



US 59 Texarkana—Queen City Route Study Report

September 2018

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List of Acronyms

AADT	Average Annual Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
CFR	Code of Federal Regulations
CR	County Road
FHWA	Federal Highway Administration
FM	Farm-to-Market Road
GIS	Geographic Information Systems
I-30	Interstate 30
I-69	Interstate 69
I-369	Interstate 369
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
LOS	level of service
mph	miles per hour
MPO	Metropolitan Planning Organization
NRHP	National Register of Historic Places
ROW	right-of-way
SL	State Loop
TFMP	Texas Freight Mobility Plan
TxDOT	Texas Department of Transportation
UPRR	Union Pacific Railroad
US 59	U.S. Highway 59
USACE	U.S. Army Corps of Engineers

1. INTRODUCTION

United States Highway 59 (US 59) from Interstate 30 (I-30) in Texarkana to Laredo was identified in the federal transportation law, Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), as amended, to be added to the Interstate 69 (I-69) system in Texas once sections of US 59 meet interstate standards and connect to an existing interstate highway. In addition, the section of US 59 between I-30 and future I-69 in the vicinity of Tenaha is classified as a spur to the I-69 system and is to be designated I-369. A 3.5-mile segment of US 59 from I-30 to State Loop (SL) 151 in Texarkana was designated as I-369 in 2013. US 59 in the Texarkana area from I-369/SL 151 south to Queen City does not currently meet interstate standards as defined in the American Association of State Highway and Transportation Officials (AASHTO) Manual – *A Policy on Design Standards-Interstate System, 5th Edition* (AASHTO, 2005).



As a result, the Texas Department of Transportation (TxDOT) has conducted a US 59 Texarkana—Queen City Route Study from I-369 in Texarkana (Bowie County) south to Farm-to-Market Road (FM) 2327 north of Queen City near the community of Lanark in Cass County. The intent of this planning-level study was to establish the purpose and need for the project, characterize the environmental setting and develop and screen options for upgrading US 59 to meet interstate standards, including potential new route options to extend I-369 to FM 2327 north of Queen City.

2. STUDY AREA

The study area is shown on **Figure 1**. US 59 within the study area functions as a principal arterial roadway and is a designated hurricane evacuation route. In addition, US 59 and the entire network of highways that will ultimately comprise the I-69 system in Texas are on the Texas Highway Freight Network (TxDOT, 2018).

The north and south sections of the study area have distinctly different developmental characteristics along US 59. The north section of the study area is urban in character with many businesses, houses, and other community features located along US 59, including a school zone with reduced posted speeds. A portion of the Texarkana Metropolitan Planning Organization’s (MPO) area of responsibility is located in the north section of the study area. The Texarkana MPO is an administrative entity responsible for continuous, comprehensive, and coordinated transportation planning in the greater Texarkana area. The broad width of the north section study area was set to accommodate the development of options to upgrade US 59 to meet interstate standards including new location route options that could avoid the most developed segments along US 59. Therefore,

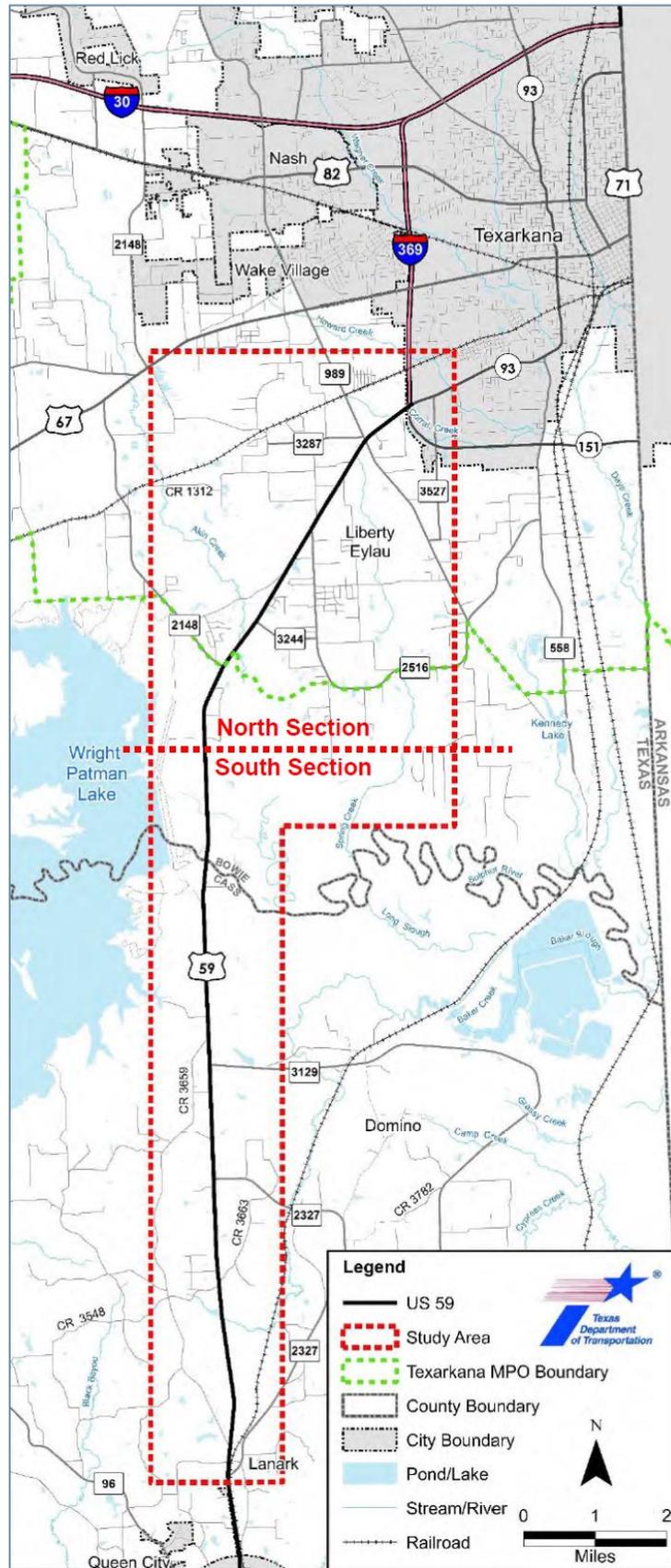


Figure 1: Study Area

the planning focus in the north section was to assess which northern route options would provide the greatest potential to serve the community as well as avoid and minimize adverse impacts.

The south section of the study area is rural in character with much less development along US 59. Furthermore, the current right-of-way (ROW) width of US 59 is greater in the south section. Consequently, these conditions provided the opportunity to focus on how best to upgrade US 59 to meet interstate standards by optimizing the use of the existing US 59 ROW in the development of a US 59 South Common Upgrade. Where it was determined that additional space was needed beyond the existing ROW limit to develop and fit a US 59 South Common Upgrade, planning scenarios were investigated to minimize the potential for adverse impacts to the development and resources that exist along this south section of US 59.

3. STUDY PROCESS

Figure 2 illustrates the general steps involved in conducting the route study including development and evaluation of both the northern route options and US 59 South Common Upgrade.

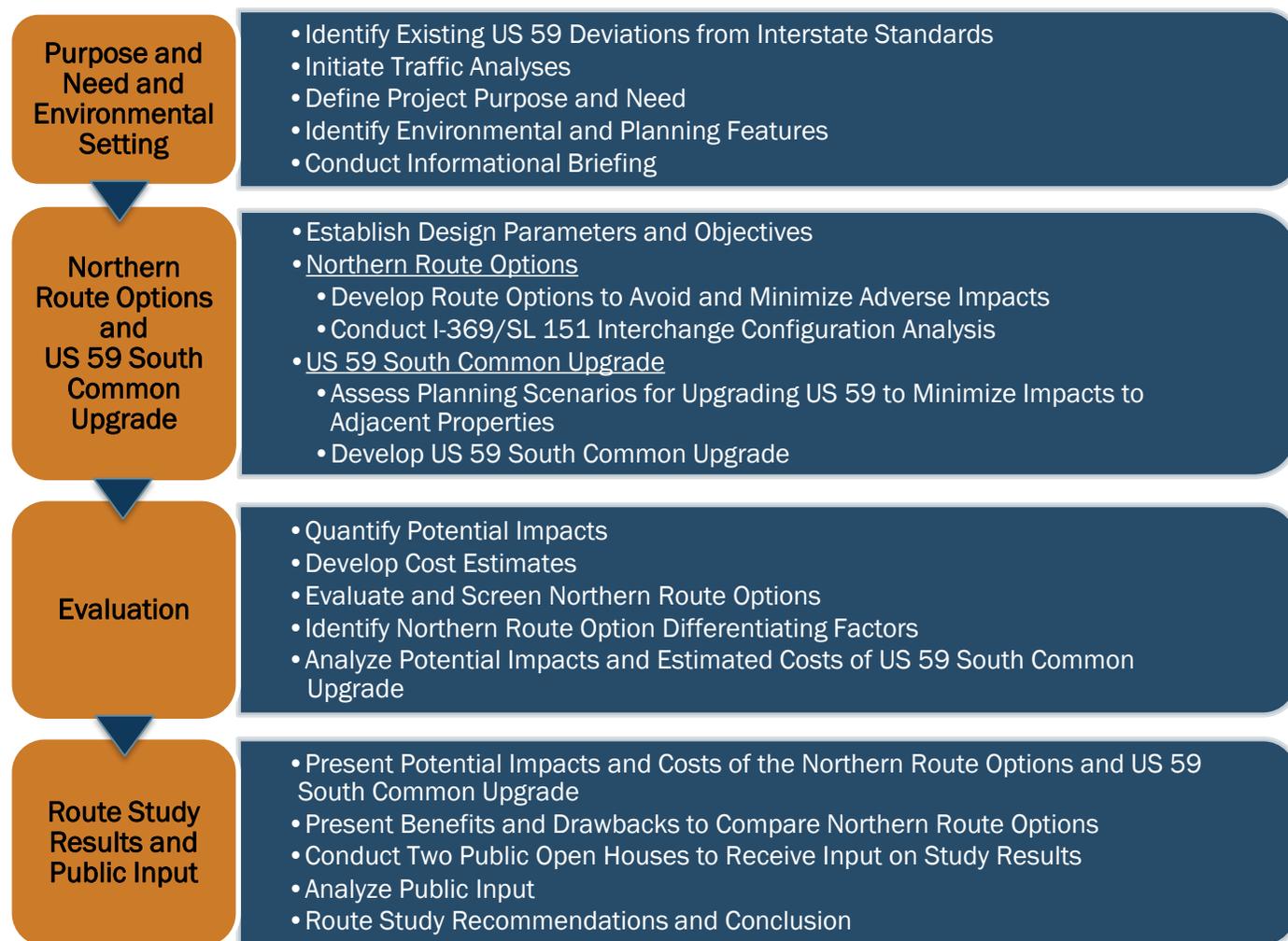


Figure 2: Route Study Process

The route study process that included proactive stakeholder and community engagement is consistent with the planning and environmental linkage provisions of 23 Code of Federal Regulations (CFR) 450, Appendix A. TxDOT conducted an informational briefing on November 15, 2017 with community leaders and officials from the Texarkana—Queen City area to receive input on the purpose and need, environmental and planning resources that established the environmental setting, and the initial concepts for extending I-369 south that ultimately led to the development of the northern route options and the US 59 South Common Upgrade. Furthermore, TxDOT coordinated with managers and resource specialists with the US Army Corps of Engineers (USACE) at Wright Patman Lake and the USACE Fort Worth District office to identify sensitive resources, land use and other features located on their property encompassing the lake, a prominent feature within the study area. Finally, two public open houses were also held in Queen City and Texarkana on July 24, 2018 and July 26, 2018, respectively, to obtain public input on the route study results.

4. PURPOSE AND NEED

This section presents the purpose and need for the project to extend I-369 from its current terminus at the US 59/SL 151 interchange to FM 2327 north of Queen City. The purpose and need statements were prepared in response to the enacted federal legislation in ISTEA, as amended, to advance the development and designation of the I-69 system in Texas.



Project Purpose

Provide a continuous access controlled highway from the southern end of I-369 in Texarkana to near FM 2327 north of Queen City that:

- would be designated as I-369 when it meets interstate design standards;
- improves safety for local and through traffic; and
- improves mobility and connectivity.

Project Needs

- US 59 from I-369 in Texarkana to Queen City does not currently meet interstate standards. To meet interstate standards, a highway typically has a minimum of four lanes, continuous median, overpasses, and interchanges with no connecting driveways or at-grade intersections. Frontage roads may be included for local access.
- This section of US 59 should be consistent with the Texas Freight Mobility Plan (TFMP) 2017 as it is designated to become a future part of the I-69 system.

Other Identified Local/Regional Needs

The community leaders and officials who attended the November 15, 2017, informational briefing identified the following additional potential local and regional needs:

- The US 59 northbound bridge across the Sulphur River is at a lower elevation than the southbound bridge and should be considered for replacement.
- The new school, located on US 59 near Randall Road, will generate pedestrian and bus traffic that will mix with through traffic, which raises safety concerns in that area.
- There are concerns about access to the International Paper property which was recently sold to Graphic Packaging.

5. ENVIRONMENTAL, COMMUNITY AND TRAFFIC CHARACTERISTICS

Characterizing the study area’s environmental setting involved collecting secondary source data, performing windshield surveys, conducting an informational briefing with community leaders and officials from the Texarkana—Queen City area, and coordinating with the USACE. The focus was to identify environmental, community, and planning features that could influence the development of the northern route options and the US 59 South Common Upgrade. This effort led to the creation of an environmental features map for the study area (**Appendix A**). Furthermore, traffic data was collected from several sources and analyzed for the purpose of determining existing and forecasted US 59 traffic operational characteristics as well as lane capacity requirements for the northern route options and the US 59 South Common Upgrade.

5.1 Environmental Features

The environmental features within the study area included resources such as named and unnamed perennial and intermittent streams, floodplains, wetlands, open water (ponds), prime farmland soils and petroleum storage tanks. Because of the vast extent of its coverage within the study area, prime farmland soils were not included on the environmental features map in **Appendix A**.

Utilities such as oil and gas wells, pipelines, high voltage overhead electrical transmission lines and substations, communication towers, water wells, and public water system wells were also identified within the study area and shown on the environmental features map.

The following resources were not identified within the study area based on the secondary source data review but may be found during the next phase of project development when further detailed environmental study is performed:

- National Register of Historic Places (NRHP) listed sites
- NRHP eligible archeological sites
- Recorded Texas historical landmarks
- State antiquities landmarks
- Federally listed threatened or endangered species habitat
- Public water system intakes
- Wastewater facilities and outfall locations

- Municipal solid waste sites
- Permitted industrial hazardous waste sites
- Hazardous material sites (landfill, Superfund)

5.2 Community Features

Community features in the study area were also identified on the environmental features map. Commercial and residential developments can be seen on the aerial background of the map. Bowie County and Cass County Appraisal District property parcel boundaries were also delineated. Other community features identified in the study area included churches, schools, cemeteries, planned future residential development, city-county-USACE parks and boundaries, and Texarkana MPO boundary.



Demographic data were also reviewed. Based on the US Census Bureau’s American Community Survey, minority and low-income areas occur in the northern terminus of the study area at I-369/SL 151. The remainder of the study area census tracts did not have a high percentage of minority or low-income population. Because the demographic characteristics of the study area would not be differentiating in the evaluation of the northern route options and US 59 South Common Upgrade, it was decided to defer further evaluation of environmental justice and other demographic related conditions and issues during this route study. These issues would be studied in greater detail during the environmental process.

5.3 US 59 Traffic Operational Characteristics

US 59 from FM 2327 north of Queen City to the FM 3129 interchange, consists of four lanes with a depressed median of approximately 96 feet. This US 59 segment is not access controlled as it contains numerous connecting driveways and at-grade intersections with roadways. The speed limit in this segment is 75 miles per hour (mph). A Texas Department of Public Safety truck weigh station is located in this segment along northbound US 59.



Moving north, the US 59 interchange at FM 3129, which was constructed in 2016, is access controlled and consists of four lanes and a barrier separated median. Slip ramps provide access to one-way frontage roads. The speed limit is 75 mph.



The next segment of US 59 extending north from the FM 3129 interchange to Sunny Lane is not access controlled and consists of four lanes with a depressed median that ranges up to 100 feet in width. The speed limit is 75 mph. This segment includes two US 59 bridges (northbound and southbound) across the Sulphur River and important access points to Wright Patman Lake parks and the Sulphur River boat ramp. Portions of this segment are bounded by the Wright Patman Lake property.



Next, the 100-foot depressed median transitions to a 14 foot continuous left turn lane along the four-lane US 59 segment north of Sunny Lane to just south of the signalized FM 2148 intersection. The 14-foot continuous left turn lane subsequently transitions to a dedicated US 59 northbound left turn lane to FM 2148 and a US 59 northbound acceleration lane for FM 2148 traffic turning onto US 59. The speed limit is 75 mph.

The US 59 segment north of the FM 2148 intersection to FM 3244, consists of four-lanes with a painted median that transitions to a 40-foot depressed median. The speed limit in this segment is 75 mph. From FM 3244 to its connection with I-369 and SL 151, US 59 consists of four lanes with a 16-foot continuous left turn lane. This urbanized US 59 segment includes a 35-mph school zone at County Road (CR) 1325/Rock School Road, a signalized intersection at FM 989, a northbound US 59 direct connector to I-369, and a signalized intersection for southbound US 59 at the I-369/SL 151 junction. The speed limit in this segment changes from 75 mph to 55 mph just south of FM 2516.



Table 1 presents the average annual daily traffic (AADT) volumes for existing year (2016), the forecasted design year (2050) daily traffic volumes and the level of service (LOS) traffic analysis results for four locations along US 59. LOS is a term used to describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. LOS ranges from “A” to “F,” with “A” being the best operating conditions and “F” representing the worst

congested conditions. On average, traffic volumes along US 59 within the study area will increase by approximately 88 percent by 2050. The LOS analysis results indicated that traffic on US 59 is projected to operate at LOS B along the rural segments and LOS C in the urbanized area in 2050, both of which are acceptable by TxDOT standards. Finally, the percentage of daily truck traffic on US 59 is 24 percent, which is greater than the statewide average.

Table 1: US 59 Existing (2016), Forecasted Design Year (2050) Traffic Volumes and LOS

Location	Existing (2016) AADT and LOS	Forecasted Design Year (2050) Daily Traffic Volumes and LOS
FM 2327 to FM 3129	16,600 (LOS A)	31,200 (LOS B)
FM 3129 to FM 2148	15,500 (LOS A)	29,100 (LOS B)
FM 2148 to FM 3244	15,000 (LOS A)	28,200 (LOS B)
FM 3244 to I-369	21,400 (LOS B)	40,200 (LOS C)

Source: TxDOT 2013, TxDOT 2016

6. NORTHERN ROUTE OPTIONS AND US 59 SOUTH COMMON UPGRADE DEVELOPMENT

The northern route options and US 59 South Common Upgrade were developed at a planning-level of detail to meet interstate standards and integrate other specified design objectives. Based on the distinctly different developmental characteristics along US 59 in the north and south sections of the study area, the route study initially focused on two broad route option concepts in the north section. The first concept was to upgrade US 59 to meet interstate standards. This included the following two options:

- Upgrade US 59 at ground level from south of Park Road to I-369.
- Elevate the section of the US 59 mainlanes from CR 1325/Rock School Road to I-369 along with upgrading the remainder of US 59 at ground level from south of Park Road to CR 1325/Rock School Road. Along the elevated section, the mainlanes would be on top, and the frontage roads would be located at ground level to provide local access.

The second concept included a combination of a route on new location and upgrading US 59 to meet interstate standards. This included developing route options on new location both west and east of the highly developed section of US 59 from near FM 3244 and FM 2148, respectively, to I-369 as well as upgrading the less developed section of US 59 south to Park Road.

Within the rural south section of the study area, the focus was on how best to upgrade US 59 to meet interstate standards by optimizing use of the wider US 59 ROW and the existing roadway infrastructure (e.g. roadbeds) in the development of a US 59 South Common Upgrade.

Development of the US 59 South Common upgrade would extend from near FM 2327 north of Queen City to south of Park Road where it would connect to the four northern route options being studied in the north section.

The concept and approach for developing the four northern route options and US 59 South Common Upgrade were presented to the community leaders and officials that attended the November 15, 2017 US 59 Texarkana—Queen City Route Study informational briefing . It was explained that the four northern route options and the US 59 South Common Upgrade would be developed to meet the purpose and need of the project and avoid and minimize the potential for adverse impacts to sensitive community and environmental features.

6.1 Design Criteria and Objectives

The current interstate design standards are defined in the AASHTO Manual – *A Policy on Design Standards-Interstate System, 5th Edition* (AASHTO, 2005). In addition, AASHTO has released an updated manual, *A Policy on Design Standards-Interstate System, 6th Edition* (AASHTO, 2016). While the Federal Highway Administration (FHWA) has yet to adopt the 2016 AASHTO manual through the federal rulemaking process, the new 50-foot minimum median width criteria for rural interstates specified in the 2016 AASHTO manual was applied in the development of the northern route options and the US 59 South Common Upgrade. Furthermore, the Texarkana MPO boundary established the urban and rural limits for applying the respective urban and rural interstate design criteria within the study area. This boundary crosses US 59 roughly 4.5 miles southwest of I-369/SL 151 near FM 2148 as shown on **Figure 1**.

The following other specified design objectives were taken into consideration when developing the northern route options and the US 59 South Common Upgrade:

- Use a 75-mph design speed to the greatest extent possible.
- Accommodate a future 6-lane interstate section (by adding a third mainlane, preferably in the median).
- Mainlanes should include a 6-foot inside shoulder.
- Use a 100-foot median for new location route options in the north section of the study area.
- For the new location northern route options, approach embankment should include a 6:1 30-foot clear zone and no steeper than a 4:1 slope transition to ground, in lieu of retaining walls.
- While US 59 upgrades in areas of constrained ROW may have median widths less than 100 feet, the median width should be maximized and not less than 50 feet to meet the proposed rural interstate median width standard in the AASHTO 2016 manual.
- Provide northern route option direct connections to westbound and eastbound SL 151.
- Provide new northbound and southbound I-369 frontage road bridges over the Union Pacific railroad (UPRR) and Finley Road.

- Replace the northbound US 59 bridge over the Sulphur River because of its age and lower elevation than the southbound bridge.
- Provide access to the boat ramp on the north side of the Sulphur River.
- Maintain the existing FM 3129 interchange.
- Develop interstate mainlanes over cross streets wherever practicable.
- Provide interchanges or slip ramps to adjacent frontage roads for interstate access to major cross routes.
- Provide Texas U-turns at interchange and overpass locations.

Finally, at this planning level of detail, development of the northern route options and US 59 South Common Upgrade design layouts did not fully take into account topography, drainage and many other detailed design elements such as detailed interchange configurations. Such details would be taken into consideration during the next phase of project development.

6.2 Northern Route Option Descriptions

The following sections provide detailed descriptions of the design layouts developed for the four northern route options including their location, potential ROW limits, measures to avoid and minimize adverse impacts, and proposed connectivity to the local roadway network in the study area.

6.2.1 At-Grade US 59 Upgrade Route Option

The At-Grade US 59 Upgrade Route Option follows the existing US 59 alignment from south of Park Road to I-369/SL 151. For the purpose of this study, widening for interstate mainlanes and frontage roads would occur on both sides of US 59. Interchanges or slip ramp connections to adjacent frontage roads were provided for interstate access to Park Road, FM 2148, FM 3244, FM 2516, and FM 989 (Kings Highway). Direct connectors would provide access from the northbound interstate mainlanes to eastbound SL 151 and from westbound SL 151 to the southbound interstate mainlanes. Finally, the existing frontage roads along I-369 are proposed to be extended over the UPRR and Finley Road.

Figure 3 depicts the general location of the At-Grade US 59 Upgrade Route Option. **Appendix B** presents the potential ROW limits of the route option design layout on the environmental features map.

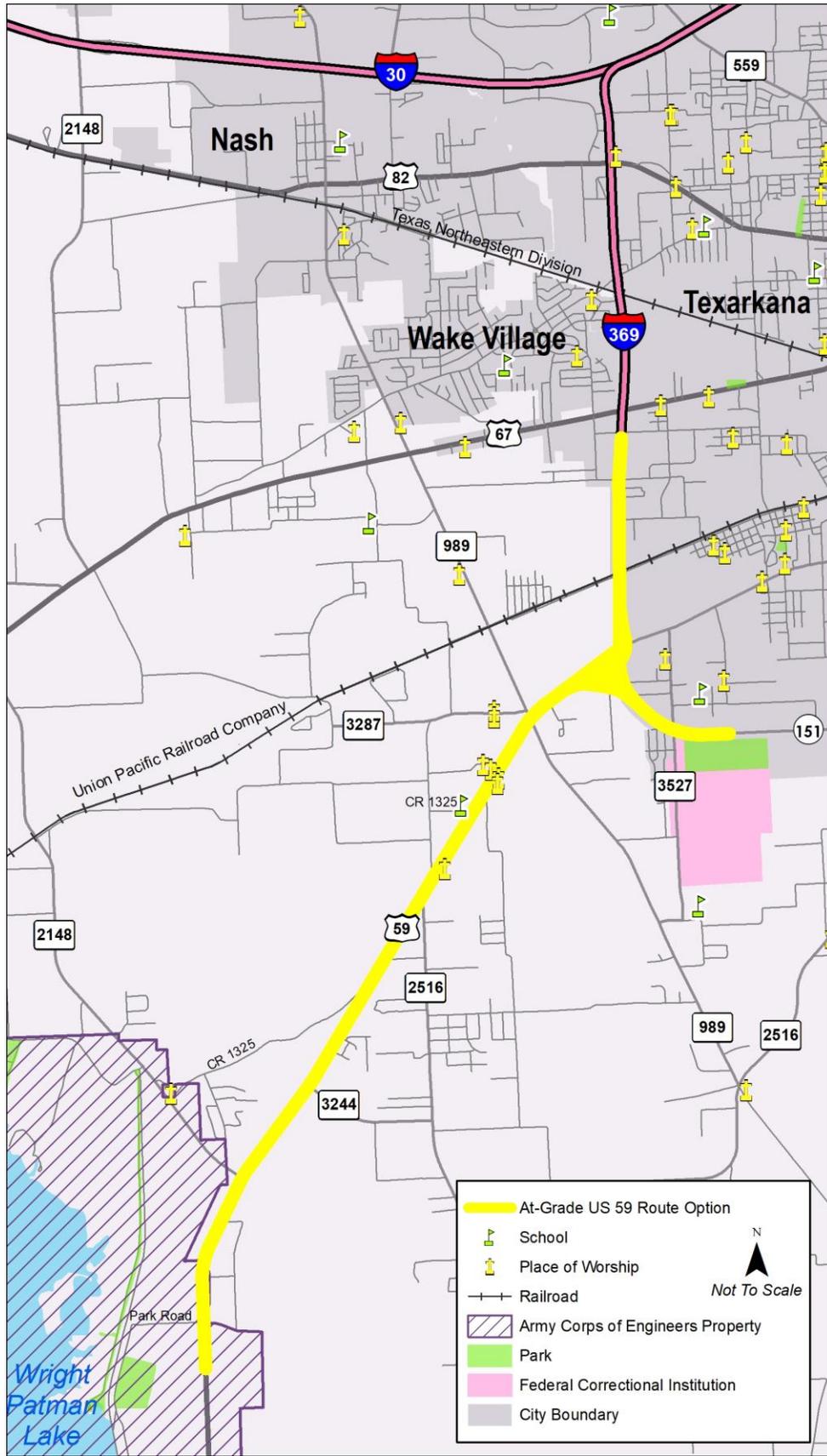


Figure 3: At-Grade US 59 Upgrade Route Option

6.2.2 Elevated US 59 Upgrade Route Option

The Elevated US 59 Upgrade Route Option follows the existing US 59 alignment from south of Park Road to I-369/SL 151. For the purpose of this study, widening for interstate mainlanes and frontage roads would occur on both sides of US 59. From CR 1325/Rock School Road to I-369, this option includes elevated mainlanes on structure and frontage roads partially underneath the mainlanes allowing for a narrower ROW width of only 205 feet. Interchanges or slip ramp connections to adjacent frontage roads were provided for interstate access to Park Road, FM 2148, FM 3244 and FM 2516. Direct connectors would provide access from the northbound interstate mainlanes to eastbound SL 151 and from westbound SL 151 to the southbound interstate mainlanes. Finally, the existing frontage roads along I-369 are proposed to be extended over the UPRR and Finley Road.

Figure 4 depicts the general location of the Elevated US 59 Upgrade Route Option. **Appendix B** presents the potential ROW limits of the route option design layout on the environmental features map.

6.2.3 West Route Option

The West Route Option begins just south of Park Road and follows the existing US 59 alignment to FM 3244. For the purpose of this study, widening for interstate mainlanes and frontage roads would occur on both sides of US 59. The West Route Option then turns west on new location and continues north avoiding a neighborhood along Akin Creek and enabling transverse crossings of two tributaries to Akin Creek. It is important to note that the West Route Option originally was located west of Akin Creek but was refined to be located east of Akin Creek to avoid bisecting the USACE Wright Patman Lake property boundary. This refinement was a result of coordination and input from the USACE during a May 24, 2018 meeting. The West Route Option then turns east towards I-369 avoiding wetlands and minimizing encroachment to residential development located along FM 3287 and commercial development located along FM 989. The interstate mainlanes then connect to the existing I-369 mainlanes in proximity to the existing bridges over the UPRR and Finley Road. Interchanges or slip ramp connections to adjacent frontage roads were provided for interstate access to Park Road, FM 2148, US 59, FM 3244, Sherwood Forest Road, Gun Club Road and FM 989. Direct connectors would provide access from the northbound interstate mainlanes to eastbound SL 151 and from westbound SL 151 to the southbound interstate mainlanes. A realignment of FM 3287 to the south is proposed to provide better sight distance and connectivity to the local roadway network where the West Route Option crosses at a skew. Overpasses to maintain local connectivity are proposed at the realigned FM 3287 and at Clara Lane. Finally, the existing frontage roads along I-369 are proposed to be extended over the UPRR and Finley Road.

Figure 5 depicts the general location of the West Route Option. **Appendix B** presents the potential ROW limits of the route option design layout on the environmental features map.



Figure 4: Elevated US 59 Upgrade Route Option

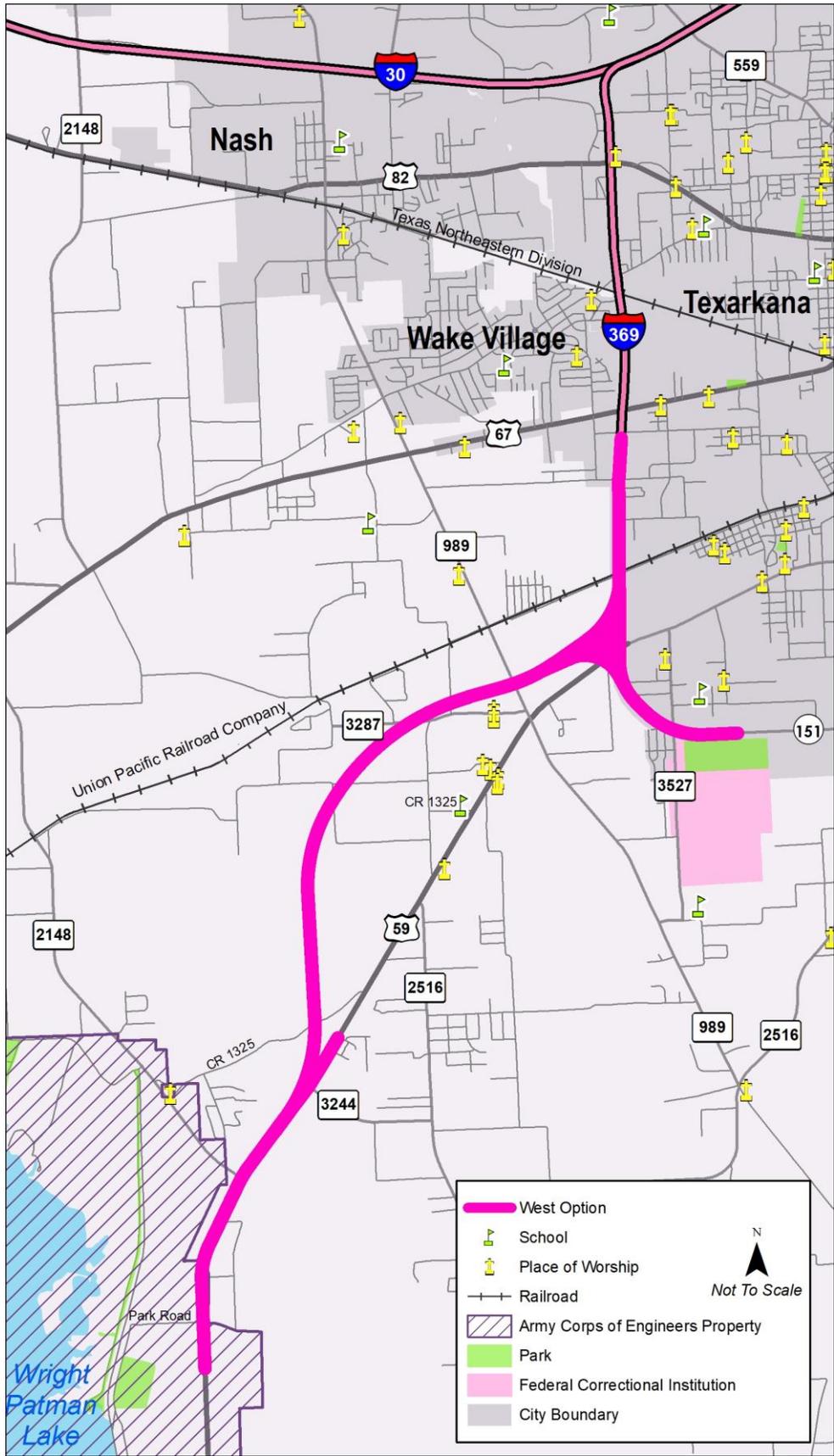


Figure 5: West Route Option

6.2.4 East Route Option

The East Route Option begins just south of Park Road and follows the existing US 59 alignment to FM 2148. For the purpose of this study, widening for interstate mainlanes and frontage roads would occur on both sides of US 59. The East Route Option then turns east on new location and continues east to FM 2516 thereby enabling a transverse crossing of the broad floodplain of Akin Creek and an adjacent tributary as well as avoidance of the residential area north of FM 3244. The East Route Option then turns northeast along a location that minimizes encroachment into the residential area east of FM 2516, avoids wetlands and results in transverse crossings of Spring Creek and its tributary. The East Route Option then turns north towards I-369 and SL 151 avoiding the residential development east of FM 989 and west of Leopard Drive. The interstate mainlanes then connect to SL 151 in proximity of the existing US 59 direct connector and SL 151 overpasses spanning the S Lake Drive intersection. Interchanges or slip ramp connections to adjacent frontage roads were provided for interstate access to Park Road, FM 2148, US 59, Randall Road/Cummings Lane (via split diamond) and FM 989. Direct connectors would provide access from the northbound interstate mainlanes to eastbound SL 151 and from westbound SL 151 to the southbound interstate mainlanes. A realignment of FM 3244 to the north and Joe Tyl Road to the south is proposed to provide better sight distance at the intersections with FM 2516 where the East Route Option crosses at a skew. An overpass to maintain local connectivity is also proposed at FM 2516. Finally, the existing frontage roads along I-369 are proposed to be extended over the UPRR and Finley Road.

Figure 6 depicts the general location of the East Route Option. **Appendix B** presents the potential ROW limits of the route option design layout on the environmental features map.



Figure 6: East Route Option

6.3 US 59 South Common Upgrade Description

A high level planning assessment was conducted to determine how best to provide additional space needed beyond the existing US 59 ROW to fit the US 59 South Common Upgrade design layout. This assessment resulted in the following recommendations:

- **FM 2327 at Lanark to approximately one mile north of FM 2327** - Expand upgrade limits to the west because it avoids impacts to features east of US 59 including the UPRR, weigh station, and Wildwood Residential development.
- **Approximately one mile north of FM 2327 to South of FM 3129** - Expand the upgrade limits to the east because it would provide the best balance in avoiding and minimizing impacts to residential and commercial structures, a church, and wetlands and ponds.
- **At FM 3129** - Although the existing interchange currently meets urban interstate design criteria, it does not meet rural interstate design criteria. No expansion would be required if a design exception is approved by FHWA at the time of making the interstate designation request for I-369.
- **North of FM 3129 to Sulphur River** - Expand upgrade limits to the east because it avoids impacts to approximately 20 residences west of US 59.
- **Sulphur River to South of Park Road** - Expand upgrade limits to the east because it would minimize USACE property and park impacts and provide improved boat ramp access.

The design layout incorporated these recommendations. As a result, the US 59 South Common Upgrade begins just south of FM 2327 at Lanark. It transitions from the existing US 59 mainlanes to one-way frontage roads in each direction and subsequently to a combination of one-way frontage roads and northbound and southbound interstate mainlanes. This upgrade layout continues north to, and connects with, the existing grade-separated interchange at FM 3129. North of this interchange the same upgrade layout continues to its connection with the dual mainlane bridge structures that cross the Sulphur River. Because of the need to provide improved safe access to the park and boat ramp on the northwest side of the Sulphur River, as well as properties east of US 59, the northbound and southbound interstate mainlane bridges are proposed to be replaced with new structures that have a higher elevation and are longer to accommodate a new Texas U-turn below the structures. The one-way frontage roads are not proposed to cross the river. Continuing north of the Sulphur River crossing, the upgrade layout includes extension of the interstate mainlanes to the connection with the four northern route options just south of Park Road (**Figure 7**). Finally, only a northbound frontage road was included north of the Sulphur River in response to USACE input at an April 5, 2018 coordination meeting. The intent of this northbound frontage road is to provide access to a utility easement and two access points of importance to the USACE. A southbound frontage road was not included in the upgrade layout in an effort to minimize effects to the USACE properties immediately adjacent to southbound US 59.

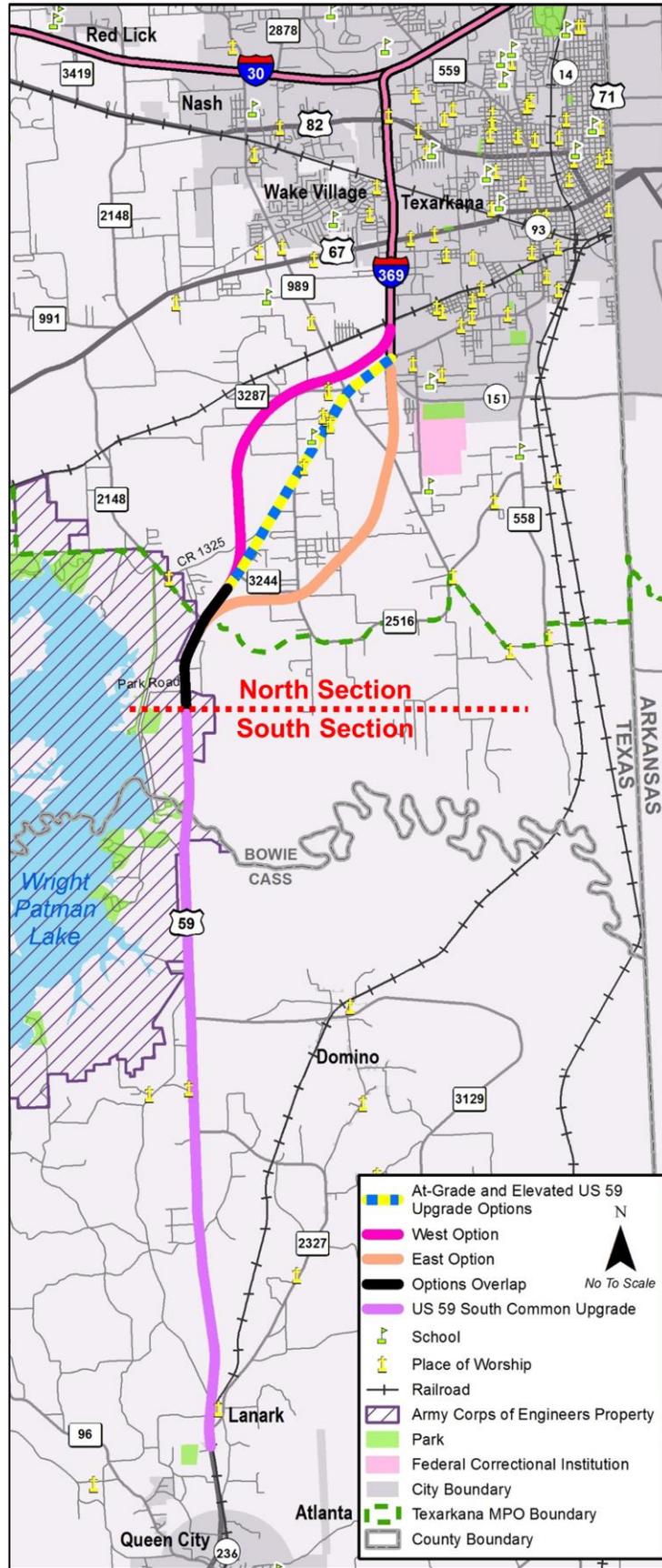


Figure 7: Northern Route Options and US 59 South Common Upgrade

Slip ramp connections to adjacent frontage roads were provided for interstate access to CR 3669, FM 2327, Spillway Park Road and the Texas U-turn providing access to the park and boat ramp on the northwest side of the Sulphur River. As previously mentioned, the existing interchange with FM 3129 would remain in place. In addition, a backage road is proposed to provide connectivity from Coal Stone Bluff Road to the interstate mainlanes at the Spillway Park Road access point. Also, a new CR 3669 connector is proposed to cross the interstate mainlanes and extend to CR 3663.

During the development of the US 59 South Common Upgrade, effort was made to salvage the existing US 59 mainlane pavement and roadbeds where practicable. For instance, south of the Sulphur River the existing US 59 southbound mainlanes are proposed to serve as the southbound frontage road, and the US 59 northbound mainlanes are proposed to serve as the new southbound interstate mainlanes after rehabilitation to change the cross slope to meet interstate standards. Also, north of the Sulphur River, the existing US 59 mainlanes are proposed to be rehabilitated to function as the new interstate mainlanes.

Appendix B presents the potential ROW limits of the US 59 South Common Upgrade design layout on the environmental features map.

7. NORTHERN ROUTE OPTION EVALUATION OF POTENTIAL IMPACTS AND COSTS

The four northern route options were evaluated to compare the following: 1) the effectiveness in meeting the purpose and need; 2) their potential impacts on the inventoried environmental features; and 3) engineering factors such as estimated costs, proposed new ROW requirements, and total length including route option length and all associated improvements on connecting roadways. The quantification of potential impacts was based on the potential ROW limits presented on the environmental features maps in **Appendix B** and use of Geographic Information Systems (GIS) programs, manual counts, and desktop review of Google Earth.

7.1 Northern Route Option Comparison

The northern route options would meet the purpose and need established for this project because they were developed to meet interstate standards, improve safety for local and through traffic, including freight, and improve mobility and connectivity. By incorporating separate interstate mainlanes and local frontage roads, the mix of heavy through traffic, including a high percentage of trucks, with local vehicle and pedestrian traffic would be reduced and thereby improve safety along existing US 59. Also, the northern route options in combination with the US 59 South Common Upgrade, once constructed, would extend I-369 approximately 16 miles from Texarkana to north of Queen City and thereby improve transportation access and mobility for traffic, freight and industrial activity in the Texarkana—Queen City region.

A detailed evaluation was conducted to compare the potential impacts and costs of each route option. **Table 2** presents a comparison of those potential environmental, land use and utility impacts and engineering factors that were determined to be differentiating for the four northern route options.

Table 2. Northern Route Option Evaluation Matrix

Criteria	At Grade US 59 Upgrade Route Option	Elevated US 59 Upgrade Route Option	West Route Option	East Route Option
Potential Environmental Impacts				
National Wetlands Inventory (acres)	3.8	2.0	3.5	2.7
Hydric Soils (acres)	139	109	305	331
100-Year Floodplain (acres)	34.2	34.2	71.5	73.2
Perennial Streams (feet)	1267	1267	2049	1736
Intermittent Streams (feet)	918	535	1847	2324
Open Water (acres)	1.8	0.5	1.4	1.6
Prime Farmlands Soils (acres)	93	68	199	282
Potential Land Use and Utility Impacts				
Residential Displacements (count)	83	73	51	45
Commercial Displacements (count)	35	28	9	7
Churches (count)	3	2	0	0
Schools (acres)	0.7	0.3	0.0	0.0
Pipelines (feet)	1980	1815	3595	4250
High Voltage Overhead Electrical Transmission Lines (feet)	2720	2745	9415	3285
Electrical Substations (count)	1	1	1	0
Oil & Gas Wells - Abandoned or Plugged within ROW (count)	0	0	1	1
Engineering Factors				
Estimated Construction and ROW Cost	\$450,940,000	\$739,890,000	\$490,850,000	\$399,930,000
Proposed New ROW (acres)	165	134	426	419
Total Improvement Length (miles) ¹	8.6	8.6	9.5	8.7

¹ Total length includes length of the route option and associated necessary improvements and upgrades to connecting routes such as I-369 and SL 151 to meet interstate standards

7.2 Northern Route Option Evaluation Results

Key aspects of the four northern route options were assessed to identify discernable benefits and drawbacks based on interpretation and comparison of the quantitative evaluation results presented in **Table 2**. The following presents the benefits and drawbacks that were determined for each of the four northern route options:

At-Grade Upgrade Option

Benefits:

- Maximizes use of existing US 59 ROW.
- Second fewest potential impacts to floodplains, forested areas and streams of the northern route options.

Drawbacks:

- Most potential impacts to residences, businesses and potential wetland areas.
- Substantial delays on US 59 and I-369 during construction.

Elevated Upgrade Option

Benefits:

- Maximizes use of existing US 59 ROW.
- Fewest potential impacts to floodplains, wetlands, forested areas and streams.
- Accommodates mobility of local traffic.

Drawbacks:

- Second most potential impacts to businesses/residences.
- Substantial delays on US 59 and I-369 traffic during construction.
- Highest construction cost.

West Route Option

Benefit:

- Second fewest potential impacts to residences and businesses.

Drawbacks:

- Longest of all the northern route options.
- Requires relocation of major utilities.
- Most new ROW needed.
- Second most potential impact to floodplains, forested areas, streams and wetland areas.

East Route Option

Benefits:

- Fewest potential impacts to residences and businesses.
- Maximizes use of existing I-369.
- Lowest construction cost.

Drawbacks:

- Second most amount of new ROW needed.
- Most potential impact to floodplains, forested areas and streams.

8. US 59 SOUTH COMMON UPGRADE POTENTIAL IMPACTS AND COSTS

8.1 Impact and Cost Analysis

Table 3 presents the results of the detailed analysis conducted to quantify the potential impacts and engineering factors for the US 59 South Common Upgrade.

Table 3: US 59 South Common Upgrade Potential Impacts and Engineering Factors Matrix

Potential Environmental Impacts	
National Wetlands Inventory (acres)	10.1
Hydric Soils (acres)	53
100-Year Floodplain (acres)	27.3
Perennial Streams (feet)	91
Intermittent Streams (Feet)	2068
Open Water (acres)	0.6
Prime Farmlands Soils (acres)	82
Potential Land Use and Utility Impacts	
Residential Displacements (count)	14
Commercial Displacements (count)	6
Churches (count)	0
Schools (acres)	0.0
Pipelines (feet)	1200
High Voltage Overhead Electrical Transmission Lines (feet)	1550
Electrical Substations (count)	0
Oil & Gas Wells - Abandoned or Plugged within ROW (count)	0
Engineering Factors	
Estimated Construction and ROW Cost	\$244,501,000
Proposed New ROW (acres)	190
Total Length (miles)	10.3

8.2 US 59 South Common Upgrade Analysis Results

The US 59 South Common Upgrade from FM 2327 at Lanark to south of Park Road would maximize use of the existing US 59 ROW and, as developed and laid out in **Appendix B**, would take advantage of opportunities to salvage existing pavement and roadbed, where practicable, to reduce costs.

Where additional space was needed to fit the upgrade, a high-level planning assessment was performed to determine how best to expand the upgrade limits to provide the greatest opportunity to avoid and minimize impacts. Finally, when the US 59 South Common Upgrade is combined with any of the four northern route options, the purpose and need established for this project would be met. As such, the advancement of the US 59 South Common Upgrade into the next phase of project development is independent of determining which northern route option to advance.

9. PUBLIC INVOLVEMENT

On July 24, 2018 and July 26, 2018 TxDOT hosted two open houses in Queen City and Texarkana, respectively, to provide the public with the opportunity to review and provide input on the following:

- The purpose and need for the project.
- The environmental setting including identified environmental, community and planning features.
- The four northern route options and US 59 South Common Upgrade.
- The route study evaluation results, including the benefits and drawbacks identified for each of the four northern route options.



The July 24, 2018 open house in Queen City was held at the Morris Upchurch Middle School. It was attended by 147 members of the public, including three elected officials or their representatives. The July 26, 2018 open house at the Liberty-Eylau High School in Texarkana was attended by 311 members of the public, including three elected officials or their representatives. Both open houses provided identical informational materials including a handout fact sheet and comment form, display boards, maps, and laptop computers for an online survey.



A total of 53 commenters provided comments which were received prior to the end of the open house comment period on August 10, 2018. One of the commenters submitted a petition that included 157 names. Almost 75 percent of the commenters expressed a preference for a specific route option. Of those:

- 61 percent preferred the upgrade of US 59, one of which included the petition with 157 names.

- 44 percent of those who preferred upgrading US 59 did not specify a preference for the At-Grade US 59 or Elevated US 59 Upgrade Route Options.
- 26 percent specified a preference for the At-Grade US 59 Upgrade Route Option.
- 30 percent specified a preference for the Elevated US 59 Upgrade Route Option.
- 16 percent preferred the West Route Option.
- 23 percent preferred the East Route Option.

In addition, just under a third of the commenters expressed opposition to a specific route option. Of those:

- 9 percent were opposed to upgrading of US 59.
- 30 percent were opposed to the West Route Option.
- 61 percent were opposed to the East Route Option, one of which included the petition with 157 names.

The commenters often provided rationale for their stated preferences and raised issues of concern in support of their opposition. In addition, several commenters did not express a preference or opposition, but presented issues and questions for clarification. Some of the issues and questions dealt with specific impacts, design details and funding considerations that would be studied and addressed during the next phase of project development. One commenter suggested a new location option through downtown Texarkana to I-49. However, such an option would deviate from the existing I-369 connection to I-30 and not be in compliance with the federal legislation identifying the designation of this section of US 59 as I-369. With regard to the funding issue, it was clearly stated in the public open house materials that there is currently no funding to complete the design, ROW acquisition and construction of this project.

Finally, an online survey tool, MetroQuest, was used to capture additional public input to provide further insight into important environmental, community, and planning features that will be retained for use during the next phase of project development. It also provided the participants with an opportunity to rank the priorities for the project as well as the four northern route options.

There were a total of 169 survey participants. Of those that identified a project priority, the survey results indicated that the top three priorities for the project, in order of importance, include reducing community impacts, protecting the environment and ensuring good local access.

The participants could also rank the four northern route options using a 1 to 5 star scale with the opportunity to provide comments on their rankings. As presented in **Figure 8**, the ranking results indicated that the At-Grade US 59 Upgrade Route Option received the greatest number of five star rankings. The East Route Option received the greatest number of one star rankings. Consequently, these results correlate with the open house commenter preferences indicating that there is greater

preference for the US 59 upgrade route options and greater opposition to the East Route Option and West Route Option. Of those that commented on their rankings, a majority noted positive aspects of the US 59 upgrade route options and disapproval of the East Route Option and its negative impacts.

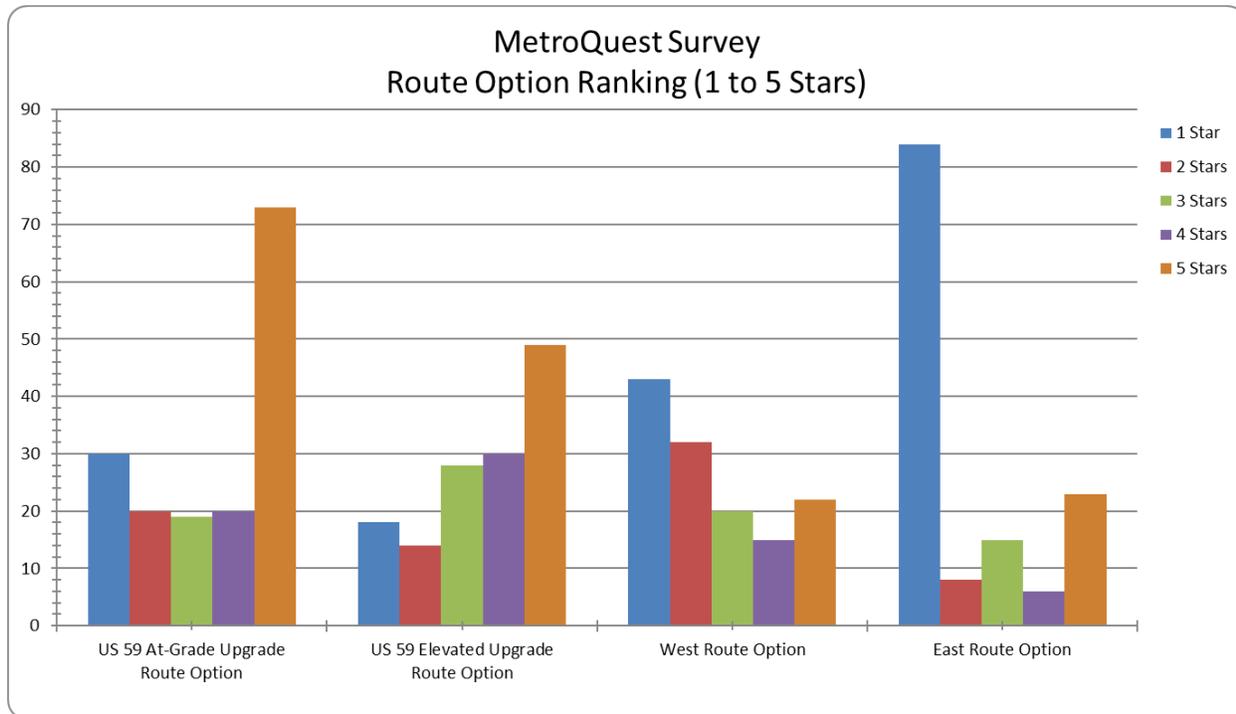


Figure 8: MetroQuest Survey Route Option Ranking

10. US 59 TEXARKANA—QUEEN CITY ROUTE STUDY RECOMMENDATIONS

Based on the information presented in the northern route option evaluation matrix (**Table 2**), the At-Grade US 59 and Elevated US 59 Upgrade Route Options generally would have the least potential environmental impacts to natural resources and require the least amount of new ROW. Conversely, they are anticipated to have the highest number of potential displacements as a result of the need to expand the existing US 59 ROW limits to accommodate the improvements to meet interstate standards and maintain local access along this highly developed transportation corridor. However as summarized in **Section 9**, public feedback shows the most support for the two existing US 59 upgrade route options. Based on this feedback, it is evident that there is overwhelming opposition to the East Route Option, while the two US 59 upgrade options are highly favored.

Consequently, without new information or further public involvement, TxDOT recommends moving forward with utilizing and upgrading the existing US 59 corridor as much as possible to meet interstate standards. Further review and analysis will be conducted to determine if the significant cost differential between the At-Grade US 59 and Elevated US 59 Upgrade Route Options can reasonably justify and support further development and consideration of elevating the interstate mainlanes from I-369 to CR 1325/Rock School Road. In addition, further detailed development and

refinement of the US 59 South Common Upgrade will occur during the next phase of project development.

11. CONCLUSION

This US 59 Texarkana-Queen City Route Study Report documents the purpose and need for the project, the study area's environmental setting, and the development and screening of the four northern route options and the US 59 South Common Upgrade that meet interstate standards as part of the initial planning efforts to extend I-369 from Texarkana to FM 2327 north of Queen City. The route study process that included proactive stakeholder and community engagement is consistent with the planning and environmental linkage provisions of 23 CFR 450, Appendix A. As such, the information, data, results, and recommendations presented in this route study report and contained in the project file are intended to be carried forward and utilized during the next phase of project development. In conclusion, as funding becomes available, TxDOT plans to advance this project to the next phase of schematic design, environmental study and additional public involvement. This will involve detailed development and refinement of the US 59 upgrade to further reduce impacts, including additional analysis to determine if it is cost effective to elevate the proposed interstate mainlanes between I-369 and CR 1325/Rock School Road.

12. NEXT STEPS

Identify Funding Sources

Environmental study, design, ROW, and construction funding has not been identified for any portion of the project. TxDOT will work with local officials to develop a long-term strategy to identify funding. This may include federal, state, and local resources.

Complete the Environmental and Schematic Design Process

Depending on when funding becomes available, TxDOT will carry the results of this study into the environmental study and schematic design process, including opportunities for additional public involvement, for the entire route or for individual sections of the route that would have logical termini and independent utility. However, there have been no decisions regarding potential project phasing or the development of independent projects at this time.

13. REFERENCES

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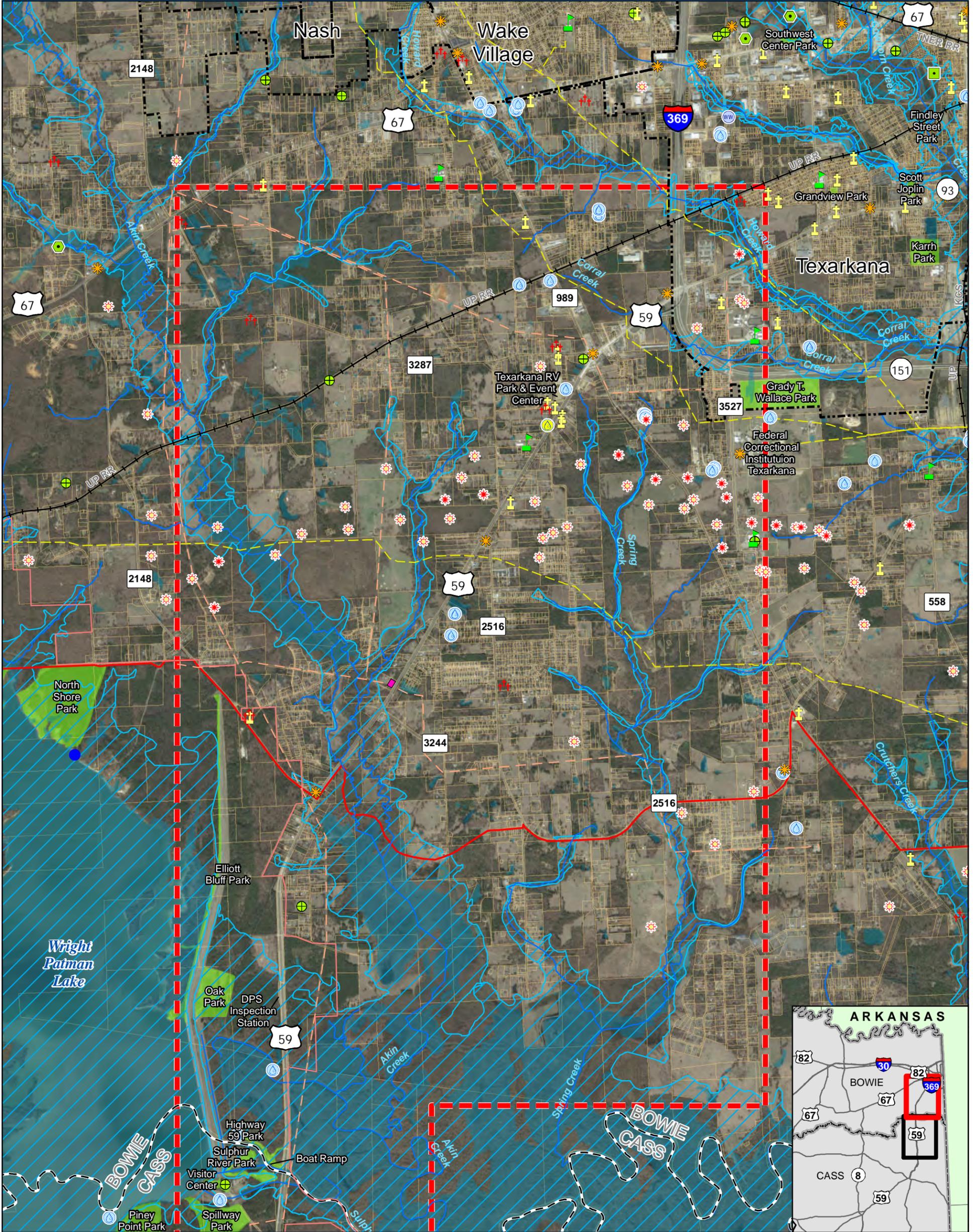
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Appendix A

Environmental Features Map



Legend			
	Study Area		Public Water System Intake
	Railroad		Public Water System Well
	Cemetery		Municipal Solid Waste Site
	Place of Worship		Wastewater Outfall
	School		Superfund Site
	Water Well		Communication Tower
	Petroleum Storage Tank		Oil/Gas Well (Permitted and Active Locations)
	Other Oil/Gas Well		Park
	Stream		100 - Year Floodplain
	Active Pipeline		Wetland
	Electric Transmission Line		Army Corps of Engineers Property Boundary
	Powerline Substation		Texarkana MPO Boundary
	City Boundary		Parcel Boundary
	County Boundary		

US 59 Texarkana-Queen City Route Study Environmental Features Sheet 1 of 2

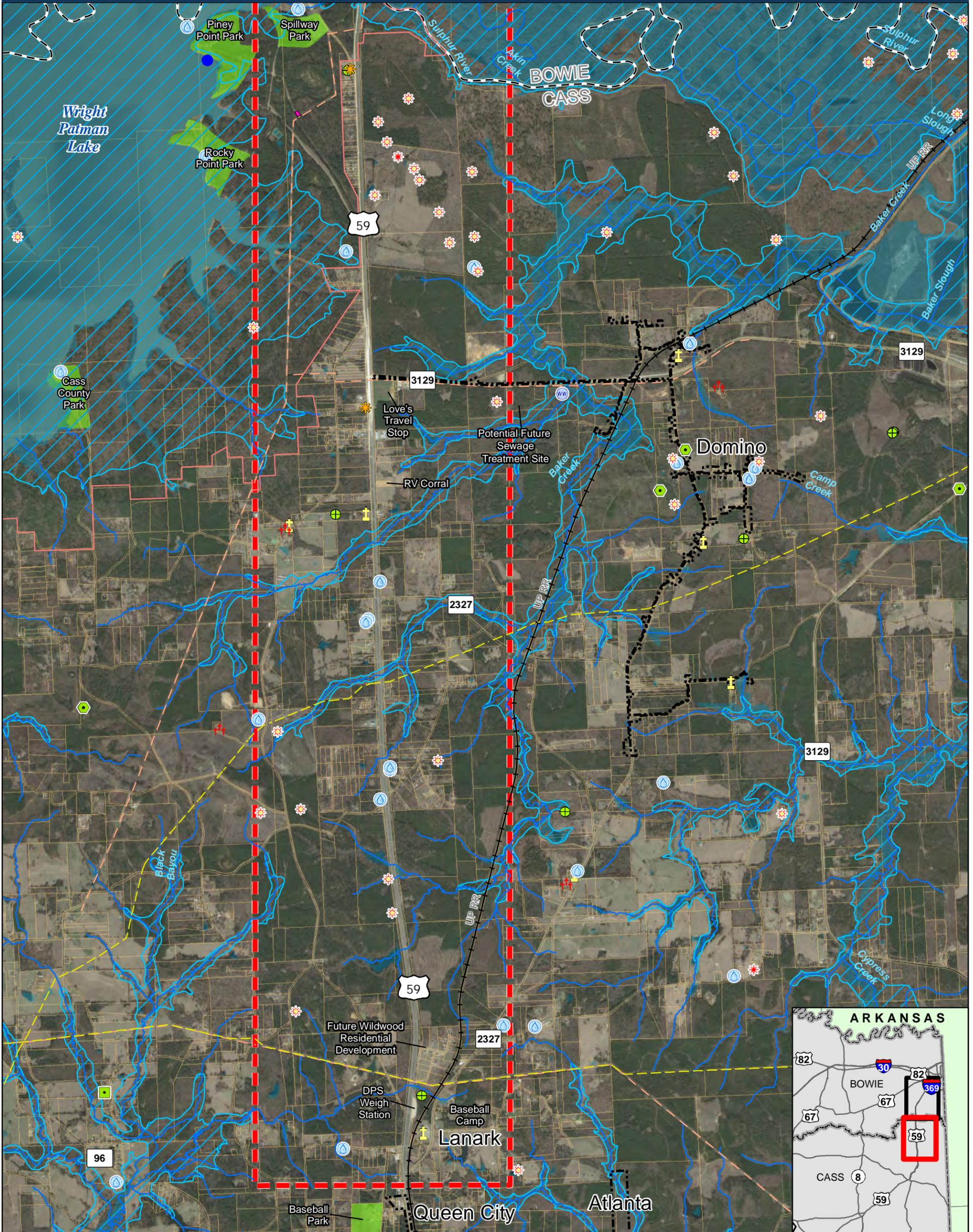
Aerial Photo Source: Google, TNRS; Texas Google Imagery Service 2015; Railroad - TXDOT 2015; Cemeteries - THC 2017; Churches - GMS and Study Team/Google 2015; Schools - TSA 2015; Water Wells - TWDB 2018; Public Water System Intake - TCEQ 2016; Public Water System Wells - TCEQ 2016; Municipal Solid Waste Sites - TCEQ 2007; Superfund Sites - TCEQ 2017; Communication Towers - FCC 2014; Petroleum Storage Tank - TCEQ 2015; Oil and Gas Wells - TXRRC (Texas Railroad Commission) 2017; Oil and Gas Pipelines - RRC (Texas Railroad Commission) 2017; Wastewater Outfall - TCEQ 2016; Streams - NHD 2017; Electric Transmission Line - Study Team/TNRS 2015; Powerline Substation - Study Team/Google 2015; Parks - TPWD 2015 and USACE 2016; Floodplains - FEMA Flood Hazard Layer 2017; Wetlands (NW) - USFWS 2017; Wright Patman Lake and Flowage Easement - USACE 2018; Texarkana MPO Boundary - TXDOT 2014; City Limits - City of Texarkana 2016 and TXDOT 2015; County Boundary - TXDOT 2015; Parcels - Bowie Central Appraisal District 2017 and Cass County Appraisal District 2017.



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Transportation Planning and Programming Division
Data Analysis, Mapping and Reporting Branch
July 2018

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US 59 Texarkana-Queen City Route Study Environmental Features Sheet 2 of 2

Aerial Photo Source: Google, TNRS; Texas Google Imagery Service 2015; Railroad - TXDOT 2015; Cemeteries - THC 2017; Churches - GMS and Study Team/Google 2015; Schools - TEA 2015; Water Wells - TWDB 2018; Public Water System Intake - TCEQ 2016; Public Water System Wells - TCEQ 2016; Municipal Solid Waste Sites - TCEQ 2007; Superfund Sites - TCEQ 2017; Communication Towers - FCC 2014; Petroleum Storage Tank - TCEQ 2015; Oil and Gas Wells - TXRRC (Texas Railroad Commission) 2017; Oil and Gas Pipelines - RRC (Texas Railroad Commission) 2017; Wastewater Outfall - TCEQ 2016; Streams - NHD 2017; Electric Transmission Line - Study Team/TNRS 2015; Powerline Substation - Study Team/Google 2015; Parks - TPWD 2015 and USACE 2016; Floodplains - FEMA Flood Hazard Layer 2017; Wetlands (NW) - USFWS 2017; Wright Patman Lake and Flowage Easement - USACE 2018; Texarkana MPO Boundary - TXDOT 2014; City Limits - City of Texarkana 2016 and TXDOT 2015; County Boundary - TXDOT 2015; Parcels - Bowie Central Appraisal District 2017 and Cass County Appraisal District 2017.



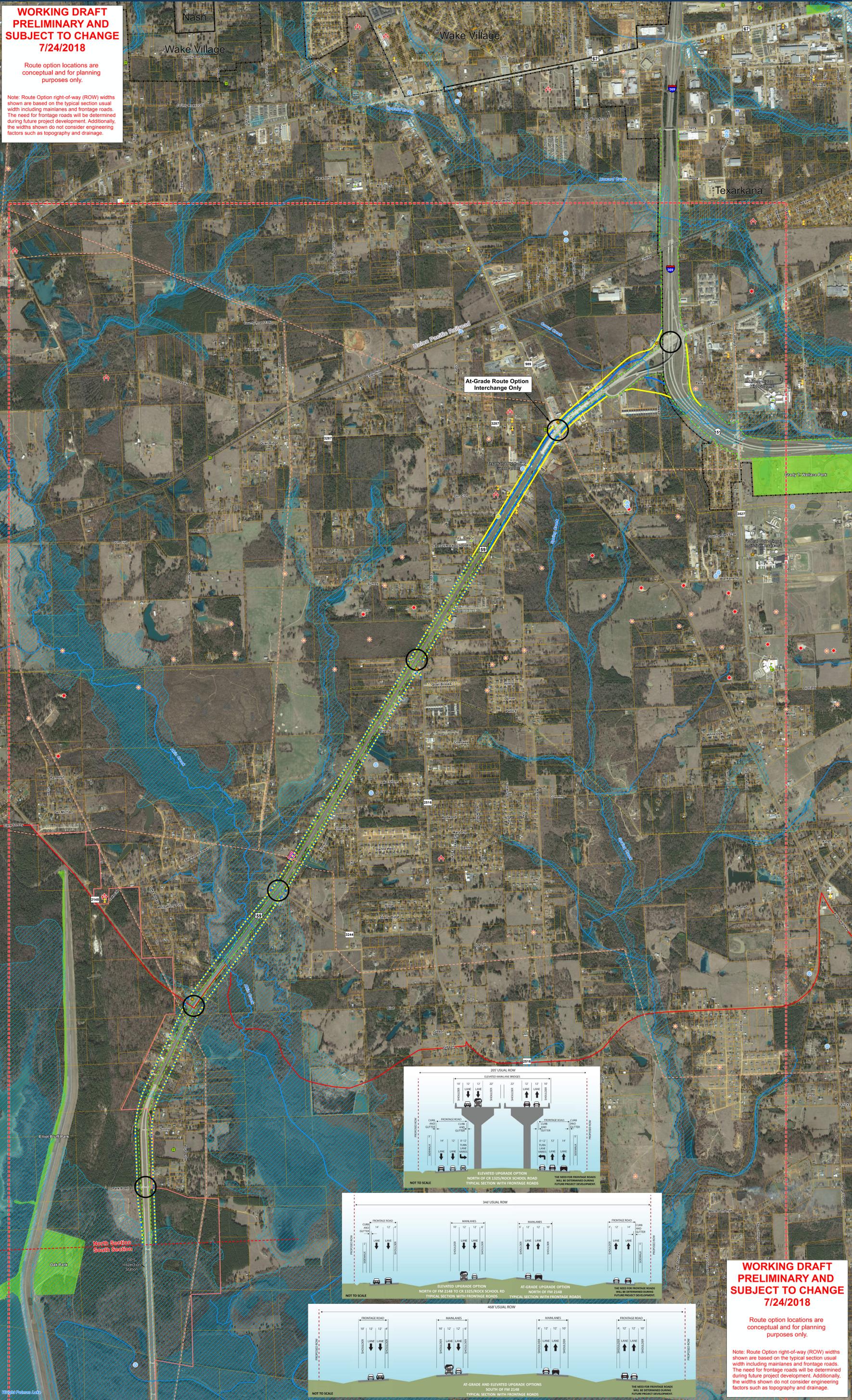
Appendix B

Environmental Features Maps with Northern Route Option and US 59 South Common Upgrade Potential ROW

**WORKING DRAFT
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Route option locations are conceptual and for planning purposes only.

Note: Route Option right-of-way (ROW) widths shown are based on the typical section usual width including mainlanes and frontage roads. The need for frontage roads will be determined during future project development. Additionally, the widths shown do not consider engineering factors such as topography and drainage.



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- Legend**
- At-Grade Option Potential ROW
 - Elevated Option Potential ROW
 - Overlapping Potential ROW
 - US 59 Existing ROW
 - Potential Interchange
 - Potential Overpass
 - Cemetery (THC)
 - Place of Worship (Atkins/Google)
 - School (Texas Education Agency)
 - Water Wells (TWDB)
 - Public Water System Well (TCEQ)
 - Municipal Solid Waste Sites (TCEQ)
 - Communication Tower (FCC)
 - Petroleum Storage Tank (TCEQ)
 - Oil/Gas Well (Permitted and Active Locations)
 - Other Oil/Gas Well
 - Wastewater Outfall (TCEQ)
 - Stream
 - Railroad
 - Electric Transmission Line (Atkins)
 - Active Pipeline (Railroad Commission of Texas)
 - 100 - Year Floodplain
 - Study Area
 - Powerline Substation (Atkins)
 - Park
 - Wetland (USFWS NWI)
 - Army Corps of Engineers Property Boundary
 - City Boundary
 - Texarkana MPO Boundary

US 59 Texarkana-Queen City Route Study US 59 At-Grade and Elevated US 59 Upgrade Route Options

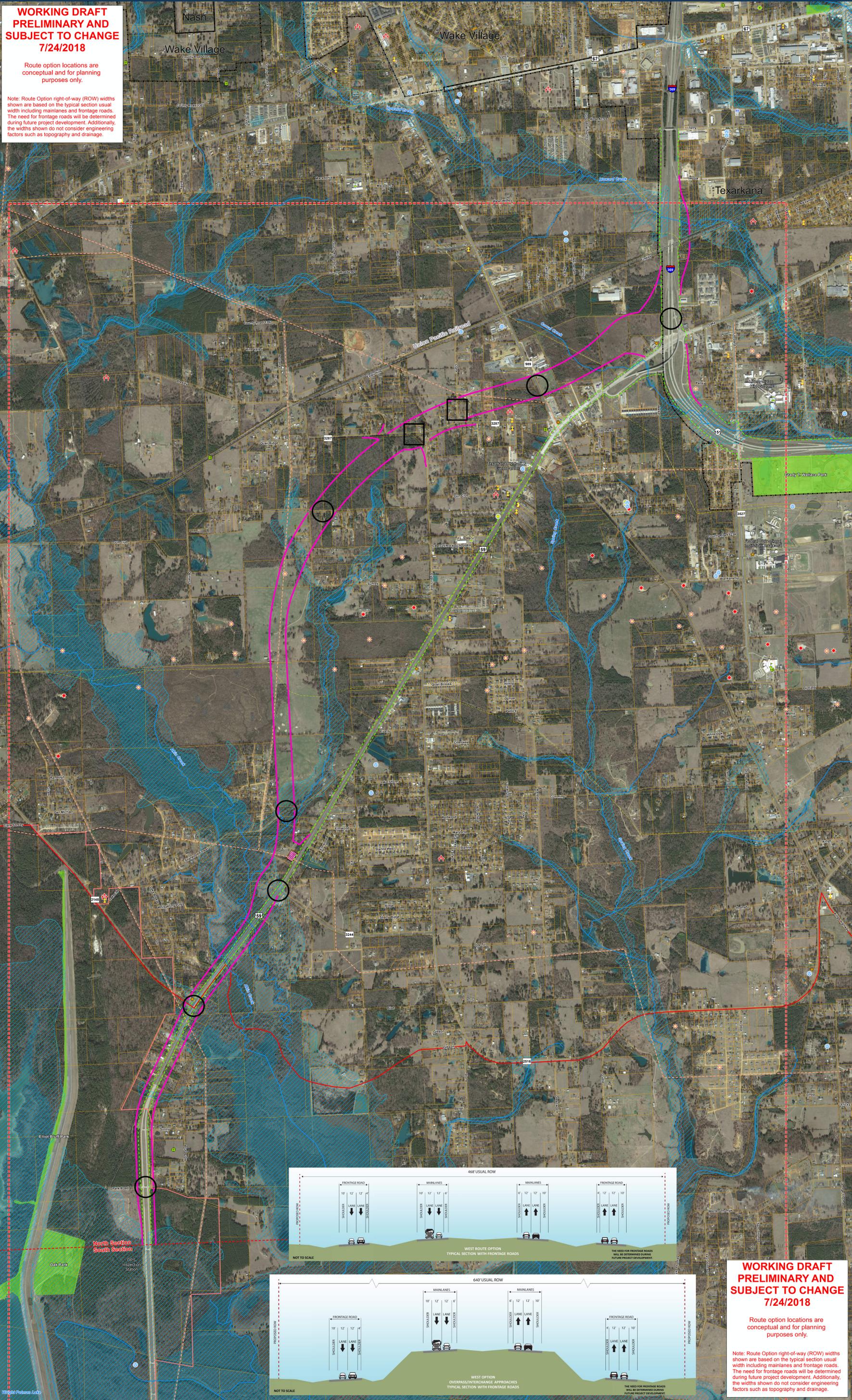
Aerial Photo Source: Google, TNRS, Texas Google Imagery Service, 2015, 1:7,200, generated by Atkins, using ArcMap. < https://tnrs.org/texas-google-imagery/> (20 July 2018). City Limits: City of Texarkana 2016, Comptroller - THC 2017, Churches - GIS at Atkins/Google 2017, Floodplains - FEMA Flood Hazard Layer 2017, Oil and Gas Pipelines - RRC (Texas Railroad Commission) 2017, Oil and Gas Wells - RRC (Texas Railroad Commission) - EPA and TCEQ, 2017, Public Water System Wells - TCEQ 2016, Municipal Solid Waste Sites - TCEQ 2007, Water Wells - TWDB 2016, Wright Patman Lake and Flowage Easement - USACE 2015, Wetlands - NHD 2017, Parks - TPOD 2018 and USACE 2016, Railroad - TxDOT 2016, Schools - TEA 2015, Wetlands (NWI) - USFWS 2017, Communication Towers - FCC 2014, Texarkana MPO Boundary - TxDOT 2014.



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- | | | | |
|----------------------------------|---|--|---|
| West Option Potential ROW | Water Wells (TWDB) | Stream | Park |
| US 59 Existing ROW | Public Water System Well (TCEQ) | Railroad | Wetland (USFWS NWI) |
| Potential Interchange | Municipal Solid Waste Sites (TCEQ) | Electric Transmission Line (Atkins) | Army Corps of Engineers Property Boundary |
| Potential Overpass | Communication Tower (FCC) | Active Pipeline (Railroad Commission of Texas) | City Boundary |
| Cemetery (THC) | Petroleum Storage Tank (TCEQ) | 100 - Year Floodplain | Texarkana MPO Boundary |
| Place of Worship (Atkins/Google) | Oil/Gas Well (Permitted and Active Locations) | Study Area | |
| School (Texas Education Agency) | Other Oil/Gas Well | Powerline Substation (Atkins) | |
| | Wastewater Outfall (TCEQ) | | |

US 59 Texarkana-Queen City Route Study West Route Option

Aerial Photo Source: Google, TNRS - Texas Google Imagery Service, 2015, 1:7,200, generated by Atkins, using ArcMap. < https://tnrs.org/texas-google-imagery/> (20 July 2018). City Limits: City of Texarkana 2016, Composites: TRC 2017, Churches: GIS and Atkins/Google 2017, Floodplains: FEMA Flood Hazard Layer 2017, Oil and Gas Pipelines: RRC (Texas Railroad Commission) 2017, Oil and Gas Wells: RRC (Texas Railroad Commission) - EPA and TCEQ, 2017, Public Water System Wells - TCEQ 2016, Municipal Solid Waste Sites - TCEQ 2007, Water Wells - TWDB 2016, Wright Patman Lake and Flowage Easement - USACE 2015, Wetlands: NHD 2017, Parks: TPOD 2018 and USACE 2016, Railroad: TxDOT 2015, Schools: TEA 2015, Wetlands (NWI) - USFWS 2017, Communication Towers - FCC 2014, Texarkana MPO Boundary - TxDOT 2014.



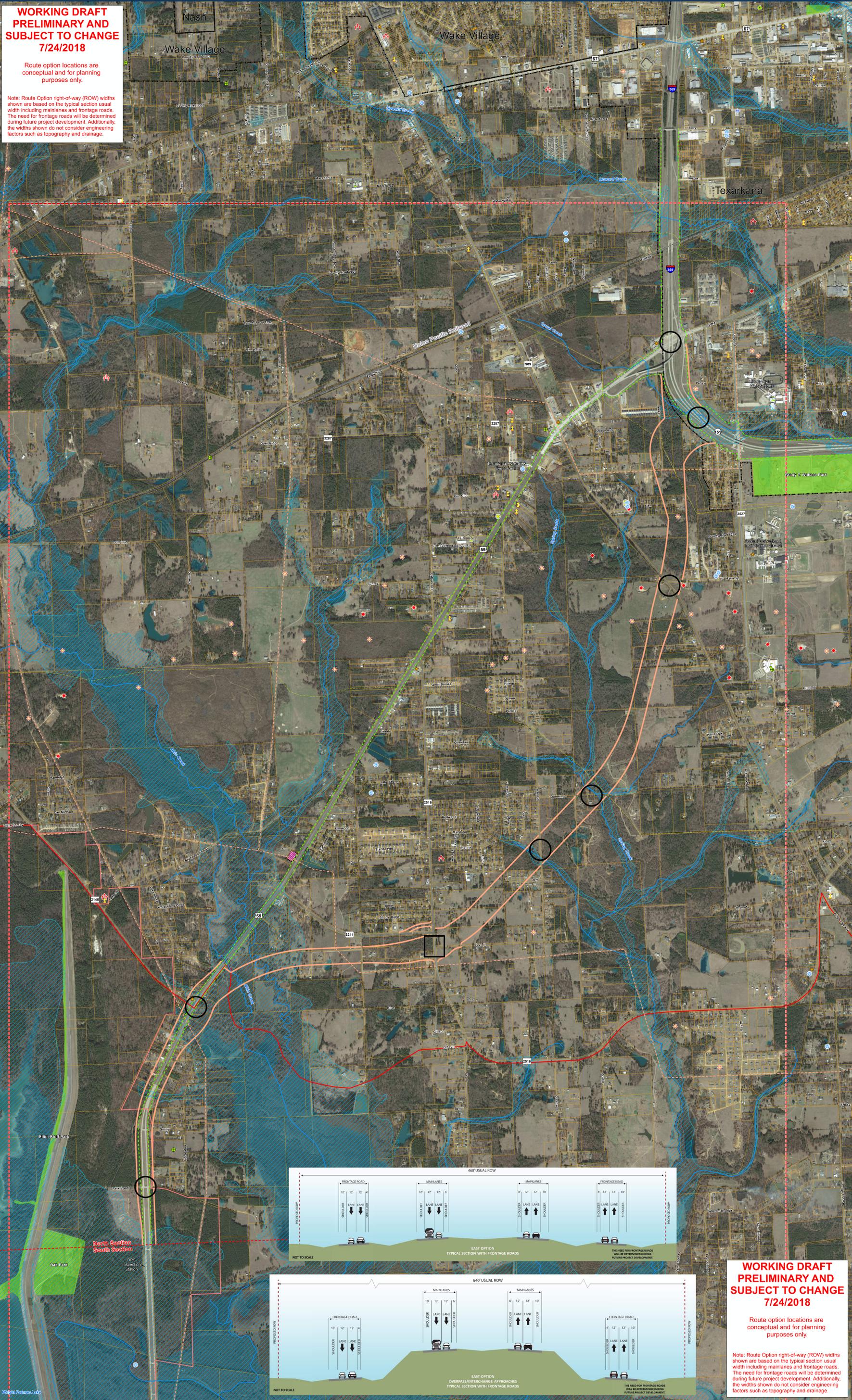
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- | | |
|---|--|
| <ul style="list-style-type: none"> — East Option Potential ROW — US 59 Existing ROW Potential Interchange Potential Overpass + Cemetery (THC) + Place of Worship (Atkins/Google) + School (Texas Education Agency) • Water Wells (TWDB) • Public Water System Well (TCEQ) • Municipal Solid Waste Sites (TCEQ) • Communication Tower (FCC) • Petroleum Storage Tank (TCEQ) • Oil/Gas Well (Permitted and Active Locations) • Other Oil/Gas Well • Wastewater Outfall (TCEQ) | <ul style="list-style-type: none"> — Stream — Railroad — Electric Transmission Line (Atkins) — Active Pipeline (Railroad Commission of Texas) City Boundary Parcel Boundary 100 - Year Floodplain Study Area Powerline Substation (Atkins) Park Wetland (USFWS NWI) Army Corps of Engineers Property Boundary |
|---|--|

US 59 Texarkana-Queen City Route Study East Route Option

Aerial Photo Source: Google, TNRS, Texas Google Imagery Service, 2015, 1/7/200, generated by Atkins, using ArcMap. < https://tnrs.org/texas-google-imagery/> (20 July 2018). City Limits: City of Texarkana 2016, Communities - TRC 2017, Churches - GIS and Atkins/Google 2017, Floodplains - FEMA Flood Hazard Layer 2017, Oil and Gas Pipelines - RRC (Texas Railroad Commission) 2017, Oil and Gas Wells - RRC (Texas Railroad Commission) - EPA and TCEQ, 2017, Public Water System Wells - TCEQ 2016, Municipal Solid Waste Sites - TCEQ 2007, Water Wells - TWDB 2016, Wright Patman Lake and Flowage Easement - USACE 2015, Wetlands - NHD 2017, Parks - TPOD 2018 and USACE 2016, Railroad - TxDOT 2015, Schools - TEA 2015, Wetlands (NWI) - USFWS 2017, Communication Towers - FCC 2014, Texarkana MPO Boundary - TxDOT 2014.

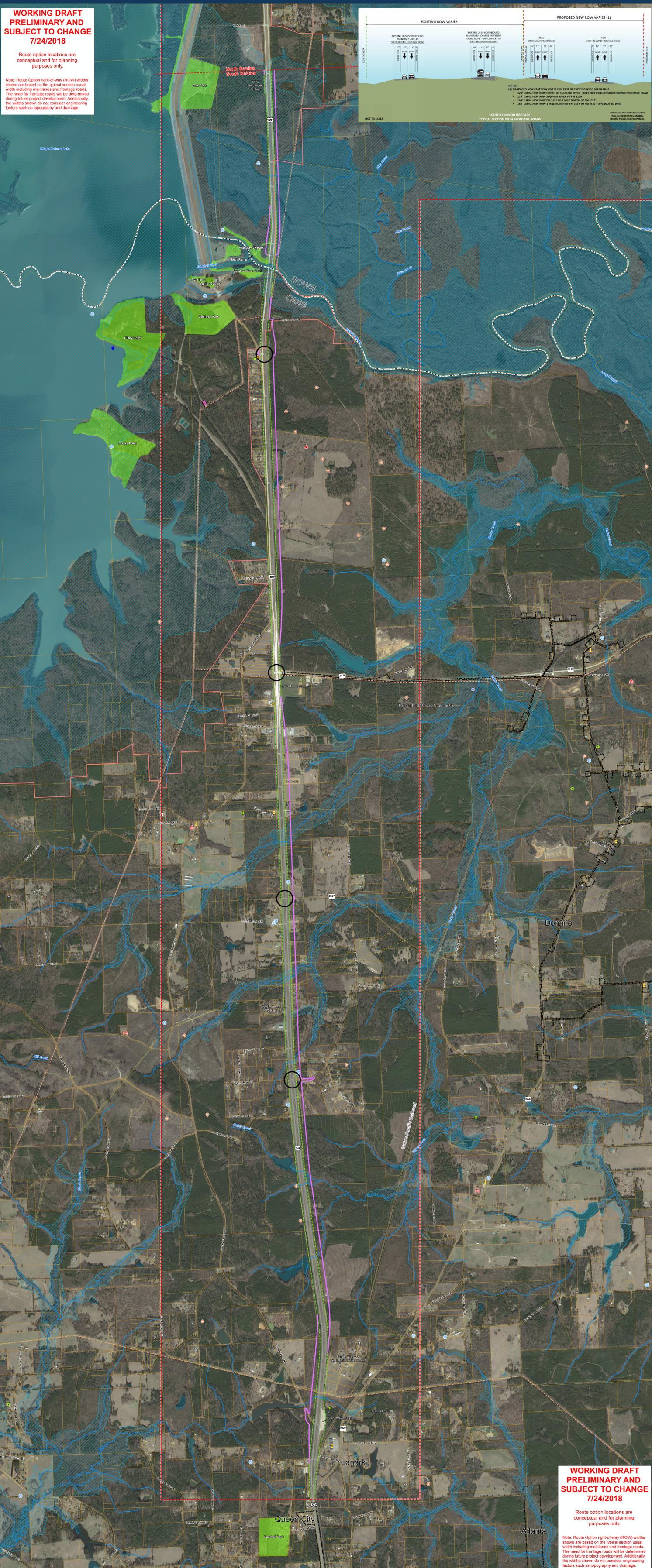
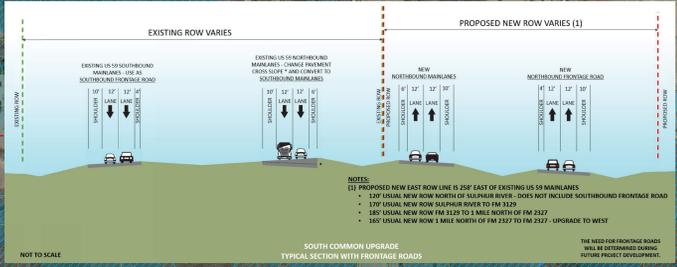


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PRELIMINARY AND
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Note: Route Option right-of-way (ROW) widths shown are based on the typical section usual width including mainlines and frontage roads. The need for frontage roads will be determined during future project development. Additionally, the widths shown do not consider engineering factors such as topography and drainage.

Legend			
	South Common Upgrade Potential ROW		Municipal Solid Waste Sites (TCEQ)
	US 59 Existing ROW		Superfund Site (TCEQ)
	Potential Interchange		Communication Tower (FCC)
	Cemetery (THC)		Petroleum Storage Tank
	Place of Worship (Aikins/Google)		Oil/Gas Well (Permitted and Active Locations)
	Water Wells (TWDB)		Other Oil/Gas Well
	Wastewater Outfall (TCEQ)		Public Water System Intake (TCEQ)
			Wastewater Outfall (TCEQ)
	Stream		100 - Year Floodplain
	Railroad		Study Area
	Electric Transmission Line (Aikins)		Powerline Substation (Aikins)
	Active Pipeline (Railroad Commission of Texas)		Park
	Parcel Boundary		Wetland (USFWS NWI)
	County Boundary		Army Corps of Engineers Property Boundary
			City Boundary (TxDOT)
			County Boundary

US 59 Texarkana-Queen City Route Study South Common Upgrade

Aerial Photo Source: Google, INRIS, Texas Google Imagery Service, 2015, 1:2,000, generated by Aikins, using ArcMap. < https://maps.org/txas-google-imagery/>
 July 2018; City Limits, City of Texarkana 2016; Centennial - TRC 2017; Chertman - GIS and Aikins 2017; Floodways - FEMA Flood Hazard Layer 2017;
 Oil and Gas Pipelines - RRC (Texas Railroad Commission) 2017; Oil and Gas Wells - RRC (Texas Railroad Commission) - EPA and TCEQ, 2017;
 Petroleum Storage Tanks - TCEQ 2016; Water Wells - TWDB 2016; Airport Pattern Table and Frontage Easement - USACE 2016; Stream - AHD 2011;
 Parks - TPWD 2016 and USACE 2016; Railroad - TxDOT 2016; Superfund Site - TCEQ 2014; Wetlands (NWI) - USFWS 2017; Communication Towers - FCC 2014.

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 Transportation Planning and Programming Division
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 July 2018

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