplain and floodway would be constructed in a manner to cause zero rise in the 100 year flood elevations so this resource is not analyzed further.
Ecological Resources	Yes	Yes. The populations of certain federally-listed species and their habitats are in decline or at risk.	Yes	The direct and induced growth impacts to federally-listed bat habitat (i.e., woodlands) would warrant further analysis. No known springs are located in areas anticipated to be affected by induced growth.

Resource	Are there Substantial Adverse Direct or Induced Growth Impacts?	Is Resource/ Issue at Risk or in Poor or Declining Health?	Is Resource/ Issue Included for Further Analysis?	Reason for Including or Excluding for Further Analysis
Land Resources and Uses	Yes	Yes. While undeveloped land is not in short supply within the project area, land use is at risk for continued conversion for urban development.	No	Although direct and induced growth land use impacts, including to important farmland soils, are anticipated, the conversion of land is not substantial in the context of the study area and availability of undeveloped land; therefore, it is not included for further analysis.
Community Resources	No	No. Most neighborhoods are currently stable but could experience conflict from development.	No	No substantial direct or induced growth impacts are anticipated from the proposed project. Resources not directly or indirectly affected are not included for further analysis.
Air Quality	No	No. The area is in attainment for air quality standards under the Clean Air Act.	No	No direct or induced growth impacts are anticipated from the proposed project. Resources not directly or indirectly affected are not included for further analysis.
Traffic Noise	No	Traffic noise can be an issue in the southern part of the study area where neighborhoods are present. However, a lack of sensitive noise receptors at the north end of the study area would not result in substantial noise impacts from the proposed action.	No. Detailed noise study conducted.	Traffic patterns will change as a result of the proposed action and could result in increased traffic noise levels in some areas. However, the noise assessment conducted determined substantial noise impacts from the proposed action are not anticipated. Therefore, further analysis of traffic noise is not conducted.
Historic Resources	No	No NRHP-listed or eligible for listing sites are at risk from the proposed project.	No	While historic properties are considered a declining resource and may be impacted by the proposed project, impacts are not expected to be significant and will, therefore, not be included in further analysis. Furthermore, no induced growth effects to these resources are anticipated.

Resources eligible for reasonably foreseeable effects analysis are wetlands, streams, and federally-listed bat habitat. Each of the following sections discuss these key resources using the five-step approach previously outlined. The Area of Influence (AOI) used in the previous chapter is also used to focus on resource specific effects analysis from reasonably foreseeable actions.

4.1 Step One - Resource Conditions and Trends

The AOI includes portions of several cities/towns as well as several unincorporated areas within Benton County, Arkansas and McDonald County, Missouri. The AOI is primarily located in Northwest Arkansas in Benton County. As documented in the EA, Northwest Arkansas is developing at a considerable rate. The larger cities within Benton County includes Rogers, Springdale, and Bentonville. According to the US Census Bureau, Northwest Arkansas experienced a considerable population growth from 2000 to 2019. Cities and towns in Benton County have experienced between 68% to 378% growth in population as compared to an average growth for the state of 13%. The Fayetteville-Springdale-Rogers area was the 14th fastest growing metropolitan area in the United States in 2017 (Holtmeyer, 2018). The total population in 1990 of Northwest Arkansas was 239,464. In 2019, the total population was 558,075, with a population projection to exceed 600,000 by 2024 (Northwest Arkansas Council, 2020). The City of Bentonville has experienced a 42% population growth since from 2010 to 2019, with Fayetteville increasing by 19% while Rogers has grown 25%. Springdale is the second largest population center in Northwest Arkansas with an increase of 15%.

City and regional planners indicated that in the next 20 years most of their planning areas will be developed with the exception of areas with steep terrain or that lack utilities/infrastructure. Thus, most resources within the AOI are declining as a general trend due to high levels of historical and projected population growth.

4.2 Step Two - Effects of the Proposed Action on Key Resources

This section outlines the impacts on each key resource from the proposed project by the Build Alternative.

4.2.1 Wetlands, Streams, and Floodplains

Wetland and stream impacts include filling and clearing for bridge construction, road construction, right of way, and roadway embankments. Depending on the grading necessary for construction, some forested wetlands would be permanently altered with the removal of trees, but these areas may return as herbaceous wetlands. Other wetland areas and streams would be filled or placed within culverts. Sedimentation resulting from construction activities could also result in impacts to streams. The impacts to wetlands and streams from the Build Alternative are provided in **Table 3**.

Table 3: Wetland and Stream Impacts from the Proposed Project

Build Alternative	Impacts
Within Project Footprint	• Approximately 1 acre of forested and pond/open water wetlands would be impacted. • Approximately 2,726 linear feet (LF) of streams would be impacted. Estimating that streams are an average of 10 feet wide, approximately 1 acre of streams would be impacted.
Within Induced Growth Areas	• No additional impacts to wetlands and streams are anticipated within the induced growth areas.

Note: All numbers are approximations to the nearest whole number.

4.2.2 Federally-listed Bat Habitat

Potential habitat for federally-listed bat species primarily consists of wooded areas. Impacts to federally-listed bat habitat from the Build Alternative are provided in **Table 4**.

Table 4: Impacts to Federally-listed Bat Habitat from the Proposed Project

Build Alternative	Impacts
Within Project Footprint	• Approximately 29 acres of wooded habitat would be impacted.
Within Induced Growth Areas	• An additional approximately 16 acres of wooded habitat within induced growth areas would be impacted.

Note: All numbers are approximations to the nearest whole number.

4.3 Step Three - Reasonably Foreseeable Actions and Their Effects on Key Resources

New transportation infrastructure projects have been proposed in the region based on the ARDOT 2023-2026 Statewide Transportation Improvement Plan (STIP), the MoDOT 2023-2027 STIP, and the Northwest Arkansas Regional Transportation Study Transportation Improvement Program (TIP) developed by the Northwest Arkansas Regional Planning Commission. Projects included on the STIP or TIP would be considered reasonably foreseeable actions as these projects are included as part of the overall statewide planning for priority investment and funding. Proposed improvements identified by the City of Bentonville's 2021 Master Street Plan were also considered reasonably foreseeable actions The following planned projects are known within the AOI or are listed on the STIP/TIP and Master Street Plan.

There is one bridge improvement project within the AOI. Bridge projects typically affect riparian zone habitats that can be critical wildlife habitat for many species. Although structures that span stream crossings would minimize impacts to small areas for column structures, construction of these structures would impact vegetation in the vicinity; however, reconstruction of the area to pre-existing conditions is typical and performed when possible. Bridge improvement projects also have risk of water quality impacts that can also impact habitat for wildlife and aquatic species; however, habitat fragmentation is not likely to occur from these types of projects. To estimate potential impacts to wildlife habitat and water resources for these structure projects, Waters of the U.S. thresholds are used to determine a maximum amount of impact. For linear transportation projects in non-tidal waters, impacts to Waters of the U.S. would require permits by the U.S. Army Corps of Engineers dependent on acreage. Under a Nationwide Permit 14, actions cannot cause a loss of greater than 0.5 acre of the Waters of the U.S. Using this criteria threshold, a 0.5-acre of impact is estimated for this project as a potential maximum of impacts to water resources, floodplains, and wooded habitat.

Tiger Boulevard would be extended eastward across Interstate 49 (overpass with no Interstate 49 access) as a future planned project. As this project does not occur over a waterbody, minimal impacts are anticipated in the form of ground disturbance and some tree/vegetation removal. No substantial impacts to resources are anticipated.

There is one 10-mile long project along Highway 72 identified as “various improvements”. As a conservative measure, the project is considered to be major widening project. Highway 72 currently has an estimated right of way that is approximately 50 feet wide. The project widening is assumed to increase the right of way from the existing 50 feet to 150 feet, which would result in an impact of 100 feet along the 10-mile project length, an area of impact is estimated to be approximately 121 acres. This widening project is located within a predominantly rural area between Bentonville and Pea Ridge and appears to involve at least two stream crossings. Additionally, there are patches of wooded areas that could be impacted by this project. A maximum estimation of impacts to wooded habitat and water features would be approximately 18 acres and 1 acre, respectively, from this project.

Approximately 3 miles of Interstate 49 would be widened from four to six lanes as the result of a future planned project. As widening would occur to the inside and no additional right of way is anticipated, minimal impacts are expected in the form of ground disturbance within the existing median. No substantial impacts to resources are anticipated.

Six planned roadways, totaling 6.1 miles, were identified on the City of Bentonville Master Street Plan within the AOI. Each of these roadways are predominantly on new alignment and a right of way width of 60 feet was estimated for each project. Each planned roadway crosses streams, may impact wetlands and floodplains, and occurs within some wooded areas. In total, a maximum estimation of impacts to wooded habitat would be approximately 21 acres for these six projects. Impacts to water resources were estimated by using the Nationwide Permit 14 threshold of a 0.5-acre of impact per stream crossing (as described above). In total, a maximum estimation of impacts to water resources and floodplains would be approximately 7 acres for these six projects.

Four pavement preservation projects were listed on the STIP/TIP. As no ground disturbance or additional right of way is needed for these improvements, they are not anticipated to impact resources within the AOI.

No individual developments or large-scale major developments were identified by responders to the questionnaire; however, we know the region is rapidly growing and development is anticipated to continue. The City of Bentonville Comprehensive Planning Manager stated they anticipate that most areas lacking steep terrain are highly likely to develop over the next 20 years. The Benton County Planning Department stated that areas without public water, without public sewer, without reliable high-speed internet, without public access, or within sensitive natural resource areas will experience limited development opportunities. There is a substantial amount of available land in the AOI that lacks steep terrains and can be developed and converted for urban use. Although general widespread growth is anticipated, it is not considered to be reasonably foreseeable at this time.

Based on the above discussion, the effects from reasonably foreseeable actions would result from the transportation projects discussed, affecting approximately 8 acres of wetlands and streams, 8 acres of floodplains, and 40 acres of wooded habitat.

4.4 Step Four - Overall Effects of the Proposed Project Combined with Reasonably Foreseeable Actions

The combined effects from the proposed project and reasonably foreseeable actions are summarized in **Table 5**. The Build Alternative combined with reasonably foreseeable actions would result in impacts to wetlands and streams, floodplains, and wooded habitat.

Table 5: Overall Resource Impacts from the Build Alternative and Reasonably Foreseeable Actions

Impact Source	Wetlands and Streams	Wooded Bat Habitat
Direct from Build Alternative	2 acres	29 acres
Induced Growth	0 acres	16 acres
Reasonably Foreseeable Actions	8 acres	40 acres
Total Overall Resource Impacts	10 acres	85 acres

Note: All numbers are approximations to the nearest whole number.

Effects on freshwater system reductions can have hydrologic and ecological consequences. The overall wetland and stream impacts from the proposed project and reasonably foreseeable actions are a relatively small reduction of total acreage for water resources found within the AOI. These impacts to water features constitute less than 1% of the total acreage of water resources (approximately 3,328 acres) found within the AOI.

The impacts to wooded areas that may provide suitable habitat for federally-listed bat species are minor in context with the greater potential of habitat within the AOI. A large portion of the AOI would not be impacted by the proposed project and reasonably foreseeable actions. The overall impacts to wooded areas from the proposed project and reasonably foreseeable actions would impact less than 1% of the total wooded acreage suitable for bat species (approximately 64,696 acres) found within the AOI. Although this total acreage is not substantial in the context of the AOI, the numbers do not reflect the potential for further impact resulting from habitat fragmentation that may result. Continuous landscapes are preferred and useful for sustainable continued success of wildlife populations. Minimizing corridor fragmentation should be considered where possible.

4.5 Step Five - Consideration of Minimization and Mitigation

General minimization and mitigation measures such as erosion and sedimentation BMPs as a part of the SWPPP would be required for developments and would be implemented by the developer or the contractor. These BMPs would help protect water quality within the region and as a result, also help protect stream and/or wetland habitats potentially utilized by threatened and endangered species. The Arkansas DEQ is the agency responsible for authorizing General Construction Stormwater permits and their associated SWPPPs in Arkansas. In Missouri, the Missouri Department of Natural Resources (DNR) is the agency responsible for authorizing General Construction Stormwater permits and their associated SWPPPs.

Furthermore, any development projects within the AOI would be required to comply with the CWA. Section 404 of the CWA is regulated by the USACE and protects Waters of the United States, such as streams and wetlands. For any project, requirements may include a Section 404 permit, Section 401 of the CWA, and

Section 7 of the ESA if federal funding is utilized. Section 401 requires water quality certification and is regulated by DEQ/DNR.

Any stream and wetland impacts would require Section 404 permitting through the USACE. Mitigation would be required for the impacts only if they exceed thresholds, and it is possible that a permanent loss of function and services associated with aquatic features within the proposed project limits may occur. Additional coordination with USACE and the USFWS may be required prior to construction. Any floodplain impacts would require a Floodplain Development permit be obtained from the local county if participating in the National Flood Insurance Program.

For potential loss of habitat and species potentially affected from increased magnitude of growth, BMPs could be implemented to minimize impacts to these resources. Local entities and developers would be responsible for incorporating BMPs for potential development activities.

Land use planning and regulatory guidelines would help manage any impacts within the AOI, including impacts from reasonably foreseeable actions. Examples of regulatory guidelines and planning techniques include subdivision regulations, zoning ordinances, land development regulations, and ordinances. The responsibility of transportation providers, such as ARDOT and MoDOT, local and regional transit agencies, and local municipalities, would be to implement a transportation system to complement land use or development management techniques currently in place.

4.6 Summary and Conclusion

Overall, the Build Alternative would not directly impact resources in high intensity or large context within the AOI. In conclusion, reasonably foreseeable actions combined with the proposed project would result in impacts to natural resources that would require mitigation measures; however, overall impacts from the combined actions are not substantial. Protections for wildlife management areas and other federal, state, and local regulatory guidelines would help to avoid, mitigate, and minimize proposed and future impacts within the AOI.

5.0 Chapter 5 – References

American Association of State Highway and Transportation Officials (AASHTO). August 2016. Practitioner's Handbook 12: Assessing Indirect Effects and Cumulative Impacts Under NEPA.

Dewitz, J. and US Geological Survey. 2021. National Land Cover Database 2019 Products (Ver. 2.0, June 2021). US Geological Survey data release.

Holtmeyer, D. 2018. Report: Growth Continues in Northwest Arkansas. *https://www.nwaonline.com/news/2018/mar/22/report-growth-continues-in-northwest-ar/.*

Northwest Arkansas Council and Engage NWAR. 2020. Engage the Future: A Look at the Growing Diversity in Northwest Arkansas. 20 pages. Available online at: *https://nwacouncil.org/wp-content/uploads/2021/01/nwa_engage_diversity_report_final.pdf*.

ATTACHMENT A — PLANNER INTERVIEW QUESTIONNAIRE

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date:_____

Name:_____

Organization/Title:_____

Address:_____

Phone and Email: _____

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map).

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur?
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where?

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why?

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where?

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT _____ INTENSITY/MAGNITUDE _____

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

ADDITIONAL INFORMATION

Project Description. The City of Bentonville is proposing to construct an interchange at Interstate 49 (I-49) that would provide a connection to NE J Street (see **Figure 2**). This project will provide access from I-49 directly to NE J Street, which currently serves as a major north-south arterial street throughout the entire city. This will result in a more direct route from I-49 to major attractions such as Crystal Bridges Museum of American Art, Scott Family Amazeum, and the downtown district. The improvements would be made to NE J Street between Tiger Boulevard and I-49 and would include the extension of NE J Street on new location to continue the road north to I-49. The project would construct two bridges, one over Shewmaker Creek and the other at the interchange over I-49. The proposed improvements to NE J Street would expand the existing facility from two to four lanes with a raised center median and pedestrian/bicycle facilities that is consistent with City's Master Street Plan.

The resource study area or **Area of Influence**, as shown in **Figure 1**, is located in both Benton County, AR and in McDonald County, MO.

Constraints on Growth Potential. Even in situations where a transportation project increases mobility and accessibility, other factors may limit the potential for induced growth. Constraints on growth include factors such as lack of demand, lack of available land, lack of water and sewer infrastructure, land use controls, regulatory constraints, natural features, and public opposition to development. These types of factors also play an important role in assessing a project's potential to cause induced growth and are particularly important in assessing the degree to which increased accessibility and mobility will translate into increased growth.

TERMINOLOGY

Induced Growth are changes in the location, magnitude, or pace of future development that result from changes in accessibility caused by a project. An example of an induced growth effect is commercial development occurring around a new interchange and the environmental impacts associated with this development.

Growth and Development Impacts means changes to the human environment from the proposed action or alternatives that are reasonably foreseeable and have a reasonably close causal relationship to the proposed action or alternatives, including those effects that occur at the same time and place as the proposed action or alternatives and may include effects that are later in time or farther removed in distance from the proposed action or alternatives. Growth and development impacts do not include those effects that the agency/municipality has no ability to prevent due to its limited statutory authority or would occur regardless of the proposed action.

Reasonably foreseeable is an action that is probable, sufficiently likely to occur (excludes effects that are possible but not probable [e.g. "tabled" plans]). Impacts that are merely possible, or that are considered "speculative," are not reasonably foreseeable.

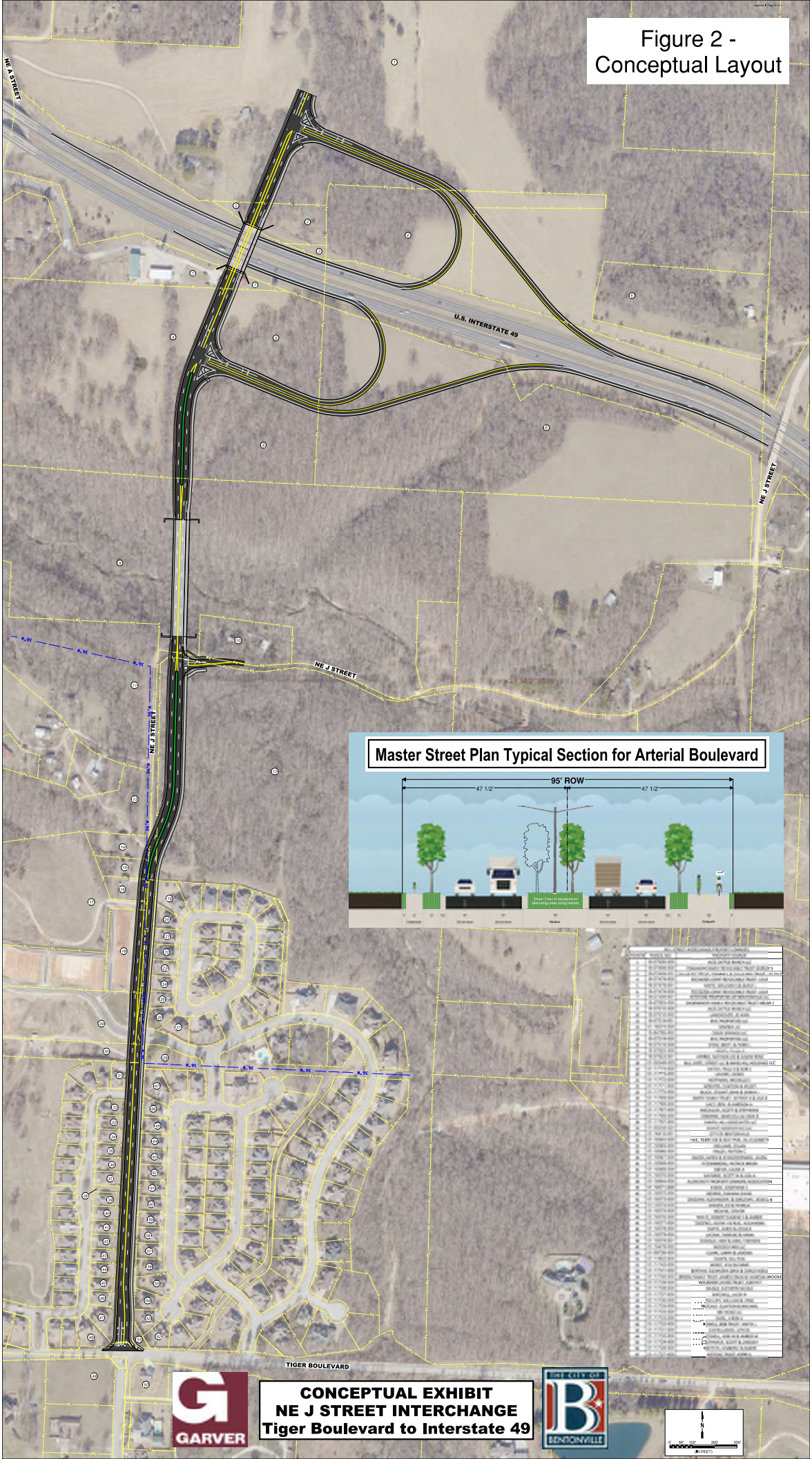
NE J Street Interchange
Benton County, Arkansas

0 2.5 5
Miles

Project Study Area
Area of Influence

Area of Influence

Figure 2 -
Conceptual Layout



CONCEPTUAL EXHIBIT
NE J STREET INTERCHANGE
Tiger Boulevard to Interstate 49

GARVER

THE CITY OF BENTONVILLE

ATTACHMENT B — PLANNER QUESTIONNAIRE RECEIVED RESPONSES

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: March 8, 2022

Name: Robert Whitehorn

Organization/Title: Town of Avoca / Mayor

Address: 222 N. Old Wire Road, Avoca, AR 72711

Phone and Email: 479-621-5921 townofavoca@sbcglobal.net

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). NO

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? No
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? No

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? No

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? No

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT 1 INTENSITY/MAGNITUDE 1

E-MAILED

3.8.22 (NB)

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 4-13-22

Name: Taylor Robertson

Organization/Title: City of Bella Vista Planner

Address: 616 W. Lancashire Blvd.

Phone and Email: 479-268-4980 | trobertson@bellavistaar.gov

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). None to provide.

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? Bella Vista already has an exit on the south side from I-49. No changes anticipated.
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where?
Due to the location of the project, we don't foresee any effect on Bella Vista development.

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? Bella Vista already has a direct exit from I-49 on the south side. We see no foreseeable change in development.

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? See answer above.

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
(Scale based on 1 = No Influence, 5= Strong Influence)

RATE OF DEVELOPMENT 1 INTENSITY/MAGNITUDE 1

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: April 13, 2022

Name: Taylor Reamer

Organization/Title: County of Benton, Planning Department

Address: 2113 W Walnut Street, Rogers, AR 72756

Phone and Email: 479-464-6166 / taylor.reamer@bentoncountyar.gov

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). Areas without public water, public sewer, reliable high-speed internet, public access, within sensitive natural resource areas will experience limited development opportunities.
2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? No
   a. If so, what type of development do you anticipate? N/A
   b. If so, why do you believe the proposed project would induce development? N/A
   c. If so, would this development occur alone or in conjunction with other factors? N/A
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map) N/A
3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? Currently there is limited existing development in the proejct area, therefore limited, if any, redevelopment would occur.
4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? The proposed project, as singular variable in development tendancies, could positively affected development due to increased public access availability.
5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? No prohibition of development would occur. The street classification, as an arterial boulevard may limit the number of access points to the street, resulting in potentially less development adjacent to the project area. Additionally, steep sloped properties may limit development availability and the sensitive natural resource area of the FEMA special flood hazard area may limit development opportunity in the project area.
6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT 2 INTENSITY/MAGNITUDE 2

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 4/14/2022

Name: Shelli Kerr

Organization/Title: City of Bentonville / Comprehensive Planning Manager

Address: 305 SW A Street

Phone and Email: 479-271-6822, skerr@bentonvillear.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). The only areas that are least likely to develop are those with steeper terrains. Otherwise, we anticipate other areas are highly likely to develop over the next 20 years. Take a look at the contours map on our website:

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? Yes
   a. If so, what type of development do you anticipate? Likely commercial development along the interstate.
   b. If so, why do you believe the proposed project would induce development? It will provide access to areas not currently easily accessible with adequate transportation systems.
   c. If so, would this development occur alone or in conjunction with other factors? In conjunction with the continued growth of the NWA region.
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? We don't anticipate as much redevelopment as much as we expect new development.

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? It is likely to increase the opportunities to expand the amount of commercial development with its access to the highway.

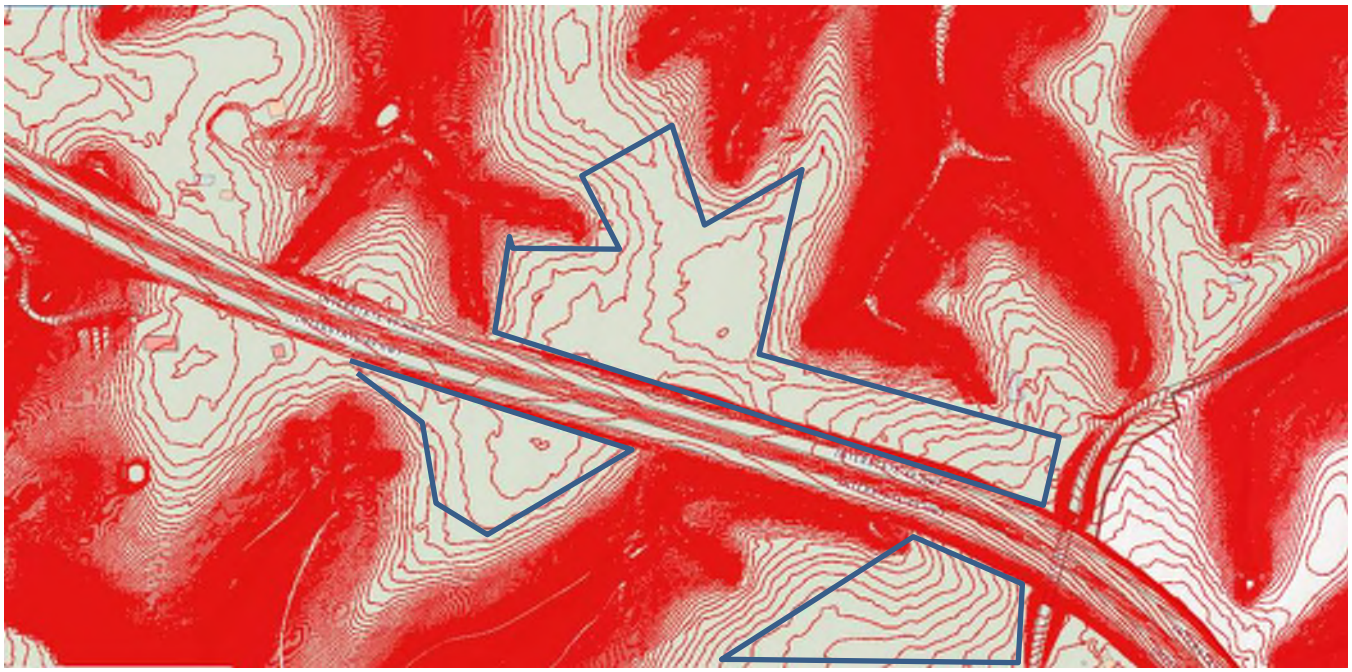
5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? Do not anticipate this project prohibiting development.

Growth and Development Questionnaire
NE J Street Interchange

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
(Scale based on 1 = No Influence, 5= Strong Influence)

RATE OF DEVELOPMENT ____4_____ INTENSITY/MAGNITUDE _____3_____

Anticipate development in the flatter terrains near the new interchange, outlined in blue.



Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 3-14-2022
Name: GARY BLACKBURN
Organization/Title: City of Garfield - mayor
Address: 14455 South Wimpy Jones Rd
Phone and Email: 479-330-0009 garfieldmayor@outlook.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). No

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? NO
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? No

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? NO

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? NO

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence) 1

   RATE OF DEVELOPMENT 1 INTENSITY/MAGNITUDE 1

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 3-8-2022

Name: David Keck

Organization/Title: Community Development Director/City of Gravette

Address: 202 Main St NE Gravette AR 72736

Phone and Email: (479)787-5757 dkeck@gravettear.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). Areas that we see that are going to not develop as quickly are the ones that that are currently underserved by utilities such as water and sewer. These areas particularly on the eastern side of Gravette's City limits have three access points to the new Interstate and see lots of interest from the development community but the lack of sewer and the inadequacy of the water system styme a lot of that growth. Natural features and public opposition certainly are factors that play a role also but infrastructure is certainly the main opponent.

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? No I don't think this project would affect Gravette's development.
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? Not in Gravette's jurisdiction

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? No

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? No

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT 1 INTENSITY/MAGNITUDE 1

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 3/3/2022
Name: Jeffrey Van Sickler
Organization/Title: Mayor of City of Little Flock
Address: 1500 Little Flock Drive, Little Flock, AR. 72756-7029
Phone and Email: 479-636-2081 ext. 6 mayor@cityoflittleflock.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). No

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? No
   a. If so, what type of development do you anticipate? n/a
   b. If so, why do you believe the proposed project would induce development? n/a
   c. If so, would this development occur alone or in conjunction with other factors? n/a
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map) n/a

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? No

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? No

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? No

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT 1 INTENSITY/MAGNITUDE 1

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 03-09-2022

Name: Luap McKeever

Organization/Title: McDonald County Chamber / Economic Development Committee Member

Address: 1048 McNelly Road, Seligman MO. 65745

Phone and Email: 479-583-3825 – Luap@wildguzzi.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). **No**

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? **No**
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? **No**

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? **No**

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? **No**

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT ____1_____ INTENSITY/MAGNITUDE _____1_____

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 3/14/2022

Name: Jackie Crabtree

Organization/Title: City of Pea Ridge, Mayor

Address: PO Box 10, 975 Weston St., Pea Ridge, AR 72751

Phone and Email: 479-451-1122 x 102 jackie.crabtree@cityofpearidge.com

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). From reviewing the map and information I do not feel like it would not have an impact on us.

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur? Do not feel it would impact us.
   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? No

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? No

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? No

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
   (Scale based on 1 = No Influence, 5= Strong Influence)

   RATE OF DEVELOPMENT ____1_____ INTENSITY/MAGNITUDE ____1_____

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: 3-11-2022

Name: Gregg Sweeten

Organization/Title: City of Pineville Mo. Mayor

Address: P.O. Box 592 Pineville MO 64856

Phone and Email: 417-529-2646, 417-223-4368, g.sweeten@pineville mo.us

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map). NO

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur?
   a. If so, what type of development do you anticipate? Restaurants, Gas Stations
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where? NO

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why? Might Slow Down some in Pineville area

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where? NO

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
(Scale based on 1 = No Influence, 5= Strong Influence)

RATE OF DEVELOPMENT 3 INTENSITY/MAGNITUDE 3

Growth and Development Questionnaire

Bentonville NE J Street Interchange
from Tiger Boulevard to Proposed I-49 Interchange
Benton County, Arkansas

Respondent Information

Date: March 14, 2022

Name: Lori Ericson

Organization/Title: Planning Administrator, City of Rogers

Address: 301 W. Chestnut St., Rogers, AR 72756

Phone and Email: (479) 621-1186 lericson@rogersar.gov

Please answer the following questions; project information and definitions of italicized terms are provided on the attached PDF. The Area of Influence is shown on Figure 1 and the conceptual project layout is shown on Figure 2.

1) We know this region is rapidly growing. Do you foresee any areas within your planning area or within the Area of Influence (see Figure 1) that are **less likely** to development or that will **not** develop as quickly within the next 20 years? If so, please provide the location and extent of such areas (via shapefile, Google Earth KMZ file, or markup of attached map).

   Rogers continues to grow with unprecedented development throughout the city. The only area that might see less growth would be NE Rogers due to the terrain challenges.

2) In your opinion, would the proposed project induce development (i.e., cause *induced growth*) in your area that would otherwise not occur?

   No, the proposed development is too far north of our city. Little Flock is between Rogers and this new proposed interchange.

   a. If so, what type of development do you anticipate?
   b. If so, why do you believe the proposed project would induce development?
   c. If so, would this development occur alone or in conjunction with other factors?
   d. If so, please locate the specific area(s) you anticipate induced development to occur as a result of the proposed project. (via plans, shapefile, Google Earth KMZ file, or mark-up of attached map)

3) In your opinion, would any redevelopment occur as a result of the proposed project? If so, where?

   No, the proposed development is too far north of our city.

4) In your opinion, would the proposed project affect or change the type of development within your jurisdiction and if so, why?

   No, the proposed development is too far north of our city.

5) In your opinion, would the proposed project prohibit development in your jurisdiction or planning area and if so, why and where?

No, the proposed development is too far north of our city.

6) Using a scale of 1 to 5, please indicate if you think the proposed project would affect the *rate* and *intensity or magnitude* of development within your jurisdiction or planning area.
(Scale based on 1 = No Influence, 5= Strong Influence)

RATE OF DEVELOPMENT 1____ INTENSITY/MAGNITUDE 1