
Oak Hill Parkway
Biological Resources
Technical Report
Addendum #2



OAK HILL
P A R K W A Y

U.S. Highway 290 (US 290) / State
Highway (SH) 71 West from State Loop 1
(Mopac) to West of Ranch-to-Market (RM)
1826 and US 290 to Silvermine Drive

Travis County, Texas

CSJ # 0113-08-060 and 0700-03-077

November 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 16, 2014, and executed by FHWA and TxDOT.



TABLE OF CONTENTS

1.	Introduction	4
1.1	2019 Reevaluation #2	4
2.	General Description of the Oak Hill Parkway Project Area	4
3.	Geology	4
3.1	Geology	4
4.	Water Resources	5
5.	Vegetation	5
5.1	Vegetation Impacts	6
6.	Habitat for Threatened or Endangered Species	6
6.1	Federally-Listed Species	8
7.	Conclusions	8
8.	References	10

LIST OF TABLES

Table 1: Impacts to Observed Vegetation Types..... 6

ATTACHMENTS

Attachment A: Figures

Attachment B: Project Area Photographs

Attachment C: County Lists

FIGURES

Figure 1: Project Location (Aerial Base)

Figure 2: Project Area Geology

Figure 3: Geologic Features and Karst Zones

Figure 4a-b: Water Resources

Figure 5a-h: Observed Vegetation Types

1. INTRODUCTION

In December 2018, the Texas Department of Transportation (TxDOT) approved a Final Environmental Impact Statement (EIS) and Record of Decision (ROD) for mobility improvements to U.S. Highway (US) 290/State Highway (SH) 71 West from State Loop 1 (MoPac) to west of Ranch-to-Market Road (RM) 1826 and from US 290 to Silvermine Drive (**Figure 1**). The proposed project, known as the Oak Hill Parkway (OHP) Project, is located in Travis County, Texas, and is shown on the USGS 7.5' quadrangle maps for *Bee Cave*, *Oak Hill*, and *Signal Hill*, Texas.

The proposed OHP Project and previous environmental analyses are described in detail in the Final EIS and ROD, and subsequent May 2019 Reevaluation (Reevaluation #1) (available online at <https://www.oakhillparkway.com/environmental/>).

1.1 2019 Reevaluation #2

As a result of project design changes following the 2018 ROD and Reevaluation #1, TxDOT is conducting a second documented reevaluation to determine whether the previous environmental decision remains valid under circumstances listed in 43 TAC 2.85 and 23 CFR 771.129. A detailed list of design revisions is included in the Documented Reevaluation Checklist and displayed on the revised schematics (available for review at the TxDOT Austin District Office). This *Biological Resources Technical Addendum #2* has been prepared to document any change in resource impacts resulting from the 2019 Reevaluation #2 design modifications.

2. GENERAL DESCRIPTION OF THE OAK HILL PARKWAY PROJECT AREA

The 2019 design revisions would not result in a change to the findings described in the Final EIS/ROD and Reevaluation #1 for the regulations and resources listed below:

- Executive Order 13112 on Invasive Species
- Executive Memorandum on Beneficial Landscaping
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act
- Bald and Golden Eagle Protection Act
- Farmland Protection Policy Act

Additionally, the natural setting, soils, underlying geologic formations, or impacts to unusual vegetation or special habitat features, and preserve and conservation lands have not changed as a result of design modifications associated with Reevaluation #2.

3. GEOLOGY

3.1 Geology

The project area geology remains the same as that described in the Final EIS/ROD and Reevaluation #1. A Geologic Assessment (GA) was conducted for the portion of the project area located over the

Edwards Aquifer Recharge Zone in 2009, updated in 2016 (Rahe, 2009; HDR, 2016), and revised in 2019 (HDR, 2019). Six geologic features were documented and discussed in the Final EIS/ROD (**Figures 2 and 3**). All six previous features were located in the general vicinity of Williamson Creek at the US 290/SH 71 crossing. The six features described in 2016 were evaluated as sensitive (i.e., they have the potential to provide aquifer recharge pathways) and located over the Edwards Aquifer Recharge Zone. Six additional features were documented in a revised GA completed in March 2019 for Reevaluation #1 (HDR, 2019a). A second revised GA was completed in November 2019 and one additional non-sensitive feature (F-13, cliff face) was noted within the project area (HDR, 2019b). The November 2019 GA is available for review at the TxDOT Austin District. Therefore, the BMPs identified in the Final EIS/ROD remain valid for this project.

4. WATER RESOURCES

The project area contains 12 potentially jurisdictional streams and one potentially jurisdictional wetland. Of the delineated streams and wetland, 8 features would be impacted by the proposed project (**Figure 4a-b**). The impacts to these waters would occur from extending existing culverts, placing fill for concrete aprons and/or rock rip rap at bridges, and placing temporary fills during construction. Exact fill types and amounts would be determined once design is finalized, but impacts are anticipated to be permitted with a Nationwide Permit 14 with Pre-construction Notification for linear transportation projects from U.S. Army Corps of Engineers. It is likely that a Pre-Construction Notification would be required due to impacts associated with the wetland and impacts exceeding 0.1 acres or 300 linear feet at individual crossings. Preliminary design indicates that many of the stream crossings would be bridged, which would minimize or avoid potential fill impacts at these locations. All proposed roadway and drainage improvements would be designed in a manner to avoid or minimize impacts to jurisdictional features. To date, no coordination with the USACE regarding jurisdictional determinations or wetland delineations has occurred regarding the OHP project. A detailed explanation of wetlands and waters within the project area can be found in the *Oak Hill Parkway Water Resources Technical Report Addendum #2* (TxDOT, 2019a). No significant impacts to waters of the U.S., including wetlands, are anticipated as a result of the proposed design revisions.

5. VEGETATION

The following Ecological Mapping Systems of Texas (EMST) vegetation types were identified within the project area: (1) Edwards Plateau: Ashe Juniper Motte and Woodland, (2) Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland, (3) Edwards Plateau: Savanna Grassland, (4) Edwards Plateau: Floodplain Juniper Shrubland, (5) Edwards Plateau: Riparian Hardwood Forest, (6) Native Invasive: Mesquite Shrubland, and (7) Urban Low Intensity (**Figure 5a-h**). These seven EMST types correspond to the “Disturbed Prairie”, “Edwards Plateau Savannah, Woodland, and Shrubland”, “Floodplain”, “Riparian”, and “Urban” habitat types which are identified in the 2013 TxDOT – Texas Parks and Wildlife (TPWD) Memorandum of Understanding (MOU) Programmatic Agreement 2017 Revision.



5.1 Vegetation Impacts

As a result of the 2019 Reevaluation #2 design revisions, vegetation impacts within the OHP Project area have decreased by approximately 25.66 acres compared to the 2018 Final EIS/ROD and by 29.25 acres since the Reevaluation #1 (**Table 1**). According to the TxDOT-TPWD *Threshold Table Programmatic Agreement* (PA) under the MOU, coordination thresholds for three MOU habitat types would be exceeded by the proposed improvements; however, coordination with TPWD was completed as a result of the EIS process. The additional vegetation impacts would not occur in a new MOU habitat type nor would they result in the project exceeding a new vegetation threshold; therefore, the revised vegetation impacts would not require re-coordination with TPWD.

Table 1: Impacts to Observed Vegetation Types

Observed Vegetation Type	Corresponding MOU Type	2018 Final EIS/ROD Impacts (acres)	2019 Reevaluation #1 Impacts (acres)	2019 Reevaluation #2 Impacts (acres)	PA Threshold (acres)	Threshold Exceeded ?
Urban	Urban	123.39	120.45	109.40	None	N/A
Edwards Plateau Ashe Juniper, Motte and Woodland	Edwards Plateau Savannah, Woodland, and Shrubland	24.74	25.56	22.41	3.0	Yes
Edwards Plateau Deciduous Oak/ Evergreen Mottle Woodland		54.32	53.21	54.41		
Edwards Plateau: Savanna Grassland		18.68	18.48	7.10		
<i>MOU Total</i>		97.74	97.25	83.39		
Edwards Plateau: Floodplain Ashe Juniper Shrubland	Riparian	0.06	0.06	0.06	0.1	Yes
Edwards Plateau: Riparian Hardwood Forest		19.48	19.43	18.04		
<i>MOU Total</i>		19.49	19.54	18.10		
Native Invasive: Mesquite Shrubland	Disturbed Prairie	3.92	3.81	3.92	3.0	Yes
Total		241.00	244.59	215.34		

6. HABITAT FOR THREATENED OR ENDANGERED SPECIES

Lists of threatened and endangered species maintained by the USFWS Information for Planning and Conservation (IPaC) system and TPWD were consulted to determine which species could occur in the project area (**Attachment C**).

A habitat assessment for each species was completed utilizing a combination of desktop analysis, such as vegetation mapping, soils and geology information, and field verification by qualified biologists (USFWS Species Recovery Permit # TE168185-3 and TPWD Scientific Research Permit #

SPR-0691-409). No additional species have been added to the county or federal list (TPWD, 2019; USFWS, 2019). The proposed design modifications under Reevaluation #2 have not resulted in a change of impact or effect determinations presented in the documentation for Reevaluation #1 (TxDOT, 2019b).

Several species have undergone a change in listing status or scientific name. These species are listed below:

- Golden orb (*Cyclonaias pustulosa*): formerly *Quadrula aurea*, has now been determined as not genetically distinct from the smooth pimpleback (Williams *et al.*, 2017). Golden orb is no longer a candidate species or listed as state-threatened.
- Smooth pimpleback (*Cyclonaias pustulosa*): formerly *Cyclonaias houstonensis* (Johnson *et al.*, 2017); still listed threatened by TPWD, listing status revised to “not listed” by the USFWS.
- Texas pimpleback (*Cyclonaias petrina*): formerly *Quadrula petrina* (Johnson *et al.*, 2017); listing status has not changed.

6.1 Federally-Listed Species

According to the USFWS (2019) and TPWD (2019) data, 25 species federally-listed as threatened, endangered, or as candidates for listing have the potential to occur in Travis County. Initial field investigations were performed in the spring and winter of 2016. The Final EIS/ROD documented that the project area contains potentially suitable habitat for three federally-listed endangered species (Barton Springs salamander, Austin blind salamander, and Bee Creek Cave harvestman) and one candidate species (bracted twistflower). TxDOT completed informal consultation in December 2017 with the USFWS and received concurrence on the above effect determinations.

Although the proposed design revisions under Reevaluation #2 have altered several of existing consultation commitments for the project, TxDOT will continue to meet the net zero over baseline commitment for TSS under the proposed OHP design. Additionally, Reevaluation #2 would not result in impacts not previously discussed during the consultation process and the original effect determination for the Barton Springs and Austin blind salamander remain valid. A revised GA was completed in November 2019 and no sensitive recharge features or features containing suitable karst invertebrate habitat were observed. Additionally, no federally-listed salamanders or their habitats were identified during the 2019 site visits. Therefore, Reevaluation #2 is not anticipated to result in adverse effects to federally-listed species or critical habitat. All voluntary conservation measures identified in the 2017 concurrence letter from the USFWS remain in effect, except for where they have been modified and summarized in the revised consultation letter, submitted under separate cover to the USFWS in November 2019.

7. CONCLUSIONS

This *Biological Resources Technical Addendum #2* has been prepared to document new ecological impacts resulting from the 2019 Reevaluation #2 design changes. The changes to previous documentation as the result of additional analysis are summarized below:

- A wetland/waters of the U.S. delineation was conducted in March 2019. Additional design information to determine impacts to waters of the US that were not discussed in the Final EIS/ROD and Reevaluation #1 have been assessed. No significant impacts to waters of the U.S. or wetlands are anticipated as a result of the proposed design revisions. Wetland/Waters impacts are discussed in *Oak Hill Parkway Water Resources Technical Report Addendum #2* (TxDOT, 2019a).
- As a result of the 2019 Reevaluation #2 design revisions, vegetation impacts within the OHP project area have decreased by approximately 25.66 acres since the 2018 ROD and by 29.25 acres since the Reevaluation #1. No new vegetation communities, unusual vegetation, or special habitat features would be impacted as a result of the 2019 Reevaluation #2 design revisions. Final tree impacts would be calculated once design is finalized.

- TxDOT completed consultation in December 2017 with the USFWS and received concurrence on the effect determinations for the Barton Springs salamander and the Austin blind salamander. No federally-listed species were identified within the project area during field investigations in 2016 or 2019. Additional communication with the USFWS regarding the current design modification would occur prior to the environmental clearance of Reevaluation #2.
- All species impact/effect determinations were reassessed as a result of the 2019 Reevaluation #2 design revisions. No change to the species calls for federally-listed or Species of Greatest Conservation Need were made since the previous environmental documentation.
- All biological permits and commitments identified in the Final EIS/ROD are valid and will be incorporated into the 2019 Reevaluation #2.

8. REFERENCES

- HDR. 2016. Revised Geologic Assessment. December 2016.
- HDR. 2019a. Revised Geologic Assessment. March 2019.
- HDR. 2019b. Revised Geologic Assessment. November 2019.
- Johnson, N., Smith, C., Pfeiffer III, J., Randklev, C., Williams, J., Austin, J. 2018. Integrative taxonomy resolves taxonomic uncertainty for freshwater mussels being considered for protection under the U.S. Endangered Species Act OPEN. *Scientific Reports*. 8. 1-16. 10.1038/s41598-018-33806-z.
- Rahe, Bret, R. 2009. Water Pollution and Abatement Plan and Geologic Assessment for Highway 290. Prepared by CH2M Hill, Inc. for Texas Department of Transportation.
- Texas Department of Transportation (TxDOT). 2019a. *Oak Hill Parkway Water Resources Technical Report Addendum #2*. Prepared by Cox|McLain Environmental Consulting. November 2019.
- Texas Department of Transportation (TxDOT). 2019b. *Oak Hill Parkway Biological Resources Technical Report Addendum*. Prepared by Cox|McLain Environmental Consulting. May 2019.
- Texas Parks and Wildlife Department (TPWD). 2019. “Annotated County Lists of Rare Species: Travis County.” Last revisions July 17, 2019. <http://tpwd.texas.gov/gis/rtest/>. Accessed November 19, 2019.
- U.S. Fish and Wildlife Service (USFWS). 2019. Information for Planning and Conservation (IPaC) “Official Species List for Project Area.” <http://www.fws.gov/endangered/>. Accessed November 21, 2019.
- Williams, J., Bogan, A., Butler, R., Cummings, K., Garner, J., Harris, J., Johnson, N., Watters, G. 2017. A Revised List of the Freshwater Mussels (Mollusca: Bivalvia: Unionida) of the United States and Canada. *Freshwater Mollusk Biology and Conservation*. 20. 33-58. 10.31931/fmbc.v20i2.2017.33-58.

Attachment A: Figures

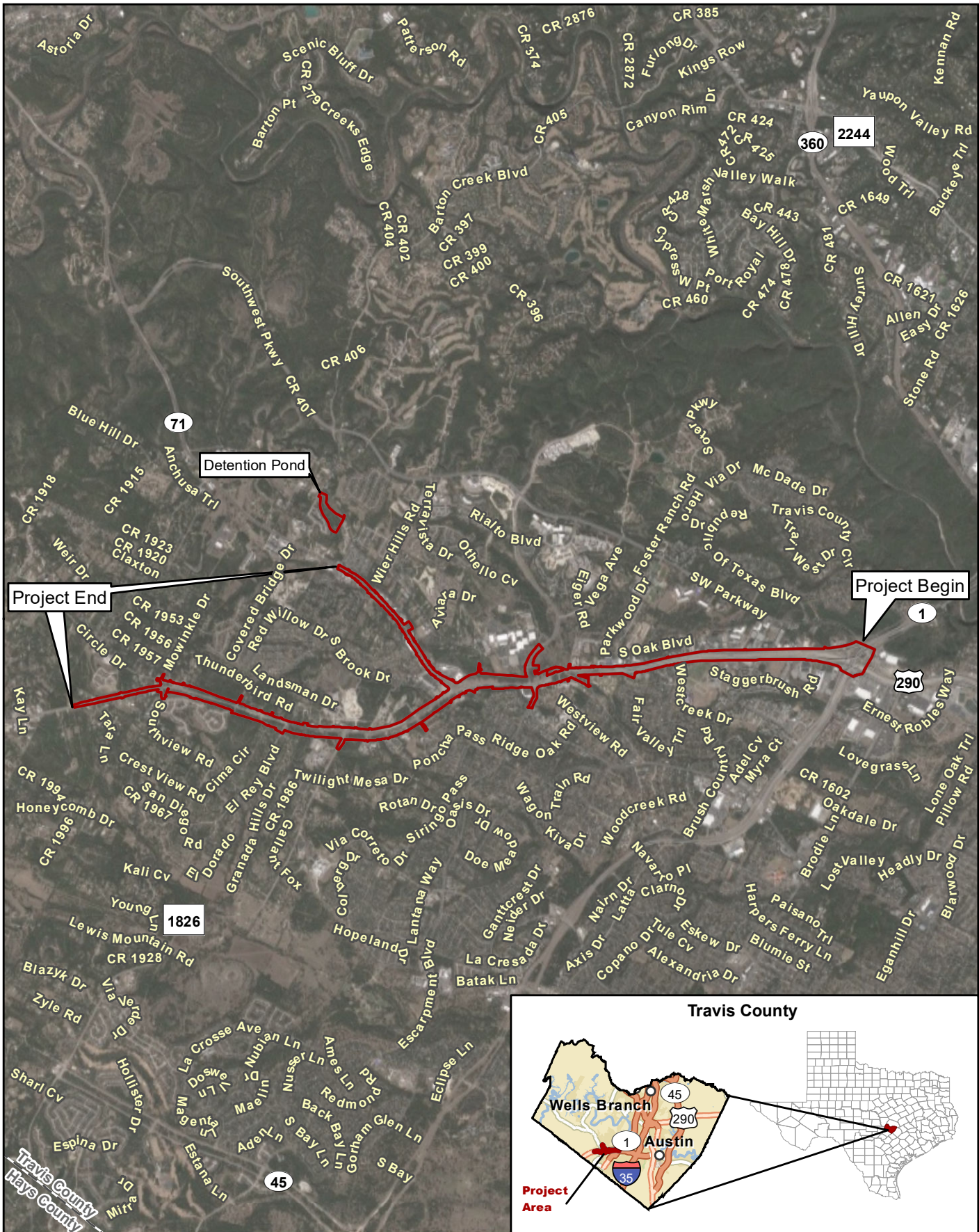


Figure 1. Project Location (Aerial Base)

Oak Hill Parkway: US 290W from Mopac/Loop1 to west of Circle Drive and SH 71 from US 290 to Silvermine Drive

Project Location



0 1 Mile
0 1.5 Kilometers

Prepared for: TxDOT	1 in = 1 mile
Scale: 1:63,360	Date: 11/15/2019

Basemap Source: Google (2018)

CSJ: 0113-08-060 and 0700-03-077

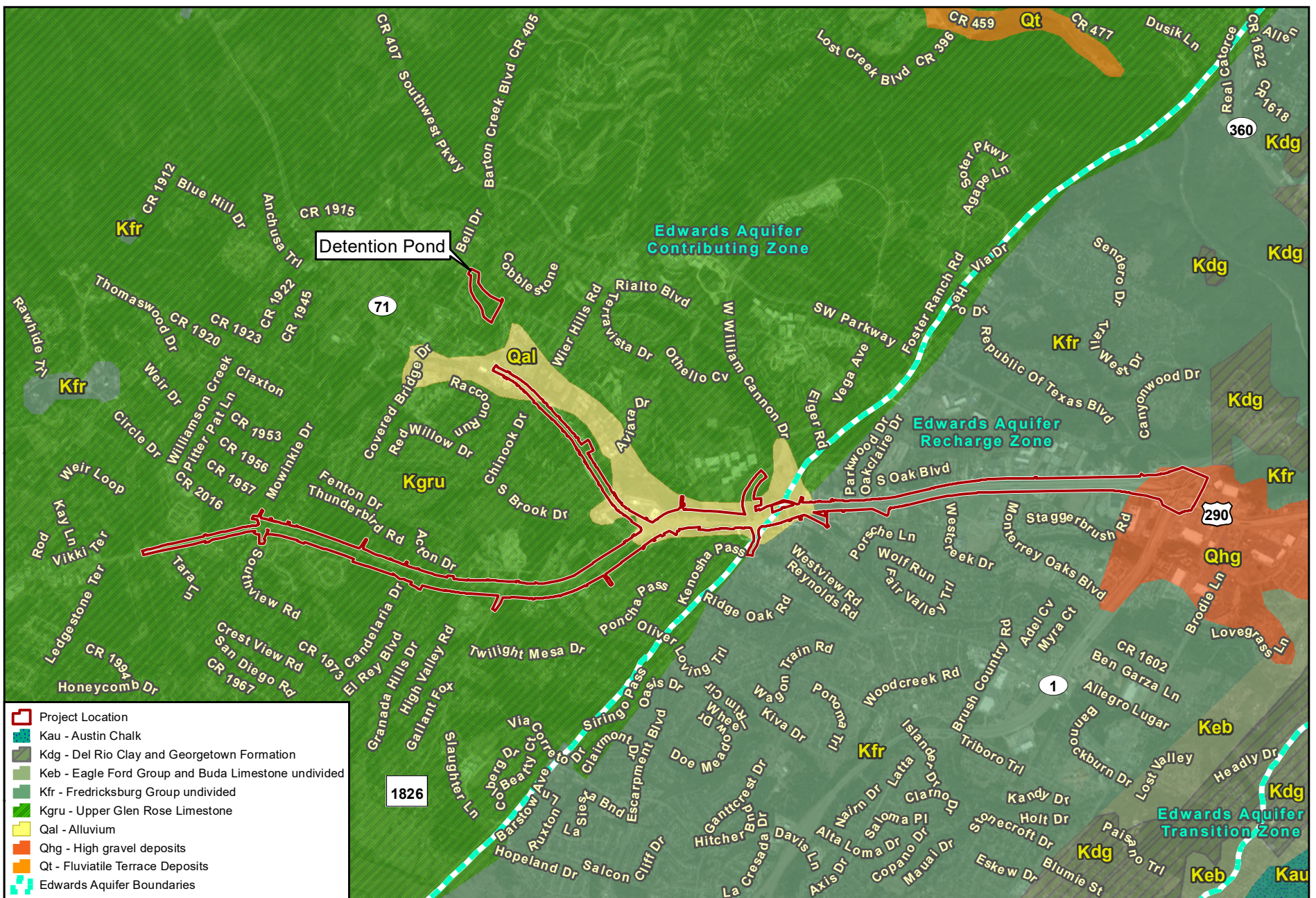


Figure 2. Project Area Geology

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Street

Data Sources: Geologic Database of Texas (2007)
 Geologic Atlas of Texas Austin Sheet (1981), TCEQ (2005)
 Aerial Source: Google (2018)

	0	0.75 Mile
	0	1 Kilometer
Prepared for: TxDOT	1 in = 0.75 mile	
CSJ: 0113-08-060 and 0700-03-077	Scale: 1:47,520	
	Date: 11/19/2019	

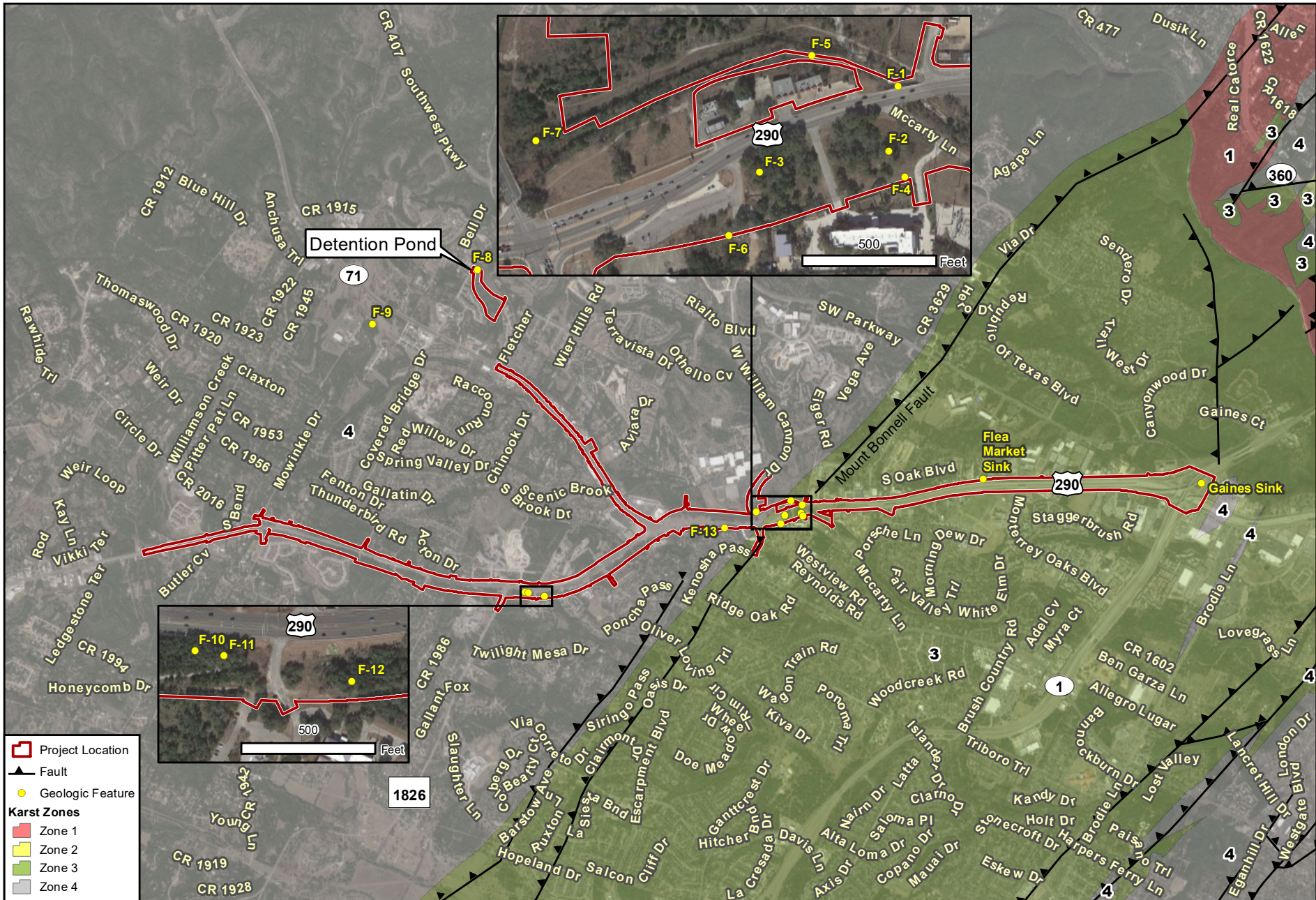
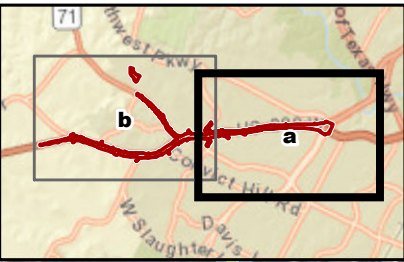
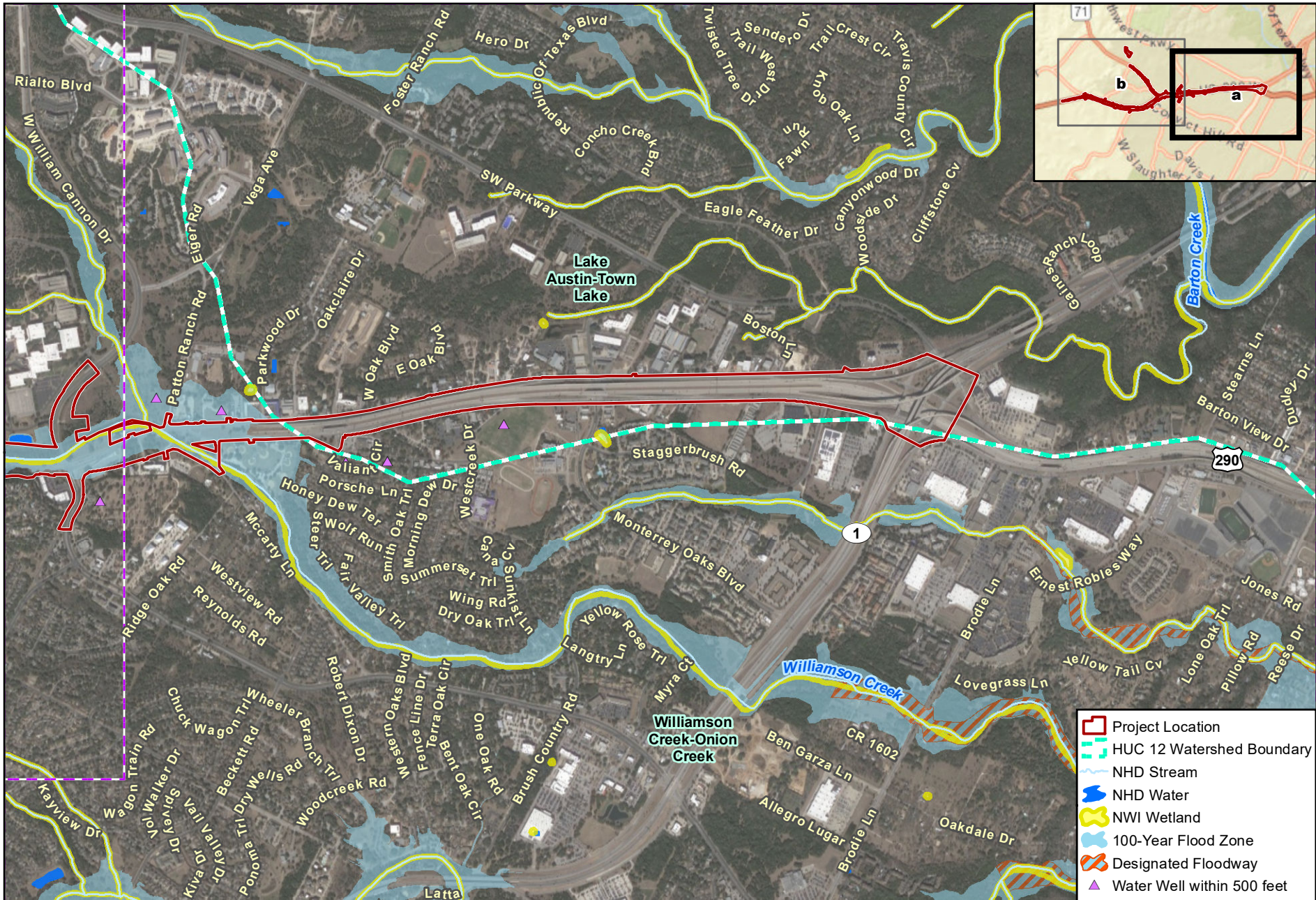


Figure 3. Geologic Features and Karst Zones

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

Data Sources: Geologic Database of Texas (2007), Veni (2007), HDR (2019), Aerial Source: Google (2018)

	0	0.75 Mile
	0	1 Kilometer
Prepared for: TxDOT	1 in = 0.75 mile	
CSJ: 0113-08-060 and 0700-03-077	Scale: 1:47,520	
	Date: 11/22/2019	



- ▭ Project Location
- - - HUC 12 Watershed Boundary
- NHD Stream
- NHD Water
- NWI Wetland
- 100-Year Flood Zone
- ▨ Designated Floodway
- ▲ Water Well within 500 feet

Figure 4a. Water Resources

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

 0 2,000 Feet 0 600 Meters	Prepared for: TxDOT	1 in = 2,000 feet
	Data Sources: NHD (2018), NWI (2018), FEMA NFHL (2018), TWDB (2019), HDR (2019)	Scale: 1:24,000
Aerial Source: Google (2018)		Date: 11/19/2019

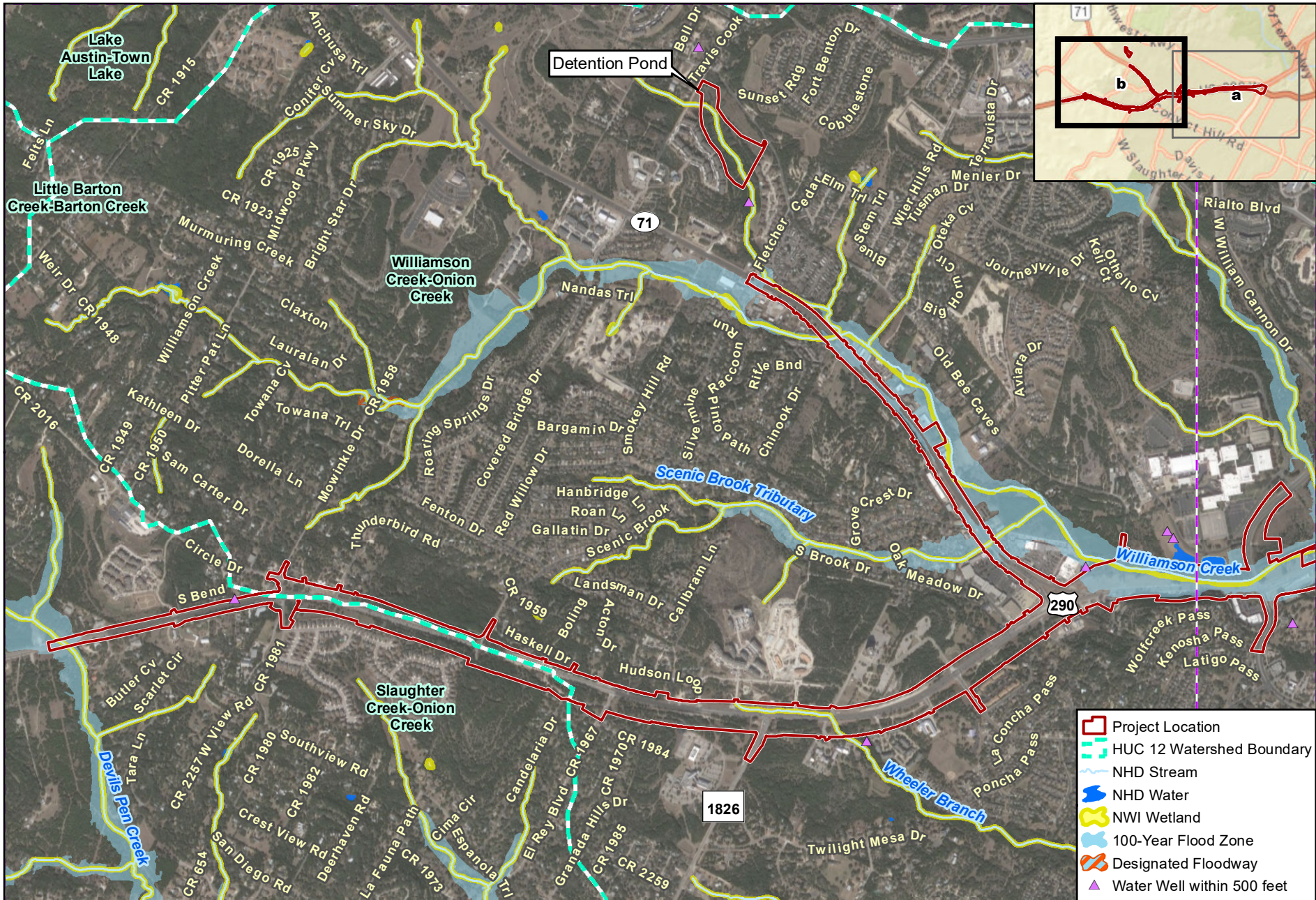


Figure 4b. Water Resources

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

Data Sources: NHD (2018), NWI (2018), FEMA NFHL (2018), TWDB (2019), HDR (2019)
Aerial Source: Google (2018)

	0	2,000 Feet
	0	600 Meters
Prepared for: TxDOT	1 in = 2,000 feet	
CSJ: 0113-08-060 and 0700-03-077	Scale: 1:24,000	
	Date: 11/19/2019	

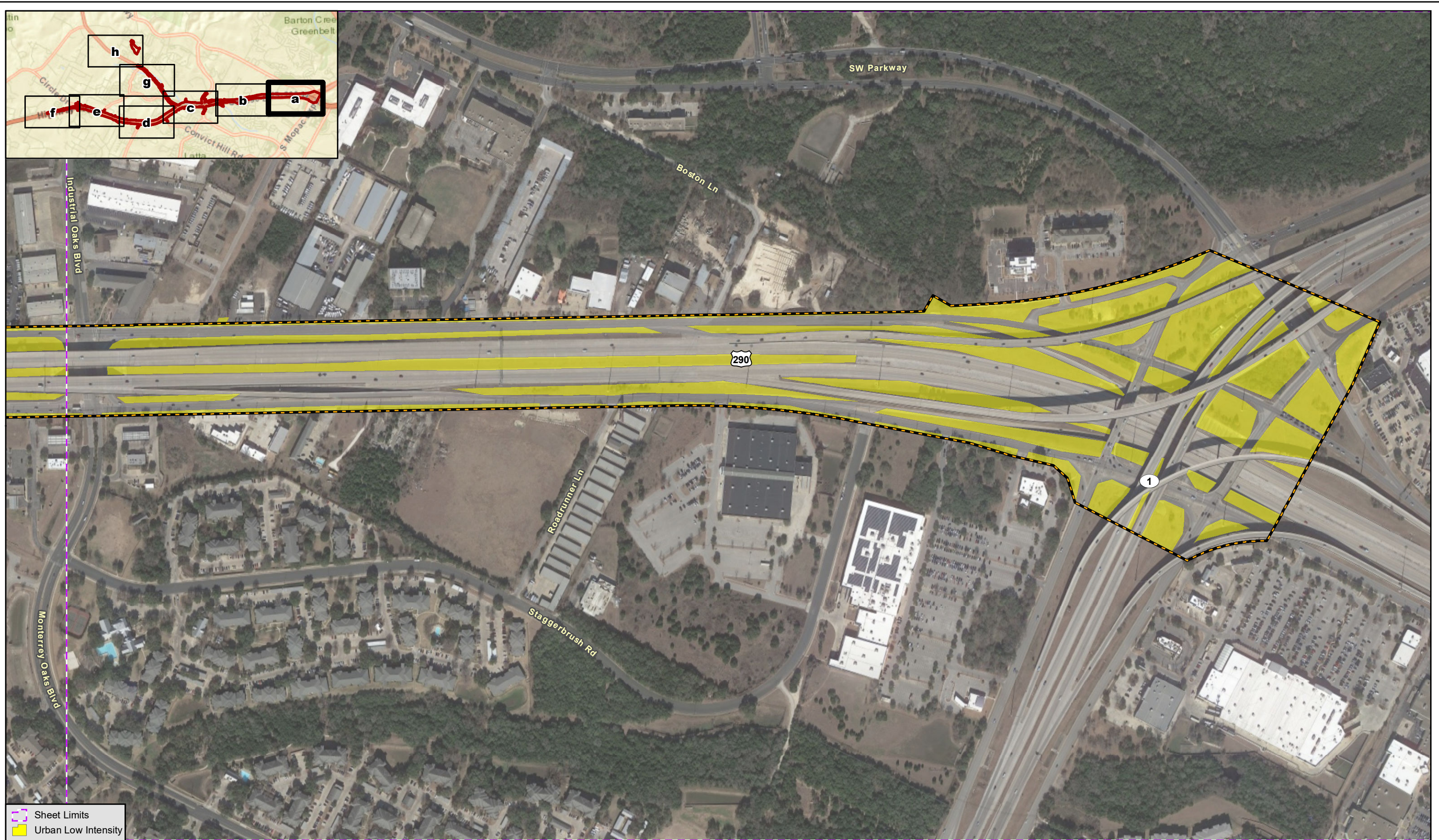


Figure 5a. Observed Vegetation Types

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

G:\Projects\TXDOT\US290\Bio_PROD2_Figure 5_ObservedVeg_20191119.mxd

Existing Right-of-Way

Data Source: CMEC (2016)
Aerial Source: Google (2018)

		Prepared for: TxDOT	1 in = 400 feet
		CSJ: 0113-08-060 and 0700-03-077	Scale: 1:4,800 Date: 11/20/2019

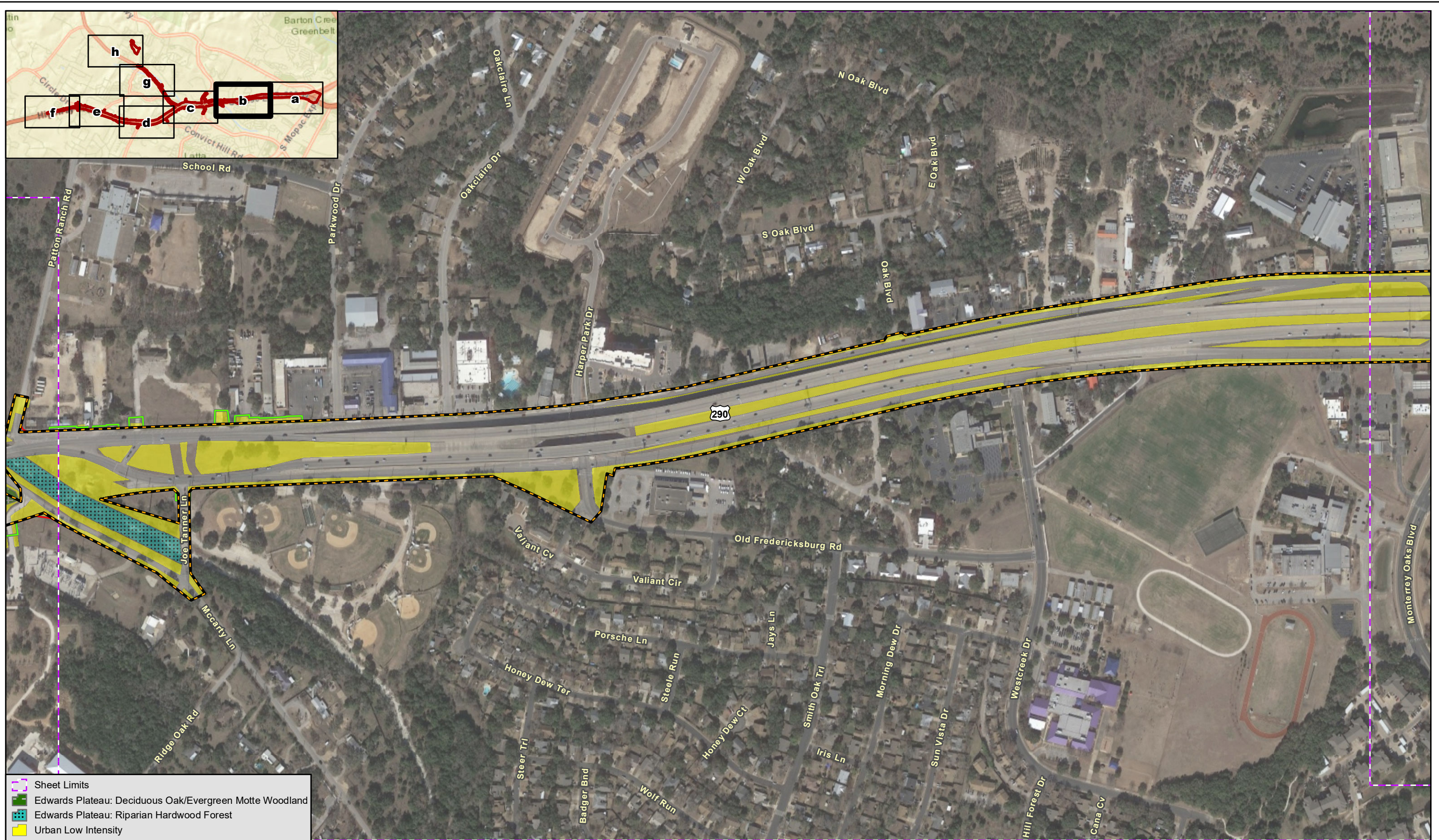






Figure 5b. Observed Vegetation Types
 Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

-  Existing Right-of-Way
-  Proposed Right-of-Way
-  Proposed Driveway License

	0	400 Feet
	0	120 Meters
Prepared for: TxDOT	1 in = 400 feet	
Data Source: CMEC (2016)	Scale: 1:4,800	
Aerial Source: Google (2018)	Date: 11/20/2019	
CSJ: 0113-08-060 and 0700-03-077		

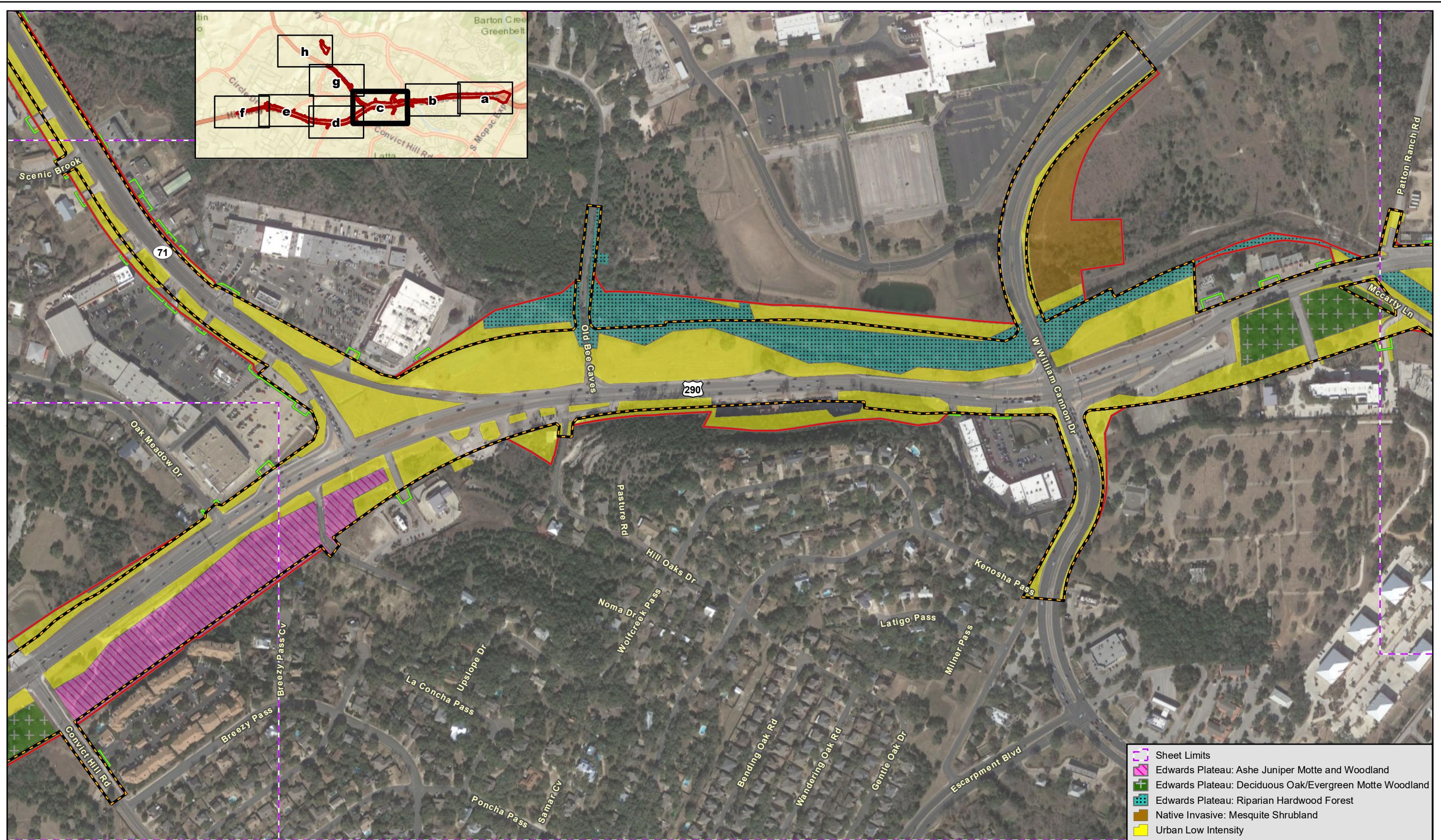






Figure 5c. Observed Vegetation Types

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

-  Existing Right-of-Way
-  Proposed Right-of-Way
-  Proposed Driveway License

-  Sheet Limits
-  Edwards Plateau: Ashe Juniper Motte and Woodland
-  Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland
-  Edwards Plateau: Riparian Hardwood Forest
-  Native Invasive: Mesquite Shrubland
-  Urban Low Intensity

	0	400 Feet
	0	120 Meters
Prepared for: TxDOT	1 in = 400 feet	
Data Source: CMEC (2016)	Scale: 1:4,800	
Aerial Source: Google (2018)	Date: 11/20/2019	
CSJ: 0113-08-060 and 0700-03-077		

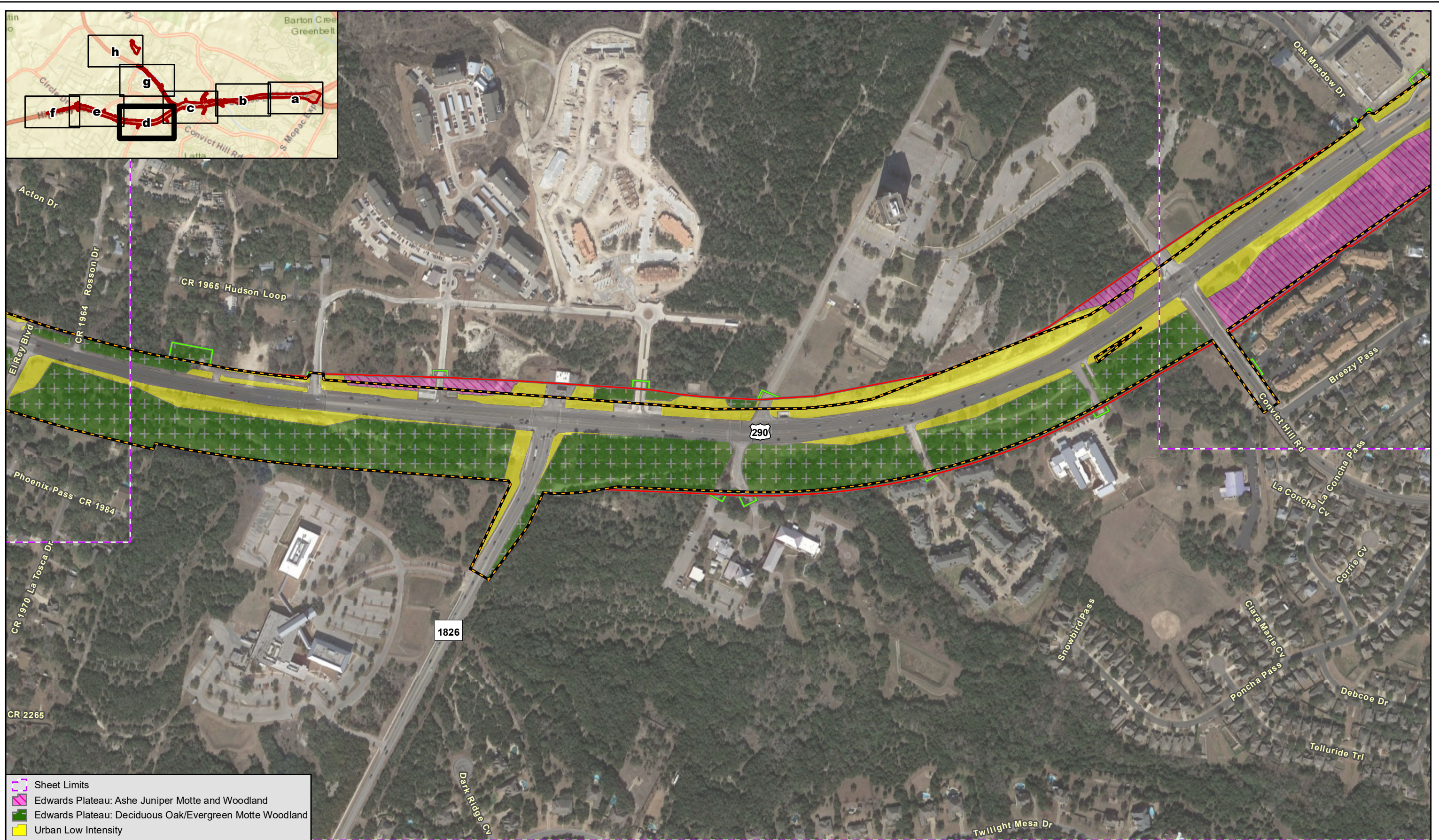


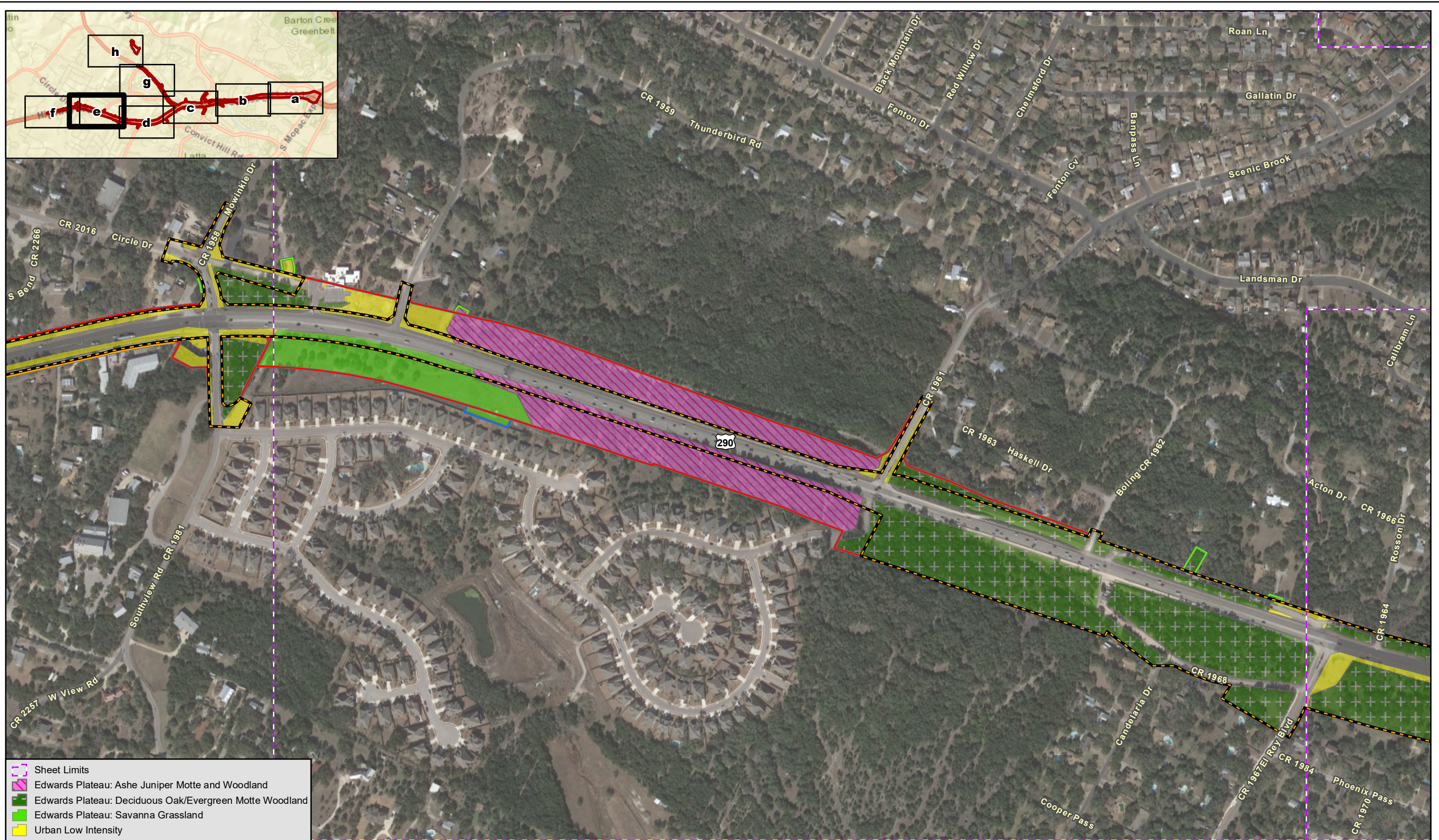
Figure 5d. Observed Vegetation Types

Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

G:\Projects\TXDOT\US290\Bio_PROD2_Figure 5_ObservedVeg_20191119.mxd

- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Driveway License

	0	400 Feet
	0	120 Meters
Prepared for: TXDOT	1 in = 400 feet	
Data Source: CMEC (2016)	Scale: 1:4,800	
Aerial Source: Google (2018)	Date: 11/20/2019	
CSJ: 0113-08-060 and 0700-03-077		



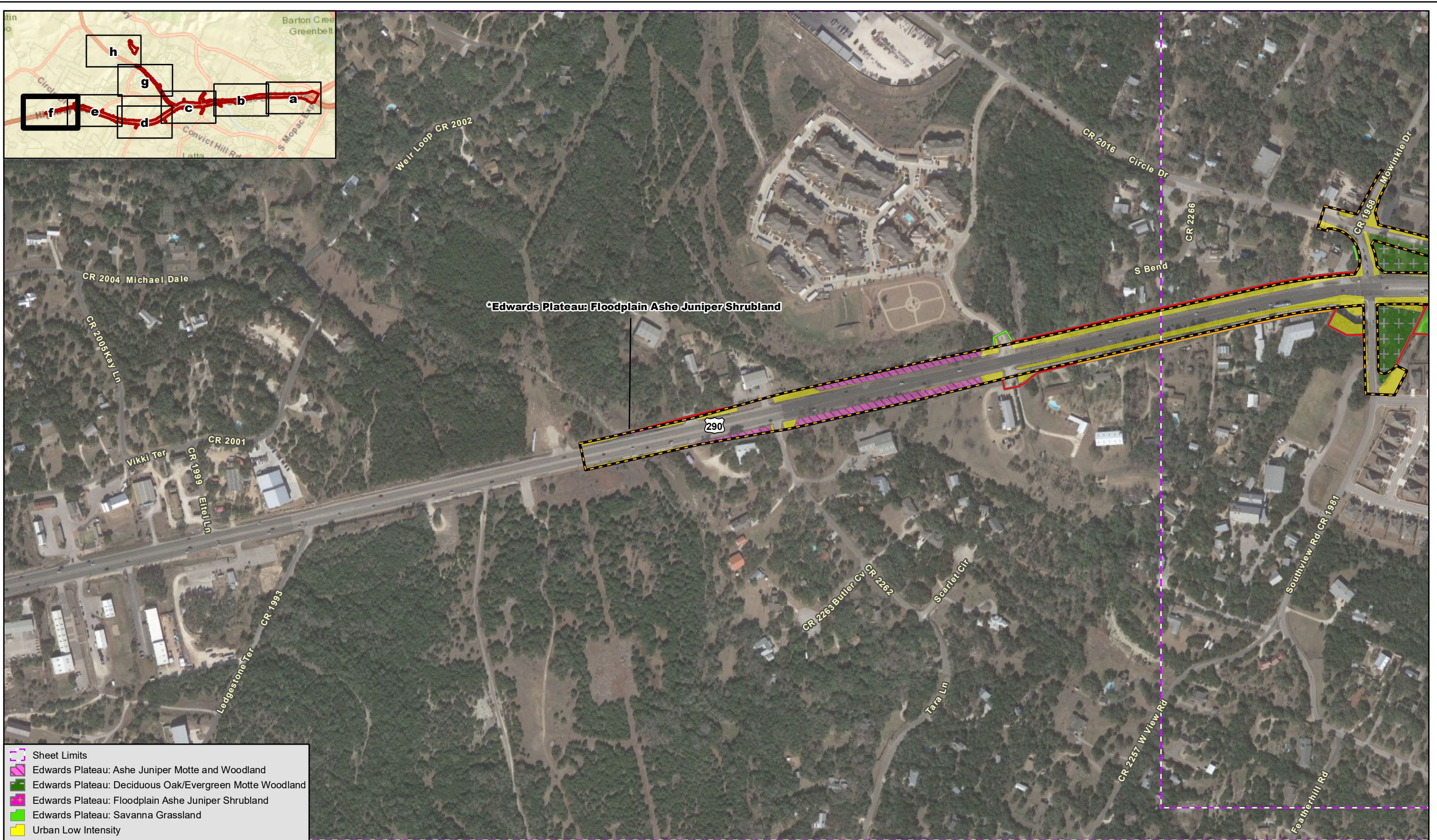
- Sheet Limits
- Edwards Plateau: Ashe Juniper Motte and Woodland
- Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland
- Edwards Plateau: Savanna Grassland
- Urban Low Intensity

- Existing Right-of-Way
- Temporary Construction Easement
- Proposed Right-of-Way
- Proposed Driveway License
- Proposed Permanent Easement

Figure 5e. Observed Vegetation Types
 Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

 0 400 Feet 0 120 Meters	Prepared for: TxDOT	1 in = 400 feet
	Data Source: CMEC (2016) Aerial Source: Google (2018)	Scale: 1:4,800
CSJ: 0113-08-060 and 0700-03-077		Date: 11/20/2019

G:\Projects\TXDOT\US290\Bio_PROD2_Figure 5_ObservedVeg_20191119.mxd

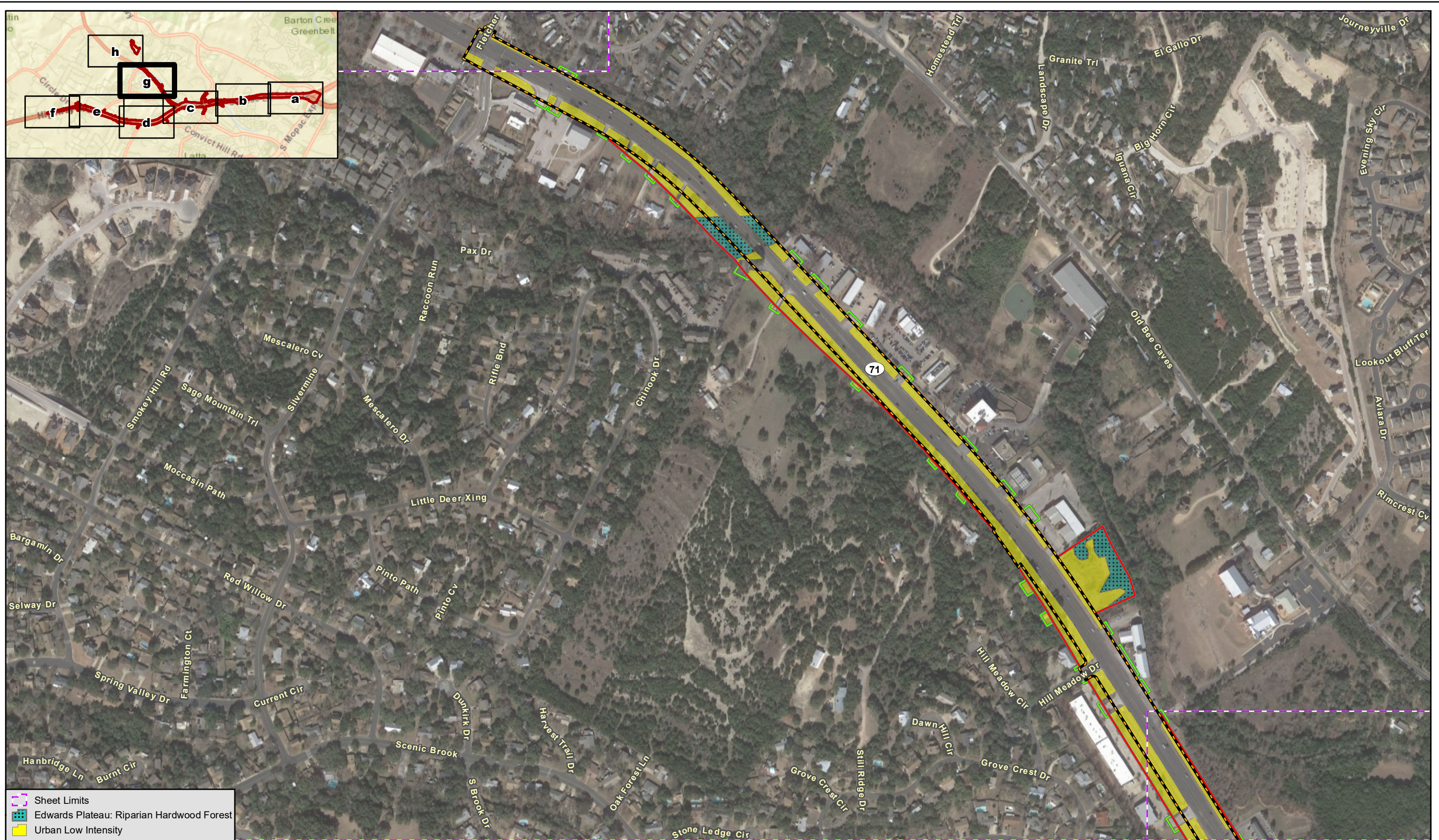


- Sheet Limits
- Edwards Plateau: Ashe Juniper Motte and Woodland
- Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland
- Edwards Plateau: Floodplain Ashe Juniper Shrubland
- Edwards Plateau: Savanna Grassland
- Urban Low Intensity

- Existing Right-of-Way
- Proposed Right-of-Way
- Temporary Construction Easement
- Proposed Driveway License

Figure 5f. Observed Vegetation Types
 Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

	Prepared for: TxDOT Data Source: CMEC (2016) Aerial Source: Google (2018)	1 in = 400 feet Scale: 1:4,800 Date: 11/20/2019



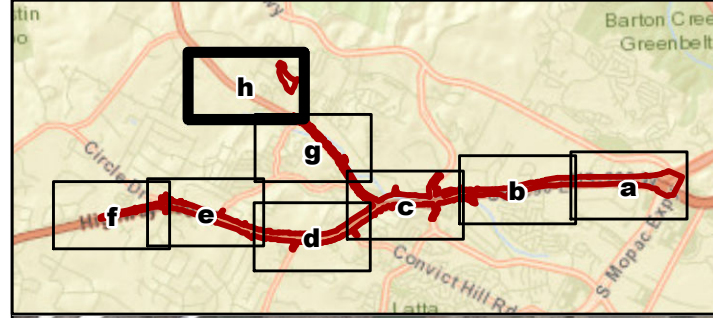
- Sheet Limits
- Edwards Plateau: Riparian Hardwood Forest
- Urban Low Intensity

- Existing Right-of-Way
- Proposed Right-of-Way
- Proposed Driveway License

Figure 5g. Observed Vegetation Types
 Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

	Prepared for: TxDOT Data Source: CMEC (2016) Aerial Source: Google (2018) CSJ: 0113-08-060 and 0700-03-077 Scale: 1:4,800 Date: 11/20/2019

G:\Projects\TXDOT\US290\Bio_PROD2_Figure 5_ObservedVeg_20191119.mxd



- Sheet Limits
- Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland
- Edwards Plateau: Riparian Hardwood Forest
- Edwards Plateau: Savanna Grassland
- Urban Low Intensity

- Existing Right-of-Way
- Proposed Permanent Easement
- Proposed Driveway License

Figure 5h. Observed Vegetation Types
 Oak Hill Parkway: US 290W from Mopac/Loop 1 to west of Circle Drive and SH 71 from US 290W to Silvermine Drive

G:\Projects\TXDOT\US290\Bio_PROD2_Figure 5_ObservedVeg_20191119.mxd

Data Source: CMEC (2016) Aerial Source: Google (2018)	Prepared for: TxDOT CSJ: 0113-08-060 and 0700-03-077 1 in = 400 feet Scale: 1:4,800 Date: 11/20/2019

Attachment B: Project Area Photographs



Photograph 1: Commercial land use along SH 71 south of Williamson Creek crossing; facing south.



Photograph 2: Urban land use and commercial properties along US 290; facing east.



Photograph 3: Edwards Plateau: Savannah Grassland with juniper overstory along US 290 (foreground) and residential development in background; facing southeast.



Photograph 4: Project eastern terminus at Mopac; facing east.



Photograph 5: Oak-juniper woodland and native-invasive vegetation along US 290; facing west.



Photograph 6: Urban low intensity along US 290 adjacent to roadway and Edwards Plateau: Ashe Juniper Motte and Woodland outside the fenceline; facing east.



Photograph 7: Live Oak grove at Circle Drive and US 290; facing northeast



Photograph 8: Edwards Plateau: Deciduous Oak/Evergreen Motte and Woodland vegetation type along US 290; facing north.



Photograph 9: Riparian vegetation at SH 71 Williamson Creek crossing; facing southeast.



Photograph 10: Riparian vegetation along Williamson Creek at Joe Tanner; facing northwest towards US 290/SH71.



Photograph 11: Riparian vegetation along Williamson Creek at Old Bee Caves Road; facing east.



Photograph 12: Limestone outcrop along US 290; facing west.



Photograph 13: Urban Low Intensity vegetation and limestone cliff at the start of Recharge Zone along US290/SH71 at William Cannon; facing east.



Photograph 14: Native invasive vegetation and Urban Low Intensity along US290/SH71 at William Cannon; facing east.



Photograph 15: Native oak grove in front of Hampton Inn along US 290; facing north.



Photograph 16: Low water crossing of Williamson Creek at Joe Tanner Lane; facing southeast.



Photograph 17: Williamson Creek at SH 71 bridge; facing northeast.



Photograph 18: US 71 at Silvermine Drive; facing south.



Photograph 19: Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland vegetation type within the Bee Cave detention pond; facing west.



Photograph 20: Dry creek bed within the Bee Cave detention pond site; facing northwest.



Photograph 21: Inactive passerine nest within the Bee Cave detention pond site; facing north.



Photograph 22: Edwards Plateau: Deciduous Oak/Evergreen Motte Woodland vegetation type within the Bee Cave detention pond; facing north.



Photograph 23: Edwards Plateau: Riparian Hardwood Forest vegetation type adjacent to dry creek bed in Bee Cave detention pond site; facing south.



Photograph 24: Utility infrastructure within the Bee Cave detention pond; facing west.



Photograph 25: Debris piles and structure located with the Bee Cave detention pond; facing southeast.

Attachment C: County Lists



United States Department of the Interior



FISH AND WILDLIFE SERVICE

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

Phone: (512) 490-0057 Fax: (512) 490-0974

<http://www.fws.gov/southwest/es/AustinTexas/>

<http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>

In Reply Refer To:

November 21, 2019

Consultation Code: 02ETAU00-2016-SLI-0077

Event Code: 02ETAU00-2020-E-00620

Project Name: Oak Hill Parkway Project

Subject: Updated list of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that *may* occur within the county of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

Please note that new information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Also note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of federally listed as threatened

or endangered species and to determine whether projects may affect these species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

While a Federal agency may designate a non-Federal representative to conduct informal consultation or prepare a biological assessment, the Federal Agency must notify the Service in writing of any such designation. The Federal agency shall also independently review and evaluate the scope and content of a biological assessment prepared by their designated non-Federal representative before that document is submitted to the Service.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by a federally funded, permitted or authorized activity, the agency is required to consult with the Service pursuant to 50 CFR 402. The following definitions are provided to assist you in reaching a determination:

- *No effect* - the proposed action will not affect federally listed species or critical habitat. A “no effect” determination does not require section 7 consultation and no coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.
 - *May affect, but is not likely to adversely affect* - the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effect. The Federal agency or the designated non-Federal representative should consult with the Service to seek written concurrence that adverse effects are not likely. Be sure to include all of the information and documentation used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.
 - *Is likely to adversely affect* - adverse effects to listed species may occur as a direct or indirect result of the proposed action. For this determination, the effect of the action is neither discountable nor insignificant. If the overall effect of the proposed action is beneficial to the listed species but the action is also likely to cause some adverse effects to individuals of that species, then the proposed action “is likely to adversely affect” the listed species. The analysis should consider all interrelated and interdependent actions. An “is likely to adversely affect” determination requires the Federal action agency to initiate formal section 7 consultation with our office.
-

Regardless of the determination, the Service recommends that the Federal agency maintain a complete record of the evaluation, including steps leading to the determination of effect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related information. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at: <http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>.

Migratory Birds

For projects that may affect migratory birds, the Migratory Bird Treaty Act (MBTA) implements various treaties and conventions for the protection of these species. Under the MBTA, taking, killing, or possessing migratory birds is unlawful. Migratory birds may nest in trees, brushy areas, or other areas of suitable habitat. The Service recommends activities requiring vegetation removal or disturbance avoid the peak nesting period of March through August to avoid destruction of individuals, nests, or eggs. If project activities must be conducted during this time, we recommend surveying for nests prior to conducting work. If a nest is found, and if possible, the Service recommends a buffer of vegetation remain around the nest until the young have fledged or the nest is abandoned.

For additional information concerning the MBTA and recommendations to reduce impacts to migratory birds please contact the U.S. Fish and Wildlife Service Migratory Birds Office, 500 Gold Ave. SW, Albuquerque, NM 87102. A list of migratory birds may be viewed at <https://www.fws.gov/birds/management/managed-species/migratory-bird-treaty-act-protected-species.php>. Guidance for minimizing impacts to migratory birds for projects including communications towers can be found at: <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/communication-towers.php>. Additionally, wind energy projects should follow the wind energy guidelines

<https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/wind-energy.php>) for minimizing impacts to migratory birds and bats.

Finally, please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.), and projects affecting these species may require development of an eagle conservation plan <https://www.fws.gov/birds/management/project-assessment-tools-and-guidance/guidance-documents/eagles.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List
-

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Austin Ecological Services Field Office

10711 Burnet Road, Suite 200

Austin, TX 78758-4460

(512) 490-0057

Project Summary

Consultation Code: 02ETAU00-2016-SLI-0077

Event Code: 02ETAU00-2020-E-00620

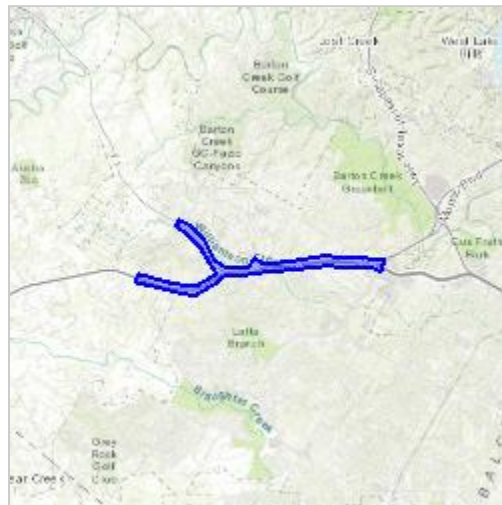
Project Name: Oak Hill Parkway Project

Project Type: TRANSPORTATION

Project Description: The Texas Department of Transportation (TxDOT) and the Central Texas Regional Mobility Authority (CTRMA) are considering mobility improvements to U.S. Highway 290 (US 290)/ State Highway (SH) 71 West through Oak Hill (the Oak Hill Parkway). The project corridor extends along US 290 from State Loop 1 (Loop 1 or Mopac) to Ranch-to-Market (RM) 1826 for a distance of approximately 3.6 miles with a transition to the west. The project also includes the interchange on SH 71 from US 290 to Silvermine Dr

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/30.237750030012997N97.83825021783632W>



Counties: Travis, TX

Endangered Species Act Species

There is a total of 18 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 3 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries¹, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

-
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.
-

Birds

NAME	STATUS
<p>Golden-cheeked Warbler (=wood) <i>Dendroica chrysoparia</i></p> <p>No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/33</p>	Endangered
<p>Least Tern <i>Sterna antillarum</i></p> <p>Population: interior pop. No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/8505</p>	Endangered
<p>Piping Plover <i>Charadrius melodus</i></p> <p>Population: [Atlantic Coast and Northern Great Plains populations] - Wherever found, except those areas where listed as endangered. There is final critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/6039</p>	Threatened
<p>Red Knot <i>Calidris canutus rufa</i></p> <p>No critical habitat has been designated for this species. This species only needs to be considered under the following conditions:</p> <ul style="list-style-type: none"> ▪ Wind Energy Projects <p>Species profile: https://ecos.fws.gov/ecp/species/1864</p>	Threatened
<p>Whooping Crane <i>Grus americana</i></p> <p>Population: Wherever found, except where listed as an experimental population There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/758</p>	Endangered

Amphibians

NAME	STATUS
<p>Austin Blind Salamander <i>Eurycea waterlooensis</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5737</p>	Endangered
<p>Barton Springs Salamander <i>Eurycea sosorum</i></p> <p>No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/1113</p>	Endangered
<p>Jollyville Plateau Salamander <i>Eurycea tonkawae</i></p> <p>There is final critical habitat for this species. Your location is outside the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/3116</p>	Threatened

Clams

NAME	STATUS
Texas Fatmucket <i>Lampsilis bracteata</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9041	Candidate
Texas Fawnsfoot <i>Truncilla macrodon</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8965	Candidate
Texas Pimpleback <i>Quadrula petrina</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/8966	Candidate

Insects

NAME	STATUS
Kretschmarr Cave Mold Beetle <i>Texamaurops reddelli</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3140	Endangered
Tooth Cave Ground Beetle <i>Rhadine persephone</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5625	Endangered

Arachnids

NAME	STATUS
Bee Creek Cave Harvestman <i>Texella reddelli</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2464	Endangered
Bone Cave Harvestman <i>Texella reyesi</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/5306	Endangered
Tooth Cave Pseudoscorpion <i>Tartarocreagris texana</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/6667	Endangered
Tooth Cave Spider <i>Neoleptoneta myopica</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2360	Endangered

Flowering Plants

NAME	STATUS
Bracted Twistflower <i>Streptanthus bracteatus</i> No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/2856	Candidate

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

TRAVIS COUNTY

AMPHIBIANS

Austin blind salamander

Eurycea waterlooensis

Mostly restricted to subterranean cavities of the Edwards Aquifer; dependent upon water flow/quality from the Barton Springs segment of the Edwards Aquifer; only known from the outlets of Barton Springs (Sunken Gardens (Old Mill) Spring, Eliza Spring, and Parthenia (Main) Spring which forms Barton Springs Pool); feeds on amphipods, ostracods, copepods, plant material, and (in captivity) a wide variety of small aquatic invertebrates

Federal Status: LE

State Status: E

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1

Barton Springs salamander

Eurycea sosorum

Dependent upon water flow/quality from the Barton Springs pool of the Edwards Aquifer; known from the outlets of Barton Springs and subterranean water-filled caverns; found under rocks, in gravel, or among aquatic vascular plants and algae, as available; feeds primarily on amphipods

Federal Status: LE

State Status: E

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1

Jollyville Plateau salamander

Eurycea tonkawae

Known from springs and waters of some caves north of the Colorado River

Federal Status: LT

State Status:

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S2

Pedernales River Springs salamander

Eurycea sp. 6

Known only from springs

Federal Status:

State Status:

SGCN: N

Endemic: Y

Global Rank: G1

State Rank: S1S2

Strecker's chorus frog

Pseudacris streckeri

Wooded floodplains and flats, prairies, cultivated fields and marshes. Likes sandy substrates.

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3

Texas salamander

Eurycea neotenes

Troglobitic; springs, seeps, cave streams, and creek headwaters; often hides under rocks and leaves in water; restricted to Helotes and Leon Creek drainages

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G1

State Rank: S1S2

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

AMPHIBIANS

Woodhouse's toad *Anaxyrus woodhousii*
Extremely catholic up to 5000 feet, does very well (except for traffic) in association with man.
Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: SU

ARACHNIDS

Bandit Cave spider *Cicurina bandida*
Very small, subterrestrial, subterranean obligate
Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2Q State Rank: S1

Bone Cave harvestman *Texella reyesi*
Small, blind, cave-adapted harvestman endemic to several caves in Travis and Williamson counties; weakly differentiated from *Texella reddelli*
Federal Status: LE State Status: SGCN: Y
Endemic: Y Global Rank: G2G3 State Rank: S2

No accepted common name *Tartarocreagris altimana*
Habitat description is not available at this time.
Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G1G2 State Rank: S1

No accepted common name *Texella spinoperca*
Habitat description is not available at this time.
Federal Status: State Status: SGCN: Y
Endemic: Global Rank: GNR State Rank: SNR

No accepted common name *Tartarocreagris attenuata*
Habitat description is not available at this time.
Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G1G2 State Rank: S1

No accepted common name *Tartarocreagris domina*
Habitat description is not available at this time.
Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G1G2 State Rank: S1

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

ARACHNIDS

No accepted common name *Tartarocreagris proserpina*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Eidmannella reclusa*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Cicurina trivisiae*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2Q	State Rank: S1

No accepted common name *Texella mulaiki*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

No accepted common name *Tartarocreagris infernalis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2?

No accepted common name *Tartarocreagris intermedia*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

No accepted common name *Texella grubbsi*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

ARACHNIDS

Reddell harvestman

Texella reddelli

Small, blind, cave-adapted harvestman endemic to a few caves in Travis and Williamson counties

Federal Status: LE

State Status:

SGCN: Y

Endemic: Y

Global Rank: G2G3

State Rank: S2

Tooth Cave pseudoscorpion

Tartarocreagris texana

Small, cave-adapted pseudoscorpion known from small limestone caves of the Edwards Plateau

Federal Status: LE

State Status:

SGCN: Y

Endemic: Y

Global Rank: G1G2

State Rank: S1

Tooth Cave spider

Neoleptoneta myopica

Very small, cave-adapted, sedentary spider

Federal Status: LE

State Status:

SGCN: Y

Endemic:

Global Rank: G1G2

State Rank: S1

BIRDS

bald eagle

Haliaeetus leucocephalus

Found primarily near rivers and large lakes; nests in tall trees or on cliffs near water; communally roosts, especially in winter; hunts live prey, scavenges, and pirates food from other birds

Federal Status:

State Status: T

SGCN: Y

Endemic: N

Global Rank: G5

State Rank: S3B,S3N

black rail

Laterallus jamaicensis

Salt, brackish, and freshwater marshes, pond borders, wet meadows, and grassy swamps; nests in or along edge of marsh, sometimes on damp ground, but usually on mat of previous years dead grasses; nest usually hidden in marsh grass or at base of *Salicornia*

Federal Status: PT

State Status:

SGCN: Y

Endemic: N

Global Rank: G3G4

State Rank: S2

black-capped vireo

Vireo atricapilla

Oak-juniper woodlands with distinctive patchy, two-layered aspect; shrub and tree layer with open, grassy spaces; requires foliage reaching to ground level for nesting cover; return to same territory, or one nearby, year after year; deciduous and broad-leaved shrubs and trees provide insects for feeding; species composition less important than presence of adequate broad-leaved shrubs, foliage to ground level, and required structure; nesting season March-late summer

Federal Status:

State Status: E

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S2B

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

BIRDS

Franklin's gull *Leucophaeus pipixcan*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4G5 State Rank: S2N

golden-cheeked warbler *Setophaga chrysoparia*

Ashe juniper in mixed stands with various oaks (*Quercus* spp.). Edges of cedar brakes. Dependent on Ashe juniper (also known as cedar) for long fine bark strips, only available from mature trees, used in nest construction; nests are placed in various trees other than Ashe juniper; only a few mature junipers or nearby cedar brakes can provide the necessary nest material; forage for insects in broad-leaved trees and shrubs; nesting late March-early summer.

Federal Status: LE State Status: E SGCN: Y
Endemic: N Global Rank: G2 State Rank: S2B

interior least tern *Sternula antillarum athalassos*

Sand beaches, flats, bays, inlets, lagoons, islands. Subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Federal Status: LE State Status: E SGCN: Y
Endemic: N Global Rank: G4T2Q State Rank: S1B

mountain plover *Charadrius montanus*

Breeding: nests on high plains or shortgrass prairie, on ground in shallow depression; nonbreeding: shortgrass plains and bare, dirt (plowed) fields; primarily insectivorous

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3 State Rank: S2

piping plover *Charadrius melodus*

Beaches, sandflats, and dunes along Gulf Coast beaches and adjacent offshore islands. Also spoil islands in the Intracoastal Waterway. Based on the November 30, 1992 Section 6 Job No. 9.1, Piping Plover and Snowy Plover Winter Habitat Status Survey, algal flats appear to be the highest quality habitat. Some of the most important aspects of algal flats are their relative inaccessibility and their continuous availability throughout all tidal conditions. Sand flats often appear to be preferred over algal flats when both are available, but large portions of sand flats along the Texas coast are available only during low-very low tides and are often completely unavailable during extreme high tides or strong north winds. Beaches appear to serve as a secondary habitat to the flats associated with the primary bays, lagoons, and inter-island passes. Beaches are rarely used on the southern Texas coast, where bayside habitat is always available, and are abandoned as bayside habitats become available on the central and northern coast. However, beaches are probably a vital habitat along the central and northern coast (i.e. north of Padre Island) during periods of extreme high tides that cover the flats. Optimal site characteristics appear to be large in area, sparsely vegetated, continuously available or in close proximity to secondary habitat, and with limited human disturbance.

Federal Status: LT State Status: T SGCN: Y
Endemic: N Global Rank: G3 State Rank: S2N

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

BIRDS

swallow-tailed kite *Elanoides forficatus*

Lowland forested regions, especially swampy areas, ranging into open woodland; marshes, along rivers, lakes, and ponds; nests high in tall tree in clearing or on forest woodland edge, usually in pine, cypress, or various deciduous trees

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5 State Rank: S2B

western burrowing owl *Athene cunicularia hypugaea*

Open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4T4 State Rank: S2

white-faced ibis *Plegadis chihi*

Prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats; currently confined to near-coastal rookeries in so-called hog-wallow prairies. Nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G5 State Rank: S4B

whooping crane *Grus americana*

Small ponds, marshes, and flooded grain fields for both roosting and foraging. Potential migrant via plains throughout most of state to coast; winters in coastal marshes of Aransas, Calhoun, and Refugio counties.

Federal Status: LE State Status: E SGCN: Y
Endemic: N Global Rank: G1 State Rank: S1N

wood stork *Mycteria americana*

Prefers to nest in large tracts of baldcypress (*Taxodium distichum*) or red mangrove (*Rhizophora mangle*); forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt-water; usually roosts communally in tall snags, sometimes in association with other wading birds (i.e. active heronries); breeds in Mexico and birds move into Gulf States in search of mud flats and other wetlands, even those associated with forested areas; formerly nested in Texas, but no breeding records since 1960

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4 State Rank: SHB,S2N

zone-tailed hawk *Buteo albonotatus*

Arid open country, including open deciduous or pine-oak woodland, mesa or mountain county, often near watercourses, and wooded canyons and tree-lined rivers along middle-slopes of desert mountains; nests in various habitats and sites, ranging from small trees in lower desert, giant cottonwoods in riparian areas, to mature conifers in high mountain regions

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4 State Rank: S3B

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

CRUSTACEANS

Balcones Cave amphipod *Stygobromus balconis*

Subaquatic, subterranean obligate amphipod

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2G3 State Rank: S2

Ezell's Cave amphipod *Stygobromus flagellatus*

Known only from artesian wells

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2G3 State Rank: S3

No accepted common name *Lirceolus bisetus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G1G2 State Rank: S1

FISH

american eel *Anguilla rostrata*

Originally found in all river systems from the Red River to the Rio Grande. Aquatic habitats include large rivers, streams, tributaries, coastal watersheds, estuaries, bays, and oceans. Spawns in Sargasso Sea, larva move to coastal waters, metamorphose, and begin upstream movements. Females tend to move further upstream than males (who are often found in brackish estuaries). American Eel are habitat generalists and may be found in a broad range of habitat conditions including slow- and fast-flowing waters over many substrate types. Extirpation in upstream drainages attributed to reservoirs that impede upstream migration.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4 State Rank: S4

Guadalupe bass *Micropterus treculii*

Endemic to the streams of the northern and eastern Edwards Plateau including portions of the Brazos, Colorado, Guadalupe, and San Antonio basins; species also found outside of the Edwards Plateau streams in decreased abundance, primarily in the lower Colorado River; two introduced populations have been established in the Nueces River system. A pure population was re-established in a portion of the Blanco River in 2014. Species prefers lentic environments but commonly taken in flowing water; numerous smaller fish occur in rapids, many times near eddies; large individuals found mainly in riffle tail races; usually found in spring-fed streams having clear water and relatively consistent temperatures.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G3 State Rank: S3

sharpnose shiner *Notropis oxyrhynchus*

Range is now restricted to upper Brazos River upstream of Possum Kingdom Lake. May be native to Red River and Colorado River basins. Typically found in turbid water over mostly silt and shifting sand substrates.

Federal Status: LE State Status: SGCN: Y
Endemic: Y Global Rank: G3 State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

FISH

silverband shiner *Notropis shumardi*

In Texas, found from Red River to Lavaca River; Main channel with moderate to swift current velocities and moderate to deep depths; associated with turbid water over silt, sand, and gravel.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

smalleye shiner *Notropis buccula*

Restricted to the Rio Grande basin in Texas including the lower Pecos River. Typically found in large rivers and creeks associated with a variety of flowing-water habitats such as runs and riffles over gravel, cobble, and sand.

Federal Status: LE	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

Texas shiner *Notropis amabilis*

In Texas, it is found primarily in Edwards Plateau streams from the San Gabriel River in the east to the Pecos River in the west. Typical habitat includes rocky or sandy runs, as well as pools.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

INSECTS

a cave obligate beetle *Rhadine austinica*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1S2

American bumblebee *Bombus pensylvanicus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G3G4	State Rank: SNR

Comanche harvester ant *Pogonomyrmex comanche*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2G3	State Rank: S2

Kretschmarr Cave mold beetle *Texamaurops reddelli*

Small, cave-adapted beetle found under rocks buried in silt; small, Edwards Limestone caves in of the Jollyville Plateau, a division of the Edwards Plateau

Federal Status: LE	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G2	State Rank: S1

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

INSECTS

No accepted common name *Andrena scotoptera*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Xiphocentron messapus*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1G3	State Rank: S2?

No accepted common name *Bombus variabilis*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GU	State Rank: SNR

No accepted common name *Lymantes nadineae*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Macrotera parkeri*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: GNR	State Rank: SNR

No accepted common name *Neotrichia juani*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic:	Global Rank: G1	State Rank: S1

No accepted common name *Rhadine subterranea*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

INSECTS

No accepted common name *Oncopodura fenestra*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2G3 State Rank: S2?

Tooth Cave ground beetle *Rhadine persephone*

Resident, small, cave-adapted beetle found in small Edwards Limestone caves in Travis and Williamson counties

Federal Status: LE State Status: SGCN: Y
Endemic: Y Global Rank: G1G2 State Rank: S1

MAMMALS

American badger *Taxidea taxus*

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

Aransas short-tailed shrew *Blarina hylophaga plumbea*

Excavates burrows in sandy soils underlying mottes of live oak trees or in areas with little to no ground cover; 2-3 litters of 4-6 young per year

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G5T1Q State Rank: S1

big brown bat *Eptesicus fuscus*

Any wooded areas or woodlands except south Texas. Riparian areas in west Texas.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S5

big free-tailed bat *Nyctinomops macrotis*

Habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Federal Status: State Status: SGCN: Y
Endemic: Global Rank: G5 State Rank: S3

cave myotis bat *Myotis velifer*

Colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (*Hirundo pyrrhonota*) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore.

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G4G5 State Rank: S4

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

MAMMALS

eastern red bat

Lasiurus borealis

Found in a variety of habitats in Texas. Usually associated with wooded areas. Found in towns especially during migration.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

eastern spotted skunk

Spilogale putorius

Catholic; open fields prairies, croplands, fence rows, farmyards, forest edges & woodlands. Prefer wooded, brushy areas & tallgrass prairies. S.p. ssp. interrupta found in wooded areas and tallgrass prairies, preferring rocky canyons and outcrops when such sites are available.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S1S3

hoary bat

Lasiurus cinereus

Known from montane and riparian woodland in Trans-Pecos, forests and woods in east and central Texas.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S4

long-tailed weasel

Mustela frenata

Includes brushlands, fence rows, upland woods and bottomland hardwoods, forest edges & rocky desert scrub. Usually live close to water.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican free-tailed bat

Tadarida brasiliensis

Roosts in buildings in east Texas. Largest maternity roosts are in limestone caves on the Edwards Plateau. Found in all habitats, forest to desert.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S5

Mexican long-tongued bat

Choeronycteris mexicana

Only Texas record is from riparian forest; in general--neotropical nectivorous species roosting in caves, mines, and large crevices found in deep canyons along the Rio Grande ; also found in buildings and often associated with big-eared bats (*Plecotus* spp.); single TX record from Santa Ana NWR

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S1

mink

Neovison vison

Intimately associated with water; coastal swamps & marshes, wooded riparian zones, edges of lakes. Prefer floodplains.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S4

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

MAMMALS

mountain lion	<i>Puma concolor</i>		
Rugged mountains & riparian zones.			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G5		State Rank: S2S3
plains spotted skunk	<i>Spilogale putorius interrupta</i>		
Catholic; open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie			
Federal Status:	State Status:		SGCN: N
Endemic: N	Global Rank: G4T4		State Rank: S1S3
southern short-tailed shrew	<i>Blarina carolinensis</i>		
Habitat description is not available at this time.			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G5		State Rank: S4
swamp rabbit	<i>Sylvilagus aquaticus</i>		
Habitat description is not available at this time.			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G5		State Rank: S5
tricolored bat	<i>Perimyotis subflavus</i>		
Forest, woodland and riparian areas are important. Caves are very important to this species.			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G2G3		State Rank: S3S4
western hog-nosed skunk	<i>Conepatus leuconotus</i>		
Habitats include woodlands, grasslands & deserts, to 7200 feet, most common in rugged, rocky canyon country; little is known about the habitat of the ssp. telmalestes			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G4		State Rank: S4
woodland vole	<i>Microtus pinetorum</i>		
Include grassy marshes, swamp edges, old-field/pine woodland ecotones, tallgrass fields; generally sandy soils.			
Federal Status:	State Status:		SGCN: Y
Endemic: N	Global Rank: G5		State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

MOLLUSKS

false spike mussel

Fusconaia mitchelli

Possibly extirpated in Texas; probably medium to large rivers; substrates varying from mud through mixtures of sand, gravel and cobble; one study indicated water lilies were present at the site; Rio Grande, Brazos, Colorado, and Guadalupe (historic) river basins

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G1 State Rank: S1

No accepted common name

Phreatodrobia punctata

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G2 State Rank: S1

No accepted common name

Patera leatherwoodi

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Global Rank: G1 State Rank: S1

No accepted common name

Millerelix gracilis

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Global Rank: G2G3 State Rank: S2?

No accepted common name

Stygopyrgus bartonensis

Habitat description is not available at this time.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G1 State Rank: S1

smooth pimpleback

Quadrula houstonensis

Small to moderate streams and rivers as well as moderate size reservoirs; mixed mud, sand, and fine gravel, tolerates very slow to moderate flow rates, appears not to tolerate dramatic water level fluctuations, scoured bedrock substrates, or shifting sand bottoms, lower Trinity (questionable), Brazos, and Colorado River basins

Federal Status: C State Status: T SGCN: Y
Endemic: Y Global Rank: G2 State Rank: S1S2

Texas fatmucket

Lampsilis bracteata

Streams and rivers on sand, mud, and gravel substrates; intolerant of impoundment; broken bedrock and coarse gravel or sand in moderately flowing water; Colorado and Guadalupe River basins

Federal Status: C State Status: T SGCN: Y
Endemic: Y Global Rank: G1 State Rank: S1

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

MOLLUSKS

Texas pimpleback	<i>Cyclonaias petrina</i>	
Mud, gravel and sand substrates, generally in areas with slow flow rates; Colorado River basin.		
Federal Status: C	State Status: T	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S1

REPTILES

American alligator	<i>Alligator mississippiensis</i>	
Coastal marshes; inland natural rivers, swamps and marshes; manmade impoundments.		
Federal Status:	State Status:	SGCN: N
Endemic: N	Global Rank: G5	State Rank: S4

common garter snake	<i>Thamnophis sirtalis</i>	
Irrigation canals and riparian-corridor farmlands in west; marshy, flooded pastureland, grassy or brushy borders of permanent bodies of water; coastal salt marshes.		
Federal Status:	State Status:	SGCN: N
Endemic:	Global Rank: G5	State Rank: S2

eastern box turtle	<i>Terrapene carolina</i>	
Eastern box turtles inhabit forests, fields, forest-brush, and forest-field ecotones. In some areas they move seasonally from fields in spring to forest in summer. They commonly enters pools of shallow water in summer. For shelter, they burrow into loose soil, debris, mud, old stump holes, or under leaf litter. They can successfully hibernate in sites that may experience subfreezing temperatures. In Maryland bottomland forest, some hibernated in pits or depressions in forest floor (usually about 30 cm deep) usually within summer range; individuals tended to hibernate in same area in different years (Stickel 1989). Also attracted to farms, old fields and cut-over woodlands, as well as creek bottoms and dense woodlands. Egg laying sites often are sandy or loamy soils in open areas; females may move from bottomlands to warmer and drier sites to nest. In Maryland, females used the same nesting area in different years (Stickel 1989).		
Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

northern spot-tailed earless lizard	<i>Holbrookia lacerata lacerata</i>	
Habitat description is not available at this time.		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4TNR	State Rank: S2

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

REPTILES

slender glass lizard

Ophisaurus attenuatus

Prefers relatively dry microhabitats, usually associated with grassy areas. Habitats include open grassland, prairie, woodland edge, open woodland, oak savannas, longleaf pine flatwoods, scrubby areas, fallow fields, and areas near streams and ponds, often in habitats with sandy soil. This species often appears on roads in spring. During inactivity, it occurs in underground burrows. In Kansas, slender glass lizards were scarce in heavily grazed pastures, increased as grass increased with removal of grazing, and declined as brush and trees replaced grass (Fitch 1989). Eggs are laid underground, under cover, or under grass clumps (Ashton and Ashton 1985); in cavities beneath flat rocks or in abandoned tunnels of small mammals (Scalopus, Microtus) (Fitch 1989).

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G5 State Rank: S3

spot-tailed earless lizard

Holbrookia lacerata

Central and southern Texas and adjacent Mexico; moderately open prairie-brushland; fairly flat areas free of vegetation or other obstructions, including disturbed areas; eats small invertebrates; eggs laid underground

Federal Status: State Status: SGCN: Y
Endemic: N Global Rank: G3G4 State Rank: S2

Texas garter snake

Thamnophis sirtalis annectens

Irrigation canals and riparian-corridor farmlands in west; marshy, flooded pastureland, grassy or brushy borders of permanent bodies of water; coastal salt marshes. Wet or moist microhabitats are conducive to the species occurrence, but is not necessarily restricted to them; hibernates underground or in or under surface cover; breeds March-August.

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G5T4 State Rank: S1

Texas horned lizard

Phrynosoma cornutum

Occurs to 6000 feet, but largely limited below the pinyon-juniper zone on mountains in the Big Bend area. Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September.

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4G5 State Rank: S3

Texas map turtle

Graptemys versa

Rivers with moderate current, abundant aquatic vegetation, and basking logs; also associated oxbows and lakes (Bartlett and Bartlett 1999).

Federal Status: State Status: SGCN: Y
Endemic: Y Global Rank: G4 State Rank: SU

Texas tortoise

Gopherus berlandieri

Open brush with a grass understory is preferred; open grass and bare ground are avoided. Seasonally flooded tidal flats are not utilized. When inactive occupies shallow depressions at base of bush or cactus, sometimes in underground burrows or under objects; longevity greater than 50 years; active March-November; breeds April-November

Federal Status: State Status: T SGCN: Y
Endemic: N Global Rank: G4 State Rank: S2

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

REPTILES

timber (canebrake) rattlesnake *Crotalus horridus*

Swamps, floodplains, upland pine and deciduous woodland, riparian zones, abandoned farmland. Limestone bluffs, sandy soil or black clay. Prefers dense ground cover, i.e. grapevines, palmetto.

Federal Status:	State Status: T	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S4

western box turtle *Terrapene ornata*

Ornate or western box turtles inhabit prairie grassland, pasture, fields, sandhills, and open woodland. They are essentially terrestrial but sometimes enter slow, shallow streams and creek pools. For shelter, they burrow into soil (e.g., under plants such as yucca) (Converse et al. 2002) or enter burrows made by other species; winter burrow depth was 0.5-1.8 meters in Wisconsin (Doroff and Keith 1990), 7-120 cm (average depth 54 cm) in Nebraska (Converse et al. 2002). Eggs are laid in nests dug in soft well-drained soil in open area (Legler 1960, Converse et al. 2002). Very partial to sandy soil.

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G5	State Rank: S3

PLANTS

arrowleaf milkvine *Matelea sagittifolia*

Most consistently encountered in thornscrub in South Texas; Perennial; Flowering March-July; Fruiting April-July and Dec?

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

basin bellflower *Campanula reverchonii*

Among scattered vegetation on loose gravel, gravelly sand, and rock outcrops on open slopes with exposures of igneous and metamorphic rocks; may also occur on sandbars and other alluvial deposits along major rivers; flowering May-July

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

bracted twistflower *Streptanthus bracteatus*

Shallow, well-drained gravelly clays and clay loams over limestone in oak juniper woodlands and associated openings, on steep to moderate slopes and in canyon bottoms; several known soils include Tarrant, Brackett, or Speck over Edwards, Glen Rose, and Walnut geologic formations; populations fluctuate widely from year to year, depending on winter rainfall; flowering mid April-late May, fruit matures and foliage withers by early summer

Federal Status: C	State Status:	SGCN: Y
Endemic: Y	Global Rank: G1	State Rank: S1

Buckley tridens *Tridens buckleyanus*

Occurs in juniper-oak woodlands on rocky limestone slopes; Perennial; Flowering/Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

PLANTS

canyon bean *Phaseolus texensis*

Narrowly endemic to rocky canyons in eastern and southern Edwards Plateau occurring on limestone soils in mixed woodlands, on limestone cliffs and outcrops, frequently along creeks.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G2	State Rank: S2

canyon mock-orange *Philadelphus texensis var. ernestii*

Usually found growing from honeycomb pits on outcrops of Cretaceous limestone exposed as rimrock along mesic canyons, usually in the shade of mixed evergreen-deciduous canyon woodland; flowering April-June, fruit dehiscing September-October

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S3

canyon sedge *Carex edwardsiana*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

Correll's false dragon-head *Physostegia correllii*

Wet, silty clay loams on streamsides, in creek beds, irrigation channels and roadside drainage ditches; or seepy, mucky, sometimes gravelly soils along riverbanks or small islands in the Rio Grande; or underlain by Austin Chalk limestone along gently flowing spring-fed creek in central Texas; flowering May-September

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G2	State Rank: S2

Engelmann's bladderpod *Physaria engelmannii*

Grasslands and calcareous rock outcrops in a band along the eastern edge of the Edwards Plateau, ranging as far north as the Red River (Carr 2015).

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G4	State Rank: S3

glandular gay-feather *Liatris glandulosa*

Occurs in herbaceous vegetation on limestone outcrops (Carr 2015)

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

PLANTS

Glass Mountains coral-root *Hexalectris nitida*

Apparently rare in mixed woodlands in canyons in the mountains of the Brewster County, but encountered with regularity, albeit in small numbers, under *Juniperus ashei* in woodlands over limestone on the Edwards Plateau, Callahan Divide and Lampasas Cutplain; Perennial; Flowering June-Sept; Fruiting July-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

gravelbar brickellbush *Brickellia dentata*

Essentially restricted to frequently-scoured gravelly alluvial beds in creek and river bottoms; Perennial; Flowering June-Nov; Fruiting June-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

Greenman's bluet *Houstonia parviflora*

Habitat description is not available at this time.

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Heller's marbleseed *Onosmodium helleri*

Occurs in loamy calcareous soils in oak-juniper woodlands on rocky limestone slopes, often in more mesic portions of canyons; Perennial; Flowering March-May

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

low spurge *Euphorbia peplidion*

Occurs in a variety of vernal-moist situations in a number of natural regions; Annual; Flowering Feb-April; Fruiting March-April

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

narrowleaf brickellbush *Brickellia eupatorioides var. gracillima*

Moist to dry gravelly alluvial soils along riverbanks but also on limestone slopes; Perennial; Flowering/Fruiting April-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G5T3	State Rank: S3

net-leaf bundleflower *Desmanthus reticulatus*

Mostly on clay prairies of the coastal plain of central and south Texas; Perennial; Flowering April-July; Fruiting April-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

PLANTS

Plateau loosestrife	<i>Lythrum ovalifolium</i>	
Banks and gravelly beds of perennial (or strong intermittent) streams on the Edwards Plateau, Llano Uplift and Lampasas Cutplain; Perennial; Flowering/Fruiting April-Nov		
Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3G4	State Rank: S3S4
plateau milkvine	<i>Matelea edwardsensis</i>	
Occurs in various types of juniper-oak and oak-juniper woodlands; Perennial; Flowering March-Oct; Fruiting May-June		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3
rock grape	<i>Vitis rupestris</i>	
Occurs on rocky limestone slopes and in streambeds; Perennial; Flowering March-May; Fruiting May-July		
Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S1
scarlet leather-flower	<i>Clematis texensis</i>	
Usually in oak-juniper woodlands in mesic rocky limestone canyons or along perennial streams; Perennial; Flowering March-July; Fruiting May-July		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4
spreading lestdaisy	<i>Chaetopappa effusa</i>	
Limestone cliffs, ledges, bluffs, steep hillsides, sometimes in seepy areas, oak-juniper, oak, or mixed deciduous woods, 300-500 m elevation; Perennial; Flowering (May) July-Oct		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4
Stanfield's beebalm	<i>Monarda stanfieldii</i>	
Largely confined to granite sands along the middle course of the Colorado River and its tributaries; Perennial		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3
sycamore-leaf snowbell	<i>Styrax platanifolius ssp. platanifolius</i>	
Rare throughout range, usually in oak-juniper woodlands on steep rocky banks and ledges along intermittent or perennial streams, rarely far from some reliable source of moisture; Perennial; Flowering April-May; Fruiting May-Aug.		
Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3T3	State Rank: S3
Texabama croton	<i>Croton alabamensis var. texensis</i>	

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

PLANTS

In duff-covered loamy clay soils on rocky slopes in forested, mesic limestone canyons; locally abundant on deeper soils on small terraces in canyon bottoms, often forming large colonies and dominating the shrub layer; scattered individuals are occasionally on sunny margins of such forests; also found in contrasting habitat of deep, friable soils of limestone uplands, mostly in the shade of evergreen woodland mottes; flowering late February-March; fruit maturing and dehiscing by early June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3T2	State Rank: S2

Texas almond *Prunus minutiflora*

Wide-ranging but scarce, in a variety of grassland and shrubland situations, mostly on calcareous soils underlain by limestone but occasionally in sandier neutral soils underlain by granite; Perennial; Flowering Feb-May and Oct; Fruiting Feb-Sept

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3G4	State Rank: S3S4

Texas amorpha *Amorpha roemeriana*

Juniper-oak woodlands or shrublands on rocky limestone slopes, sometimes on dry shelves above creeks; Perennial; Flowering May-June; Fruiting June-Oct

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Texas barberry *Berberis swaseyi*

Shallow calcareous stony clay of upland grasslands/shrublands over limestone as well as in loamier soils in openly wooded canyons and on creek terraces; Perennial; Flowering/Fruiting March-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas fescue *Festuca versuta*

Occurs in mesic woodlands on limestone-derived soils on stream terraces and canyon slopes; Perennial; Flowering/Fruiting April-June

Federal Status:	State Status:	SGCN: Y
Endemic: N	Global Rank: G3	State Rank: S3

Texas milk vetch *Astragalus reflexus*

Grasslands, prairies, and roadsides on calcareous and clay substrates; Annual; Flowering Feb-June; Fruiting April-June

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

Texas seymeria *Seymeria texana*

Found primarily in grassy openings in juniper-oak woodlands on dry rocky slopes but sometimes on rock outcrops in shaded canyons; Annual; Flowering May-Nov; Fruiting July-Nov

Federal Status:	State Status:	SGCN: Y
Endemic: Y	Global Rank: G3	State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.

TRAVIS COUNTY

PLANTS

tree dodder

Cuscuta exaltata

Parasitic on various *Quercus*, *Juglans*, *Rhus*, *Vitis*, *Ulmus*, and *Diospyros* species as well as *Acacia berlandieri* and other woody plants; Annual; Flowering May-Oct; Fruiting July-Oct

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G3

State Rank: S3

turnip-root scurfea

Pediomelum cyphocalyx

Grasslands and openings in juniper-oak woodlands on limestone substrates on the Edwards Plateau and in north-central Texas (Carr 2015).

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3G4

State Rank: S3S4

Warnock's coral-root

Hexalectris warnockii

In leaf litter and humus in oak-juniper woodlands on shaded slopes and intermittent, rocky creekbeds in canyons; in the Trans Pecos in oak-pinyon-juniper woodlands in higher mesic canyons (to 2000 m [6550 ft]), primarily on igneous substrates; in Terrell County under *Quercus fusiformis* mottes on terraces of spring-fed perennial streams, draining an otherwise rather xeric limestone landscape; on the Callahan Divide (Taylor County), the White Rock Escarpment (Dallas County), and the Edwards Plateau in oak-juniper woodlands on limestone slopes; in Gillespie County on igneous substrates of the Llano Uplift; flowering June-September; individual plants do not usually bloom in successive years

Federal Status:

State Status:

SGCN: Y

Endemic: N

Global Rank: G2G3

State Rank: S2

Wright's milkvetch

Astragalus wrightii

Habitat description is not available at this time.

Federal Status:

State Status:

SGCN: Y

Endemic: Y

Global Rank: G3

State Rank: S3

DISCLAIMER

The information on this web application is provided "as is" without warranty as to the currentness, completeness, or accuracy of any specific data. The data provided are for planning, assessment, and informational purposes. Refer to the Frequently Asked Questions (FAQs) on the application website for further information.