Induced Growth Analysis

Southeast Connector

I-20/I-820/US 287 Interchanges
I-20 from Forest Hill Drive to Park Springs Boulevard
I-820 from I-20 to Brentwood Stair Road
US 287 from Bishop Street to Sublett Road

Tarrant County, Texas
Fort Worth District

CSJ: 0008-13-125, etc.

December 2019

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 9, 2019, and executed by FHWA and TxDOT.

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I. INTRODUCTION

The Texas Department of Transportation (TxDOT) is proposing to reconstruct Interstate Highway (I) 20, I-820 and United States Highway (US) 287 including three major interchanges in southeast Tarrant County within the cities of Arlington, Forest Hill, Fort Worth, and Kennedale. The major interchanges are the I-820/US 287 Interchange, the I-20/I-820 Interchange, and the I-20/US 287 Interchange. This proposed project spans approximately 16 miles. The proposed project limits are I-20 from Forest Hill Drive to Park Springs Boulevard, I-820 from I-20 to Brentwood Stair Road, and US 287 from Bishop Street to Sublett Road. New frontage roads would be constructed at various locations, and bicycle and pedestrian accommodations would be provided throughout. The proposed project is collectively referred to as the "Southeast Connector." Please see the following document and figures that have been uploaded into TXECOS: Project Description (0008-13-125, etc.).pdf, Project Location Map (0008-13-125, etc.).pdf, and Aerial Project Location Map (0008-13-125, etc.).pdf.

II. INDIRECT IMPACTS

The Council on Environmental Quality defines indirect effects as those caused by the action and occur later in time or farther removed in distance than direct effects but are still reasonably foreseeable. Indirect impacts may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems (40 Code of Federal Regulations Section 1508.8). Indirect effects differ from the direct impacts associated with the construction and operation of the Build Alternative and are caused by another action or actions that have an established relationship or connection to the Build Alternative. These induced actions are those that would not or could not occur without the implementation of the Build Alternative.

The encroachment-alteration component of indirect impacts will be discussed in tandem with direct impacts that are addressed in the resource specific technical reports.

The analysis of indirect impacts discussed in this document follows the six-step process outlined in TxDOT's Indirect Impacts Analysis Guidance (January 2019). The six steps in the TxDOT Indirect Impacts Analysis Guidance consist of the following:

1. Define the Methodology
2. Define the Area of Influence (AOI) and Study Timeframe
3. Identify Areas Subject to Induced Growth in the AOI
4. Determine if Growth is Likely to Occur in the Induced Growth Areas
5. Identify Resources Subject to Induced Growth Impacts
6. Identify Mitigation if Applicable

Step 1: Define the Methodology

The potential for induced growth impacts were determined using a planning judgment approach consisting of interviews with the planning departments of the cities of Arlington, Forest Hill, Fort Worth, and Kennedale.

Cartographic techniques using map overlays of environmental constraints such as cemeteries, floodplains, and parks will be used to identify areas where potential induced growth would not likely occur.

Step 2: Define the Area of Influence and Study Timeframe

The basic objective in creating an indirect impacts AOI is to delineate a study area in which project-related indirect induced growth may occur. According to TxDOT's Indirect Impacts Analysis Guidance, there are four preferred methods for determining the AOI:

1. Adopting political/geographic boundaries;
2. Using the project's commute-shed;
3. Using the location of next major parallel roadway; and/or
4. Incorporating data from stakeholder interviews or public involvement.

The AOI for the proposed project was preliminarily established using Transportation Serial Zones (TSZs) (geographic boundaries) that encompass the proposed project limits. The TSZs were used as a starting point to provide a standardized boundary around the project, and to ensure any induced growth would be captured along the project corridor. TSZs are also a good starting point for foreseeing induced growth as they show projected population and employment growth, making it clearer where induced growth would likely occur across the project area. The size of the AOI was then revised based on city planner interviews as they would likely have detailed knowledge on their cities and professional opinions on where induced growth may or may not occur, compared to available city planning documents that may be outdated or simplified. The meetings are discussed as follows:

On July 17, 2019, a meeting with the City of Forest Hill was held. The city official met noted that while Forest Hill is largely built out, there were a handful of undeveloped adjacent parcels that would likely develop as a result of the project. One area near the project had development plans, but was distant enough from the project to not need inclusion in the AOI. The city official did not foresee any existing developments as being likely for redevelopment as a result of the project.

On July 17, 2019, a meeting with the City of Kennedale was held. The city planner identified an area adjacent to the I-820/I-20 Interchange as being influenced by the proposed project and having potential for redevelopment. The AOI was reduced in the City of Kennedale to only encompass this area.

Email discussions were held on July 23, 2019 with the City of Arlington. Upon review of various planning documents recommended by a City of Arlington planning representative, a revised AOI was sent to them and was approved. This revised AOI was reduced to only include adjacent undeveloped land.

A meeting with the City of Fort Worth was held on July 30, 2019. The city planners initially recommended revising the AOI boundaries to only include two areas along Lake Arlington which follow the Fort Worth City Limits east and west of I-820 north and south of the I-820/US 287 interchange. A follow-up discussion with the city on September 4, 2019 further refined the area of potential induced growth to only include areas of undeveloped land adjacent to the project that are not already planned for development.

The area within the AOI encompasses the entire Build Alternative and adjacent areas where development, accelerated rates of development, or redevelopment could potentially occur. Extending the AOI out farther would encompass areas unlikely to be affected by the proposed project. The preliminary TSZ AOI encompassed approximately 15,253 acres and consisted of portions of the cities of Arlington, Forest Hill, Fort Worth, and Kennedale. After discussions with city planning representatives, the AOI was reduced to approximately 1,318.7 acres. Refer to **Figure 1: Indirect Impacts Area of Influence Map**.

Temporal boundaries for the induced growth analysis extend from construction of the Build Alternative (2022) until 2045, the end of the proposed Metropolitan Transportation Plan planning cycle.

Step 3: Identify Areas Subject to Induced Growth in the AOI

Cartographic techniques using overlays will show potential constraints such as cemeteries, existing development, floodplains, surface wells, parks, and water bodies and will be used to identify areas within the AOI that would be most likely to experience induced growth. Utilities are available to the entire AOI. A discussion of the land uses within the AOI and whether they would be subject to induced growth is as follows:

Areas Without Potential for Induced Growth

The following land uses within the AOI and outside of the proposed project footprint would generally not experience induced growth.

<u>Floodplain</u>

A portion of the AOI contains Lake Arlington, Village Creek, Wildcat Branch, Kee Branch, and their tributaries and associated floodplains. The floodplain areas total approximately 83.3 acres and would not experience induced growth; however, there are some areas of planned development, parks, and roadways that do overlap the floodplains. These floodplain areas (100-year flood zones) are shown on **Figure 1**. Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (NFHL) geographic information system (GIS) data was

utilized to identify 100-year flood zones within the AOI. This constraint is unlikely to undergo induced growth due to regulatory protections.

Waters of U.S.

The AOI consists of approximately 0.2 acres of open water, 1.4 acres of riverine features, and 0.08 acres of wetlands. These water features are shown on **Figure 1**. This constraint is unlikely to undergo induced growth due to regulatory protections.

Cemeteries

There are no cemeteries within the AOI.

Parkland/Green Belts

There are no parks within the AOI.

Existing Roadways and Railroads

There are approximately 16 acres of existing roadways and associated transportation right of way (ROW) and approximately 1.2 acres of existing railroads within the AOI. These roadways and railroads are not subject to induced growth.

Proposed Project

The proposed project footprint is approximately 1,114 acres and is not developable. The proposed project would not undergo induced growth because the footprint would be utilized for transportation ROW.

Existing Development Without Potential for Induced Growth

There are approximately 21.1 acres of existing development within the AOI without potential for induced growth. This development includes single and multi-family residential, commercial/retail services, and places of worship. Roadways within the existing developments are included in the existing development total. Existing developments which overlap the proposed project are not included in this assessment because they will be displaced.

Within the AOI, the land along the Forest Hill I-20 corridor is undeveloped and primarily designated as commercial and light industrial. Along the I-20 corridor in Kennedale undeveloped land use includes commercial, and residential. Along the I-20 corridor in Fort Worth, undeveloped land use consists of commercial. Along the I-20 corridor in Arlington, land use consists of undeveloped land designated as residential and commercial.

Within the AOI, the land along the US 287 corridor south of I-20 is undeveloped and is primarily designated as commercial with some residential. Land use along the US 287 corridor west of I-820 is primarily existing industrial with some residential.

Within the AOI, land use along the I-820 corridor is undeveloped land, designated as mostly light industrial with some commercial.

Planned Development Not Dependent on Proposed Project

Planned and foreseeable development was identified using information provided by planners and planning documents. Forest Hill and Kennedale have no planned development within the revised AOI. Arlington has two areas of planned development within the revised AOI and Fort Worth has six planned developments. Planned development is identified in **Table 1** and is shown on **Figure 1**.

Table 1: Planned Development Within the AOI

Map ID	Development	City	Area (acres)
A	6117 Willard Rd. (Residential)	Fort Worth	2.1
B	820 G (Commercial)	Fort Worth	9.7
C	Industrial Capital Site (Industrial)	Fort Worth	2.4
D	Waste Management MLK (Industrial)	Fort Worth	17.7
E	Hertz Rental Facility (Commercial)	Fort Worth	6.4
F	Maxim Industrial Building (Commercial)	Fort Worth	8.5
G	Planned Development (Community Commercial)	Arlington	0.4
H	Park Springs Retail (Community Commercial)	Arlington	1.6
		Total	**48.8**

Sources: Interviews with city planners from the City of Forest Hill (07/17/2019), City of Kennedale (07/17/2019) and City of Fort Worth (07/30/2019) and emails with City of Arlington (07/23/2019) and City of Fort Worth (08/05/2019; 09/04/2019); GIS data provided by the City of Fort Worth.

The approximately 48.8 acres of planned development listed in **Table 1** are not dependent on the proposed project.

Summary

Table 2 shows a summary of the areas without the potential for induced growth within the AOI.

Table 2: Summary of the Areas Without the Potential for Induced Growth Within the AOI

Land Use	Area (acres)
Floodplain*	83.3
Open Water	0.2
Riverine Features	1.4
Wetlands	0.08
Cemeteries	0
Parkland/Green Belts	0
Existing Roadways	16
Existing Railroads*	1.2
Proposed Project	1,114
Existing Development without Potential for Induced Growth	21.1
Planned Development Not Dependent on Proposed Project*	48.8
Total	**1,286.1**

**Overlaps other land uses which would yield a misleading total.*
Sources: FEMA NFHL GIS data (2018); GIS data for parks from the City of Fort Worth (2019);USFWS NWI GIS data (2019); Field Observations (2019); TNRIS aerial imagery (2016); and Google Maps aerial imagery (2019).

As shown in **Table 2**, there are approximately 1,286.1 acres of land without the potential for induced growth within the AOI. Note that some of the listed resources overlap (i.e. floodplain features overlap riverine and planned development). For this reason, the areas within the AOI not subject to induced growth combined with areas with potential for induced growth (see **Table 3**) (1,286.1 acres and 126 acres) exceed the area of the AOI (1,318.7 acres) by 93.4 acres. See **Figure 1** for detailed map symbolizing the above land uses.

Areas with Potential for Induced Growth

Table 3 shows the acreage and development type of all areas of potential induced growth in the AOI based on future land use plans. **Figure 1** shows the locations of the areas with the potential for induced growth.

Table 3: Summary of Areas with Potential for Induced Growth in the AOI

City	Map ID	Development Zoning Type	Area (acres)
Fort Worth	1	Neighborhood Commercial	0.3
	2	Neighborhood Commercial	1.0
	3	General Commercial	10.7
	4	Neighborhood Commercial	5.3
		City Subtotal	**17.3**
Forest Hill	5	General Business	4.1
	6	Local Retail	2.5
	7	Single-family Residential	3.9
	8	Light Industrial	2.8
		City Subtotal	**13.3**

Table 3: Summary of Areas with Potential for Induced Growth in the AOI

City	Map ID	Development Zoning Type	Area (acres)
Kennedale	9	Restricted Commercial District	3.6
	10	Employment Center	7.9
	11	General Commercial	0.5
	12	General Commercial	3.2
		City Subtotal	15.2
Arlington	13	Community Commercial	3.8
	14	Office Commercial	2.3
	15	Single-Family Residential	3.9
	16	Single-Family Residential	1.4
	17	Office Commercial	4.0
	18	Single-Family Residential	2.2
	19	Community Commercial	1.5
	20	Single-Family Residential	4.7
	21	Office Commercial	1.3
	22	Community Commercial	0.9
	23	Residential Estate	12.2
	24	Office Commercial	0.9
	25	Residential Multi-Family 22	25.9
	26	Office Commercial	5.0
	27	Residential Multi-Family 22	1.2
	28	Neighborhood Commercial	2.3
	29	Community Commercial	6.6
		City Subtotal	80.1
		Total All Cities	126

Sources: Interviews with city planners from the City of Forest Hill (07/17/2019), City of Kennedale (07/17/2019) and City of Fort Worth (07/30/2019) and emails with City of Arlington (07/23/2019).

As shown in **Table 3**, the areas within the AOI with the potential for induced growth are located within the Cities of Arlington, Forest Hill, Fort Worth and Kennedale, and total approximately 126 acres.

Step 4: Determine if Growth is Likely to Occur in the Induced Growth Areas

The purpose of this step is to analyze the likelihood for induced growth to occur on the acres of land identified in **Step 3**. Factors that were used to determine the likelihood of induced growth include information from city planners, planning documents, land use and zoning maps, and population, employment, and housing trend data.

<u>Planner Information</u>

City of Fort Worth

The City of Fort Worth planning representatives believe that the proposed project would induce growth to undeveloped areas between I-820 and Lake Arlington and would total 17.3 acres of developable land. These areas are zoned as commercial in future land use plans. See **Table 3** for the acreage and development type of potential induced growth in Fort Worth. See **Figure 1** for the locations of these areas.

City of Forest Hill

The City of Forest Hill planning representative believed that only adjacent undeveloped parcels would potentially incur induced growth as a result of the project. These areas total approximately 13.3 acres, with two areas being zoned commercial, one zoned single-family residential, and one zoned light industrial. The planning representative noted that the majority of the corridor is already built up with single-family homes and did not foresee any redevelopment.

City of Kennedale

The City of Kennedale planning representative anticipated induced growth adjacent to I-20 at the I-20/I-820 Interchange. This area consists of approximately 15.2 acres of undeveloped land zoned commercial. The planning representative described the future land use as mixed use.

City of Arlington

The City of Arlington planning representative believes that only adjacent undeveloped parcels along the project corridor would be subjected to potential induced growth. Undeveloped parcels in Arlington total 80.1 acres, with the largest undeveloped area zoned for multi-family residential on US 287 near Sublett Road (25.9 acres). The zoning of other undeveloped properties in Arlington range from single-family to office commercial.

Planning Documents

Table 4 lists some of the planning documents that cover the AOI. Many include the proposed project.

Table 4: Planning Documents

Entity	Document
City of Arlington	99 SQ Miles – A Vision for Arlington's Future (Adopted March 17, 2015)
	Annual Development Profile Update 2018
	Thoroughfare Development Plan (April 2017)
	Unified Development Code (July 5, 2018)
City of Forest Hill	Comprehensive Master Plan (August 2010)
	Thoroughfare Plan (August 2010)
	Zoning Map (June 2018)
	Zoning Ordinance (March 3, 2016)
	Subdivision Ordinance (September 2010)
City of Fort Worth	2019 Comprehensive Plan (Adopted March 5, 2019)
	Master Thoroughfare Plan (Adopted May 3, 2016)
	Bike Fort Worth – A Comprehensive Bicycle Transportation Plan (2009)
	Fort Worth Active Transportation Plan (April 2019)
City of Kennedale	Comprehensive Plan Update (March 2012)
	Future Transportation Plan (2012)
	Unified Development Code (September 19, 2016)
	Future Land Use Plan (March 8, 2012)
	Existing Zoning Map (November 8, 2017)

Table 4: Planning Documents

Entity	Document
North Central Texas Council of Governments	Mobility 2045: The Metropolitan Transportation Plan for North Central Texas
	Vision North Texas 2050 (2010)
Tarrant County	Subdivision Regulations and Minimum Roadway Construction Standards (Updated February 28, 2012)
	Guidelines for Development in the Unincorporated Areas of Tarrant County (Revised August 28, 2012)

Details from various planning documents that support the induced growth discussion in the coming steps are summarized below:

- *99 SQ Miles–A Vision for Arlington's Future (Adopted March 17, 2015)* is the City's Comprehensive Plan. It provides an integrated approach to all aspects of Arlington's development and emphases environmental, economic and social sustainability; land use enhancement and transportation coordination. The Plan identified 12 future development areas. One of these areas, the I-20 Gateways, serve as key gateways to the City. The I-20/US 287 Gateway provides an opportunity for redevelopment by allowing for flexibility in the use of properties and stimulating a mix of commercial and housing, while the I 20/SH 360 Gateway provides an opportunity for a strong industrial presence that should cater to higher end industrial and office type uses. One of the Plan's development strategies is to promote land use patterns that reflect a mix of integrated community uses. One action item associated with this strategy is to complete a detailed land use and transportation planning analysis for the US 287 corridor.

- *City of Forest Hill Comprehensive Master Plan (August 2010)* is a guide for future growth and development in the City. It is a keystone regulatory policy document, which serves as the foundation for all other regulatory guidelines in the City. The Plan recognizes that the City is positioned on the I-20 and US 287 corridors, which are highly travelled. Section 6: Land Use Plan discusses a set of implementation strategies to identify potential areas for new development and redevelopment. In Section 6, it is recognized that commercial land uses are mainly located along the I-20 and Mansfield Highway corridors and are easily accessible; however, there is a need for more neighborhood commercial uses in closer proximity to residential uses. Section 6 also reveals that the majority of vacant undeveloped land in the City is located south of I-20 and identifies these tracts as unique opportunities for development in accordance with the City's vision. For example, an approximate 92-acre tract on the southeast corner of Forest Hill Circle and Wichita Street will be able to serve as a gateway to the City because it is situated on the western boundary of the City and will be visible from I-20.

- *City of Fort Worth 2019 Comprehensive Plan (Adopted March 5, 2019)* is a summary of the recommended policies, strategies, programs, and projects that will enable the City to achieve its mission of focusing on the future and working together to build strong neighborhoods, develop a sound economy, and provide a safe community. Appendix C of the Plan contains future land use maps and policies for the 16 planning sectors within the City, as well as land use policies specific to each sector. Some of the land use policies and strategies applicable for development adjacent to I-820, US 287, and I-20 include:
    - Locating large commercial and institutional uses adjacent to arterial streets, preferably at the intersections of other arterials and highways.
    - Locating large industrial uses along freight rail lines, highways, or airports within industrial growth centers and other appropriate locations.
    - Improving the design, function, and appearance of commercial corridors by addressing traffic safety issues, excess parking, lighting, landscaping, outdoor storage, refuse containers, the amount and size of advertising, and related issues.
    - Using traffic impact analyses to determine the transportation system's ability to serve proposed land uses.

- *City of Kennedale Future Land Use Plan (March 8, 2012)* considers existing land uses and conditions along with environmental factors to shape the appropriate development types and patterns for the future. The Future Land Use Map is defined by districts that incorporate multiple compatible land uses that advance the three planning principles discussed in the Comprehensive Plan: Connected City, Economic Prosperity, and Thriving Community. There are two planning districts within the AOI and consist of the Employment Center and Urban Village Districts. The Employment Center District is located in the northwest section of the City on the south side of I-20 at I-820. The Urban Village District is located in the northeast section of the City on the south side of I-20 at US 287. Both districts include high density development with multi-family housing, office, commercial, and service or light-industrial uses.

- *Mobility 2045: The Metropolitan Transportation Plan for North Central Texas (Adopted June 2018)* is the defining vision for the multimodal transportation system in the Dallas-Fort Worth Metropolitan Planning Area and guides the implementation of multimodal transportation improvements, policies, and programs in the 12-county Metropolitan Planning Area through the year 2045, Appendix E. Mobility Options recommends that by 2045, I-820 should be widened to eight to 14 main lanes with four to eight frontage road lanes; US 287 should be widened to six main lanes with four to six frontage road lanes; and I-20 should be widened to 10 to 12 main lanes, and four to eight frontage roads lanes.

- *Vision North Texas 2050 (2010)* was a collaborative planning effort conducted in the late 2000s to educate elected officials and regional leaders on growth trends in the North Texas region. The Plan acknowledges that North Texas is the fastest-growing region in the country and the increasing growth is putting pressure on the region's natural resources (especially water) and infrastructure (especially transportation).

Population and Employment Trends and Forecasts

Table 5 lists household population and employment data for the Cities of Arlington, Forest Hill, Fort Worth, Kennedale, and the 12-County Metropolitan Planning Area (MPA).

Table 5: Population and Employment Trends and Forecasts for Selected Locations[1]

Year	2005 (2000)	2045 (2040)	Percent Increase between 2005 (2000) and 2045 (2040) (%)
City of Arlington			
Household Population	345,477	532,260	54.1%
Employment	175,188	305,025	74.1%
City of Forest Hill			
Household Population	(12,949)[2]	(15,000)[3]	15.8%
Employment	(4,844)[4]	--	--
City of Fort Worth			
Household Population	602,557	1,412,326	134.4%
Employment	455,819	911,846	100.0%
City of Kennedale			
Household Population	(5,850)[2]	(10,824)[3]	85.0%
Employment	(3,123)[4]		
12-County MPA			
Household Population	10,676,844	11,246,516	5.3%
Employment	6,691,449	7,024,214	5.0%

Sources: [1] NCTCOG 2045 Demographic Forecast (October 2017), data not available for the cities of Forest Hill and Kennedale; [2]U.S. Census Bureau, Census 2000 Summary File 1 (SF 1) 100-Percent Data; [3]2016 Regional Water Plan – Population Projections for 2020-2070 City Summary (January 2015); [4]U.S. Census Bureau, Census 2000 Summary File 3 (SF 3) – Sample Data

As shown in **Table 5**, all geographies with reported data are expected to experience household population and employment growth through the year 2045.

Employment and Economy

Table 6 provides economic and employment data in the AOI from the U.S. Census Bureau for the years 2002 and 2017.

Table 6: Economic and Employment Data for the AOI

Geographic Area	2002		2017		Percent Change (%)
	Number	Share (%)	Number	Share (%)	
AOI					
Total Jobs	1,231	100.0	2,806	100.0	127.9
Jobs by Earnings - $1,250/month or less	516	41.9	846	30.1	64.0
Jobs by Earnings - $1,251 to $3,333/month	511	41.5	1,216	43.3	138.0
Jobs by Earnings – More than $3,333/month	204	16.6	744	26.5	264.7
#1 Job by NAICS[1] Industry Sector	Accommodation and Food Services	26.5	Transportation and Warehousing	31.7	172.7
#2 Job by NAICS Industry Sector	Construction	13.2	Retail Trade	18.1	213.6
#3 Job by NAICS Industry Sector	Manufacturing	13.0	Accommodation and Food Services	17.1	200.0

[1]NAICS – North American Industry Classification System
Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2017), http://onthemap.ces.census.gov/, accessed October, 2019.

As shown in **Table 6**, job growth and job earnings has increased between 2002 and 2017 in the AOI. The steady to improving economy within the AOI can be attributed in part to the I-20, I-820, and US 287 interchanges, which serve as a primary travel corridor in the area. Based on the data shown in **Table 6**, it can be assumed that job growth and job earnings will continue to increase.

Housing Units

According to Census 2010 and 2017 data, the number of housing units within the cities that encompass the AOI has increased from 434,307 units in 2010 to 466,575 units in 2017; an increase of approximately 7.4 percent over the seven-year period. While the increase is slight, it can be assumed that the number of housing units in the AOI and the surrounding area will continue to increase due to planned residential development and increasing population and employment trends for the project area cities.

Summary

Based on the information provided by the planning departments of the cities of Arlington, Forest Hill, Fort Worth, and Kennedale; planning documents; land use and zoning maps; and population, employment, and housing trends data, growth is likely to occur on the 126 acres of land identified in **Step 3.**

Step 5: Identify Resources Subject to Induced Growth Impacts

Vegetation and Wildlife Habitat

Areas of induced growth were overlaid on GIS habitat/vegetation polygons generated from the Phase 1 TESCP data to determine the induced growth impacts to habitat/vegetation types in the AOI. **Table 7** shows a breakdown of the habitat/vegetation types potentially impacted by the 126 acres of land identified in **Steps 3 and 4** that would be subjected to induced growth.

Table 7: Vegetation & Wildlife Habitat Potentially Impacted by Induced Growth

Habitat/Vegetation Type	Impact Area (Acres)
Post Oak Woodland	59.7
Savanna Grassland	0.3
Riparian	0.5
Urban	65.5
Total	**126**
All Non-Urban Habitat/Vegetation	60.5

Source: Texas Parks and Wildlife's (TPWD) Phase 1 Texas Ecological Systems Classification Project (TESCP) data, October 2019

Endangered or threatened species and Species of Greatest Conservation Need (SGCN) may be present in the various habitat within the areas with potential for induced growth. Post Oak Woodland, Savanna Grassland and Riparian habitats have the potential for a variety of species to be present, including:

> Strecker's chorus frog (*Pseudacris streckeri*), Woodhouse's toad (*Anaxyrus woodhousii*), American bumblebee (*Bombus pensylvanicus*), big brown bat (*Eptesicus fuscus*), eastern red bat (*Lasiurus borealis*), eastern spotted skunk (*Spilogale putorius*), hoary bat (*Lasiurus cinereus*), long-tailed weasel (*Mustela frenata*), mink (*Neovison vison*), plains spotted skunk (*Spilogale putorius interrupta*), swamp rabbit (*Sylvilagus aquaticus*), tricolored bat (*Perimyotis subflavus*), western hog-nosed skunk (*Conepatus leuconotus*), eastern box turtle (*Terrapene carolina*), slender glass lizard (*Ophisaurus attenuatus*), smooth softshell (*Apalone mutica*), Texas garter snake (*Thamnophis sirtalis annectens*), timber rattlesnake (*Crotalus horridus*) and Texas milk vetch (*Astragalus reflexus*).

However, while various vegetation types may be lost as the result of potential induced growth, a records search of the database maintained by the Endangered Resources Branch TPWD indicated that no Federal or State listed endangered or threatened species have been reported to occur along or adjacent to the proposed project, and by extension, the adjacent areas with potential for induced growth.

Waters of the U.S.

According to the U.S. Fish and Wildlife Service National Wetlands Inventory Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html), and field observations, there are approximately 0.2 acres of open water (lakes and ponds), 1.4 acres of riverine features, and 0.08 acres of potential wetlands within the AOI. Areas of induced growth were overlaid on a water features polygon, created based on field observations to determine the induced growth impacts to Waters of the U.S. in the AOI. **Table 8** shows a breakdown of the Waters of the U.S. potentially impacted by the 126 acres of land identified in **Steps 3 and 4** that would be subjected to induced growth.

Table 8: Waters of the U.S. Potentially Impacted by Induced Growth

Waters of the U.S. Type	Impact Area (Acres)
Open Water	0
Riverine	0
Wetland	0
Total	**0**

Sources: USFWS National Wetlands Inventory Wetland Mapper (https://www.fws.gov/wetlands/data/mapper.html), October 2019; Field Visits (3/7/2019, 3/19/2019, 3/28/2019, 4/2/2019, 4/18/2019, and 5/14/2019)

As Shown in **Table 8**, no Waters of the U.S. would potentially be impacted by induced growth in the AOI. The potential impacts represent zero percent of the 0.2 acres of open water, 1.4 acres of riverine features, and 0.1 acres of potential wetland features within the AOI.

Archaeological Preservation

Preliminary investigations at the Texas Archaeological Research Laboratory and the Texas Historical Commission (THC) found no recorded archaeological sites existed within or near the proposed project area. The highly urbanized proposed project area makes the potential for archaeological resources low.

Historic Resources

The THCs Texas Historic Sites Atlas shows no historic sites within areas with potential for induced growth.

Step 6: Identify Mitigation

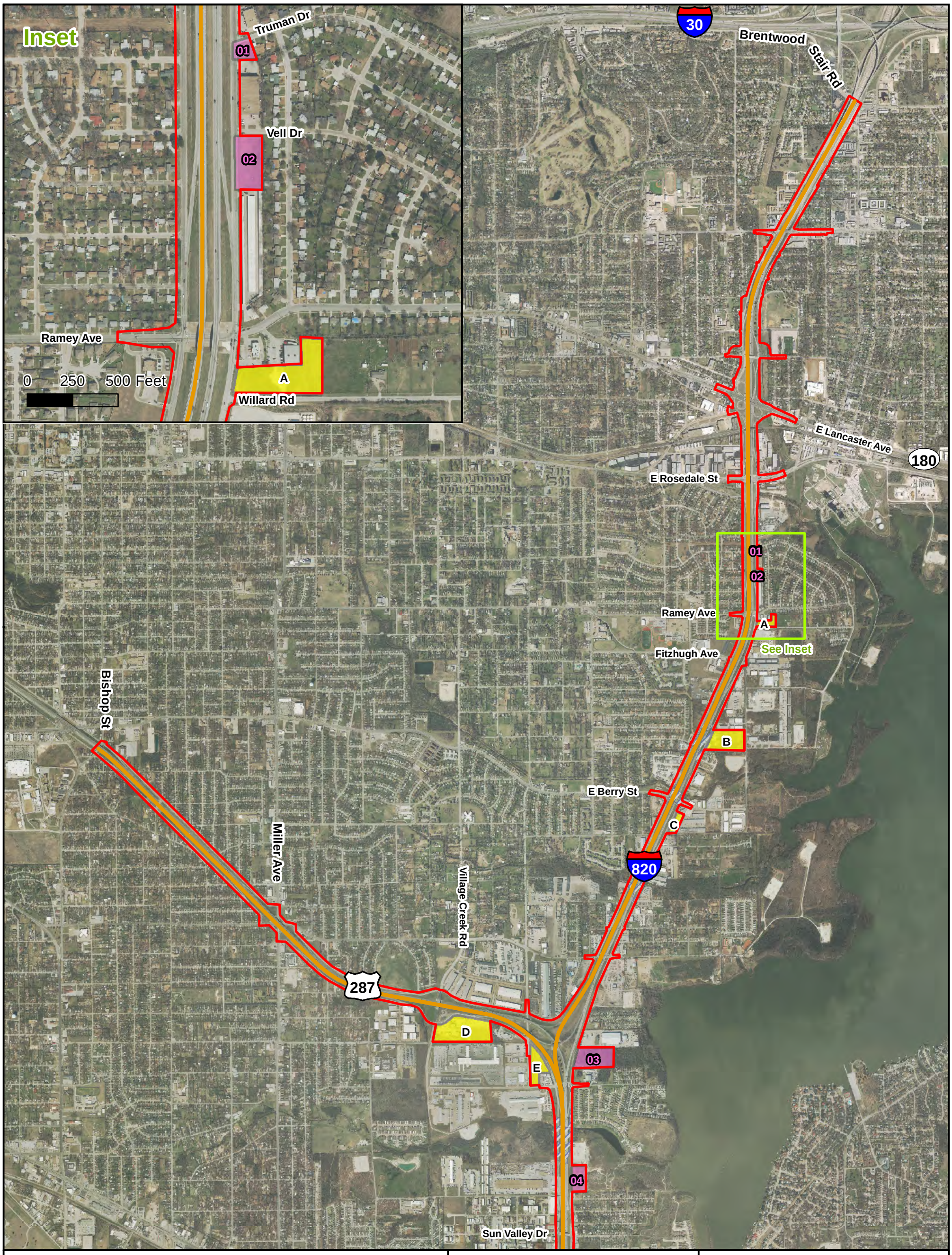
The induced growth associated with the proposed project does not conflict with study area goals, would not delay or interfere with the planned improvement of a resource, and is not inconsistent with any applicable laws; therefore, mitigation for the impacts to Waters of the U.S., floodplains, and socio economic/community resources is not warranted. There are no known mitigative responsibilities for private developers in Texas for impacts to Post Oak Woodland, Savanna Grassland or Mesquite Shrubland vegetation.

Land development activities would be regulated by the local municipalities. The mitigation of the potential development within the AOI considered for this assessment would be the responsibility of the agencies with the authority to implement such controls. This authority rests with the municipal governments of Arlington, Forest Hill, Fort Worth and Kennedale, and, to a lesser extent, Tarrant County. Examples of municipal government regulations include Section 2: Landscaping in Article 5 of the City of Arlington's Unified Development Code; Section 6.302: Section 64-146: Landscaping in the City of Forest Hill's Zoning Ordinance; Urban Forestry in Chapter 6 of the City of Fort Worth's Comprehensive Zoning Ordinance; and Article 20: Natural Resources Management of the City of Kennedale's Unified Development Code. Additionally, developers often incorporate existing vegetation features, such as green belts, into their design plans; thus, maintaining some existing natural vegetation and wildlife habitat.

All developers, public and private, would be subject to the Clean Water Act, Endangered Species Act, and Migratory Bird Treaty Act; however, private developers would not be subject to Section 106 of the National Historic Preservation Act or the Farmland Protection Policy Act.

The responsibility of transportation providers such as TxDOT, local and regional transit agencies, and the local governments would be to implement a transportation system to complement the land use.

FIGURE 1
AREA OF INFLUENCE MAP



Legend

- Project Limits
- Area of Influence (AOI)
- Potential Induced Growth
- 100-Year Floodplain
- Planned Development
- Open Water
- Wetland

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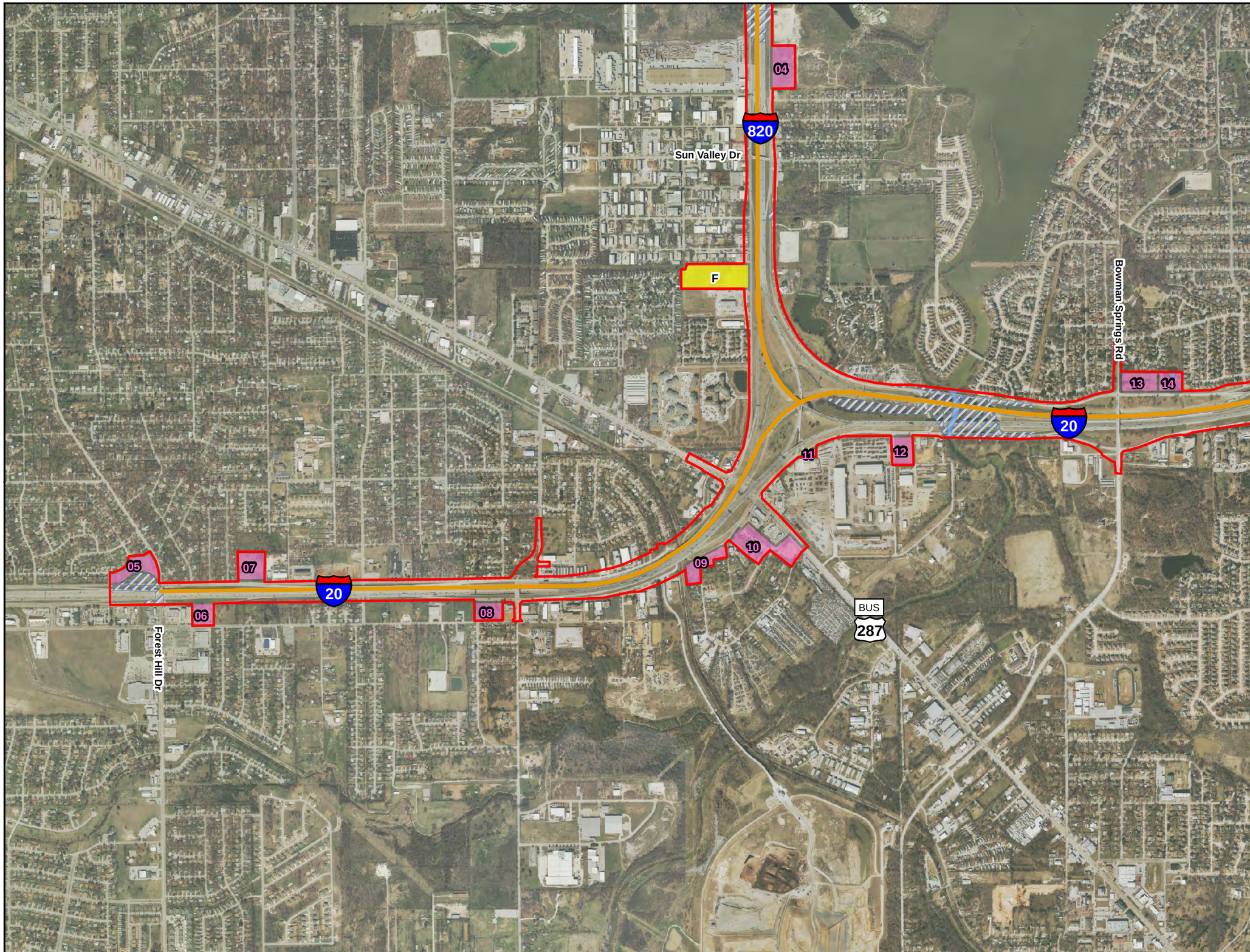
0 2,000 4,000 Feet

Base Map Source: TxDOT (2018)

FIGURE 1
INDIRECT IMPACTS
AREA OF INFLUENCE MAP
SOUTHEAST CONNECTOR
I-20/I-820/US 287 Interchanges
I-20 from Forest Hill Drive to
Park Springs Boulevard
I-820 from I-20 to
Brentwood Stair Road
US 287 from Bishop Street
to Sublett Road

CSJ: 0008-13-125, etc.



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CSJ: 0008-13-125, etc.

Page 2

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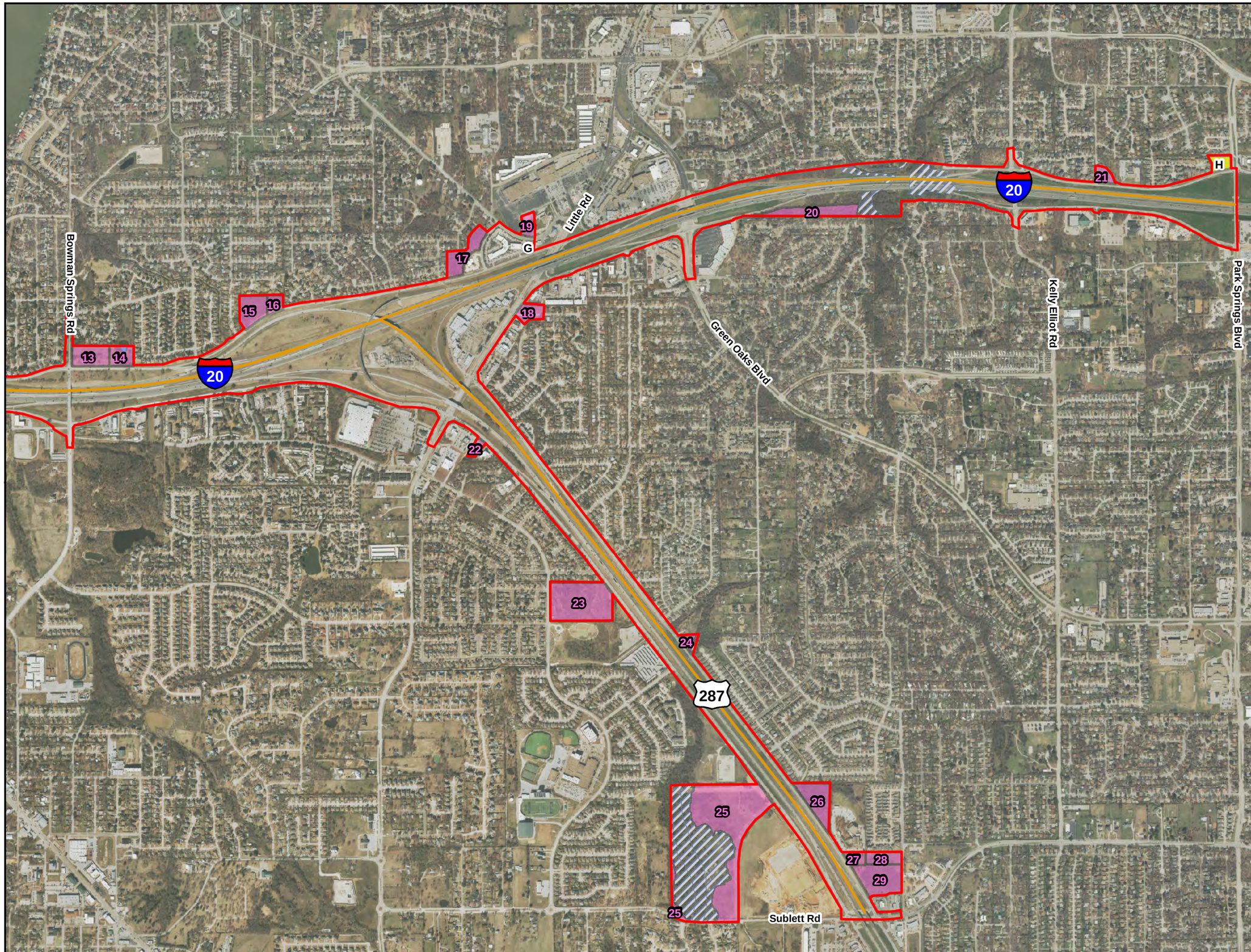
0 1,250 2,500
Feet

Base Map Source: TxDOT (2018)

Legend

- Project Limits
- Area of Influence (AOI)
- Potential Induced Growth
- Planned Development
- Open Water
- Wetland
- 100-Year Floodplain



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CSJ: 0008-13-125, etc.

Page 3

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Feet

Base Map Source: TxDOT (2018)

Legend

- Project Limits
- Area of Influence (AOI)
- Potential Induced Growth
- Planned Development
- Open Water
- Wetland
- 100-Year Floodplain

APPENDIX A
CITY MEETING SUMMARIES

Induced Growth Analysis

Appendix A

City Meeting Summaries

Southeast Connector

I-20/I-820/US 287 Interchanges

I-20 from Forest Hill Drive to Park Springs Boulevard

I-820 from I-20 to Brentwood Stair Road

US 287 from Bishop Street to Sublett Road

Tarrant County, Texas
Fort Worth District

Main CSJ: 0008-13-125, etc.

The environmental review, consultation, and other actions required by applicable Federal environmental laws for this project are being, or have been, carried-out by TxDOT pursuant to 23 U.S.C. 327 and a Memorandum of Understanding dated December 16, 2014, and executed by FHWA and TxDOT.

Forest Hill; Forest Hill City Hall; 2:00 pm; July 17, 2019

CAI representatives Austin Gibson and Katrina Harrison met with Ms. Venus Wehle (Director of Community Development Corporation and Civic & Convention Center) and discussed areas of potential for induced growth. Ms. Wehle noted that while Forest Hill is largely built out, there were a handful of undeveloped adjacent parcels that would likely develop as a result of the project. One area near the project had development plans, but was distant enough from the project to not need inclusion in the AOI. Ms. Wehle did not foresee any existing developments as being likely for redevelopment as a result of the project.

Kennedale; Kennedale Municipal Building; 2:00 pm; July 17, 2019
CAI representatives Austin Gibson and Katrina Harrison met with Ms. Melissa Dailey (Director of Planning and Economic Development) and discussed areas of potential for induced growth. Ms. Dailey identified an area adjacent to the I-820/I-20 interchange as the only portion of Kennedale as being likely impacted by the proposed project. The area is already mostly built-out, and Ms. Dailey foresees significant redevelopment between the interchange and nearby floodplain. The existing developed areas are seen as likely foreseeable actions based on her descriptions. As a result, only adjacent undeveloped lands within this area were included in the AOI. Other areas of Kennedale were seen by Ms. Dailey as being too distant from the project location.

Arlington; Emails; 9:30 am - 5:00 pm; July 23, 2019
Email discussions were held between Austin Gibson and Lyndsay Mitchell (Strategic Planning Manager) where planning documents suggested, were approved for use by Ms. Mitchell for the creation of a revised AOI. Upon revising the AOI that afternoon to only encompass adjacent undeveloped lands along I-20 and US 287 within the project corridor, this draft was sent to Ms. Mitchell. She agreed with these additions which were included in a final AOI.

Fort Worth; Fort Worth City Hall; 3:30 pm; July 30, 2019
Austin Gibson previously communicated with Marva Fuller-Slider to schedule a meeting date and time. Patrina Newton (Senior Planner) later requested shapefiles for maps that were created and provided at the meeting.

CAI representatives Austin Gibson and Katrina Harrison met Ms. Newton at 3:30 pm where she walked them to the meeting room and discussed potential induced growth along the project. She provided CAI with a map they created using their data and shapefiles of the AOI and RSA previously provided by Austin. This map indicated areas of Fort Worth they believed would have general induced growth. Ms. Newton discussed these areas while they waited for other Fort Worth employees.

Other Fort Worth employees that later attended the meeting included Eric Fladager (Planning Manager) and Natalie Watkins (Senior Planner).

The City of Fort Worth Planners discussed the areas selected between I-820 and Lake Arlington, and along the western side of I-820 around US 287. They detailed general plans for future land use and redevelopment for these areas, foreseeing substantial redevelopment as a result of the project. They also noted some general areas of planned development. Ms. Watkins later provided the information as GIS data, along with various existing land uses, on August 5, 2019.

The CAI representatives asked the Fort Worth employees why other areas along the project would or would not be included in the AOI, such as along Miller Road near US 287 or Lancaster Ave along I-820. They did not feel areas such as those would be prone to redevelopment. In addition, they didn't think the project would impact the areas in a substantial way.

CAI reevaluated the data that Fort Worth provided and questioned whether the areas they provided were actually induced growth as a result of the project improvements, or foreseeable growth that may result from a number of influences within the temporal timeframe we set (2045). We contacted Fort Worth planning representatives via email once again on August 28 to ask these questions along with the question of where they believed specific induced growth might occur if they didn’t agree. On September 4, Eric Fladager agreed with our reinterpretation of the data they provided and as a result, the AOI was significantly reduced to only include adjacent undeveloped land, which included planned developments that were noted in the report.