Trinity River Authority
Clean Rivers Program
2022 Basin Highlights Report

Watershed Characterizations for Water Bodies with Fish Consumption and Recreation Use Impairments and Concerns

Acknowledgments

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Cover photo: Trinity River near Anahuac, February 2022

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Introduction

The Texas Clean Rivers Program

The Texas Clean Rivers Program (CRP) was created in 1991 by Texas Senate Bill 818 and is administered by the Texas Commission on Environmental Quality (TCEQ) which contracts with local planning agencies such as the Trinity River Authority (TRA) to conduct the program in each river basin. The program is tasked with protecting the water quality resources of the state and improving water quality. Data collected by the TRA CRP and other river authorities are used for regulatory purposes, such as setting water quality standards, modeling for permit limits, and water quality assessments.

Trinity River Clean Rivers Program

The TRA CRP focuses on three main aspects of the program: water quality monitoring, special projects, and public outreach. Routine water quality monitoring data are vital to the success of the CRP. Data are used for regulatory purposes such as establishing water quality standards, constructing models for permit limits, and evaluating the health of waterbodies. In the Trinity River Basin, monitoring is leveraged with the existing programs of several municipalities and other entities. This partnership has allowed TRA to provide much more information to the TCEQ than would be possible with in-house resources. Currently, TRA partners with the following entities to conduct routine water quality monitoring in the basin: TRA Lake Livingston Project, Tarrant Regional Water District, Upper Trinity Regional Water District, North Texas Municipal Water District, DFW Airport Environmental Affairs Department, two departments within the City of Dallas, the City of Fort Worth, the City of Arlington, the City of Grand Prairie, the City of Irving, the City of Frisco, and the City of Plano.

Special projects are typically short-term sampling activities focused on answering a specific water quality question. Other projects that do not generate water quality data may include in-depth analyses of existing data for various purposes and compilation of historic data sources.

Public outreach and stakeholder engagement involves annual updates to the Steering Committee which helps guide the activities of the TRA CRP. Other outreach activities include sponsorship of trash clean-ups and public education events. Education on the importance and protection of Trinity River Basin water resources is accomplished via participation in organized public and school events.

Public Involvement

The TRA CRP participates in several public involvement activities which range from trash clean-ups to public education events. Public interest in the welfare of local water bodies is vital to improving water quality in the Trinity Basin.

The TRA Clean Rivers Program Steering Committee is made up of basin stakeholders and other interested parties, including city officials and the general public. The steering committee provides input and information that is used to guide the program. Annual public meetings are held to update committee members on the activities of the program and to provide a forum to share ideas. If you are interested in participating in the Steering Committee, contact the TRA CRP at tra@trinityra.org.

Trash clean-ups are public events that are organized by cities and counties. TRA staff participates in several of these events. Volunteers at these events remove many tons of debris from water bodies and water ways. In addition to the immediate benefit of the waste removal, volunteers become more aware of their impact on local water bodies.

The Texas Stream Team utilizes a network of trained volunteers to monitor the quality of water bodies in Texas. The Meadows Center at Texas State University administers this program in cooperation with the Texas Commission on Environmental Quality (TCEQ) and the Environmental Protection Agency (EPA). The TRA CRP supports this program through funding for replacement supplies for existing TRA kits. For more information about this program, visit the Texas Stream Team website hosted by the Texas State University Meadows Center for Water and the Environment.

In addition to the activities discussed above, the TRA CRP participates in several organized public outreach and education events each year. These range from local Earth Day events to educational field trips for large school groups. At these events, information is presented on the Trinity River Basin as well as the Trinity River Authority. Educational materials are supplied to teach the public about how they can take a personal role in reducing and preventing water pollution. Due to continued COVID protocols, public education events have been limited over the past year. In September 2021, TRA staff presented at a University of Texas at Arlington sustainability class. River Legacy Park held their annual Fall Festival in October 2021. TRA staff assisted with Tarrant Regional Water District's Watershed Experience Trailer at this event. TRA staff lead a field lab class for Southern Methodist University and exhibited at the Science Teachers Association of Texas Conference in November 2021.

Annual Reports

Each year, local planning agencies produce a water quality report. The content and breadth of these reports vary each year. Most years, a Basin Highlights Report is produced which can include discussion of water quality issues, activities within the basin, and watershed characterizations. Every third biennium, a Basin Summary Report is generated and discusses water quality data, issues, and potential sources in detail. TRA completed a Basin Summary Report in 2020.

The format for the following 2022 Basin Highlights Report will be a watershed characterization of selected impaired water bodies. The characterizations in this report will focus on Fish Consumption and Recreation Use impaired waterbodies. Water bodies with impairments for Aquatic Life and General Uses will be characterized in a future report. The segments discussed in this report are based on TCEQ 2020 Texas Integrated Report.

Watershed Characterizations

The following watershed characterizations for waterbodies with impairments and concerns are broken into two main chapters: Fish Consumption Use and Recreation Use. Each of the watershed characterizations within these chapters include the information listed below.

Segment Description – A description of the classified or unclassified segment and its boundaries. Classified segments are waterbodies or portions of waterbodies that are defined in Appendix A of the Texas Surface Water Quality Standards. Unclassified segments are waterbodies that are not defined in that document and are identified by the segment number of the waterbody into which they flow followed by a letter suffix. The assessment units located within the segments are also described in these sections. Assessment units are sub-sections of a classified or unclassified segment that represent discrete areas of the segment such as arms of a reservoir or portions of a stream between tributary confluences. Water monitoring stations that have been monitored between 2013 and 2021 are also listed in this highlights report.

Hydrology – A description of the stream flow or reservoir characteristics. The stream order provides a categorical size of a stream. For example, first order streams are typically small tributaries while sixth order streams are generally larger rivers. If USGS flow or reservoir elevation gages are available, those are listed in this section. Summary statistics from these gages over the period of record for this highlights report are provided. This includes the median, minimum, and maximum stream flows or reservoir elevations. For stream, the median flows for the non-index, index, and critical periods are listed. For streams without USGS flow gages, the summary statistics are based on the flow measurements that were recorded during sampling events.

Land Use and Natural Characteristics – A description of the surface characteristics of the watershed. This includes the ecoregions found in the watershed and a description of land cover. A treemap of land cover is provided for each segment. Treemaps are used to display proportional data. For each segment watershed, the area of land that was classified as one of six broad categories was calculated. Data from the 2016 National Land Cover Database were used for land cover calculations. The treemap categories are listed below.

- Water (Blue) – Open water.
- Developed (Red) – Open space, low intensity, medium intensity, and high intensity development which ranges from large single family lots to dense multifamily and commercial or industrial development.
- Barren (Brown) – Areas with little to no vegetation which can include areas of bedrock, gravel mines, and sandbars.
- Forest, Shrub, Grassland (Green) – Includes deciduous, evergreen, and mixed forested areas, shrub land or areas with young trees, and areas with grasses or other herbaceous vegetation. These areas are generally not managed but may be used for grazing.
- Agriculture (Purple) – Areas that are generally planted or managed for agricultural purposes including hay fields, pasture, and cultivated crops.
- Wetlands (Orange) – Includes woody and emergent herbaceous wetlands.

Ongoing Projects – A list of any TMDLs, specials studies, or other projects in the segment (current or planned).

Description of Water Quality Issue – Identification of impairment or concern. This includes the year impairment was first identified in the TCEQ Integrated Report and a summary of the data used in the most recent Integrated Report. If a concern or impairment was carried forward from previous assessments, the summary data from that previous assessment is provided. Summary data for the period of record of this highlights report is also provided if available.

Potential Causes of Water Quality Issue – A list of possible causes for the impairment or concern based on knowledge of the watershed.

Recommendations for Improving Water Quality – A list of activities that may provide water quality improvements based on the impairments or concerns.

Potential Stakeholders – A list of companies, entities, or other groups that could serve as stakeholders in the watershed, be impacted by water quality in the segment, or be able to assist in improving water quality.

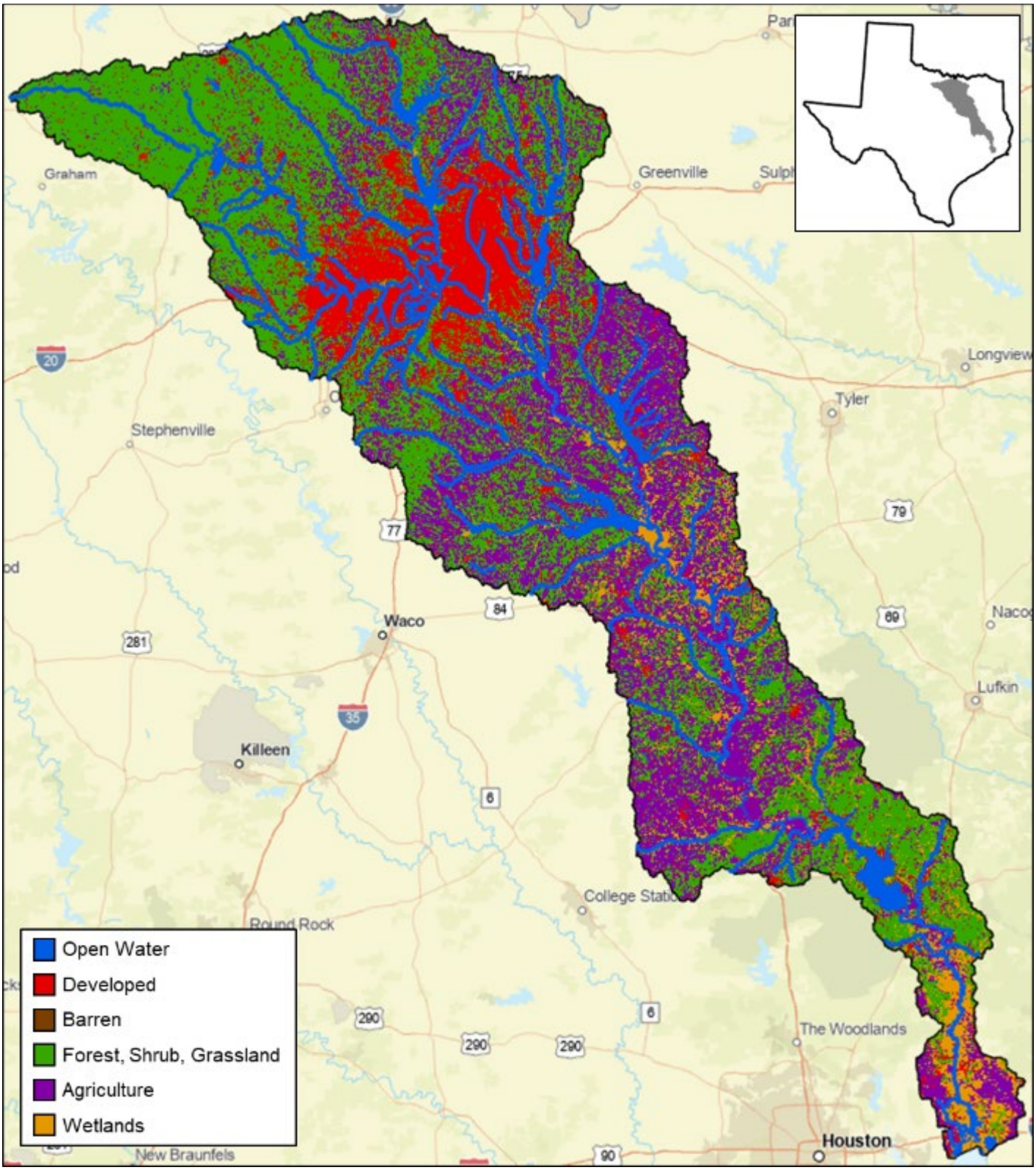

Figure 1: Map of the six land cover categories described in the Land Use and Natural Characteristics section.

Major Watershed Events

Because this Basin Highlights report is limited to impairments for Fish Consumption and Recreation Use, the events that impact water quality for Fish Consumption and Recreation Use are discussed below rather than in each segment chapter.

Fish Consumption Use

Most impairments for Fish Consumption Use are based on elevated levels of PCBs and Dioxin in fish tissue. Production of PCBs has been banned since 1979. There are various items manufactured prior to 1979 that may still be in use. These items can include electrical transformers, fluorescent light ballasts, building materials such as caulks and paints, and carbonless copy paper. Additionally, there is some inadvertent production of PCBs particularly in the manufacture of pigments and dyes. Inadvertent PCBs are regulated by EPA. In general, PCBs that are currently in the environment came from historic uses and may continue to make their way into water bodies from various sources including leaking electrical transformers and improperly maintained waste facilities. Unlike PCBs, Dioxins are not banned and are not intentionally produced for any commercial purpose. They are by-products of other activities such as fuel combustion, pesticide and herbicide manufacturing, and paper pulp bleaching. Flooding of waste facilities such as landfills and salvage yards or manufacturing facilities could transport PCBs and Dioxins into water bodies. Additionally, flooding can mobilize stream and reservoir sediments and push these contaminants downstream. Both PCBs and Dioxins are persistent in the environment and there is very little that can be done to solve the problem other than natural attenuation.

Recreation Use

Recreation Use impairments are due to elevated levels of *E. coli* in freshwater or *Entercoccus* in saline water. Sources of these bacteria include wildlife, livestock, pets, and humans. Waste from these sources can enter water bodies in many ways. Wildlife and livestock can introduce bacteria through direct deposition when using water bodies for watering and feeding. Runoff during precipitation events from pastures and rangeland, wooded or undeveloped areas, and residential areas including parks and golf courses can introduce bacteria from wildlife, livestock, and pets. Failing wastewater infrastructure such as broken wastewater lines, failing septic systems, and improperly operating wastewater treatment facilities can introduce bacteria from humans. Feral hog management may be able to reduce bacteria levels from wildlife sources. Various watershed protection plans and implementation projects can reduce bacteria from livestock, pet, and human sources via best management practices targeted to these sources. For example, exclusionary fencing and maintenance of riparian buffer zones can reduce livestock bacteria loading. Pet waste clean-up can reduce loading from yards and parks. Inspection and repair of wastewater infrastructure can reduce loading from human sources.

Increasing populations can lead to increased potential for bacteria impairments and shifts in sources. Expansion of urban and suburban development may reduce loading from livestock while increasing loading from pets and humans. Wildlife sources may also decrease but these sources may also be concentrated in specific areas due to wildlife being crowded out of their normal habitats. In the ten years from 2010 to 2019, the population of Texas has grown by 3.8 million people. For the counties that lie entirely or partially within the Trinity River basin, the population has grown by more than 1.2 million with 81% of this increase taking place in Collin, Denton, Dallas, and Tarrant counties. See Table 1 for details of population changes by county.

Table 1: Cumulative Estimates of Resident Population Change Trinity River Basin Counties: April 1, 2010 to July 1, 2019

Cumulative Estimates of Resident Population Change Trinity River Basin Counties: April 1, 2010 to July 1, 2019				
Geographic Area	Population Estimate		Change, 2010 to 2019	
	April 1, 2010 Estimates Base	July 1, 2019	Number	Percent
Texas	**25,146,091**	**28,995,881**	**3,849,790**	**15.3**
Trinity Basin Counties	**7,394,257**	**8,681,555**	**1,287,298**	**17.4**
Anderson County, Texas	58,452	57,735	-717	-1.2
Archer County, Texas	9,061	8,553	-508	-5.6
Chambers County, Texas	35,107	43,837	8,730	24.9
Clay County, Texas	10,754	10,471	-283	-2.6
Collin County, Texas	781,419	1,034,730	253,311	32.4
Cooke County, Texas	38,436	41,257	2,821	7.3
Dallas County, Texas	2,367,430	2,635,516	268,086	11.3
Denton County, Texas	662,557	887,207	224,650	33.9
Ellis County, Texas	149,610	184,826	35,216	23.5
Fannin County, Texas	33,910	35,514	1,604	4.7
Freestone County, Texas	19,817	19,717	-100	-0.5
Grayson County, Texas	120,877	136,212	15,335	12.7
Grimes County, Texas	26,581	28,880	2,299	8.6
Hardin County, Texas	54,635	57,602	2,967	5.4
Henderson County, Texas	78,578	82,737	4,159	5.3
Hill County, Texas	35,088	36,649	1,561	4.4
Hood County, Texas	51,163	61,643	10,480	20.5
Houston County, Texas	23,731	22,968	-763	-3.2
Hunt County, Texas	86,144	98,594	12,450	14.5
Jack County, Texas	9,041	8,935	-106	-1.2
Johnson County, Texas	150,956	175,817	24,861	16.5
Kaufman County, Texas	103,348	136,154	32,806	31.7
Leon County, Texas	16,798	17,404	606	3.6
Liberty County, Texas	75,643	88,219	12,576	16.6
Limestone County, Texas	23,388	23,437	49	0.2
Madison County, Texas	13,670	14,284	614	4.5
Montague County, Texas	19,720	19,818	98	0.5
Navarro County, Texas	47,840	50,113	2,273	4.8
Parker County, Texas	116,949	142,878	25,929	22.2
Polk County, Texas	45,415	51,353	5,938	13.1
Rockwall County, Texas	78,345	104,915	26,570	33.9
San Jacinto County, Texas	26,378	28,859	2,481	9.4
Tarrant County, Texas	1,810,664	2,102,515	291,851	16.1
Trinity County, Texas	14,675	14,651	-24	-0.2
Van Zandt County, Texas	52,552	56,590	4,038	7.7
Walker County, Texas	67,860	72,971	5,111	7.5
Wise County, Texas	59,115	69,984	10,869	18.4
Young County, Texas	18,550	18,010	-540	-2.9

Citation:
Cumulative Estimates of Resident Population Change and Rankings for Counties in Texas: April 1, 2010 to July 1, 2019 (CO-EST2019-CUMCHG-48)
Source: U.S. Census Bureau, Population Division
Release Date: March 2020

Fish Consumption Use

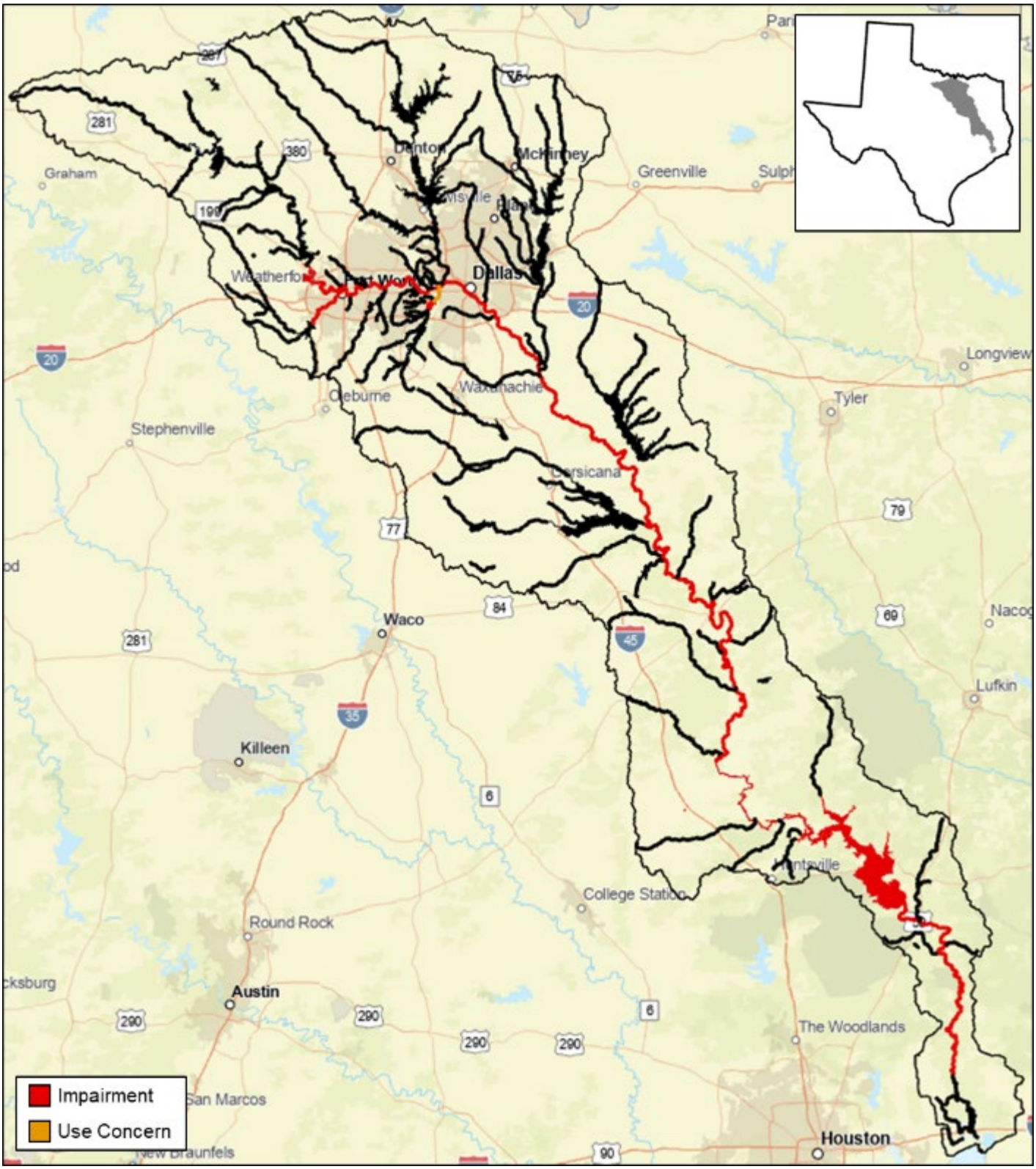

Figure 2: Map of segments with impairments or concerns for Fish Consumption Use.

0802 - Trinity River Below Lake Livingston

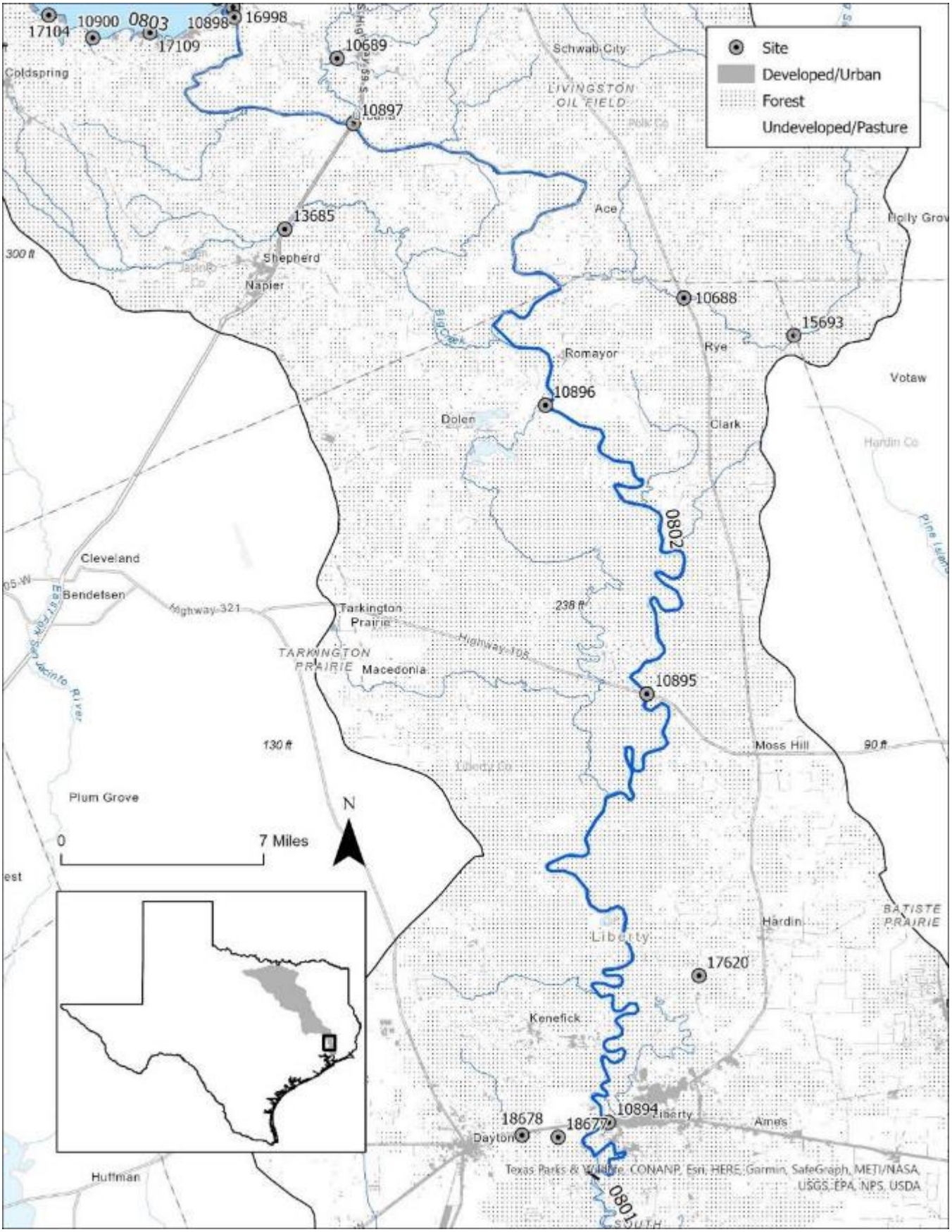

Figure 3: Map of Segment 0802

Figure 4: Trinity River below Lake Livingston sandbar

Segment Description

This 76-mile segment runs from the Livingston Dam on the border of Polk and San Jacinto counties to a point 1.9 miles downstream of US 90 in Liberty County.

Assessment Units and Monitoring Stations

- **0802_01** - Lower 17 miles of segment
  - Perennial freshwater Stream
  - **10894** – Trinity River at US 90 in Liberty TRA #33
    - Sampling conducted by TCEQ from 2013-2022
    - Sampling conducted by TRA in 2017
- **0802_02** - Approximately 9 miles upstream to approximately 15 miles downstream of SH 105
  - Perennial freshwater Stream
  - **10895** – Trinity River at SH 105 near Moss Hill TRA #32
    - Sampling conducted by Lake Livingston Project from 2013-2021
- **0802_03** - 11 miles upstream to approximately 9 miles downstream of FM 787
  - Perennial freshwater Stream
  - **10896** – Trinity River 125 meters upstream of FM 787 near Romayor
    - Sampling conducted by TCEQ from 2013-2022
- **0802_04** - 5 miles upstream to 11 miles downstream of US 59
  - Perennial freshwater Stream
  - **10897** – Trinity River at US 59 south of Goodrich TRA #30
    - Sampling conducted by Lake Livingston Project from 2013-2022
- **0802_05** - Upper 6 miles of segment
  - Perennial freshwater Stream
  - **16998** – Trinity River at FM 3278 775 meters downstream of Lake Livingston and 8 miles east of Coldspring
    - Sampling conducted by Lake Livingston Project from 2013-2022

Hydrology

Segment 0802 is a sixth order stream. There are three USGS flow gages in this segment with data covering the period from 2013 to 2021: 08066250 near Goodrich, 08066500 at Romayor, and 08067000 at Liberty. The median flow over this period of record ranged from 3,170 cfs at the upstream Goodrich gage to 13,000 cfs at the downstream Liberty gage. However, the higher median flow at the Liberty gage is an artifact of the way flow was reported at this gage prior to May 24, 2018. Prior to the installation of a velocity gage at this station, only flows above 10,000 cfs were reported to prevent tidally influenced flows from affecting the reported data. After the velocity gage was installed, tidal influences could be pulled from the data set. The median flow at the Liberty gage from May 2018 to 2021 was 4,930 cfs with

minimum and maximum flows of 782 and 124,000 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these three gages are listed below.

- Non-Index Period – 2,775 to 4,555 cfs
- Index Period – 7,920 to 17,600 cfs
- Critical Period – 1,500 to 1,835 cfs

Land Use and Natural Characteristics

This watershed is largely rural with a mix of hay and pasture lands, woody wetlands, and forest. There is some development around the cities of Goodrich, Romayor, and Liberty. The river flows through the Floodplains and Low Terraces ecoregion.

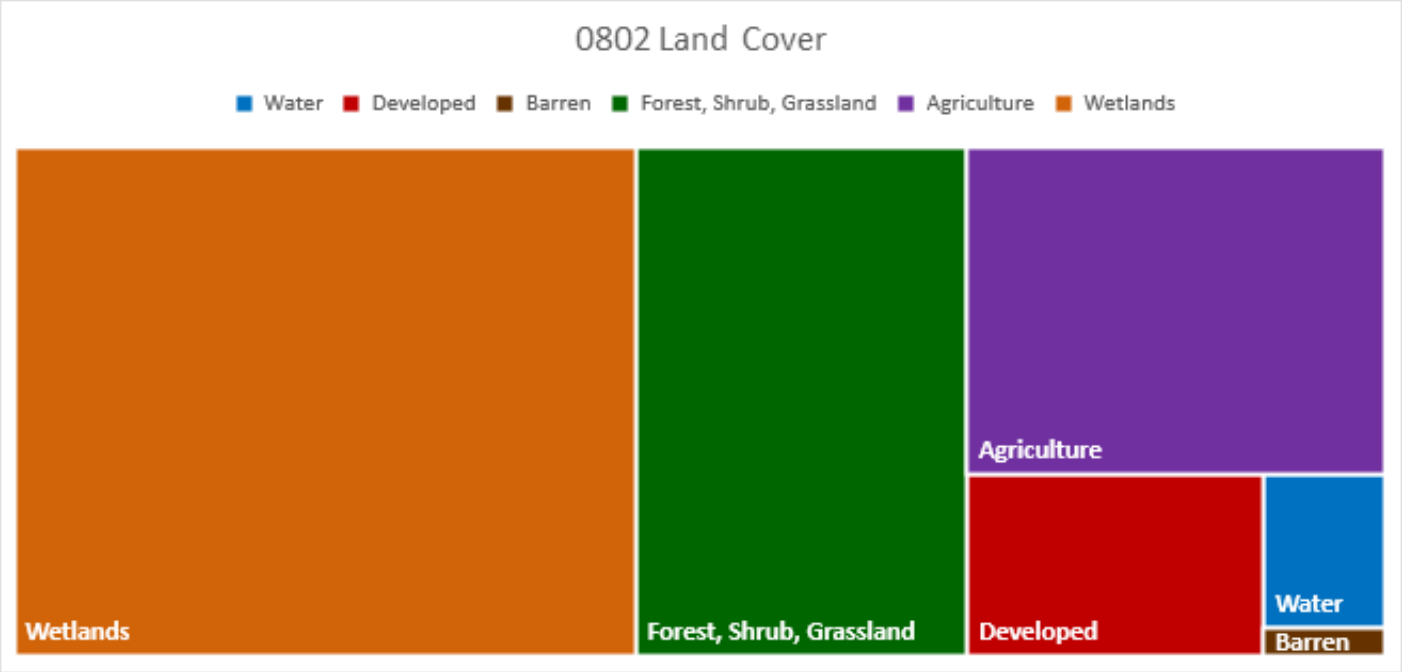

Figure 5: 0802 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by USGS, TCEQ, and TRA Lake Livingston Project.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of dioxin and PCBs in edible tissue in 2016. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 53 indicates that blue catfish, flathead catfish, freshwater drum, all species of gar, smallmouth buffalo, striped bass, and white bass are affected and that gar should not be consumed. “Women of childbearing age and children <12” should not consume blue catfish, flathead catfish, freshwater drum, or smallmouth buffalo and should limit consumption of striped band and white bass to one four-ounce meal per month. “Women past childbearing age and adult men” should limit consumption of blue catfish, flathead catfish, and smallmouth buffalo to one eight-ounce meal per month; freshwater drum to two eight-ounce meals per month; and striped bass and white bass to three eight-ounce meals per month.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- Lake Livingston
- City of Ace
- City of Romayor
- City of Liberty
- Taylor Lake homeowners, and homeowners' associations
- ABLA Farm & Nursery
- U.S. Fish and Wildlife
- U.S. Army Corps of Engineers
- Homeowners and HOA
- Landowners

0803 - Lake Livingston

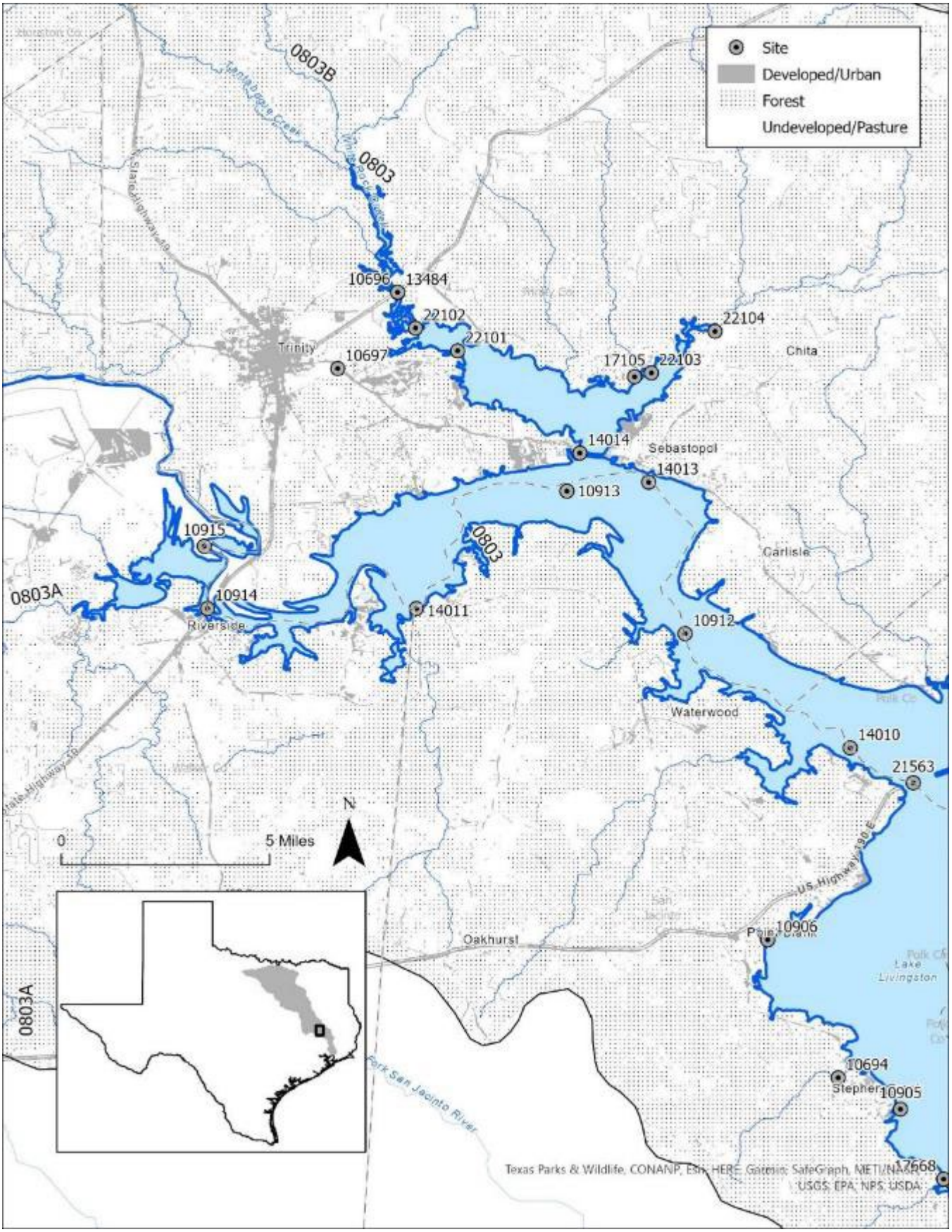

Figure 6: Map of the upper half of Segment 0803

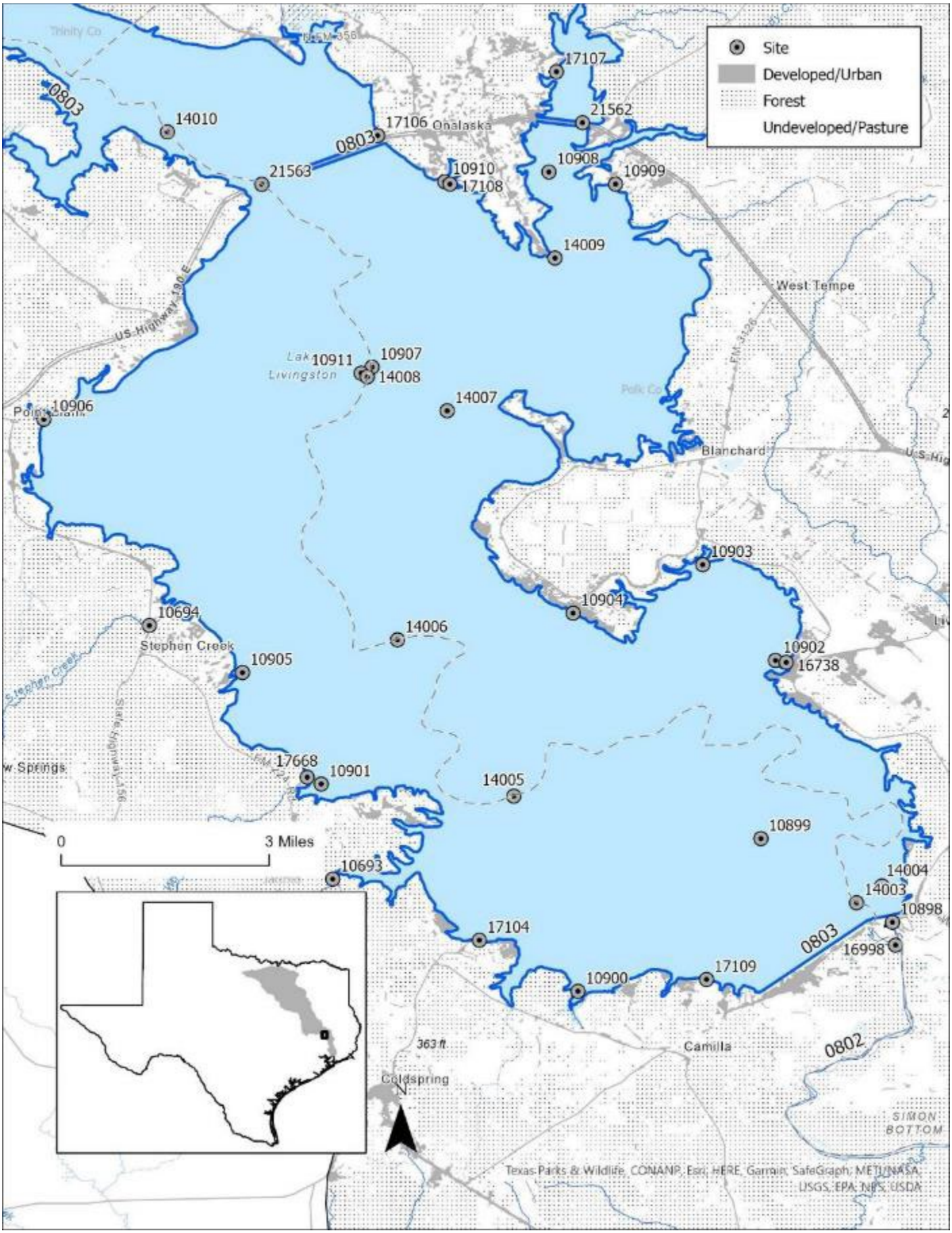

Figure 7: Map of the lower half of Segment 0803

Figure 8: Lake Livingston near Wolf Creek Park

Segment Description

This 82,600-acre segment impounds 1,750,000 acre-feet of water along the Trinity River. It stretches from a point 1.1 miles upstream of Boggy Creek in Houston/Leon County to the Livingston Dam in Polk/San Jacinto County, up to a normal pool elevation of 131 feet.

Assessment Units and Monitoring Stations

- **0803_01** - Lowermost portion of reservoir, adjacent to dam
  - **10899** - Lake Livingston in main pool near dam at TRA Bouy #2 4.25 km west of intersection of FM 1988 and FM 3128
    - Sampling conducted by Lake Livingston Project from 2013 to 2022
- **0803_02** - Lower portion of reservoir, East Wolf Creek
  - **14005** - Lake Livingston USGS site BC 550 meters south and 2.32 km east of intersection of Walnut Point Driver and Cape Royale
    - Sampling conducted by Lake Livingston Project from 2013 to 2014
  - **10901** - Lake Livingston at Wolf Creek confluence TRA 16 820 meters east and 150 meters south of intersection of FM 224 and Park Road 60
    - Sampling conducted by TRA in 2017
- **0803_03** - Lower portion of reservoir, East Willow Springs
  - **14006** - Lake Livingston USGS site CC 3.64 km west and 1.31 km south of intersection of FM 3277 and Normagene Street
    - Sampling conducted by Lake Livingston Project from 2013 to 2014
- **0803_04** - Middle portion of reservoir, East Pointblank

    - **10911** - Lake Livingston 4.39 km east and 1.17 km south of intersection of US 190 and FM 980 west of Onalaska
        - Sampling conducted by Lake Livingston Project in 2014
    - **14007** - Lake Livingston USGS site DL 1.27 km north and 2.81 km west of intersection of FM 3277 and FM 2457
        - Sampling conducted by Lake Livingston Project from 2013 to 2016 and 2018 to 2019
- **0803_05** - Middle portion of reservoir, downstream of Kickapoo Creek
    - **10909** - Lake Livingston in Kickapoo Creek bay channel 66 meters west of intersection of Noel Point and Pinegrove Drive TRA #12
        - Sampling conducted by Lake Livingston Project in 2014
    - **21562** - Lake Livingston at US 190 in Kickapoo Creek bay channel east of Onalaska TRA #12
        - Sampling conducted by Lake Livingston Project from 2013 to 2022
    - **10908** - Lake Livingston in Kickapoo Creek bay 782 meters east and 115 meters south of intersection of Lakefront Driver and Whisperwood Drive
        - Sampling conducted by TRA in 2017
- **0803_06** - Middle portion of reservoir, centering on US 190
    - **21563** - Lake Livingston main body at US 190 west of Onalaska
        - Sampling conducted by Lake Livingston Project from 2013 to 2022
- **0803_07** - Upper portion of reservoir, west of Carlisle
    - **10913** - Lake Livingston 1.8 km south and 496 meters east of intersection of FM 356 and Davis Road in main channel near mouth of White Rock Creek bay TRA 6
        - Sampling conducted by Lake Livingston Project from 2013 to 2022
- **0803_08** - Cove off upper portion of reservoir, East Trinity
    - **14014** - Lake Livingston USGS site HC 280 meters south and 363 meters east of intersection of 2nd Street and FM 356
        - Sampling conducted by Lake Livingston Project from 2013 to 2016 and 2018 to 2019
        - Sampling conducted by TRA in 2017
- **0803_09** - West Carolina Creek cove, off upper portion of reservoir
- **0803_10** - Upper portion of reservoir, centering on SH 19
    - **10914** - Lake Livingston at SH 19 south of Trinity of USGS site JC
        - Sampling conducted by Lake Livingston Project from 2013 to 2022
        - Sampling conducted by TRA in 2017
- **0803_11** - Riverine portion of reservoir, centering on SH 21
    - **10917** - Lake Livingston headwaters at SH 21 northeast of Midway TRA 97
        - Sampling conducted by Lake Livingston Project from 2013 to 2022
- **0803_12** - Remainder of reservoir

Hydrology

Segment 0803 is a reservoir on a sixth order stream. This reservoir is a water supply reservoir and has no flood control or flood storage capacity. Therefore, it is operated as a run-of-the-river system; discharge mirrors inflows and elevations to maintain the normal pool elevation of 131 feet. Over the period of record for this report, the median elevation was 131.21 feet with a range of 128.6 to 133.4 feet.

Land Use and Natural Characteristics

This segment begins in the Southern Post Oak Savanna where the land use is hay and pasture land and transitions to the forested Southern Tertiary Uplands ecoregion. There are several developed areas in the communities around the reservoir. Lake Livingston has been noted as being eutrophic by the TCEQ Trophic Classification of Texas Reservoirs report.

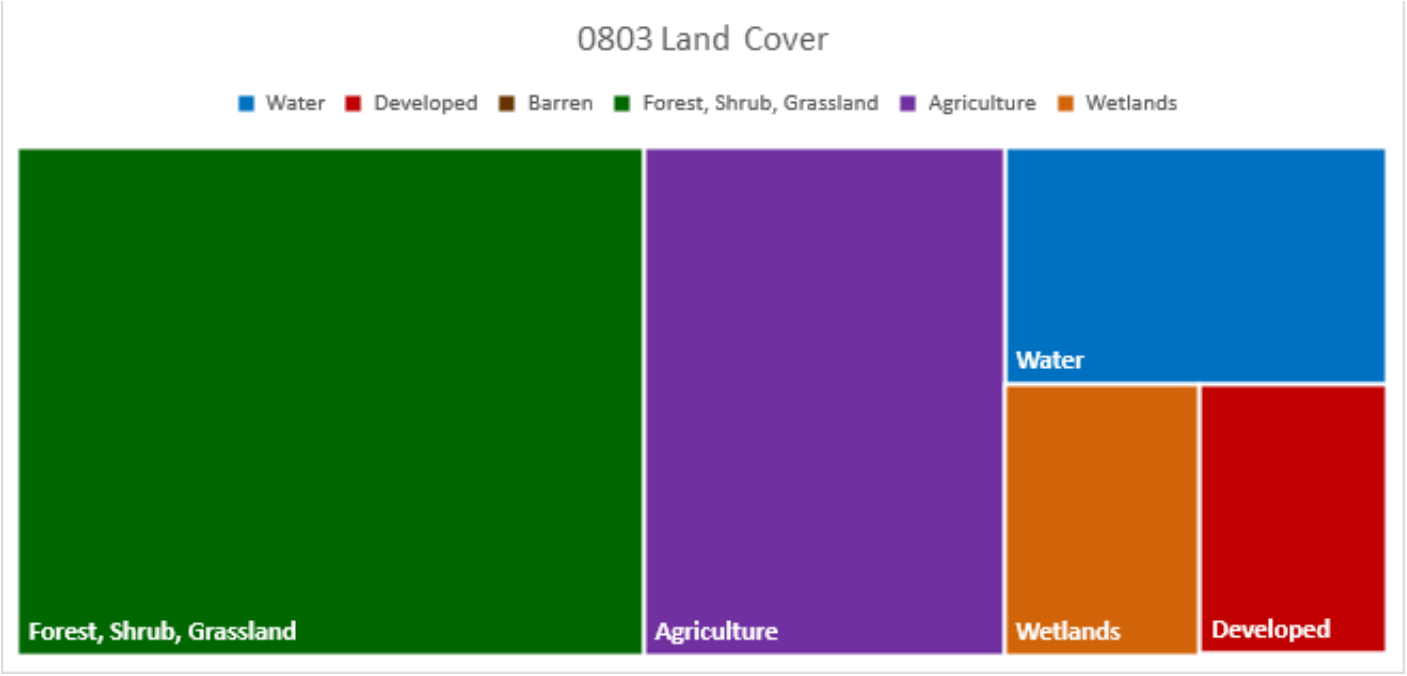

Figure 9: 0803 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA Lake Livingston Project.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of dioxin and PCBs in edible tissue in 2016. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 53 indicates that blue catfish, flathead catfish, freshwater drum, all species of gar, smallmouth buffalo, striped bass, and white bass in this reservoir are affected. "Women of childbearing age and children <12" should not eat blue catfish, flathead catfish, freshwater drum, all species of gar, or smallmouth buffalo and should limit consumption of striped bass and white bass to one four-ounce meal per month. "Women past childbearing age and adult men" should not eat any species of gar and should limit consumption of blue catfish, flathead catfish, and smallmouth buffalo to one eight-ounce meal per month; freshwater drum to two eight-ounce meals per month; and striped bass and white bass to three eight-ounce meals per month.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Diesel fuel combustion.
- Residential trash burning.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Homeowner/landowner education about residential trash burning.

Potential Stakeholders

- Landowners
- Homeowners and HOA's
- City of Riverside
- Camp Olympia
- Whispering Pines Golf Club
- City of Sebastopol

- Sam Houston Electric Supply Station
- City of Point Blank
- City of Carlisle
- City of Onalaska
- Sandy Creek Resort Campground
- City of Blanchard
- Shannon Lynn Goins
- Texas Parks and Wildlife Department
- Lake Livingston Project
- Communities bordering Lake Livingston

0803G - Lake Madisonville

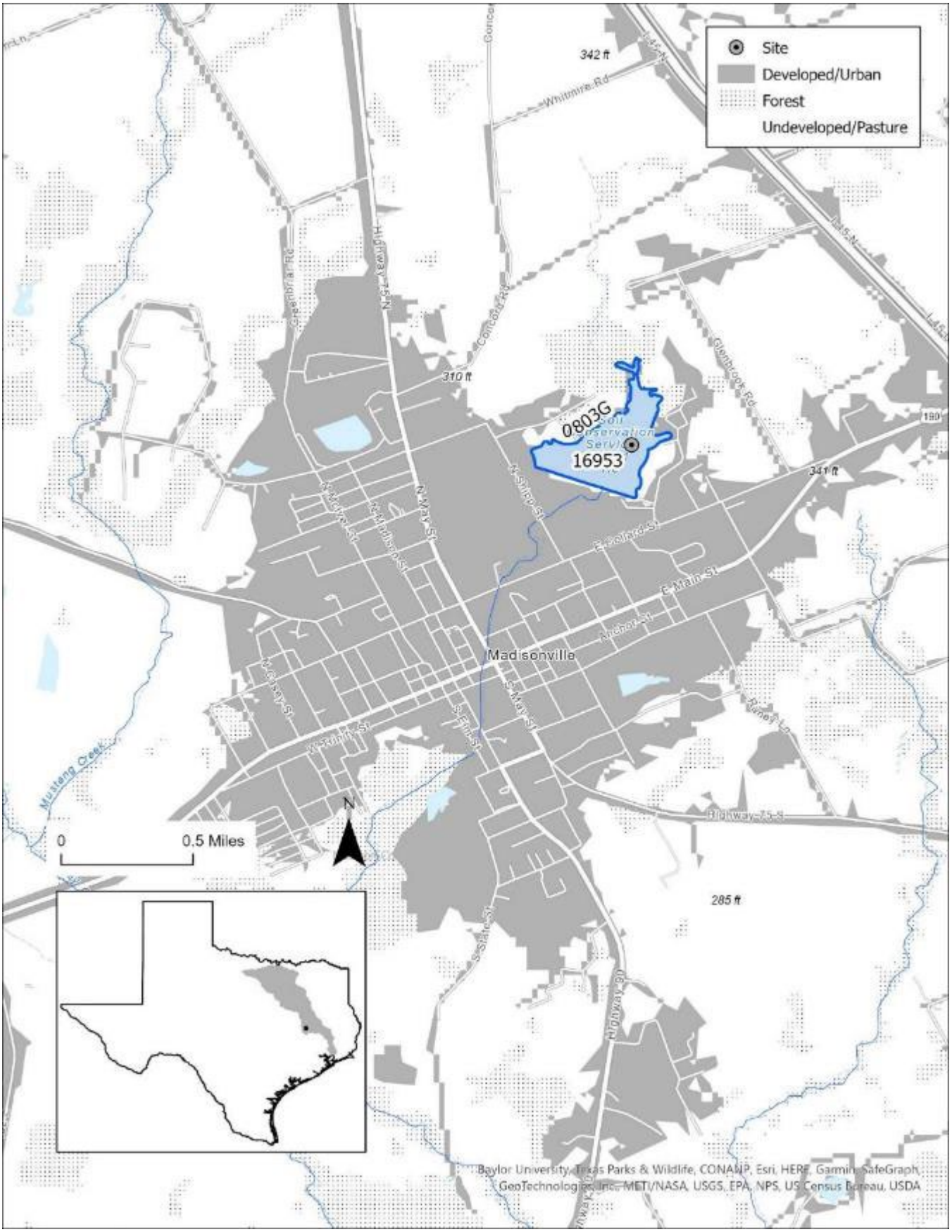

Figure 10: Map of Segment 0803G

Segment Description

This 62-acre reservoir impounds Town Branch and lies just outside of Madisonville.

Assessment Units and Monitoring Stations

- **0803G_01** - From Lake Madisonville Dam in Madison County up to the normal pool elevation of 285 feet (impounds Town Branch)
  - **16953** - Madisonville Lake mid lake 460 meters north and 371 meters west of intersection of Parkhill Driver and Collard Street 334 meters north of dam northeast of Madisonville
    - Sampling conducted by TCEQ in 2013

Hydrology

Unclassified segment 0803G is a reservoir on a first order stream. There are no USGS gages on this reservoir and no sampling has been conducted here since 2013. Based on three samples collected between February and August of 2013, the reservoir was between 95 and 100 percent full with a normal pool elevation of 285 feet.

Land Use and Natural Characteristics

The upstream portion of the watershed is developed by the City of Madisonville while the downstream portion is largely hay and pasture land. It lies within the Southern Post Oak Savanna. Lake Madisonville has been noted as being eutrophic by the TCEQ Trophic Classification of Texas Reservoirs report. There is no Clean Rivers Program monitoring scheduled in this segment for FY 2020.

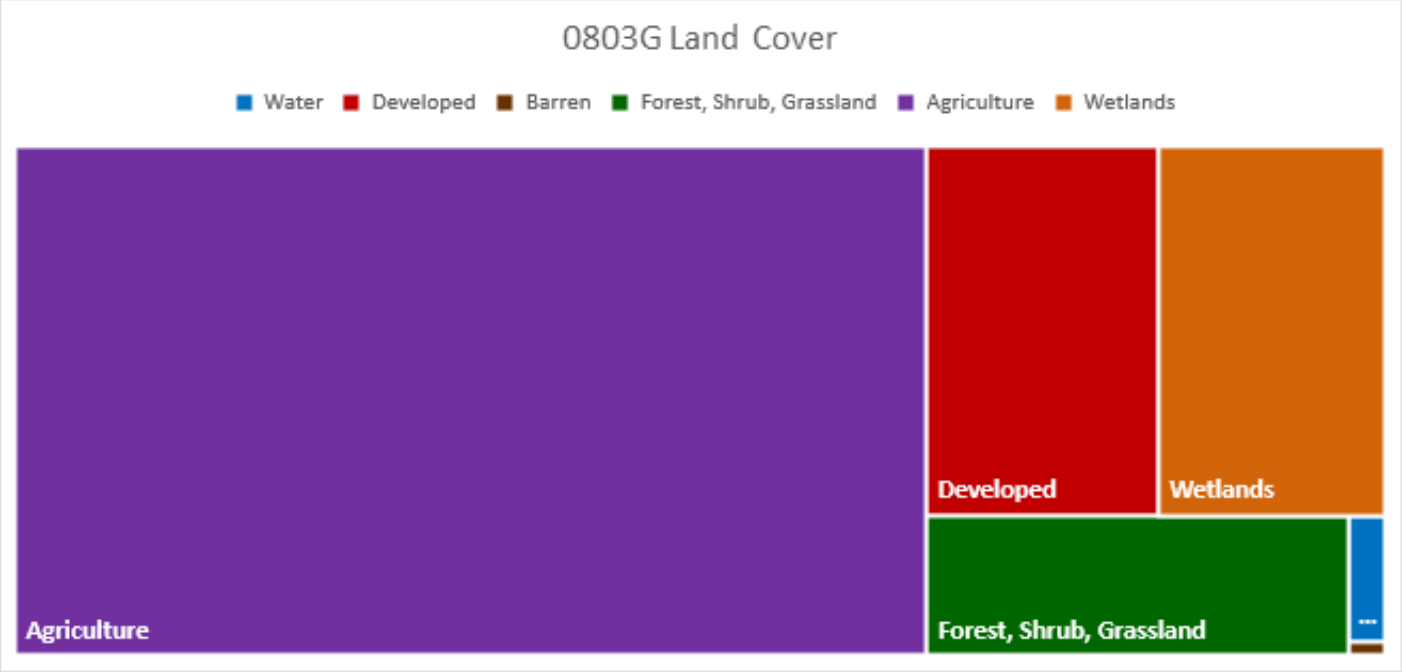

Figure 11: 0803G relative land cover totals.

Ongoing Projects

- None.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of mercury in edible tissue in 2010. This impairment is based on sampling conducted by the Texas Department of State Health Services. Advisory 36 indicates that largemouth bass are affected and that consumption should be limited to “no more than two eight-ounce meals per month” for adults and “two four-ounce meals per month” for children under 12 years old. “Women who are nursing, pregnant, or may become pregnant should not consume largemouth bass” from this reservoir.

Potential Causes of Water Quality Issue

- Unknown.

Recommendations for Improving Water Quality

- Natural attenuation.

Potential Stakeholders

- City of Madisonville
- Property owners

0804 - Trinity River Above Lake Livingston

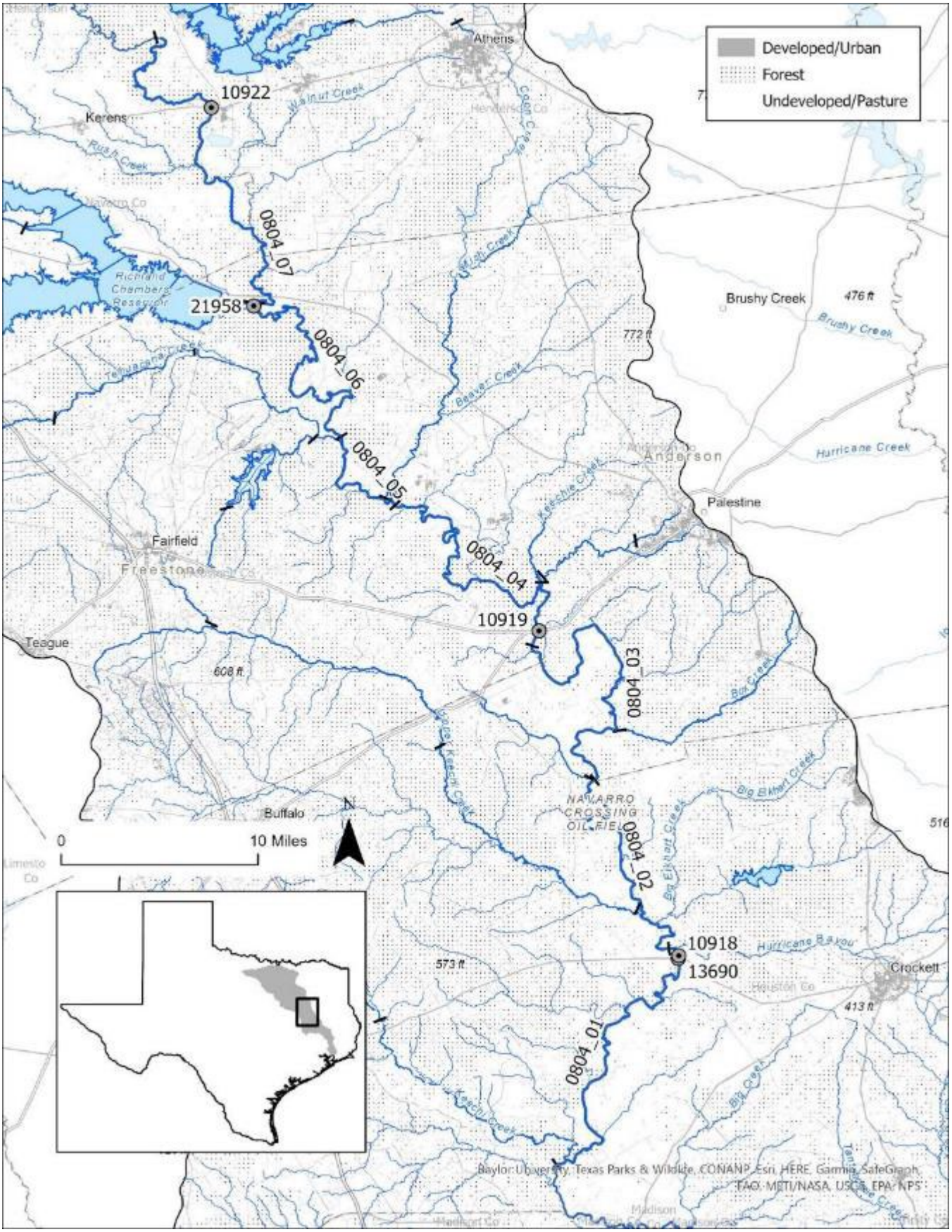

Figure 12: Map of Segment 0804

Figure 13: Trinity River at old lock and dam upstream of SH 7 west of Crockett

Segment Description

This 160-mile portion of the Trinity River begins at the confluence with the Cedar Creek Lake outfall canal and ends at the Lake Livingston headwaters southwest of Crockett.

Assessment Units and Monitoring Stations

- **0804_01** - From the lower end of the segment up to just above the confluence with Hurricane Bayou in Houston County
  - Perennial freshwater stream
  - **13690** - Trinity River 304 meters upstream of SH 7 11.9 miles west of Crockett
    - Sampling conducted by Lake Livingston Project from 2020 to 2022
  - **10918** - Trinity River at SH 7 west of Crockett TRA #96
    - Sampling conducted by TRA in 2017
- **0804_02** - From just upstream of the confluence with Hurricane Bayou up to just above the confluence with Boons Creek
  - Perennial freshwater stream
- **0804_03** - From just upstream of the confluence with Boons Creek up to just above the confluence with Caney Creek
  - Perennial freshwater stream
- **0804_04** - From the confluence with Caney Creek up to just above the confluence with Indian Creek in Anderson County
  - Perennial freshwater stream
  - **10919** - Trinity River immediately downstream of US 79 northeast of Oakwood

        - Sampling conducted by TRA from 2013 to 2022
- **0804_05** - From just above the confluence with Indian Creek in Anderson County up to just above the confluence with Tehuacana Creek
    - Perennial freshwater stream
- **0804_06** - From just above the confluence with Tehuacana Creek to just above the confluence with Richland Creek
    - Perennial freshwater stream
    - **21958** - Trinity River approximately 3.5 kilometers downstream of US 287 and approximately 125 meters downstream of the confluence with the Richland Chambers Reservoir outlet canal west of Cayuga
        - Sampling conducted by TRA in 2017
- **0804_07** - From just above the confluence with Richland Creek in Henderson County, up to the upper end of the segment
    - Perennial freshwater stream
    - **10922** - Trinity River at SH 31 in Trinidad
        - Sampling conducted by TRA from 2013 to 2022

Hydrology

Segment 0804 is a sixth order stream. There are three USGS flow gages in this segment with data covering the period from 2013 to 2021: 08062700 near Trinidad, 08065000 near Oakwood, and 08065350 near Crockett. The median flow over this period of record ranged from 1,830 cfs at the upstream Trinidad gage to 2,660 cfs at the downstream Crockett gage with minimum and maximum flows of 378 and 99,200 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these three gages are listed below.

- Non-Index Period – 1,580 to 2,265 cfs
- Index Period – 4,250 to 5,970 cfs
- Critical Period – 1,135 to 1,370 cfs

Land Use and Natural Characteristics

This segment is generally considered the “Middle Trinity” and runs through the Northern and Southern Post Oak Savanna as well as the Tertiary Uplands ecoregions. The watershed is largely rural with some larger communities including Athens, Palestine, Fairfield, and Crockett. Land use in the watershed is largely hay and pasture land with some small pockets of crop land, grassland, and forest.

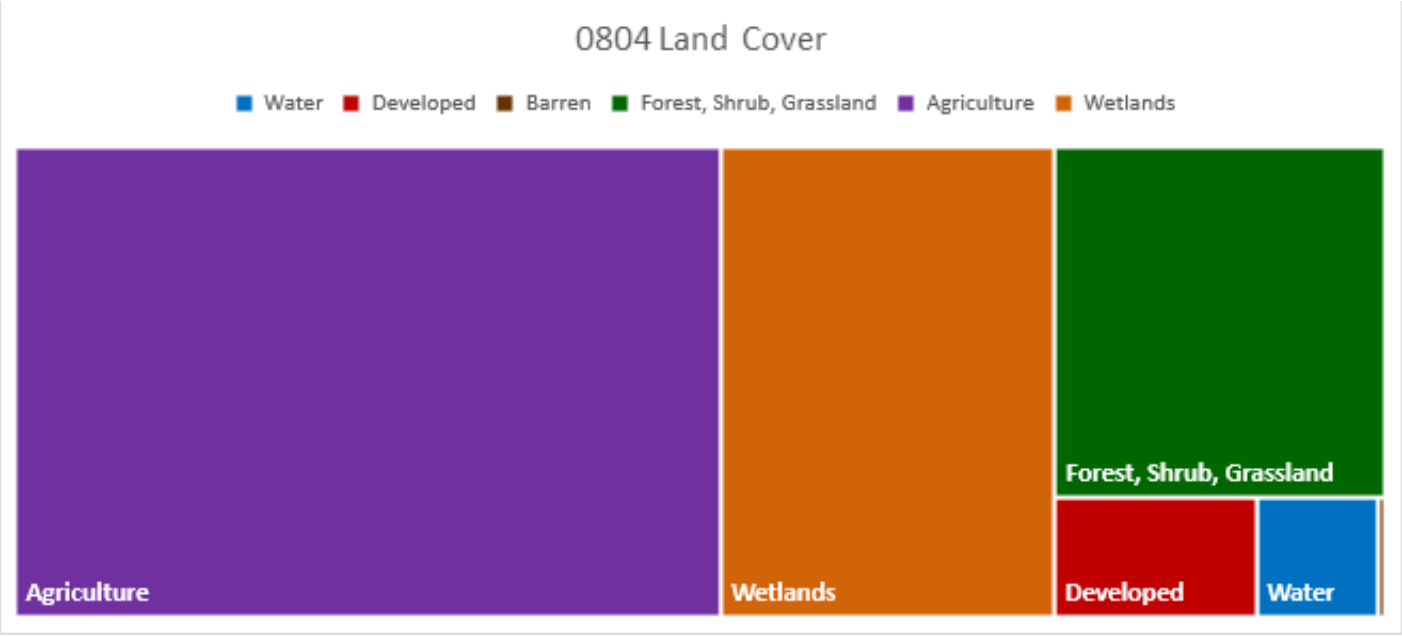

Figure 14: 0804 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA and TRA Lake Livingston Project.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of dioxin and PCBs in edible tissue in 2010. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 53 indicates that blue catfish, flathead catfish, freshwater drum, all species of gar, smallmouth buffalo, striped bass, and white bass are affected and that gar should not be consumed. “Women of childbearing age and children <12” should not consume blue catfish, flathead catfish, freshwater drum, or smallmouth buffalo and should limit consumption of striped band and white bass to one four-ounce meal per month. “Women past childbearing age and adult men” should limit consumption of blue catfish, flathead catfish, and smallmouth buffalo to one eight-ounce meal per month; freshwater drum to two eight-ounce meals per month; and striped bass and white bass to three eight-ounce meals per month.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- Landowners
- Hodge Family Land
- City of Trinidad
- King Sand and Gravel
- Texas Power and Light Company
- TDCJ – Tennessee Colony, Tx
- Crockett Sand & Gravel

0805 - Upper Trinity River

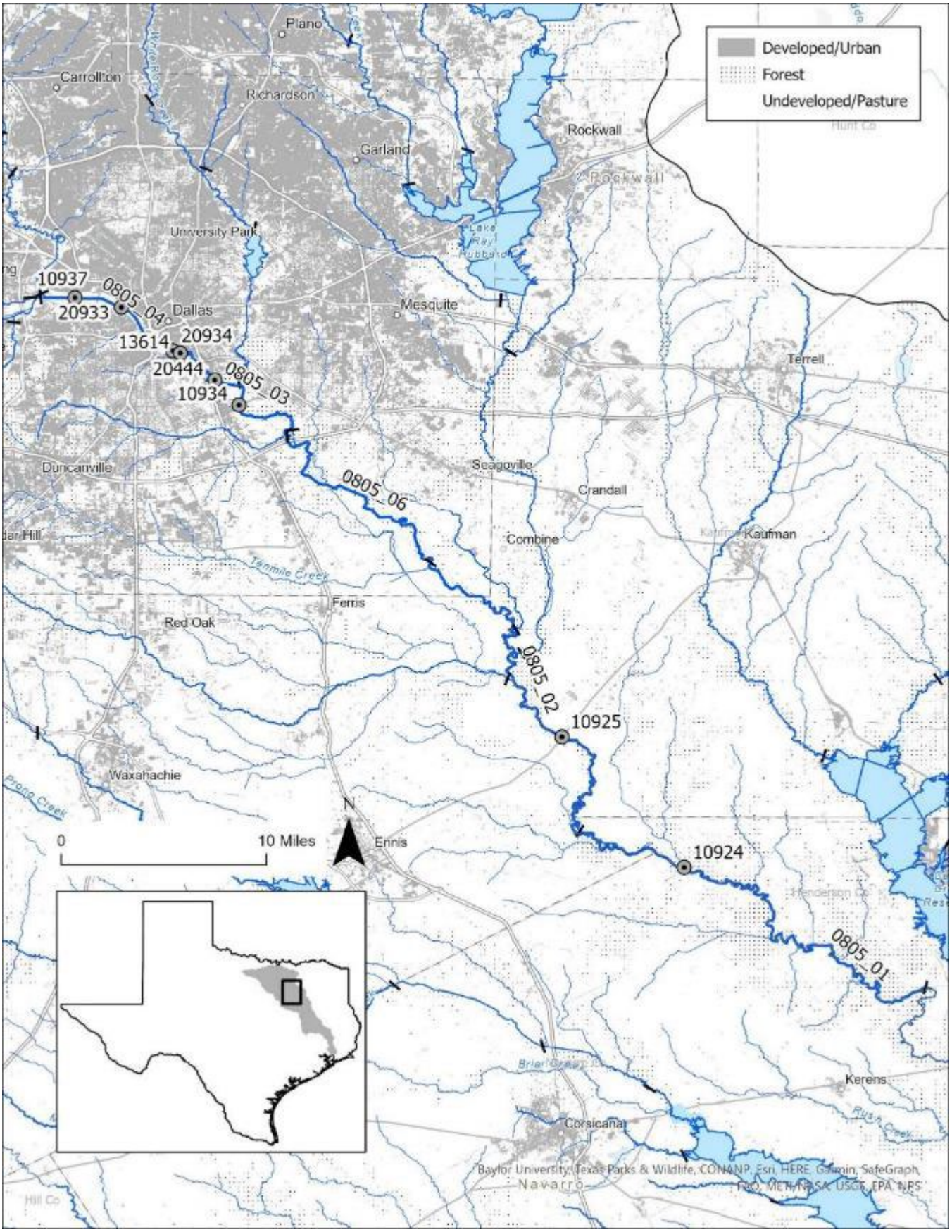

Figure 15: Map of Segment 0805

Figure 16: Trinity River at Mockingbird Lane in Dallas at flood stage

Segment Description

This 97-mile segment runs from the confluence of the Elm Fork Trinity River in Dallas County to the confluence of the Cedar Creek Reservoir discharge canal in Henderson/Navarro County.

Assessment Units and Monitoring Stations

- **0805_01** - From confluence of the Cedar Creek Reservoir discharge canal upstream to confluence of Smith Creek
  - Perennial freshwater stream
  - **10924** - Trinity River 24 meters downstream of FM 85 west of Seven Points
    - Sampling conducted by TRA from 2020 to 2022
- **0805_02** - From confluence of Smith Creek upstream to confluence of Tenmile Creek
  - Perennial freshwater stream
  - **10925** - Trinity River 50 meters downstream of SH 34 northeast of Ennis
    - Sampling conducted by TRA from 2013 to 2022
- **0805_03** - From the confluence of Fivemile Creek upstream to the confluence of Cedar Creek
  - Perennial freshwater stream
  - **10934** - Trinity River at South Loop SH 12 south of Dallas
    - Sampling conducted by TRA from 2013 to 2022
  - **20444** - Upper Trinity River 190 meters downstream of South Central Expressway/SH 310 and 105 meters upstream of railroad bridge
    - Sampling conducted by Dallas from 2013 to 2022
  - **13614** - Trinity River 277 meters upstream of Cedar Crest Boulevard in Dallas

        - Sampling conducted by TRA in 2017
- **0805_04** - From confluence of Cedar Creek upstream to confluence of Elm Fork Trinity River
    - Perennial freshwater stream
    - **10937** - Trinity River 46 meters upstream of North Westmoreland Road in Dallas
        - Sampling conducted by TRA from 2013 to 2022
    - **20933** - Upper Trinity River at Sylvan Avenue in Dallas
        - Sampling conducted by Dallas from 2013 to 2022
    - **20934** - Upper Trinity River at Santa Fe Avenue in Dallas under DART rail bridge
        - Sampling conducted by Dallas from 2013 to 2022
- **0805_06** - From confluence of Tenmile Creek upstream to confluence of Fivemile Creek
    - Perennial freshwater stream

Hydrology

Segment 0805 is a sixth order stream. There are three USGS flow gages in this segment with data covering the period from 2013 to 2021: 08057000 at Dallas, 08057410 below Dallas, and 08062500 near Rosser. The median flow over this period of record ranged from 901 cfs at the upstream Dallas gage to 1,465 cfs at the downstream Rosser gage with minimum and maximum flows of 186 and 67,600 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these three gages are listed below.

- Non-Index Period – 805 to 1,310 cfs
- Index Period – 2,040 to 3,130 cfs
- Critical Period – 594 to 1,010 cfs

Land Use and Natural Characteristics

The upper 15 miles of the watershed are highly urbanized and the lower 82 miles are mostly rural cropland and pasture. The flow in this section can be almost 100% wastewater effluent from the Dallas-Fort Worth Metroplex during the hot, dry summer months and periods of drought. Prior to the development of the large regional wastewater treatment facilities found along this segment, the Trinity River was known to go dry in the summer. The wastewater treatment facilities release high quality effluent that has provided the flow necessary for downstream aquatic life. Water here is generally very turbid as it flows through the Northern Blackland Prairie and into Northern Post Oak Savanna.

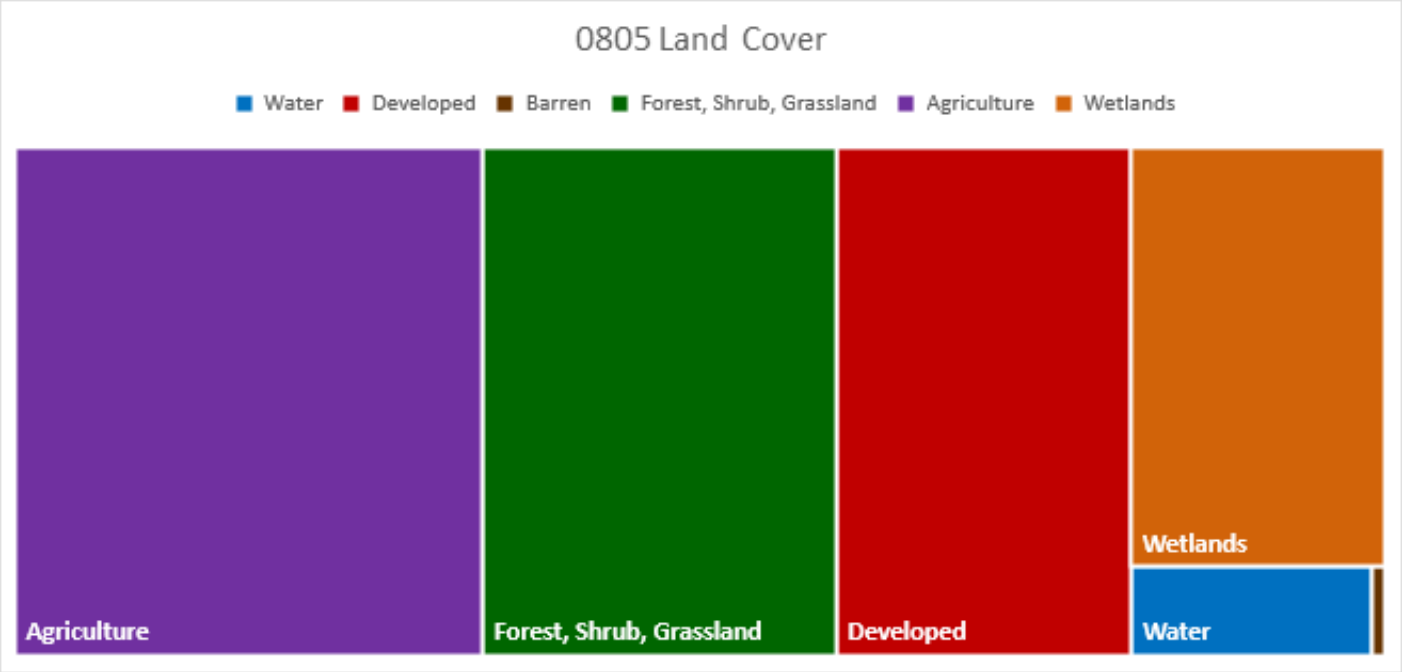

Figure 17: 0805 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA and City of Dallas.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 2002. Impairments due to elevated levels of dioxin in edible tissue were found in 2010. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 43 indicates that all species of fish are affected and should not be consumed.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- City of Dallas
- KDC McLemmon Investments One LP
- Central Wastewater Treatment Plant
- Dallas County Nature Preserve
    - McCommas Bluff
    - Joppa Preserve
- Trinity River Audubon Center
- McCommas Bluff Landfill
- City of Hutchins
- D Bar B Water Wastewater Supply
- Dallas Hunting and Fishing Club
- Landowners
- Arcosa Aggregates - Cottonwood
- City of Mankin

0806 - West Fork Trinity River Below Lake Worth

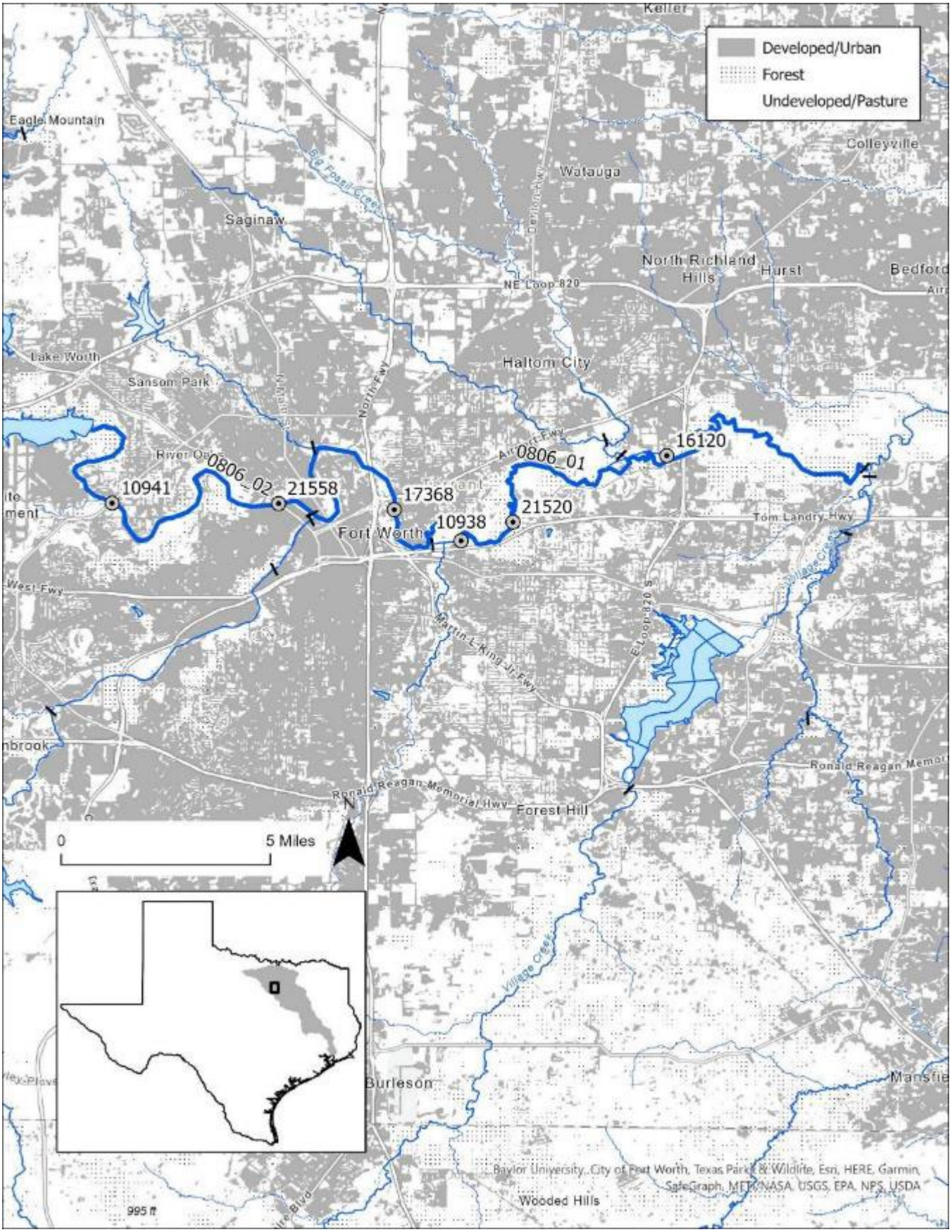

Figure 18: Map of Segment 0806

Figure 19: West Fork Trinity River downstream of Precinct Line Road

Segment Description

This 32-mile segment of the West Fork Trinity River travels southeast from the Lake Worth dam to the confluence of Village Creek in Tarrant County.

Assessment Units and Monitoring Stations

- **0806_01** - From confluence of Village Creek upstream to confluence of Clear Fork Trinity River
  - Perennial freshwater stream
  - **10938** - West Fork Trinity River 54 meters downstream of Beach Street in Fort Worth
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
    - Sampling conducted by Fort Worth from 2013 to 2021
  - **16120** - West Fork Trinity River 260 meters downstream of Handley Ederville Road 0.55 kilometers upstream of IH 820 in Fort Worth
    - Sampling conducted by Fort Worth from 2013 to 2022
    - Sampling conducted by TRA in 2017
  - **17368** - West Fork Trinity River immediately downstream of 4th Street east of Fort Worth
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
    - Sampling conducted by Fort Worth from 2013 to 2021
  - **21520** - West Fork Trinity River 1.25 kilometers upstream of East 1st Street off of the Fort Worth Branch Trinity Trails System in Gateway Park in Fort Worth
    - Sampling conducted by TRA in 2015
- **0806_02** - From confluence of Clear Fork Trinity River upstream to Lake Worth Dam
  - Perennial freshwater stream

- **21558** - West Fork Trinity River at boat ramp immediately upstream of Jacksboro Highway/SH 199 in Fort Worth
  - Sampling conducted by Fort Worth from 2014 to 2022
- **10941** - West Fork Trinity River immediately downstream of River Oaks Boulevard/SH 183 in Fort Worth
  - Sampling conducted by TRA in 2017

Hydrology

Segment 0806 is a fifth order stream. There are three USGS flow gages in this segment with data covering the period from 2013 to 2021: 08045550 at White Settlement Road, 08048000 at Fort Worth, and 08048543 at Beach Street. The median flow over this period of record ranged from 13 cfs at the upstream White Settlement Road gage to 60.8 cfs at the downstream Beach Street gage with minimum and maximum flows of 0 and 20,500 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these three gages are listed below.

- Non-Index Period – 14.1 to 60.9 cfs
- Index Period – 17.8 to 119 cfs
- Critical Period – 9.51 to 40.3 cfs

Land Use and Natural Characteristics

A majority of the segment is heavily developed by the cities of White Settlement, Fort Worth, Haltom City, and Arlington. There are some forested areas directly adjacent to the river. This segment begins in the Grand Prairie and ends in the Eastern Cross Timbers ecoregion.

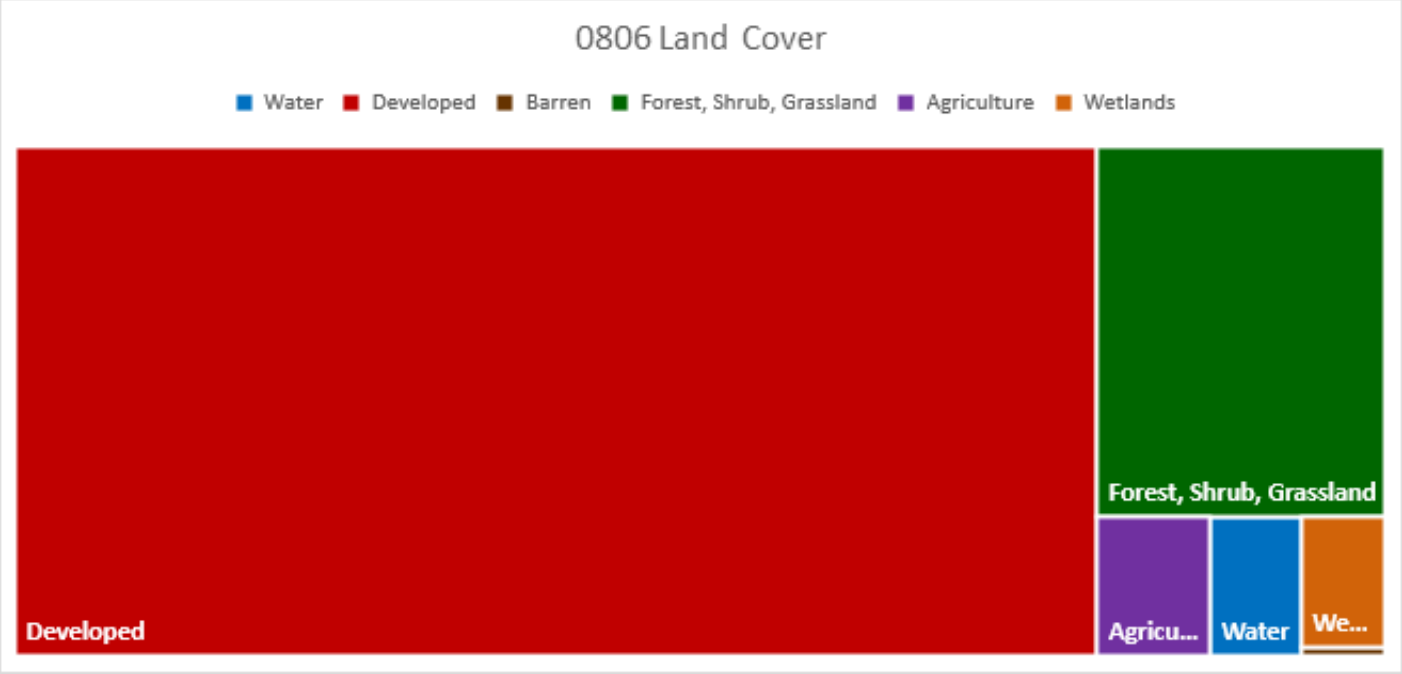

Figure 20: 0806 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth and Tarrant Regional Water District.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1996. Impairments due to elevated levels of dioxin in edible tissue were found in 2010. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 43 indicates that all species of fish are affected and should not be consumed.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- City of Fort Worth
- YMCA Camp Carter
- City of Haltom City

0806A - Fosdic Lake

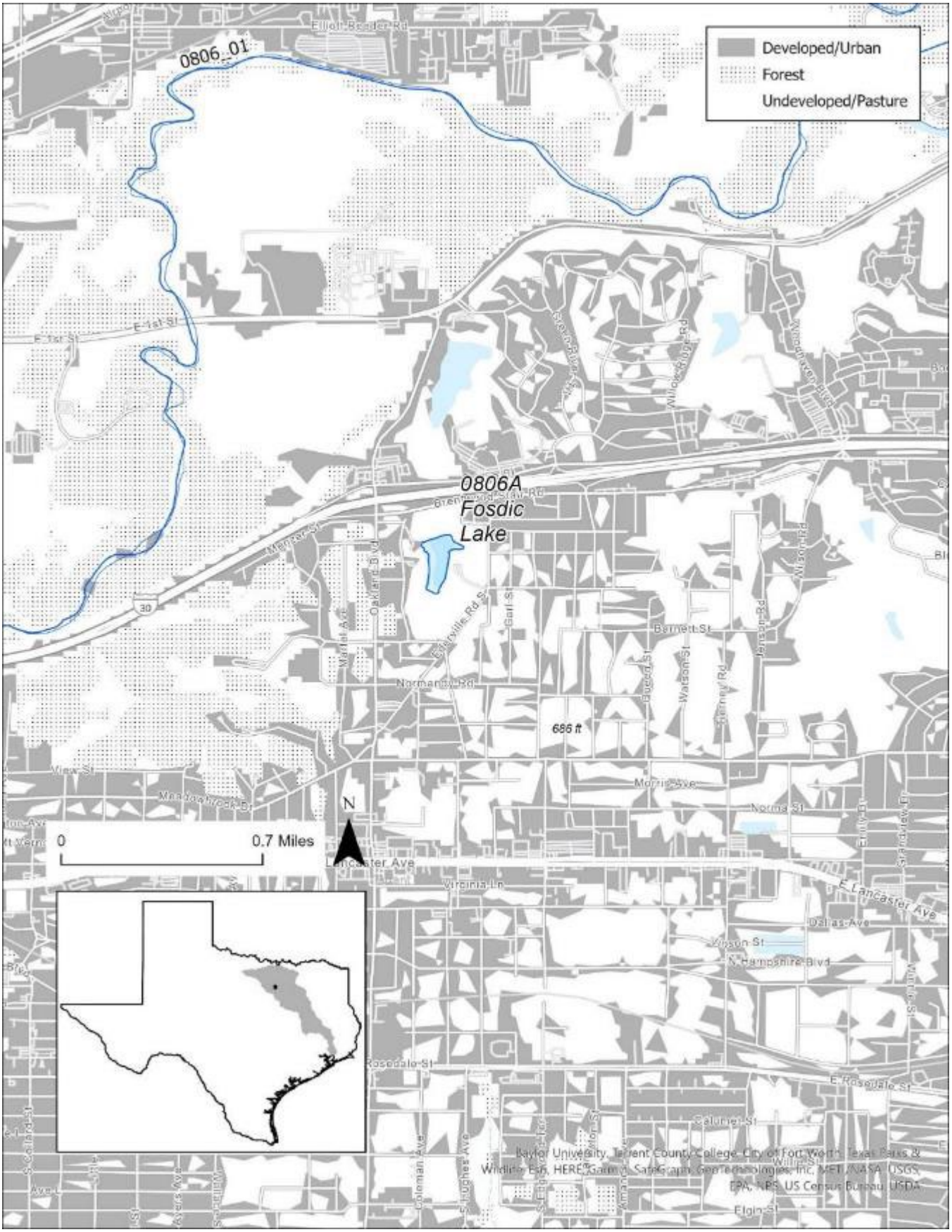

Figure 21: Map of Segment 0806A

Segment Description

Fosdic Lake is a 6.7-acre reservoir in Fort Worth.

Assessment Units and Monitoring Stations

- **0806A_01** - From Fosdic Lake Dam to the reservoir headwaters in Oakland Lake Park in Tarrant County

Hydrology

Unclassified segment 0806A is a small urban reservoir that appears to be largely fed by residential runoff and stormwater. There are no USGS gages on this reservoir and there has been no sampling during the period of record for this report. However, based on Google Earth imagery, this reservoir remained at or near full even during the drought of 2011 to 2015. It may be receiving supplemental water from other sources to maintain water levels.

Land Use and Natural Characteristics

The watershed is developed and lies within the Grand Prairie ecoregion.

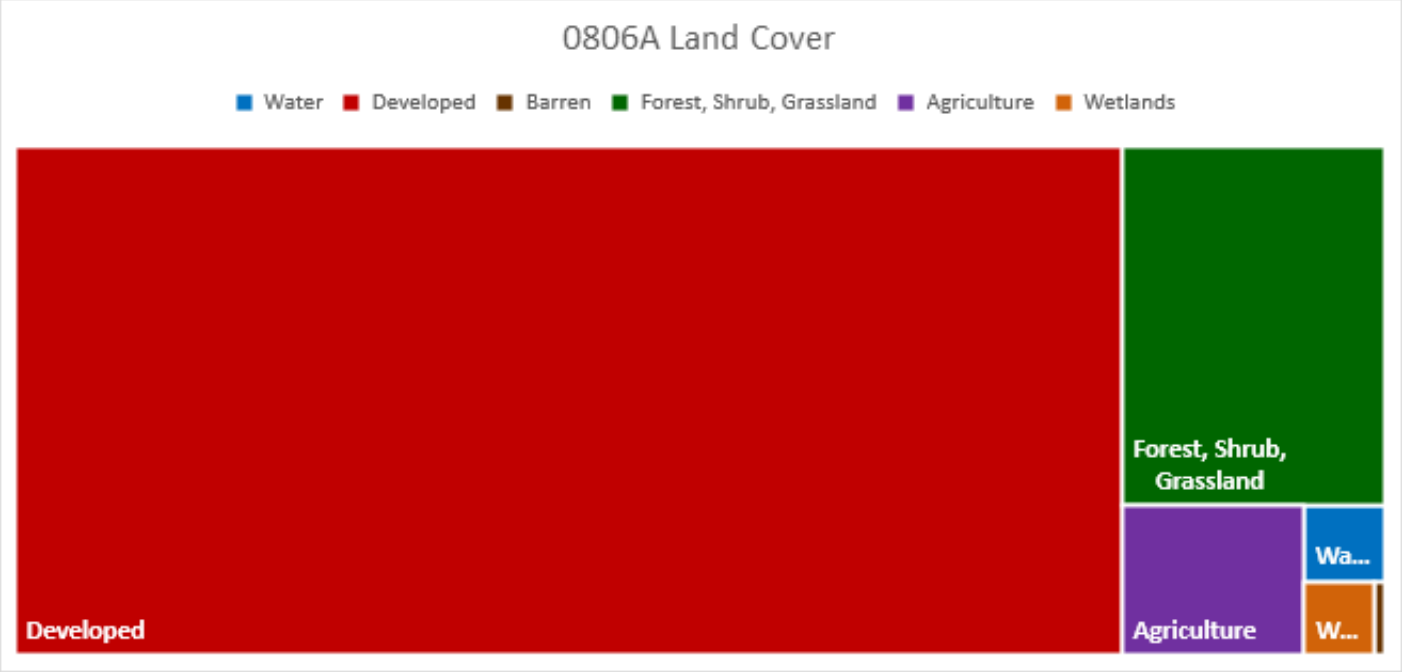

Figure 22: 0806A relative land cover totals.

Ongoing Projects

- None.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1998. A concern due to elevated levels of arsenic in edible tissue was found in 2012. These findings are based on sampling conducted by the Texas Department of State Health Services. Advisory 33 indicates that common carp are affected and that consumption should be limited to “no more than two eight-ounce meals per month” for adults and “two four-ounce meals per month” for children under 12 years old. “Women who are of childbearing age, who are or who may become pregnant, or who are nursing should not consume common carp” from this reservoir.

Potential Causes of Water Quality Issue

- Unknown for arsenic.
- Historic uses of PCBs.

Recommendations for Improving Water Quality

- Natural attenuation.

Potential Stakeholders

- City of Fort Worth

0806B - Echo Lake

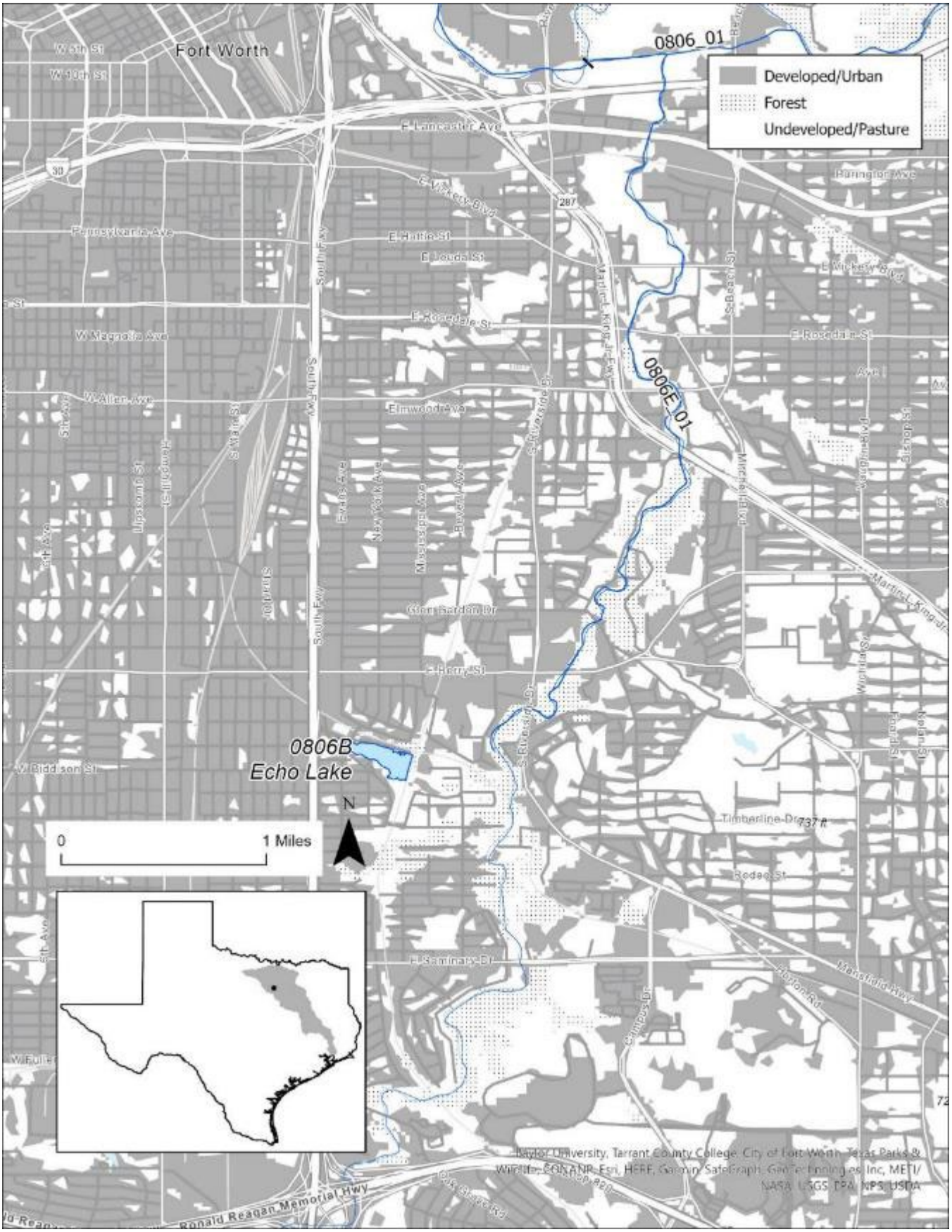

Figure 23: Map of Segment 0806B

Segment Description

Echo Lake is a 16.8-acre reservoir in Fort Worth.

Assessment Units and Monitoring Stations

- **0806B_01** - From Echo Lake Dam to the reservoirs headwaters in Tarrant County

Hydrology

Unclassified segment 0806B is a small urban reservoir that appears to be largely fed by residential and industrial runoff and stormwater. There are no USGS gages on this reservoir and there has been no sampling during the period of record for this report. However, based on Google Earth imagery, this reservoir remained at or near full even during the drought of 2011 to 2015. It may be receiving supplemental water from other sources to maintain water levels.

Land Use and Natural Characteristics

The watershed is developed and lies within the Grand Prairie ecoregion.

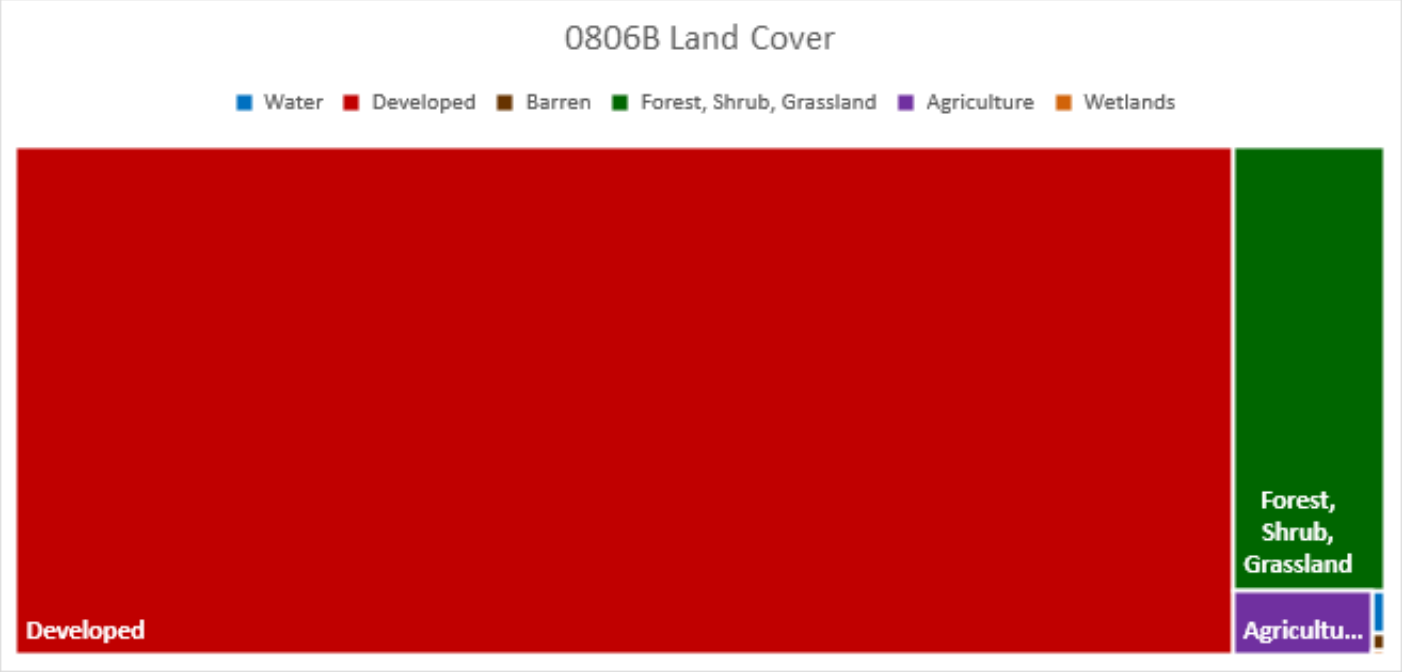

Figure 24: 0806B relative land cover totals.

Ongoing Projects

- None.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1998. An impairment due to elevated levels of dioxin and dieldrin in edible tissue was found in 2016. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 56 indicates that common carp and largemouth bass are affected and that common carp should not be consumed. “Women of childbearing age and children <12” should not consume largemouth bass and “women past childbearing age and adult men” should limit consumption to one eight-ounce meal per month.

Potential Causes of Water Quality Issue

- Historic uses of PCBs and dieldrin.
- Local industrial businesses for dioxins.

Recommendations for Improving Water Quality

- Natural attenuation.
- Identification of sources for dioxins and subsequent best management practices.

Potential Stakeholders

- City of Fort Worth

0807 - Lake Worth

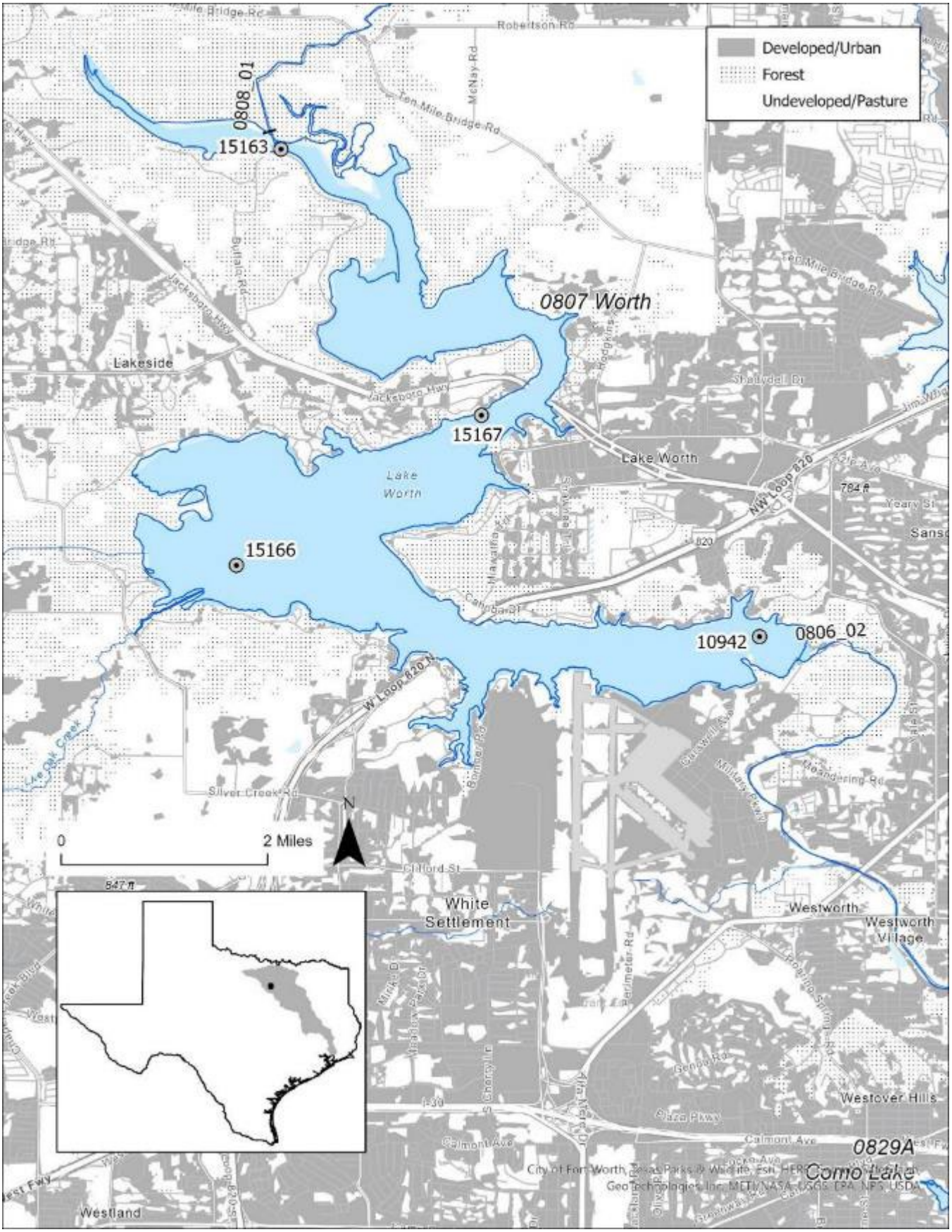

Figure 25: Map of Segment 0807

Segment Description

This segment covers 3,614 acres from Lake Worth Dam in Tarrant County to a point 2.5 miles downstream of Eagle Mountain Dam in Tarrant County up to a normal pool elevation of 594.3 feet.

Assessment Units and Monitoring Stations

- **0807_01** - From Lake Worth Dam in Tarrant County to a point 2.5 miles downstream of Eagle Mountain Dam in Tarrant County up to normal pool elevation of 594 feet (impounds West Fork Trinity River)
  - **10942** - Lake Worth 546 meters south and 319 meters east of intersection of Quebec Street and Cahoba Drive mid lake near dam
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **15163** - Lake Worth mid channel 35 meters downstream of mouth of West Fork of the Trinity River
    - Sampling conducted by Tarrant Regional Water District in 2013 and from 2015 to 2022
  - **15166** - Lake Worth at mouth of Silver Creek 957 meters south and 1.08 kilometers west of intersection of Silver Creek Road and Heron Drive
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **15167** - Lake Worth mid channel south of SH 199 472 meters south and 298 meters west of intersection of Watercress Drive and SH 199
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Segment 0807 is a reservoir on a fifth order stream. The conservation pool elevation for this reservoir is 594 feet. Over the period of record for this report, the median elevation was 592.9 feet with a range of 590.2 feet to 597.4 feet.

Land Use and Natural Characteristics

The watershed for Lake Worth is highly urbanized to the south and east with the remainder being mostly forested areas with some grassland and pastures. The majority of the watershed and reservoir is located in the Grand Prairie ecoregion with the west side of the watershed draining the Western Cross Timbers. Lake Worth has been noted as being eutrophic by the TCEQ Trophic Classification of Texas Reservoirs report.

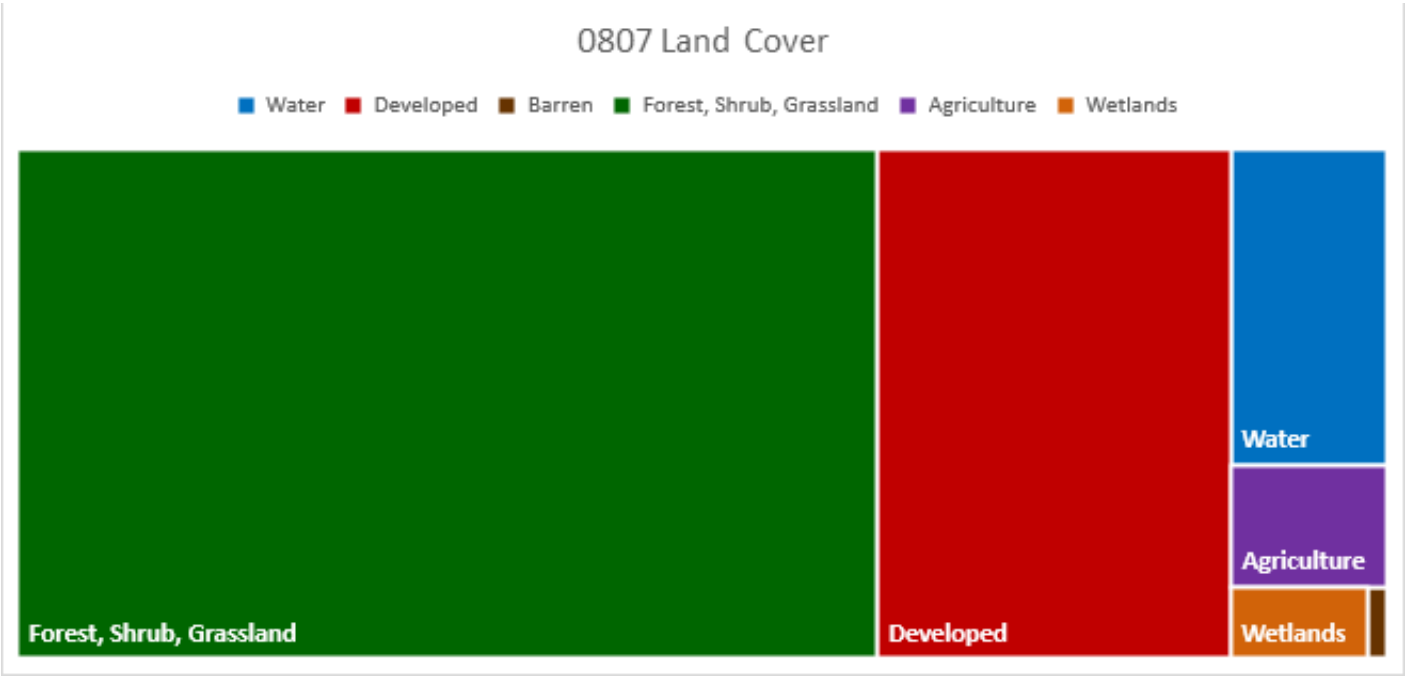

Figure 26: 0807 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 2002. An impairment due to elevated levels of dioxin in edible tissue was found in 2018. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 60 indicates that blue catfish, flathead catfish, common carp, freshwater drum, smallmouth buffalo, striped bass, and white bass in this reservoir are affected. Smallmouth buffalo should not be consumed from this reservoir. “Women of childbearing age and children <12” should not eat flathead catfish and should limit consumption of blue catfish, common carp, freshwater drum, striped bass, and white bass to one four-ounce meal per month. “Women past childbearing age and adult men” should limit consumption of flathead catfish to one eight-ounce meal per month; blue catfish, common carp, striped bass, and white bass to two eight-ounce meals per month, and freshwater drum to three eight-ounce meals per month.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- City of Fort Worth
- City of Lakeside
- City of Lake Worth
- Fort Worth Nature Center and Refuge
- Broadview Park CCC Site
- Lake Worth Sailing Club
- Landowners
- Homeowners and HOA’s
- Carswell Field, NAS Fort Worth JRB
- Tarrant Regional Water District

0829 - Clear Fork Trinity River Below Benbrook Lake

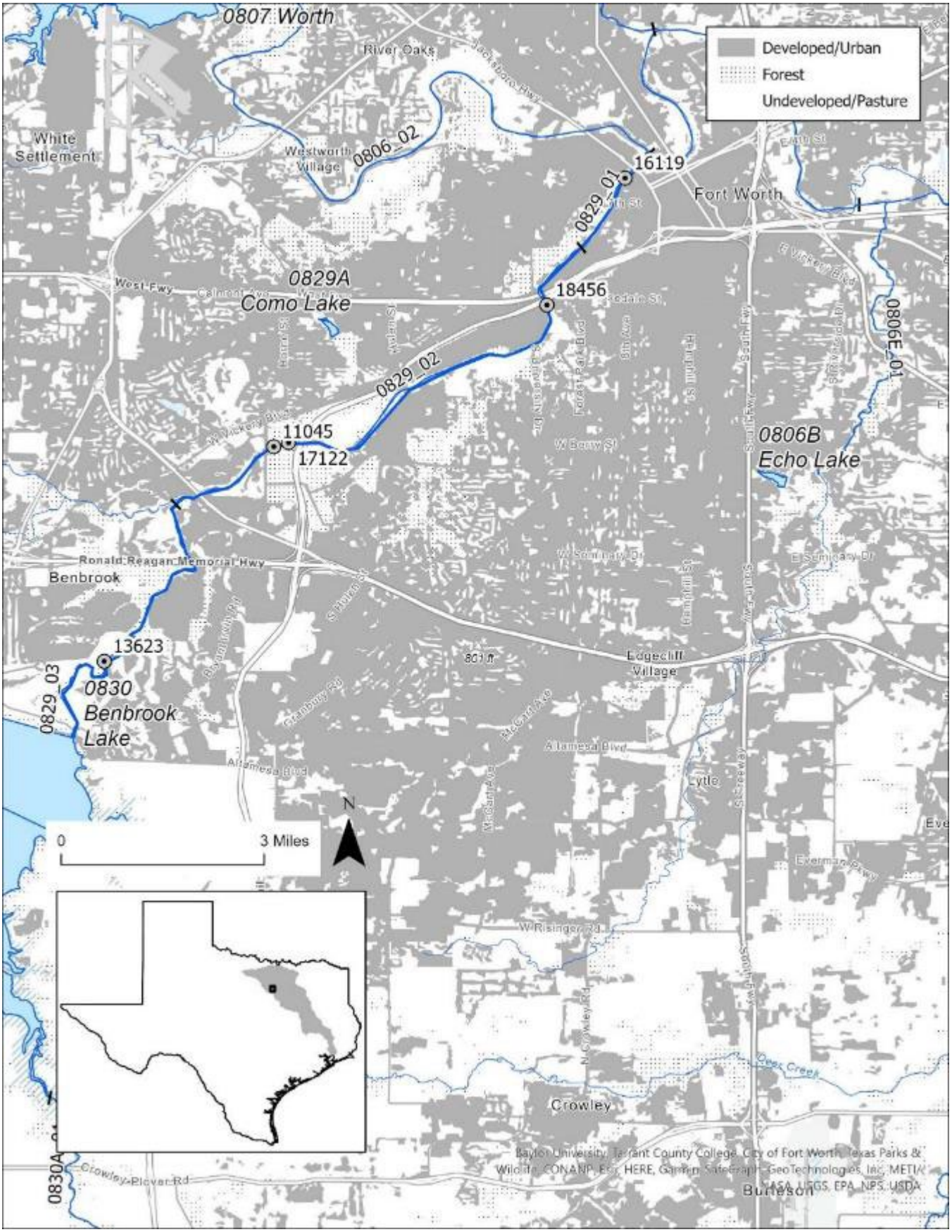

Figure 27: Map of Segment 0829

Figure 28: Clear Fork Trinity River in Fort Worth Branch Trinity Trails Park

Segment Description

This 12.5-mile segment runs from the Benbrook Lake dam in Tarrant County to the confluence of the West Fork Trinity River in Tarrant County.

Assessment Units and Monitoring Stations

- **0829_01** - From the confluence with West Fork Trinity River to 1 mile upstream
  - Perennial freshwater stream
  - **16119** - Clear Fork Trinity River at Purcey Street drain 257 meters upstream of SH 199 in Fort Worth
    - Sampling conducted by TRA in 2017
- **0829_02** - From 1 mile upstream of the confluence with West Fork Trinity River up to the confluence with Mary's Creek
  - Perennial freshwater stream
  - **11045** - Clear Fork Trinity River 161 meters downstream of Bryant-Irvin Street in Fort Worth
    - Sampling conducted by TCEQ from 2013 to 2022
  - **18456** - Clear Fork Trinity River mid channel 85 meters upstream of spillway and immediately upstream of West Rosedale Street in Fort Worth
    - Sampling conducted by Fort Worth from 2013 to 2022
  - **17122** - Clear Fork Trinity River at confluence with unnamed tributary 424 meters downstream of Bryant Irvin Road on levee in Fort Worth
    - Sampling conducted by TRA in 2017
- **0829_03** - From the confluence with Mary's Creek up to Benbrook Dam in Tarrant County
  - Perennial freshwater stream

- **13623** - Clear Fork Trinity River 2.68 kilometers downstream of Benbrook Dam
  - Sampling conducted by TRA in 2017

Hydrology

Segment 0829 is a fourth order stream. There are two USGS flow gages in this segment with data covering the period from 2013 to 2021: 08047000 near Benbrook and 08047500 at Fort Worth. The median flow over this period of record was 5.8 cfs at the upstream Benbrook gage and 20.6 cfs at the downstream Fort Worth gage with minimum and maximum flows of 0 and 3,900 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these gages are listed below.

- Non-Index Period – 3.49 and 20.9 cfs
- Index Period – 9.59 and 40.8 cfs
- Critical Period – 7.45 and 11.6 cfs

Land Use and Natural Characteristics

The watershed is heavily developed as it flows from the City of Benbrook and into the City of Fort Worth. It lies within the Grand Prairie ecoregion.

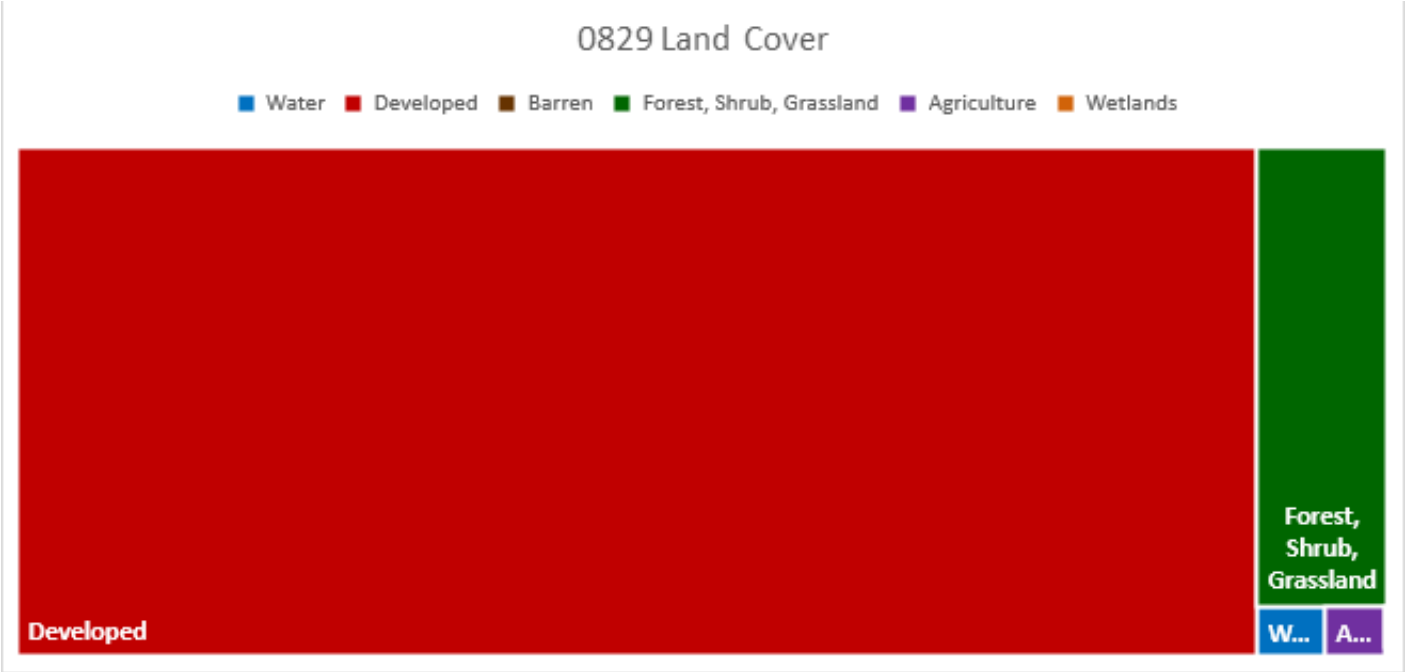

Figure 29: 0829 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth and TCEQ.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1996. Impairments due to elevated levels of dioxin in edible tissue were found in 2010. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 43 indicates that all species of fish are affected and should not be consumed.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.

- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- City of Fort Worth
- Homeowners and HOA's
- Ridglea Country Club
- City of Benbrook
- Pecan Valley Golf Club

0829A - Lake Como

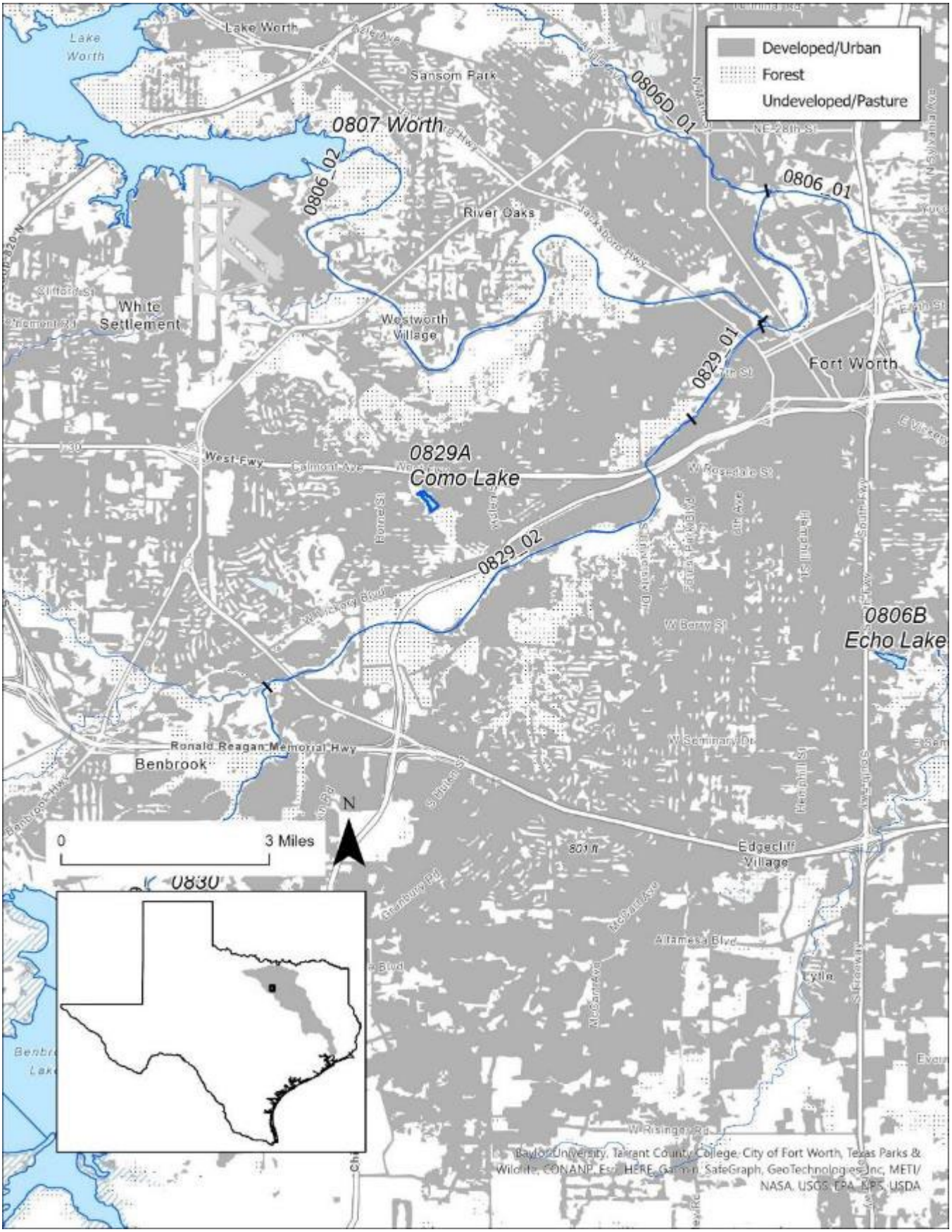

Figure 30: Map of Segment 0829A

Segment Description

This 11-acre unclassified segment runs from Lake Como Dam to the reservoir headwaters in Lake Como Park in Tarrant County.

Assessment Units and Monitoring Stations

- **0829A_01** - From Lake Como Dam to the reservoir headwaters in Lake Como Park in Tarrant County

Hydrology

Unclassified segment 0829A is a small urban reservoir that appears to be largely fed by residential and commercial runoff and stormwater. There are no USGS gages on this reservoir and there has been no sampling during the period of record for this report. However, based on Google Earth imagery, this reservoir remained at or near full even during the drought of 2011 to 2015. It may be receiving supplemental water from other sources to maintain water levels.

Land Use and Natural Characteristics

It is surrounded by the developed suburbs of Fort Worth and lies within the Grand Prairie ecoregion.

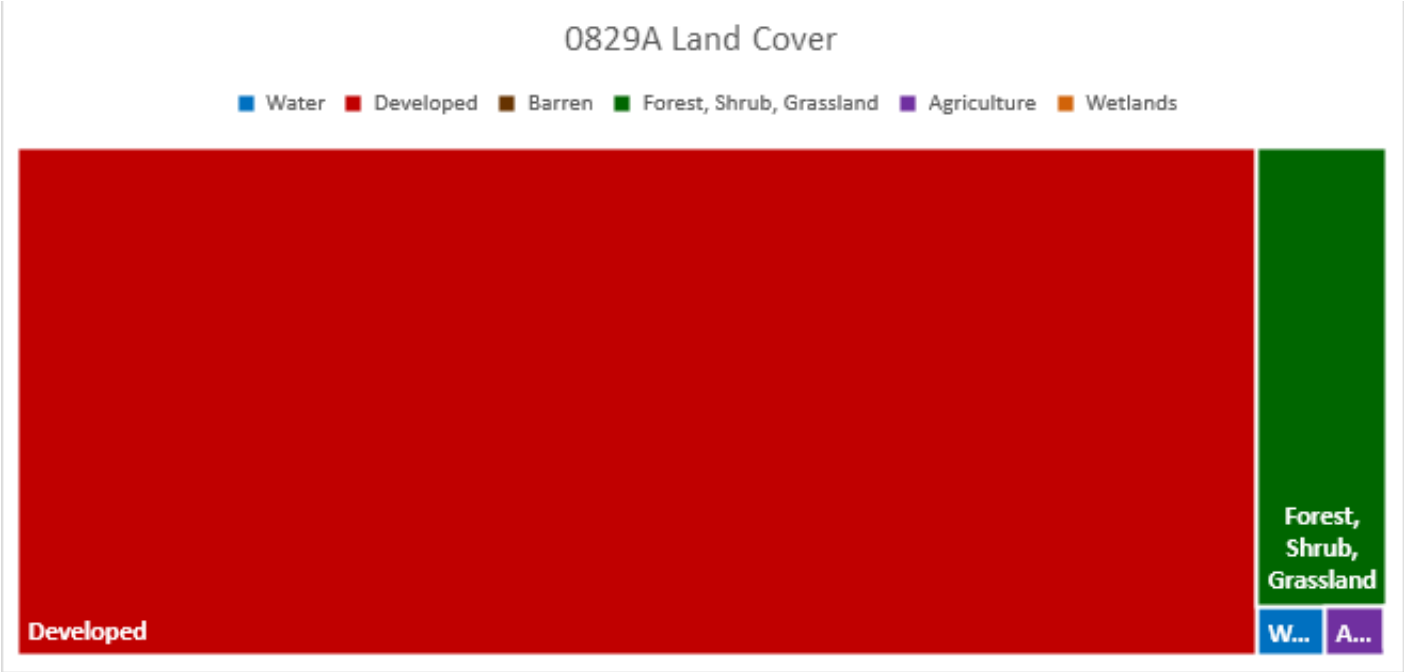

Figure 31: 0829A relative land cover totals.

Ongoing Projects

- None.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs and dieldrin in edible tissue in 1996. An impairment due to elevated levels of dioxin in edible tissue was found in 2016. A concern due to elevated levels of arsenic in edible tissue was found in 2012. These findings are based on sampling conducted by the Texas Department of State Health Services. Advisory 57 indicates that common carp in this reservoir and should not be consumed.

Potential Causes of Water Quality Issue

- Historical uses for PCBs and dieldrin.
- Diesel fuel combustion.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.

Potential Stakeholders

- City of Fort Worth
- Homeowners and HOA's

0841 - Lower West Fork Trinity River

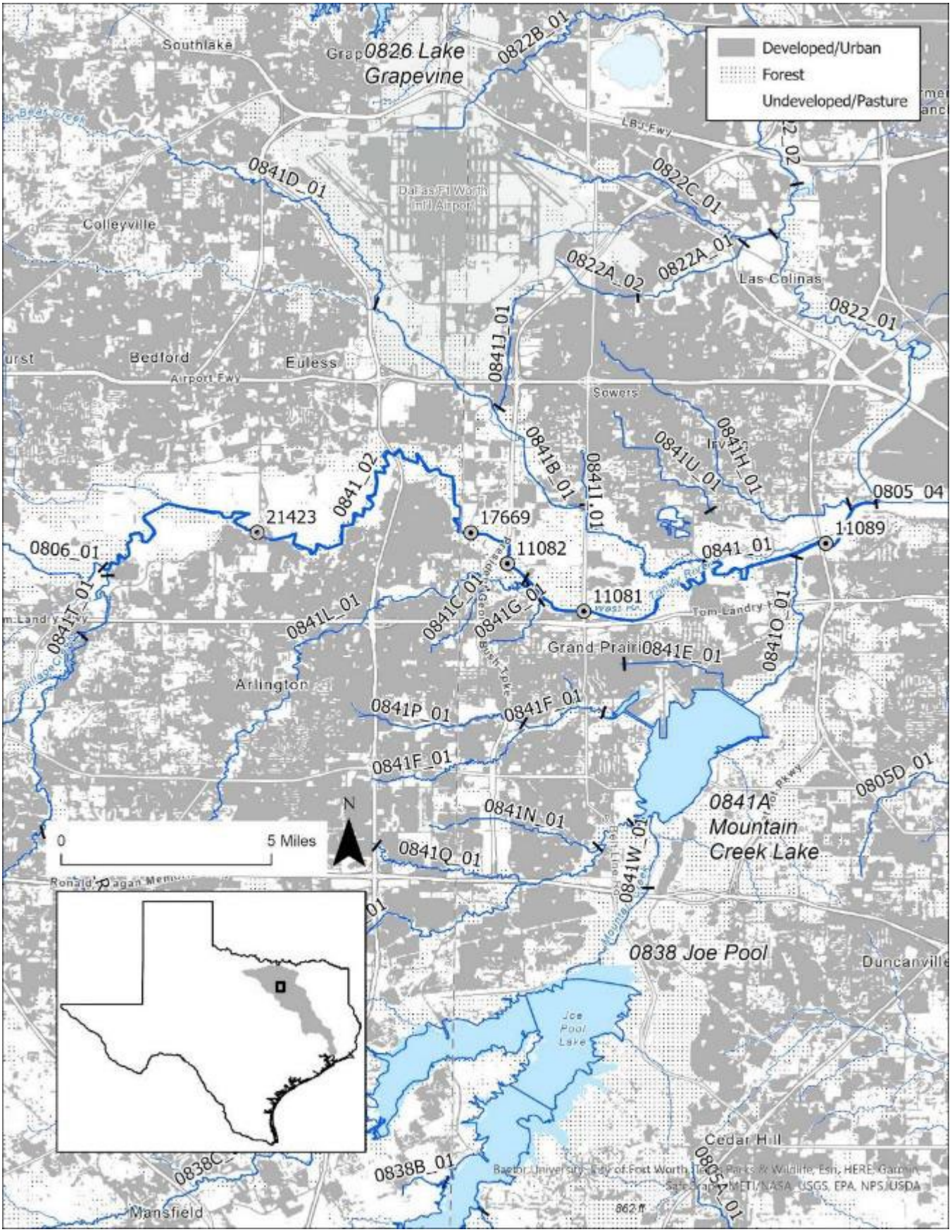

Figure 32: Map of Segment 0841

Figure 33: Lower West Fork Trinity River at Beltline Road in Grand Prairie

Segment Description

This 26.6-mile segment runs from a point immediately upstream of the confluence of Village Creek in Tarrant County to a point immediately upstream of the confluence of the Elm Fork Trinity River in Dallas County.

Assessment Units and Monitoring Stations

- **0841_01** - From confluence of the Elm Fork Trinity River to the confluence with Johnson Creek
  - Perennial freshwater stream
  - **11081** - Lower West Fork Trinity River at Belt Line Road in Grand Prairie
    - Sampling conducted by USGS from 2013 to 2019
    - Sampling conducted by TRA from 2013 to 2022
  - **11089** - Trinity River 194 meters downstream of West Loop SH 12 in Dallas
    - Sampling conducted by TRA in 2017
  - **11082** - Lower West Fork Trinity River 1.01 kilometers upstream of confluence with Johnson Creek east of Lower Tarrant Road in Grand Prairie
    - Sampling conducted by TRA in 2017
- **0841_02** - From the confluence with Johnson Creek upstream to the confluence of Village Creek
  - Perennial freshwater stream
  - **17669** - Lower West Fork Trinity River at Roy Orr Boulevard in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022
  - **21423** - West Fork Trinity River at River Legacy Park footbridge 557 meters upstream of North Collins Street
    - Sampling conducted by TRA from 2017 to 2022

Hydrology

Segment 0841 is a fifth order stream. There are two USGS flow gages in this segment with data covering the period from 2013 to 2021: 08049300 at Greenbelt Road in Fort Worth and 08049500 at Grand Prairie. The median flow over this period of record was 327 cfs at the upstream Fort Worth gage and 293 cfs at the downstream Grand Prairie gage with minimum and maximum flows of 93.3 and 28,000 cfs. The median flows for the non-index period (October 16 to

March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these gages are listed below.

- Non-Index Period – 297 and 292 cfs
- Index Period – 597 and 470 cfs
- Critical Period – 226 and 213 cfs

Land Use and Natural Characteristics

The upper half of this highly urbanized watershed is in the Eastern Cross Timbers and the lower half is in the Northern Blackland Prairie ecoregion. There are some areas of wooded and grassy riparian zones.

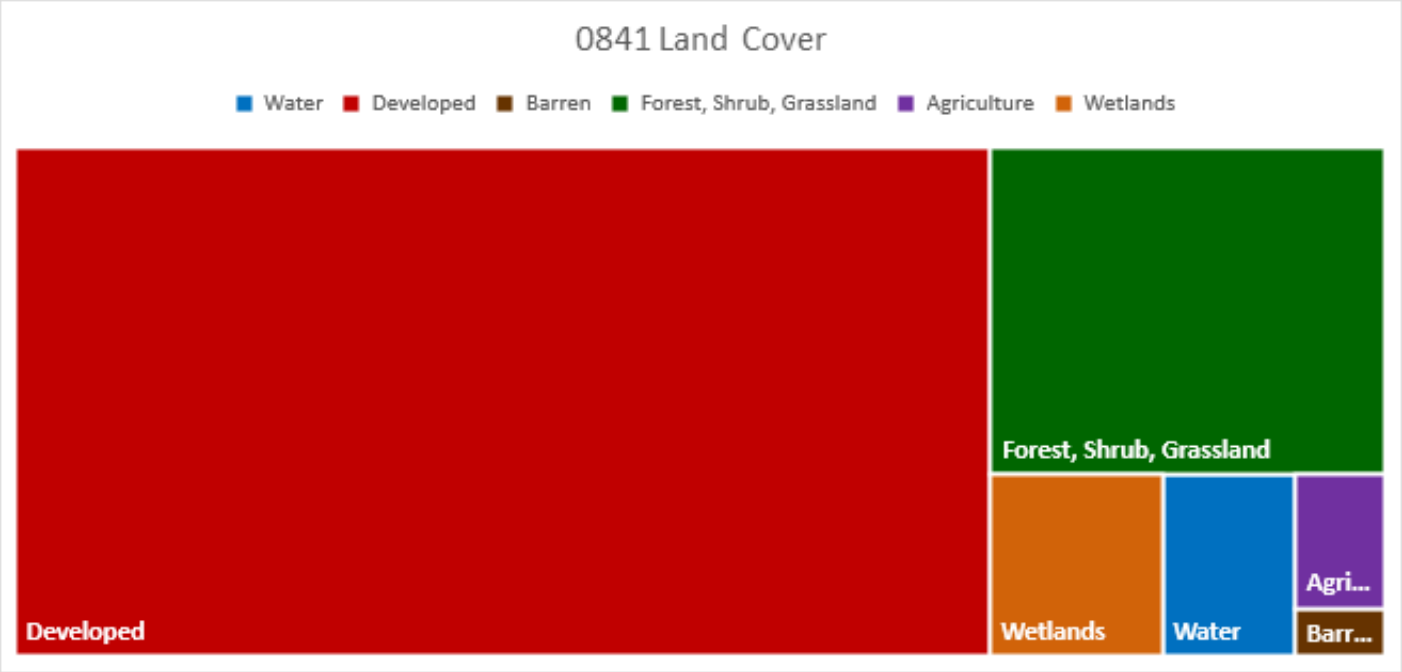

Figure 34: 0841 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Grand Prairie and TRA.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1996. Impairments due to elevated levels of dioxin in edible tissue were found in 2010. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 43 indicates that all species of fish are affected and should not be consumed.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.
- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- City of Fort Worth
- Homeowners and HOA's
- Village Creek Waste Water Treatment Plant
- City of Arlington
- Big City Crushed Concrete
- City of Grand Prairie
- Riverside Golf Club
- Grand Prairie Gun Club
- City of Irving
- Irving Golf Club

0841A - Mountain Creek Lake

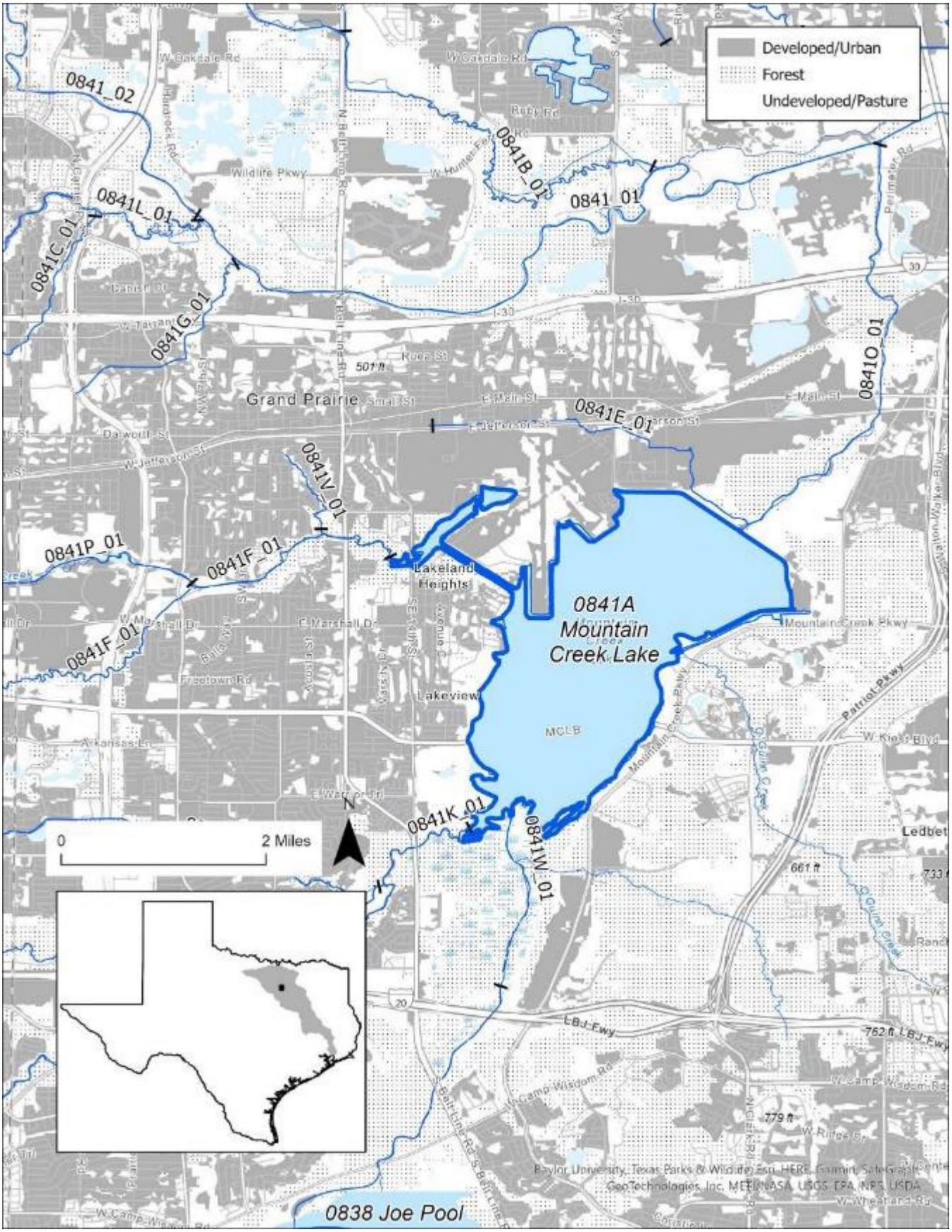

Figure 35: Map of Segment 0841A

Segment Description

Mountain Creek Lake is a 2434-acre reservoir in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841A_01** - From Mountain Creek Lake Dam to the reservoir headwater at the confluence of Mountain and Fish Creeks in Dallas County (impounds Mountain Creek)

Hydrology

Unclassified segment 0841 is a reservoir on a third order stream. The conservation pool elevation for this reservoir is 457 feet. Over the period of record for this report, the median elevation was 457.58 feet with a range of 455.49 feet to 458.6 feet.

Land Use and Natural Characteristics

The watershed is a mix of heavy industrial and residential development and lies within the Northern Blackland Prairie.

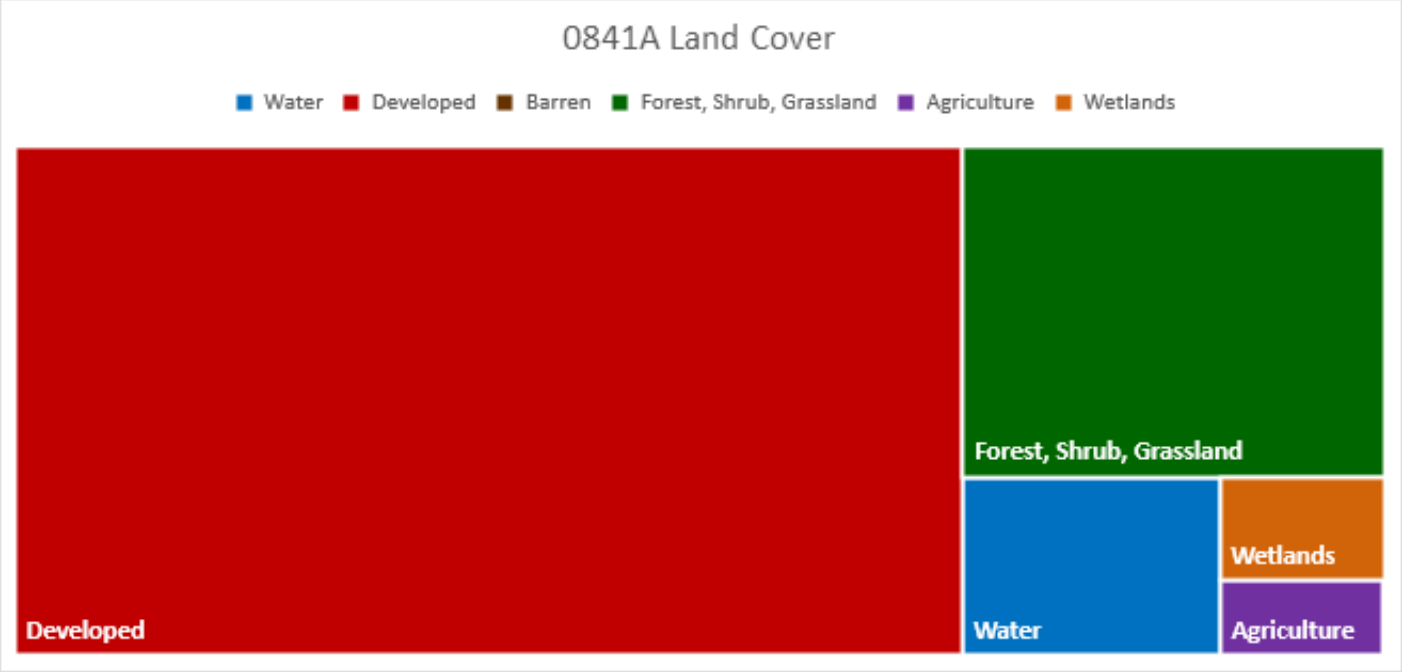

Figure 36: 0841A relative land cover totals.

Ongoing Projects

- None.

Description of Water Quality Issue

This segment was first found to be not supporting the Fish Consumption Use due to elevated levels of PCBs in edible tissue in 1996. An impairment due to elevated levels of dioxin in edible tissue was found in 2016. These impairments are based on sampling conducted by the Texas Department of State Health Services. Advisory 59 indicates that channel catfish, flathead catfish, common carp, freshwater drum, smallmouth buffalo, largemouth bass, and white bass in this reservoir are affected. Common carp, freshwater drum, and smallmouth buffalo should not be consumed. “Women of childbearing age and children <12” should limit consumption of flathead catfish and largemouth bass to one four-ounce meal per month. “Women past childbearing age and males 12 and older” should limit consumption of channel catfish and white bass to one eight-ounce meal per month; flathead catfish to two eight-ounce meals per month, and largemouth bass to three eight-ounce meals per month.

Potential Causes of Water Quality Issue

- Downstream movement of contaminated sediments.

- Historical uses for PCBs.
- Diesel fuel combustion.
- Surrounding industry.

Recommendations for Improving Water Quality

- Natural attenuation.
- Diesel fuel combustion emission controls.
- Identification of other dioxin sources and subsequent best management practices.

Potential Stakeholders

- Homeowners and HOA's
- City of Grand Prairie
- Prairie Lakes Golf Course
- Dallas Baptist University
- Dallas-Fort Worth National Cemetery
- Oncor TGM Mountain Creek Station
- Lockheed Martin
- Texas National Guard

Recreation Use

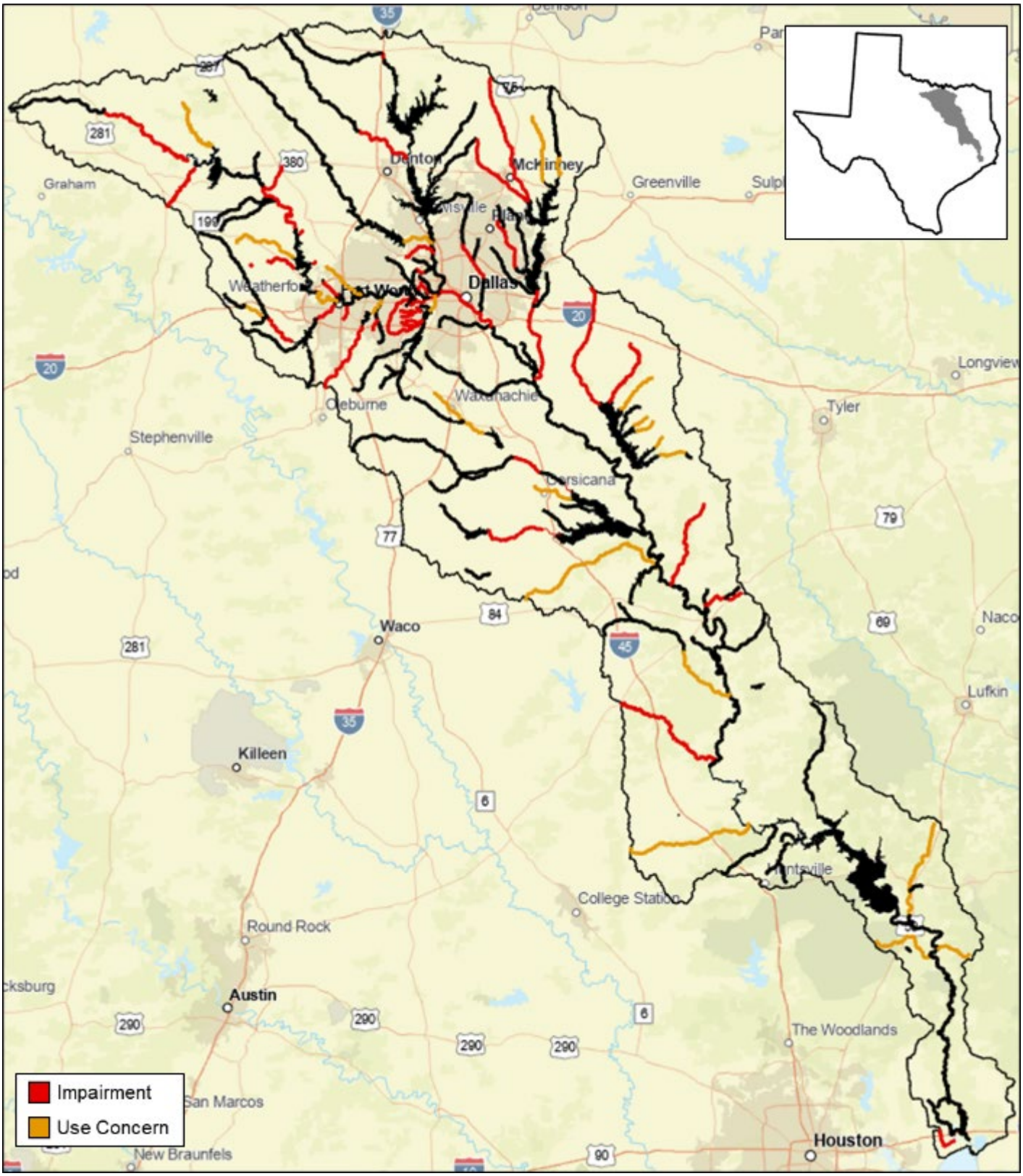

Figure 37: Map of segments with impairments or concerns for Recreation Use.

0801C - Cotton Bayou

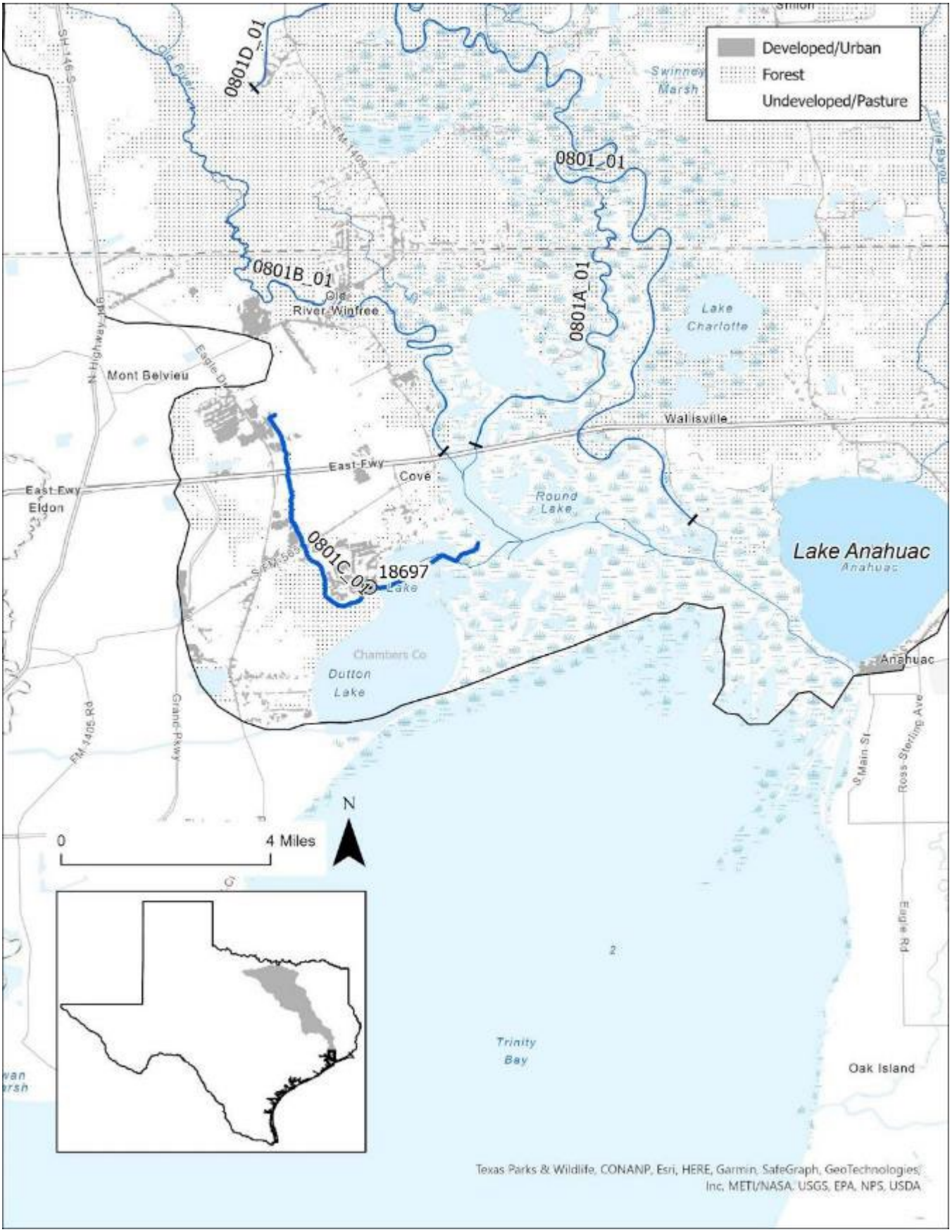

Figure 38: Map of Segment 0801C

Segment Description

This 6.9-mile unclassified segment runs from a point approximately 1 mile north of IH 10 in Chambers County to the confluence of Cotton Lake southeast of Mont Belvieu in Chambers County.

Assessment Units and Monitoring Stations

- **0801C-01** - Tidal Stream, 6.93 miles, From the confluence of Cotton Lake southeast of Mont Belvieu in Chambers County upstream to a point approximately 1 mile north of IH 10 in Chambers County.
  - Tidal stream
  - **18697** – Cotton Bayou at boat ramp 0.46 km upstream of the confluence with Cotton Lake
    - Sampling conducted by TCEQ from 2013-2022

Hydrology

Unclassified segment 0801C is a second order stream at its most downstream end. There is no flow data available for this segment.

Land Use and Natural Characteristics

Anthropogenic uses in this segment are a mix of hay, pasture, and crop land as well as development around the City of Mont Belvieu. It lies within the Northern Humid Gulf Coastal Prairies and Texas-Louisiana Coastal Marshes ecoregions.

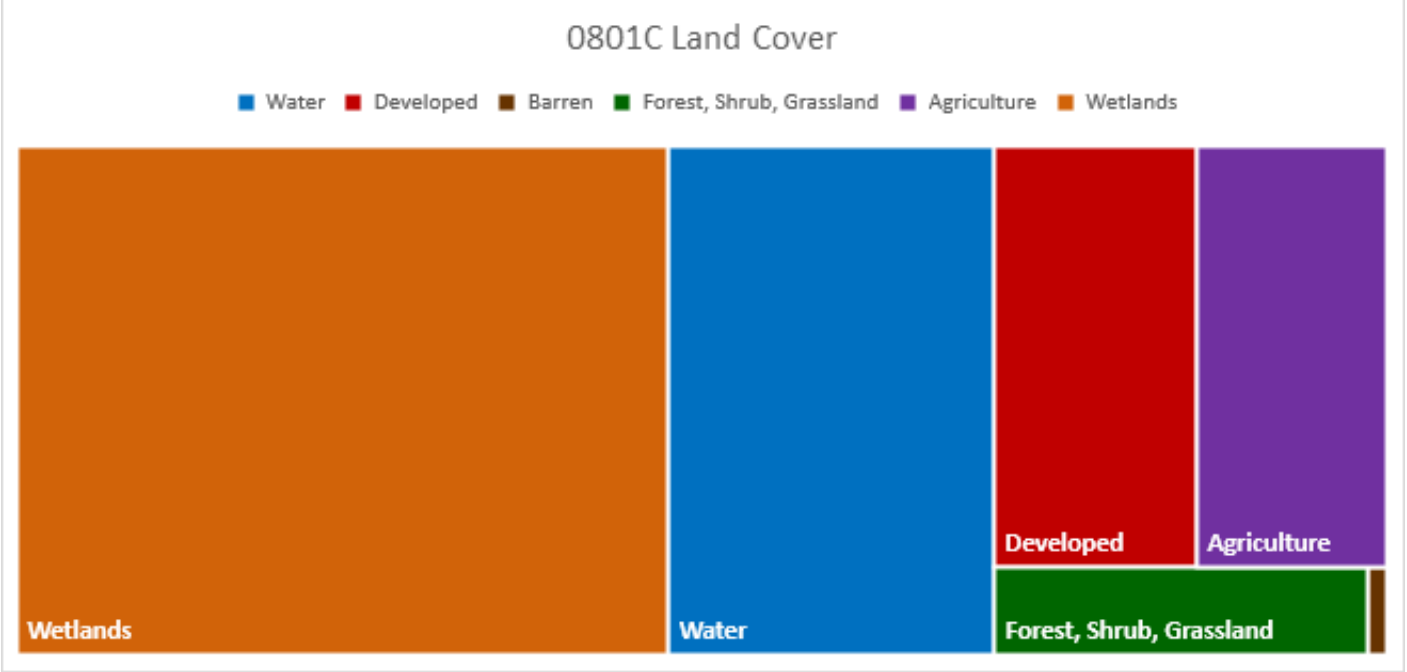

Figure 39: 0801C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *Enterococcus* in 2010. Based on the 2020 Integrated Report, 43 samples had a geometric mean of 137.41 MPN/100 mL which exceeded the standard of 35 MPN/100 mL. Data for the period of record for this report were collected from 3/19/2013 to 4/27/2021 at station 18697. There were 23 samples with a geometric mean of 97.87 MPN/100 mL. Values ranged from 5 to 1500 MPN/100 mL and 78.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Mont Belvieu
- Barbers Hill ISD
- Wastewater treatment plant operators
- Homeowners Associations

0802B - Long King Creek

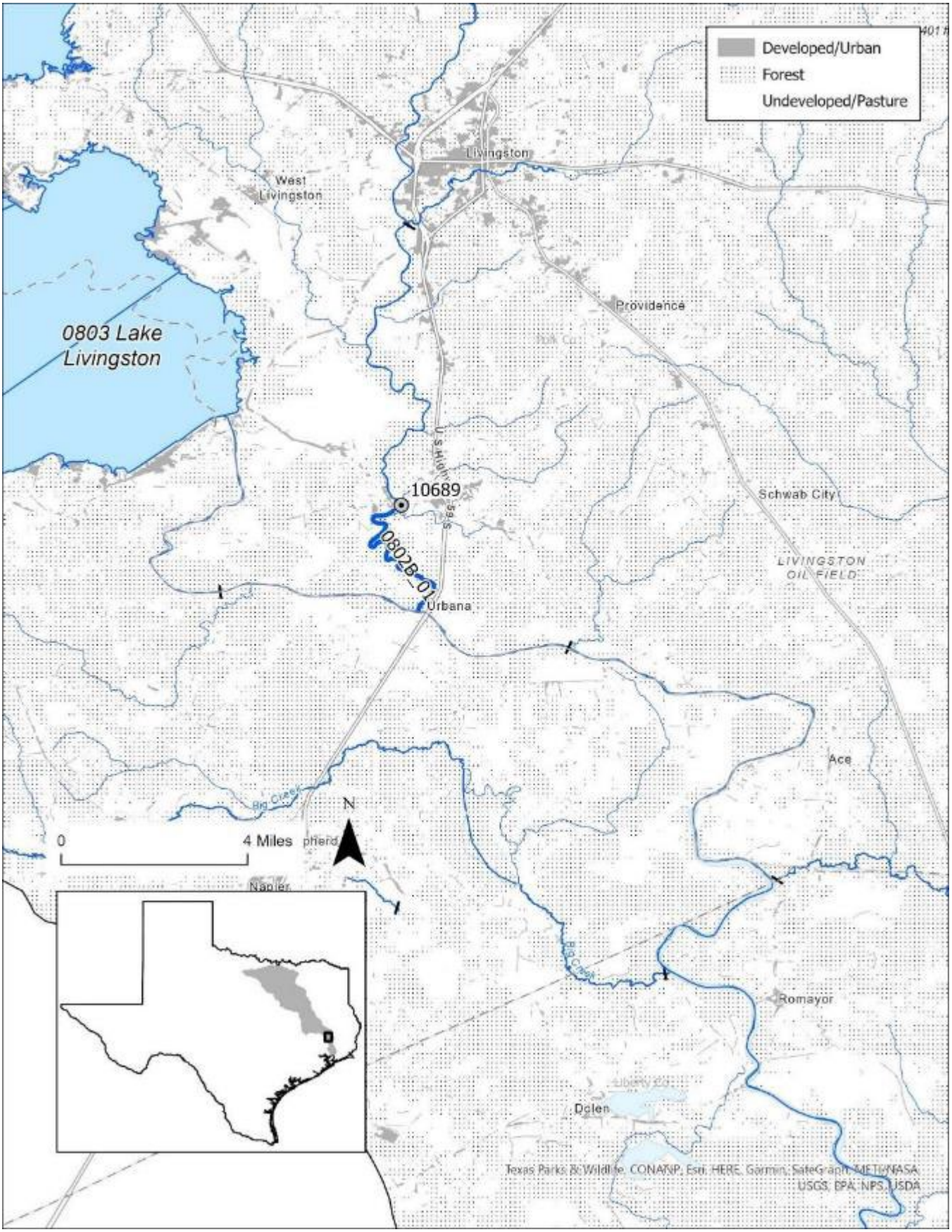

Figure 40: Map of Segment 0802B

Figure 41: Long King Creek at FM 1988

Segment Description

This 37.7-mile unclassified segment runs from the confluence with an unnamed tributary approximately 1.2 km upstream of FM 350 near the City of Livingston to the confluence with the Trinity River.

Assessment Units and Monitoring Stations

- **0802B_01** - From the confluence with segment 0802 of the Trinity River to just upstream of confluence with unknown tributary
    - Perennial freshwater stream
- **0802B_02** - From just upstream of the confluence with unnamed tributary up to the confluence with Mud Creek in Polk County
    - Perennial freshwater stream
    - **10689** - Long King Creek 80 meters upstream of FM 1988 west of Goodrich TRA #36
        - Sampling conducted by Lake Livingston Project from 2013 to 2022

Hydrology

Unclassified segment 0802B is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08066200 at Livingston. The median flow over this period of record was 13.4 cfs with minimum and maximum flows of 0 and 15,800 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 16.2 cfs

- Index Period – 19.7 cfs
- Critical Period – 5.9 cfs

Land Use and Natural Characteristics

The watershed is largely rural outside the developed lands of the City of Livingston. Much of the remaining land use are a mix of hay and pasture land and forest. The stream flows through the Southern Tertiary Uplands with the lower portion flowing through the Flatwoods before entering the Floodplains and Low Terraces ecoregion just before the confluence with the river.

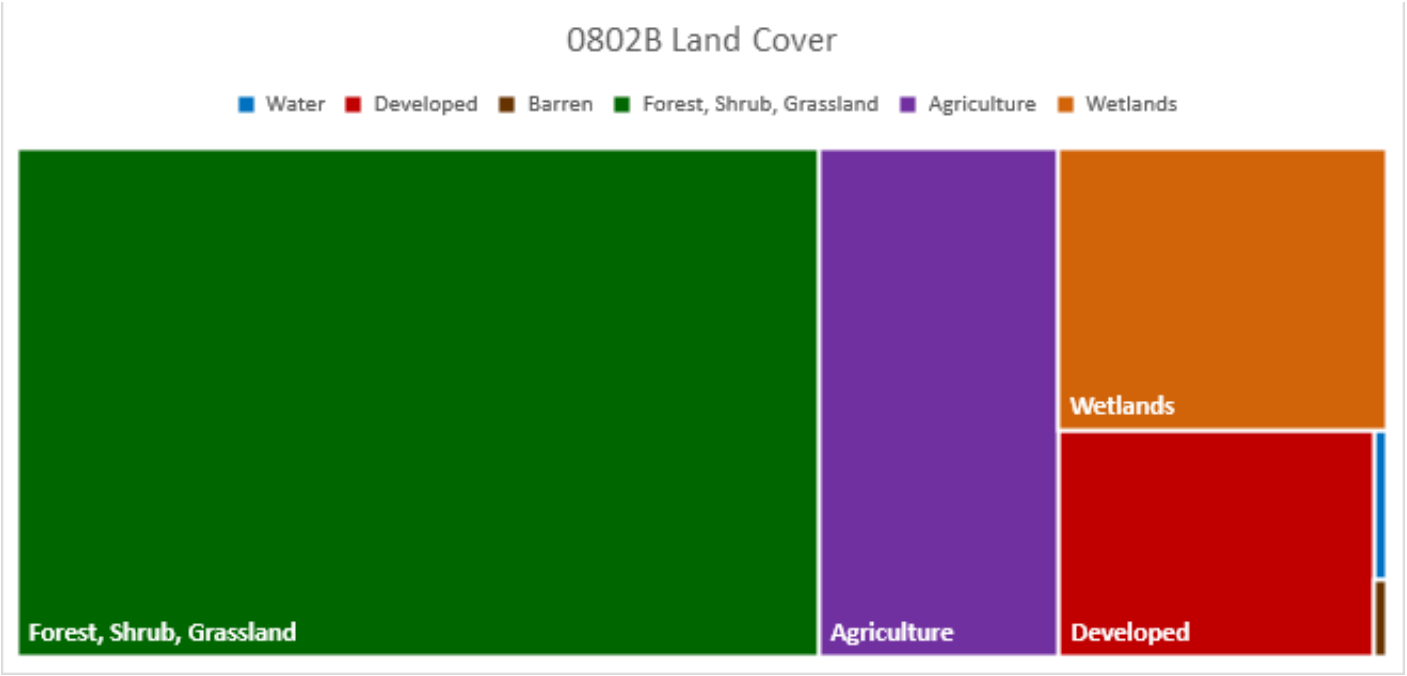

Figure 42: 0802B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA Lake Livingston Project.

Description of Water Quality Issue

Assessment unit 0802B_02 was first found to have Recreation Use concerns due to elevated levels of *E. coli* in 2018. Based on the 2018 Integrated Report, the geometric mean for ten samples was 130.15 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. This concern was carried forward to the 2020 Integrated Report where the geometric mean of ten samples was 106.08 MPN/100 mL. Data for the period of record for this report were collected from 9/23/2013 to 10/19/2020 at station 10689. There were 12 samples with a geometric mean of 114.76 MPN/100 mL. Values ranged from 33 to 820 MPN/100 mL and 33.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from pets.
- Failing septic systems.
- Failing wastewater infrastructure.
- Improperly functioning wastewater treatment facilities.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.

- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.
- Wastewater infrastructure inspection and repair.
- Sampling upstream and downstream of wastewater treatment facilities to determine if they are operating properly.

Potential Stakeholders

- City of Moscow
- City of Seven Oaks
- City of Leggett
- City of Livingston
- City of Goodrich
- Landowners

0802D - Menard Creek

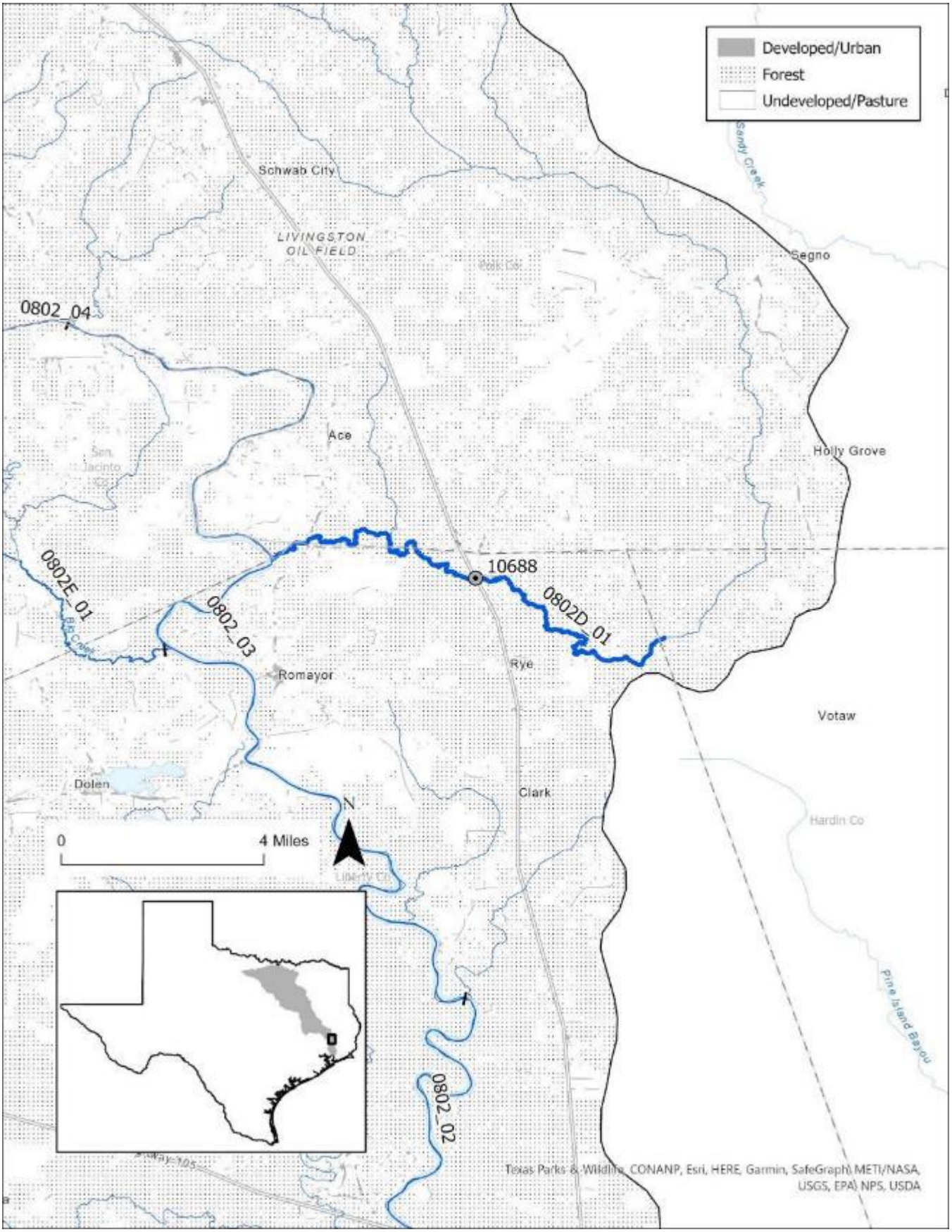

Figure 43: Map of Segment 0802D

Figure 44: Menard Creek at FM 2610

Segment Description

This 12.9-mile unclassified segment runs from the confluence with Meetinghouse Creek to the confluence with the Trinity River.

Assessment Units and Monitoring Stations

- **0802D_01** - From the confluence with segment 0802 of the Trinity River up to the confluence with Meetinghouse Creek
  - Perennial freshwater stream
  - **10688** - Menard Creek at SH 146 southeast of Livingston TRA #37
    - Sampling conducted by Lake Livingston Project from 2013 to 2022

Hydrology

Unclassified segment 0802D is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08066300 near Rye. The median flow over this period of record was 45.9 cfs with minimum and maximum flows of 6.29 and 14,200 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 52.9 cfs
- Index Period – 57.4 cfs
- Critical Period – 27.95 cfs

Land Use and Natural Characteristics

Much of the watershed is forested with some woody wetland riparian areas. The stream flows through the Flatwoods and Floodplains and Low Terraces ecoregion just before the confluence with the river.

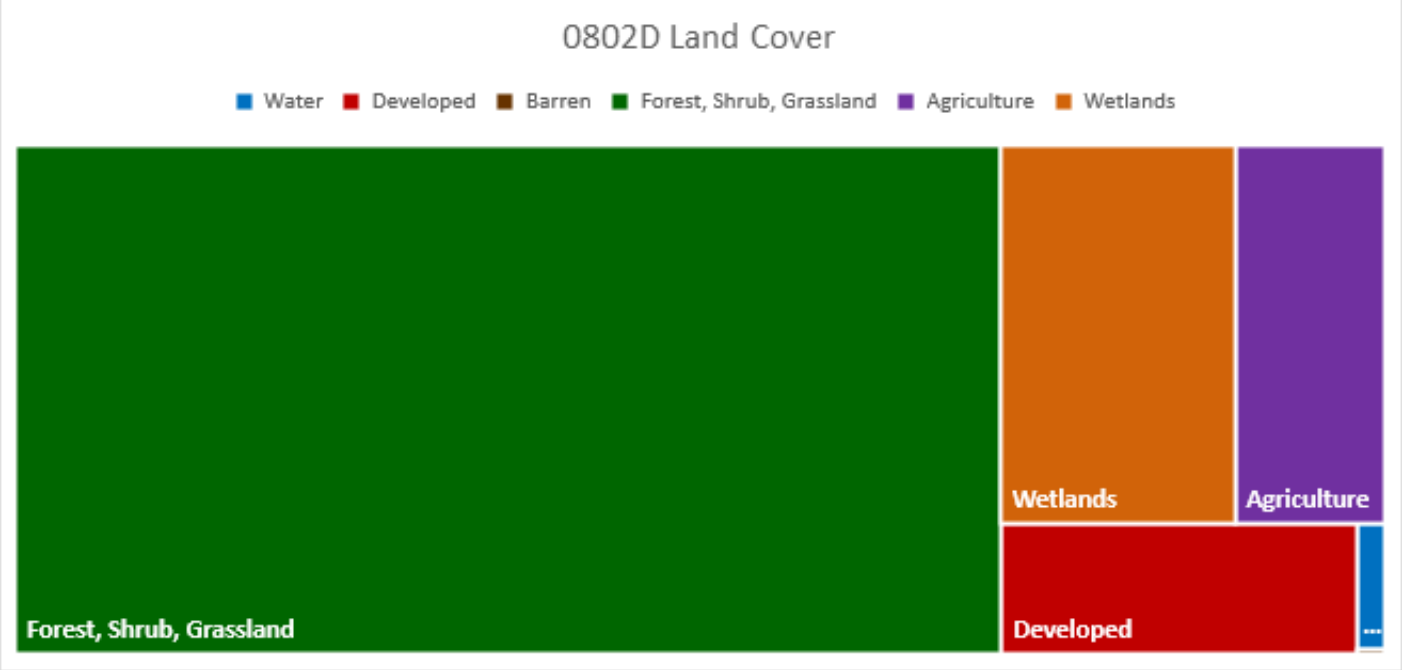

Figure 45: 0802D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA Lake Livingston Project.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 20 samples had a geometric mean of 139.03 MPN/100 mL which exceeded the standard

of 126 MPN/100 mL. Data for the period of record for this report were collected from 9/24/2013 to 11/19/2020 at station 10688. There were 11 samples with a geometric mean of 174.19 MPN/100 mL. Values ranged from 37 to 2600 MPN/100 mL and 36.4% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from pets.
- Failing septic systems.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Homeowners and HOA's
- Landowners

0802E - Big Creek

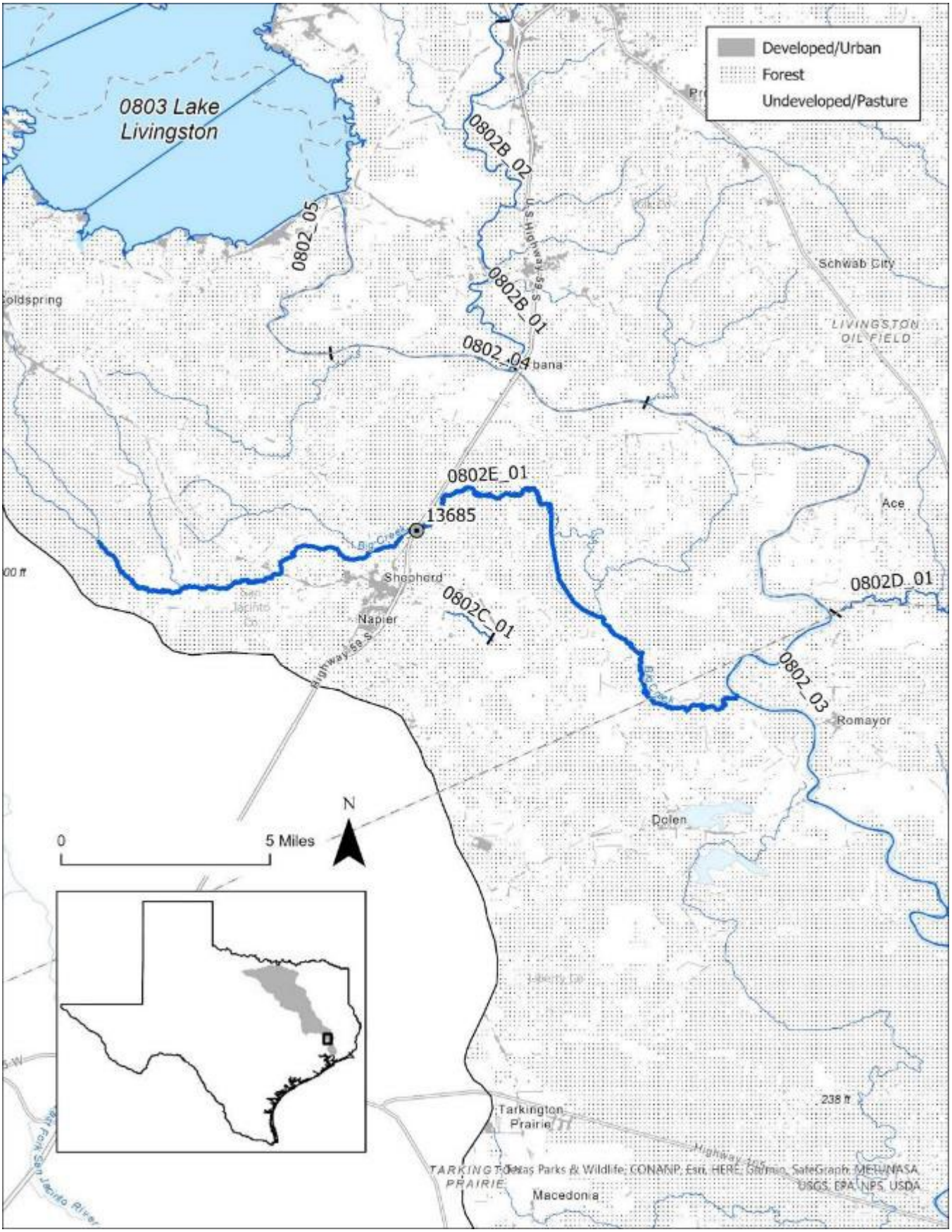

Figure 46: Map of Segment 0802E

Figure 47: Big Creek at CR 222

Segment Description

This 23.2-mile unclassified segment runs from the confluence of Double Lake Branch and Henry Lake Branch in San Jacinto County to the confluence with the Trinity River in Liberty County.

Assessment Units and Monitoring Stations

- **0802E_01** - Perennial stream from the confluence with the Trinity River in Liberty County upstream to the confluence of Double Lake Branch and Henry Lake Branch in San Jacinto County
    - Perennial freshwater stream
    - **13685** - Big Creek at US 59 north 1.5 miles northeast of Shepherd 11.6 miles upstream from mouth
        - Sampling conducted by Lake Livingston Project from 2013 to 2022

Hydrology

Unclassified segment 0802E is a third order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2014 and 2020, the median flow was 17 cfs with minimum and maximum flows of 6.4 and 29 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 16 cfs
- Index Period – 18 cfs
- Critical Period – 18.1 cfs

Land Use and Natural Characteristics

The upstream portion of the watershed is largely forested. The stream flows by the developed lands outside the City of Shepherd. The downstream portion of the watershed is a mix of hay, pasture, and woody wetlands. It drains the Southern Tertiary Uplands and Flatwoods ecoregion.

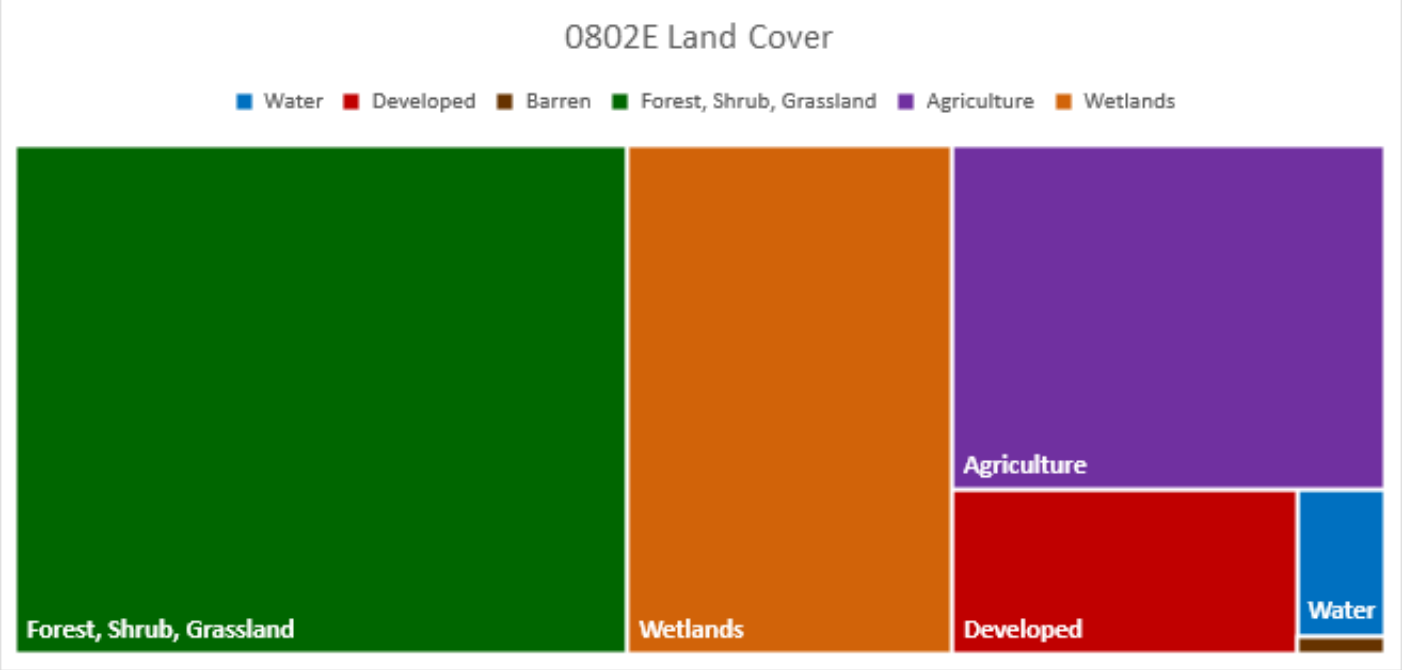

Figure 48: 0802E relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA Lake Livingston Project.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 13 samples had a geometric mean of 203.07 MPN/100 mL which exceeded the standard

of 126 MPN/100 mL. Data for the period of record for this report were collected from 9/23/2013 to 10/19/2020 at station 13685. There were 15 samples with a geometric mean of 186.02 MPN/100 mL. Values ranged from 76 to 500 MPN/100 mL and 80% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.
- Failing wastewater infrastructure.
- Improperly functioning wastewater treatment facilities.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.
- Wastewater infrastructure inspection and repair.
- Sampling upstream and downstream of wastewater treatment facilities to determine if they are operating properly.

Potential Stakeholders

- U.S Forest Service
- City of Shepherd
- Landowners
- Homeowners and HOA’s

0803F - Bedias Creek

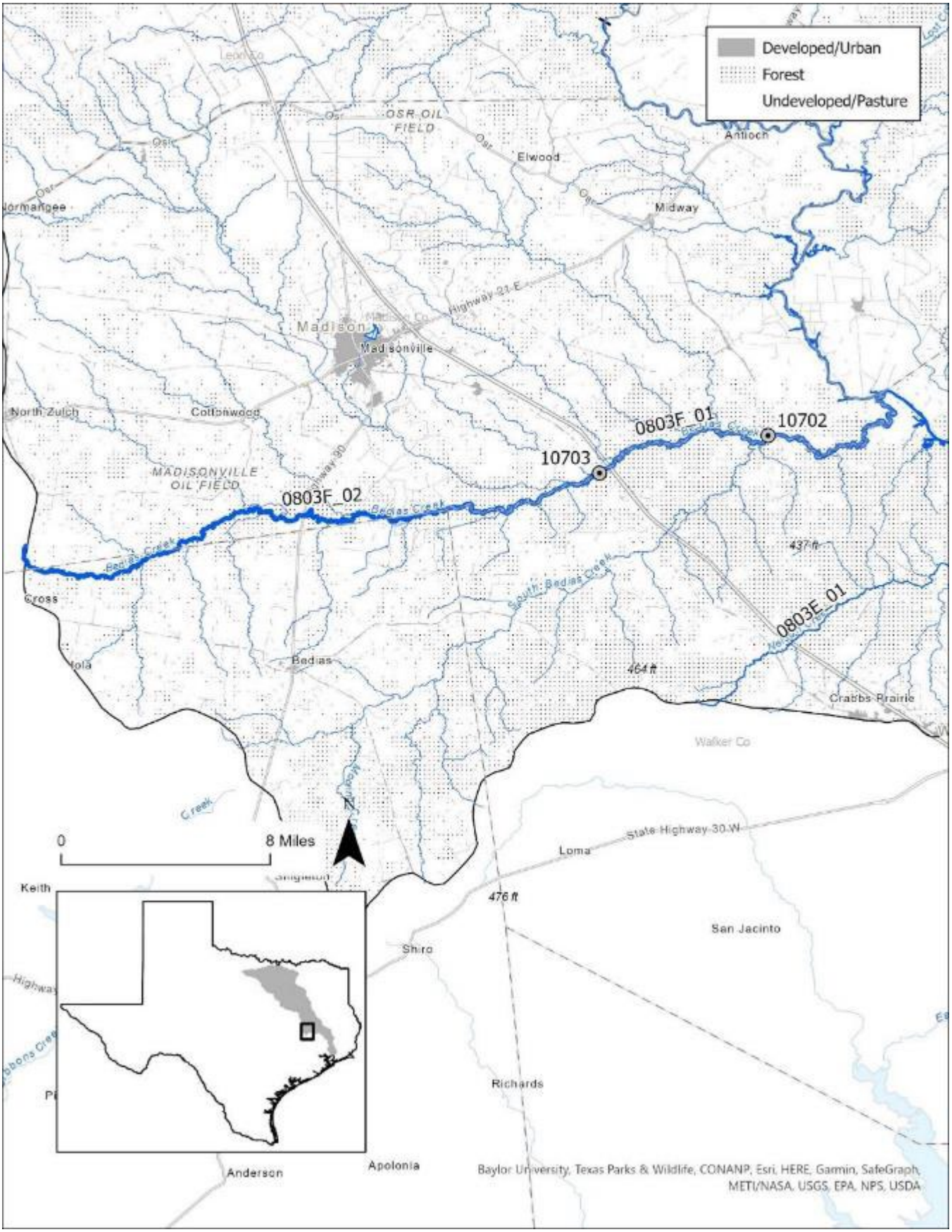

Figure 49: Map of Segment 0803F

Figure 50: Bedias Creek at FM 247 northwest of Huntsville. Photo courtesy of the TRA Lake Livingston Project.

Segment Description

This 64-mile unclassified segment runs from the headwaters near Route 39 southwest of Madisonville to the confluence with Lake Livingston.

Assessment Units and Monitoring Stations

- **0803F_01** - From the confluence with segment 0803 Trinity River up to confluence with Poole Creek
  - Perennial freshwater stream
  - **10702** - Bedias Creek at bridge on FM 247 east of Madisonville
    - Sampling conducted by Lake Livingston Project from 2013 to 2014
- **0803F_02** - From the confluence with Poole Creek to upper end of Bedias Creek
  - Perennial freshwater stream
  - **10703** - Bedias Creek immediately downstream of US 75 southeast of Madisonville
    - Sampling conducted by Lake Livingston Project from 2015 to 2018 and 2020 to 2022

Hydrology

Unclassified segment 0803F is a fifth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08065800 near Madisonville. The median flow over this period of record was 10.3 cfs with minimum and maximum flows of 0 and 30,600 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 14.1 cfs
- Index Period – 21.7 cfs
- Critical Period – 1.05 cfs

Land Use and Natural Characteristics

The watershed is largely hay and pasture land with forested areas near the downstream end. It lies within the Southern Post Oak Savanna ecoregion.

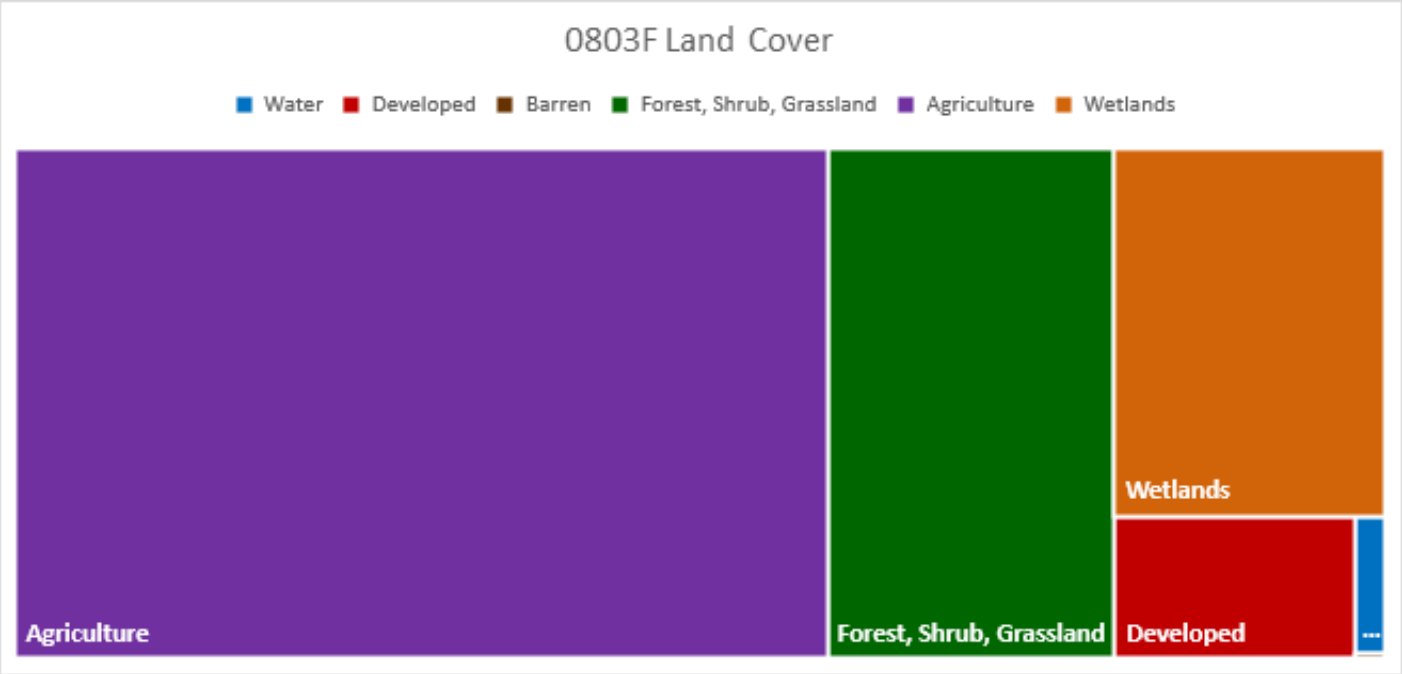

Figure 51: 0803F relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA Lake Livingston Project.

Description of Water Quality Issue

Assessment unit 0803F_01 was first found to have Recreation Use concerns due to elevated levels of *E. coli* in 2012. Based on the 2012 Integrated Report, the geometric mean for five samples was 147.98 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. This concern was carried forward to the 2020 Integrated Report where the geometric mean of six samples was 38.08 MPN/100 mL. Data for the period of record for this report were collected from 7/22/2013 to 10/27/2014 at station 10702. There were 4 samples with a geometric mean of 37.4 MPN/100 mL. Values ranged from 19 to 71 MPN/100 mL and none of the samples exceeded the standard.

Assessment unit 0803F_02 was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, seven samples had a geometric mean of 219.65 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 9/29/2015 to 9/28/2020 at station 10703. There were 11 samples with a geometric mean of 265 MPN/100 mL. Values ranged from 31 to 2400 MPN/100 mL and 63.6% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Cross
- HN Cattle
- Landowners

0804F - Tehuacana Creek

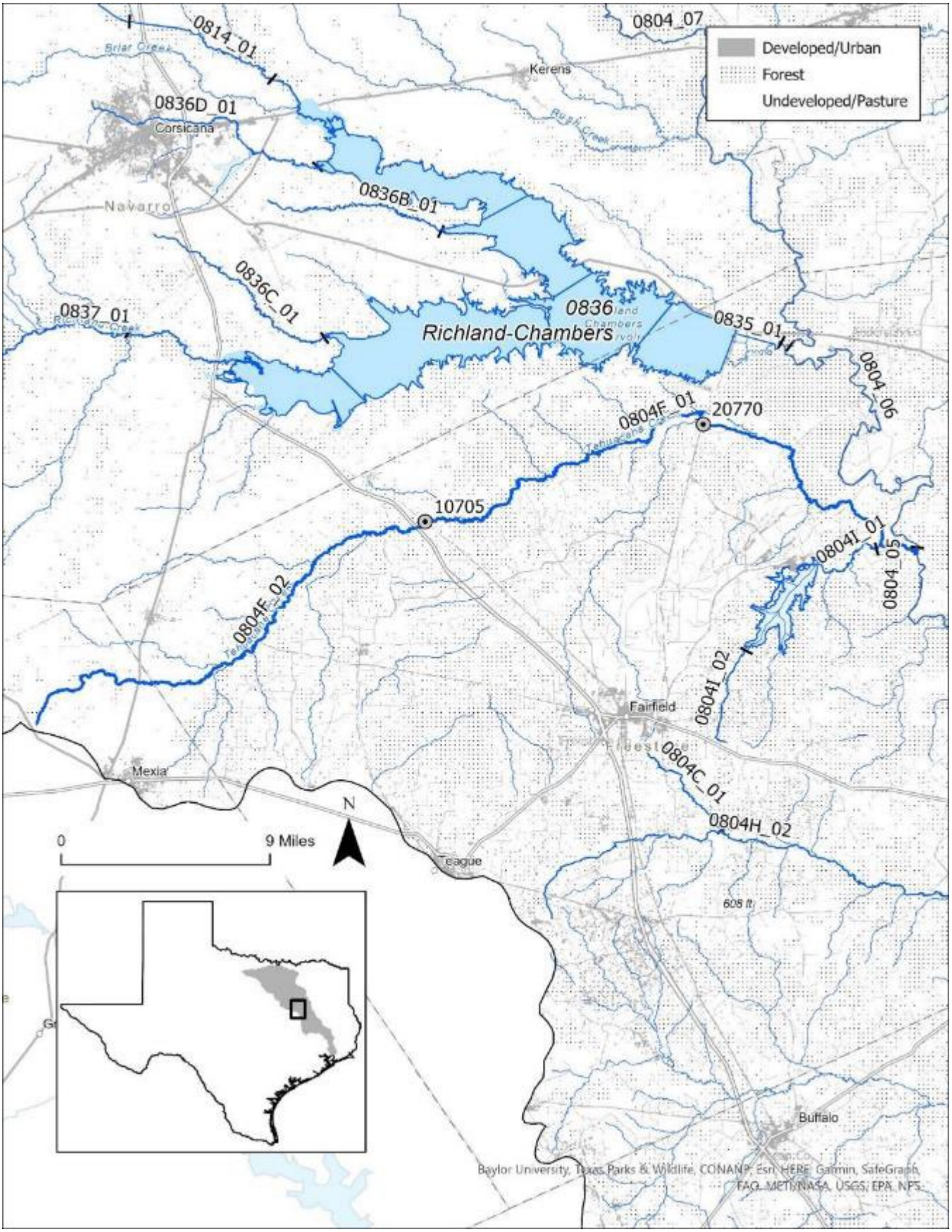

Figure 52: Map of Segment 0804F

Segment Description

This 61-mile unclassified segment runs from the headwaters northwest of Mexia to the confluence with the Trinity River northeast of Fairfield.

Assessment Units and Monitoring Stations

- **0804F_01** - A 27 mile stretch of Tehuacana Creek extending from the confluence with 0804 of the Trinity River up to the confluence with Caney Creek
  - Freshwater stream, intermittent with perennial pools
  - **20770** - Tehuacana Creek immediately upstream of FM 488/RR 488 in Freestone County
    - Sampling conducted by TCEQ from 2013 to 2014
- **0804F_02** - A 28.4 mile stretch of Tehuacana Creek extending from the confluence with Caney Creek to the upper end of Tehuacana Creek
  - Freshwater stream, intermittent with perennial pools
  - **10705** - Tehuacana Creek 20 meters downstream of SH 75 southeast of Streetman
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0804F is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08064700 near Streetman. The median flow over this period of record was 2.13 cfs with minimum and maximum flows of 0 and 27,100 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 4.06 cfs
- Index Period – 4.21 cfs
- Critical Period – 0.05 cfs

Land Use and Natural Characteristics

The watershed is largely rural with hay, pasture, and grassland and flows through the Northern Blackland Prairie and Southern Post Oak Savanna ecoregions.

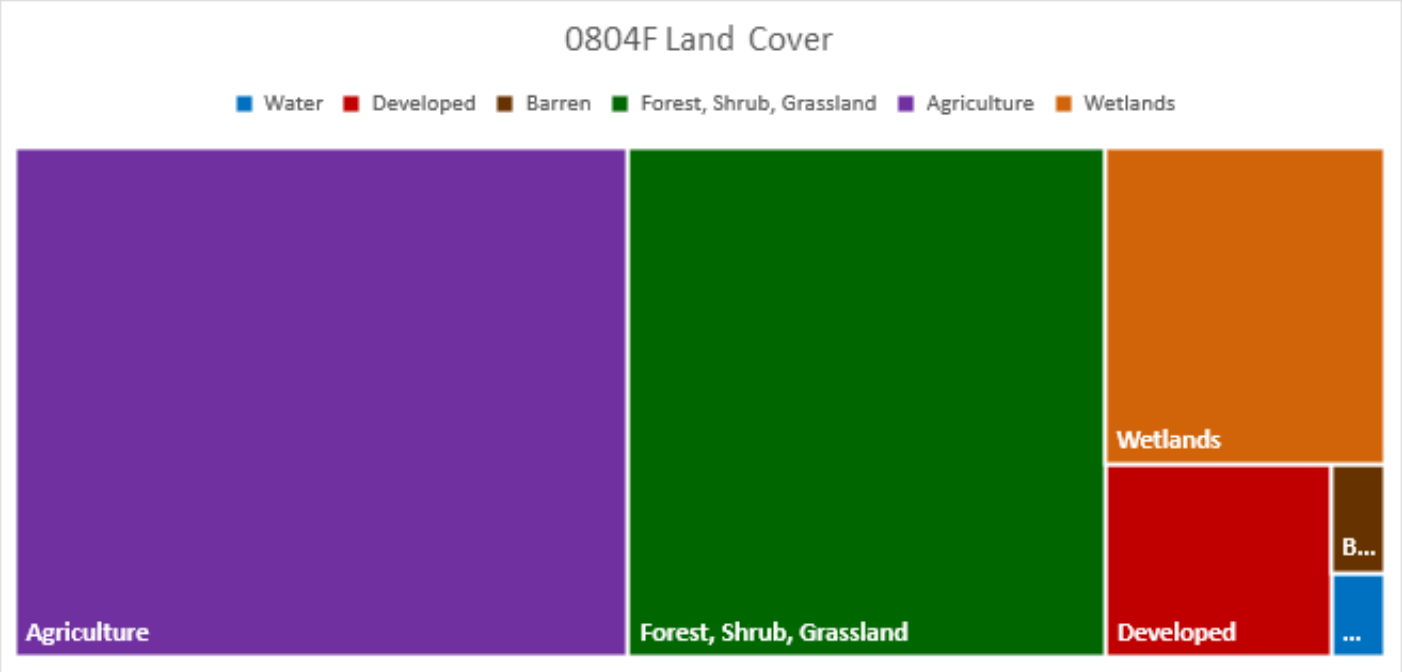

Figure 53: 0804F relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.

Description of Water Quality Issue

Assessment units 0804F_01 and 0804F_02 were identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, nine samples in 0804F_01 had a geometric mean of 148.51 MPN/100 mL and 0804F_02 had eight samples with a geometric mean of 2,016.33 MPN/100 mL. Both assessment units exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report for assessment unit 0804F_01 were collected from 2/6/2013 to 6/10/2014 at station 20770. There were 5 samples with a geometric mean of 313 MPN/100 mL. Values ranged from 53 to 2000 MPN/100 mL and 80% of the samples exceeded the standard. For assessment unit 0804F_02, data were collected from 5/11/2015 to 10/27/2020 at station 10705. There were 21 samples with a geometric mean of 978.52 MPN/100 mL. Values ranged from 13 to 24000 MPN/100 mL and 85.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Tehuacana
- Landowners
- Freestone Raceway National Track
- Luminant Mining Co, LLC

0804G - Catfish Creek

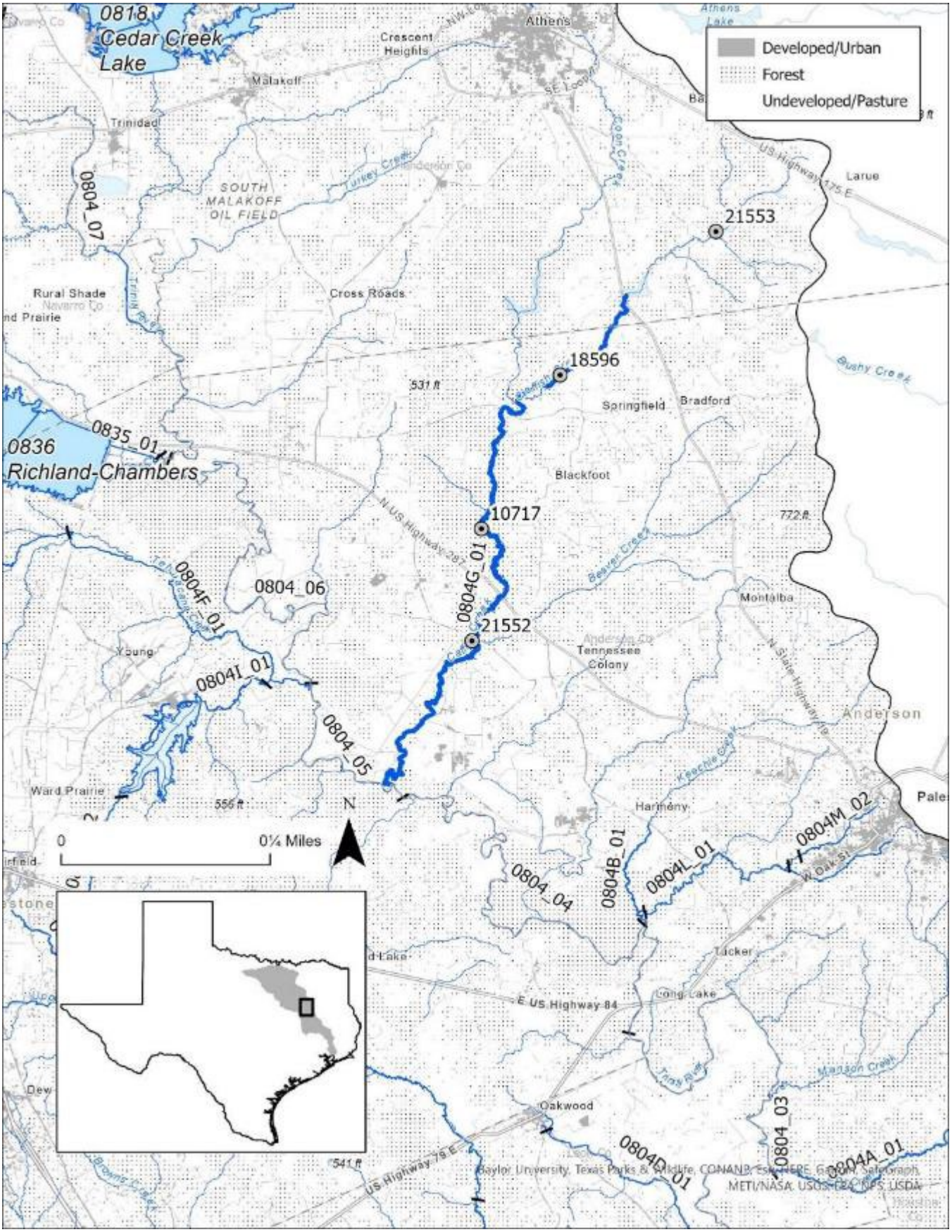

Figure 54: Map of Segment 0804G

Segment Description

This unclassified segment is a 35-mile stretch of Catfish Creek running from Catfish Creek Ranch Lake just upstream of SH 19 in Henderson County to the confluence with the Trinity River.

Assessment Units and Monitoring Stations

- **0804G_01** - A 20 mile stretch of Catfish Creek running upstream from US 287 in Anderson County to Catfish Creek Ranch Lake just upstream of SH 19 in Henderson County
  - Perennial freshwater stream
  - **10717** - Catfish Creek immediately downstream of unnamed road 1.70 kilometers downstream of confluence with Long Creek in Engling WMA at camp site #3 2.6 miles east of Bethel
    - Sampling conducted by TCEQ from 2013 to 2022
  - **18596** - Catfish Creek at Anderson CR 489/Miller Road 1.8 miles north of FM 837
    - Sampling conducted by TCEQ in 2013
  - **21552** - Catfish Creek 110 meters downstream of FM 321
    - Sampling conducted by TCEQ in 2013
  - **21553** - Catfish Creek at Henderson County Road 4520
    - Sampling conducted by TCEQ in 2013

Hydrology

Unclassified segment 0804G is a fourth order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2013 and 2020, the median flow was 7.3 cfs with minimum and maximum flows of 0.01 and 27 cfs and 63% of the samples were taken at high flow severities. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 27 cfs
- Index Period – 13.7 cfs
- Critical Period – 4.5 cfs

Land Use and Natural Characteristics

The watershed is rural and is mainly hay and pasture land with some grassland and small areas of forest. It lies within the Northern Post Oak Savanna.

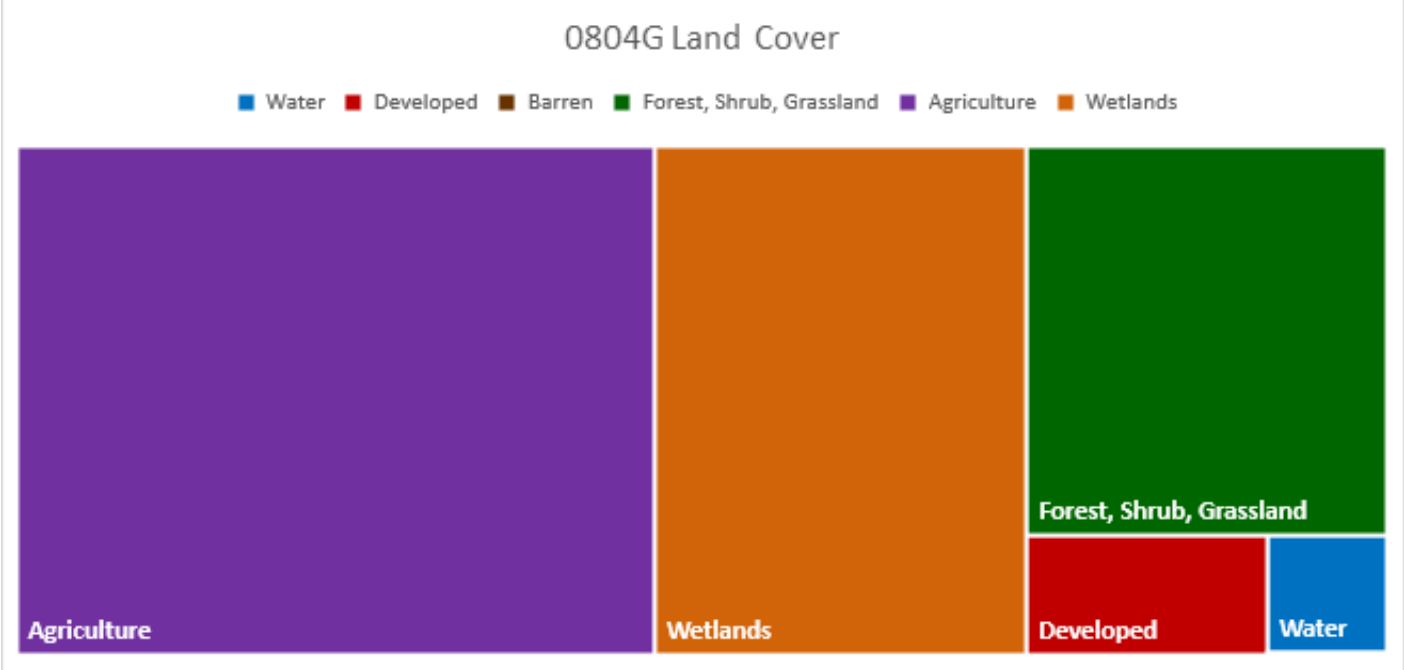

Figure 55: 0804G relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 20 samples had a geometric mean of 282.89 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 4/2/2013 to 12/15/2020 at station 10717. There were 24 samples with a geometric mean of 295.55 MPN/100 mL. Values ranged from 55 to 2400 MPN/100 mL and 66.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Catfish Creek Ranch
- Landowners

0804H - Upper Keechi Creek

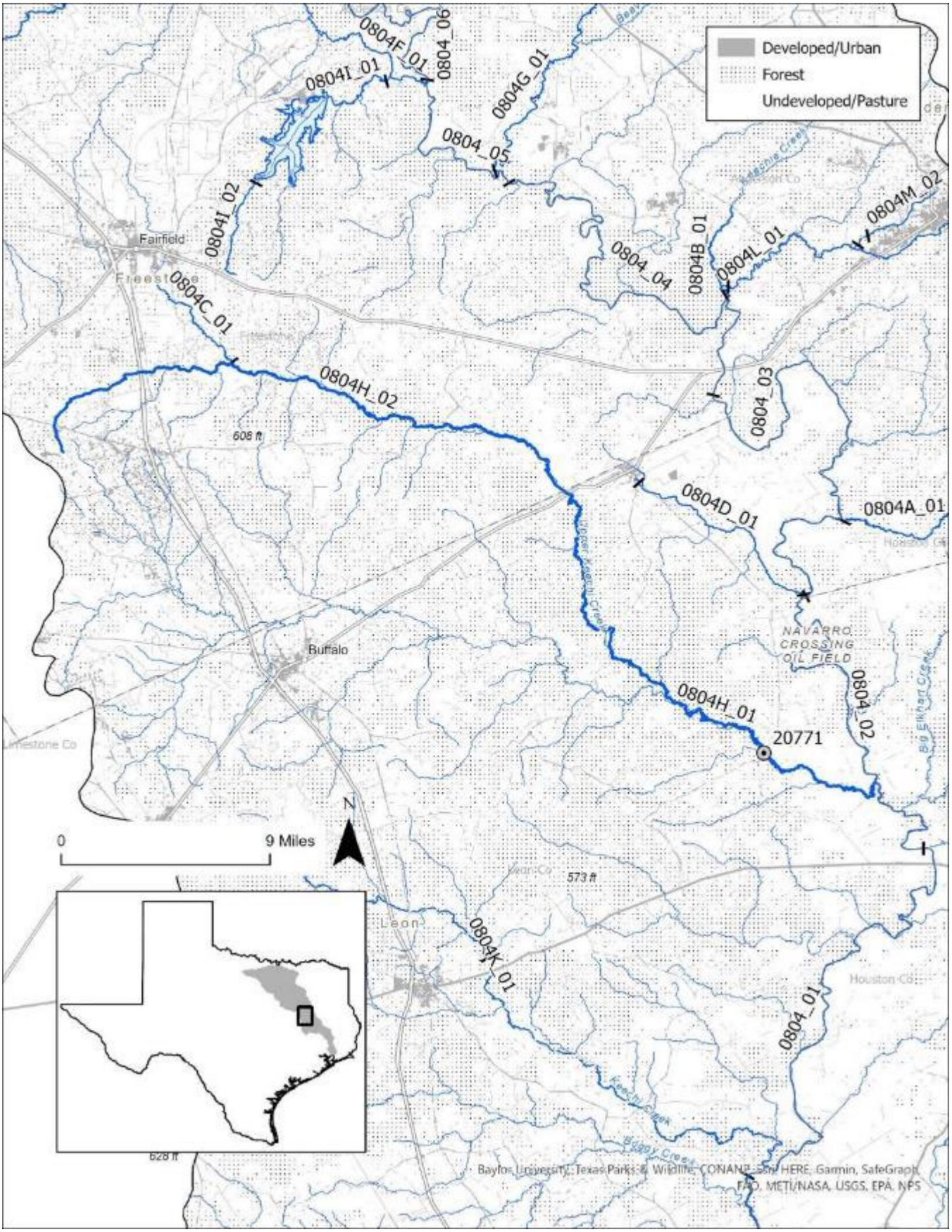

Figure 56: Map of Segment 0804H

Figure 57: Upper Keechi Creek at FM 542 northeast of Centerville. Photo courtesy of the TRA Lake Livingston Project.

Segment Description

This 66-mile unclassified segment runs from the headwaters upstream of Route 179 southwest of Fairfield to the confluence with the Trinity River.

Assessment Units and Monitoring Stations

- **0804H_01** - From the confluence with segment 0804 Trinity River up to confluence with Twin Branch
  - Perennial freshwater stream
    - **20771** - Upper Keechi Creek immediately upstream of FM 542 in Leon County
    - Sampling conducted by TCEQ from 2013 to 2019
- **0804H_02** - From the confluence with Twin Branch to the upper end Upper Keechi Creek
  - Perennial freshwater stream

Hydrology

Unclassified segment 0804H is a fourth order stream at its most downstream end. Based on flow measurements between 2013 and 2019, the median flow was 52 cfs with minimum and maximum flows of 0.01 and 840 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 57 cfs
- Index Period – 65.5 cfs
- Critical Period – 6.0 cfs

Land Use and Natural Characteristics

The watershed is largely rural with mostly hay and pasture land and some forested areas. There are several oil and gas drilling pads throughout the watershed. It lies within the Southern Post Oak Savanna.

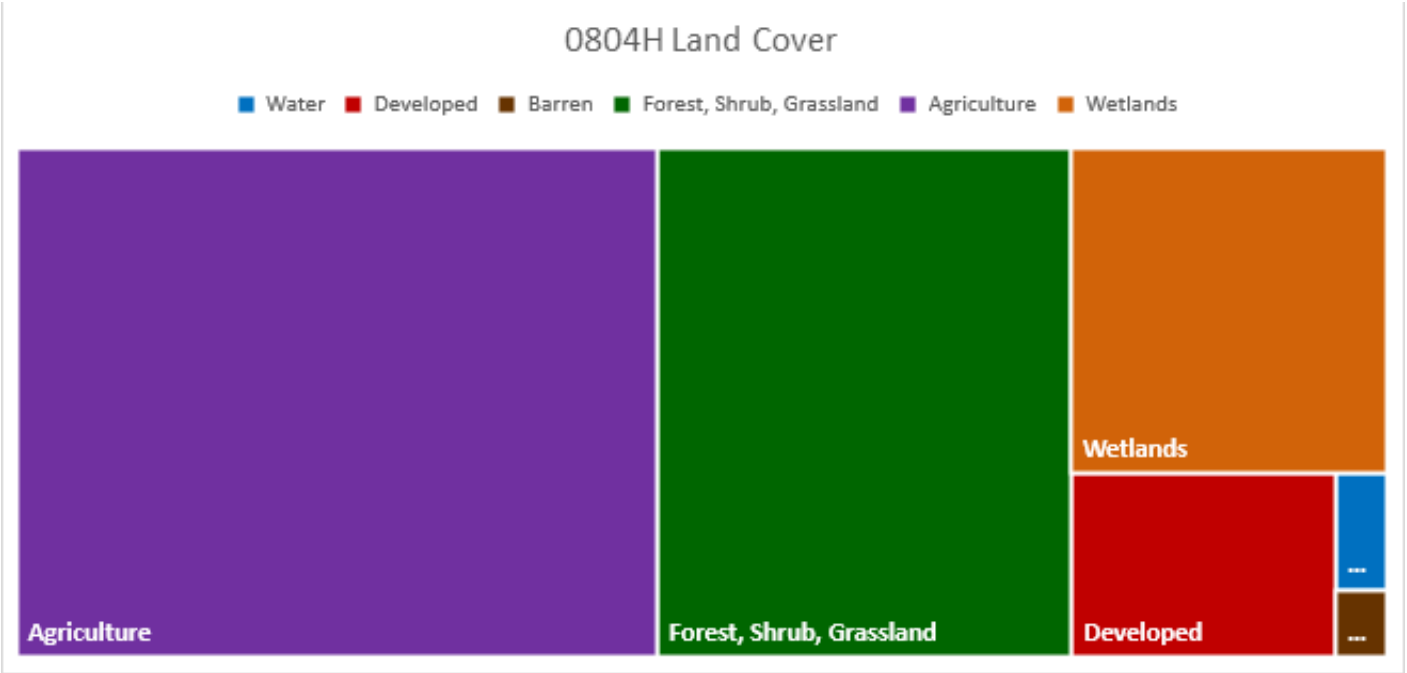

Figure 58: 0804H relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and TRA Lake Livingston Project.

Description of Water Quality Issue

Assessment unit 0804H_01 was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 20 samples had a geometric mean of 140.99 MPN/100 mL which

exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/6/2013 to 3/9/2021 at station 20771. There were 26 samples with a geometric mean of 168.92 MPN/100 mL. Values ranged from 0.5 to 2900 MPN/100 mL and 69.2% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- XTO Energy
- Landowners

0804K - Lower Keechi Creek

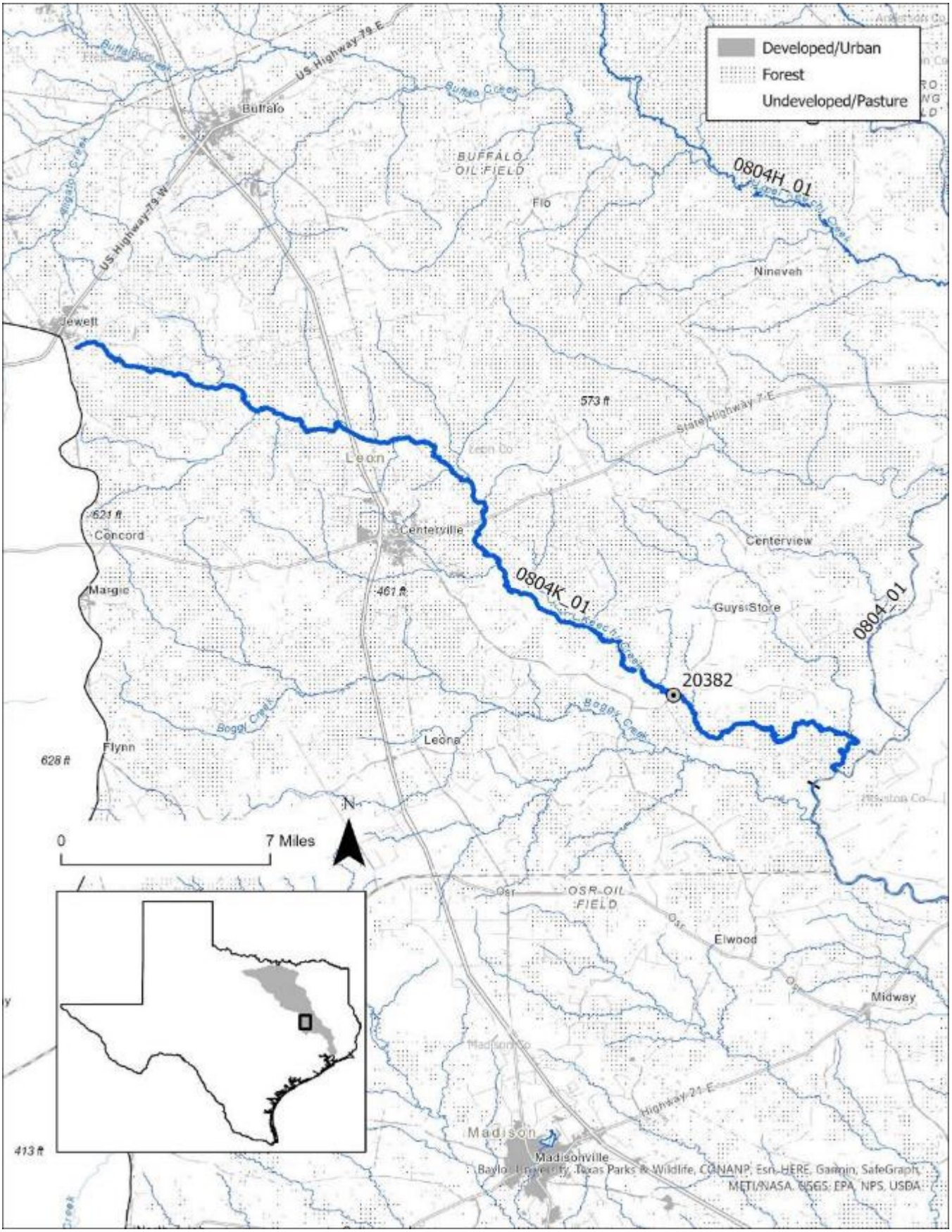

Figure 59: Map of Segment 0804K

Segment Description

This 44-mile unclassified segment runs from the headwaters in the Town of Jewett to the confluence with the Trinity River upstream.

Assessment Units and Monitoring Stations

- **0804K_01** - Perennial stream from the confluence with the Trinity River in Leon County upstream to the headwaters in Jewett in Leon County
  - Perennial freshwater stream
  - **20382** - Lower Keechi Creek 110 meters upstream of FM 811 in Leon County
    - Sampling conducted by TCEQ from 2013 to 2022

Hydrology

Unclassified segment 0804K is a fourth order stream at its most downstream end. Based on flow measurements between 2013 and 2021, the median flow was 13 cfs with minimum and maximum flows of 0.01 and 170 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 24 cfs
- Index Period – 25.5 cfs
- Critical Period – 1.0 cfs

Land Use and Natural Characteristics

A majority of the watershed is rural with forested, hay, and pasture land. There are several oil and gas drilling pads in the middle and lower portion of the watershed. It lies within the Southern Post Oak Savanna.

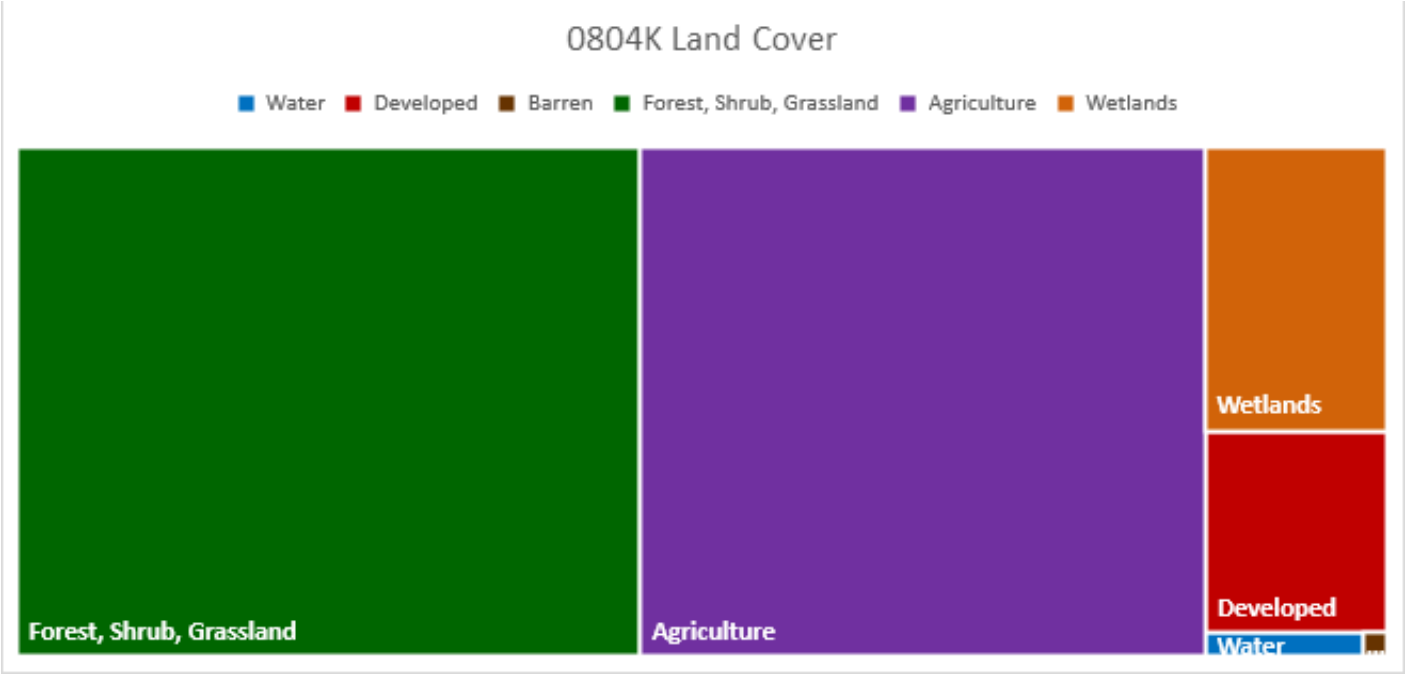

Figure 60: 0804K relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2018. Based on the 2020 Integrated Report, 25 samples had a geometric mean of 203.24 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/19/2013 to 3/9/2021 at

station 20382. There were 27 samples with a geometric mean of 280.78 MPN/100 mL. Values ranged from 10 to 2400 MPN/100 mL and 92.6% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Jewett
- Landowners
- Champion Ranch

0804L - Town Creek

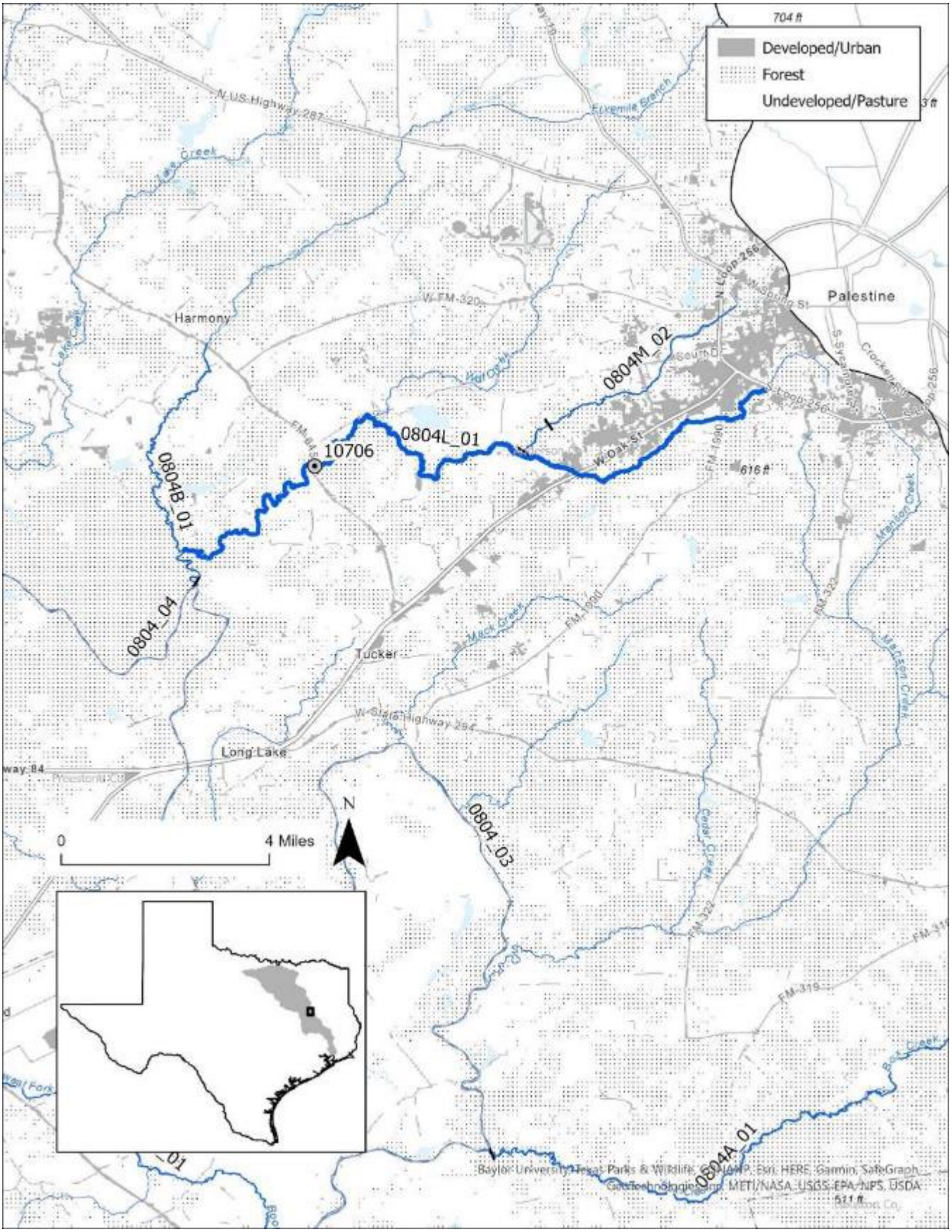

Figure 61: Map of Segment 0804L

Figure 62: Town Creek at FM 645 southwest of Palestine

Segment Description

This 16-mile unclassified segment runs from SH 256 in Palestine to the confluence with Keechi Creek.

Assessment Units and Monitoring Stations

- **0804L_01** - Perennial stream from the confluence with Keechi Creek upstream to SH 256
  - Perennial freshwater stream
  - **10706** - Town Creek 73 meters upstream of FM 645 southwest of Palestine
    - Sampling conducted by TRA from 2013 to 2022

Hydrology

Unclassified segment 0804L is a fourth order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median flow was 9.2 cfs with minimum and maximum flows of 4.1 and 225 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 11 cfs
- Index Period – 12 cfs
- Critical Period – 6.6 cfs

Land Use and Natural Characteristics

The watershed is developed to the north and rural to the south with pasture, hay, and grassland with some forested areas. It flows through the Tertiary Uplands and Northern Post Oak Savanna ecoregions.

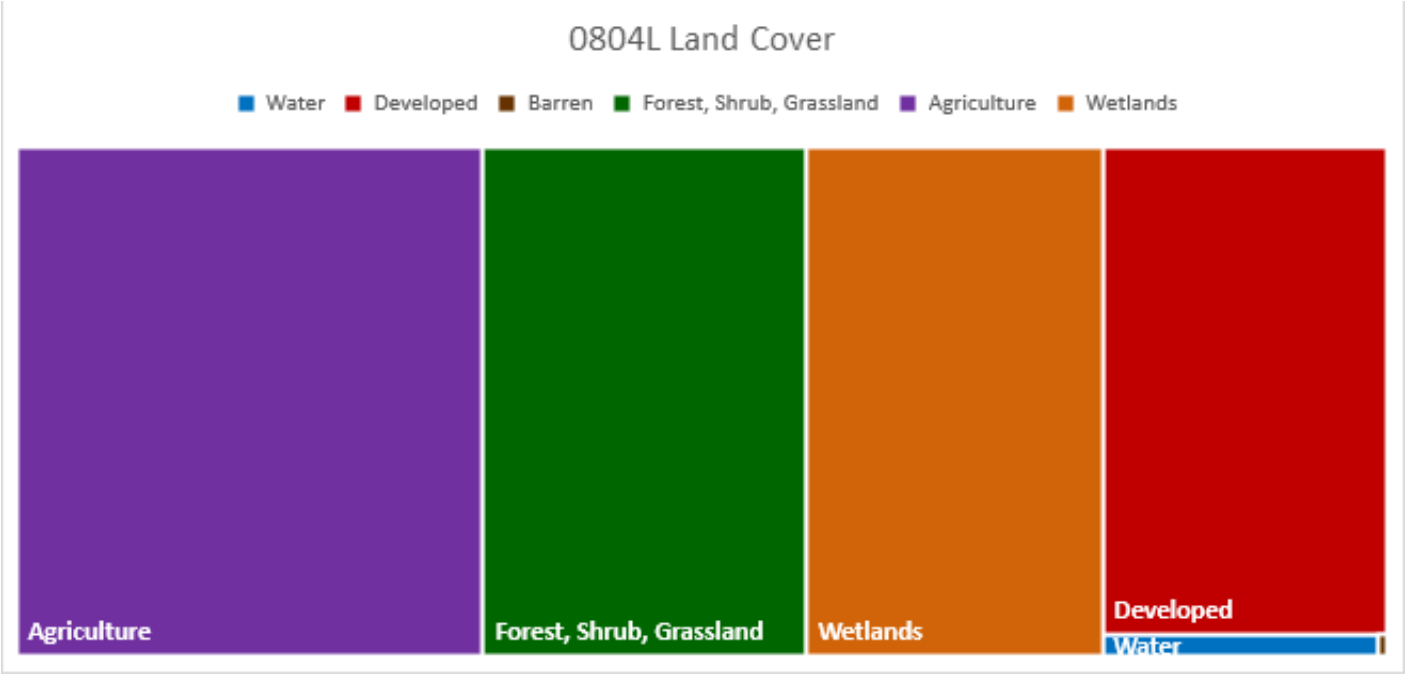

Figure 63: 0804L relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 21 samples had a geometric mean of 414.12 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 11/19/2013 to 9/24/2020 at station 10706. There were 29 samples with a geometric mean of 511.79 MPN/100 mL. Values ranged from 24 to 8700 MPN/100 mL and 96.6% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Palestine
- Sanderson Farms Palestine Processing Plant
- Landowners

0805 - Upper Trinity River

Segment Description

See Segment 0805 Segment Description.

Hydrology

See Segment 0805 Hydrology.

Land Use and Natural Characteristics

See Segment 0805 Land Use and Natural Characteristics.

Ongoing Projects

- Routine water quality monitoring by TRA and City of Dallas.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

Assessment units 0805_03 and 0805_04 were first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 1996. Based on the 2020 Integrated Report, assessment unit 0805_03 had 52 samples and a geometric mean of 202.67 MPN/100 mL and assessment unit 0805_04 had 73 samples and a geometric mean of 193.40 MPN/100mL. Both assessment units exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report for assessment unit 0805_03 were collected from 1/16/2013 to 1/20/2021 at stations 10934 and 20444. There were 64 samples with a geometric mean of 205.41 MPN/100 mL. Values ranged from 0.5 to 50000 MPN/100 mL and 54.7% of the samples exceeded the standard. For assessment unit 0805_04, data were collected from 1/16/2013 to 1/20/2021 at stations 10937, 20933, and 20934. There were 95 samples with a geometric mean of 192.62 MPN/100 mL. Values ranged from 0.5 to 35000 MPN/100 mL and 53.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Livestock best management practices.
- Landowner education about livestock waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

See Segment 0805 Potential Stakeholders.

0806 - West Fork Trinity River Below Lake Worth

Segment Description

See Segment 0806 Segment Description.

Hydrology

See Segment 0806 Hydrology.

Land Use and Natural Characteristics

See Segment 0806 Land Use and Natural Characteristics.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth and Tarrant Regional Water District.

Description of Water Quality Issue

Assessment unit 0806_02 was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 17 samples had a geometric mean of 221.94 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 10/14/2014 to 10/13/2020 at station 21558. There were 25 samples with a geometric mean of 170.08 MPN/100 mL. Values ranged from 8 to 58000 MPN/100 mL and 52% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

See Segment 0806 Potential Stakeholders.

0806D - Marine Creek

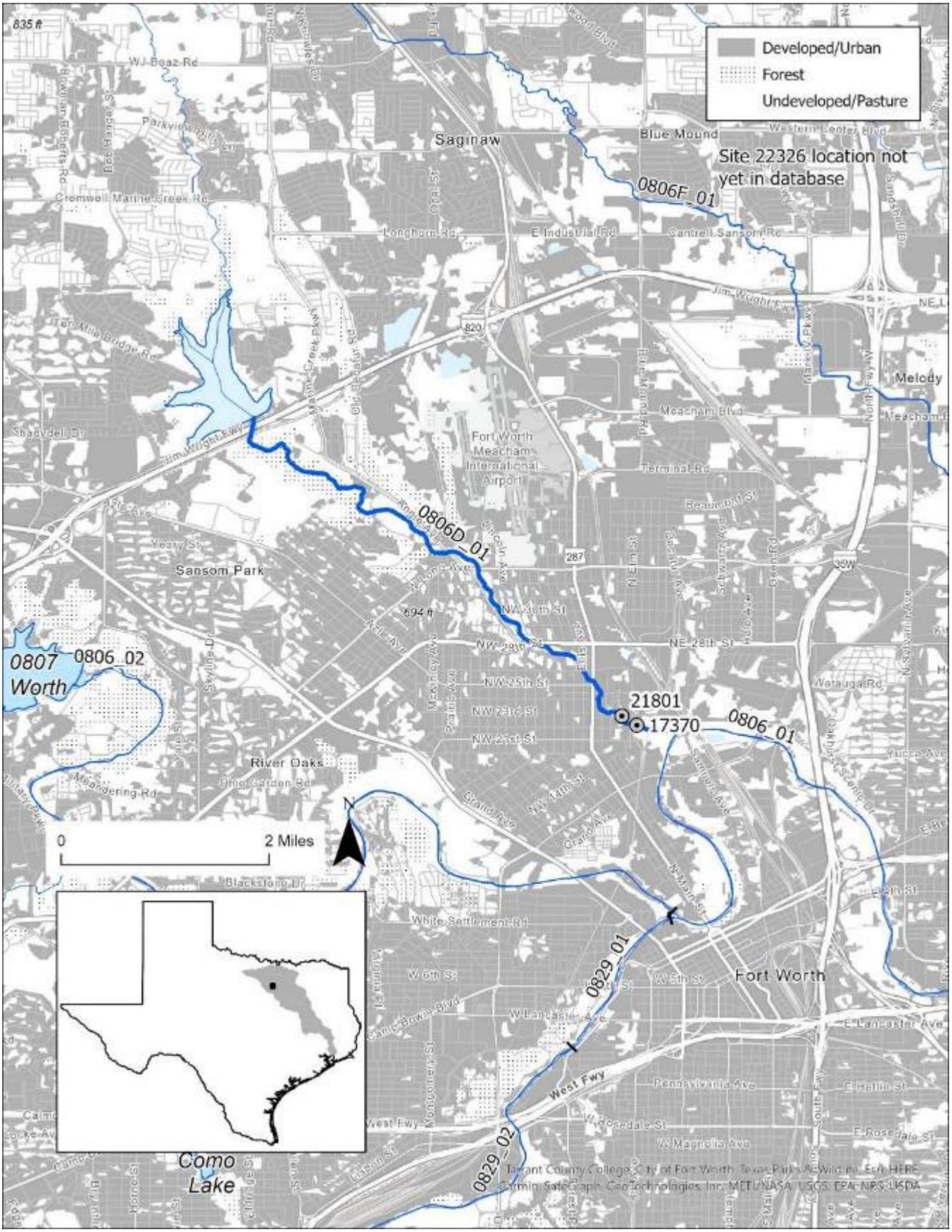

Figure 64: Map of Segment 0806D

Figure 65: Marine Creek downstream of Northeast 23rd Street in North Fort Worth

Segment Description

Marine Creek is a two-mile unclassified segment running from Tenmile Bridge Road in Fort Worth to the confluence with the West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0806D_01** - Marine Creek from the confluence with West Fork Trinity River Below Lake Worth upstream to the Marine Creek Reservoir dam
  - Perennial freshwater stream
  - **17370** - Marine Creek at abandoned low water crossing 244 meters downstream of NE 23rd Street in north Fort Worth
    - Sampling conducted by Fort Worth from 2013 to 2016
  - **21801** - Marine Creek at NE 23rd Street concrete apron approximately 25 meters west of the Mule Alley and NE 23rd Street intersection
    - Sampling conducted by Fort Worth from 2016 to 2022
  - **22326** - Marine Creek upstream of NW 26 Street in Rodeo Park in Fort Worth
    - Sampling conducted by Fort Worth in 2022

Hydrology

Unclassified segment 0806D is a second order stream at its most downstream end. Based on flow measurements between 2016 and 2020, the median flow was 2 cfs with minimum and maximum flows of 0.1 and 22 cfs. The median

flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 3 cfs
- Index Period –2 cfs
- Critical Period – 0.6 cfs

Land Use and Natural Characteristics

The watershed is heavily developed but has some areas of wood and grassland upstream of Marine Creek Reservoir and lies entirely within the Grand Prairie ecoregion.

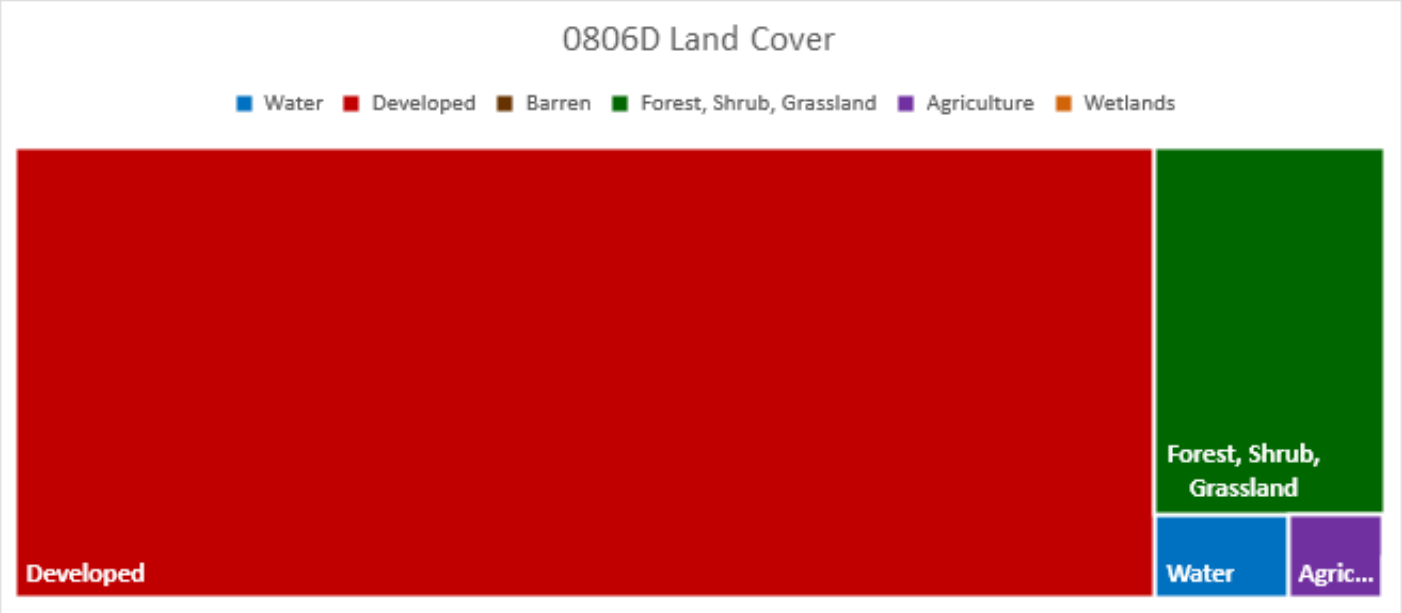

Figure 66: 0806D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 21 samples had a geometric mean of 374.05 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 10/8/2013 to 10/13/2020 at stations 17370 and 21801. There were 28 samples with a geometric mean of 311.83 MPN/100 mL. Values ranged from 10 to 73000 MPN/100 mL and 60.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Fort Worth
- Texas Cowboy Hall of Fame
- Fort Worth Stockyards Station

0806E - Sycamore Creek

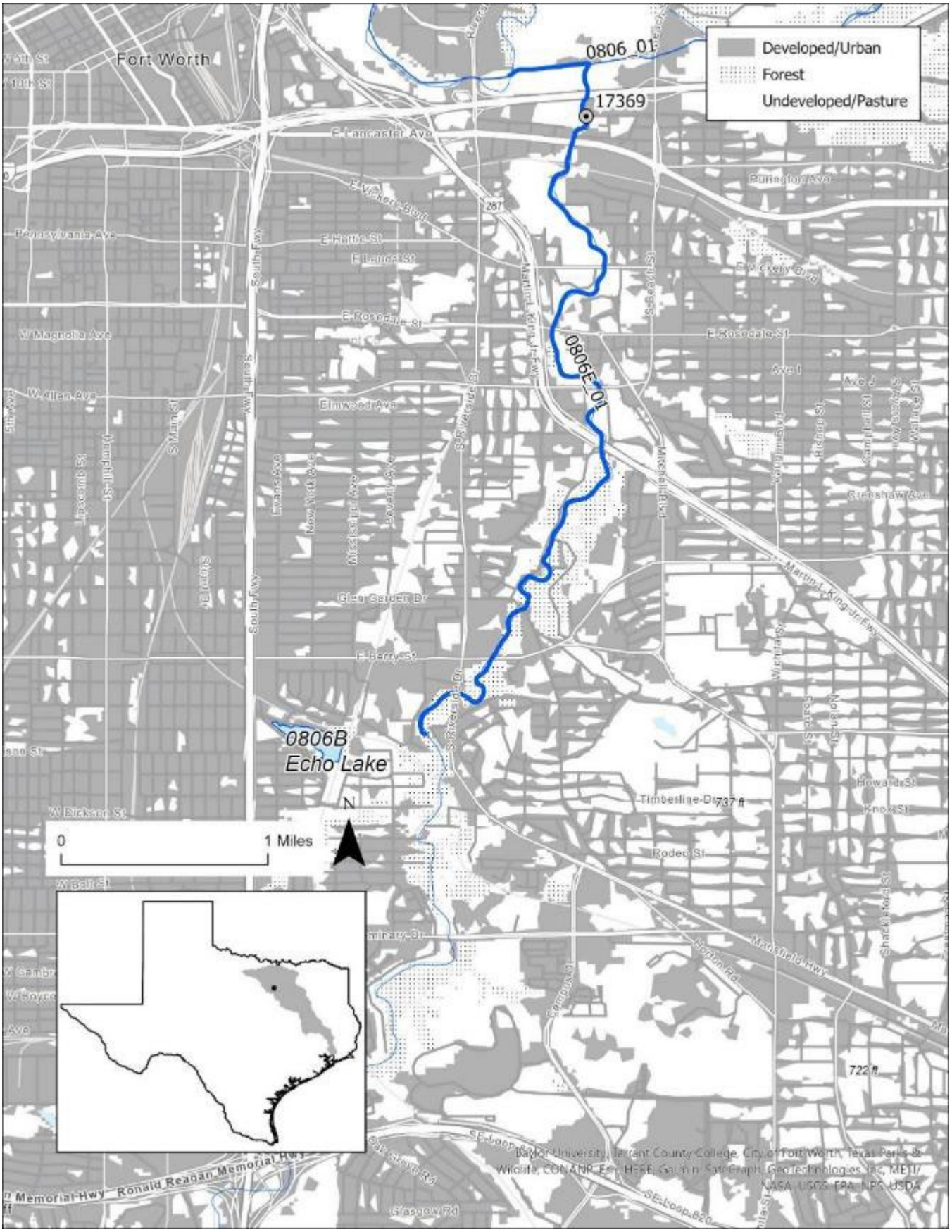

Figure 67: Map of Segment 0806E

Figure 68: Sycamore Creek upstream of IH 30 in Fort Worth

Segment Description

This unclassified segment is a five-mile stretch of Sycamore Creek running upstream from the confluence with Echo Lake Tributary in Fort Worth to the confluence with the West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0806E_01** - Five mile stretch of Sycamore Creek running upstream from confluence with the West Fork of Trinity River to confluence with Echo Lake Tributary in Fort Worth
    - Perennial freshwater stream
    - **17369** - Sycamore Creek at western end of pavement of Scott Avenue 179 meters upstream of IH 30 in east Fort Worth
        - Sampling conducted by Fort Worth from 2013 to 2022

Hydrology

Unclassified segment 0806E is a first order stream at its most downstream end. Based on flow measurements between 2014 and 2020, the median flow was 2.55 cfs with minimum and maximum flows of 0.08 and 46 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 3.9 cfs
- Index Period – 3.2 cfs
- Critical Period – 2.3 cfs

Land Use and Natural Characteristics

The watershed is heavily developed with some small wooded areas and parks directly adjacent to the stream. It lies within the Grand Prairie ecoregion.

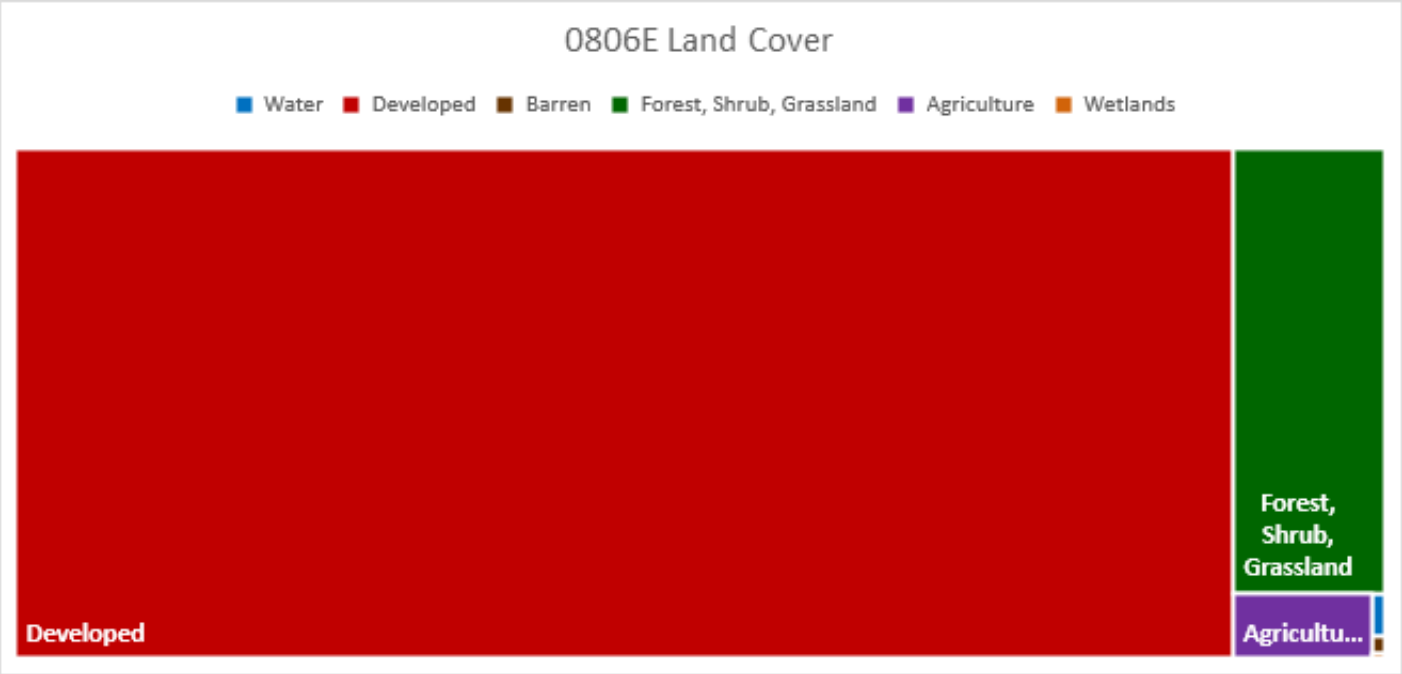

Figure 69: 0806E relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2006 Integrated Report, the geometric mean for 51 samples was 276 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. This concern was carried forward to the 2020 Integrated Report where the geometric mean of 19 samples was 399.15 MPN/100 mL. Data for the period of record for this report were collected from 10/8/2013 to 10/13/2020 at station 17369. There were 28 samples with a geometric mean of 546.10 MPN/100 mL. Values ranged from 6 to 49000 MPN/100 mL and 82.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Fort Worth
- Homeowners and HOA's
- Autumn Chase Apartments

0806F - Little Fossil Creek

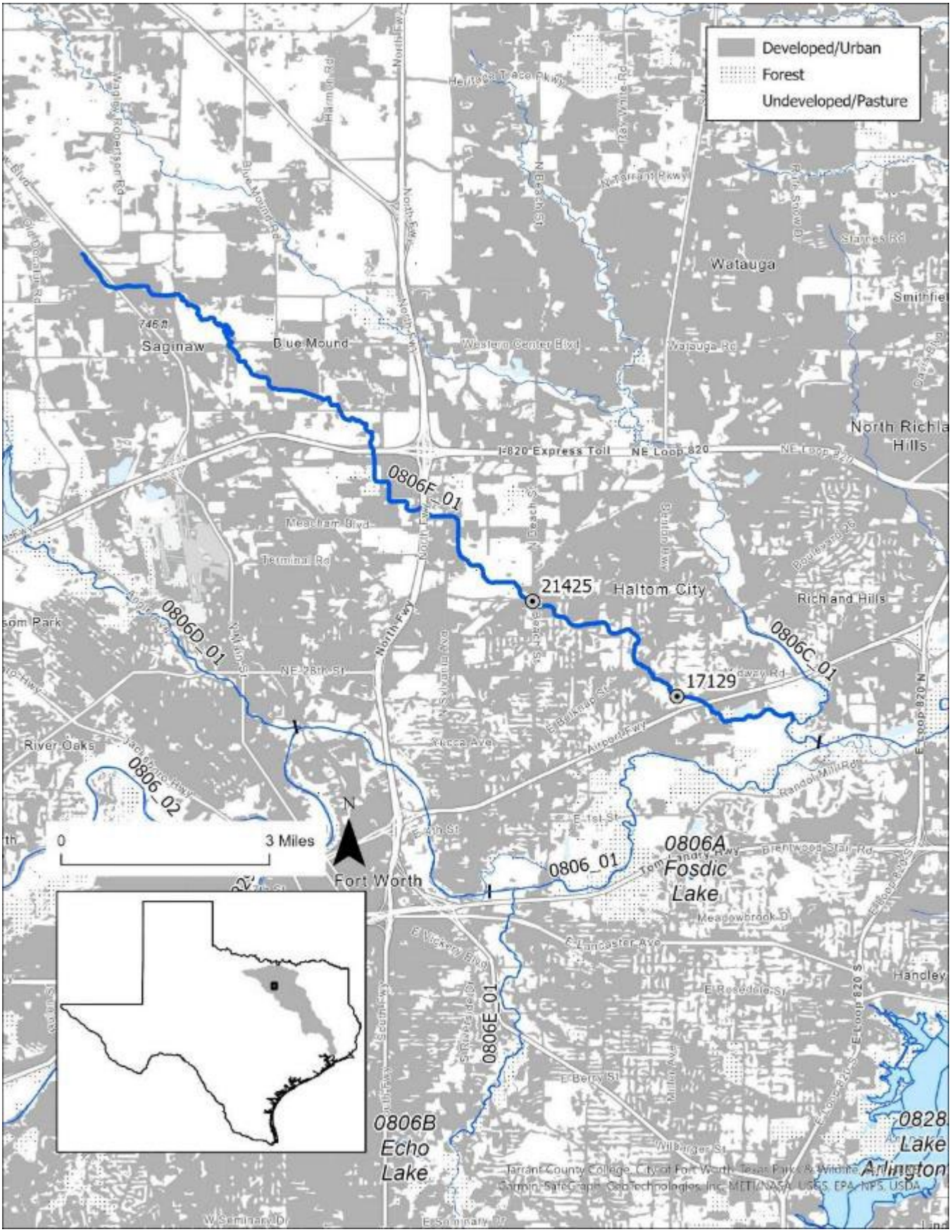

Figure 70: Map of Segment 0806F

Segment Description

Little Fossil Creek is a 13.7-mile stream that runs from the headwaters in Saginaw to the confluence with Big Fossil Creek.

Assessment Units and Monitoring Stations

- **0806F_01** - A 13.7 mile stretch of Little Fossil Creek running upstream from confluence with segment 0806 West Fork Trinity River upstream to upper end Little Fossil Creek
  - Perennial freshwater stream
  - **17129** - Little Fossil Creek 43 meters downstream of Thomas Road in Haltom City
    - Sampling conducted by TRA from 2017 to 2022
  - **21425** - Little Fossil Creek at dead end of Mesquite Road 25 meters downstream of the 3800 block of East Long Avenue in Fort Worth
    - Sampling conducted by Fort Worth from 2013 to 2014

Hydrology

Unclassified segment 0806F is a first order stream at its most downstream end. There is limited data available for this segment. Based on flow measurements between 2017 and 2020, the median flow was 2.35 cfs with minimum and maximum flows of 0.5 and 19 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 2 cfs
- Index Period – 3.8 cfs
- Critical Period – 0.5 cfs

Land Use and Natural Characteristics

Much of the watershed is heavily developed with a few small areas of grassland. A majority of the watershed drains the Grand Prairie ecoregion with a small portion at the most downstream end flowing through the Eastern Cross Timbers.

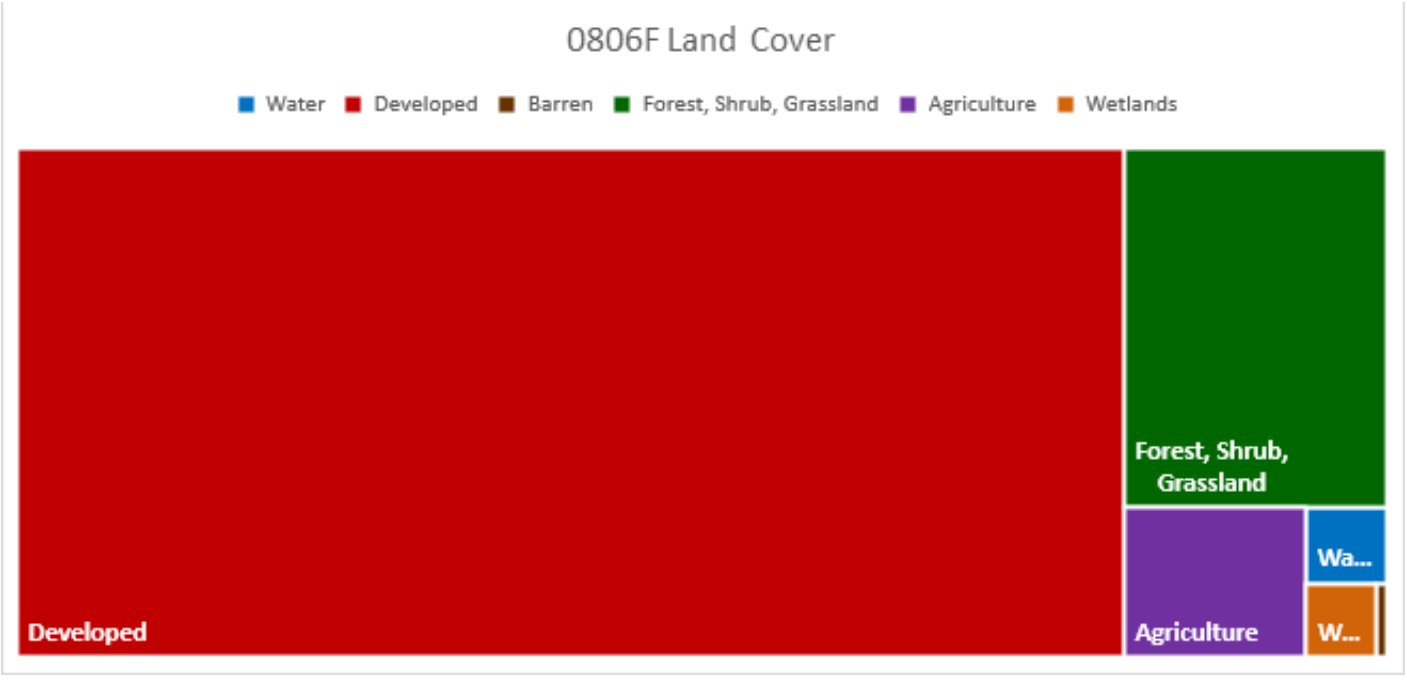

Figure 71: 0806F relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, seven samples had a geometric mean of 212.25 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/14/2014 to 9/28/2020 at stations 17129 and 21425. There were 15 samples with a geometric mean of 281.97 MPN/100 mL. Values ranged from 16 to 9700 MPN/100 mL and 66.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Livestock best management practices.
- Landowner education about livestock waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Saginaw
- Blue Mound
- Homeowners and HOA’s
- Norco Corporation
- Ergon Asphalt and Emulsions
- City of Fort Worth
- Amazon AFW1
- City of Haltom City
- Haltom City Rifle and Pistol Club

0809A - Walnut Creek

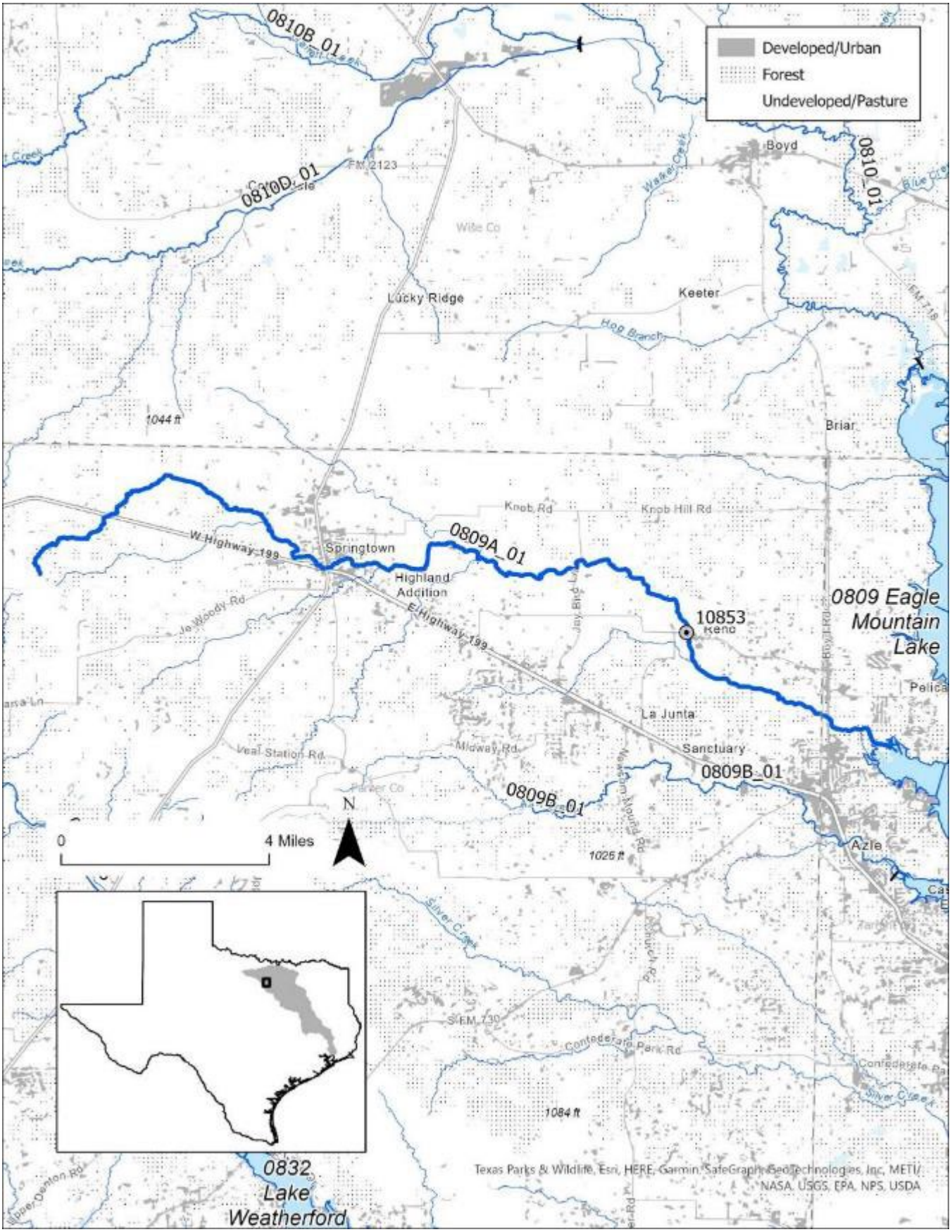

Figure 72: Map of Segment 0809A

Segment Description

This unclassified segment runs 20 miles from the headwaters approximately 2.1 miles upstream of State Highway 199 in Parker County to the normal pool elevation of Eagle Mountain Reservoir.

Assessment Units and Monitoring Stations

- **0809A_01** - From the normal pool elevation of Eagle Mountain Reservoir up to the headwaters approximately 2.1 miles upstream of State Highway 199 in Parker County
  - Perennial freshwater stream
  - **10853** - Walnut Creek at FM 1542
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0809A is a second order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08044800 at Reno. The median flow over this period of record was 3.23 cfs with minimum and maximum flows of 0 and 3,610 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 3.25 cfs
- Index Period – 5.98 cfs
- Critical Period – 1.76 cfs

Land Use and Natural Characteristics

It lies within the Western Cross Timbers ecoregion. The majority of the watershed is rural with pasture, hay, and crop land directly adjacent to the stream. However, the upper portion of the stream flows through the City of Springtown.

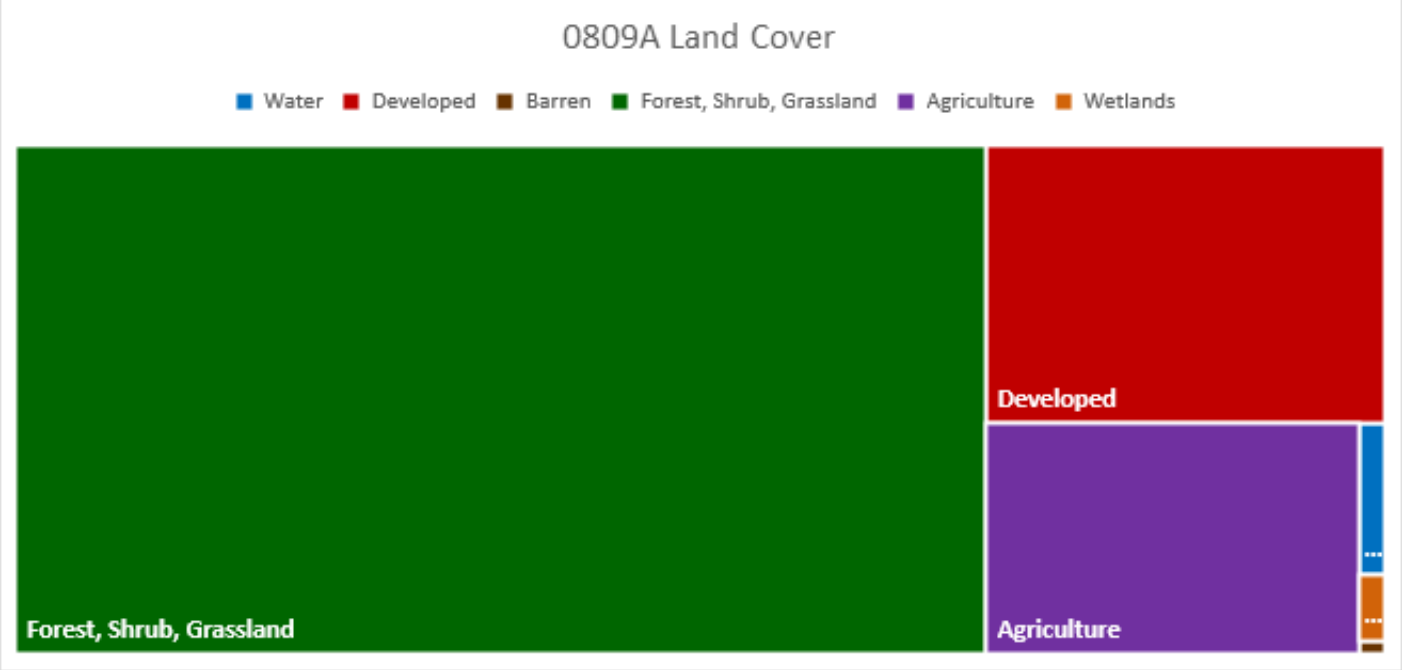

Figure 73: 0809A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 51 samples had a geometric mean of 139.75 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/9/2013 to 11/17/2020 at station 10853. There were 64 samples with a geometric mean of 129.97 MPN/100 mL. Values ranged from 2 to 24000 MPN/100 mL and 43.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- City of Goshen
- Landowners
- Purdy Truck Parking
- City of Springtown
- Springtown Sewer Plant
- City of Reno
- The Randall Ranch

0809B - Ash Creek

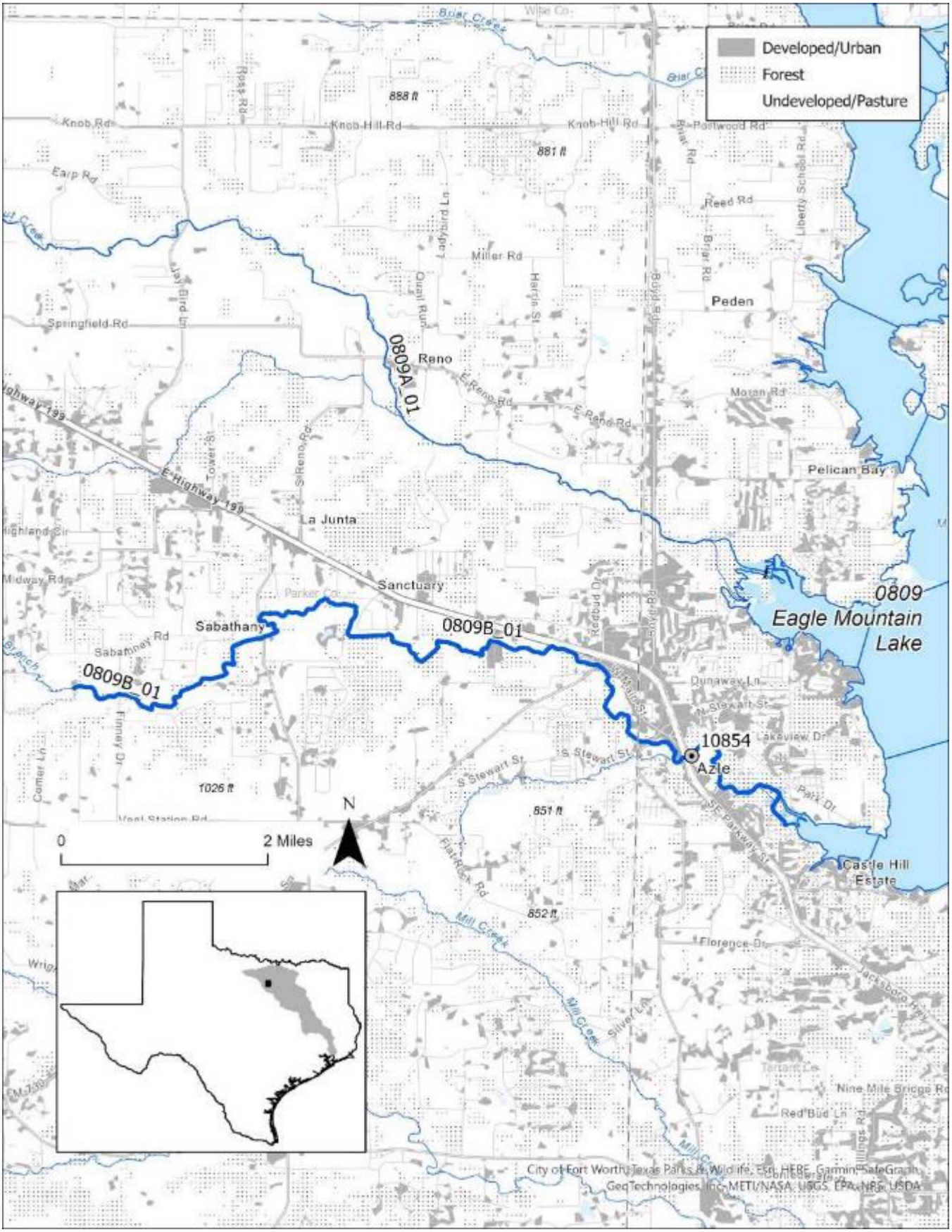

Figure 74: Map of Segment 0809B

Figure 75: Ash Creek at Highway 199 in Azle. Photo courtesy of Tarrant Regional Water District.

Segment Description

This 10-mile unclassified segment runs from the confluence with Mill Branch in Parker County to normal pool elevation of Eagle Mountain Reservoir in Tarrant County.

Assessment Units and Monitoring Stations

- **0809B_01** - From Eagle Mountain Lake in Tarrant County upstream to its confluence with Mill Branch in Parker County
  - Freshwater stream, intermittent with perennial pools
  - **10854** - Ash Creek 56 meters downstream of SH 199 northbound service road
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0809B is a second order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median flow was 2.1 cfs with minimum and maximum flows of 0 and 3,227 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 2.1 cfs
- Index Period – 1.8 cfs
- Critical Period – 3.4 cfs

Land Use and Natural Characteristics

The downstream end flows through the City of Azle but the remainder of the stream flows through grassland and forested areas.

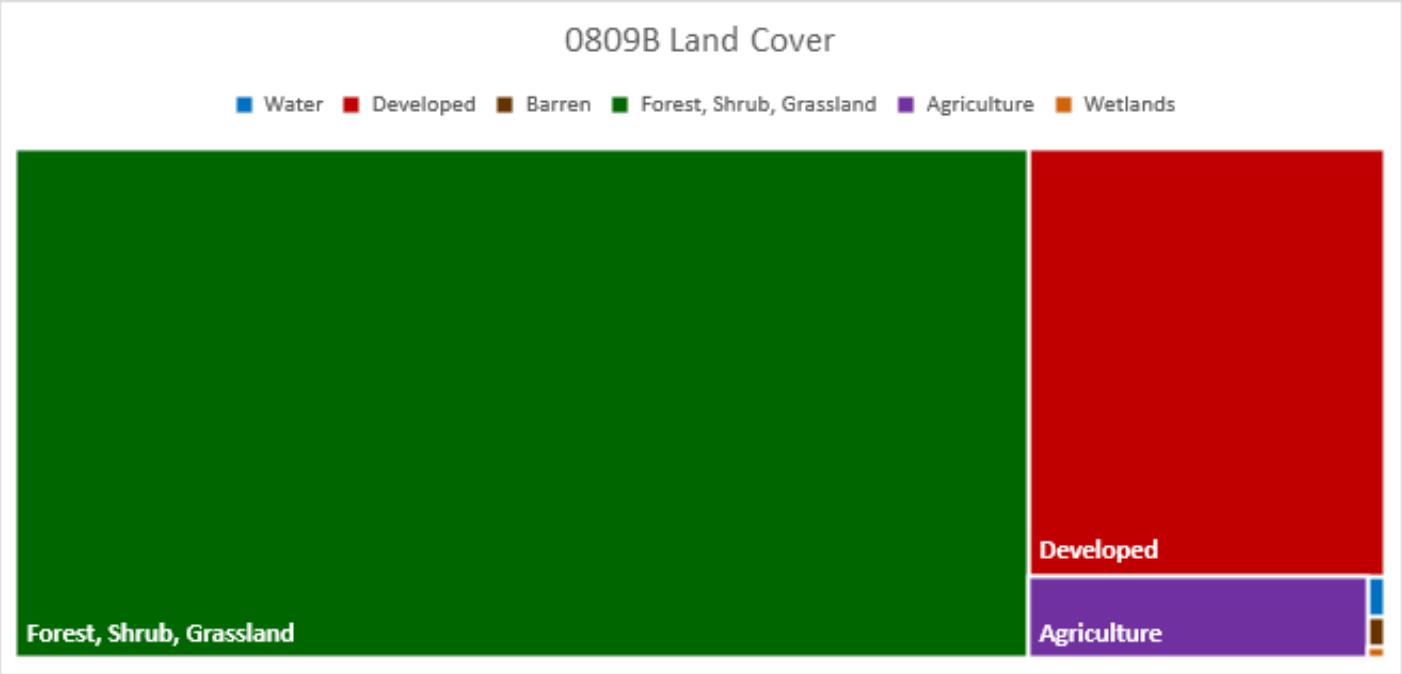

Figure 76: 0809B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2014. Based on the 2020 Integrated Report, 64 samples had a geometric mean of 407.65 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/9/2013 to 11/17/2020 at station 10854. There were 70 samples with a geometric mean of 359.13 MPN/100 mL. Values ranged from 33 to 24000 MPN/100 mL and 70% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Landowners
- Homeowners and HOA's
- City of Sanctuary
- The Orchard Event Venue
- Wise Ready Mix
- City of Azle

0809C - Dosier Creek

Figure 77: Map of Segment 0809C

Figure 78: Dosier Creek at Boat Club Road in Eagle Mountain. Photo courtesy of Tarrant Regional Water District.

Segment Description

This unclassified segment runs approximately 1 mile from the confluence with an intermittent stream 1 km upstream of Boat Club Road to the confluence of Dosier Slough cove.

Assessment Units and Monitoring Stations

- **0809C_01** - From the confluence of Dosier Slough cove upstream to the confluence with an intermittent stream 1 km upstream of Boat Club Road
    - Perennial freshwater stream
    - **10855** - Dosier Creek at FM 1220
        - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0809C is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median flow was 2.3 cfs with minimum and maximum flows of 0 and 66 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 3.6 cfs
- Index Period – 1.6 cfs
- Critical Period – 3 cfs

Land Use and Natural Characteristics

It lies within the Grand Prairie ecoregion and is largely grassland with some pasture and crop land directly adjacent to the stream before it enters Dosier Slough near the south end of Eagle Mountain Reservoir.

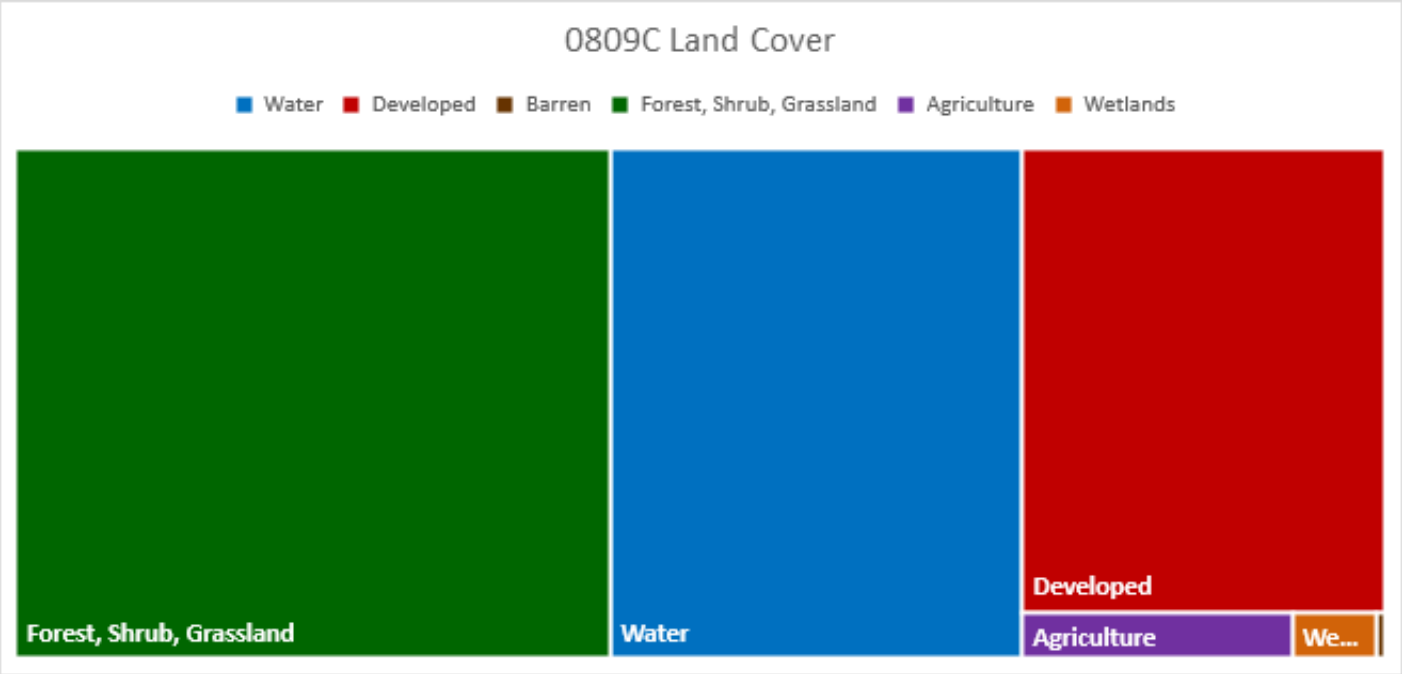

Figure 79: 0809C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 630.41 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/9/2013 to 7/28/2020 at station 10855. There were 30 samples with a geometric mean of 541.47 MPN/100 mL. Values ranged from 10 to 24000 MPN/100 mL and 76.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0809D - Derrett Creek

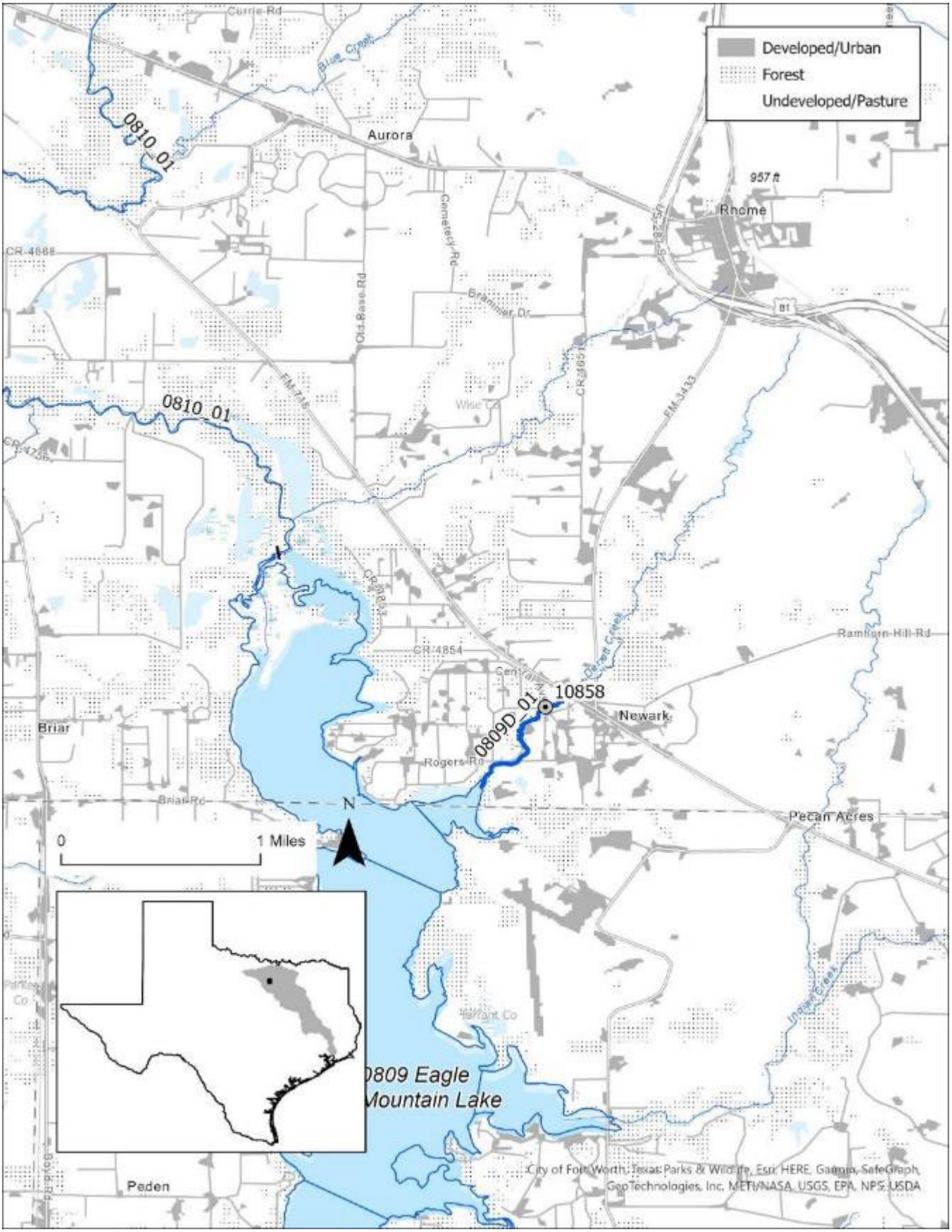

Figure 80: Map of Segment 0809D

Figure 81: Derrett Creek upstream of Rogers Road in Newark. Photo courtesy of Tarrant Regional Water District.

Segment Description

This 1.2-mile unclassified segment runs from an intermittent stream just upstream of FM 718 in the City of Newark to the confluence with Derrett Creek cove.

Assessment Units and Monitoring Stations

- **0809D_01** - From the confluence with Derrett Creek cove to 0.22 km upstream of FM 718 where the waterbody meets an intermittent stream
    - Perennial freshwater stream
    - **10858** - Derrett Creek at Central Avenue in Newark east of Eagle Mountain Lake approximately 1.2 kilometers upstream of Eagle Mountain Lake
        - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0809D is a second order stream at its most downstream end. There is limited data available for this segment. Based on flow measurements between 2013 and 2020, the median flow was 0.8 cfs with minimum and maximum flows of 0 and 18 cfs. 35.5% of the data were reported at no flow and dry flow severities and 33.3% at low flow severities. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.4 cfs
- Index Period – 8.6 cfs
- Critical Period – 0.8 cfs

Land Use and Natural Characteristics

The upper portion of the watershed flows through the Grand Prairie ecoregion into the Western Cross Timbers just before entering the northern Eagle Mountain Reservoir.

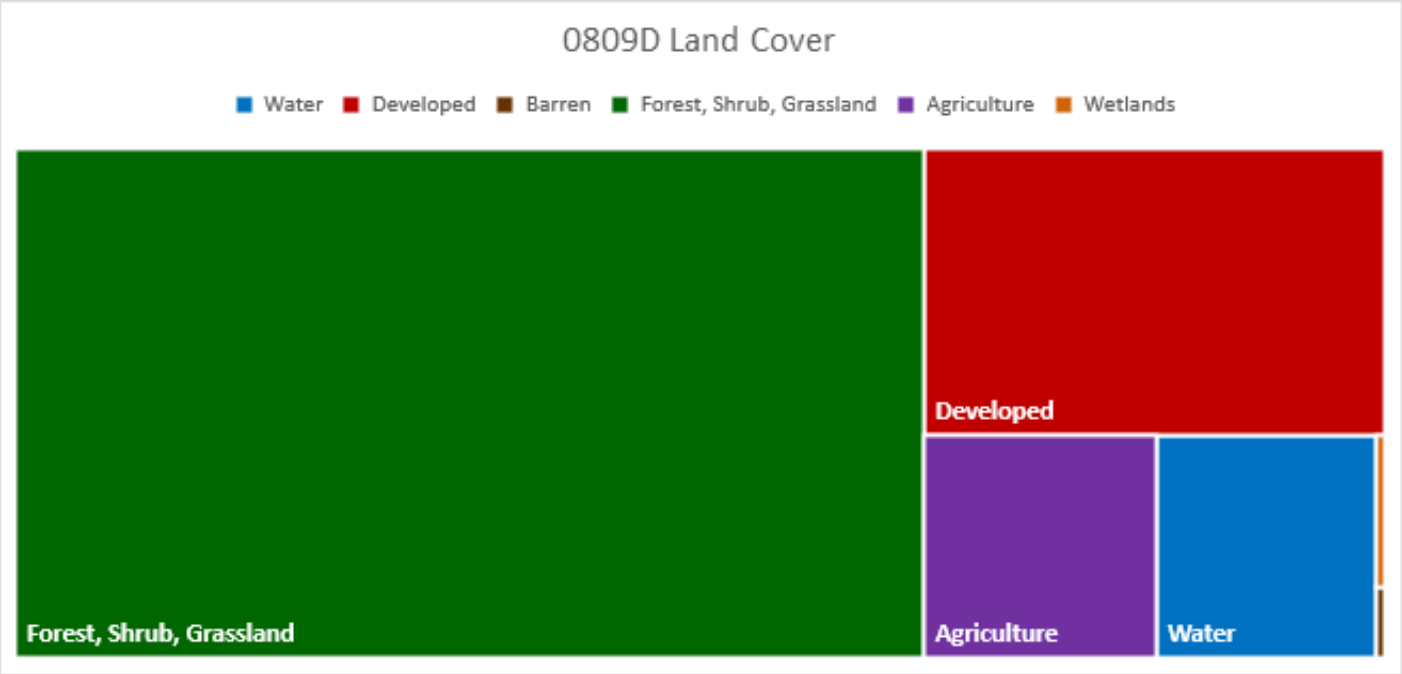

Figure 82: 0809D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 20 samples had a geometric mean of 654.14 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 6/18/2013 to 8/25/2020 at station 10858. There were 17 samples with a geometric mean of 1,265.04 MPN/100 mL. Values ranged from 140 to 24000 MPN/100 mL and all of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Newark
- Landowners
- Homeowners and HOA's

0810 - West Fork Trinity River Below Bridgeport Reservoir

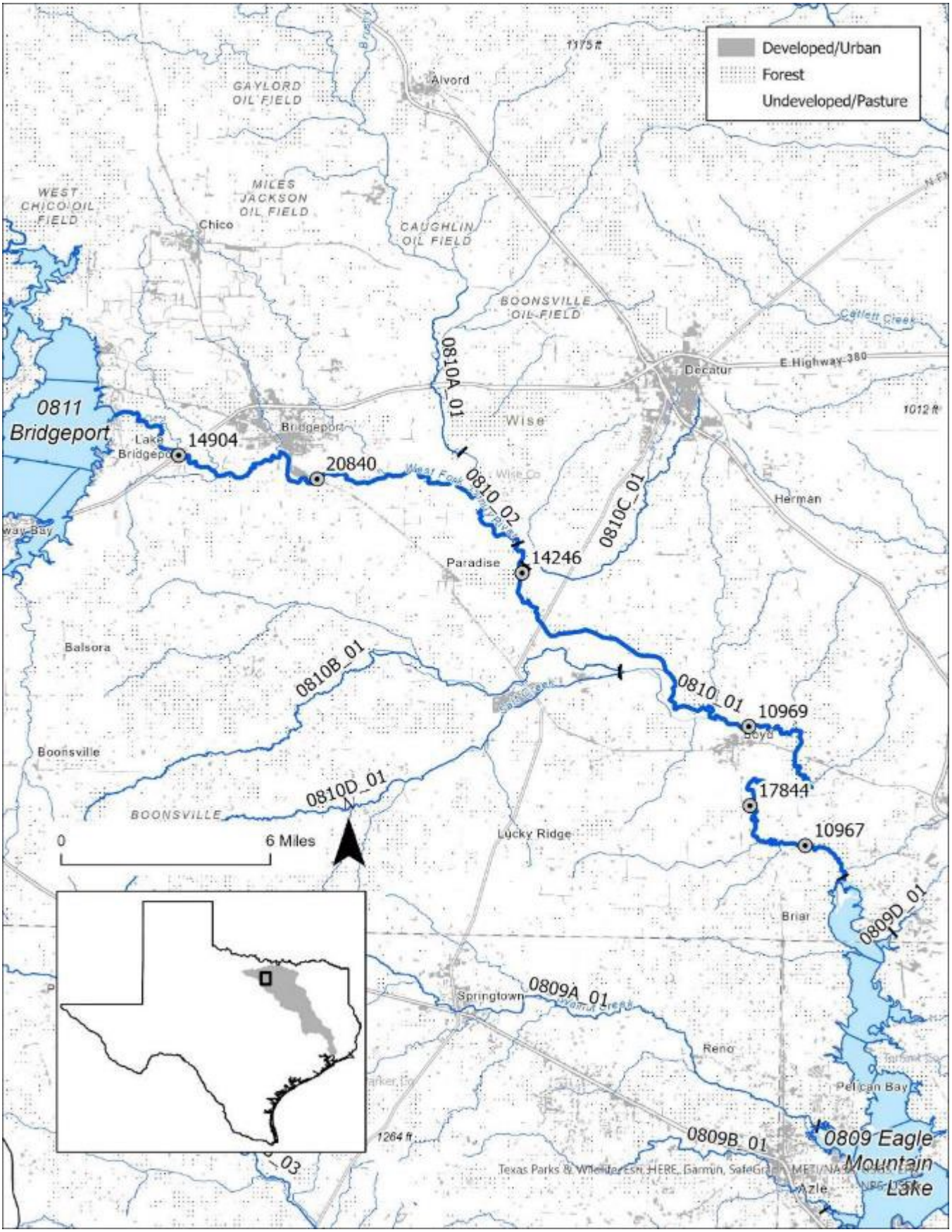

Figure 83: Map of Segment 0810

Figure 84: West Fork Trinity River at Highway 51 south of Decatur. Photo courtesy of Tarrant Regional Water District.

Segment Description

This 43-mile segment begins at Bridgeport Dam in Wise County and continues to 0.4 miles downstream of the confluence of Oates Branch in Wise County.

Assessment Units and Monitoring Stations

- **0810_01** - Lower 25 miles of segment
  - Perennial freshwater stream
  - **10967** - West Fork Trinity River at Wise CR 4757/Van Meter Bridge
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **10969** - West Fork Trinity River 30 meters downstream of FM 730 northeast of Boyd
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **14246** - West Fork Trinity River 281 meters downstream of confluence with Martin Branch 2.2 miles southeast of Paradise
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **17844** - West Fork Trinity River at Bobo Bridge on Wise CR 4668 south of Boyd
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022
- **0810_02** - Upper 11 miles of segment
  - Perennial freshwater stream
  - **14904** - West Fork Trinity River immediately downstream of US 380 1.8 miles southwest of Bridgeport
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022
  - **20840** - West Fork Trinity River below Bridgeport Reservoir at SH 114 approximately 333 meters south and 647 meters east of the intersection of SH 114 and Industrial Boulevard in Wise County
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Segment 0810 is a fifth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08044500 near Boyd. The median flow over this period of record was 89.9 cfs with minimum and maximum flows of 0 and 14,100 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 60.8 cfs
- Index Period – 113 cfs
- Critical Period – 150.5 cfs

Land Use and Natural Characteristics

It flows through the Western Cross Timbers ecoregion. Land use in this segment is a mixture of pasture, hay, and crop lands with smaller areas of grasslands and forest. Developed areas in the watershed are centered mainly around the cities of Chico, Bridgeport, Decatur, Boyd, and Rhome.

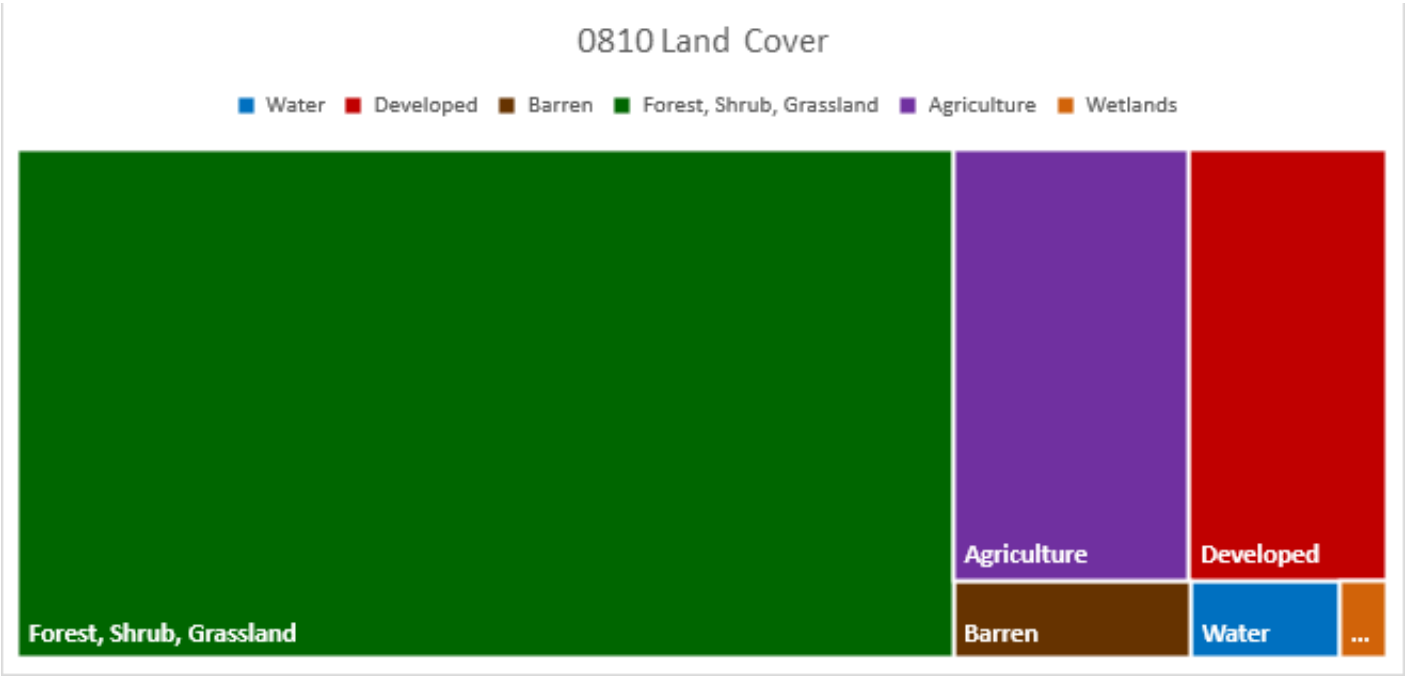

Figure 85: 0810 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

Assessment unit 0810_01 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 1998. Based on the 2020 Integrated Report, 130 samples had a geometric mean of 291.06 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/9/2013 to 11/17/2020 at stations 10967, 10969, 14246, and 17844. There were 154 samples with a geometric mean of 239.10 MPN/100 mL. Values ranged from 6 to 24000 MPN/100 mL and 56.5% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- West Wise Special Utility District
- Landowners
- EnLink Midstream
- City of Bridgeport
- Bridgeport Country Club
- Ivy Valley Utilities
- City of Boyd
- Demases Farm

0810C - Martin Branch

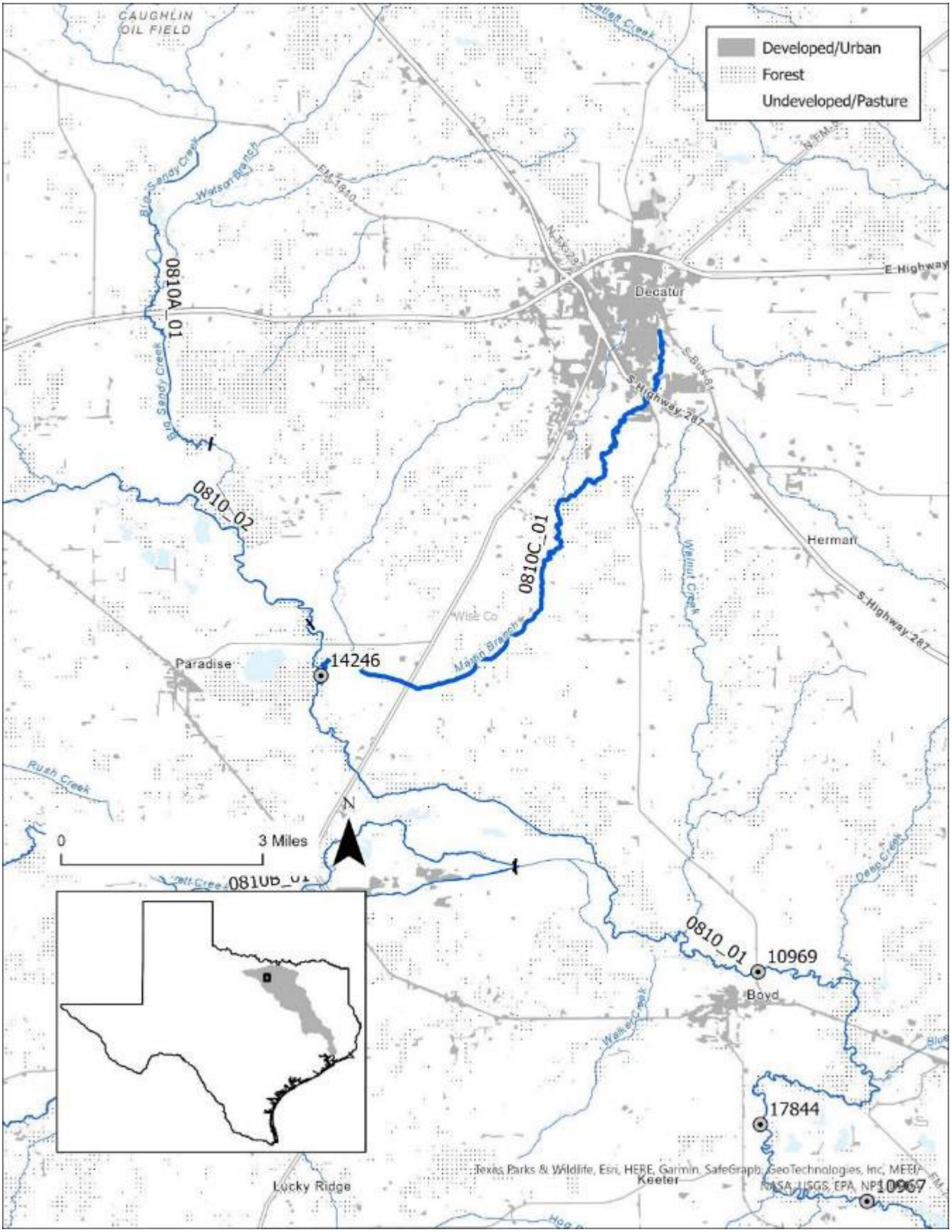

Figure 86: Map of Segment 0810C

Segment Description

This eight-mile unclassified segment runs from FM 730 south of Decatur in Wise County to the confluence with Center Creek.

Assessment Units and Monitoring Stations

- **0810C_01** - Eight mile stretch of Martin Branch running upstream from confluence with Center Creek to FM 730 south of Decatur in Wise County
  - Perennial freshwater stream
  - **17848** - Martin Branch Center Creek at FM 51 east of Paradise
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0810C is a third order stream at its most downstream end. There are no flow data available in this segment. 74% of the data were collected during normal flow severities, while only 13% were reported during dry and no flow conditions.

Land Use and Natural Characteristics

The headwaters lie in the Grand Prairie ecoregion and flows into the Western Cross Timbers. The stream begins in the City of Decatur and then travels through rural areas consisting largely of pasture, hay, and crop lands before joining the West Fork Trinity River.

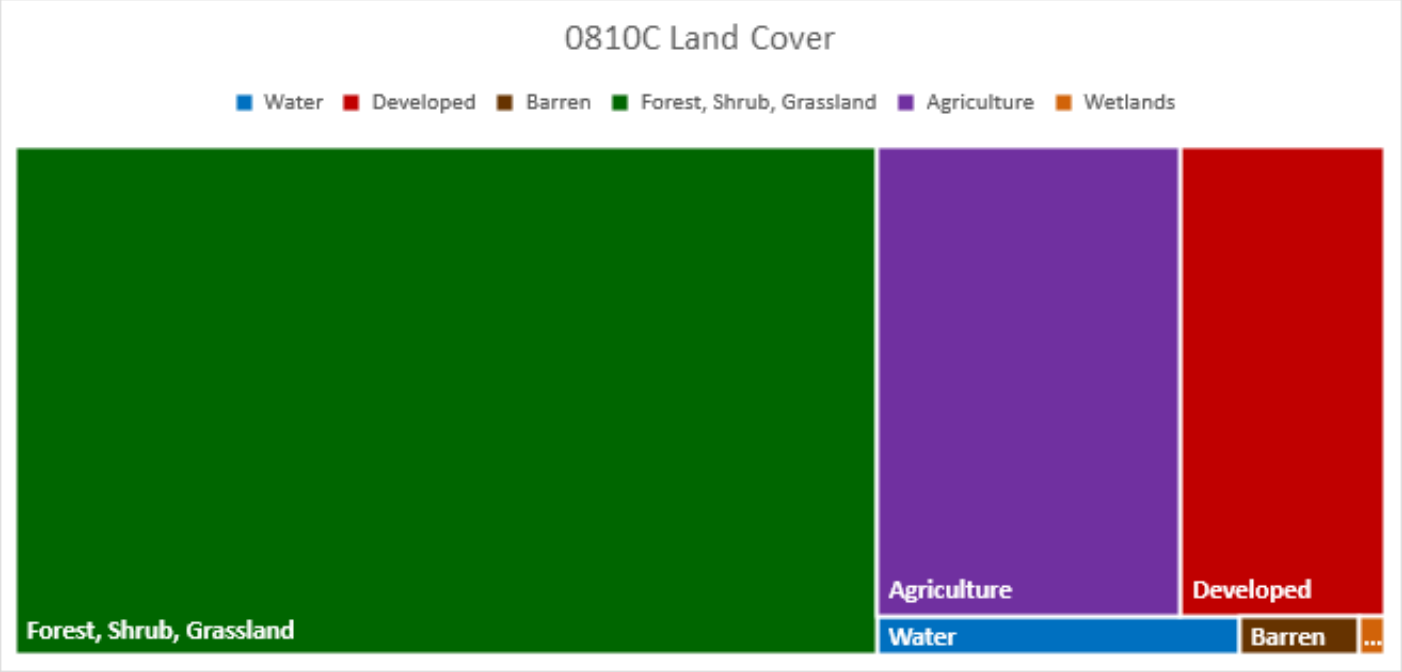

Figure 87: 0810C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Eagle Mountain Lake Watershed Protection Plan.
  - Fact Sheet
  - Report

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 20 samples had a geometric mean of 399.35 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 4/15/2013 to 10/20/2020

at station 17848. There were 20 samples with a geometric mean of 413.96 MPN/100 mL. Values ranged from 65 to 7300 MPN/100 mL and 75% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Decatur
- Landowners
- Homeowners and HOA's

0811A - Big Creek

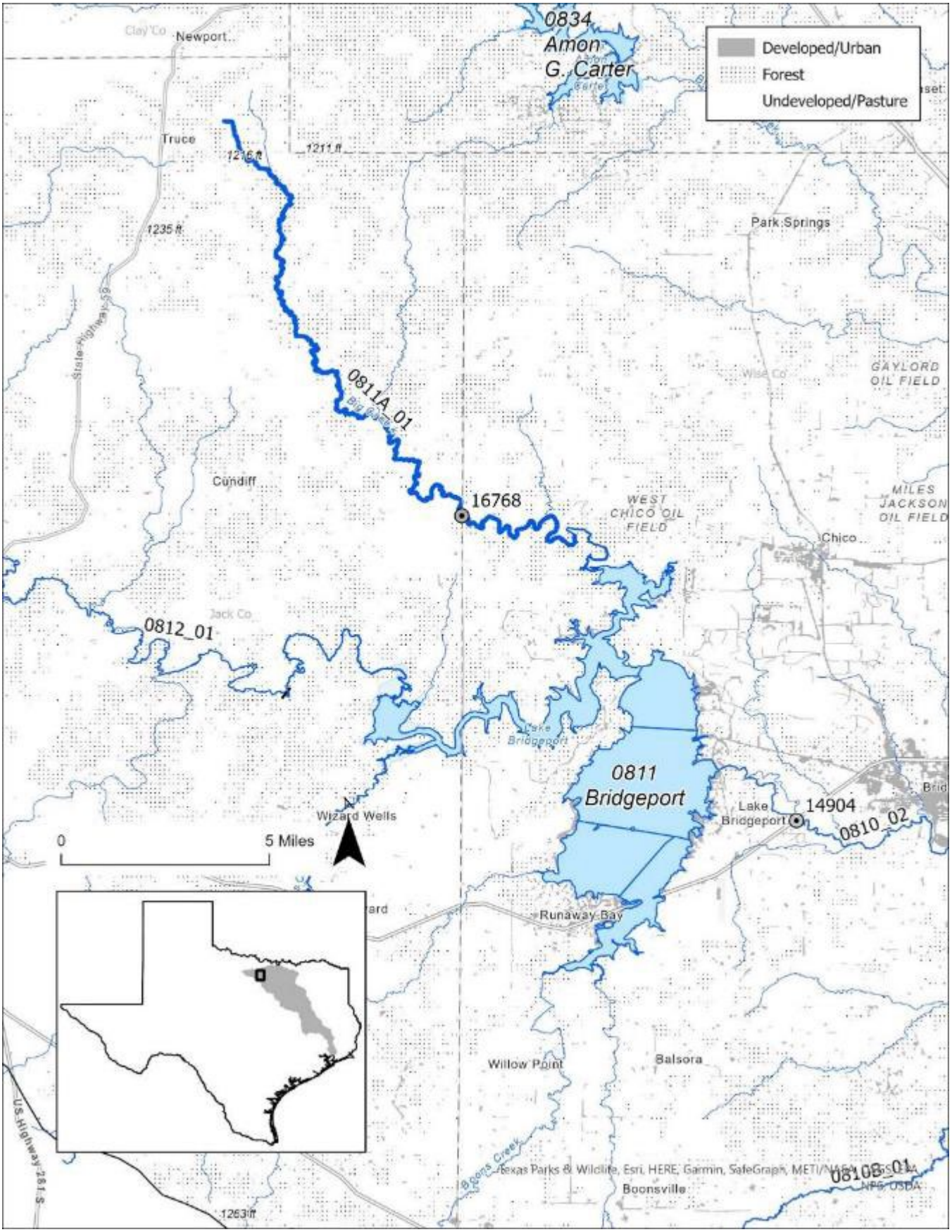

Figure 88: Map of Segment 0811A

Figure 89: Big Creek at FM 1810 west of Chico. Photo courtesy of Tarrant Regional Water District.

Segment Description

This unclassified segment runs approximately 23 miles from the headwaters adjacent to FM 2127 in Jack County to the confluence with Bridgeport Reservoir at normal pool elevation.

Assessment Units and Monitoring Stations

- **0811A_01** - From the confluence with Bridgeport Reservoir at normal pool elevation upstream to the headwaters adjacent to FM 2127 in Jack County
    - Perennial freshwater stream
    - **16768** - Big Creek at FM 1810 upstream of Lake Bridgeport
        - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0811A is a fourth order stream at its most downstream end. There is very limited flow data available in this segment. 39% of the data were reported at normal flow severities, 30% were at low flows, and 12% at dry and no flow conditions.

Land Use and Natural Characteristics

It lies within the Western Cross Timbers ecoregion. The watershed around this stream is predominately rural with grassland and forested areas being the major land uses.

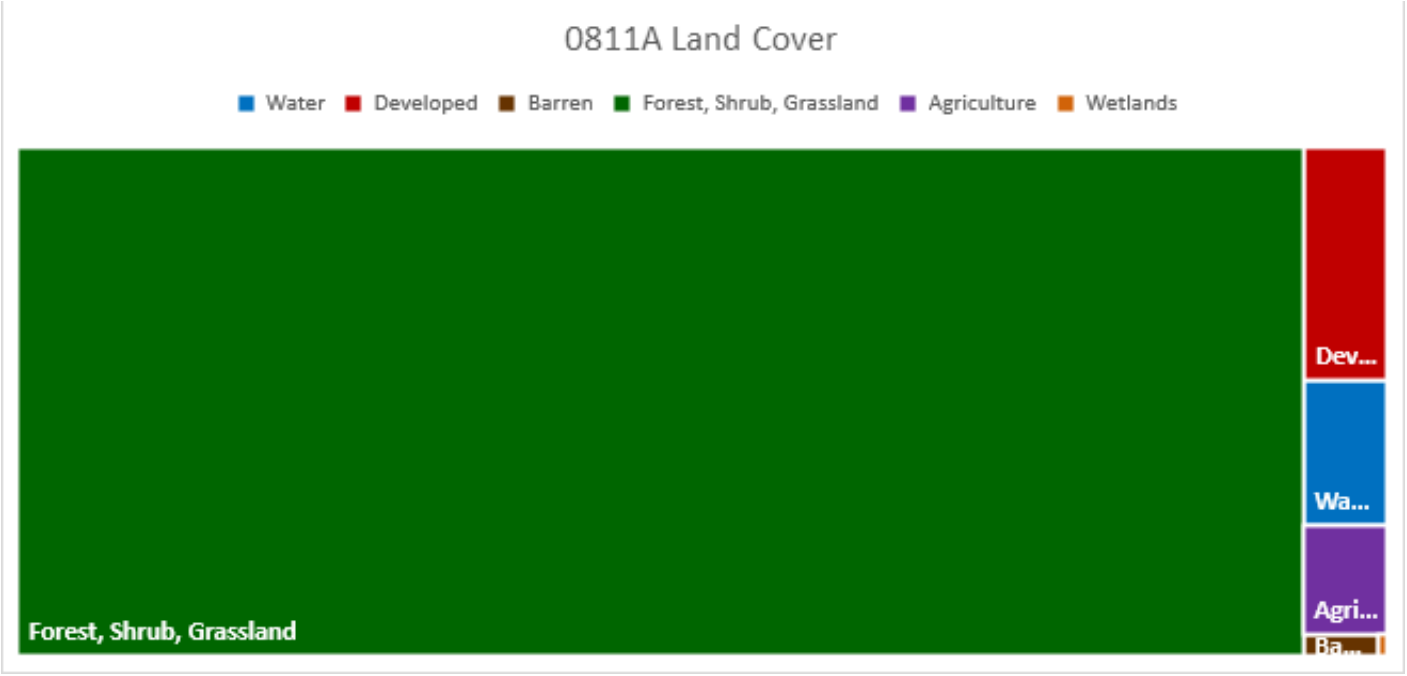

Figure 90: 0811A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 17 samples had a geometric mean of 638.55 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 5/8/2015 to 10/29/2020 at station 16768. There were 21 samples with a geometric mean of 701.18 MPN/100 mL. Values ranged from 6 to 17000 MPN/100 mL and 85.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0811B - Beans Creek

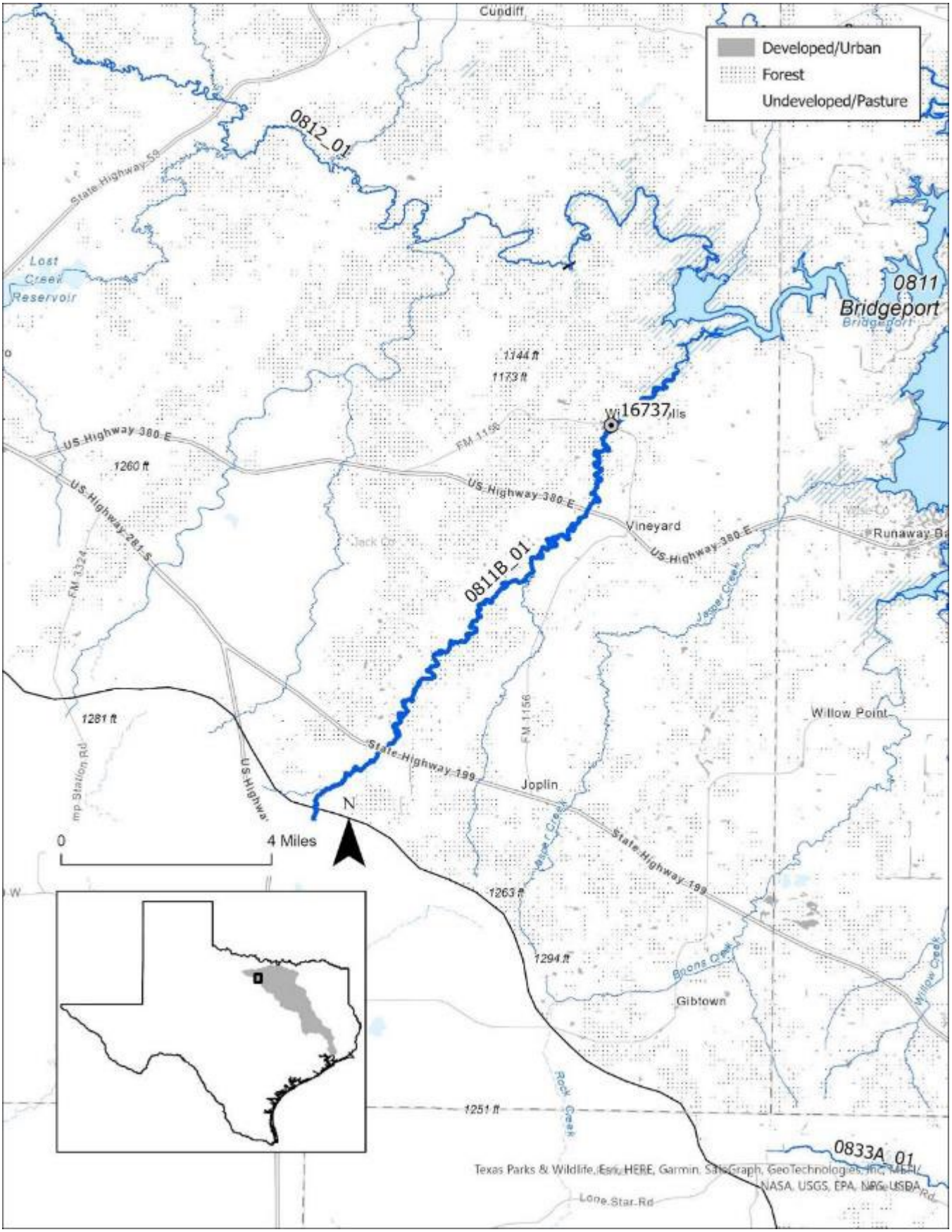

Figure 91: Map of Segment 0811B

Figure 92: Beans Creek at FM 1156 in Wizard Wells. Photo courtesy of Tarrant Regional Water District.

Segment Description

Beans Creek is a perennial stream that runs approximately 19 miles from the headwaters approximately 4.4 km north of Perrin in Jack County to the confluence with Bridgeport Reservoir at normal pool elevation.

Assessment Units and Monitoring Stations

- **0811B_01** - Perennial stream from the confluence with Bridgeport Reservoir at normal pool elevation upstream to the headwaters approximately 4.4 km north of Perrin in Jack County
    - Perennial freshwater stream
    - **16737** - Beans Creek at FM 1156 5.2 kilometers upstream of Bridgeport Lake east of Wizard Wells
        - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0811B is a second order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2014 and 2020, the median was 5.4 cfs with minimum and maximum flows of 0 and 177 cfs. 50% of the data were collected during normal flow severities with 21% collected at low flows and 12% were reported during dry and no flow conditions.

Land Use and Natural Characteristics

It lies within the Western Cross Timbers ecoregion. The watershed is largely rural with the predominate land uses being grassland and forested areas. There are some areas of cultivated crops adjacent to the intersection of the stream and SH114.

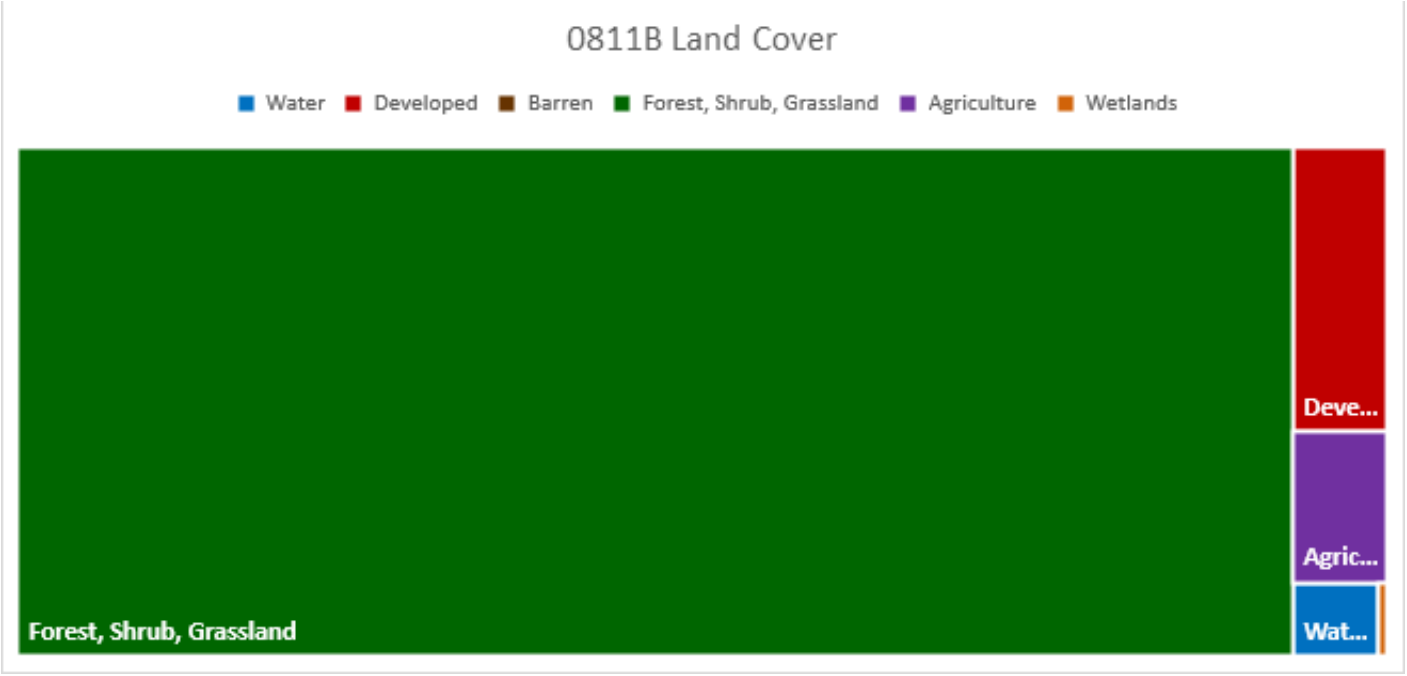

Figure 93: 0811B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 732.96 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 6/23/2014 to 10/29/2020 at station 16737. There were 29 samples with a geometric mean of 693.07 MPN/100 mL. Values ranged from 6 to 23000 MPN/100 mL and 86.2% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Landowners
- Lost Creek Hunting Ranch
- City of Wizard Wells

0812 - West Fork Trinity River Above Bridgeport Reservoir

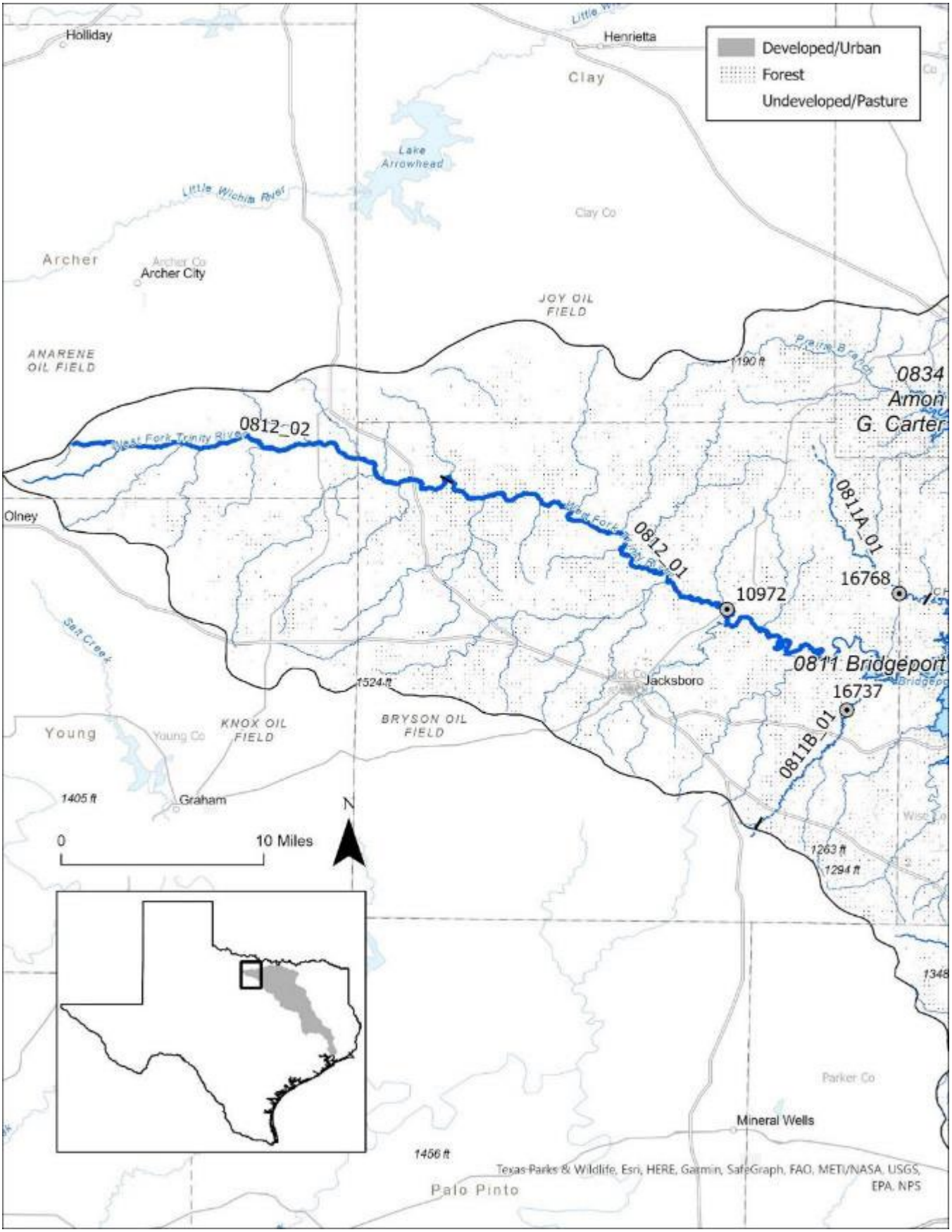

Figure 94: Map of Segment 0812

Figure 95: West Fork Trinity River upstream of SH 59 northeast of Jacksboro

Segment Description

This 97-mile segment begins immediately upstream of the confluence of Bear Hollow in Jack County and continues to State Highway 79 in Archer County.

Assessment Units and Monitoring Stations

- **0812_01** - Lower 25 miles of segment
  - Freshwater stream, intermittent with perennial pools
  - **10972** - West Fork Trinity River 30 meters downstream of SH 59 northeast of Jacksboro
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
    - Sampling conducted by TRA from 2016 to 2019
- **0812_02** - Upper 60 miles of segment
  - Freshwater stream, intermittent with perennial pools

Hydrology

Segment 0812 is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08042800 near Jacksboro. The median flow over this period of record was 1.34 cfs with minimum and maximum flows of 0 to 14,800 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 0.87 cfs
- Index Period – 6.47 cfs

- Critical Period – 0.51 cfs

Land Use and Natural Characteristics

Segment 0812 has its headwaters in the Broken Red Plains and flows into the Western Cross Timbers. The vast majority of this segment is rural with the predominant land use being grassland.

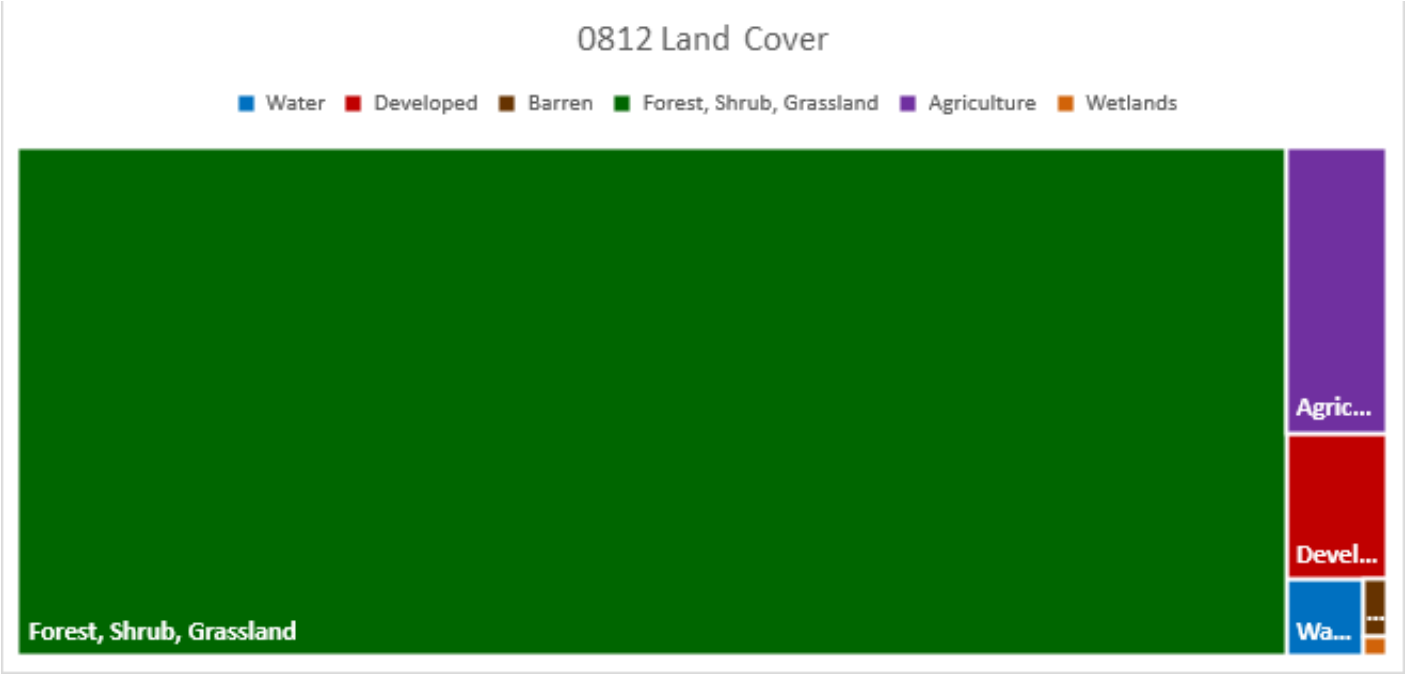

Figure 96: 0812 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.

Description of Water Quality Issue

Assessment unit 0812_01 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2016. Based on the 2020 Integrated Report, 28 samples had a geometric mean of 664.43 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 4/15/2013 to 10/29/2020 at station 10972. There were 36 samples with a geometric mean of 850.03 MPN/100 mL. Values ranged from 12 to 37000 MPN/100 mL and 83.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- Shady Trell Ranch
- Squaw Mountain Ranch

0814 - Chambers Creek Above Richland-Chambers Reservoir

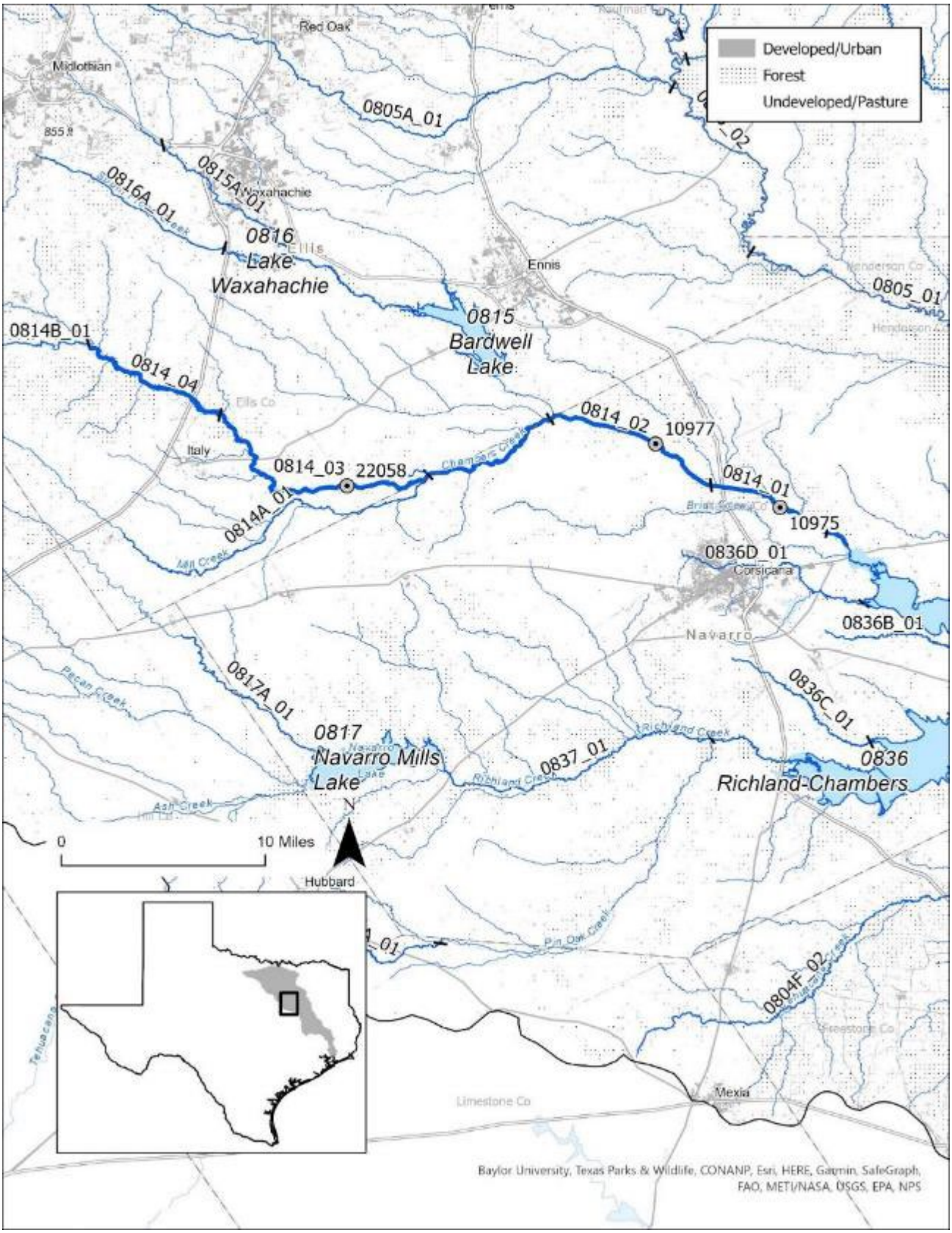

Figure 97: Map of Segment 0814

Segment Description

This 50-mile segment runs from the confluence of the North Fork Chambers Creek and South Fork Chambers Creek to a point 2.5 miles downstream of Tupelo Branch in Navarro County.

Assessment Units and Monitoring Stations

- **0814_01** - From the lower end of the segment up to just above the confluence with Cummins Creek
  - Perennial freshwater stream
  - **10975** - Chambers Creek at FM 3041
    - Sampling conducted by TCEQ from 2013 to 2022
- **0814_02** - From just above the confluence with Cummins Creek up to just above the confluence with Waxahachie Creek
  - Perennial freshwater stream
  - **10977** - Chambers Creek at FM 1126
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0814_03** - From just above the confluence with Waxahachie Creek up to just above the confluence with Mill Branch
  - Perennial freshwater stream
  - **22058** - Chambers Creek at Ellis County Road 55 east of Italy
    - Sampling conducted by Tarrant Regional Water District from 2019 to 2022
- **0814_04** - From just above the confluence with Mill Branch to the upper end of the segment
  - Perennial freshwater stream

Hydrology

Segment 0814 is a fourth order stream at its most downstream end. There are two USGS flow gages in this segment with data covering the period from 2013 to 2021: 08063562 near Avalon and 08064100 near Rice. The median flow over this period of record was 31.9 cfs at the upstream Avalon gage and 25.2 cfs at the downstream Rice gage with minimum and maximum flows of 0 to 25,900 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these gages are listed below.

- Non-Index Period – 19.5 and 15.2 cfs
- Index Period – 123 and 151 cfs
- Critical Period – 7.61 and 9.12 cfs

Land Use and Natural Characteristics

The upper portion of the stream drains mostly grassland and forest to the south and grass and crop lands to the north. The lower portion of the stream flows through mostly crop land to the north, and hay, pasture, and grassland to the south. It flows through the Northern Blackland Prairie ecoregion.

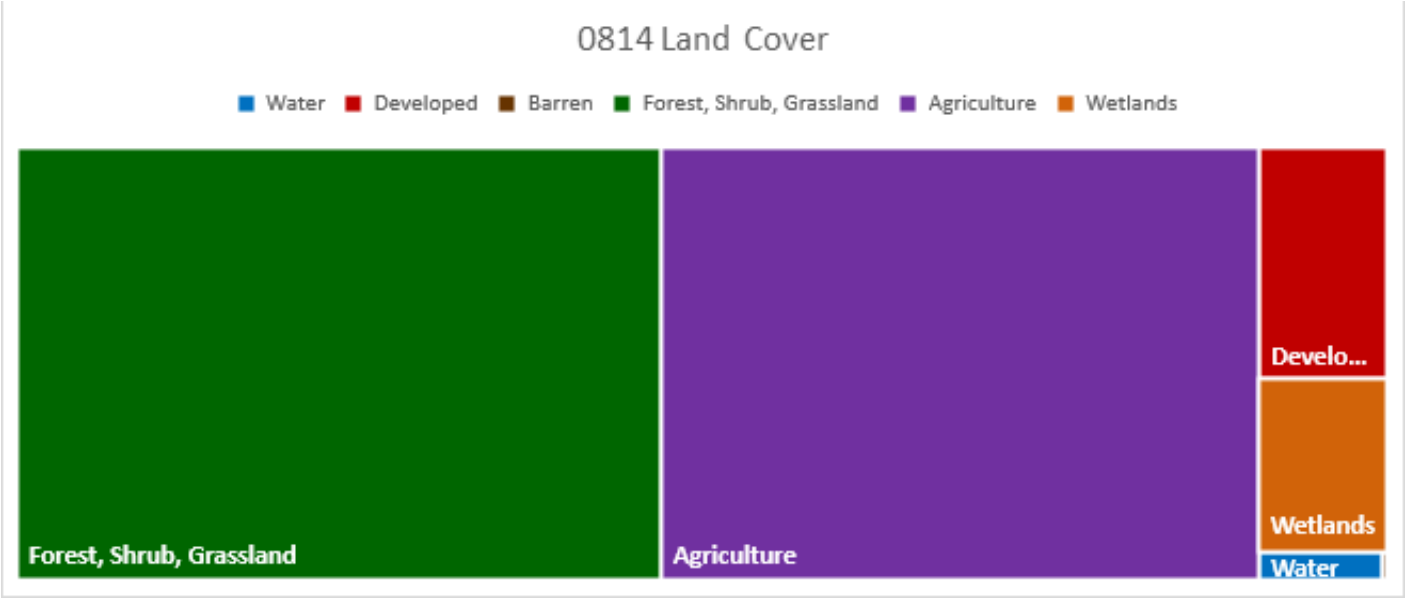

Figure 98: 0814 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and Tarrant Regional Water District.
- Richland-Chambers Water Quality Initiative.

Description of Water Quality Issue

Assessment unit 0814_02 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 28 samples had a geometric mean of 749.85 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 11/17/2020 at station 10977. There were 53 samples with a geometric mean of 451.48 MPN/100 mL. Values ranged from 0.5 to 24000 MPN/100 mL and 64.2% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing wastewater infrastructure.
- Improperly functioning wastewater treatment facilities.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Wastewater infrastructure inspection and repair.
- Sampling upstream and downstream of wastewater treatment facilities to determine if they are operating properly.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Landowners
- City of Forreston

0815A - Waxahachie Creek

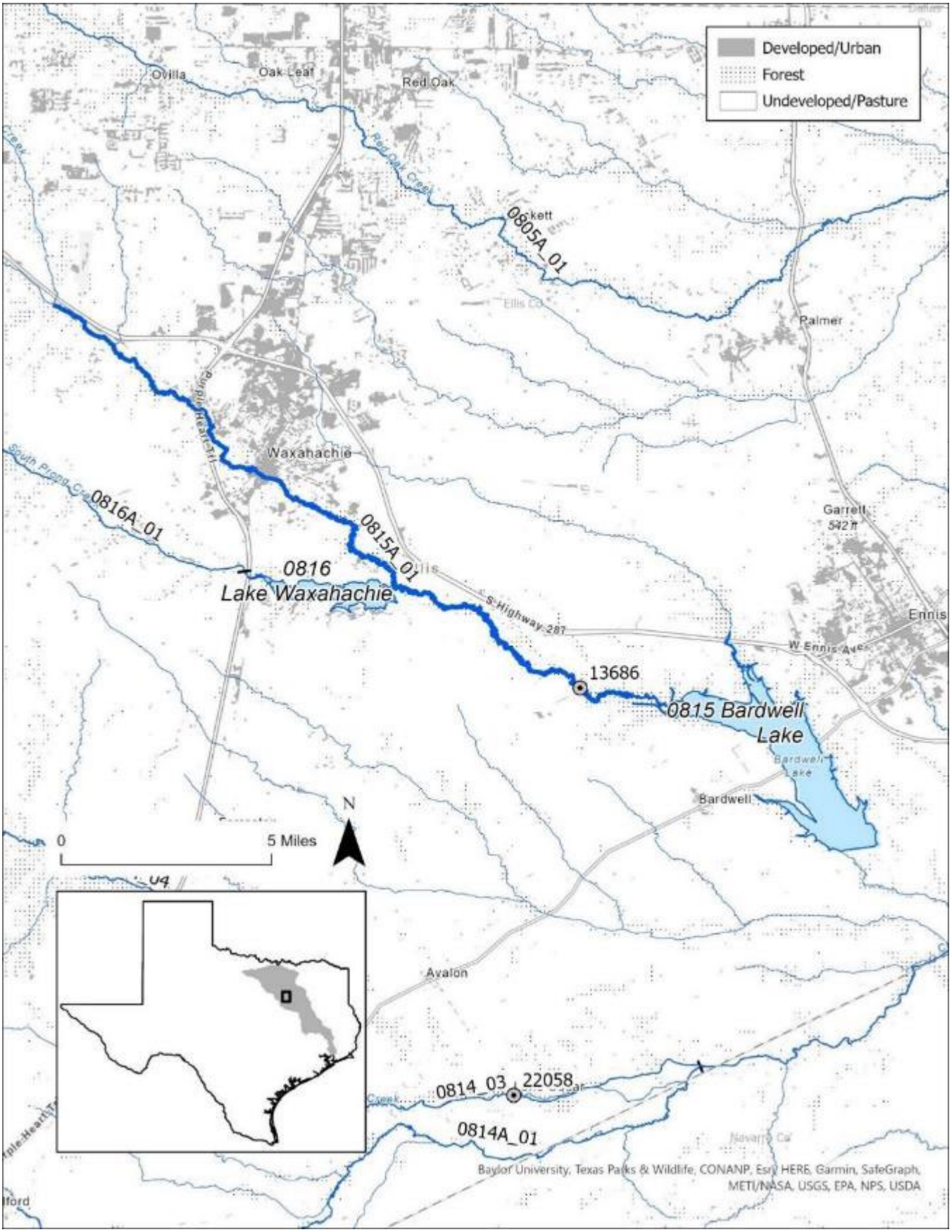

Figure 99: Map of Segment 0815A

Segment Description

This 24.2-mile unclassified segment runs from the confluence with North Prong Creek to the confluence with the normal pool elevation of Bardwell Reservoir.

Assessment Units and Monitoring Stations

- **0815A_01** - From the confluence with the normal pool elevation of Bardwell Reservoir upstream to the confluence with North Prong Creek
  - Perennial freshwater stream
  - **13686** - Waxahachie Creek at Gelzendaner Road
    - Sampling conducted by TRA from 2020 to 2022

Hydrology

Unclassified segment 0815A is a second order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08063590 at Waxahachie. The median flow over this period of record was 11.7 cfs with minimum and maximum flows of 0 and 3,780 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 10.5 cfs
- Index Period – 28.2 cfs
- Critical Period – 1.45 cfs

Land Use and Natural Characteristics

The upper portion of the stream drains the developed areas in the cities of Midlothian and Waxahachie. Between these two cities, the watershed is a mix of grass, hay, pasture, and crop land. Downstream of Waxahachie, the watershed is largely crop land. The stream flows through the Northern Blackland Prairie ecoregion.

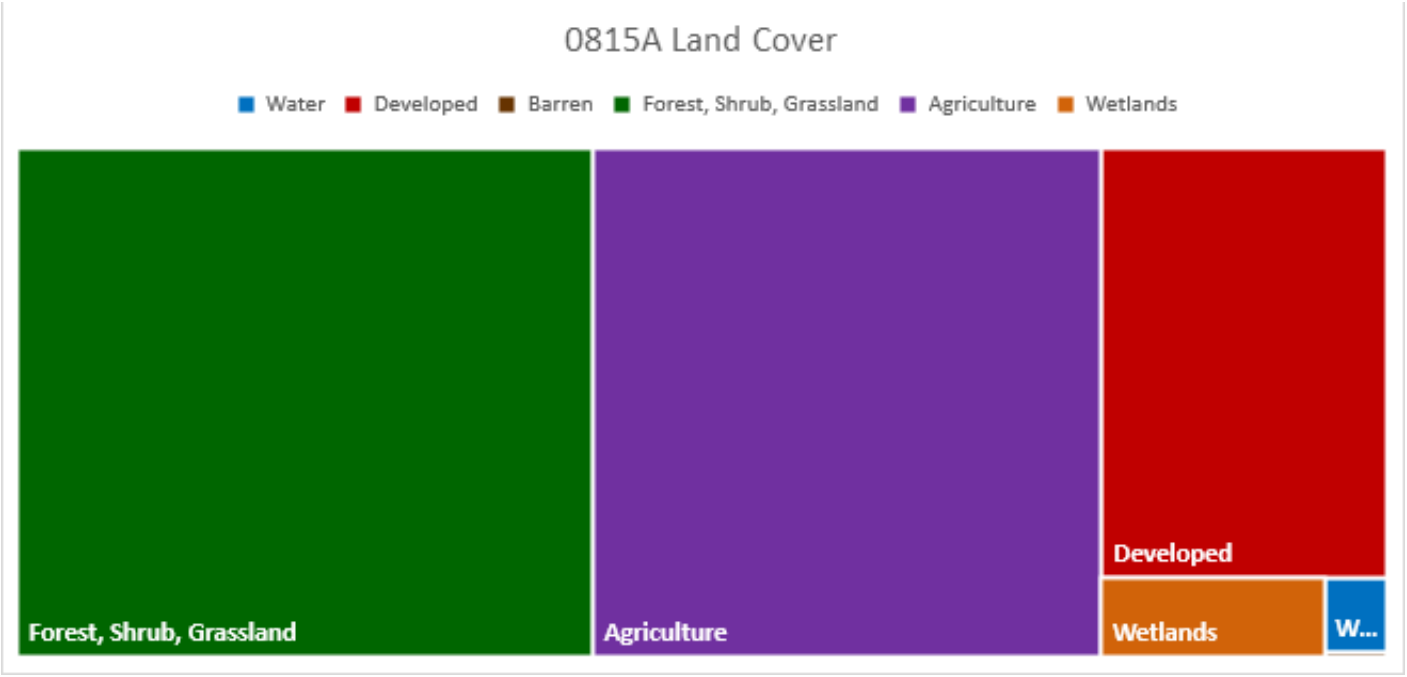

Figure 100: 0815A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA.
- Richland-Chambers Water Quality Initiative.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, eight samples had a geometric mean of 187.21 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 11/10/2016 to 10/12/2020 at station 13686. There were 17 samples with a geometric mean of 132.07 MPN/100 mL. Values ranged from 16 to 480 MPN/100 mL and 58.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- City of Waxahachie

0818B - Cedar Creek above Cedar Creek Reservoir

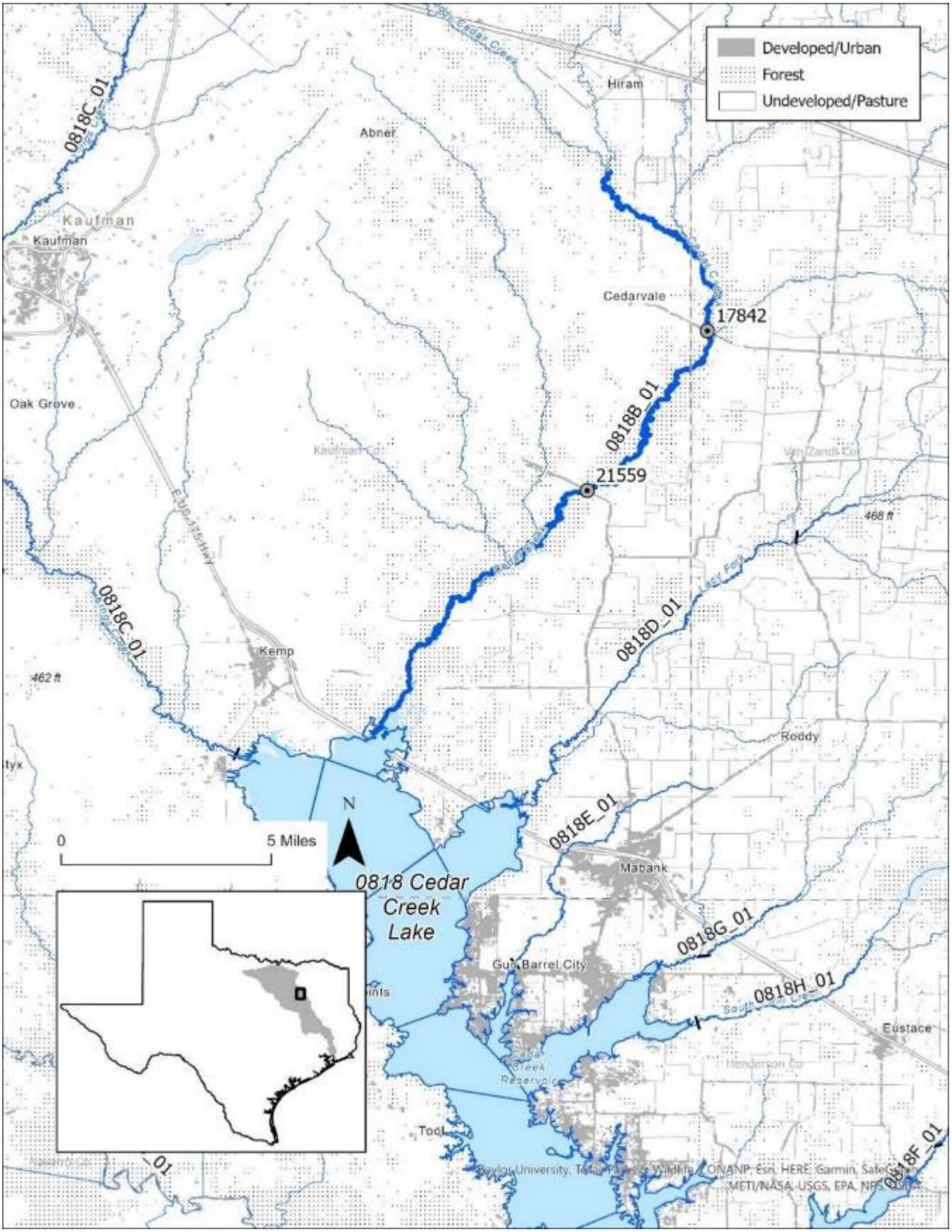

Figure 101: Map of Segment 0818B

Segment Description

This 32.4-mile unclassified segment runs from the confluence of Muddy Cedar Creek and Rocky Cedar Creek in Kaufman County to the confluence with Cedar Creek Reservoir at normal pool elevation upstream.

Assessment Units and Monitoring Stations

- **0818B_01** - From the confluence with Cedar Creek Reservoir at normal pool elevation upstream to the confluence of Muddy Cedar Creek and Rocky Cedar Creek in Kaufman County
  - Perennial freshwater stream
  - **17842** - Cedar Creek at FM 243 southeast of Cedarvale
    - Sampling conducted by Tarrant Regional Water District in 2013
  - **21559** - Cedar Creek at FM 1836 northeast of Kemp
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0818B is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08062800 near Kemp. The median flow over this period of record was 6.46 cfs with minimum and maximum flows of 0 and 9,720 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 6.34 cfs
- Index Period – 21.7 cfs
- Critical Period – 1.28 cfs

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along the stream. It drains the Northern Post Oak Savanna ecoregion.

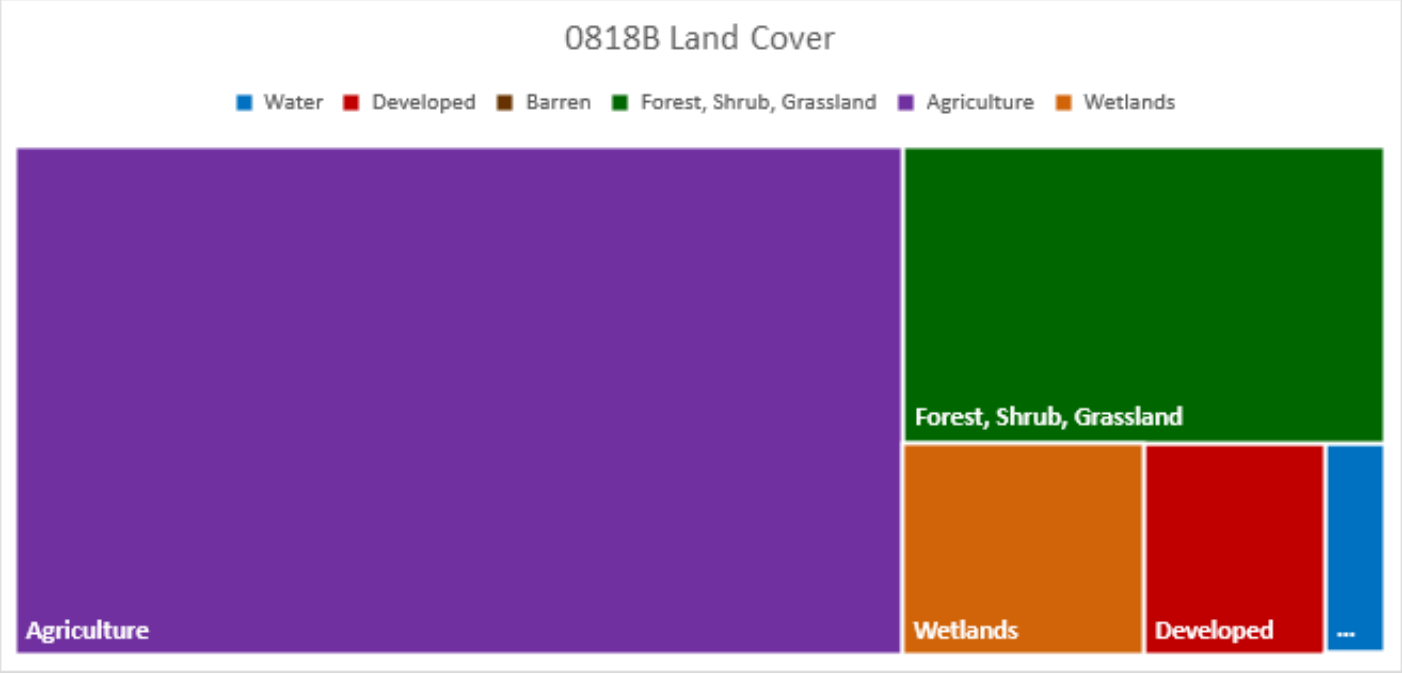

Figure 102: 0818B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2018. Based on the 2020 Integrated Report, 26 samples had a geometric mean of 1,403.19 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 10/27/2020 at stations 17842 and 21559. There were 49 samples with a geometric mean of 1,393.83 MPN/100 mL. Values ranged from 74 to 24000 MPN/100 mL and 93.9% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0818C - Kings Creek

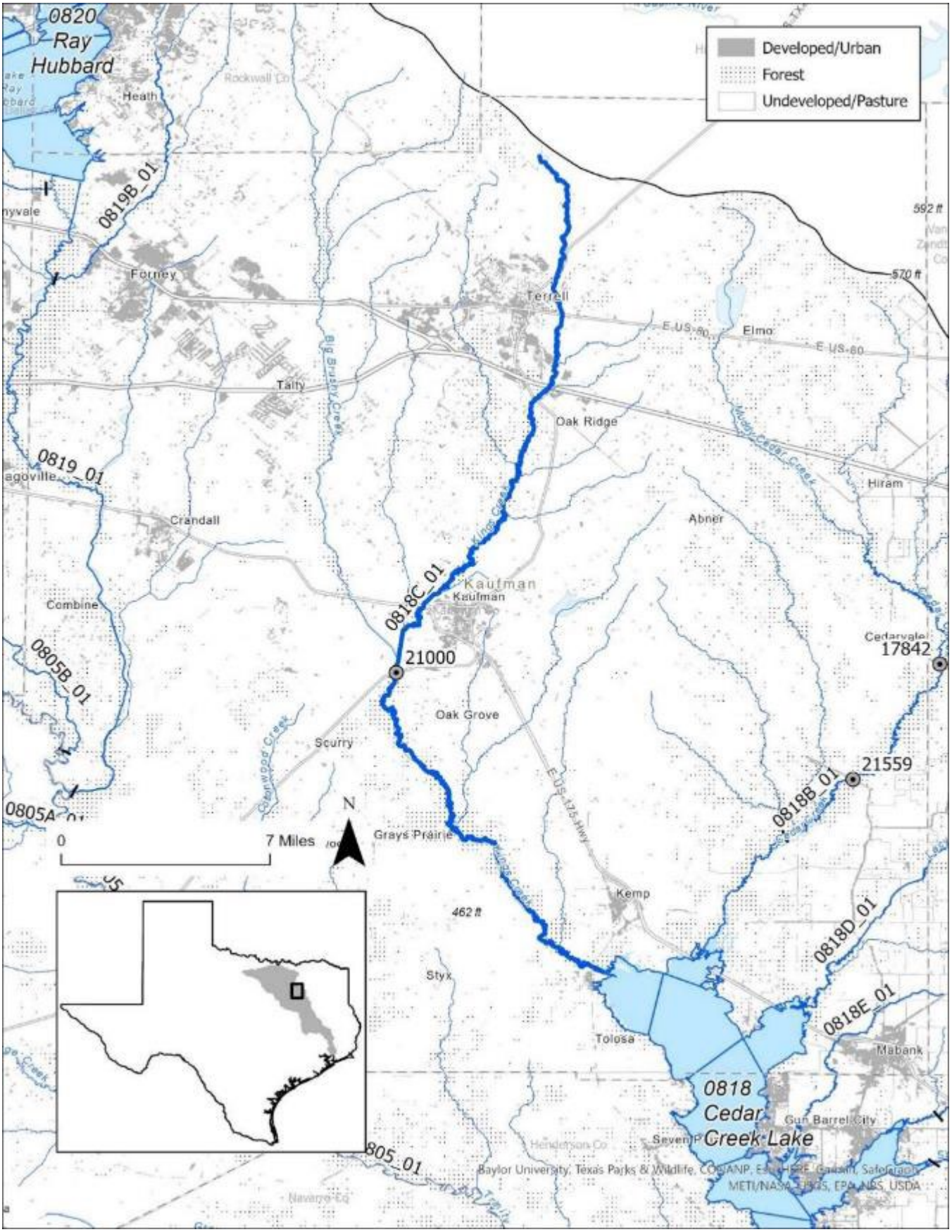

Figure 103: Map of Segment 0818C

Figure 104: Kings Creek at Highway 175 west of Kaufman. Photo courtesy of Tarrant Regional Water District.

Segment Description

This 46.5-mile unclassified segment runs from the headwaters adjacent to FM 986 approximately 5 km north of Terrell in Kaufman County to the confluence with Cedar Creek Reservoir at normal pool elevation upstream.

Assessment Units and Monitoring Stations

- **0818C_01** - From the confluence with Cedar Creek Reservoir at normal pool elevation upstream to the headwaters adjacent to FM 986 approximately 5 km north of Terrell in Kaufman County
    - Freshwater stream, intermittent with perennial pools
    - **21000** - Kings Creek at SH34 upstream of Cedar Creek Reservoir southwest of Kaufman 3.44 kilometers southwest on SH34 from US175
        - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0818C is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08062895 near Kaufman. The median flow over this period of record was 8.5 cfs with minimum and maximum flows of 0 and 10,000 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 10.8 cfs
- Index Period – 16 cfs
- Critical Period – 2.73 cfs

Land Use and Natural Characteristics

A majority of the watershed is rural with pasture and hay land being the predominate land use. There are a few crop fields located toward the middle of the watershed and some development around the cities of Terrell, Kaufman, and Kemp. The stream flows through the Northern Blackland Prairie ecoregion.

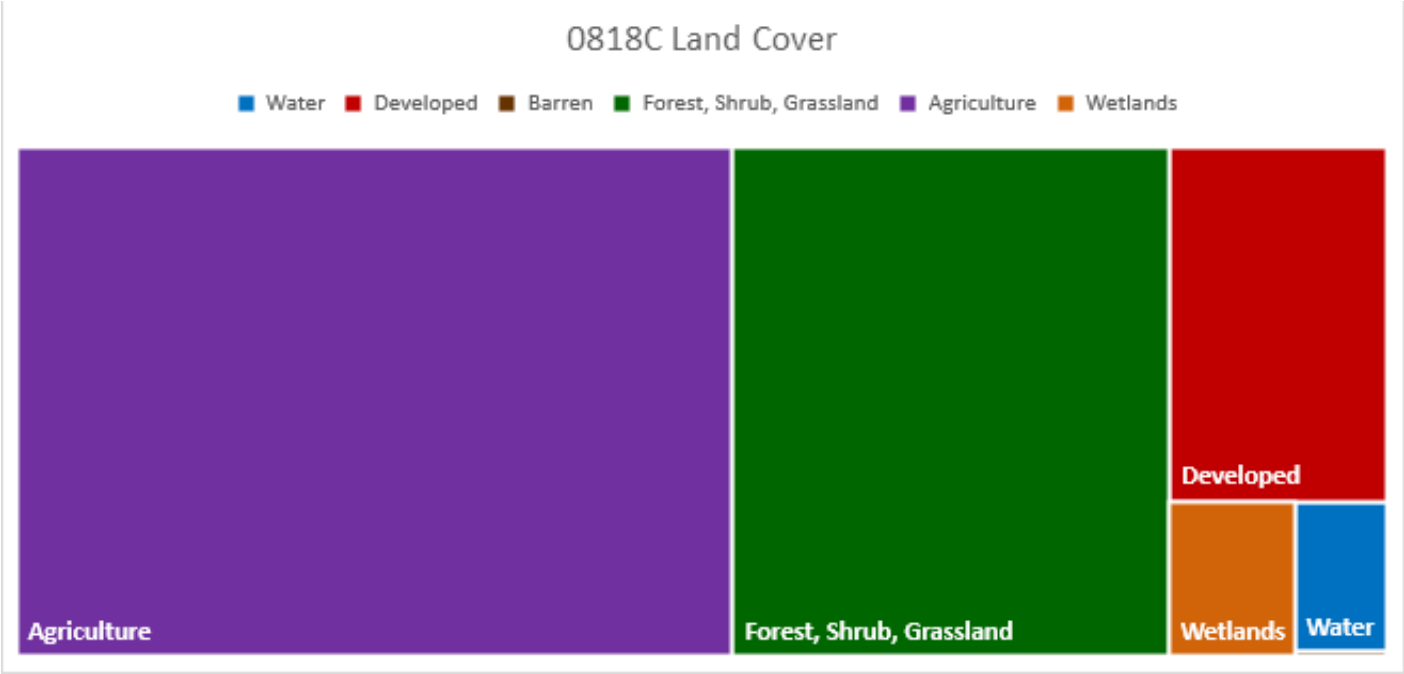

Figure 105: 0818C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2018. Based on the 2020 Integrated Report, 27 samples had a geometric mean of 1,137.63 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 11/17/2020 at station 21000. There were 48 samples with a geometric mean of 936.98 MPN/100 mL. Values ranged from 16 to 24000 MPN/100 mL and 83.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Poetry Water Supply Corporation
- Tawakoni Balancing Reservoir
- Landowners
- City of Terrel
- Terrel Texas Municipal Airport
- Homeowners and HOA's
- City of Post Oak Bend
- City of Kaufman

0818D - Lacy Fork

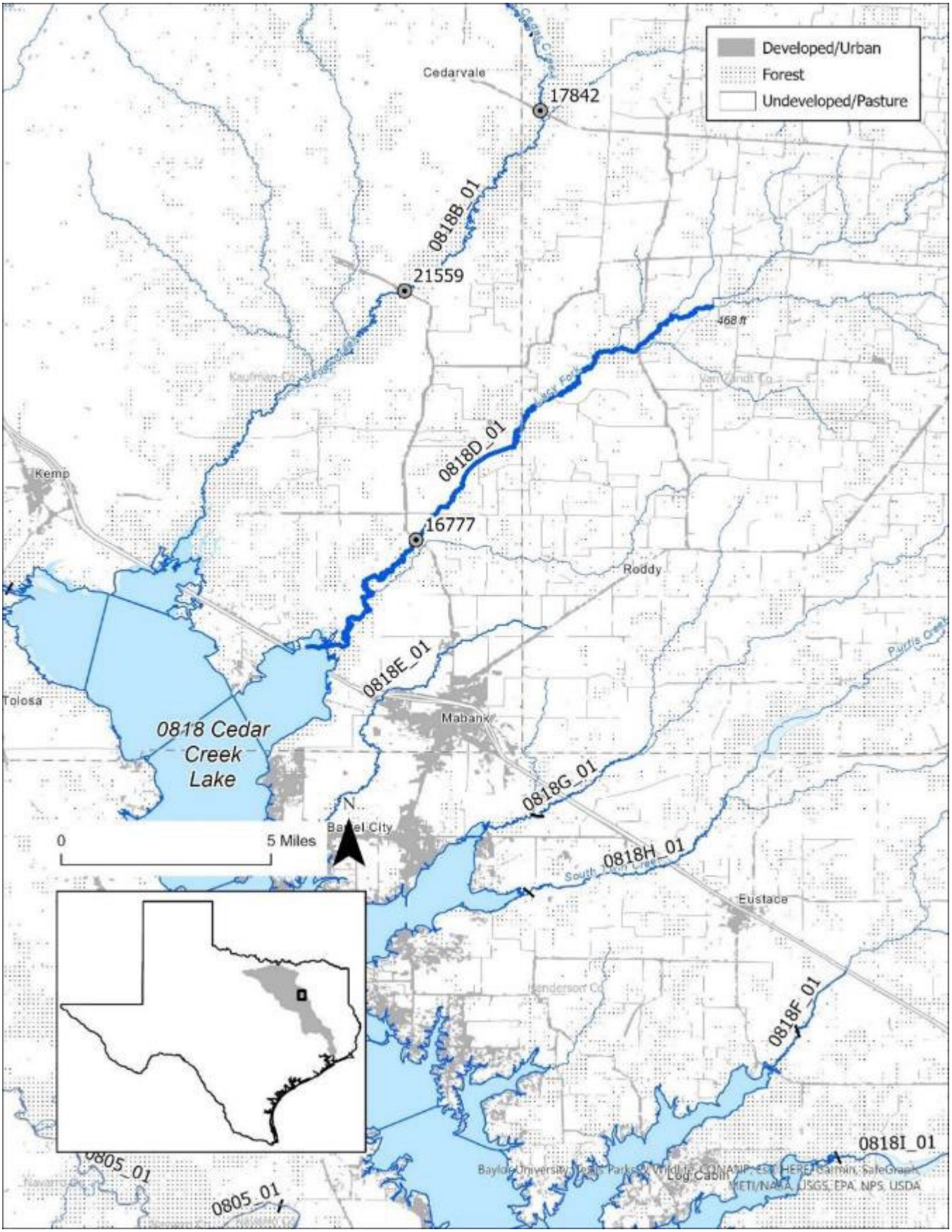

Figure 106: Map of Segment 0818D

Segment Description

This 18.2-mile unclassified segment runs from the confluence of Dry Lacy Fork and Wet Lacy Fork in Van Zandt County to the confluence with Cedar Creek Reservoir at normal pool elevation.

Assessment Units and Monitoring Stations

- **0818D_01** - From the confluence with Cedar Creek Reservoir at normal pool elevation upstream to the confluence of Dry Lacy Fork and Wet Lacy Fork in Van Zandt County
    - Freshwater stream, intermittent with perennial pools
    - **16777** - Lacy Fork Creek 25 meters upstream of FM 90 5.9 kilometers upstream of Cedar Creek Reservoir
        - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

Hydrology

Unclassified segment 0818D is a third order stream at its most downstream end. There are no flow data available for this segment. Based on flow severity values, 69% of the data were collected during low flow, dry, and no flow conditions.

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along portions of the stream. It drains the Northern Post Oak Savanna ecoregion.

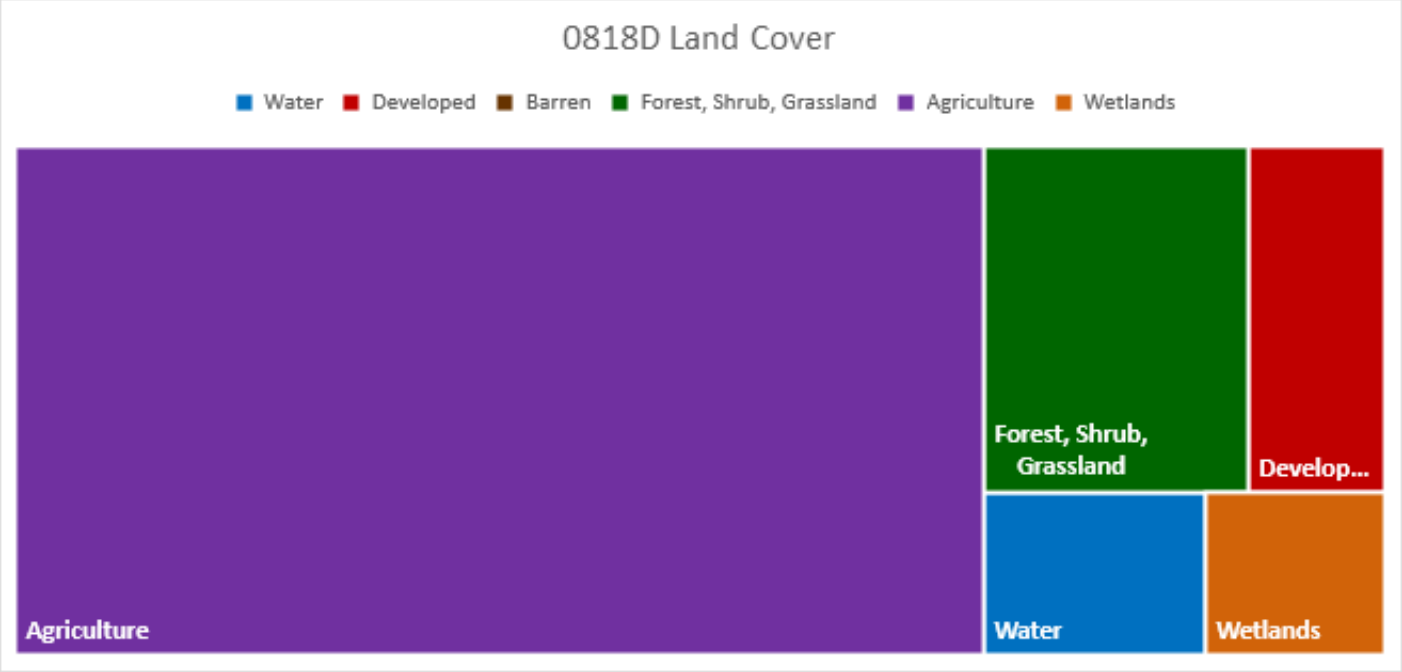

Figure 107: 0818D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 17 samples had a geometric mean of 1,263.50 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 10/27/2020 at station 16777. There were 27 samples with a geometric mean of 1,171.97 MPN/100 mL. Values ranged from 32 to 24000 MPN/100 mL and 96.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0818F - Clear Creek

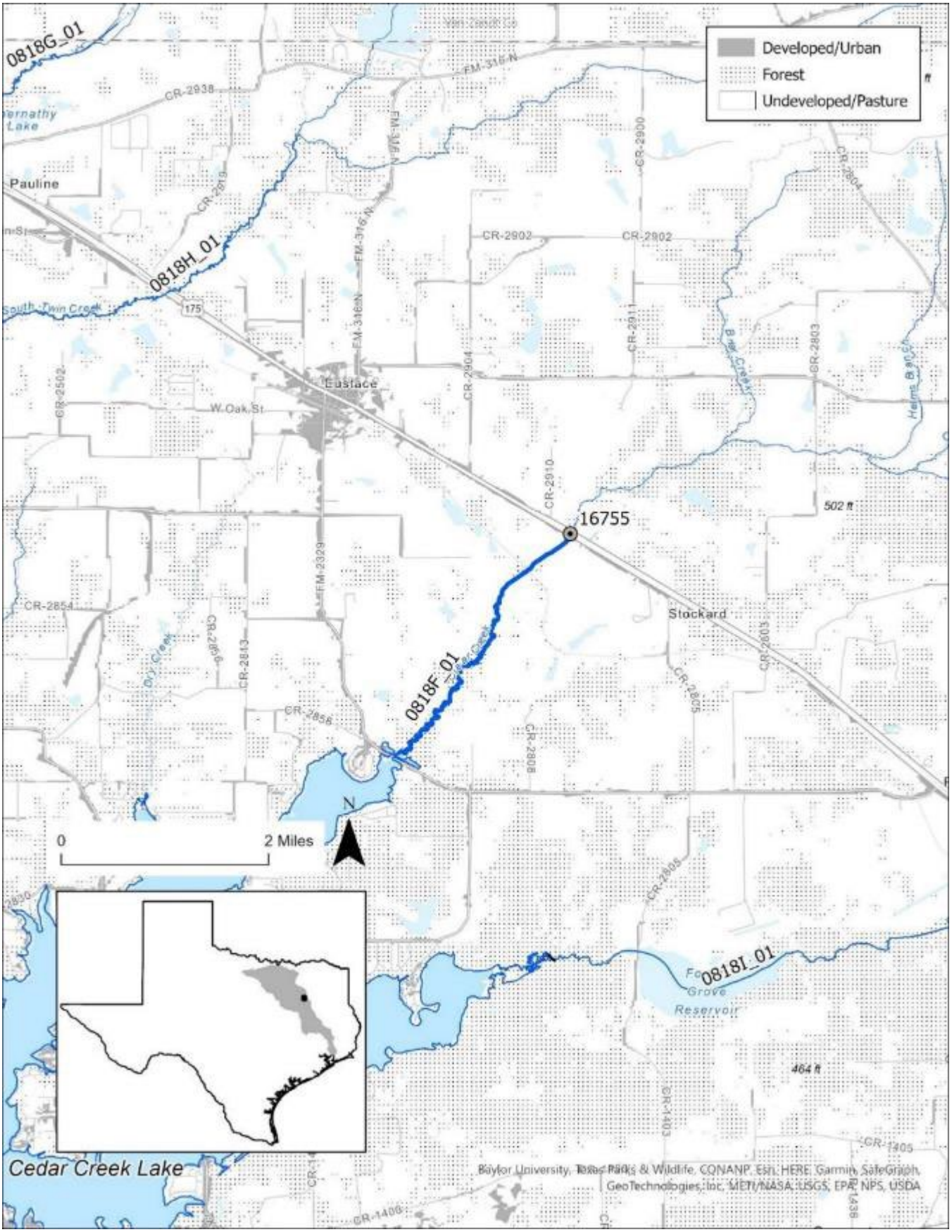

Figure 108: Map of Segment 0818F

Segment Description

This 3.4-mile unclassified segment runs from US 175 to the confluence with Clear Creek Cove.

Assessment Units and Monitoring Stations

- **0818F_01** - From the confluence with Clear Creek Cove upstream to the north edge of Highway 175
  - Perennial freshwater stream
  - **16755** - Clear Creek at US 175 4.3 kilometers upstream of Cedar Creek Reservoir
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0818F is a second order stream at its most downstream end. There are no flow data available for this segment. Based on flow severity values, 71% of the data were collected during low flow, dry, and no flow conditions.

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along portions of the stream. It drains the Northern Post Oak Savanna ecoregion.

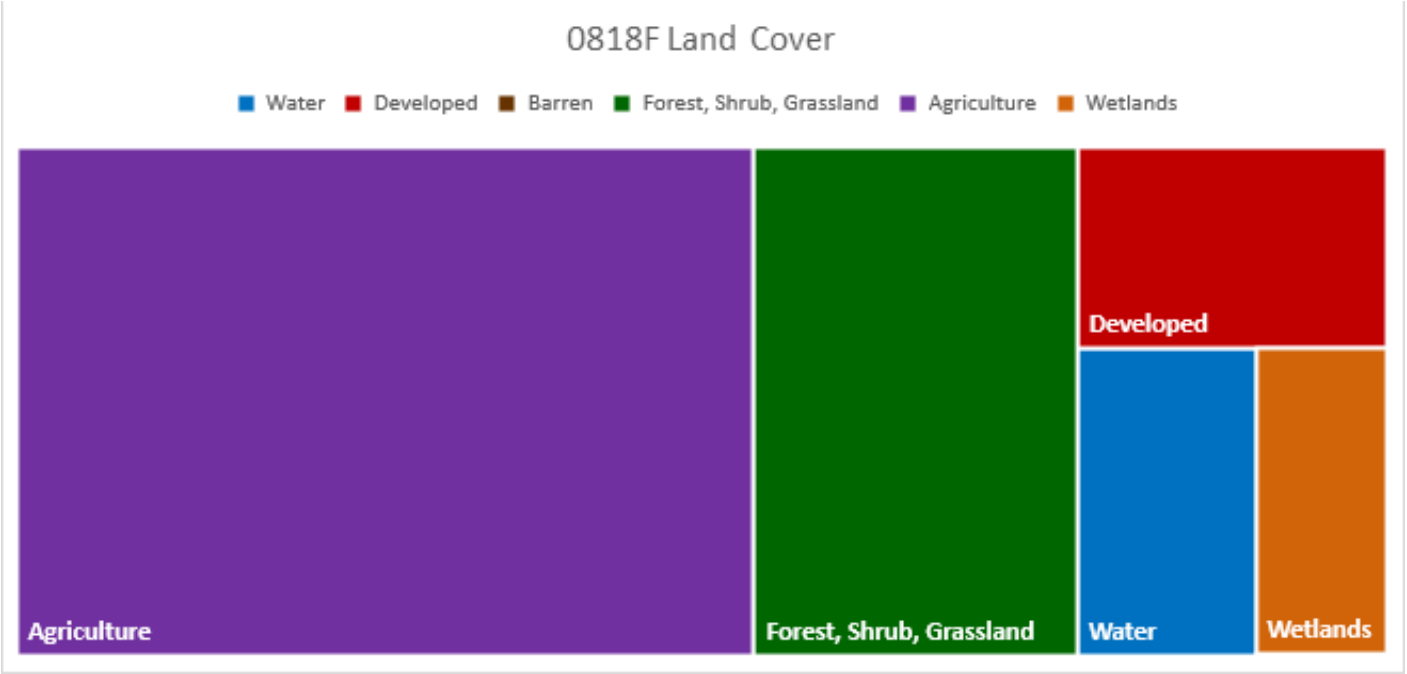

Figure 109: 0818F relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, ten samples had a geometric mean of 2,834.49 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/28/2014 to 9/2/2020 at station 16755. There were 17 samples with a geometric mean of 2,299.67 MPN/100 mL. Values ranged from 160 to 24000 MPN/100 mL and all of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.

- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0818G - North Twin Creek

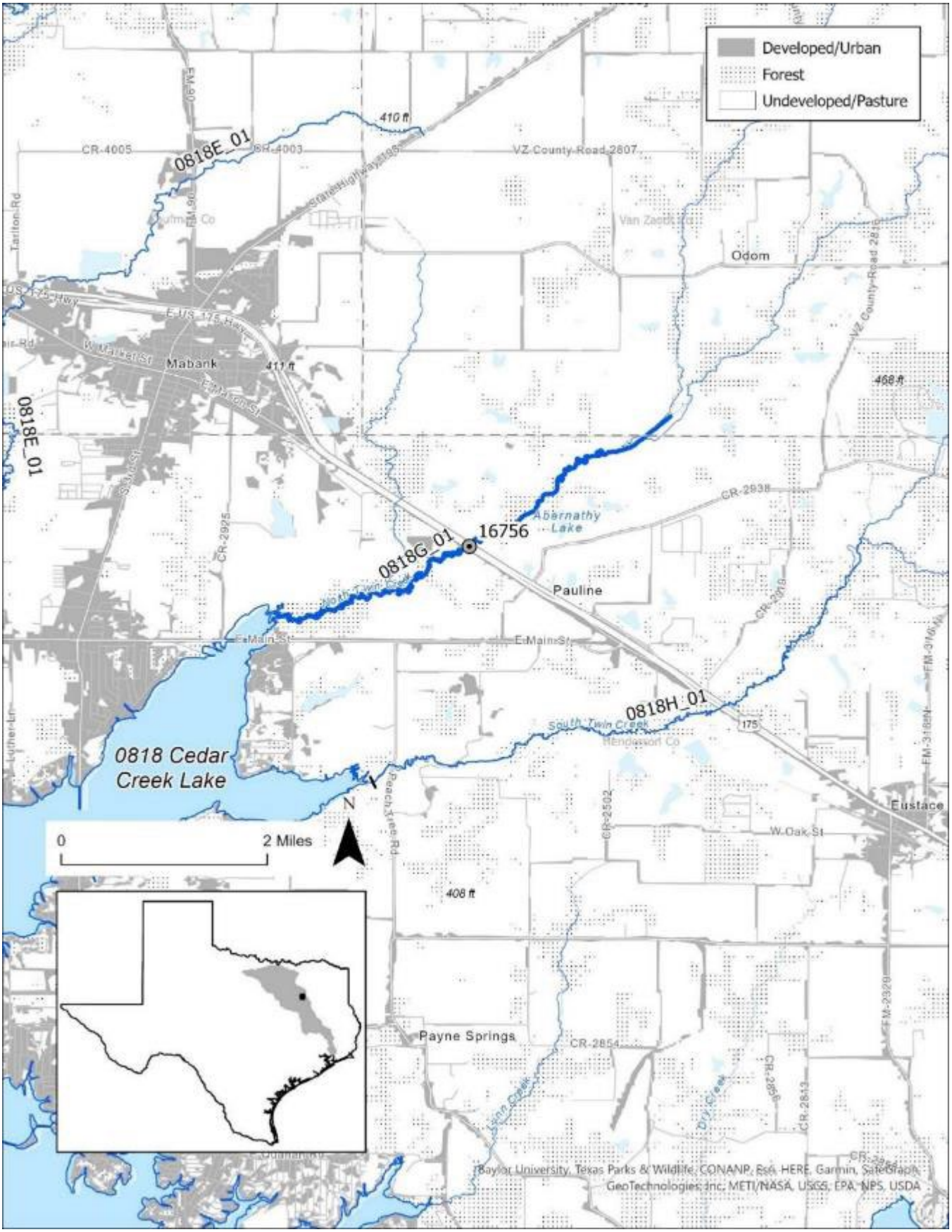

Figure 110: Map of Segment 0818G

Segment Description

This 5.9-mile segment runs from 3 km northeast of the intersection of highway 175 to the confluence with Twin Creeks cove.

Assessment Units and Monitoring Stations

- **0818G_01** - From the confluence with Twin Creeks cove to 3 km northeast of the intersection of Highway 175
  - Perennial freshwater stream
  - **16756** - North Twin Creek at US 175 3.3 kilometers upstream of Cedar Creek Reservoir
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0818G is a second order stream at its most downstream end. There are no flow data available for this segment. Based on flow severity values, 68% of the data were collected during low flow, dry, and no flow conditions.

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along portions of the stream. It drains the Northern Post Oak Savanna ecoregion.

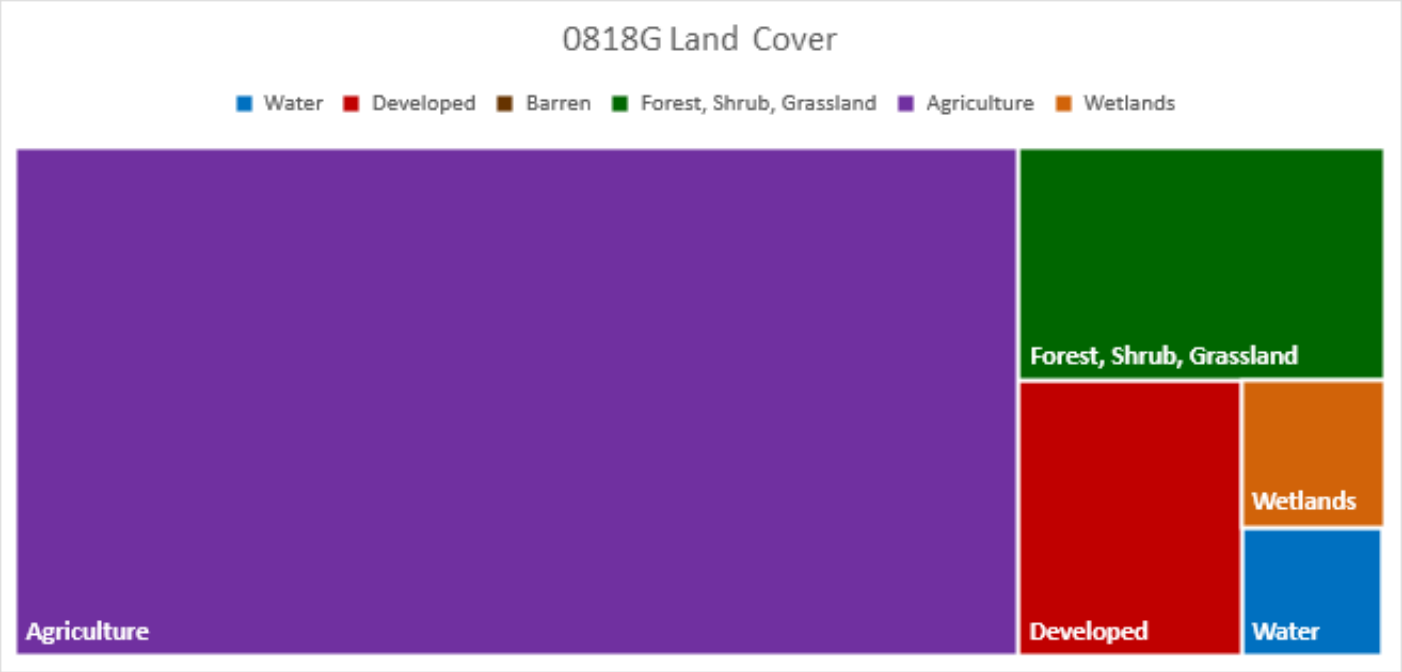

Figure 111: 0818G relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 15 samples had a geometric mean of 2,696.62 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 5/9/2014 to 10/27/2020 at station 16756. There were 23 samples with a geometric mean of 1,882.75 MPN/100 mL. Values ranged from 37 to 24000 MPN/100 mL and 95.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners

0818H - South Twin Creek

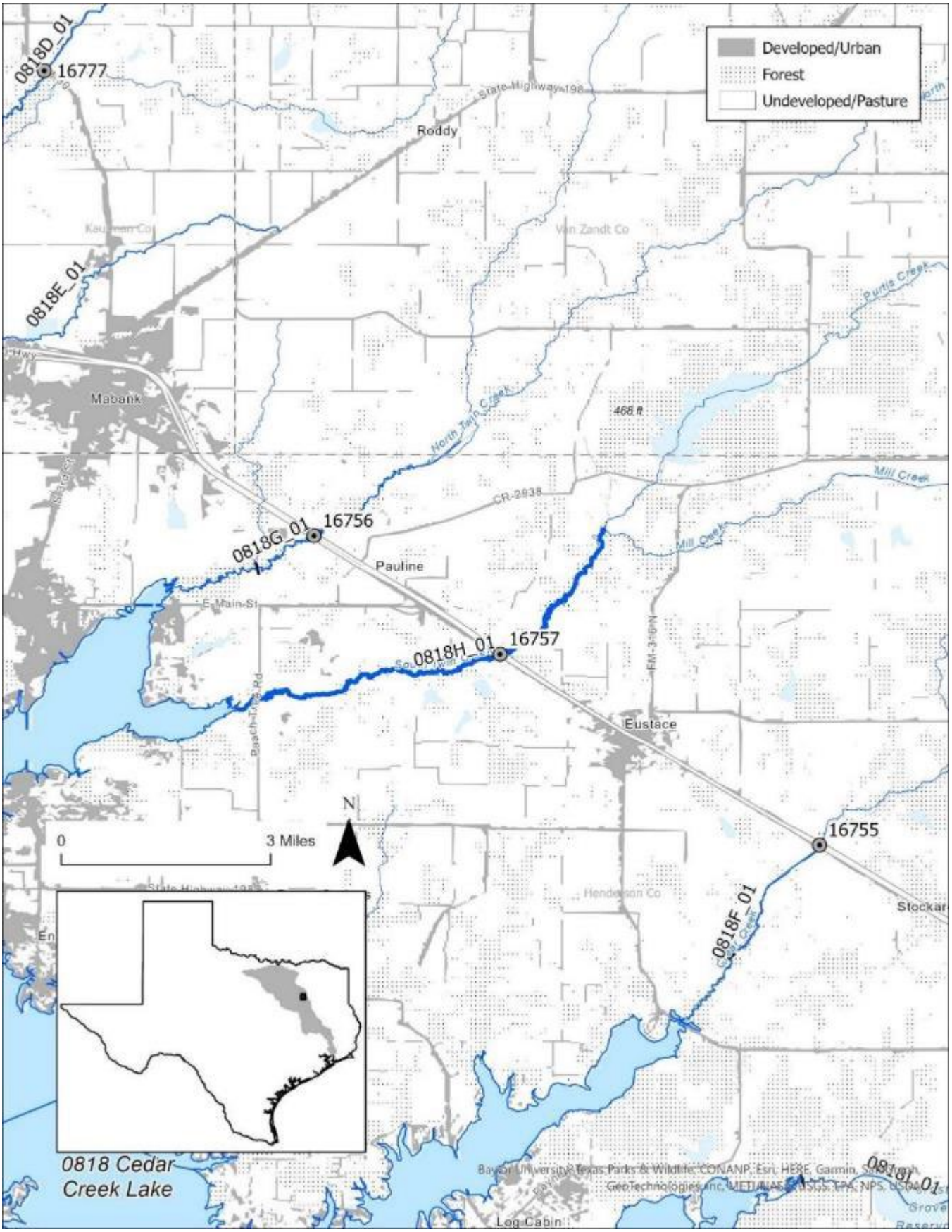

Figure 112: Map of Segment 0818H

Segment Description

This 6.9-mile unclassified segment runs from 3.15 km northeast of where the waterbody intersects highway 175 to the confluence with Twin Creeks cove upstream.

Assessment Units and Monitoring Stations

- **0818H_01** - From the confluence with Twin Creeks cove upstream to 3.15 km northeast of where the waterbody intersects highway 175
  - Perennial freshwater stream
  - **16757** - South Twin Creek at US 175 5.0 kilometers upstream of Cedar Creek Reservoir
    - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0818H is a third order stream at its most downstream end. There are no flow data available for this segment. Based on flow severity values, 71% of the data were collected during low flow, dry, and no flow conditions.

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along portions of the stream. It drains the Northern Post Oak Savanna ecoregion.

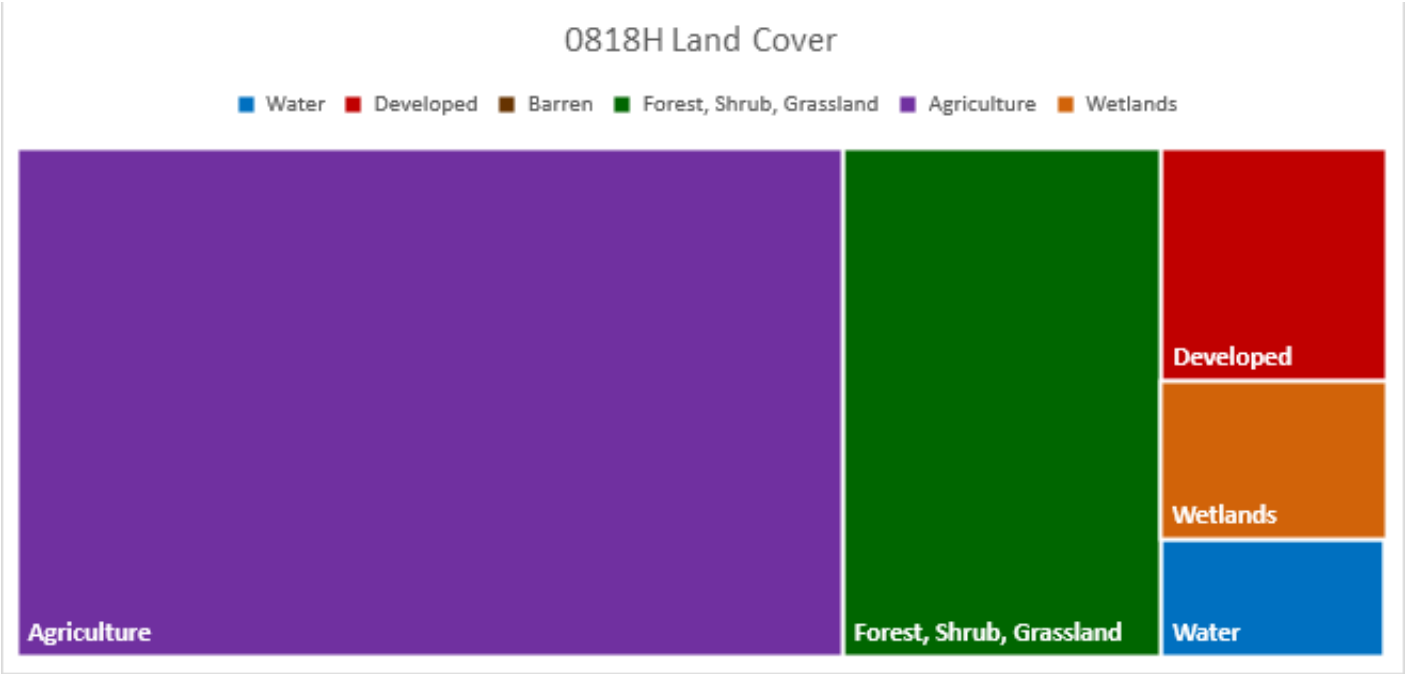

Figure 113: 0818H relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 12 samples had a geometric mean of 1,680.29 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/28/2014 to 7/29/2020 at station 16757. There were 17 samples with a geometric mean of 759.86MPN/100 mL. Values ranged from 120 to 24000 MPN/100 mL and 94.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- City of Eustace

0818I - Caney Creek

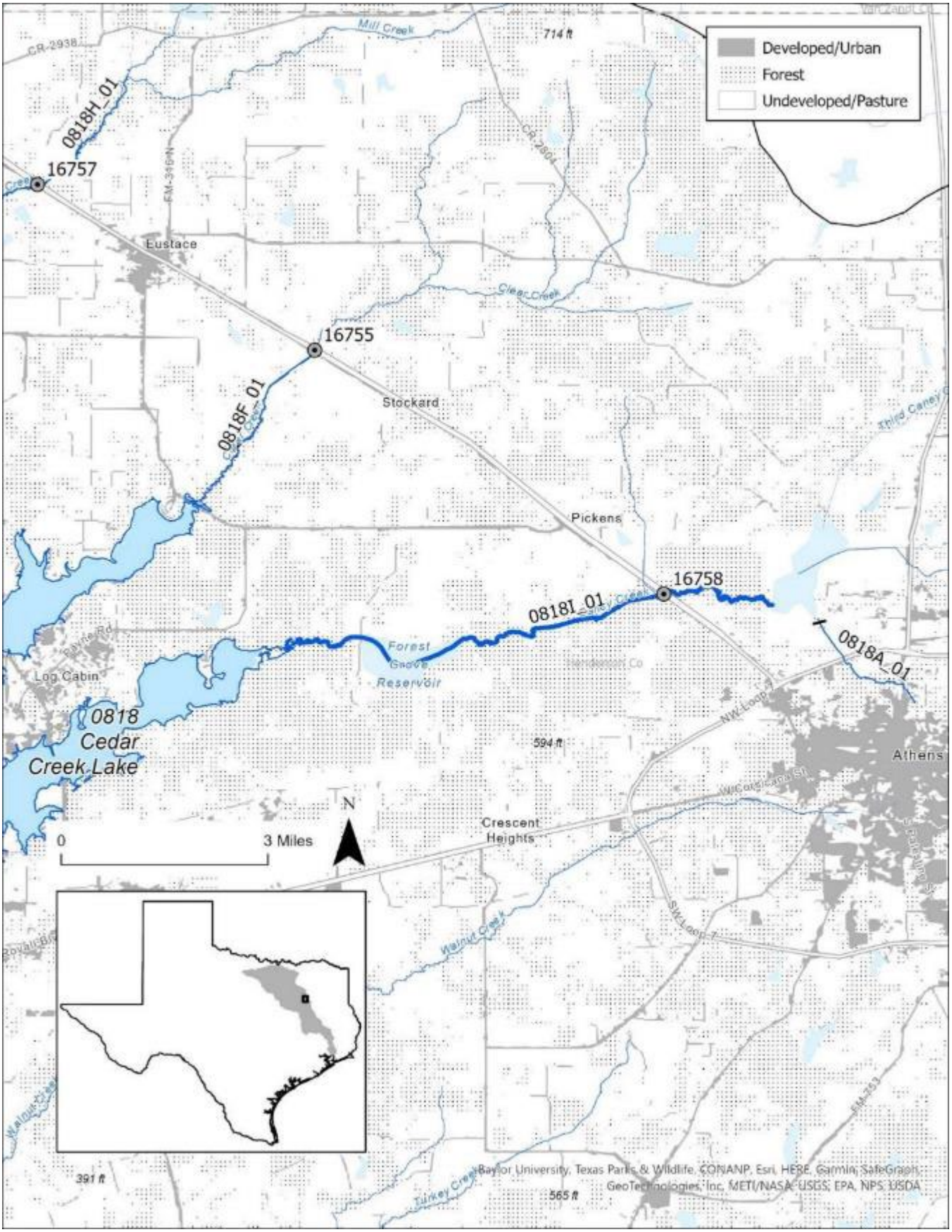

Figure 114: Map of Segment 0818I

Segment Description

This 7.4-mile unclassified segment runs from the dam on Third Caney Creek approximately 1.8 km north of the intersection of SH 7 and US 175 in Athens to the confluence with Cedar Creek Reservoir.

Assessment Units and Monitoring Stations

- **0818I_01** - From the confluence with Cedar Creek Reservoir upstream to the dam on Third Caney Creek approximately 1.8 km north of the intersection of SH 7 and US 175 in Athens
    - Freshwater stream, intermittent with perennial pools
    - **16758** - Caney Creek at US 175 8.4 kilometers upstream of Cedar Creek Reservoir northwest of Athens
        - Sampling conducted by Tarrant Regional Water District from 2014 to 2022

Hydrology

Unclassified segment 0818I is a third order stream at its most downstream end. There are no flow data available for this segment. Based on flow severity values, 62% of the data were collected during low flow, dry, and no flow conditions.

Land Use and Natural Characteristics

A majority of the watershed contains hay and pasture land with woody wetland riparian areas along portions of the stream. There is some development along the outskirts of the City of Athens. Its watershed flows through the Northern Post Oak Savanna ecoregion.

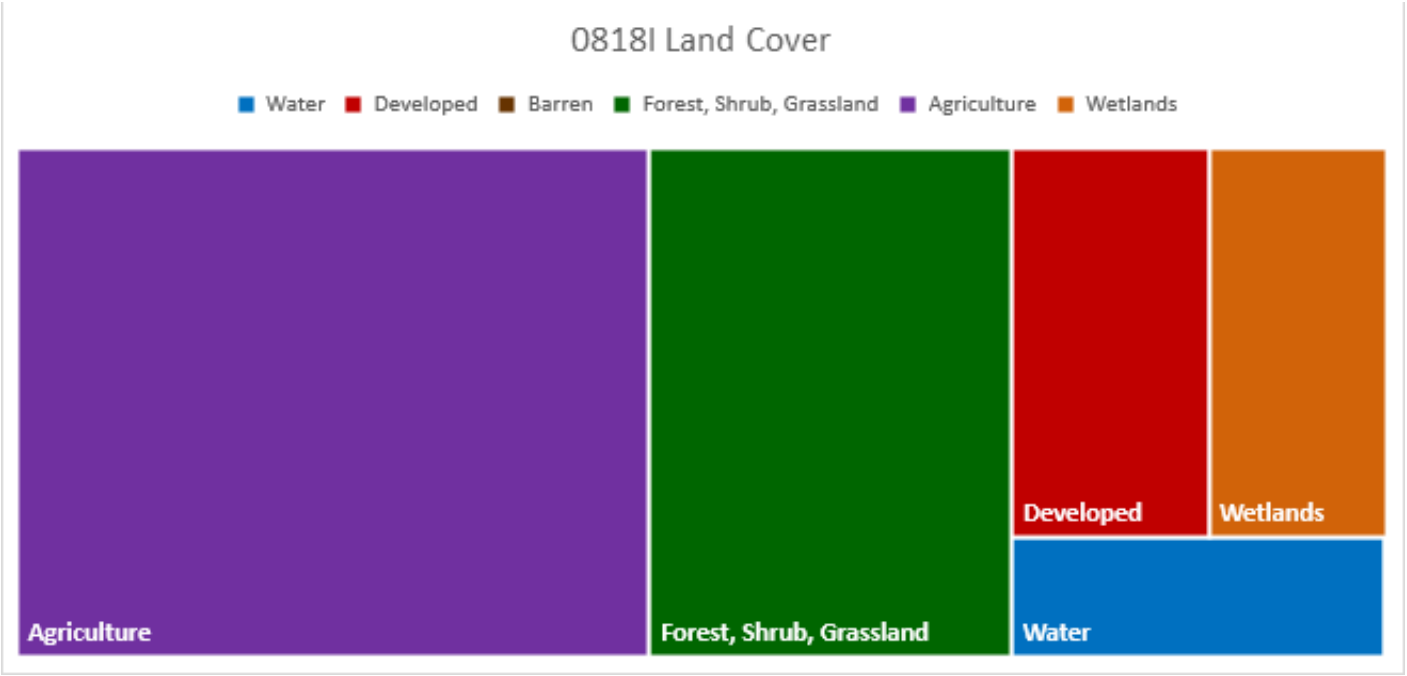

Figure 115: 0818I relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Cedar Creek Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 12 samples had a geometric mean of 638.94 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/28/2014 to 9/2/2020 at station 16758. There were 23 samples with a geometric mean of 660.70 MPN/100 mL. Values ranged from 46 to 8200 MPN/100 mL and 87% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Landowners
- Luminant Generation Co, LLC
- Forest Grove Reservoir

0819 - East Fork Trinity River

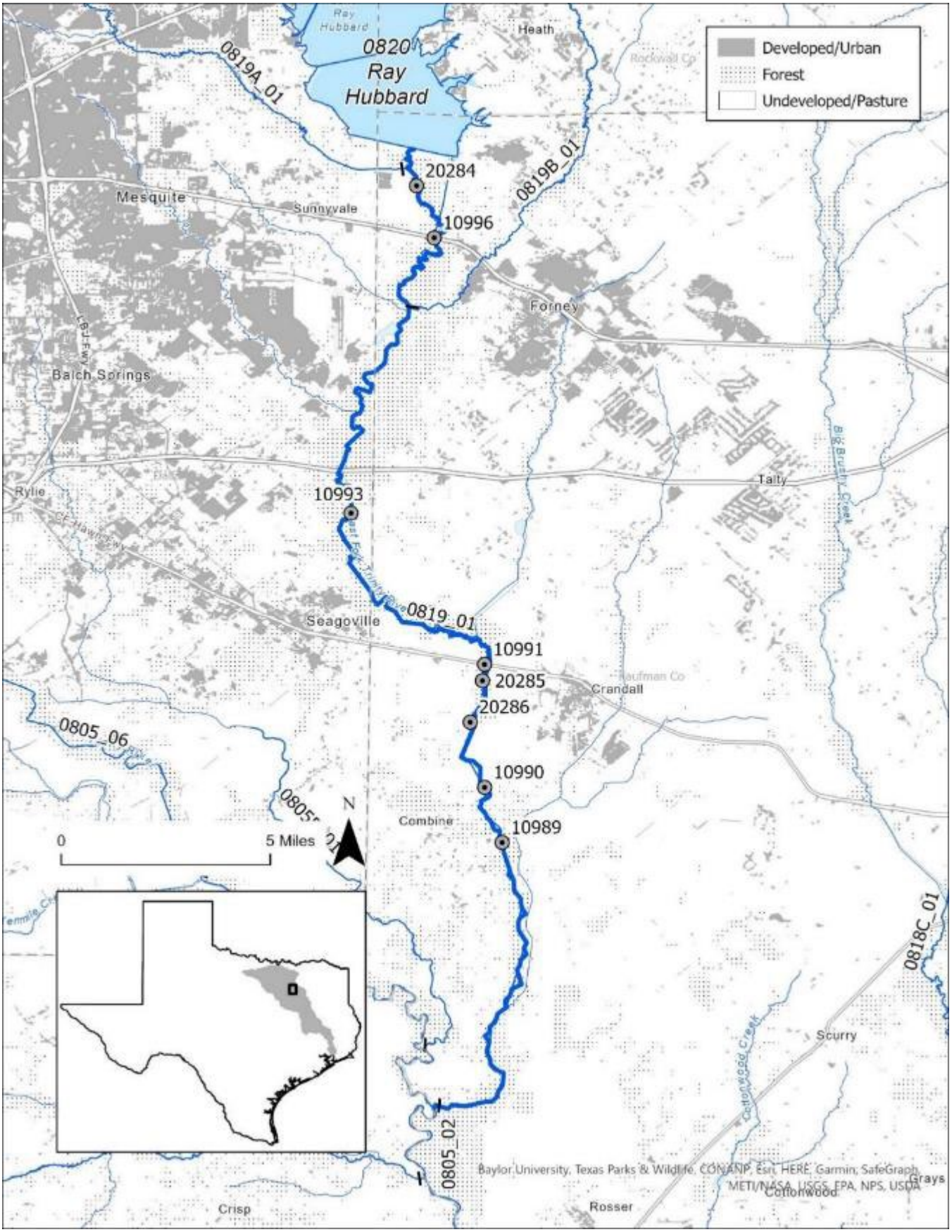

Figure 116: Map of Segment 0819

Figure 117: East Fork Trinity River downstream of Lake Lavon

Segment Description

This 30-mile segment stretches from the Rockwall-Forney Dam in Kaufman County to the confluence of the Main Stem Trinity River in Kaufman County.

Assessment Units and Monitoring Stations

- **0819_01** - From the confluence with the Trinity River in Kaufman County to Rockwall-Forney Dam in Kaufman County
  - Perennial freshwater stream
  - **10990** - East Fork Trinity River at FM 3039 river Kilometer 15.2
    - Sampling conducted by TRA in 2017
  - **10991** - East Fork Trinity River at US 175 northwest of Crandall river Kilometer 20.3
    - Sampling conducted by TCEQ from 2013 to 2022
  - **10996** - East Fork Trinity River at US 80 northwest of Forney
    - Sampling conducted by TCEQ from 2013 to 2022
  - **10989** - East Fork Trinity River at the end of Pole Bridge Road 2.22 kilometers downstream of FM 3039
    - Sampling conducted by North Texas Municipal Water District in 2013
  - **10993** - East Fork Trinity River 2.52 kilometers downstream of IH 20 on Ferguson property 5.2 km north northeast of Seagoville river KM 30.1
    - Sampling conducted by North Texas Municipal Water District in 2013
  - **20285** - East Fork Trinity River 593 m downstream of US 175 located at a riffle
    - Sampling conducted by North Texas Municipal Water District in 2013

- **20286** - East Fork Trinity River approximately 2.2 kilometers downstream of US 175 and approximately 600 meters upstream of a sheet pile dam near Crandall
  - Sampling conducted by North Texas Municipal Water District in 2013
- **20284** - East Fork Trinity River approximately 828 meters downstream of confluence with Duck Creek east of southern edge of Garland WWTP
  - Sampling conducted by North Texas Municipal Water District in 2013

Hydrology

Segment 0819 is a fourth order stream at its most downstream end. There are three USGS flow gages in this segment with data covering the period from 2013 to 2021: 08061551 downstream of the Lake Ray Hubbard dam, 08061750 near Forney, and 08062000 near Crandall. The median flow over this period of record was 31.7 cfs at the upstream dam gage and 88 cfs at the downstream Crandall gage with minimum and maximum flows of 0.13 and 40,600 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these gages are listed below.

- Non-Index Period – 29.6 to 84.8 cfs
- Index Period – 31.7 to 155 cfs
- Critical Period – 34.8 to 78.4 cfs

Land Use and Natural Characteristics

Hay, pasture, and crop land make up most of the land use in the watershed. There are also woody wetlands adjacent to the river. There are some areas of development by the cities of Mesquite, Balch Springs, Forney, Seagoville, Crandall, and Combine. The Floodplains and Low Terraces ecoregion makes up the immediate watershed around the river while the tributaries flow through the Northern Blackland Prairie.

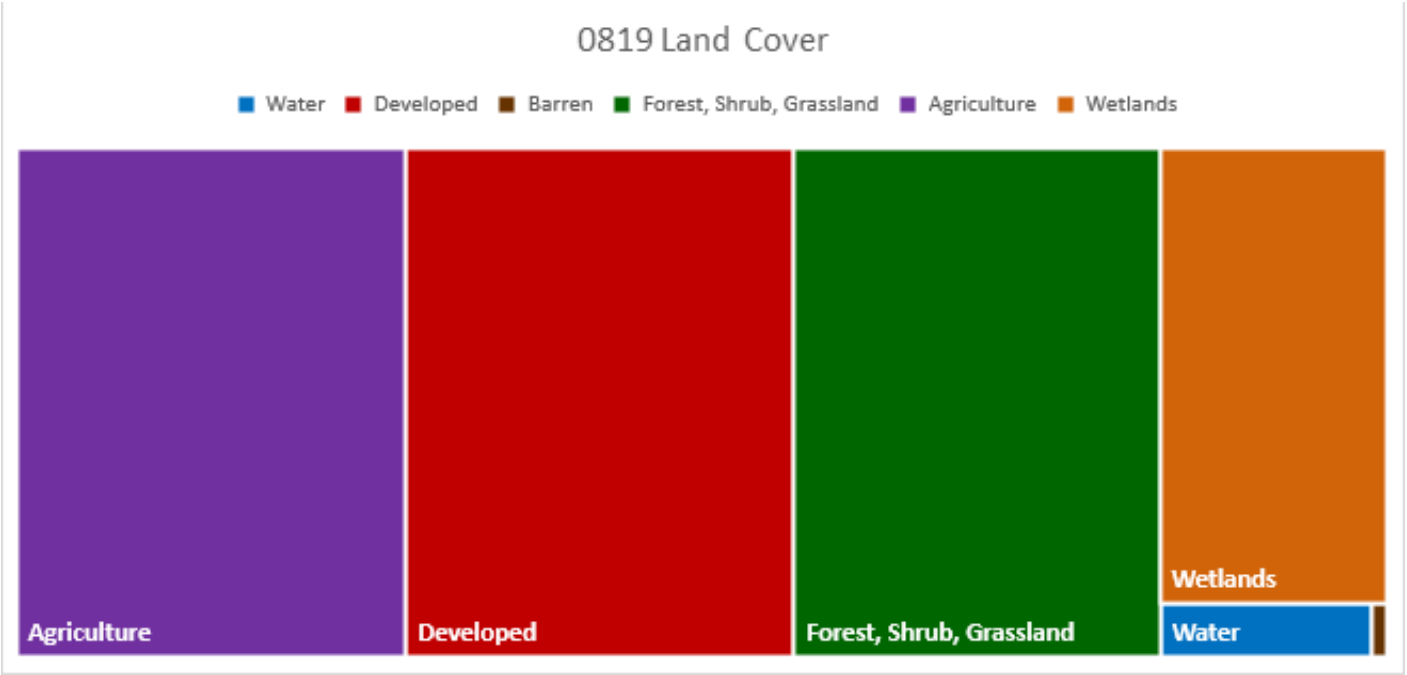

Figure 118: 0819 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and TRA.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 48 samples had a geometric mean of 158.89 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/7/2013 to 7/7/2021 at

stations 10991 and 10996. There were 62 samples with a geometric mean of 144.05 MPN/100 mL. Values ranged from 0.5 to 3500 MPN/100 mL and 50% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Forney
- City of Sunnyvale
- City of Mesquite
- City of Garland
- LA Frontera Holdings, LLC
- City of Dallas
- North Texas Municipal Water District
- Landowners
- City of Seagoville
- John Bunker Sands Wetland Center

0820B - Rowlett Creek

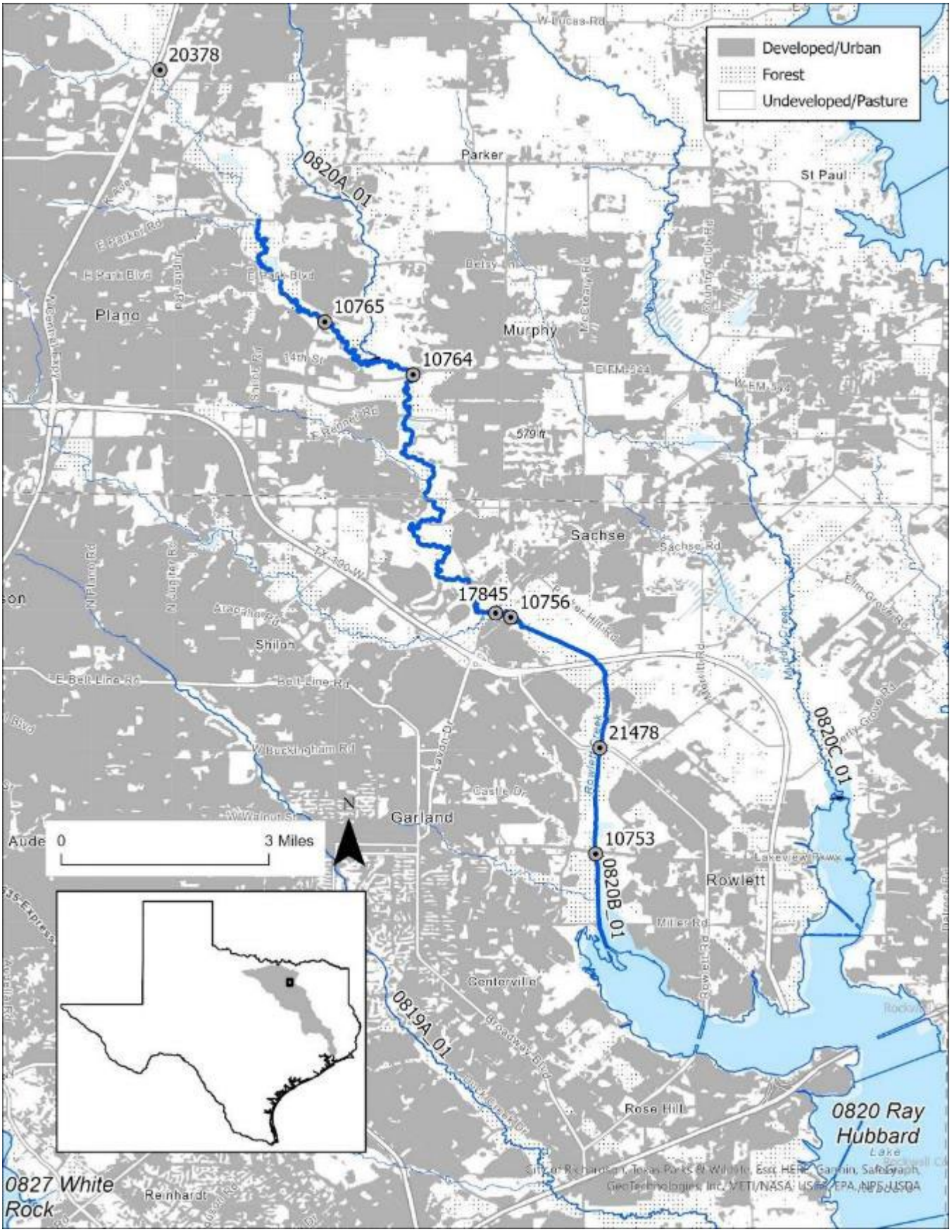

Figure 119: Map of Segment 0820B

Figure 120: Rowlett Creek at Ben Davis Road

Segment Description

This 17.3-mile segment runs from the Parker Road crossing to the confluence with Lake Ray Hubbard upstream.

Assessment Units and Monitoring Stations

- **0820B_01** - From the normal pool elevation of Lake Ray Hubbard upstream to the Parker Road crossing
  - Perennial freshwater stream
  - **10753** - Rowlett Creek 75 meters downstream of SH 66 river Kilometer 1.7
    - Sampling conducted by TRA from 2013 to 2014
  - **10756** - Rowlett Creek 45 meters downstream of Ben Davis/Damascus Road river Kilometer 8.5
    - Sampling conducted by TRA from 2020 to 2022
    - Sampling conducted by Dallas in 2022"
  - **10765** - Rowlett Creek 73 meters downstream of Low Rios Boulevard in Plano river Kilometer 22.6
    - Sampling conducted by TRA in 2013
  - **17845** - Rowlett/Cottonwood Creek at SH 78 1.06 kilometers north of SH 190 southwest of Sachse
    - Sampling conducted by TRA from 2014 to 2019
    - Sampling conducted by Dallas in 2013"
  - **21478** - Rowlett Creek at Firewheel Parkway near Rowlett
    - Sampling conducted by Dallas from 2013 to 2021
  - **22283** - West Rowlett Creek at Hwy 121 westbound access road in Frisco
    - Sampling conducted by Frisco in 2022
  - **22284** - Rowlett Creek immediately downstream of Custer Road in Frisco
    - Sampling conducted by Frisco in 2022
  - **10764** - Rowlett Creek immediately downstream of 14th Street/SH 544 river Kilometer 19.2
    - Sampling conducted by Plano in 2022
  - **20378** - Rowlett Creek 100 meters downstream of US 75 in Allen/Plano
    - Sampling conducted by Plano in 2022

Hydrology

Unclassified segment 0820B is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08061540 near Sachse. The median flow over this period of record was 86.7 cfs with minimum and maximum flows of 12 and 19,300 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 90 cfs
- Index Period – 110 cfs
- Critical Period – 60.3 cfs

Land Use and Natural Characteristics

A majority of the watershed is heavily developed by the cities of Allen, Plano, Sachse, Garland, and Rowlett. There are some forested riparian areas throughout the watershed. The stream flows through the Northern Blackland Prairie ecoregion. A watershed protection plan is under development for this segment.

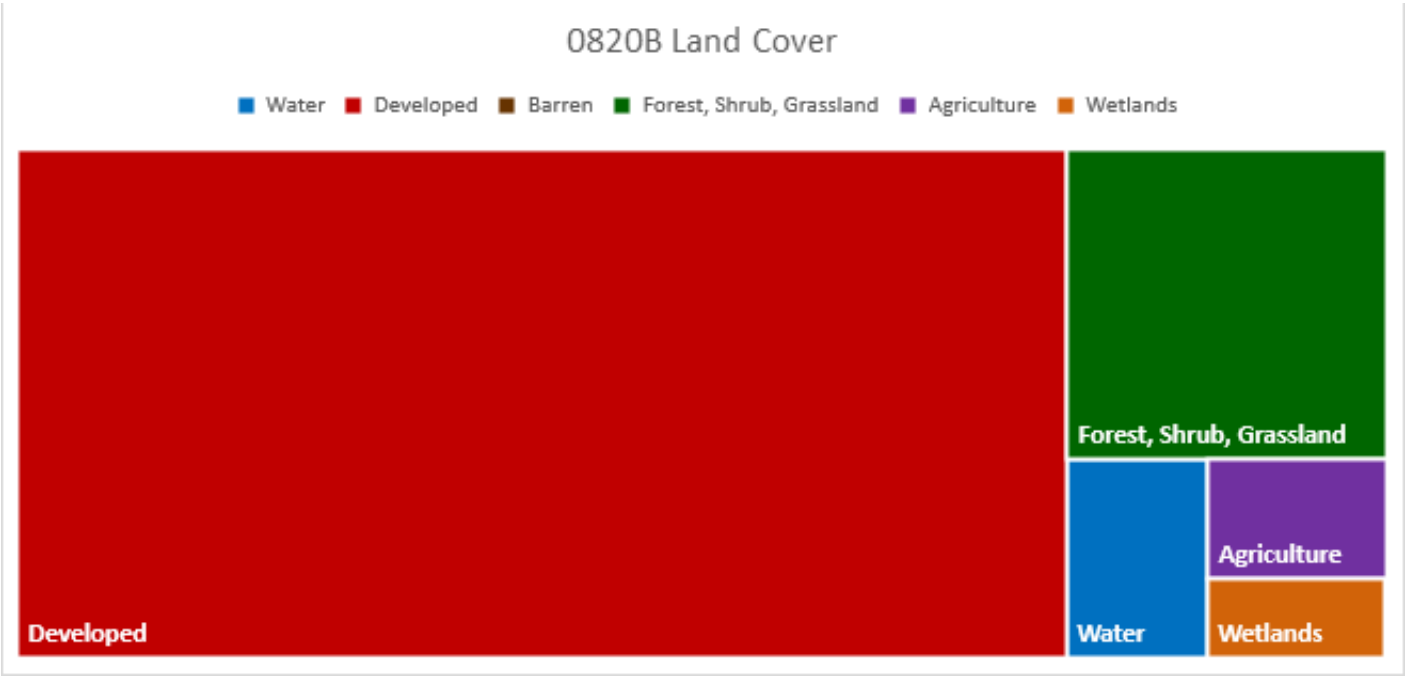

Figure 121: 0820B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA and the cities of Dallas, Frisco, and Plano.
- Rowlett Creek Watershed Characterization.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2014. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 267.29 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/18/2013 to 7/1/2021 at stations 10753, 10756, 17845, 20378, and 21478. There were 42 samples with a geometric mean of 399.34MPN/100 mL. Values ranged from 1 to 9700 MPN/100 mL and 73.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.

Potential Stakeholders

- Oak Point Park and Nature Preserve
- City of Plano
- North Texas Municipal Water District
- Homeowners and HOA's
- Landowners
- City of Richardson
- City of Garland
- Firewheel Golf Park
- City of Rowlett

0821A - Pilot Grove Creek

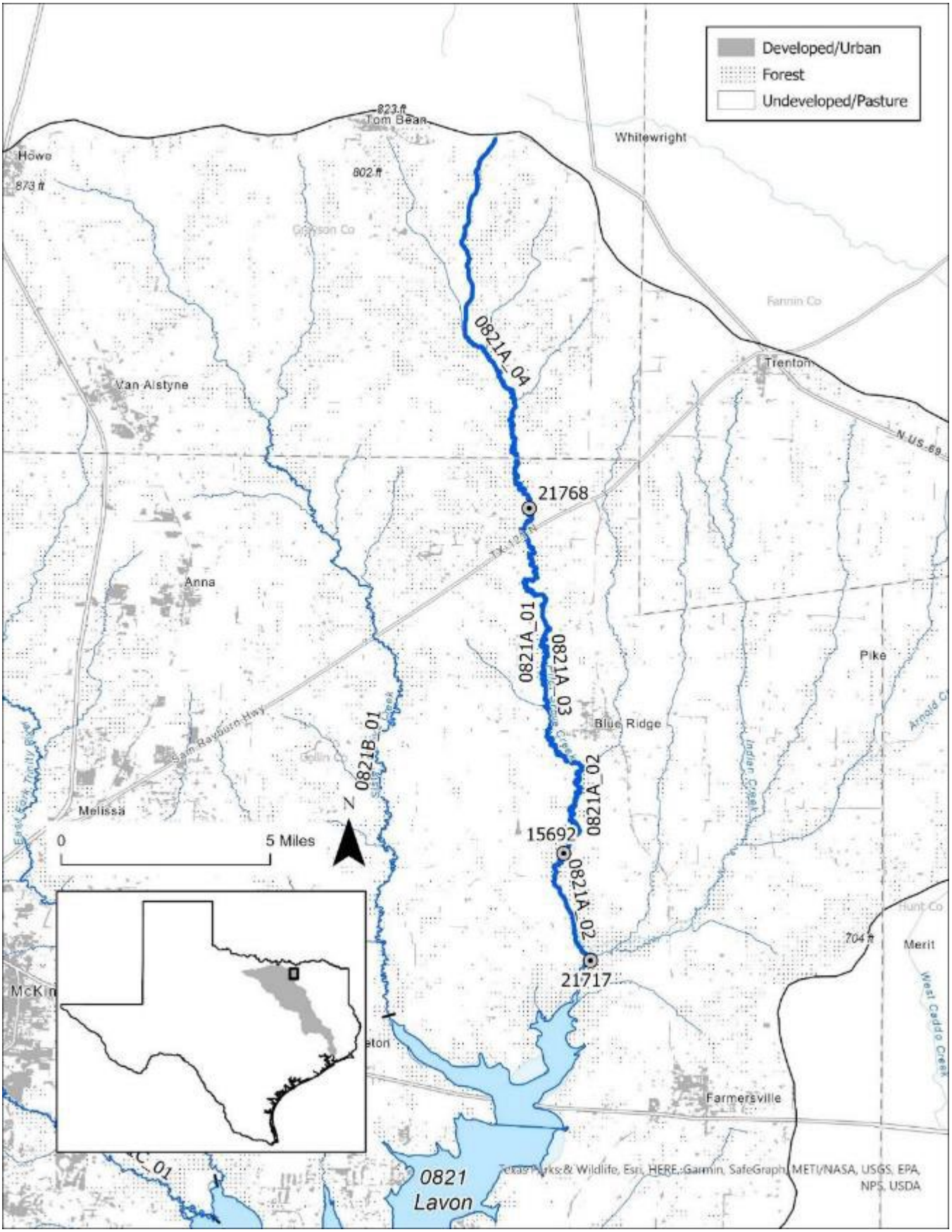

Figure 122: Map of Segment 0821A

Segment Description

This 25.7-mile unclassified segment runs from the headwaters approximately 0.28 miles south of SH 11 west of Whitewright to the confluence with Lake Lavon in Collin county.

Assessment Units and Monitoring Stations

- **0821A_02** - Pilot Grove Creek from the confluence with Lake Lavon upstream to the confluence with Desert Creek
  - Perennial freshwater stream
  - **21717** - Pilot Grove Creek at FM 2756 upstream of Lake Lavon
    - Sampling conducted by North Texas Municipal Water District from 2015 to 2022
  - **15692** - Pilot Grove Creek immediately downstream of Collin CR 574 and 3.2 miles south of FM 545 near Blue Ridge
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020
- **0821A_03** - From the confluence of Desert Creek upstream to FM 121 approximately five miles north of the City of Blue Ridge
  - Perennial freshwater stream
- **0821A_04** - Pilot Grove Creek from FM 121 approximately five miles north of the City of Blue Ridge upstream to the headwaters approximately 0.28 miles south of SH 11 west of Whitewright
  - Freshwater stream, intermittent with perennial pools
  - **21768** - Pilot Grove Creek at CR 584; 1.9 kilometers north and 3.4 kilometers east of Westminster
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020

Hydrology

Unclassified segment 0821A is a second order stream at its most downstream end. Based on flow measurements between 2016 and 2020 at sites upstream of the confluence with Indian Creek, the median was 2 cfs with minimum and maximum flows of 0 and 350 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 1.5 cfs
- Index Period – 18.5 cfs
- Critical Period – 0.7 cfs

Based on flow measurements between 2015 and 2020 downstream of the confluence with Indian Creek, the median was 18.8 cfs with minimum and maximum flows of 0 and 496 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.01 cfs
- Index Period – 6 cfs
- Critical Period – 54.6 cfs

Land Use and Natural Characteristics

The watershed is rural with a mix of pasture, hay, and grassland with some small areas of crop land and forest throughout. It flows through the Northern Blackland Prairie ecoregion.

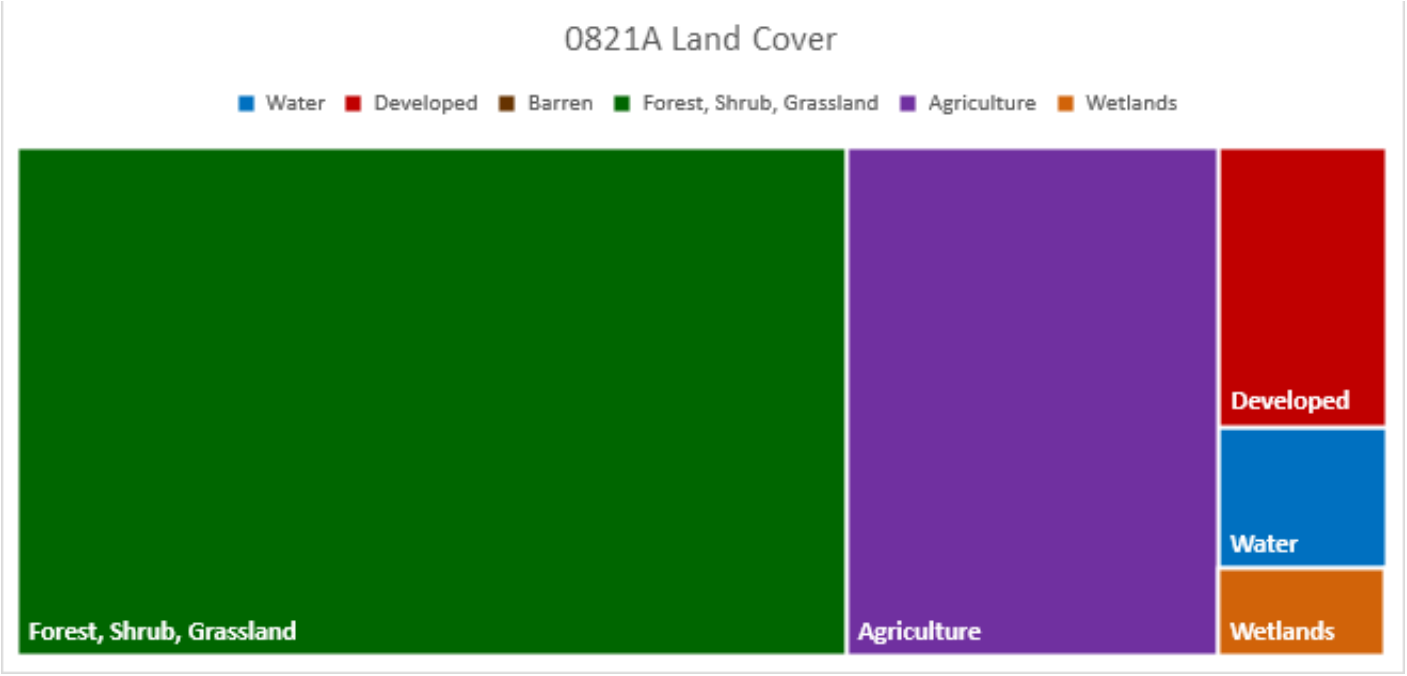

Figure 123: 0821A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by North Texas Municipal Water District.
- Lavon Lake Watershed Protection Plan.

Description of Water Quality Issue

Assessment unit 0821A_02 was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 33 samples had a geometric mean of 150.70 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/3/2016 to 8/19/2021 at stations 15692 and 21717. There were 82 samples with a geometric mean of 206.98 MPN/100 mL. Values ranged from 0.5 to 2400 MPN/100 mL and 67.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Additional watershed sampling or inspection to identify potential sources.

Potential Stakeholders

- Landowners
- City of Westminster
- City of Blue Ridge

0821B - Sister Grove Creek

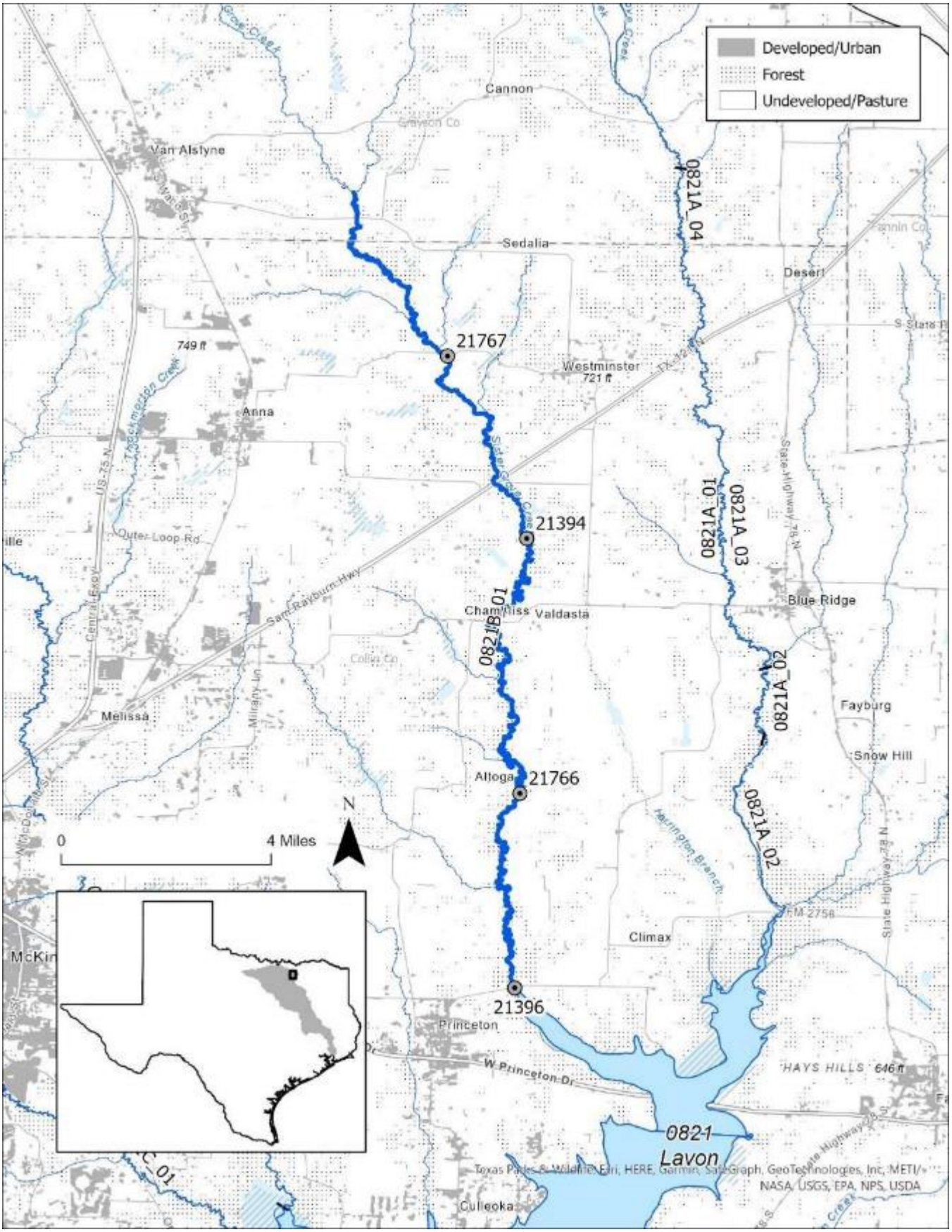

Figure 124: Map of Segment 0821B

Segment Description

This 27-mile unclassified segment runs from the confluence of West Prong Sister Grove Creek/East Prong Sister Grove Creek east of Van Alstyne in Grayson County to the confluence with Lake Lavon in Collin County.

Assessment Units and Monitoring Stations

- **0821B_01** - From the confluence with Lake Lavon in Collin County to the confluence of West Prong Sister Grove Creek/East Prong Sister Grove Creek east of Van Alstyne in Grayson County
  - Perennial freshwater stream
  - **21394** - Sister Grove Creek at Collin CR 476 1.8 kilometers west of East Houston Street/FM 28621
    - Sampling conducted by North Texas Municipal Water District from 2015 to 2016
  - **21396** - Sister Grove Creek downstream FM 1377/Monte Carlo Boulevard 1.6 kilometers east of intersection of 6th Street and FM 1377 near Princeton TX
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2022
  - **21766** - Sister Grove Creek at CR 470; 947 meters east of Altofa Cemetery
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017
  - **21767** - Sister Grove Creek at CR 2862; 2 kilometers north and 5 kilometers east of Anna
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020

Hydrology

Unclassified segment 0821B is a second order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08059400 near Blue Ridge. The median flow over this period of record was 13.9 cfs with minimum and maximum flows of 0 and 4,640 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 16.6 cfs
- Index Period – 41.8 cfs
- Critical Period – 0.21 cfs

Land Use and Natural Characteristics

The watershed is rural with a mix of pasture, hay, and grassland with some small areas of crop land and forest throughout. It flows through the Northern Blackland Prairie ecoregion.

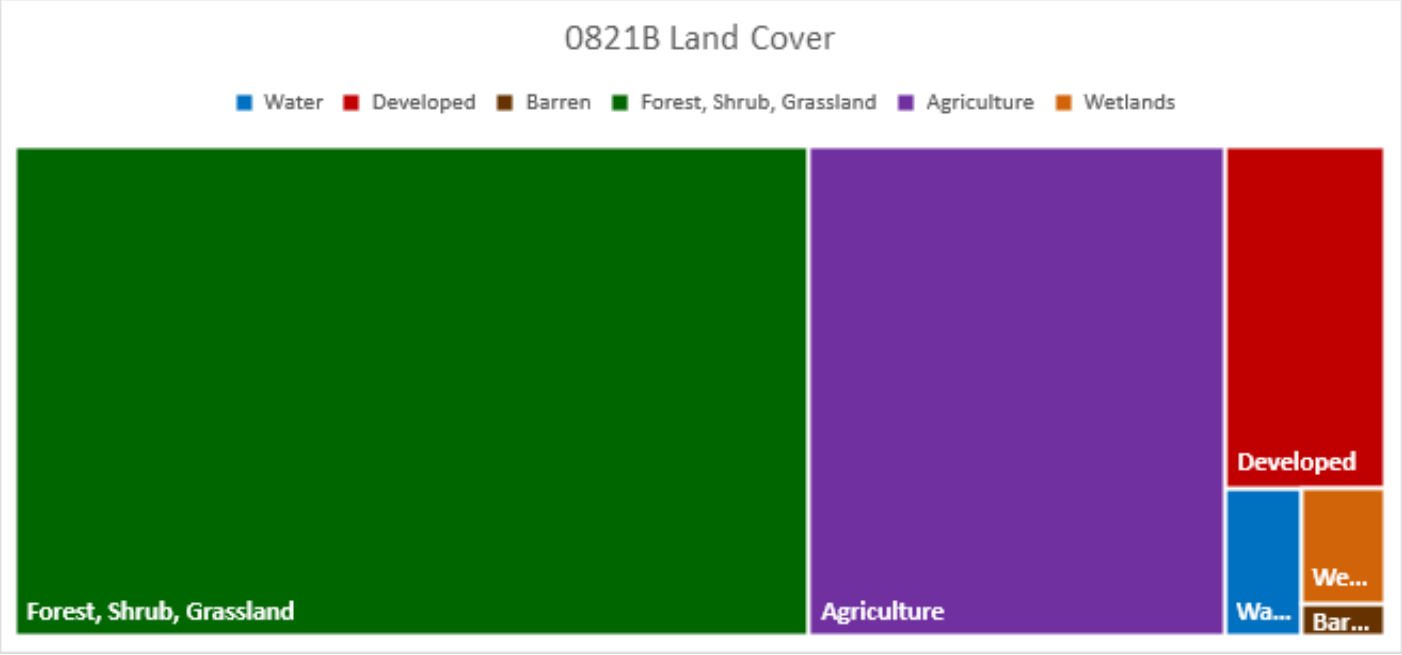

Figure 125: 0821B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by North Texas Municipal Water District.
- Lavon Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 32 samples had a geometric mean of 151.92 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/3/2016 to 9/22/2021 at stations 21394, 21396, 21766, and 21767. There were 103 samples with a geometric mean of 184.73 MPN/100 mL. Values ranged from 0.5 to 2400 MPN/100 mL and 64.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing septic systems.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- Landowners
- PT SIX LP
- Top Fun Ranch
- Sweetin 5S Ranch

0821C - Wilson Creek

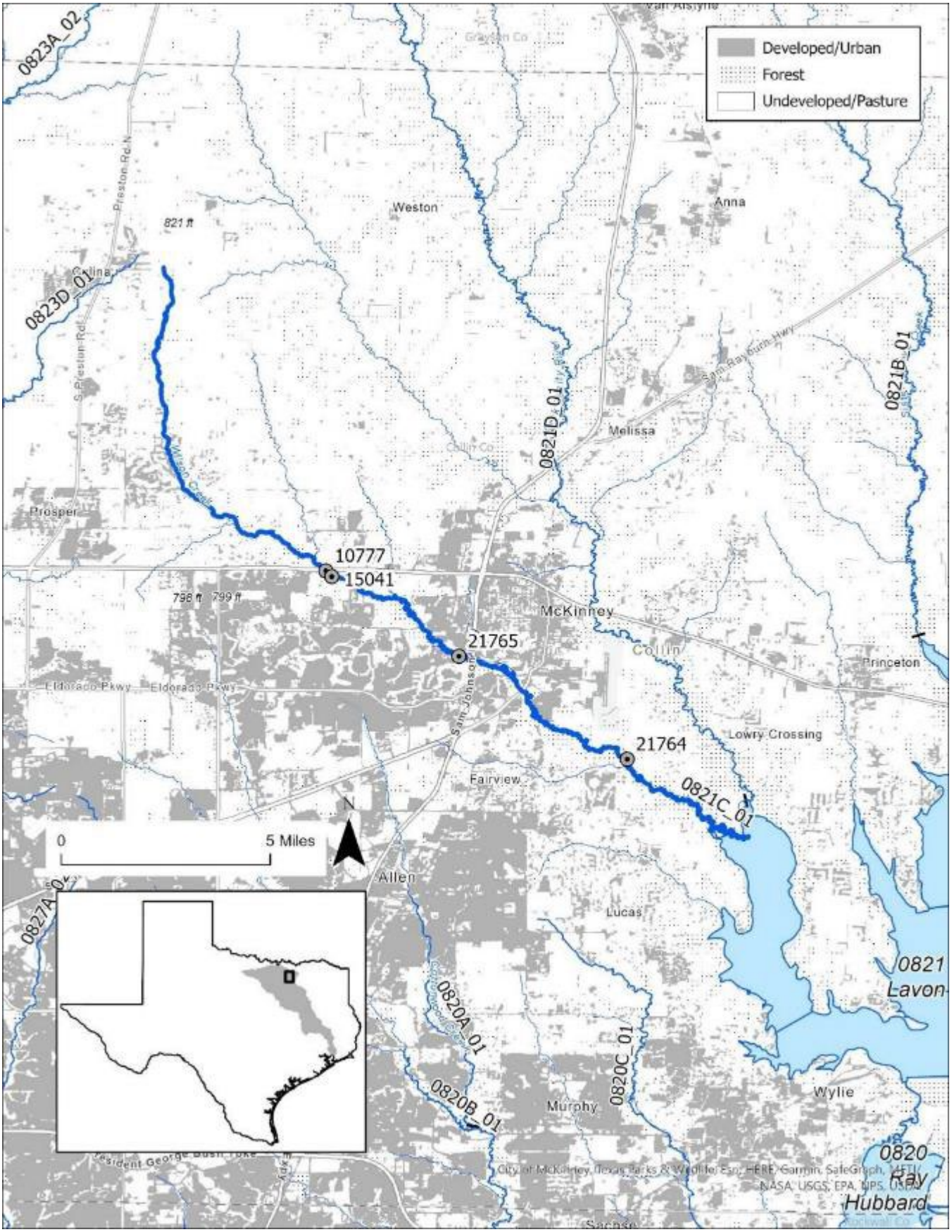

Figure 126: Map of Segment 0821C

Segment Description

This 31-mile unclassified segment runs from West FM 455 just east of Celina in Collin County to the confluence with Lake Lavon.

Assessment Units and Monitoring Stations

- **0821C_01** - From the confluence with Lake Lavon in Collin County up to West FM 455 just east of Celina in Collin County
  - Freshwater stream, intermittent with perennial pools
  - **10777** - Wilson Creek 45 meters downstream of US 380 west of McKinney
    - Sampling conducted by TCEQ from 2013 to 2019
  - **15041** - Wilson Creek 67 meters upstream of Collin CR 158
    - Sampling conducted by TCEQ from 2018 to 2019
  - **21764** - Wilson Creek 22.3 meters west of CR 317 52 meters east of CR 317
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020
  - **21765** - Wilson Creek at footbridge 70 meters north of Valley Creek Trail
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017

Hydrology

Unclassified segment 0821C is a second order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08059590 at McKinney. The median flow over this period of record was 18.5 cfs with minimum and maximum flows of 0 and 5,290 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 22.5 cfs
- Index Period – 29.6 cfs
- Critical Period – 3.69 cfs

Land Use and Natural Characteristics

The extreme upper and lower ends of the watershed are rural while the middle of the watershed is heavily developed. The upper portion of the stream drains crop, pasture, hay, and grassland. There is some light to medium development around the City of Prosper and transitions into heavy development as the stream flows through the City of McKinney. Just before the stream flows into Lake Lavon, there are several agricultural fields and grasslands as well as some forested riparian areas. The watershed drains the Northern Blackland Prairie ecoregion.

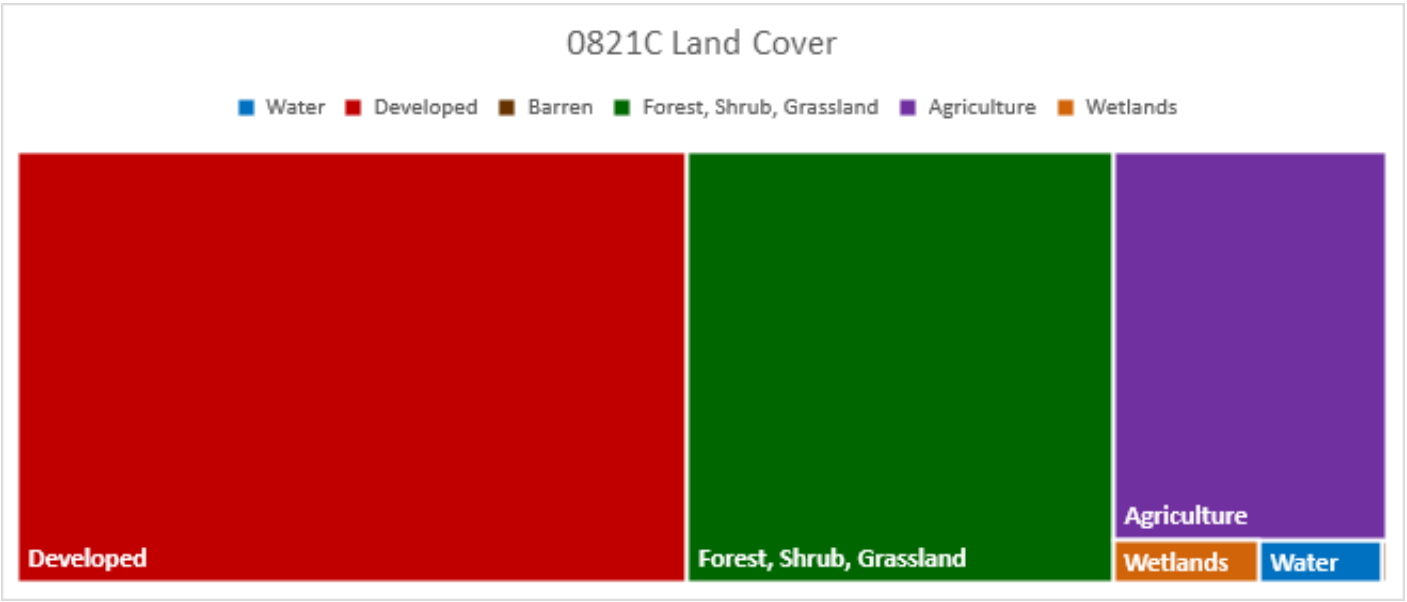

Figure 127: 0821C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.
- Lavon Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 258.05 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 10/20/2021 at stations 10777, 15041, 21764, and 21765. There were 95 samples with a geometric mean of 207.73 MPN/100 mL. Values ranged from 0.5 to 2400 MPN/100 mL and 74.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.
- Failing septic systems.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- Septic system inspection/repair/upgrades.
- Septic system best management practices.
- Homeowner/landowner education about septic systems.

Potential Stakeholders

- City of Celina
- Landowners
- Homeowners and HOA's
- City of Prosper
- Gentle Creek Country Club
- City of McKinney
- Nature Nate's Honey Co
- Heard Natural Science Museum
- North Texas Municipal Water District

0821D - East Fork Trinity River above Lake Lavon

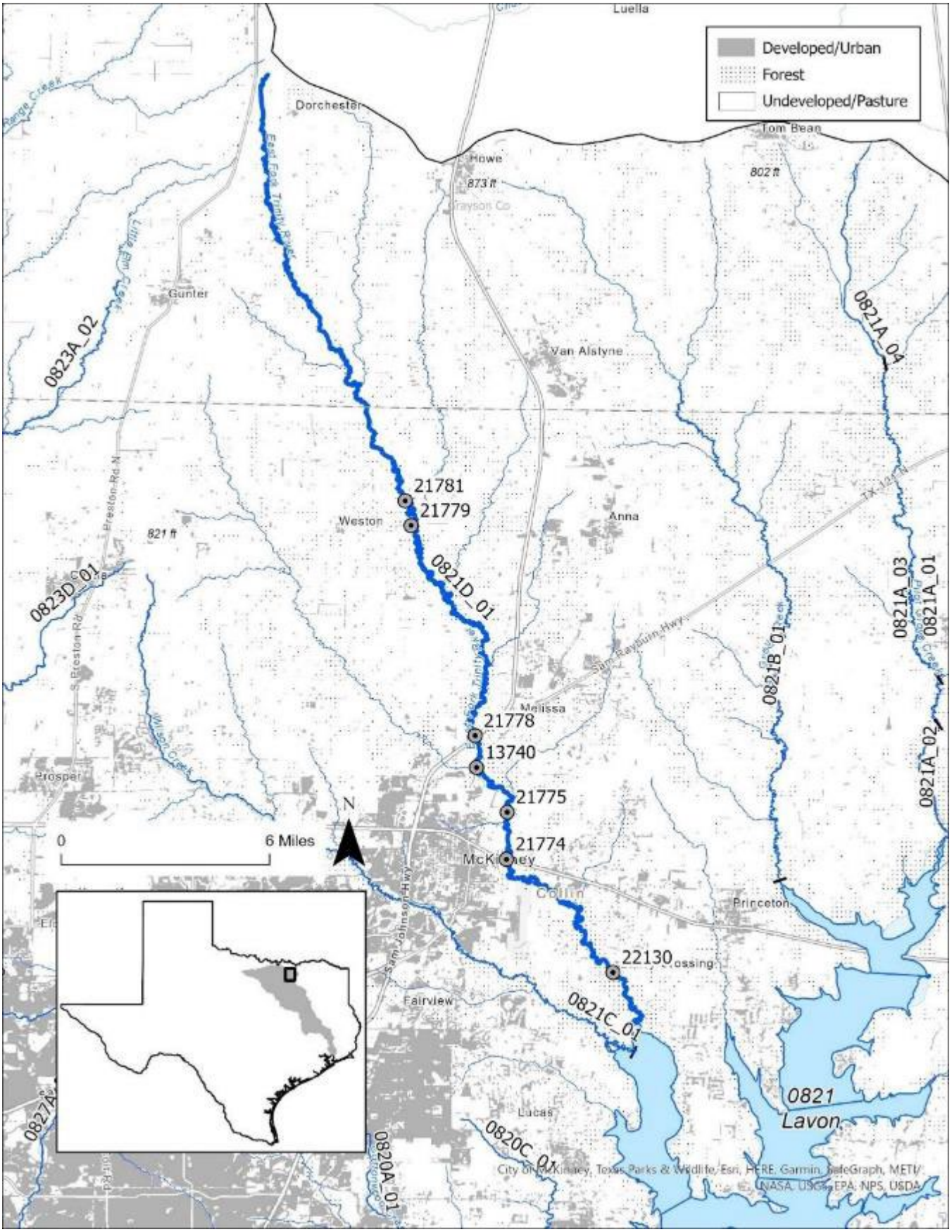

Figure 128: Map of Segment 0821D

Segment Description

This 49-mile unclassified segment extends from the headwaters of the East Fork Trinity River upstream of FM 902 in Grayson County to the confluence with Lake Lavon.

Assessment Units and Monitoring Stations

- **0821D_01** - A portion of the East Fork Trinity River extending from the confluence with Lake Lavon to the upper end of the water body in Grayson County
  - Freshwater stream, intermittent with perennial pools
  - **13740** - East Fork Trinity River at SH 5 3.3 miles north of McKinney 1.7 miles upstream of Clemons Creek 750 feet downstream of Honey Creek
    - Sampling conducted by TCEQ from 2013 to 2022
  - **21774** - East Fork Trinity River at US 380/East University Drive; 730.33 meters north and 4 kilometers east of McKinney
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017
  - **21775** - East Fork Trinity River at CR 331; 3 kilometers north and 4.02 kilometers east of McKinney
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017
  - **21778** - East Fork Trinity River at US 75; 6.6 kilometers north and 2.5 kilometers east of McKinney
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020
  - **21779** - East Fork Trinity River at CR 210; 2.92 kilometers east of Weston
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017 and 2019 to 2020
  - **21781** - East Fork Trinity River at CR 455; 1.21 kilometers north and 2.73 kilometers east of Weston
    - Sampling conducted by North Texas Municipal Water District from 2016 to 2017
  - **22130** - East Fork Trinity River at FM 546 in the city of Lowry Crossing
    - Sampling conducted by North Texas Municipal Water District from 2019 to 2020

Hydrology

Unclassified segment 0821D is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08059000 near McKinney. The median flow over this period of record was 26.9 cfs with minimum and maximum flows of 0 and 3,910 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 23.1 cfs
- Index Period – 54.3 cfs
- Critical Period – 12.4 cfs

Land Use and Natural Characteristics

Much of the watershed is rural with grass, hay, and pasture land predominating. There are some areas of crop land increasing further downstream and forested riparian areas. Most of the development in this portion of the watershed is confined to the area between I-75 and SH 5 near the cities of Anna and Melissa and south of I-75 as the river flows past the outlying areas of the City of McKinney. This watershed lies within the Northern Blackland Prairie ecoregion.

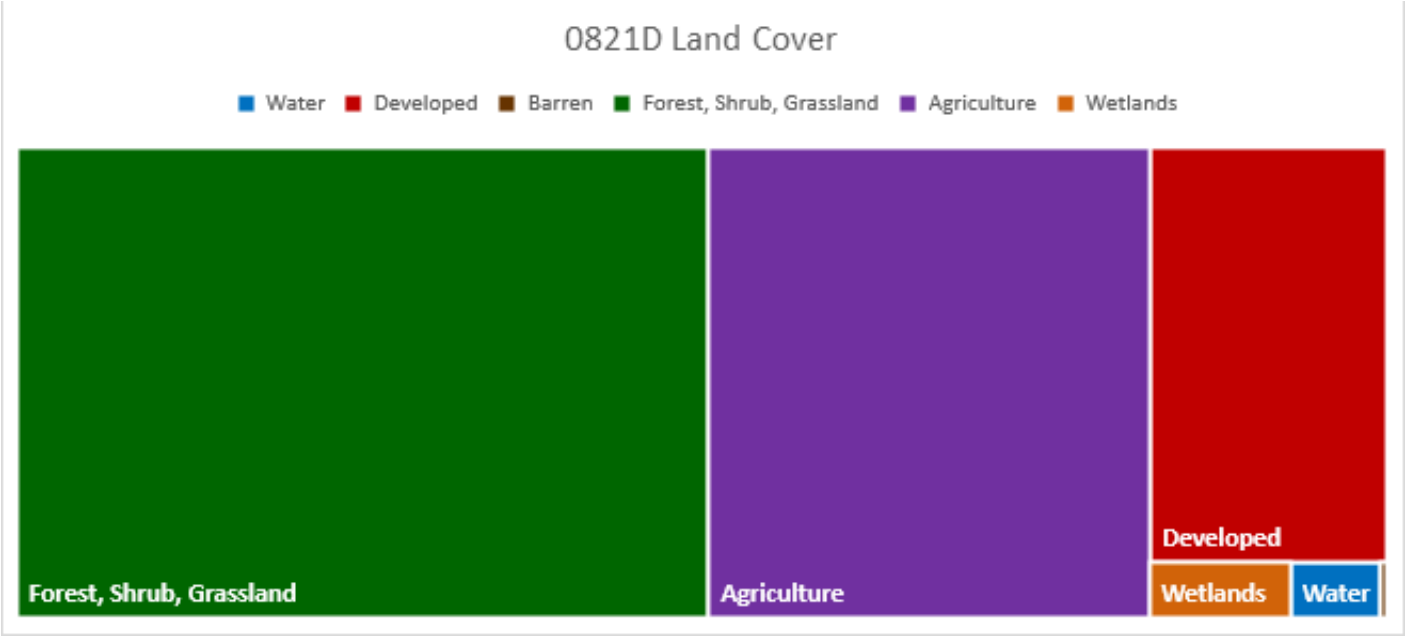

Figure 129: 0821D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.
- Lavon Lake Watershed Protection Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 192.21 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 10/21/2021 at stations 13740, 21774, 21775, 21778, 21779, 21781, and 22130. There were 171 samples with a geometric mean of 172.3 MPN/100 mL. Values ranged from 5 to 3500 MPN/100 mL and 60.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Dorchester
- Landowners
- City of Weston
- Homeowners and HOA's
- City of McKinney
- Greater Texoma Utility Bloomdale Pump Station
- Strata Materials, LLC McKinney Recycle Yard
- City of Lowry Crossing

0822A - Cottonwood Branch

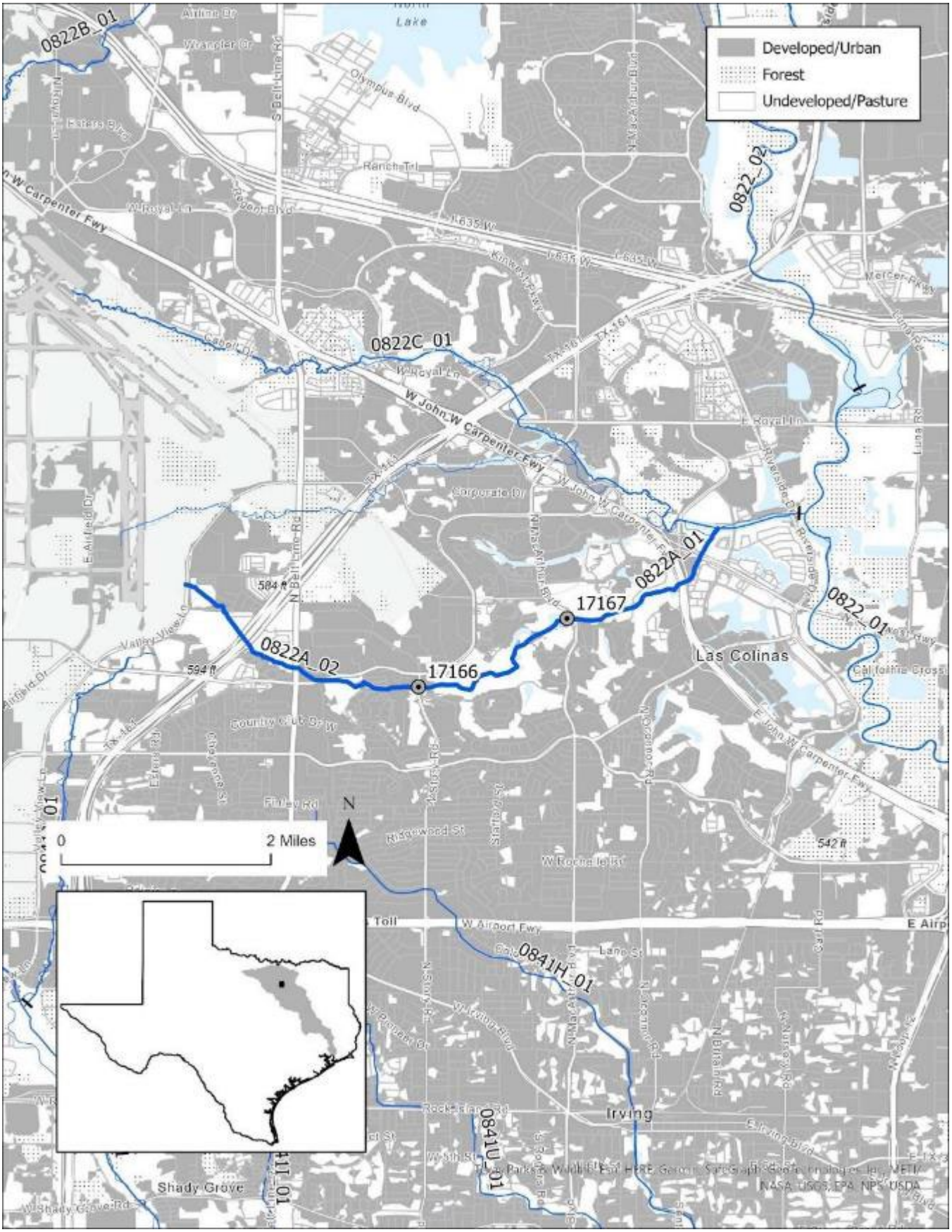

Figure 130: Map of Segment 0822A

Segment Description

This 5-mile unclassified segment runs from Valley View Road in Dallas County to the confluence with Hackberry Creek.

Assessment Units and Monitoring Stations

- **0822A_01** - A 2.5 mile stretch of Cottonwood Branch running upstream from confluence with Hackberry Creek to approx. 0.5 miles downstream of North Story Road in Dallas County
  - Freshwater stream, intermittent with perennial pools
  - **17167** - Cottonwood Branch 71 meters upstream of North MacArthur Boulevard in Irving
    - Sampling conducted by Irving from 2013 to 2022
- **0822A_02** - A 3.5 mile stretch of Cottonwood Branch running upstream from approximately 0.5 miles downstream of North Story Road to Valley View Road in Dallas County
  - Freshwater stream, intermittent with perennial pools
  - **17166** - Cottonwood Branch at North Story Road in Irving
    - Sampling conducted by Irving from 2013 to 2022

Hydrology

Unclassified segment 0822A is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0.3 cfs with minimum and maximum flows of 0.01 and 2.5 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.4 cfs
- Index Period – 0.3 cfs
- Critical Period – 0.2 cfs

Land Use and Natural Characteristics

The watershed is heavily developed; beginning at Dallas-Fort Worth International Airport and flowing through the City of Irving. It lies within the Northern Blackland Prairie ecoregion.

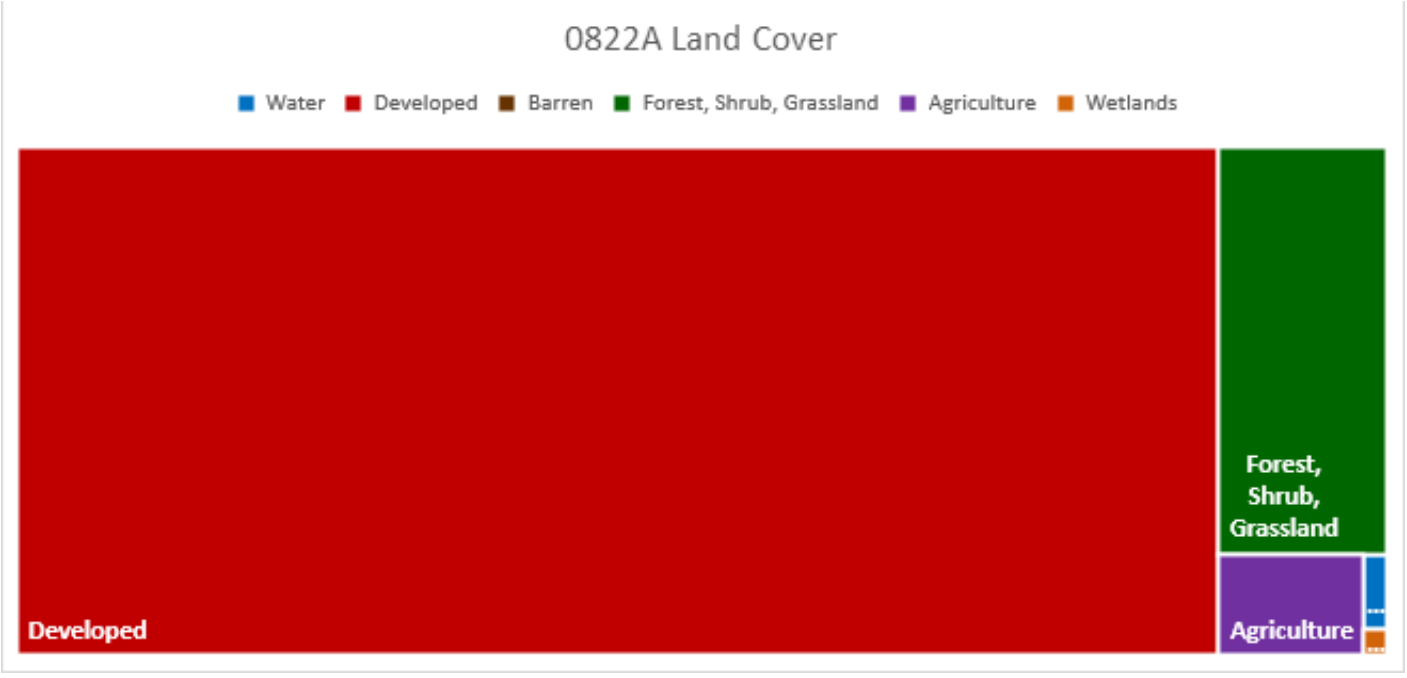

Figure 131: 0822AB relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Irving.

- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

Assessment unit 0822A_02 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 41 samples had a geometric mean of 188.96 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 11/3/2020 at station 17166. There were 43 samples with a geometric mean of 170 MPN/100 mL. Values ranged from 3 to 9700 MPN/100 mL and 48.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Irving
- Homeowners and HOA's
- Cottonwood Valley Golf Course
- Dallas College North Lake
- Irving Convention Center at Las Colinas

0822B - Grapevine Creek

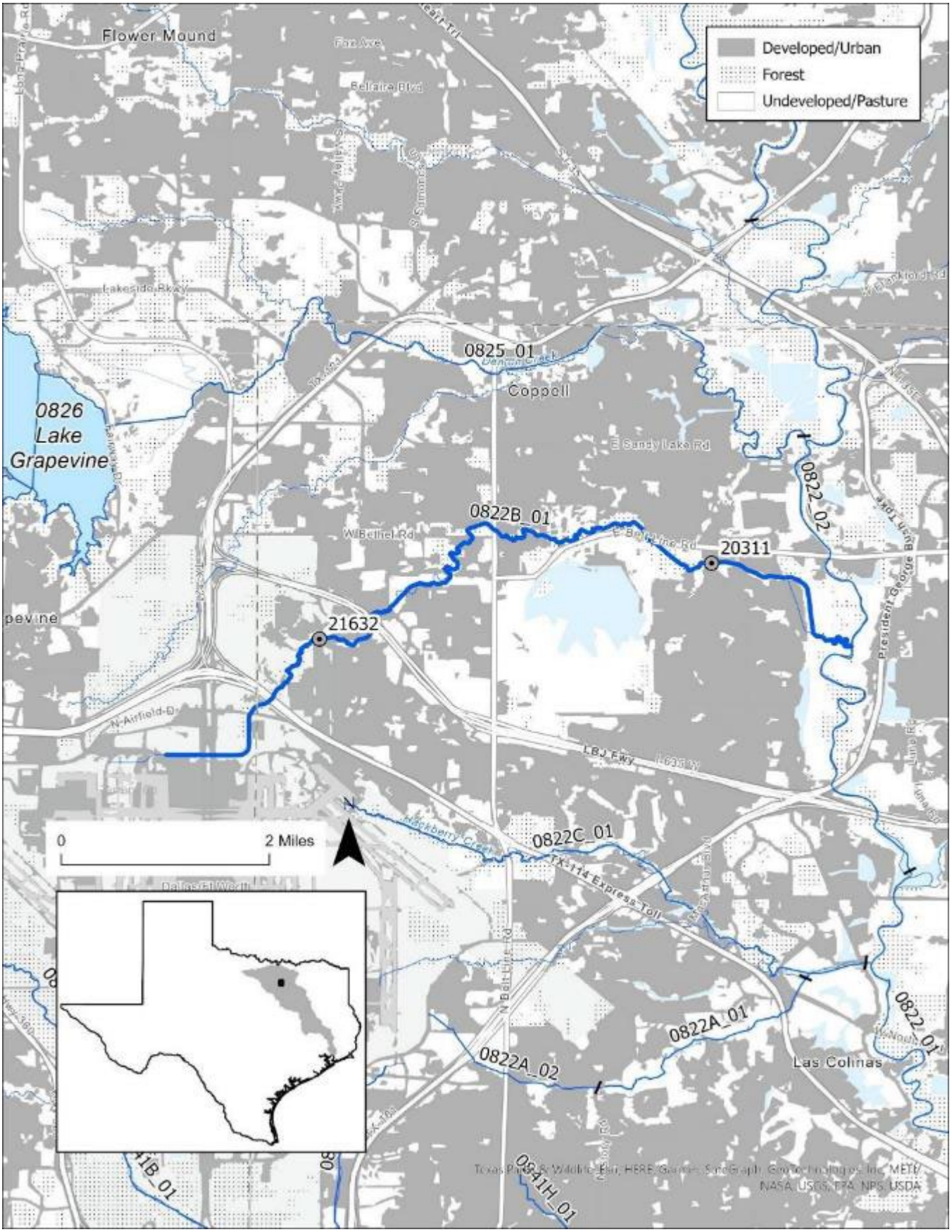

Figure 132: Map of Segment 0822B

Segment Description

This 10.5-mile unclassified segment runs from its headwaters west of International Parkway at Dallas-Fort Worth Airport in Tarrant County to the confluence with the Elm Fork Trinity River in Dallas County upstream.

Assessment Units and Monitoring Stations

- **0822B_01** - From the confluence with Elm Fork Trinity River in Dallas County upstream to its headwaters west of International Parkway at DFW Airport in Tarrant County
  - Intermittent freshwater stream
  - **20311** - Grapevine Creek at North MacArthur Boulevard 3.5 kilometers upstream of the confluence with the Elm Fork Trinity River
    - Sampling conducted by Irving from 2013 to 2022
  - **21632** - Grapevine Creek approximately 225 meters upstream of North Royal Lake and 25 meters upstream of railroad tracks in Irving
    - Sampling conducted by DFW Airport from 2015 to 2022

Hydrology

Unclassified segment 0822B is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0.3 cfs at the upstream end and 1.6 cfs at the downstream end with minimum and maximum flows of 0.07 and 3.5 cfs at the upstream end and 0 and 28 cfs at the downstream end. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.3 and 2 cfs
- Index Period – 0.6 and 2.9 cfs
- Critical Period – 0.2 and 1.3 cfs

Land Use and Natural Characteristics

The watershed is heavily developed with the airport at its headwaters and flowing through the City of Coppell. It lies within the Northern Blackland Prairie ecoregion.

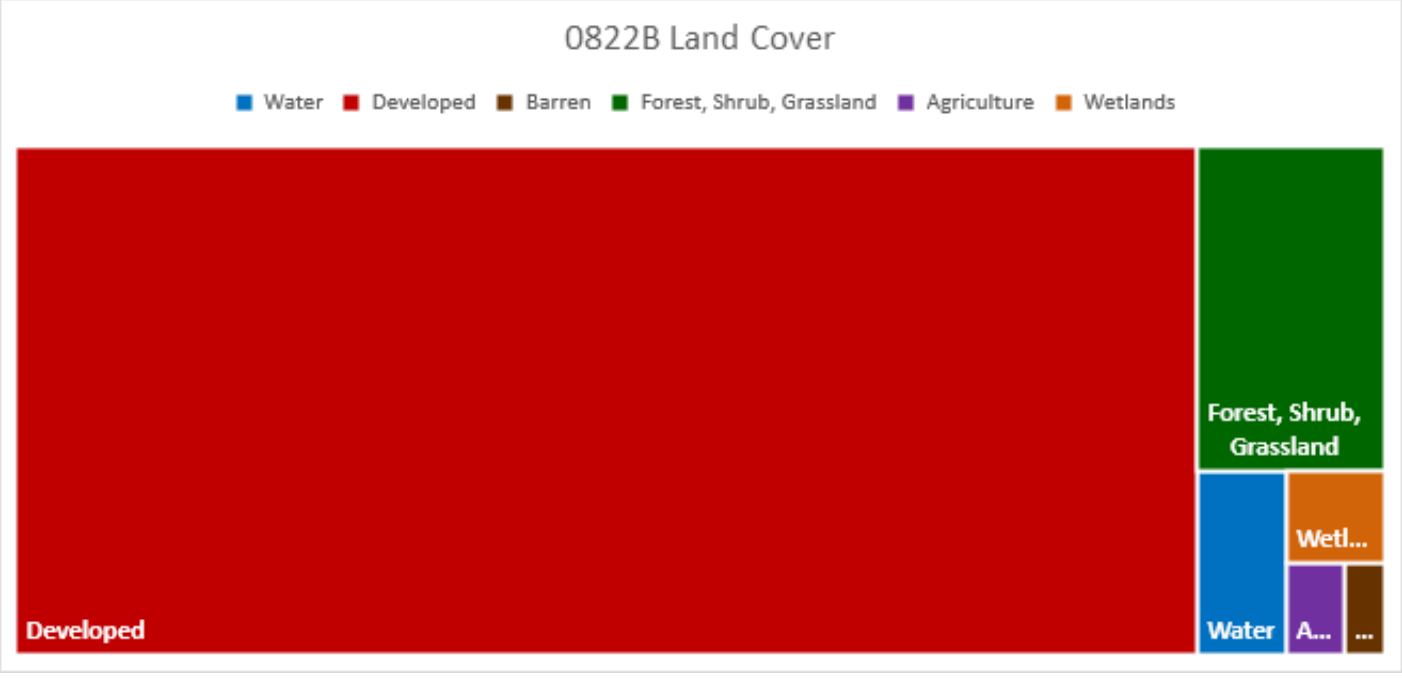

Figure 133: 0822B relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Irving and DFW Airport Environmental Affairs Department.

- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 55 samples had a geometric mean of 177.01 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 11/5/2020 at stations 20311 and 21632. There were 63 samples with a geometric mean of 190.74 MPN/100 mL. Values ranged from 10 to 7900 MPN/100 mL and 66.7% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- DFW International Airport Board
- City of Grapevine
- City of Irving
- City of Coppell
- Homeowners and HOA's
- City of Dallas

0823C - Clear Creek

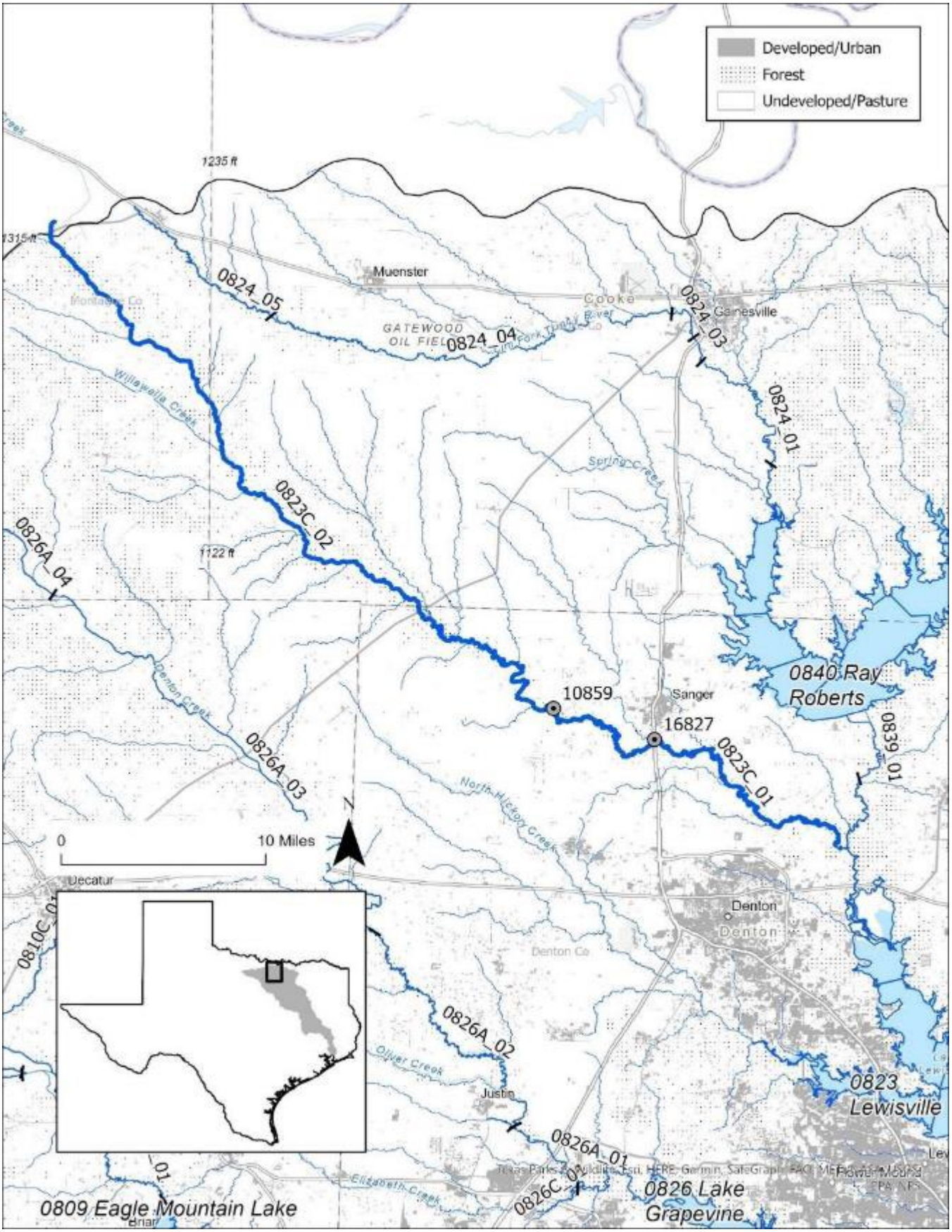

Figure 134: Map of Segment 0823C

Segment Description

This 68.4-mile unclassified segment runs from the headwaters west of Montague in Montague County to the confluence with Lake Lewisville in Denton County.

Assessment Units and Monitoring Stations

- **0823C_01** - Lower 25 miles of segment
  - Perennial freshwater stream
  - **10859** - Clear Creek 80 meters upstream of FM 455 west of Sanger
    - Sampling conducted by TCEQ from 2013 to 2022
  - **16827** - Clear Creek at I 35 west of US 377 approximately 24.7 kilometers upstream of Lewisville Lake south of Sanger
    - Sampling conducted by Dallas from 2013 to 2022
- **0823C_02** - Upper 40 miles of segment
  - Perennial freshwater stream

Hydrology

Unclassified segment 0823C is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08051500 near Sanger. The median flow over this period of record was 26.6 cfs with minimum and maximum flows of 0 and 13,300 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 30.6 cfs
- Index Period – 57.5 cfs
- Critical Period – 12.6 cfs

Land Use and Natural Characteristics

Much of this watershed is grassland. There are pockets of pasture and hay and crop lands directly adjacent to the stream. The upper half of the segment flows through the Western Cross Timbers while the lower half flows through the Grand Prairie ecoregion. A small stretch of the creek flows through the Eastern Cross Timbers before entering Lewisville Lake.

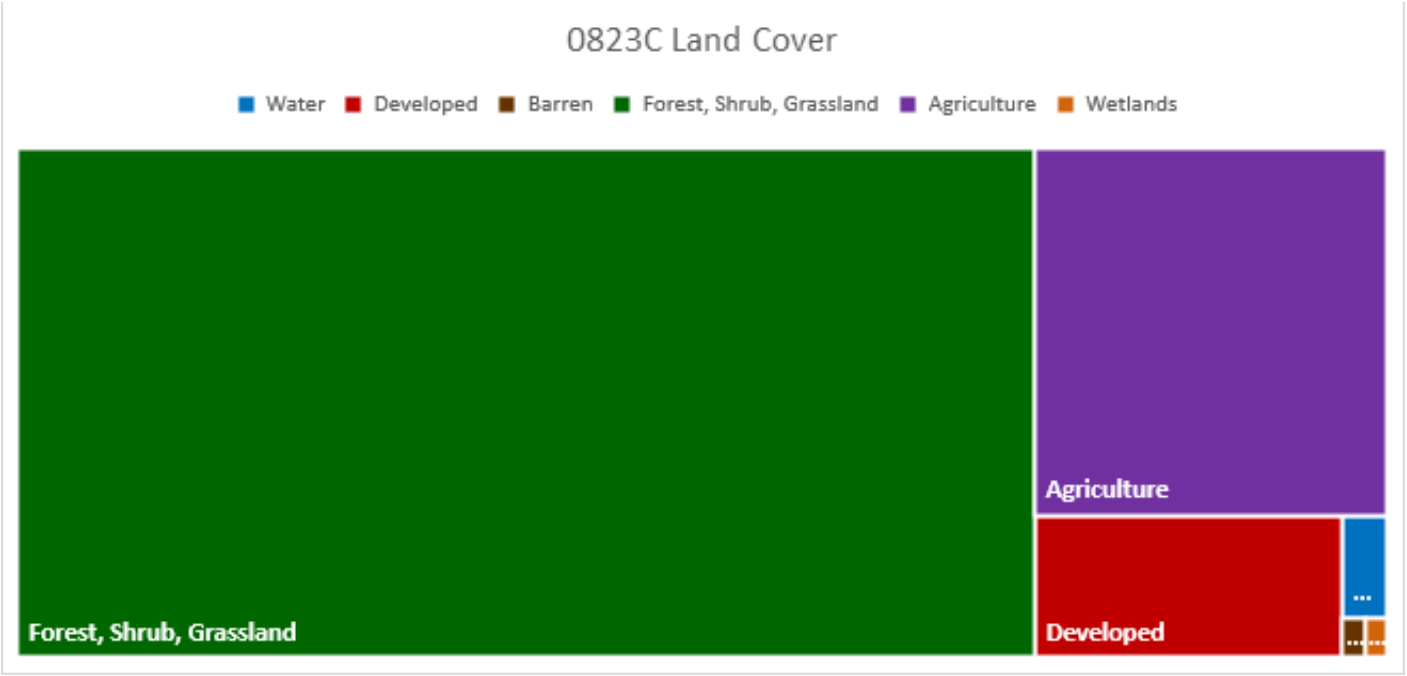

Figure 135: 0823C relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and the City of Dallas.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 25 samples had a geometric mean of 162.63 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/15/2013 to 6/23/2021 at station 10859. There were 33 samples with a geometric mean of 138.54 MPN/100 mL. Values ranged from 0.5 to 3100 MPN/100 mL and 60.6% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- City of Rosston
- Denton Sand and Gravel
- Tri County Materials
- City of Sanger
- Homeowners and HOA's
- City of Denton
- Clear Creek Natural Heritage Center

0824 - Elm Fork Trinity River Above Ray Roberts Lake

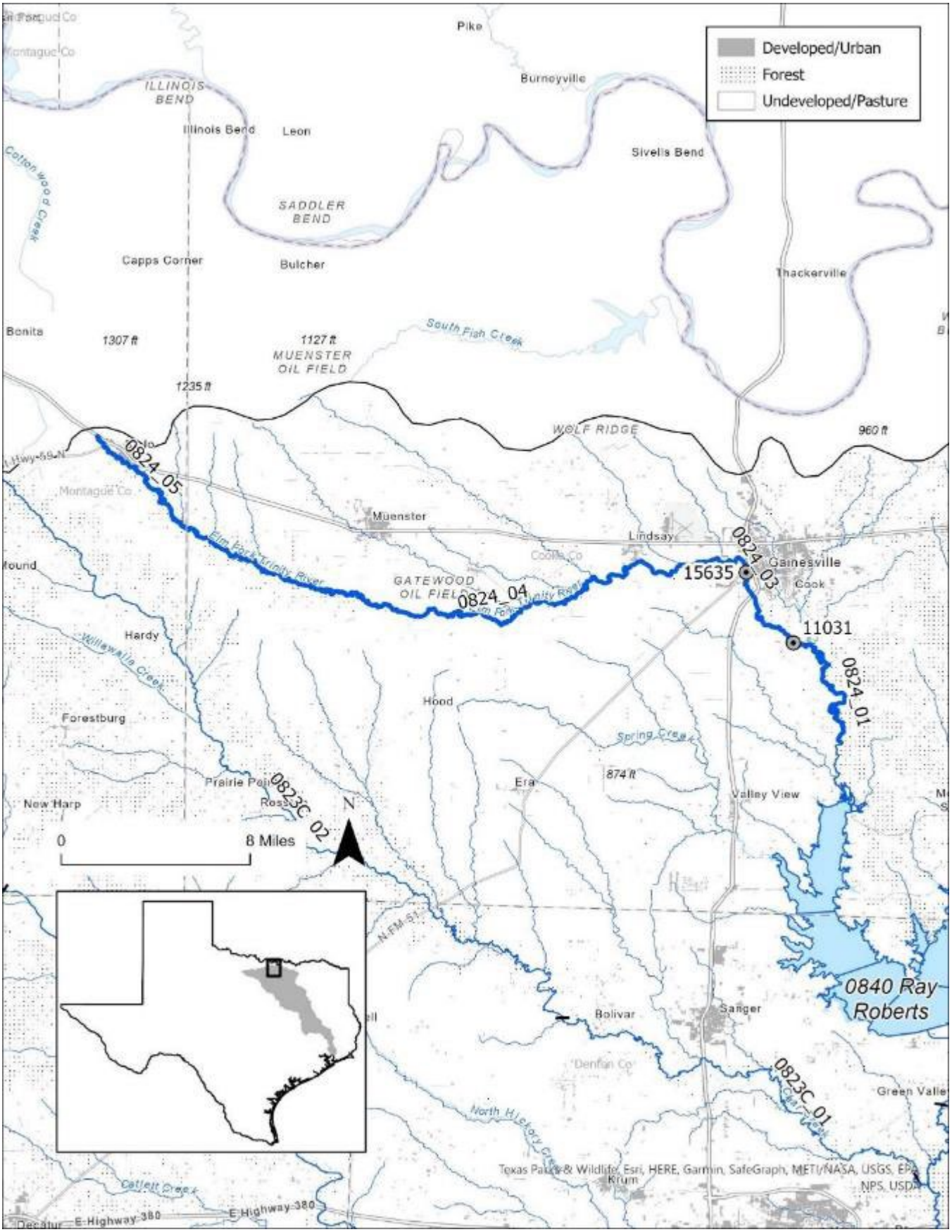

Figure 136: Map of Segment 0824

Figure 137: Elm Fork Trinity River at IH 35 in Gainesville

Segment Description

This 51-mile segment runs from US 82 in Montague County to 5.9 miles downstream of the confluence of Pecan Creek in Cooke County.

Assessment Units and Monitoring Stations

- **0824_01** - Lower 7.5 miles of segment
  - Perennial freshwater stream
  - **11031** - Elm Fork Trinity River immediately downstream of FM 2071 south of Gainesville
    - Sampling conducted by Dallas from 2013 to 2022
- **0824_02** - 2 mile reach near unmarked county road 1.4 km downstream Gainesville WWTP
  - Perennial freshwater stream
- **0824_03** - 3.5 mile reach near SH 51
  - Perennial freshwater stream
  - **15635** - Elm Fork Trinity River 59 meters downstream of FM 51 in Gainesville
    - Sampling conducted by TCEQ from 2013 to 2022
- **0824_04** - 25 mile reach near FM 3108
  - Perennial freshwater stream
- **0824_05** - Upper 48 miles of segment
  - Perennial freshwater stream

Hydrology

Segment 0824 is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 080050400 at Gainesville. The median flow over this period of record was 8.97 cfs with minimum and maximum flows of 0 and 6,830 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 11.1 cfs
- Index Period – 29.2 cfs
- Critical Period – 2.9 cfs

Land Use and Natural Characteristics

The entire segment runs through the Grand Prairie ecoregion with almost all land use classified as pasture and crop land with more grassland in the upstream portion of the segment. Oil production has been heavy in the area over the last century and natural gas drilling has increased tremendously in the last 20 years.

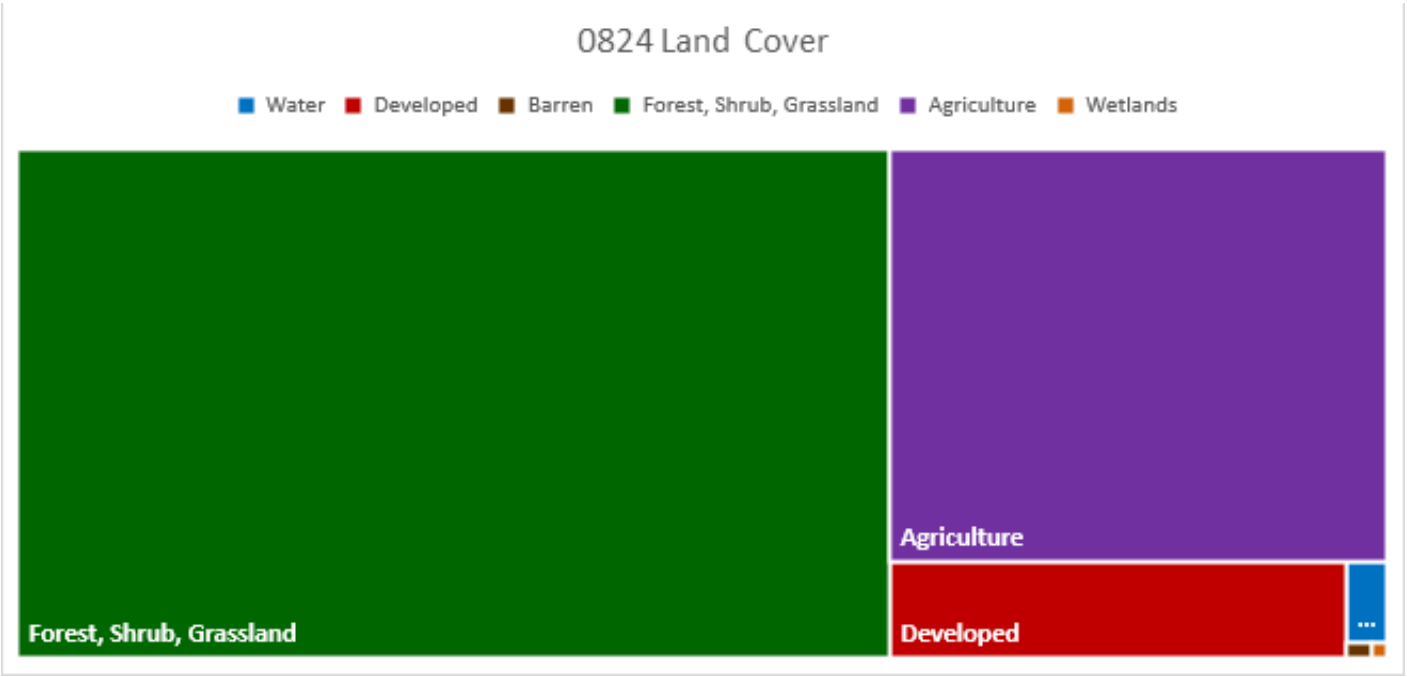

Figure 138: 0824 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and the City of Dallas.

Description of Water Quality Issue

Assessment unit 0824_03 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2016. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 390.78 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 9/25/2013 to 6/23/2021 at station 15635. There were 32 samples with a geometric mean of 220.18 MPN/100 mL. Values ranged from 10 to 9800 MPN/100 mL and 59.4% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of St Jo
- Landowners
- City of Lindsay
- City of Gainesville
- Frank Buck Zoo

0825 - Denton Creek

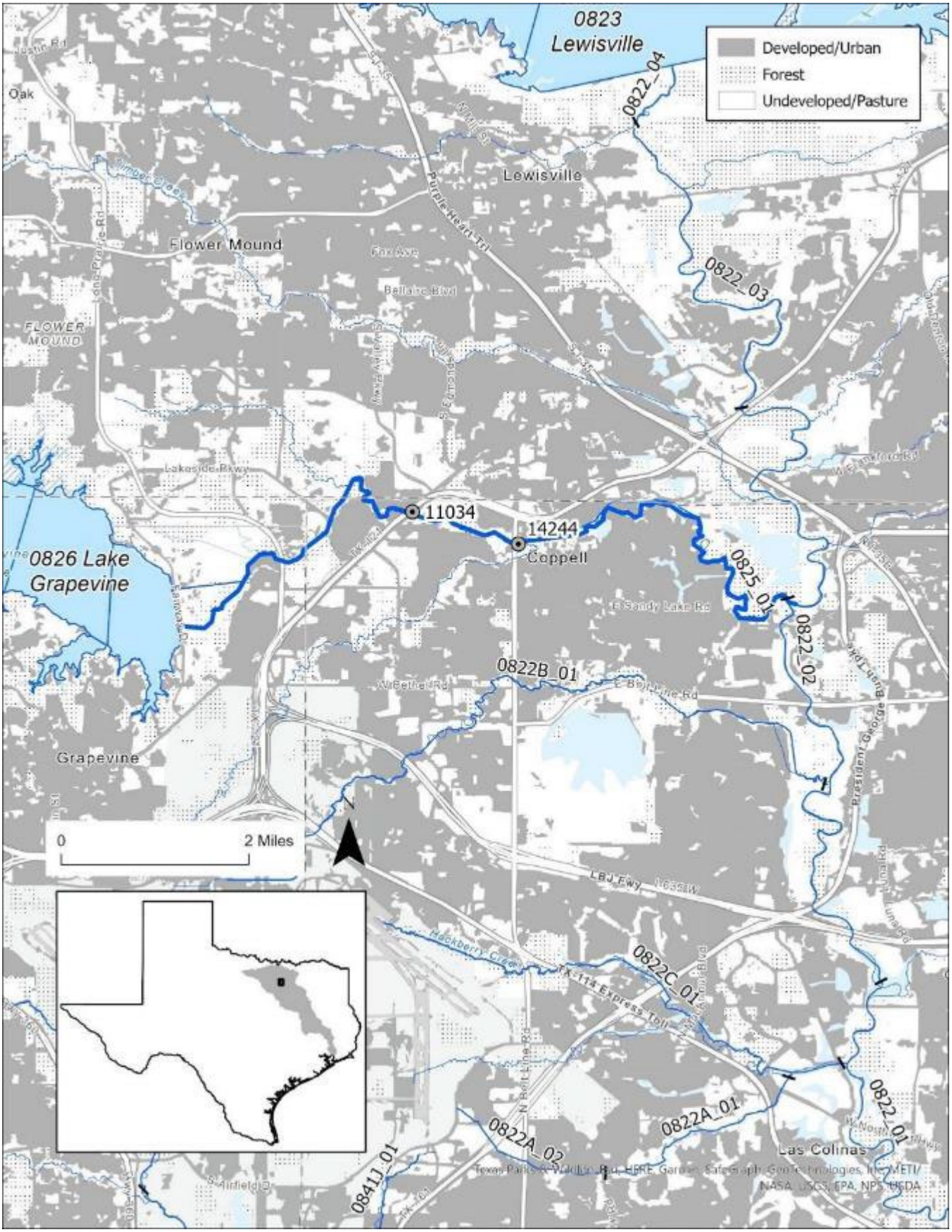

Figure 139: Map of Segment 0825

Figure 140: Denton Creek upstream of North US 377 north of Roanoke

Segment Description

This 11-mile segment runs from Grapevine Dam in Tarrant County to the confluence with the Elm Fork Trinity River in Dallas County.

Assessment Units and Monitoring Stations

- **0825_01** - From the confluence with the Elm Fork Trinity River in Dallas County to Grapevine Dam in Tarrant County
  - Perennial freshwater stream
  - **11034** - Denton Creek immediately downstream of SH 121 south of Lewisville
    - Sampling conducted by TRA from 2020 to 2022
  - **14244** - Denton Creek 41 meters upstream of Denton Tap Road 2 miles north of Coppell
    - Sampling conducted by Dallas from 2013 to 2022

Hydrology

Segment 0825 is a fifth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08055000 at Grapevine. The median flow over this period of record was 82.5 cfs with minimum and maximum flows of 14.4 and 7,500 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 71.4 cfs
- Index Period – 106 cfs

- Critical Period – 86 cfs

Land Use and Natural Characteristics

The watershed is highly developed; lying between the cities of Lewisville and Coppell. It begins in the Eastern Cross Timbers and flows into the Northern Blackland Prairie ecoregion.

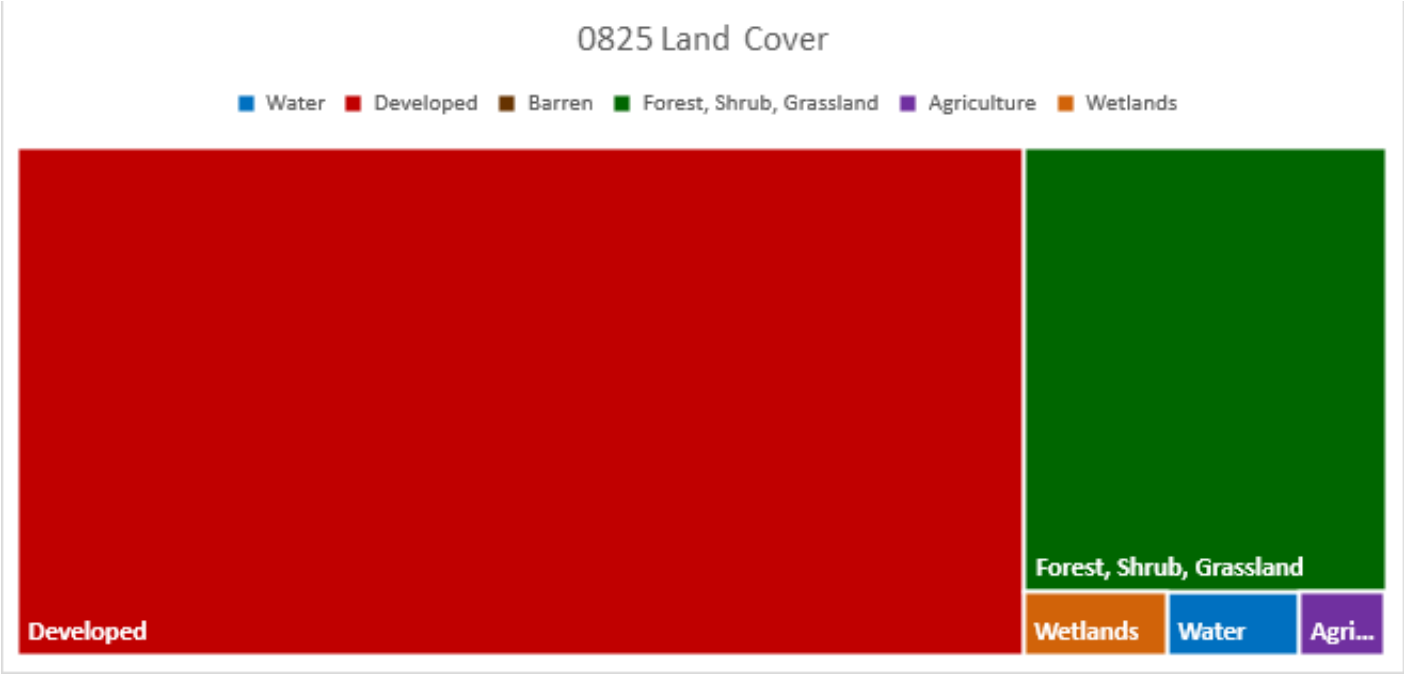

Figure 141: 0825 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA and the City of Dallas.

Description of Water Quality Issue

This segment was first found to have Recreation Use concerns due to elevated levels of *E. coli* in 2016. Based on the 2016 Integrated Report, the geometric mean for eight samples was 155.95 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. This concern was carried forward to the 2020 Integrated Report where there were no data to assess further. Data for the period of record for this report were collected from 11/5/2019 to 9/28/2020 at station 11034. There were 5 samples with a geometric mean of 84.48 MPN/100 mL. Values ranged from 16 to 180 MPN/100 mL and 40% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Grapevine
- Grapevine Recreational Area
- Homeowners and HOA's
- City of Flower Mound
- City of Carrollton
- Dallas Gun Club

0827A - White Rock Creek above White Rock Lake

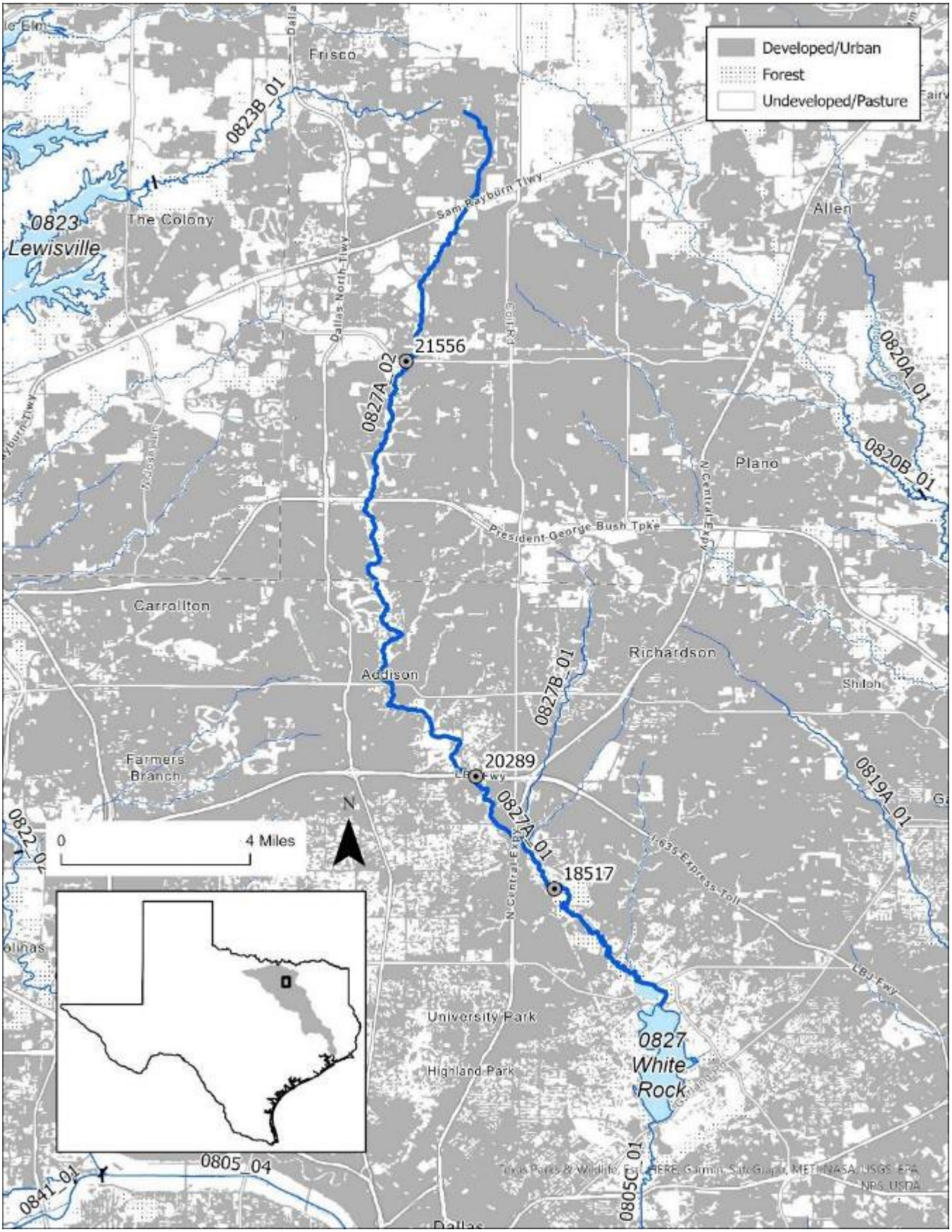

Figure 142: Map of Segment 0827A

Figure 143: White Rock Creek upstream of Greenville Avenue in Dallas

Segment Description

This 27-mile portion of White Rock Creek runs from the headwaters at Hilcrest Road in Frisco to the headwaters of White Rock Lake.

Assessment Units and Monitoring Stations

- **0827A_01** - From the headwaters of White Rock Lake upstream to the confluence with McKamy Branch east of the City of Addison
  - Perennial freshwater stream
  - **20289** - White Rock Creek at IH635 north service road immediately west of Park Central Drive
    - Sampling conducted by TRA from 2013 to 2022
  - **21556** - White Rock Creek at West Spring Creek Parkway in Dallas
    - Sampling conducted by TRA from 2014 to 2016
  - **18517** - White Rock Creek immediately upstream of Greenville Ave in Dallas TX
    - Sampling conducted by TRA in 2018
- **0827A_02** - From the confluence with McKamy Branch east of the City of Addison upstream to the headwaters at Hillcrest Road in Frisco
  - Perennial freshwater stream
  - **22256** - White Rock Creek at West Plano Parkway, 144 meters west of Campbell Road
    - Sampling conducted by Plano in 2022
  - **22257** - White Rock Creek 90 meters South of Sam Rayburn Tollway
    - Sampling conducted by Plano in 2022

Hydrology

Unclassified segment 0827A is a second order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08057200 at Greenville Avenue. The median flow over this period of record was 28.2 cfs with minimum and maximum flows of 0.11 and 11,400 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 31 cfs
- Index Period – 37.6 cfs
- Critical Period – 11.9 cfs

Land Use and Natural Characteristics

The watershed is heavily developed with some small wooded riparian areas and lies within the Northern Blackland Prairie ecoregion.

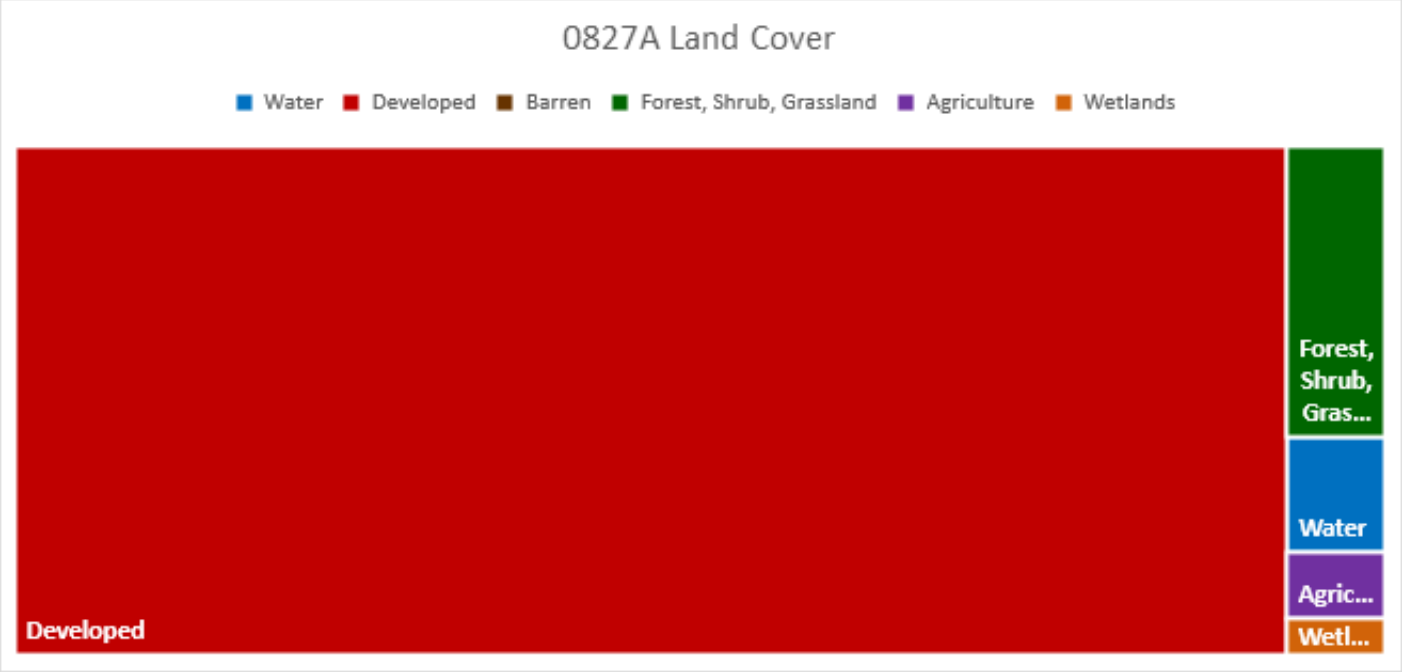

Figure 144: 0827A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ, TRA and the City of Plano.

Description of Water Quality Issue

Assessment unit 0827A_01 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2016. Based on the 2020 Integrated Report, 36 samples had a geometric mean of 263.11 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/18/2013 to 10/19/2020 at stations 20289 and 21556. There were 40 samples with a geometric mean of 326.05 MPN/100 mL. Values ranged from 13 to 9700 MPN/100 mL and 67.5% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Frisco
- Homeowners and HOA's
- Plantation Golf Club
- City of Plano
- Gleneagles Golf Course
- City of Dallas
- Preston Trail Golf Club
- The Clubs of Prestonwood – The Creek
- City of Addison
- Northwood Golf Club
- Royal Oaks Country Club

0828A - Village Creek

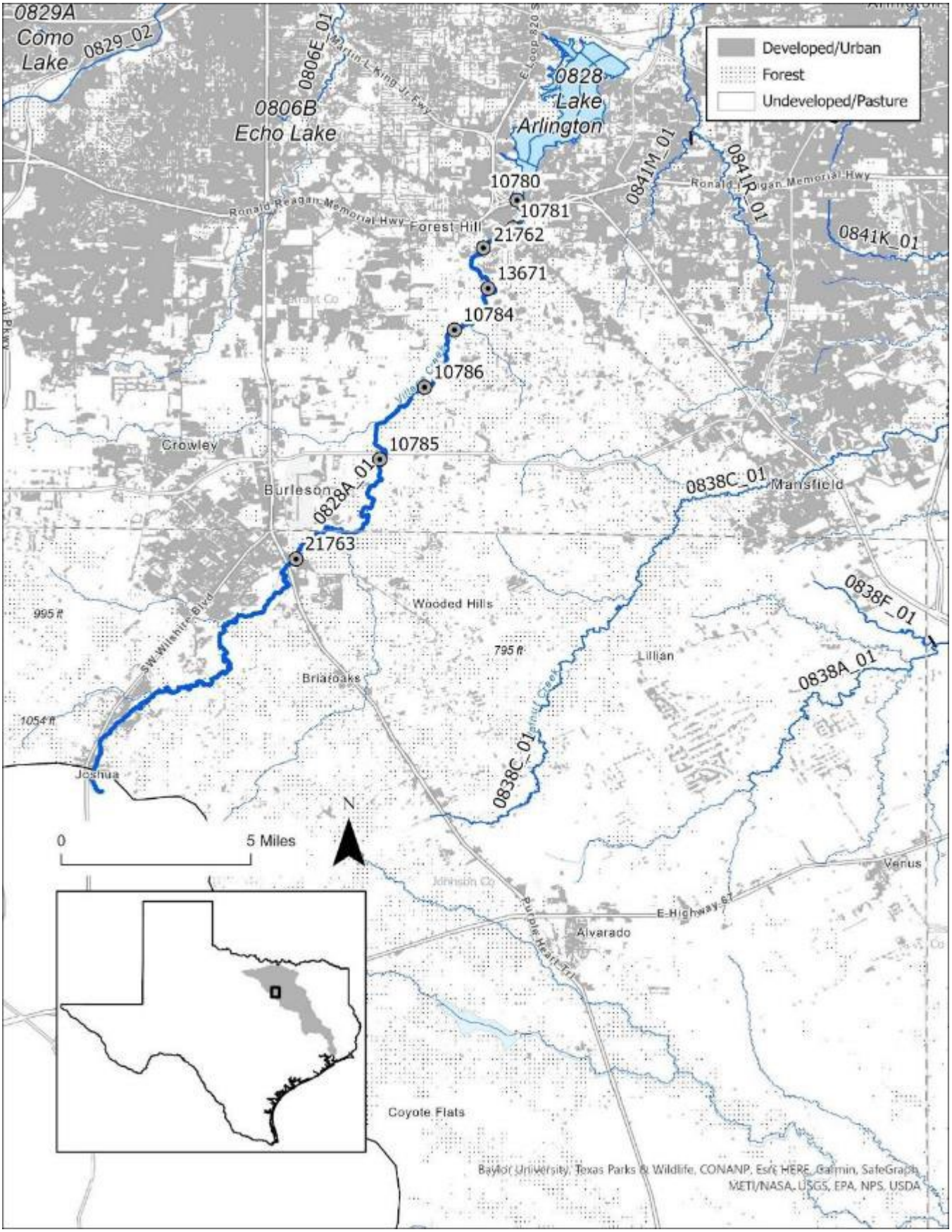

Figure 145: Map of Segment 0828A

Figure 146: Village Creek downstream of Shelby Road southeast of Everman

Segment Description

This 24-mile unclassified segment runs from the headwaters east of Joshua in Johnson County to the confluence with Lake Arlington in Tarrant County.

Assessment Units and Monitoring Stations

- **0828A_01** - From Lake Arlington to the headwaters
  - Freshwater stream, intermittent with perennial pools
  - **10780** - Village Creek on west bank at IH 20 west feeder road in Arlington
    - Sampling conducted by TRA from 2016 to 2017
  - **10784** - Village Creek immediately upstream of Shelby Road near Everman
    - Sampling conducted by TRA in 2016
  - **10786** - Village Creek immediately downstream of Rendon Road southwest of Arlington
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
    - Sampling conducted by TRA from 2016 to 2019
  - **10781** - Village Creek 200 meters downstream of US BUS 287P southwest of Arlington
    - Sampling conducted by TRA from 2016 to 2017 and 2022
  - **10785** - Village Creek 348 meters upstream of Oak Grove/Rendon Road/FM 1187
    - Sampling conducted by TRA from 2016 to 2017
  - **13671** - Village Creek at Everman-Kennedale Road
    - Sampling conducted by TRA from 2016 to 2017
  - **21762** - Village Creek 198 meters to the east of Freeman Drive and Esco Drive in Forest Hill area of Fort Worth 312 meters upstream of SE Landfill Road
    - Sampling conducted by TRA from 2016 to 2017
  - **21763** - Village Creek at FM 3391 in Burleson
    - Sampling conducted by TRA from 2016 to 2017

Hydrology

Unclassified segment 0828A is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08048970 at Everman. The median flow over this period of

record was 4.37 cfs with minimum and maximum flows of 0 and 6,320 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 5.54 cfs
- Index Period – 8.78 cfs
- Critical Period – 0.45 cfs

Land Use and Natural Characteristics

Development surrounds the cities of Burleson in the middle of the watershed and Forest Hill and Kennedale at the lower end of the watershed. The remainder of the watershed is largely pasture, hay, and grassland. There are some pockets of forested land throughout the watershed. The watershed flows through the Grand Prairie ecoregion to the west and the Eastern Cross Timbers to the east.

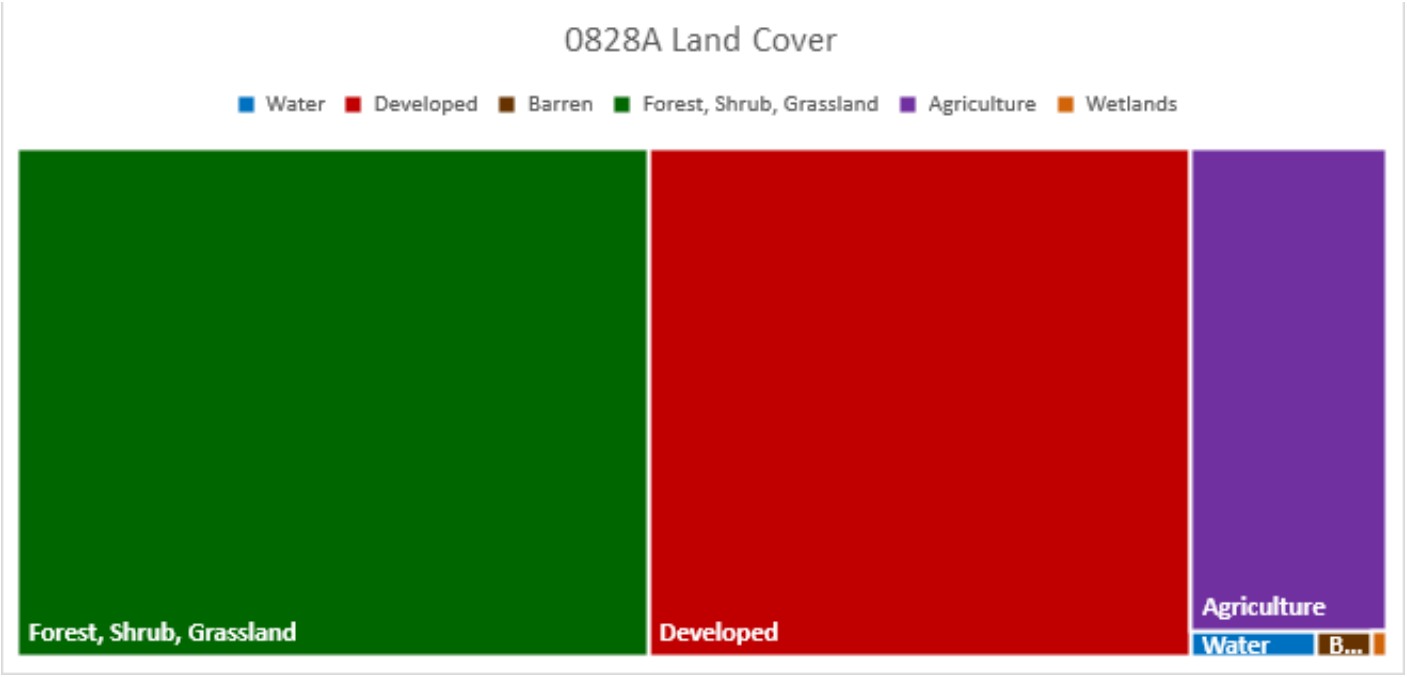

Figure 147: 0828A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA and Tarrant Regional Water District.
- Village Creek-Lake Arlington Watershed Protection Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 68 samples had a geometric mean of 571.73 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/9/2013 to 9/2/2020 at stations 10780, 10781, 10785, 10786, 13671, 21762, and 21763. There were 120 samples with a geometric mean of 253.53 MPN/100 mL. Values ranged from 0.5 to 49000 MPN/100 mL and 52.5% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.

- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Livestock best management practices.
- Landowner education about livestock waste.
- Wastewater infrastructure inspection and repair.
- Village Creek-Lake Arlington Watershed Protection Plan/Implementation.

Potential Stakeholders

- City of Joshua
- Landowners
- Homeowners and HOA's
- City of Cross Timber
- City of Briaroaks
- City of Burleson
- City of Crowley
- City of Rendon
- City of Everman
- City of Forest Hill
- City of Kennedale
- South Fort Worth RV Ranch, LLC
- EMCAD Water and Wastewater, LLC
- Johnson County SUD
- Hidden Creek Golf Couse
- Southern Oaks Golf and Tennis Club
- Republic Services Fort Worth Southeast Landfill

0829 - Clear Fork Trinity River Below Benbrook Lake

Segment Description

See Segment 0829 Segment Description

Hydrology

See Segment 0829 Hydrology.

Land Use and Natural Characteristics

See Segment 0829 Land Use and Natural Characteristics.

Ongoing Projects

- Routine water quality monitoring by the City of Fort Worth and TCEQ.

Description of Water Quality Issue

Assessment unit 0829_02 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2018. Based on the 2020 Integrated Report, 45 samples had a geometric mean of 234.72 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 3/18/2013 to 6/23/2021 at stations 11045 and 18456. There were 61 samples with a geometric mean of 193.72 MPN/100 mL. Values ranged from 5 to 49000 MPN/100 mL and 49.2% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

See Segment 0829 Potential Stakeholders.

0831 - Clear Fork Trinity River Below Lake Weatherford

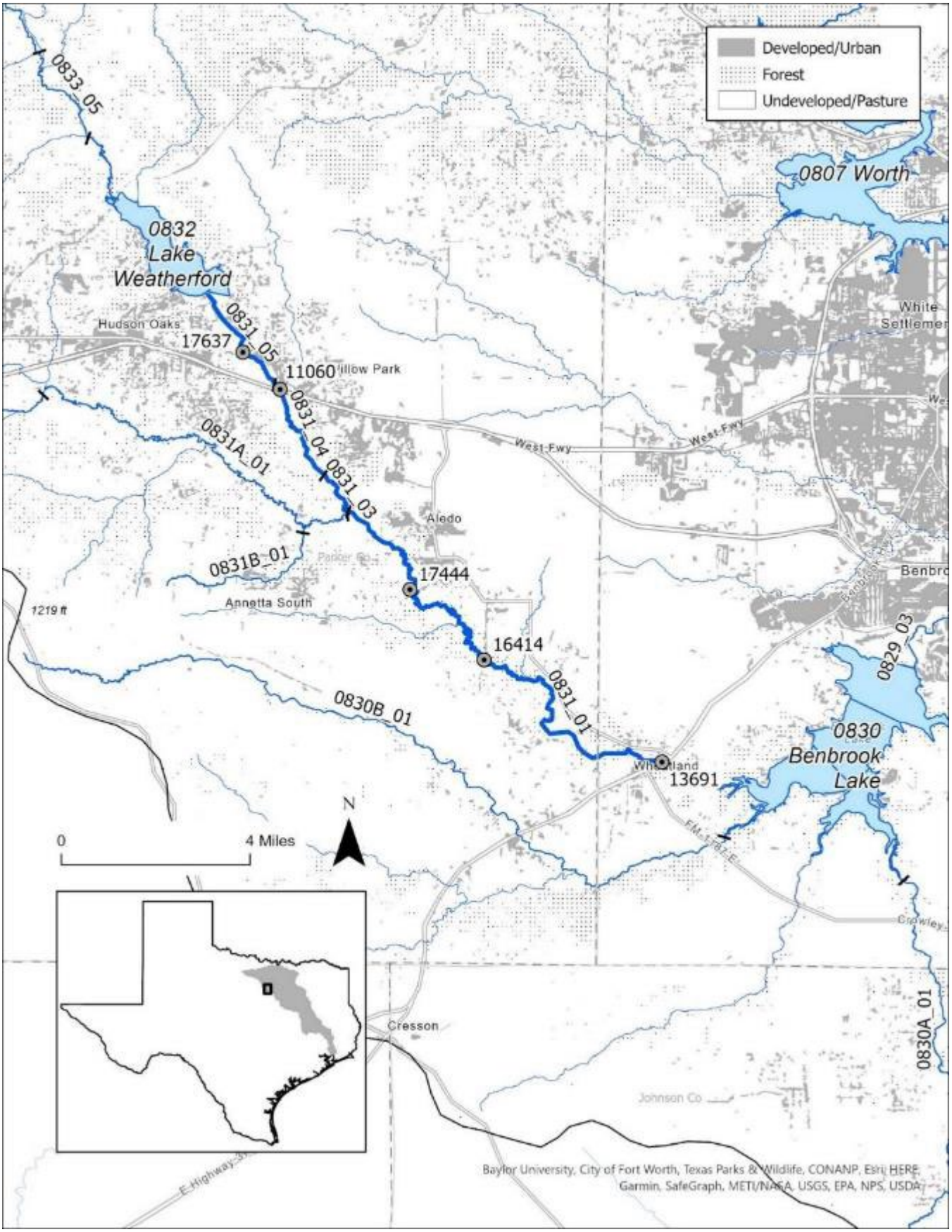

Figure 148: Map of Segment 0831

Figure 149: Clear Fork Trinity River Upstream of Kelly Road South of Aledo

Segment Description

This 20-mile segment runs from the Lake Weatherford dam in Parker County to 220 yards downstream of US 377 in Tarrant County.

Assessment Units and Monitoring Stations

- **0831_01** - Lower 12.75 miles downstream from South Fork Trinity River confluence
  - Perennial freshwater stream
  - **13691** - Clear Fork Trinity River at US 377 near Aledo TX
    - Sampling conducted by TRA in 2017
  - **16414** - Clear Fork Trinity River at Kelly Road 8.7 kilometers upstream of US 377 south of Aledo
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
    - Sampling conducted by TRA in 2013
  - **17444** - Clear Fork Trinity River at FM 5 3.2 kilometers downstream of confluence of Clear Fork and South Fork south of Aledo
    - Sampling conducted by TCEQ from 2013 to 2022
- **0831_03** - From the confluence with South Fork of Trinity River to a point 2 miles upstream
  - Perennial freshwater stream
- **0831_04** - 2 miles upstream of South Fork Trinity River confluence to Squaw Creek confluence
  - Perennial freshwater stream
  - **11060** - Clear Fork Trinity River at IH 20 west service road east of Weatherford
    - Sampling conducted by TRA from 2014 to 2016
- **0831_05** - From the confluence of Squaw Creek to Lake Weatherford Dam
  - Perennial freshwater stream

- **17637** - Clear Fork Trinity River immediately downstream of Crown Road 2.5 kilometers downstream of Lake Weatherford Dam east of Weatherford
  - Sampling conducted by TRA from 2014 to 2016

Hydrology

Segment 0831 is a fourth order stream at its most downstream end. There are two USGS flow gages in this segment with data covering the period from 2013 to 2021: 08045850 near Weatherford and 08045995 near Aledo. The median flow over this period of record was 2.28 cfs at the upstream Weatherford gage and 13.6 cfs at the downstream Aledo gage with minimum and maximum flows of 0 and 4,630 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for these gages are listed below.

- Non-Index Period – 2.18 and 13.7 cfs
- Index Period – 3.94 and 22.4 cfs
- Critical Period – 1.98 and 7.31 cfs

Land Use and Natural Characteristics

The majority of the land use in 0831 is grassland and pasture especially along the lower half of the segment. The upper half of the segment has some development along the IH-20 corridor, including the cities of Hudson Oaks, Willow Park, and Aledo. This river flows through the Western Cross Timbers ecoregion but the surrounding watershed drains the Grand Prairie ecoregion.

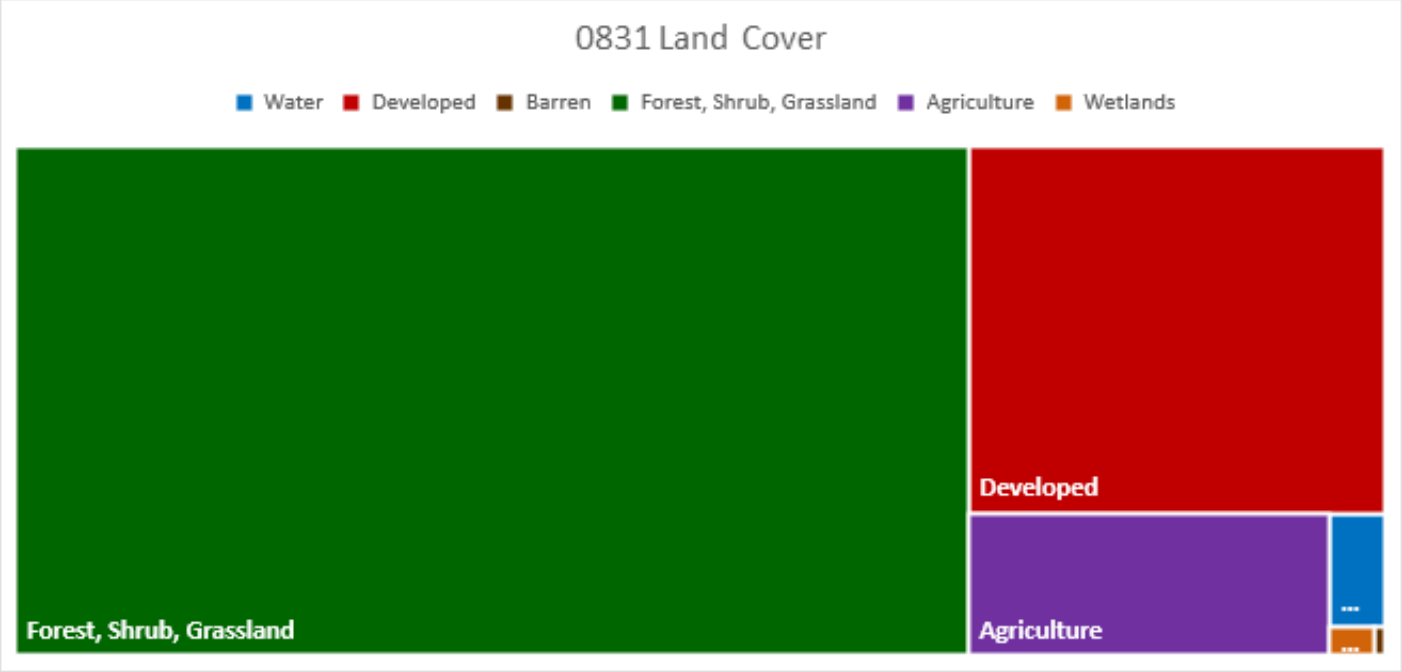

Figure 150: 0831 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ and Tarrant Regional Water District.

Description of Water Quality Issue

Assessment unit 0831_01 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2016. Based on the 2020 Integrated Report, 25 samples had a geometric mean of 370.99 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 3/18/2013 to 6/23/2021 at station 17444. There were 30 samples with a geometric mean of 383.08 MPN/100 mL. Values ranged from 55 to 3700 MPN/100 mL and 93.3% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Improperly functioning wastewater treatment facility.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.
- Sampling upstream and downstream of wastewater treatment facilities to determine if they are operating properly.

Potential Stakeholders

- City of Weatherford Municipal Utility Board of Trustees
- Oeste Ranch Golf Course
- City of Weatherford
- City of Willow Park
- Homeowners and HOA's
- City of Annetta North
- Burnco Concrete Aledo
- Underwood Road Materials
- Clear Fork Materials, LLC
- City of Aledo
- Landowners
- City of Annetta South

0831A - South Fork Trinity River

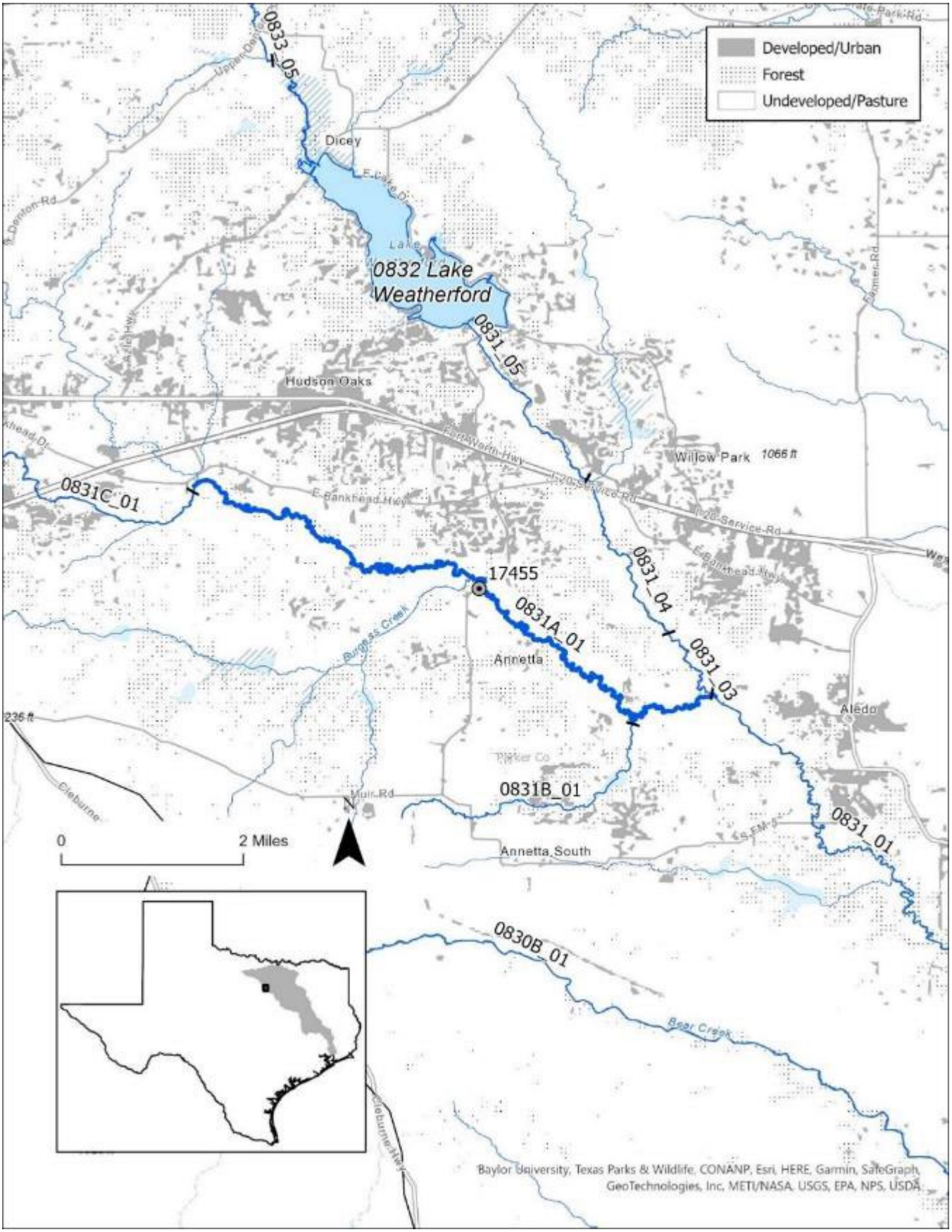

Figure 151: Map of Segment 0831A

Segment Description

This 12-mile stretch of the South Fork Trinity River runs from the confluence with Willow Creek in Parker County to the confluence with the Clear Fork Trinity River.

Assessment Units and Monitoring Stations

- **0831A_01** - Eleven mile stretch of South Fork Trinity River running upstream from confluence with Clear Fork Trinity River to confluence with Willow Creek in Parker County
  - Perennial freshwater stream
  - **17455** - South Fork Trinity River at FM 5 4.1 kilometers upstream of confluence with Clear Fork Trinity River north of Anneta
    - Sampling conducted by TRA from 2016 to 2018 and 2022

Hydrology

Unclassified segment 0831A is a third order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2016 and 2018, the median was 6.95 cfs with minimum and maximum flows of 1.1 and 13 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 8.2 cfs
- Index Period – 11 cfs
- Critical Period – 1.8 cfs

Land Use and Natural Characteristics

Much of the watershed is rural with grassland and pasture being the predominant land use. There are some forested areas spread throughout the watershed and some development along the IH-20 corridor on the north side of the river. The river flows through the Western Cross Timbers with a small portion of the Grand Prairie ecoregion along the southwestern edge of the watershed.

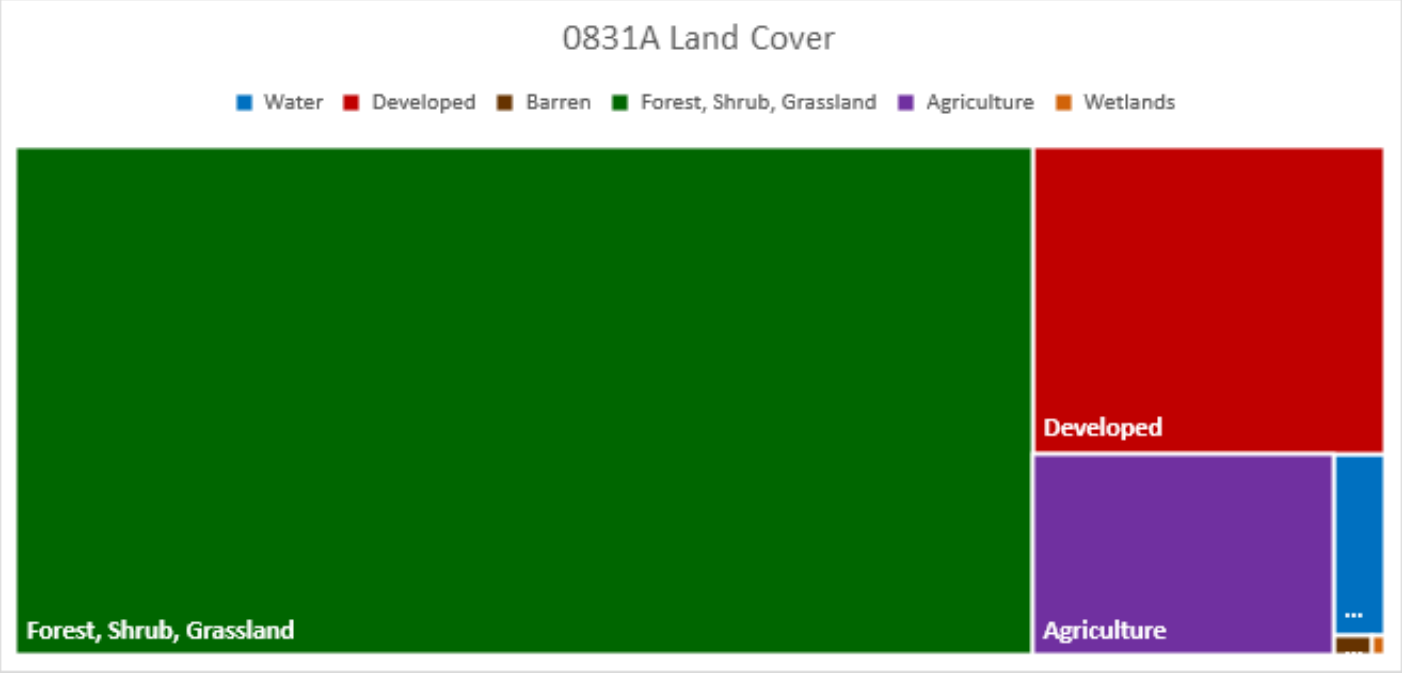

Figure 152: 0831A relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, nine samples had a geometric mean of 245.03 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/25/2017 to 8/9/2018 at station 17455. There were 9 samples with a geometric mean of 245.03 MPN/100 mL. Values ranged from 82 to 590 MPN/100 mL and 77.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- October Hill Farm
- City of Annetta North
- Split Rail Links and Golf Club

0836 - Richland-Chambers Reservoir

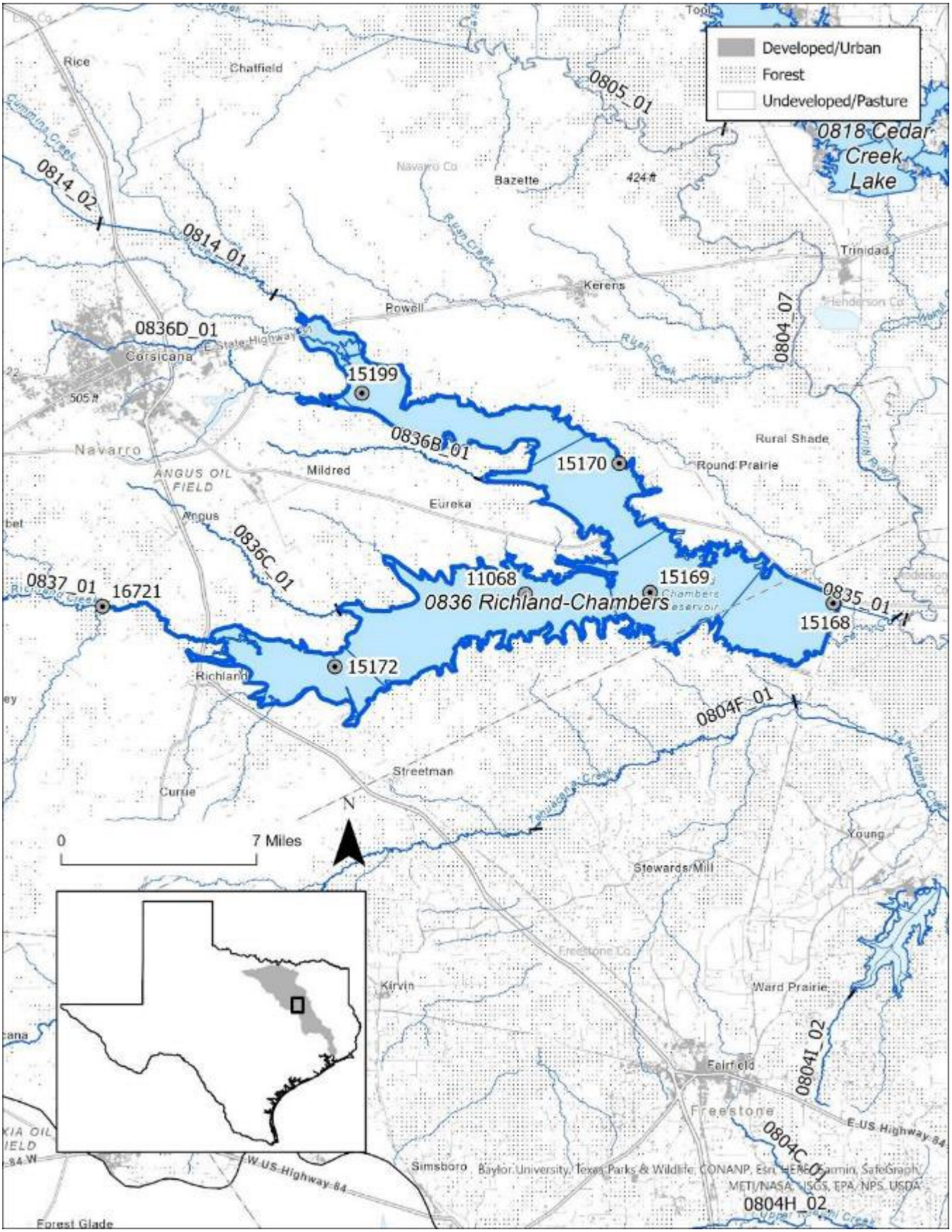

Figure 153: Map of Segment 0836

Figure 154: Richland-Chambers Reservoir Richland Creek arm at Southeast CR 1098

Segment Description

This 42,978-acre reservoir runs from a point immediately upstream of the confluence of Pin Oak Creek on the Richland Creek Arm and from a point 2.5 miles downstream of Tupelo Branch on the Chambers Creek Arm to the Richland-Chambers Dam. It impounds Richland and Chambers Creeks up to the normal pool elevation of 315 feet.

Assessment Units and Monitoring Stations

- **0836_01** - Lowermost portion of reservoir adjacent to dam
  - **15168** - Richland-Chambers Reservoir at north endof dam 332 meters south and 555 meters west of intersection of US 287 and RR 488
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_02** - Confluence of Richland and Chambers Creek arms
  - **15169** - Richland-Chambers Reservoir 1.95 kilometers north and 2.26 kilometers west of intersection of SE 3190 Road and Old Highway 287
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_03** - Lower portion of Chambers Creek arm
  - **15170** - Richland-Chambers Reservoir Chambers Creek arm near TCWCID 1 pump station 570 meters south and 1.16 kilometers west of intersection of SE 3240 and SE 3250
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_04** - Upper portion of Chambers Creek arm
  - **15199** - Richland-Chambers Reservoir upper end of Chambers Creek arm 2.52 kilometers north and 329 meters west of intersection of Wichita Trail and FM 637
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022

- **0836_05** - Lower portion of Richland Creek arm
  - **11068** - Richland-Chambers Reservoir Richland Creek arm mid lake 2.24 kilometers south and 276 meters east of intersection of Petty Road and SE 2230 Road
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_06** - Upper portion of Richland Creek arm
  - **15172** - Richland-Chambers Reservoir in upper end of Richland Creek arm 2.01 kilometers south and 150 meters east of intersection of Navarro Slab and SE 1095
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_07** - Remainder of reservoir
  - **16721** - Richland Creek at SW 0030 Road upstream of Richland-Chambers Reservoir
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
- **0836_08** - Post Oak Creek Arm off of Chambers Creek Arm of Richland Chambers Reservoir

Hydrology

Segment 0836 is a reservoir with one arm on a fourth order stream and another arm on a fifth order stream. The conservation pool elevation for this reservoir is 315 feet. Over the period of record for this report, the median elevation was 314.2 feet with a range of 304.2 feet to 317 feet.

Land Use and Natural Characteristics

A majority of the watershed is hay and pasture land. There are some areas of crop land to the north of the Chambers Creek arm and forest to the south of the Richland Creek arm. The City of Corsicana lies upstream of the Chambers Creek arm. The reservoir lies within the Northern Blackland Prairie ecoregion with a small portion of the downstream end of the reservoir in the Floodplains and Low Terraces. Richland-Chambers Reservoir has been noted as being eutrophic by the TCEQ Trophic Classification of Texas Reservoirs report.

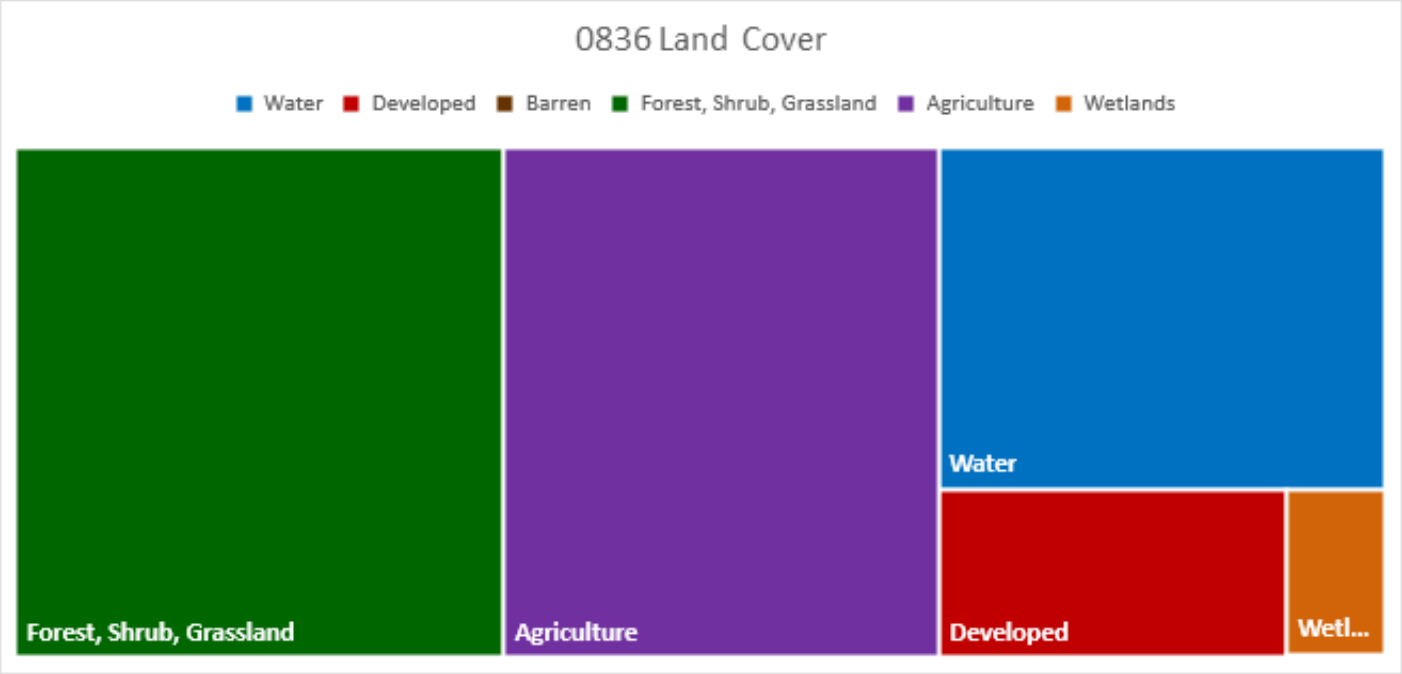

Figure 155: 0836 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Richland-Chambers Water Quality Initiative.

Description of Water Quality Issue

Assessment unit 0836_07 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2018. Based on the 2020 Integrated Report, 31 samples had a geometric mean of 812.06 MPN/100 mL which

exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 11/17/2020 at station 16721. There were 51 samples with a geometric mean of 511.66 MPN/100 mL. Values ranged from 8 to 24000 MPN/100 mL and 68.6% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- Goodalta Power Center, LLC
- White Rock Homeowners Association Inc
- Bosque Utilities Corp
- Texas DOT
- Arcosa LWS, LLC

0836D - Post Oak Creek

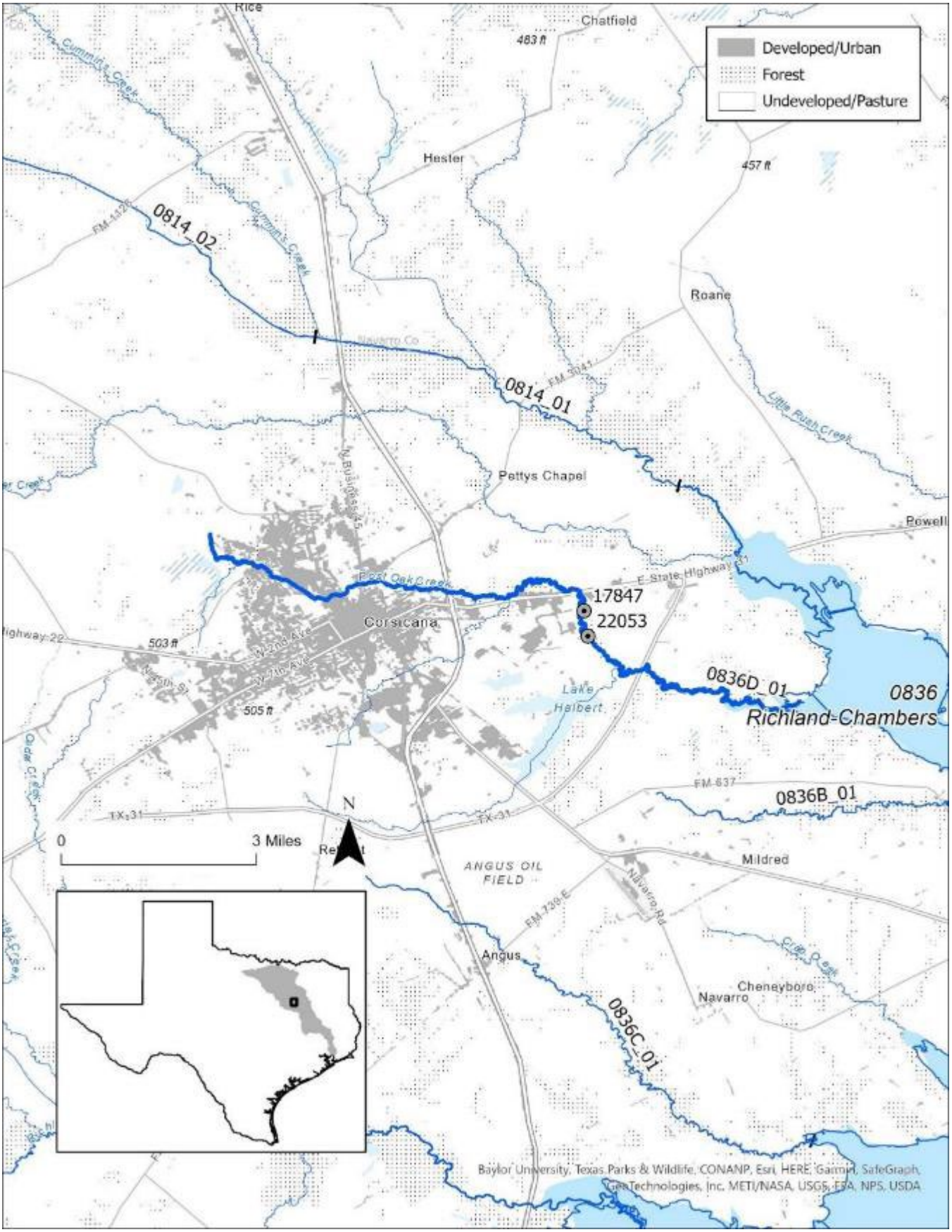

Figure 156: Map of Segment 0836D

Segment Description

This 14.8-mile stream runs from the upper end of the creek to the confluence with Richland Chambers Reservoir.

Assessment Units and Monitoring Stations

- **0836D_01** - From the confluence with Richland Chambers Reservoir to the upper end of the creek
  - Intermittent freshwater stream
  - **17847** - Post Oak Creek 109 meters downstream of Powell Pike east of Corsicana
    - Sampling conducted by Tarrant Regional Water District from 2013 to 2022
  - **22053** - Post Oak Creek at Navarro County Road CRSE 0010 east of Corsicana
    - Sampling conducted by TRA from 2018 to 2022

Hydrology

Unclassified segment 0836D is a second order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2018 and 2020, the median was 4.9 cfs with minimum and maximum flows of 1.6 and 53 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 5.7 cfs
- Index Period – 6.2 cfs
- Critical Period – 3.6 cfs

Land Use and Natural Characteristics

The upper portion of the stream flows through the developed lands of the City of Corsicana. The lower portion of the stream flows through largely hay and pasture land with some grass and crop lands. The watershed lies within the Northern Blackland Prairie ecoregion.

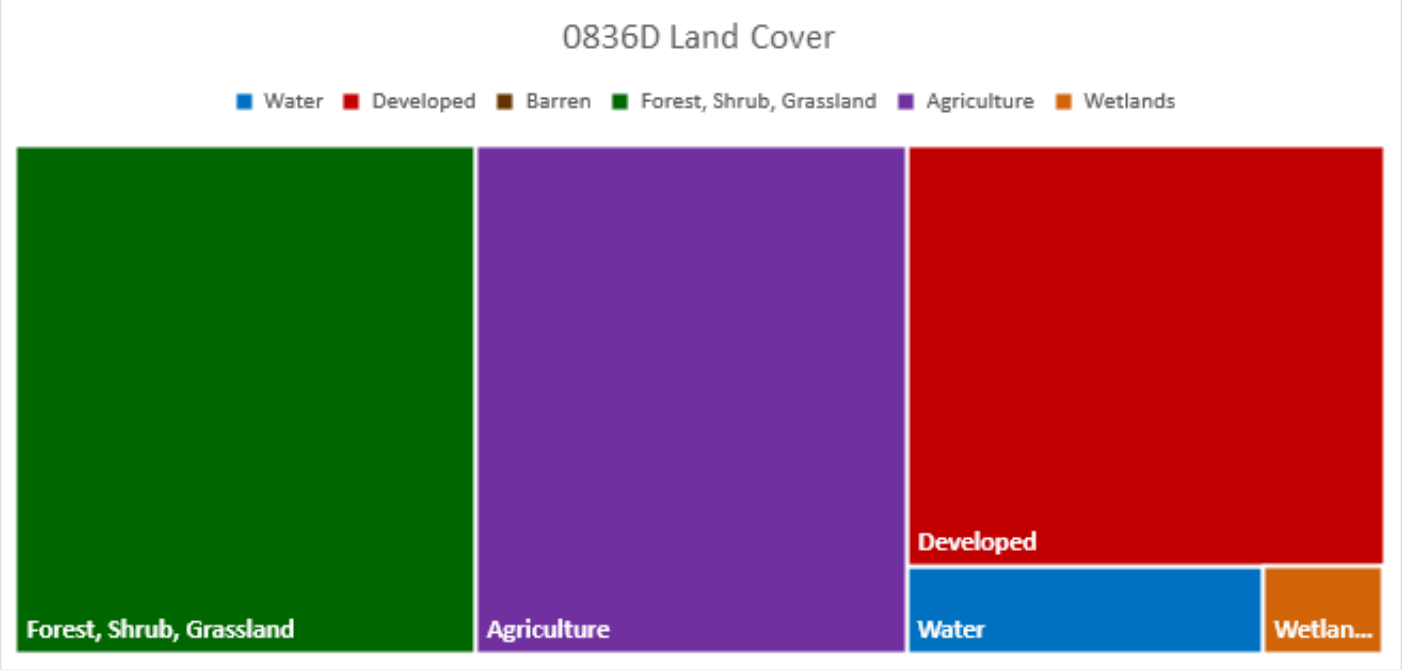

Figure 157: 0836D relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by Tarrant Regional Water District.
- Richland-Chambers Water Quality Initiative.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 14 samples had a geometric mean of 6,191.18 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/11/2013 to 5/26/2020 at station 17847. There were 20 samples with a geometric mean of 4,809.86 MPN/100 mL. Values ranged from 350 to 24000 MPN/100 mL and all of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Runoff containing waste from livestock.
- Direct deposition by livestock.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- Landowners
- City of Corsicana
- Homeowners and HOA's
- Enterprise Precast Concrete Inc
- CMC Plant 101
- Chameleon Industries

0837 - Richland Creek Above Richland-Chambers Reservoir

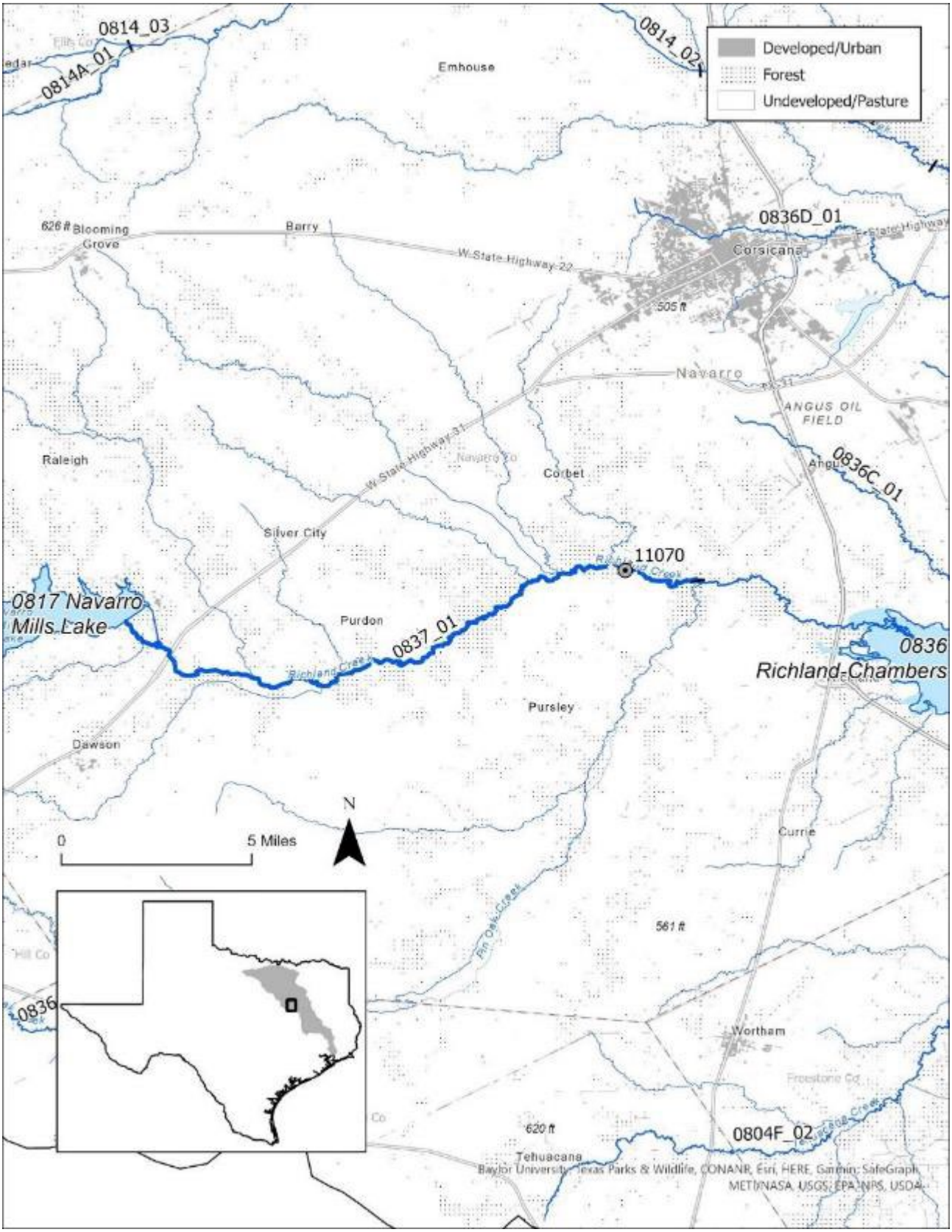

Figure 158: Map of Segment 0837

Segment Description

This 22.7-mile segment runs from Navarro Mills Dam to the confluence of Pin Oak.

Assessment Units and Monitoring Stations

- **0837_01** - From the confluence of Pin Oak Creek in Navarro County to Navarro Mills Dam in Navarro County
  - Perennial freshwater stream
  - **11070** - Richland Creek 60 meters downstream of FM 709 2.8 kilometers upstream of Richland-Chambers Reservoir
    - Sampling conducted by TCEQ from 2013 to 2022

Hydrology

Segment 0837 is a fourth order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08063100 near Dawson. The median flow over this period of record was 2.02 cfs with minimum and maximum flows of 0 and 4,610 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 2.01cfs
- Index Period – 9.96 cfs
- Critical Period – 1.14 cfs

Land Use and Natural Characteristics

Much of the watershed is a mix of hay, pasture, and grassland. There are some areas of crop land to the south of the stream and woody wetland riparian areas. The stream flows through the Northern Blackland Prairie ecoregion.

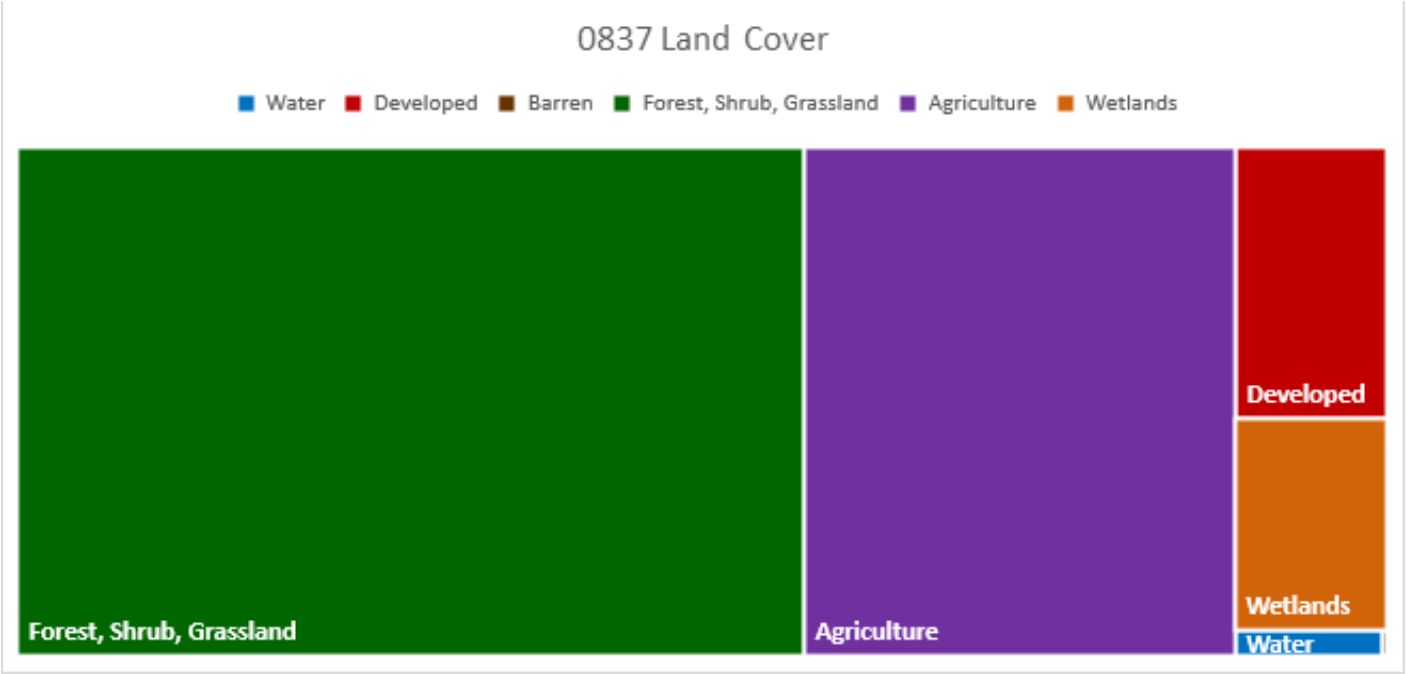

Figure 159: 0837 relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TCEQ.
- Richland-Chambers Water Quality Initiative.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 23 samples had a geometric mean of 175.35 MPN/100 mL which exceeded the

standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/16/2013 to 7/20/2021 at station 11070. There were 31 samples with a geometric mean of 177.58 MPN/100 mL. Values ranged from 6 to 4100 MPN/100 mL and 64.5% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from livestock.
- Direct deposition by livestock.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Livestock best management practices.
- Landowner education about livestock waste.

Potential Stakeholders

- City of Navarro Mills
- Navarro Mills Water Supply Corporation
- Landowners

0841 - Lower West Fork Trinity River

Segment Description

See Segment 0841 Segment Description.

Hydrology

See Segment 0841 Hydrology.

Land Use and Natural Characteristics

See Segment 0841 Land Use and Natural Characteristics.

Ongoing Projects

- Routine water quality monitoring by the City of Grand Prairie and TRA.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

Assessment unit 0841_01 was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 1996. Based on the 2020 Integrated Report, 26 samples had a geometric mean of 212.97 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 2/6/2013 to 9/28/2020 at station 11081. There were 31 samples with a geometric mean of 213.46 MPN/100 mL. Values ranged from 22 to 9700 MPN/100 mL and 48.4% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

See Segment 0841 Potential Stakeholders.

0841F - Cottonwood Creek

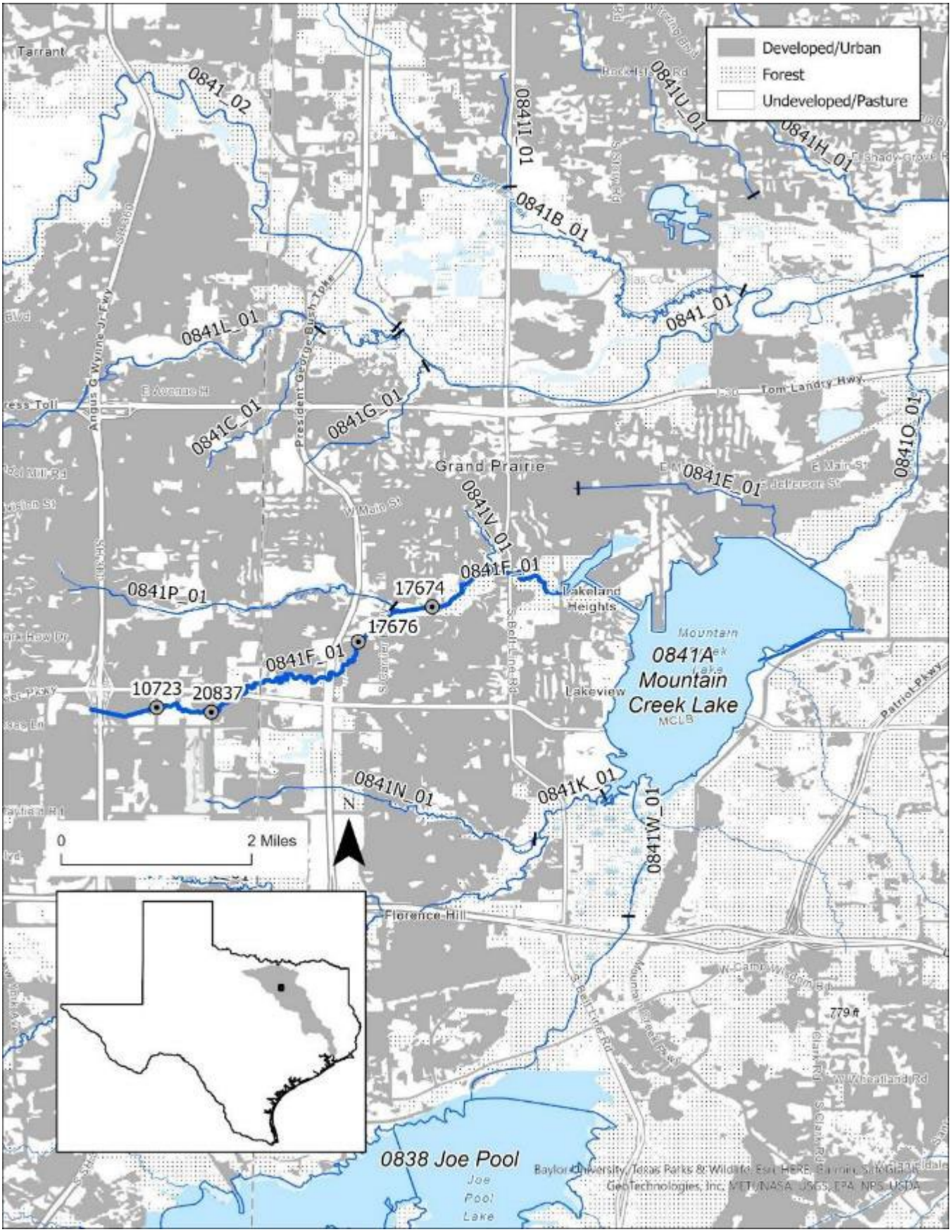

Figure 160: Map of Segment 0841F

Figure 161: Cottonwood Creek at Beltline Road in Grand Prairie

Segment Description

This unclassified segment is a 6.5-mile stretch of Cottonwood Creek running from SH 360 in Arlington to approximately 0.1-miles upstream of Mountain Creek Reservoir in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841F_01** - A 6.5 mile stretch of Cottonwood Creek running upstream from approximately 0.1 miles upstream of Mountain Creek Reservoir in Dallas County to SH 360 in Tarrant County
  - Perennial freshwater stream
  - **10723** - Unnamed tributary of Cottonwood Creek at north bound direction of Forum Drive in Arlington
    - Sampling conducted by Arlington from 2013 to 2022
  - **17674** - Cottonwood Creek immediately upstream of Southwest 3rd Street in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022
  - **17676** - South Fork Cottonwood Creek at Robinson Road in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022
  - **20837** - Cottonwood Creek at South Great Southwest Parkway in Grand Prairie approximately 270 meters north and 5 meters west of the intersection of South Great Southwest Parkway and Arkansas Lake
    - Sampling conducted by Grand Prairie from 2013 to 2014

Hydrology

Unclassified segment 0841F is a second order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 1 cfs with minimum and maximum flows of 0 and 13 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 1.1 cfs
- Index Period – 1.5 cfs
- Critical Period – 0.4 cfs

Land Use and Natural Characteristics

The watershed is heavily developed and lies within the Northern Blackland Prairie ecoregion.

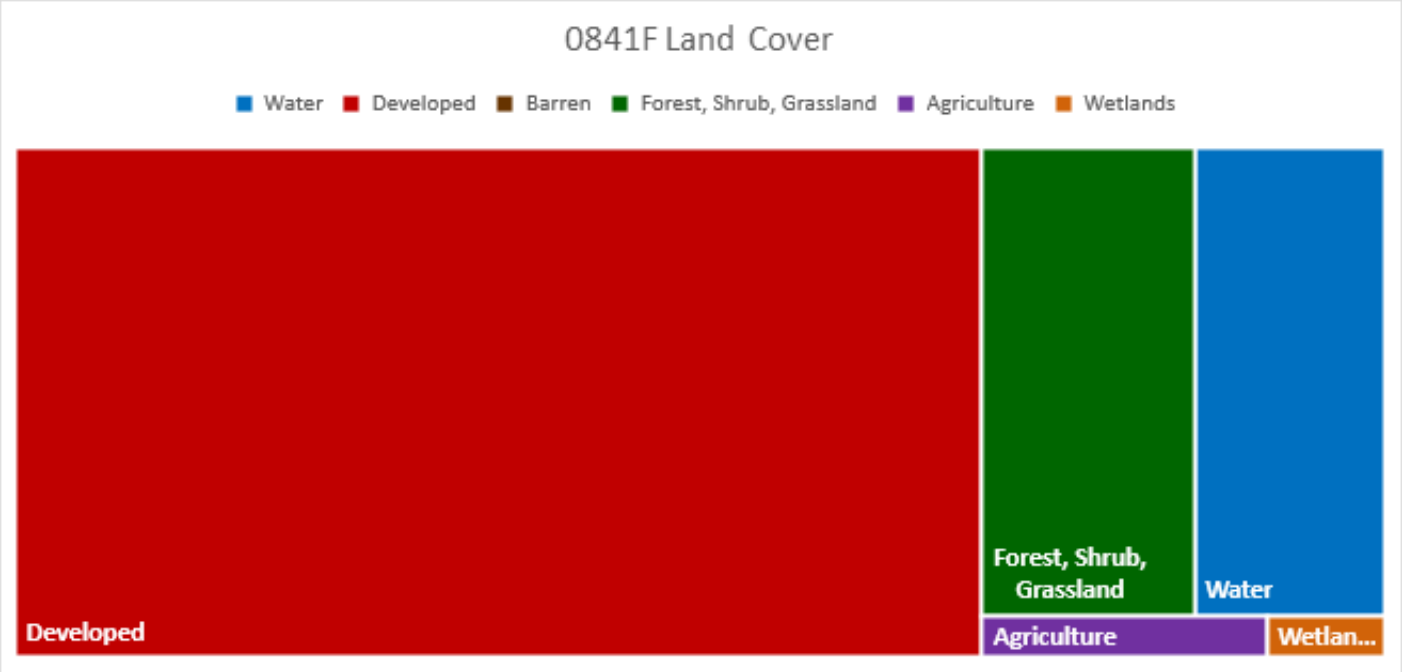

Figure 162: 0841F relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the cities of Grand Prairie and Arlington.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 206 samples had a geometric mean of 188.49 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 2/24/2021 at stations 10723, 17674, 17676, and 20837. There were 230 samples with a geometric mean of 240.81 MPN/100 mL. Values ranged from 2 to 22000 MPN/100 mL and 64.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- City of Grand Prairie
- Lockheed Martin – Grand Prairie
- Homeowners and HOA's
- Landowners
- City of Dallas

0841G - Dalworth Creek

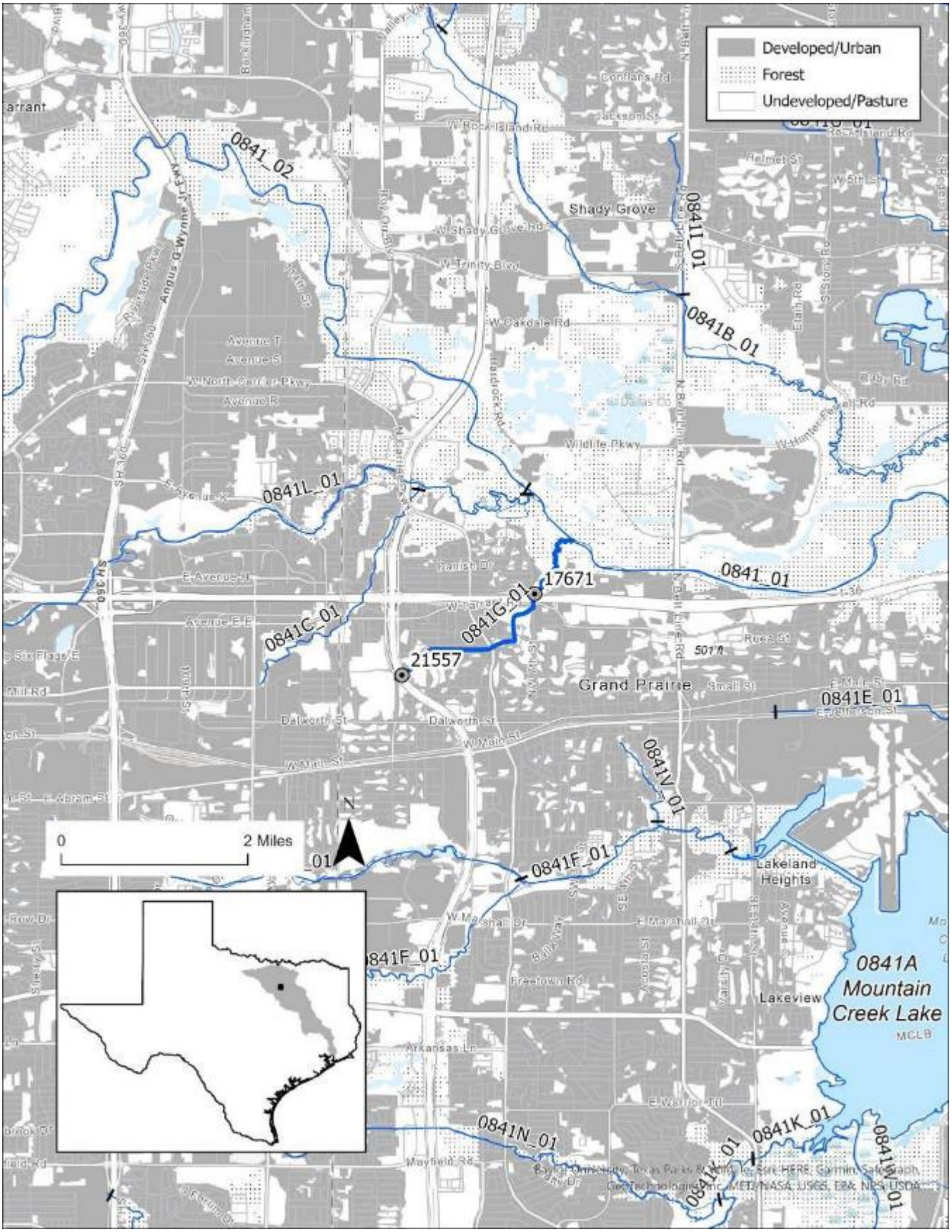

Figure 163: Map of Segment 0841G

Figure 164: Dalworth Creek at West Palace Parkway in Grand Prairie

Segment Description

This unclassified segment is a 2.2-mile stretch of Dalworth Creek running from County Line Road in Grand Prairie to the confluence with the Lower West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0841G_01** - A 2.2 mile stretch of Dalworth Creek running upstream from confluence with Lower West Fork Trinity to County Line Road in Grand Prairie in Dallas County
  - Perennial freshwater stream
  - **17671** - Dalworth Creek immediately upstream of West Palace Parkway in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2014
  - **21557** - Dalworth Creek at President George Bush Turnpike/SH 161 in Grand Prairie
    - Sampling conducted by TRA from 2014 to 2017

Hydrology

Unclassified segment 0841G is a first order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2013 and 2017, the median was 0.04 cfs with minimum and maximum flows of 0 and 3.4 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.04 cfs
- Index Period – 0.7 cfs
- Critical Period – 0 cfs

Land Use and Natural Characteristics

The watershed is developed and lies within the Northern Blackland Prairie ecoregion.

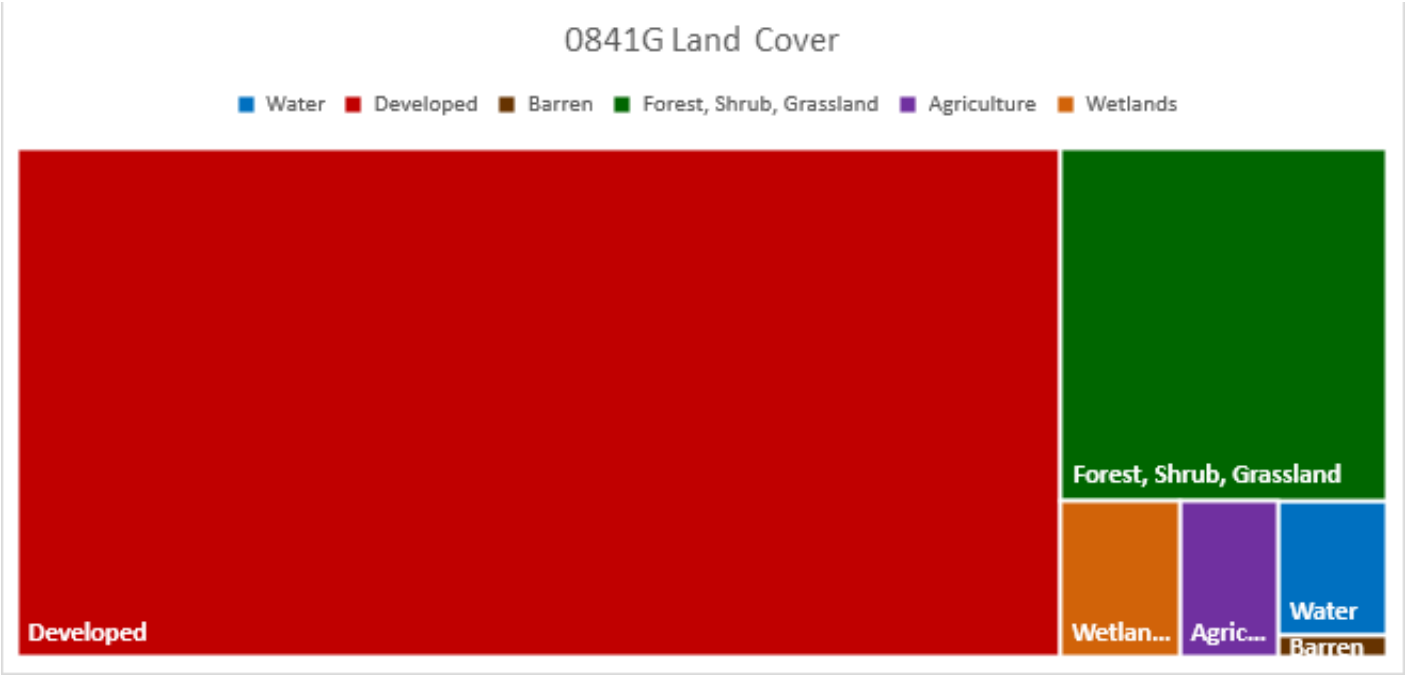

Figure 165: 0841G relative land cover totals.

Ongoing Projects

- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 32 samples had a geometric mean of 462.51 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 7/24/2017 at stations 17671 and 21557. There were 29 samples with a geometric mean of 363.55 MPN/100 mL. Values ranged from 12 to 14000 MPN/100 mL and 69% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Grand Prairie
- Homeowners and HOA's

0841I - Dry Branch Creek

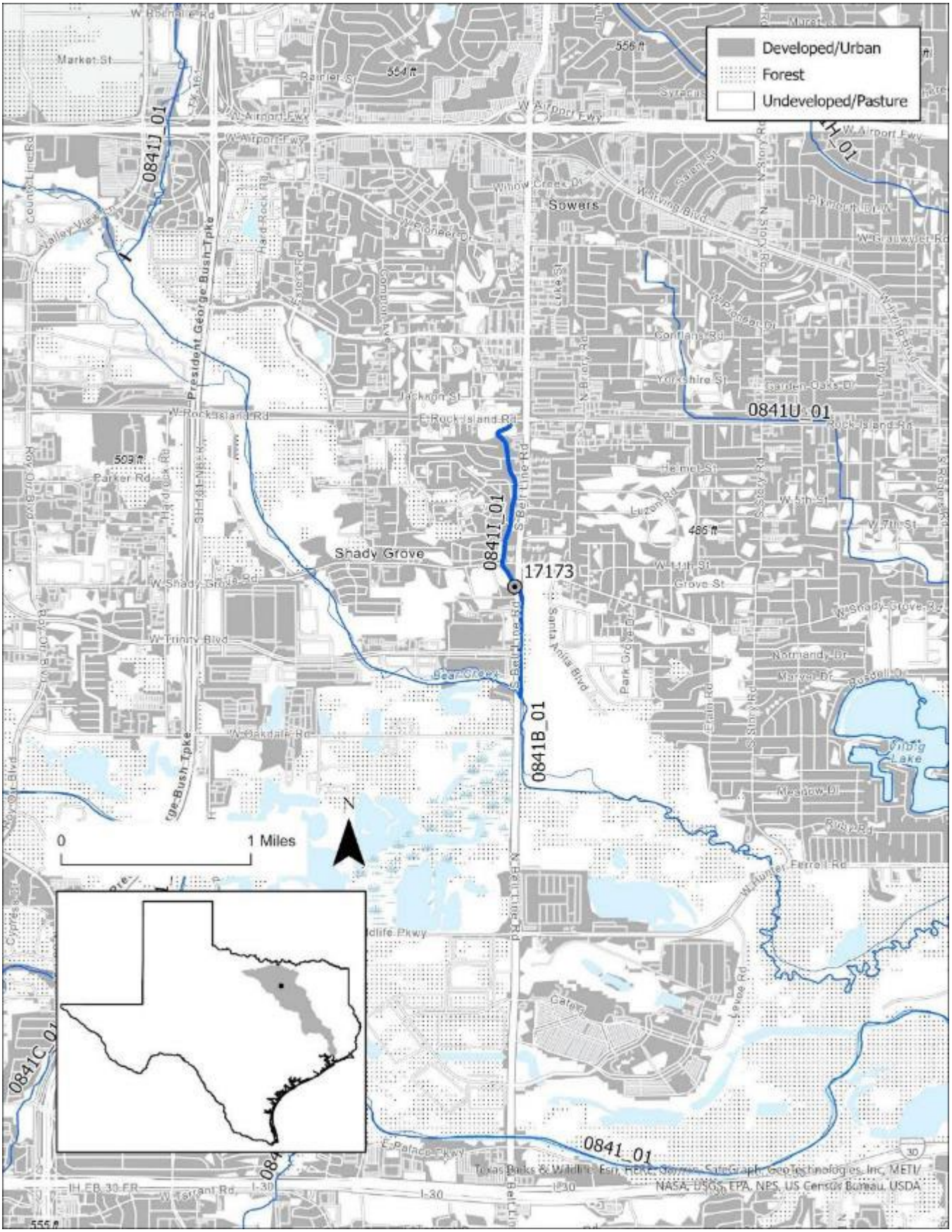

Figure 166: Map of Segment 0841I

Segment Description

0841I is a 1.5-mile stretch of Dry Branch Creek running from Rock Island Road in Irving to the confluence with the Lower West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0841I_01** - A 1.5 mile stretch of Dry Branch Creek running upstream from confluence with Lower West Fork Trinity to Rock Island Road in Irving in Dallas County
    - Intermittent freshwater stream
    - **17173** - Dry Branch immediately upstream of South Beltline Road in Irving
        - Sampling conducted by Irving from 2013 to 2022

Hydrology

Unclassified segment 0841I is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0.5 cfs with minimum and maximum flows of 0 and 3.7 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.5 cfs
- Index Period – 0.7 cfs
- Critical Period – 0.2 cfs

Land Use and Natural Characteristics

The watershed is heavily developed with a small portion of pasture near the most downstream portion of the stream. It lies within Northern Blackland Prairie ecoregion.

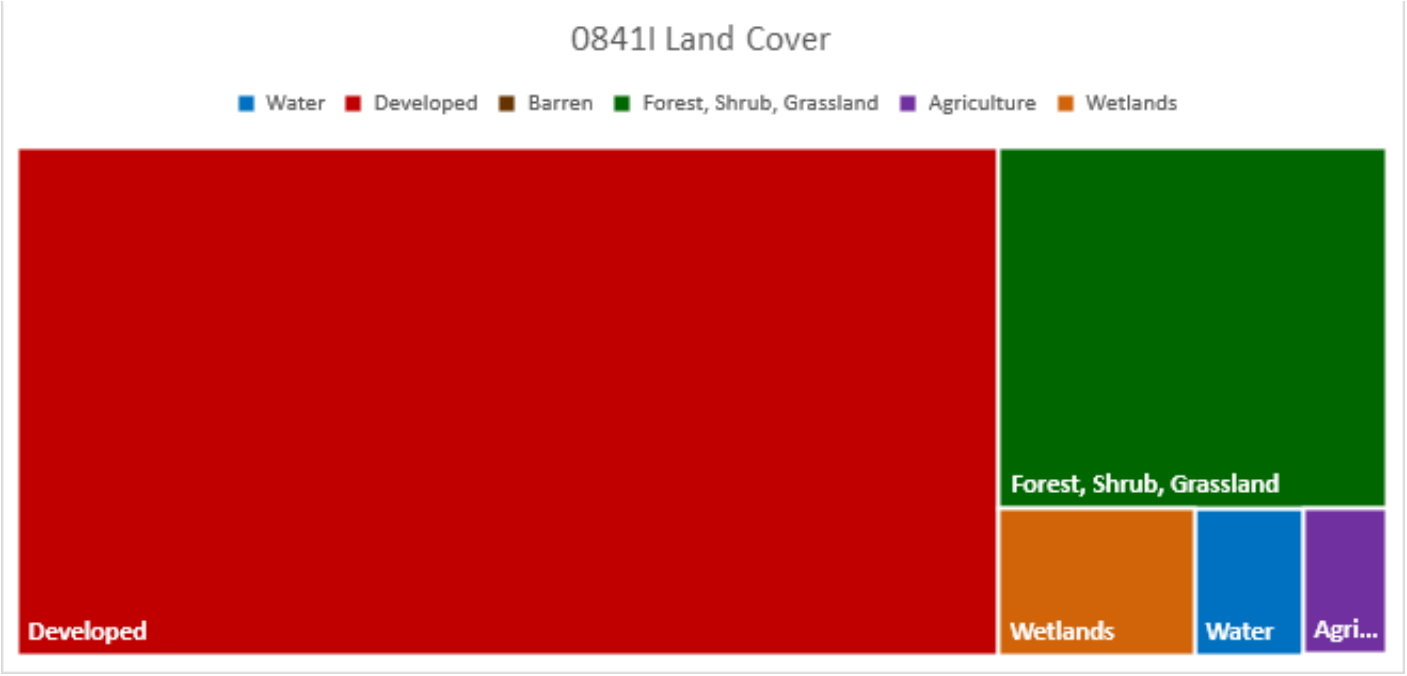

Figure 167: 0841I relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Irving.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 30 samples had a geometric mean of 397.06 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 11/12/2013 to 11/3/2020

at station 17173. There were 38 samples with a geometric mean of 388.91 MPN/100 mL. Values ranged from 2 to 24000 MPN/100 mL and 71.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Irving
- City of Grand Prairie
- Homeowners and HOA's

0841K - Fish Creek

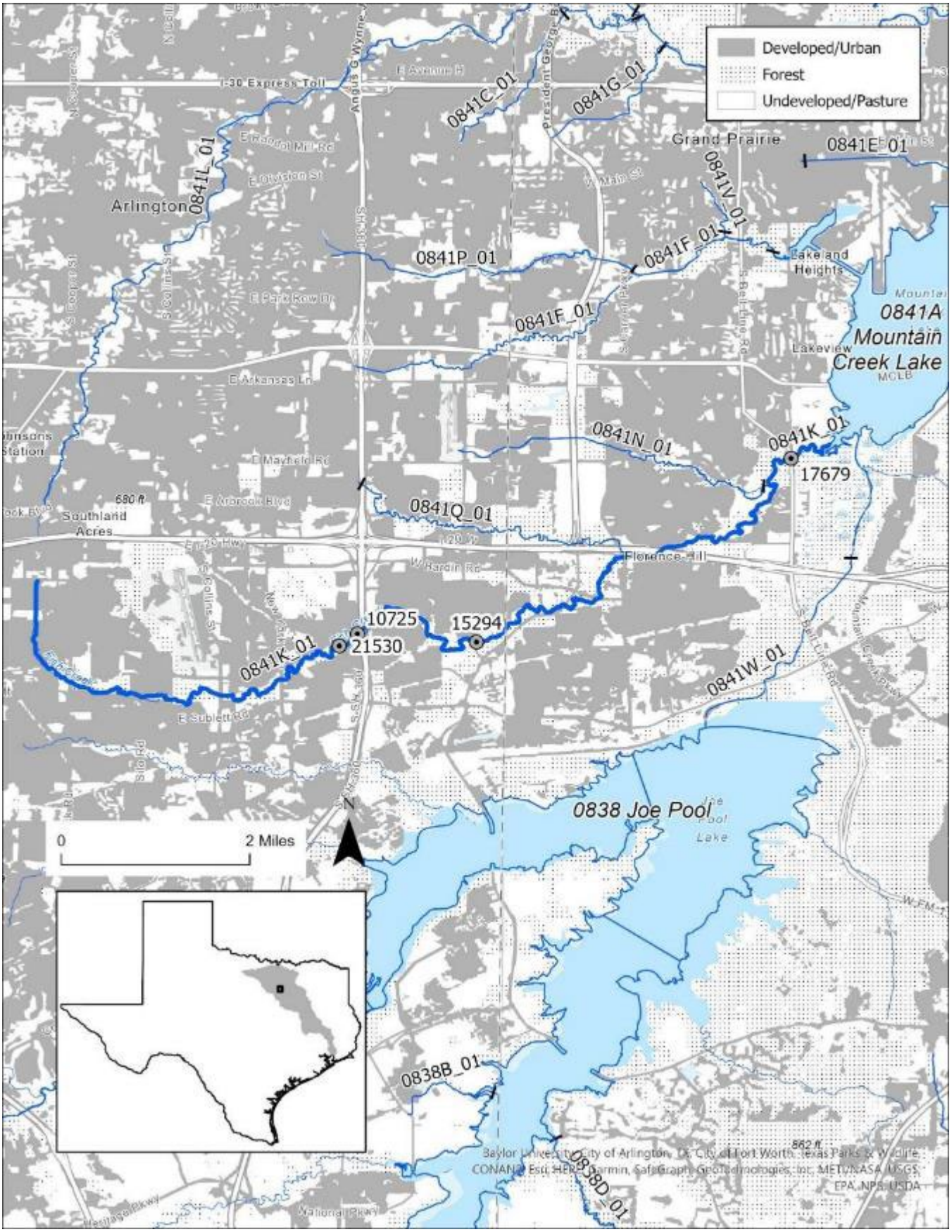

Figure 168: Map of Segment 0841K

Figure 169: Fish Creek downstream of South Great Southwest Parkway in Grand Prairie

Segment Description

Fish Creek is a 15-mile stream running from the headwaters of the creek in Arlington to the confluence with Mountain Creek Reservoir in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841K_01** - A 15 mile stretch of Fish Creek running upstream from the confluence with Mountain Creek Reservoir in Grand Prairie in Dallas County to the upper end of the creek in Arlington in Tarrant County
  - Perennial freshwater stream
  - **10725** - Fish Creek South Branch at SH 360 southbound service road approximately 75 meters south of Green Oaks Boulevard in Arlington
    - Sampling conducted by Arlington from 2013 to 2014
  - **15294** - Fish Creek South Branch at Great Southwest Parkway/Lakeridge Parkway in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022
    - Sampling conducted by TRA in 2018
  - **17679** - Fish Creek at Beltline Road/FM 1382 approximately 205 meters south of the intersection of SE 14th Street
    - Sampling conducted by Grand Prairie from 2013 to 2022
  - **21530** - Fish Creek South Branch 433 meters upstream of SH 360 southbound service road in natural channel immediately upstream of concrete lined channel
    - Sampling conducted by Arlington from 2014 to 2022

Hydrology

Unclassified segment 0841K is a second order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 1 cfs with minimum and maximum flows of 0.03 and 20 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 1.2 cfs
- Index Period – 2 cfs
- Critical Period – 0.5 cfs

Land Use and Natural Characteristics

The watershed is developed with some wooded riparian areas and lies within the Northern Blackland Prairie ecoregion.

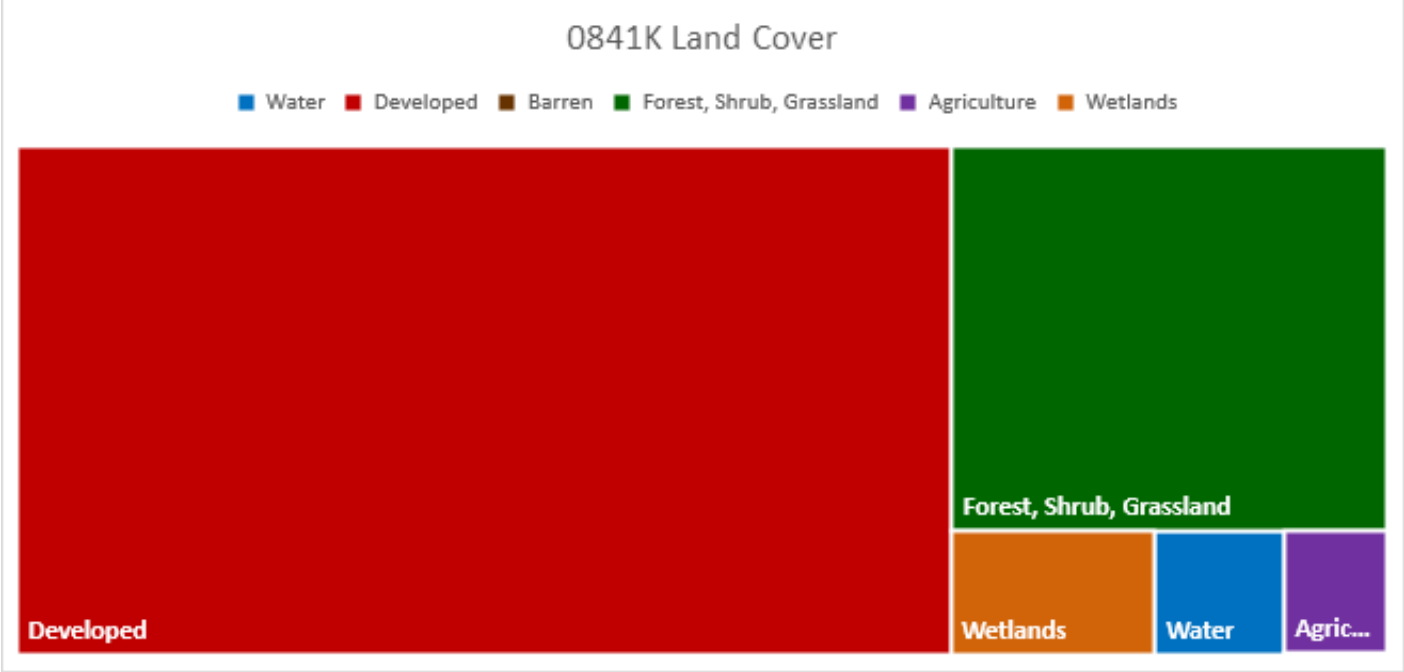

Figure 170: 0841K relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the cities of Grand Prairie and Arlington.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 179 samples had a geometric mean of 173.35 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 2/24/2021 at stations 10725, 15294, 17679, and 21530. There were 217 samples with a geometric mean of 189.64 MPN/100 mL. Values ranged from 2 to 9700 MPN/100 mL and 60.8% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- Arlington Municipal Airport
- City of Grand Prairie
- Fish Creek – Dallas County Nature Preserve
- Grand Oaks Golf Course
- City of Dallas
- Prairie Lakes Golf Course

0841L - Johnson Creek

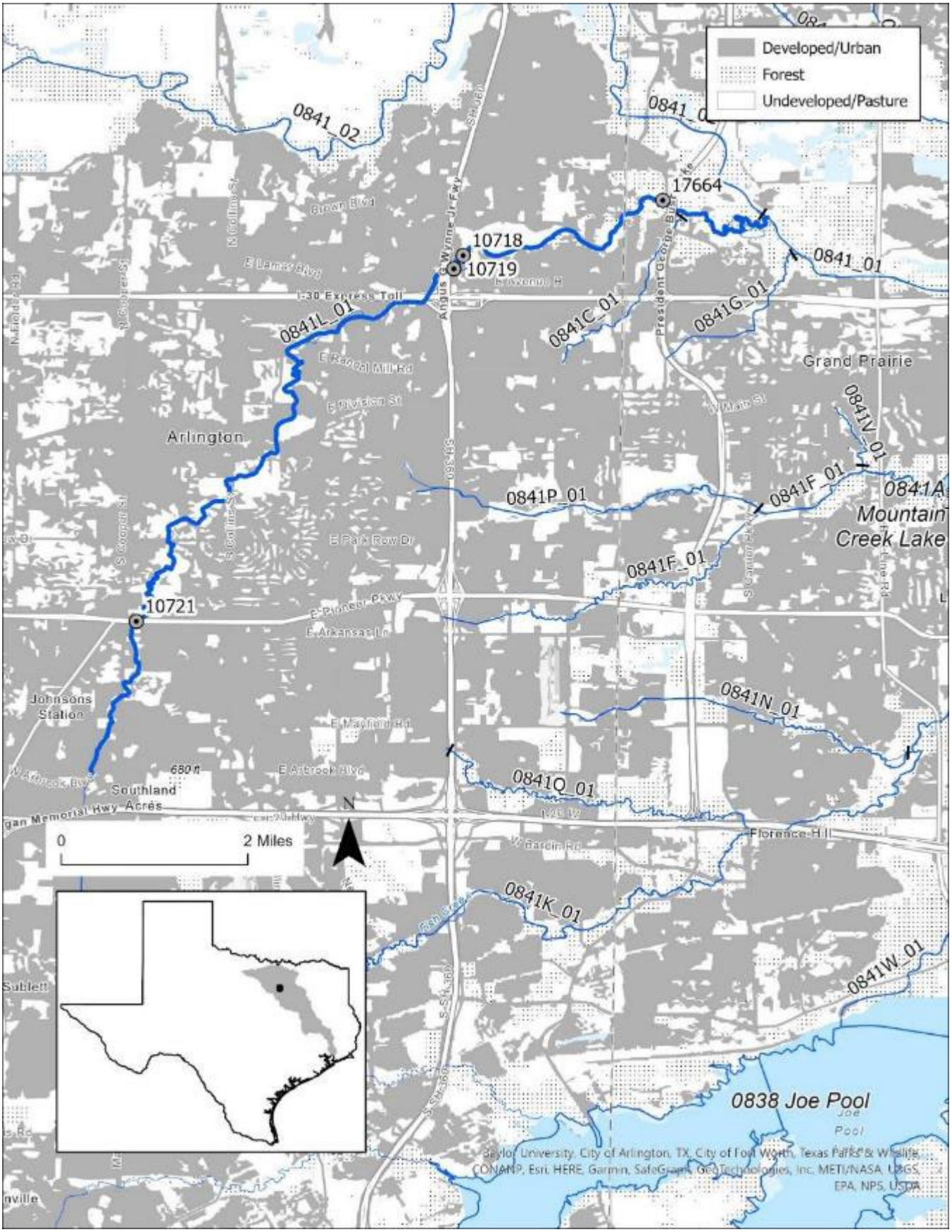

Figure 171: Map of Segment 0841L

Figure 172: Johnson Creek downstream of Highway 360 in Grand Prairie

Segment Description

This 13.4-mile stream runs from the headwaters near Arbrook Boulevard in Arlington to the confluence with the Lower West Fork Trinity River in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841L_01** - From the confluence with the Lower West Fork Trinity River upstream to just south of Mayfield Road in Arlington in Tarrant County
  - Perennial freshwater stream
  - **10718** - Johnson Creek 96 meters upstream of Avenue J in Arlington
    - Sampling conducted by Grand Prairie from 2013 to 2014
  - **10719** - Johnson Creek at SH 360 in Arlington
    - Sampling conducted by Arlington from 2013 to 2022
  - **10721** - Johnson Creek at SH 303 in Arlington
    - Sampling conducted by Arlington from 2013 to 2014
  - **17664** - Johnson Creek 78 meters upstream of North Carrier Parkway in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2014

Hydrology

Unclassified segment 0841L is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 1.7 cfs with minimum and maximum flows of 0 and 13 cfs. The median flows for the

non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 1.9 cfs
- Index Period – 6.7 cfs
- Critical Period – 1.1 cfs

Land Use and Natural Characteristics

The watershed is heavily developed and flows through the Eastern Cross Timbers and Northern Blackland Prairie ecoregions.

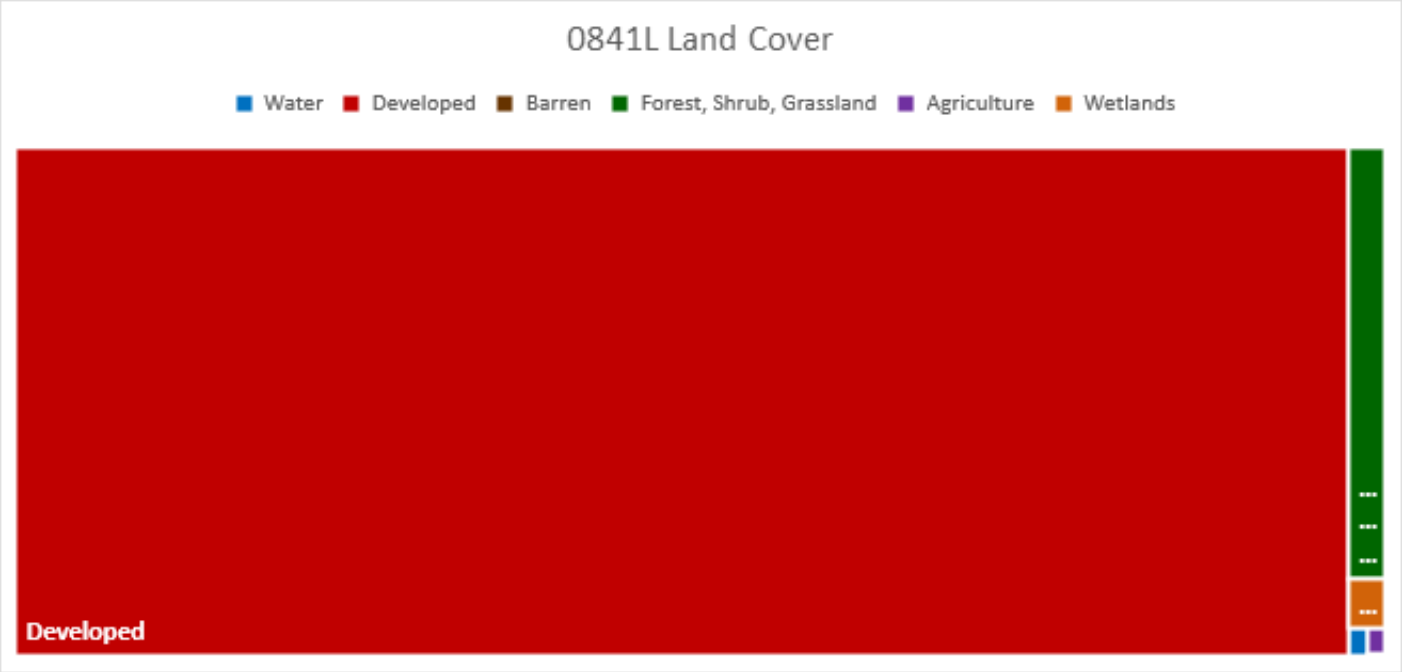

Figure 173: 0841L relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Arlington.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 94 samples had a geometric mean of 150.84 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 2/24/2021 at stations 10718, 10719, 10721, and 17664. There were 83 samples with a geometric mean of 182.23 MPN/100 mL. Values ranged from 0.5 to 26000 MPN/100 mL and 61.4% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- Homeowners and HOA's
- City of Grand Prairie
- Poly-America

0841M - Kee Branch

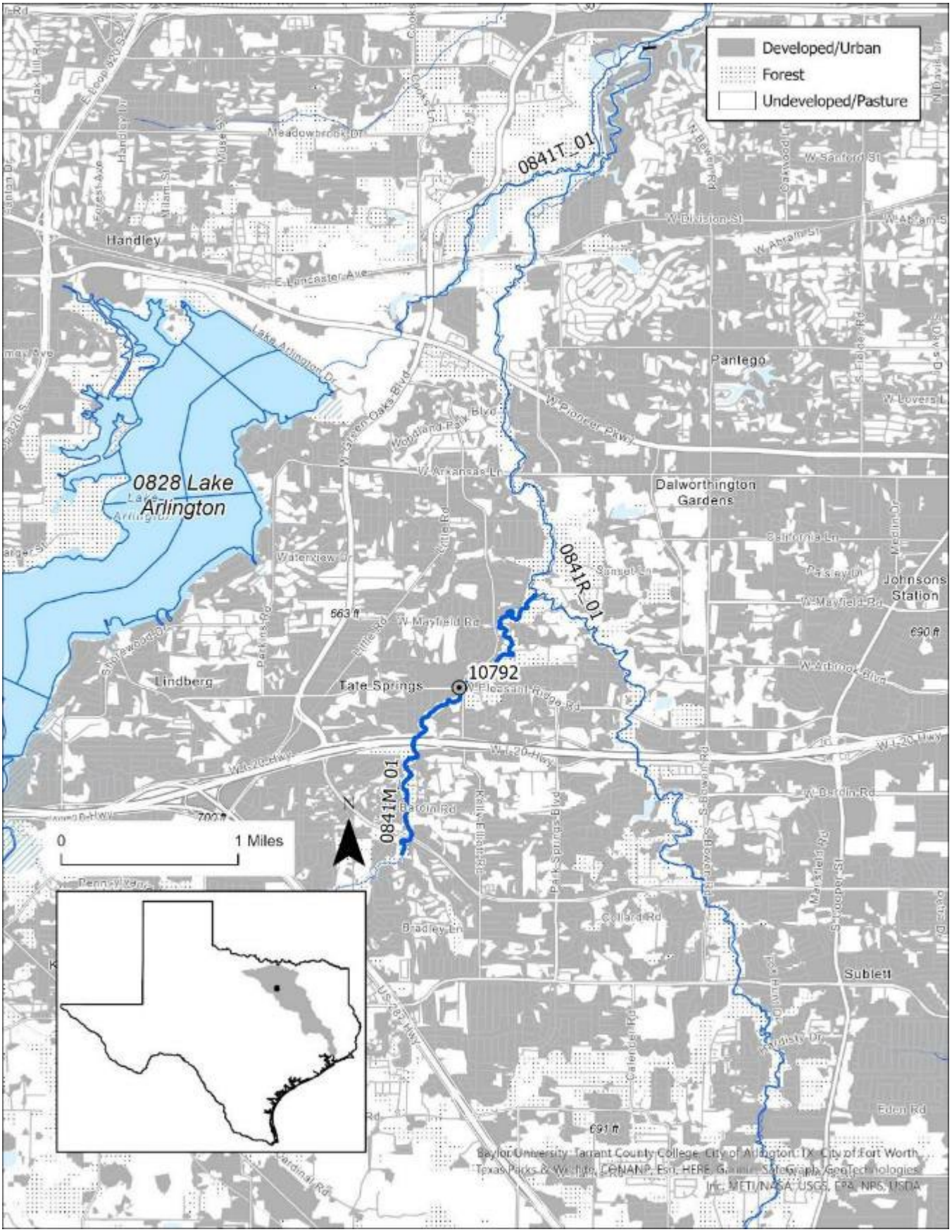

Figure 174: Map of Segment 0841M

Figure 175: Kee Branch at West Pleasant Ridge Parkway in Arlington

Segment Description

This unclassified segment is a 3-mile stretch of Kee Branch running from just upstream of Southwest Green Oaks Boulevard to the confluence with Rush Creek.

Assessment Units and Monitoring Stations

- **0841M_01** - Six mile stretch of Kee Branch running upstream from confluence with Rush Creek to upper end of the creek
    - Perennial freshwater stream
    - **10792** - Kee Branch at West Pleasant Ridge Road in Arlington
        - Sampling conducted by Arlington from 2013 to 2022

Hydrology

Unclassified segment 0841M is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0.8 cfs with minimum and maximum flows of 0.04 and 81 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.7 cfs
- Index Period – 1.9 cfs
- Critical Period – 0.6 cfs

Land Use and Natural Characteristics

The watershed is developed with a narrow wooded riparian buffer and lies entirely within the Eastern Cross Timbers.

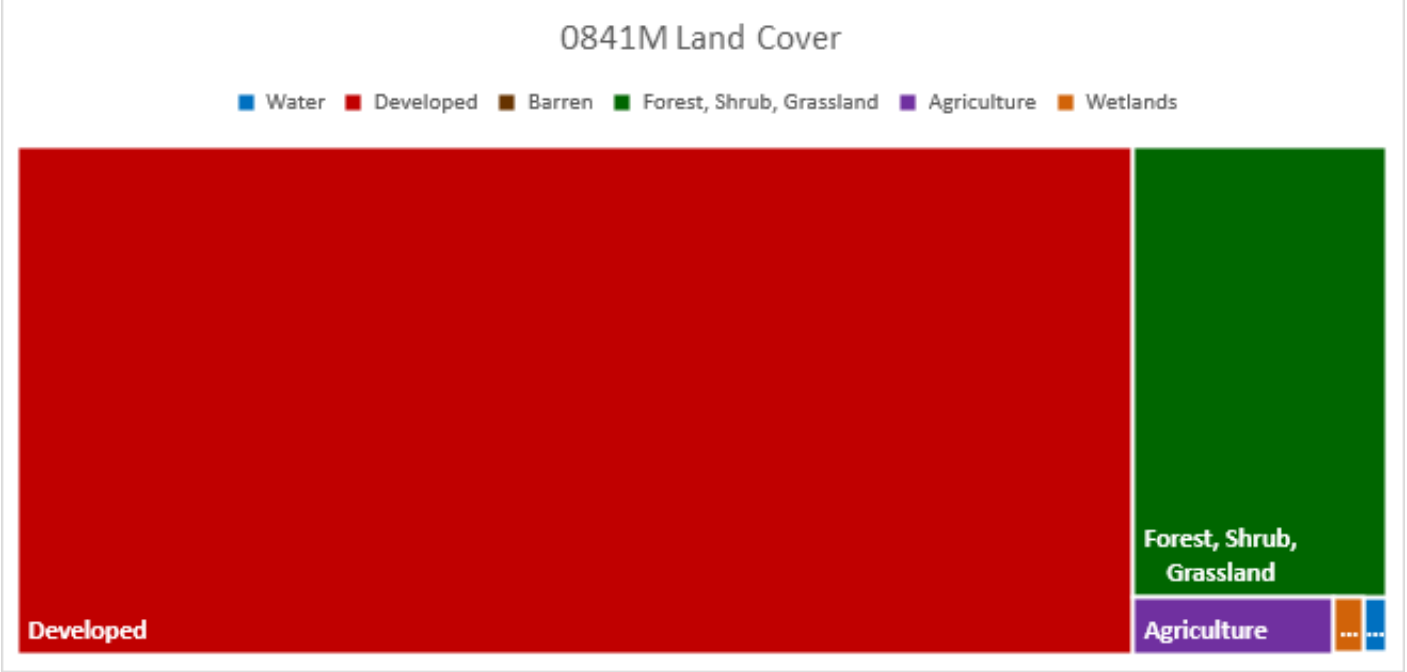

Figure 176: 0841M relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Arlington.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 24 samples had a geometric mean of 271.24 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 7/24/2013 to 2/23/2021 at station 10792. There were 38 samples with a geometric mean of 367.17 MPN/100 mL. Values ranged from 24 to 20000 MPN/100 mL and 68.4% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- Homeowners and HOA's

0841N - Kirby Creek

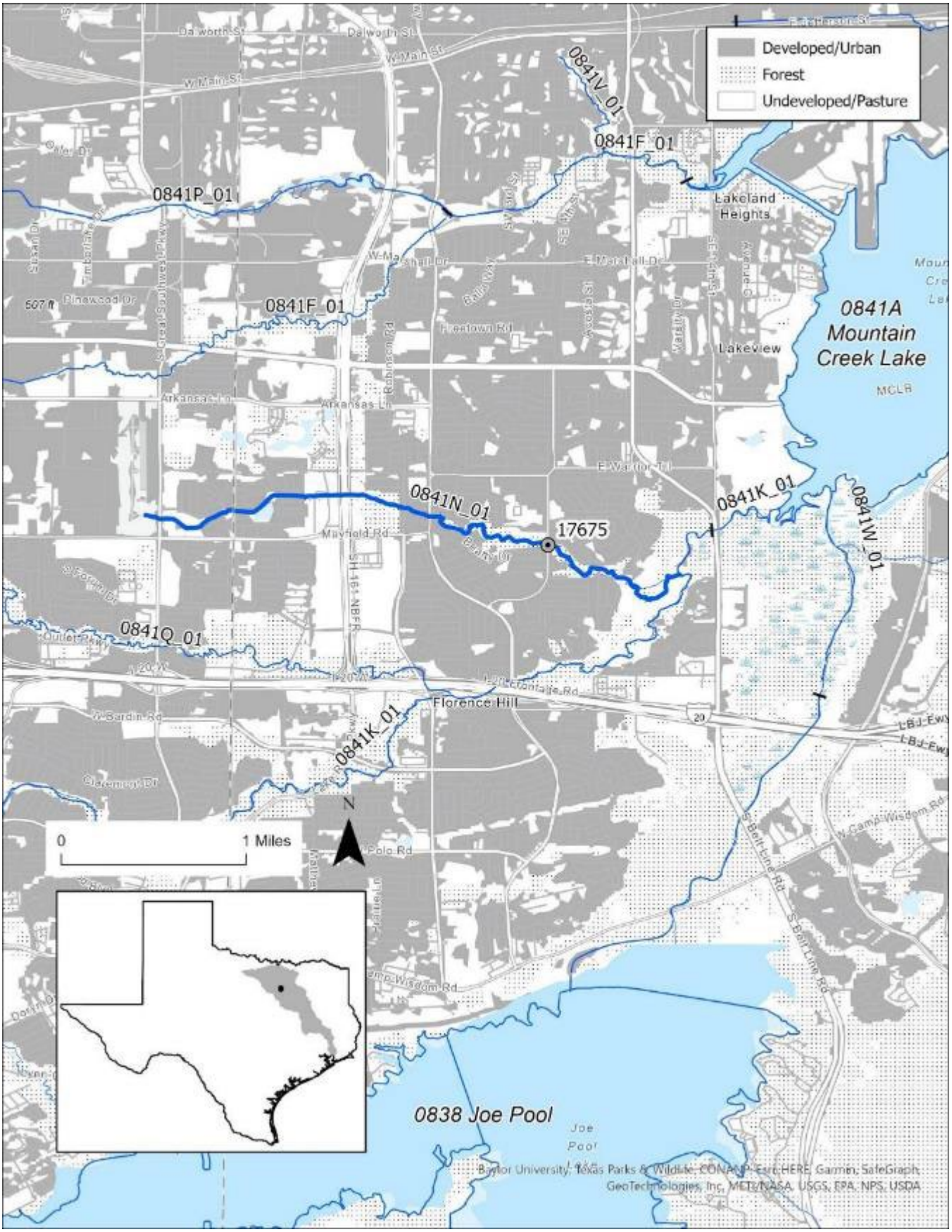

Figure 177: Map of Segment 0841N

Segment Description

This unclassified segment is a 4-mile stretch of Kirby Creek running from just upstream of Great Southwest Parkway in Arlington to the confluence with Fish Creek in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841N_01** - Four mile stretch of Kirby Creek running upstream from confluence with Fish Creek in Grand Prairie in Dallas County to just upstream of Great Southwest Parkway in Arlington in Tarrant County
  - Perennial freshwater stream
  - **17675** - Kirby Creek at Corn Valley Road in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022

Hydrology

Unclassified segment 0841N is a first order stream at its most downstream end. Based on flow measurements between 2014 and 2020, the median was 0.6 cfs with minimum and maximum flows of 0.03 and 8.5 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.6 cfs
- Index Period – 0.9 cfs
- Critical Period – 0.4 cfs

Land Use and Natural Characteristics

The watershed is developed with some wooded riparian areas and crop land and lies within the Northern Blackland Prairie ecoregion.

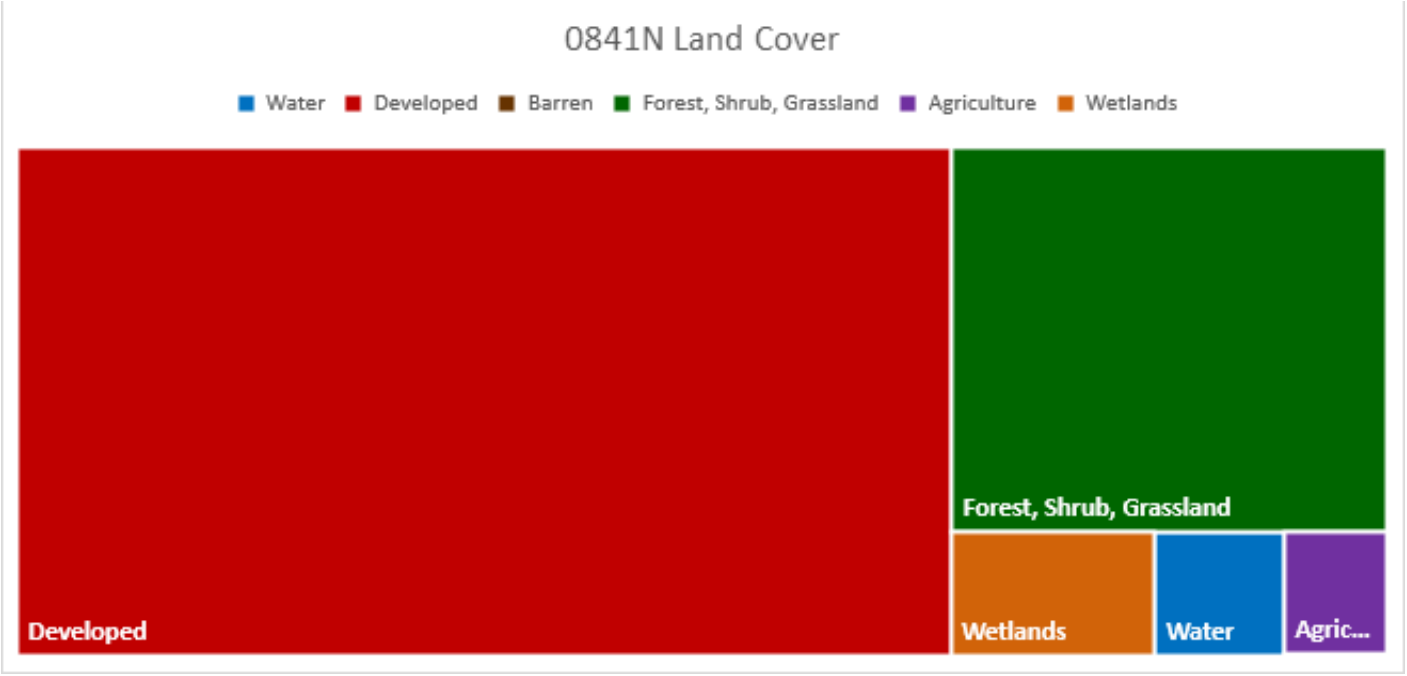

Figure 178: 0841N relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Grand Prairie.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 78 samples had a geometric mean of 215.35 MPN/100 mL which exceeded the

standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 2/23/2021 at station 17675. There were 95 samples with a geometric mean of 169.01 MPN/100 mL. Values ranged from 0.5 to 9700 MPN/100 mL and 61.1% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Grand Prairie
- Grand Prairie Country Club

0841O - Mountain Creek

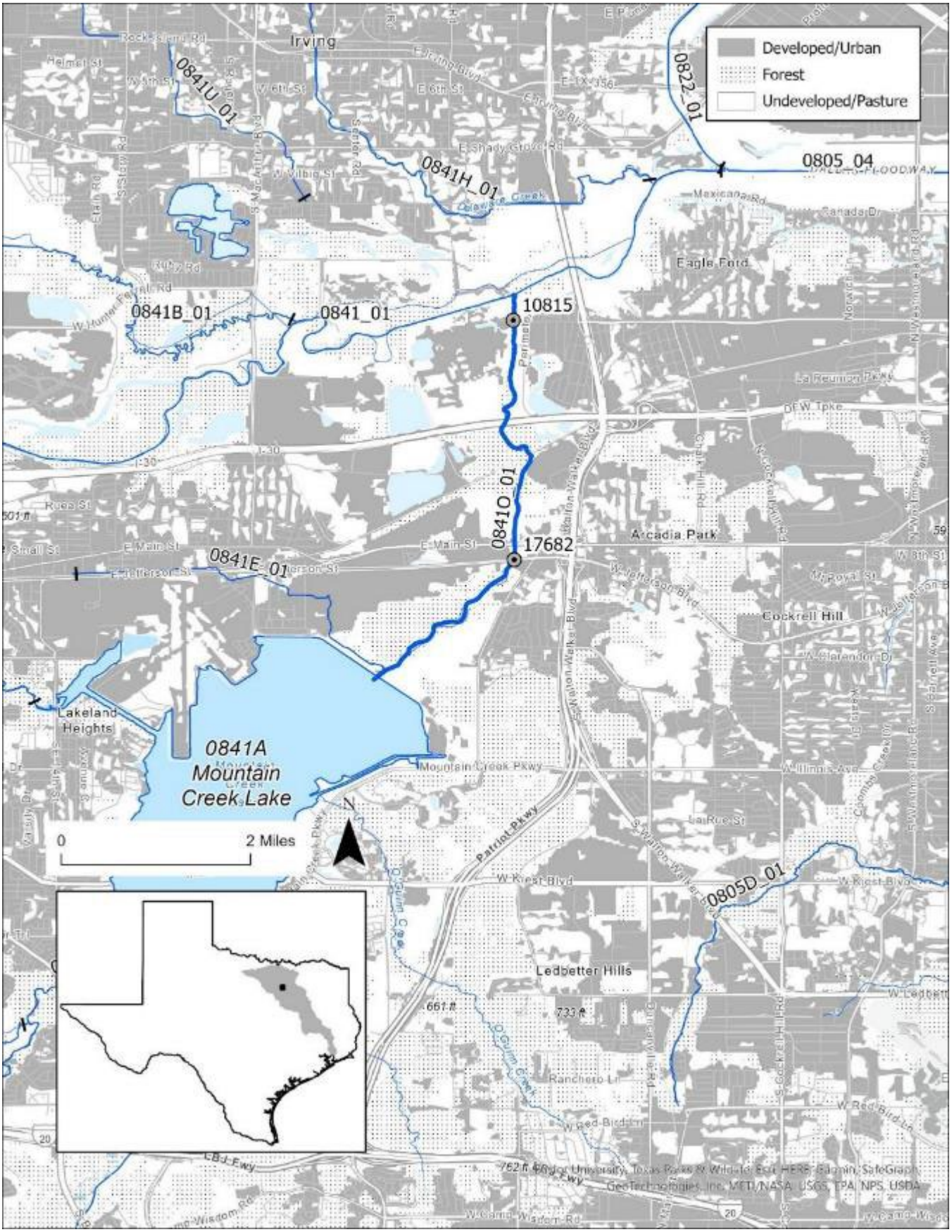

Figure 179: Map of Segment 0841O

Figure 180: Mountain Creek at Camp Wisdom Road in Grand Prairie

Segment Description

This unclassified segment is a 4-mile stretch of Mountain Creek running from approximately 0.3-miles downstream of Mountain Creek Lake in Grand Prairie to the confluence with the Lower West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0841O_01** - Four mile stretch of Mountain Creek running upstream from confluence with West Fork Trinity River to approximately 0.3 miles downstream of Mountain Creek Lake in Grand Prairie in Dallas County
  - Perennial freshwater stream
  - **10815** - Mountain Creek immediately downstream of Singleton Boulevard in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2014
    - Sampling conducted by TRA in 2017 and from 2020 to 2022
  - **17682** - Mountain Creek at West Jefferson Boulevard in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2014

Hydrology

Unclassified segment 0841O is a third order stream at its most downstream end. There is one USGS flow gage in this segment with data covering the period from 2013 to 2021: 08050100 at Grand Prairie. The median flow over this period of record was 4.99 cfs with minimum and maximum flows of 0.08 and 9,250 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) for this gage are listed below.

- Non-Index Period – 4.24 cfs

- Index Period – 7.68 cfs
- Critical Period – 3.78 cfs

Land Use and Natural Characteristics

The watershed is heavily developed with some wooded and wetland riparian areas and lies within the Northern Blackland Prairie ecoregion.

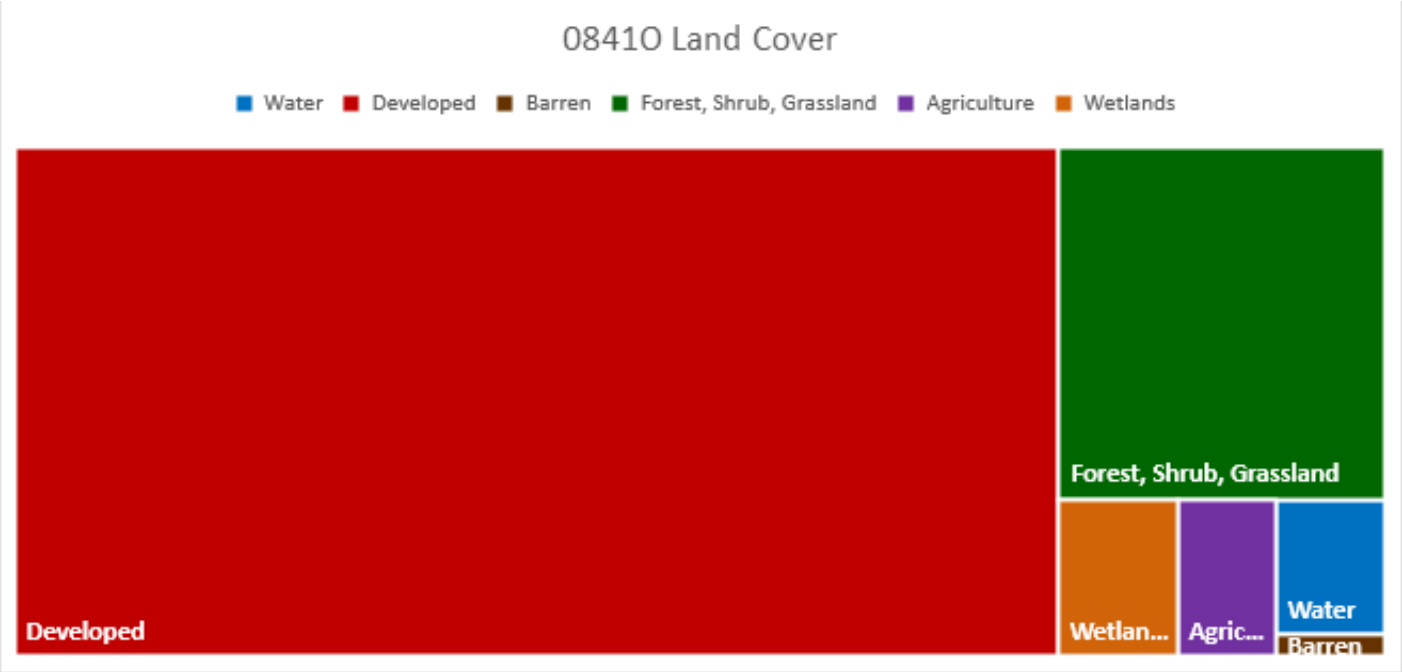

Figure 181: 0841O relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by TRA.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 65 samples had a geometric mean of 140.90 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 9/25/2014 at stations 10815 and 17682. There were 42 samples with a geometric mean of 164.19 MPN/100 mL. Values ranged from 2 to 9700 MPN/100 mL and 50% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Grand Prairie

0841P - North Fork Cottonwood Creek

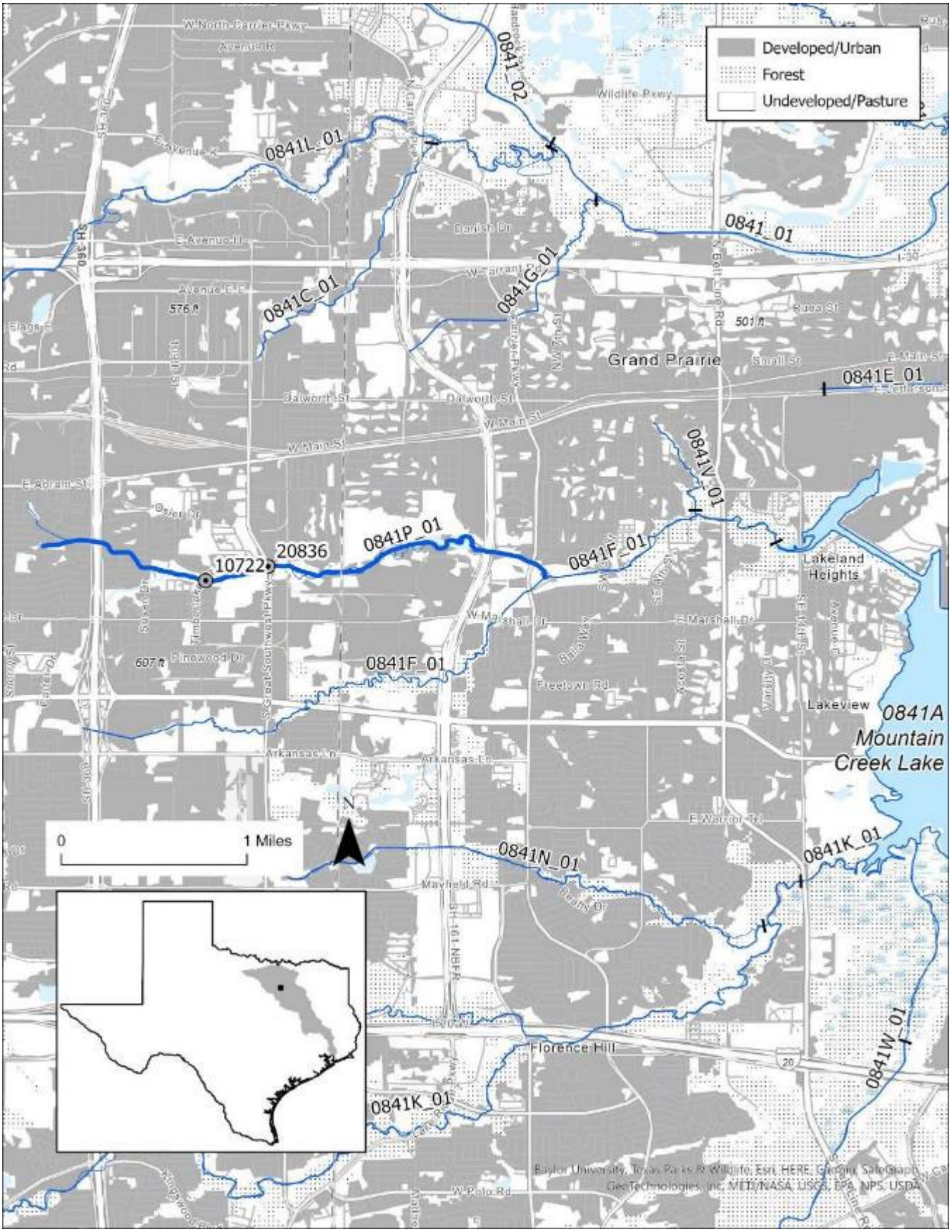

Figure 182: Map of Segment 0841P

Figure 183: North Fork Cottonwood Creek at West Freeway Street in Grand Prairie

Segment Description

This unclassified segment is a 4.4-mile stretch of North Fork Cottonwood Creek running from approximately 0.3-miles upstream of Carter Street in Arlington to the confluence with the South Fork Cottonwood Creek in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841P_01** - A 4.4 mile stretch of North Fork Cottonwood Creek running upstream from confluence with the South Fork Cottonwood Creek in Grand Prairie in Dallas County to approximately 0.3 miles upstream of Carter Street in Arlington in Tarrant County
    - Perennial freshwater stream
    - **10722** - Cottonwood Creek at Timberlake Drive in Arlington
        - Sampling conducted by Arlington from 2013 to 2022
    - **20836** - North Fork Cottonwood Creek at South Great Southwest Parkway in Grand Prairie approximately 141 meters south and 52 meters east of the intersection of South Great Southwest Parkway and Timberlake Drive
        - Sampling conducted by Grand Prairie from 2013 to 2014

Hydrology

Unclassified segment 0841P is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0.2 cfs with minimum and maximum flows of 0 and 4.9 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.2 cfs
- Index Period – 0.6 cfs
- Critical Period – 0.07 cfs

Land Use and Natural Characteristics

The watershed is developed and has a relatively large area of grassland just upstream of SH 161. It lies within the Northern Blackland Prairie.

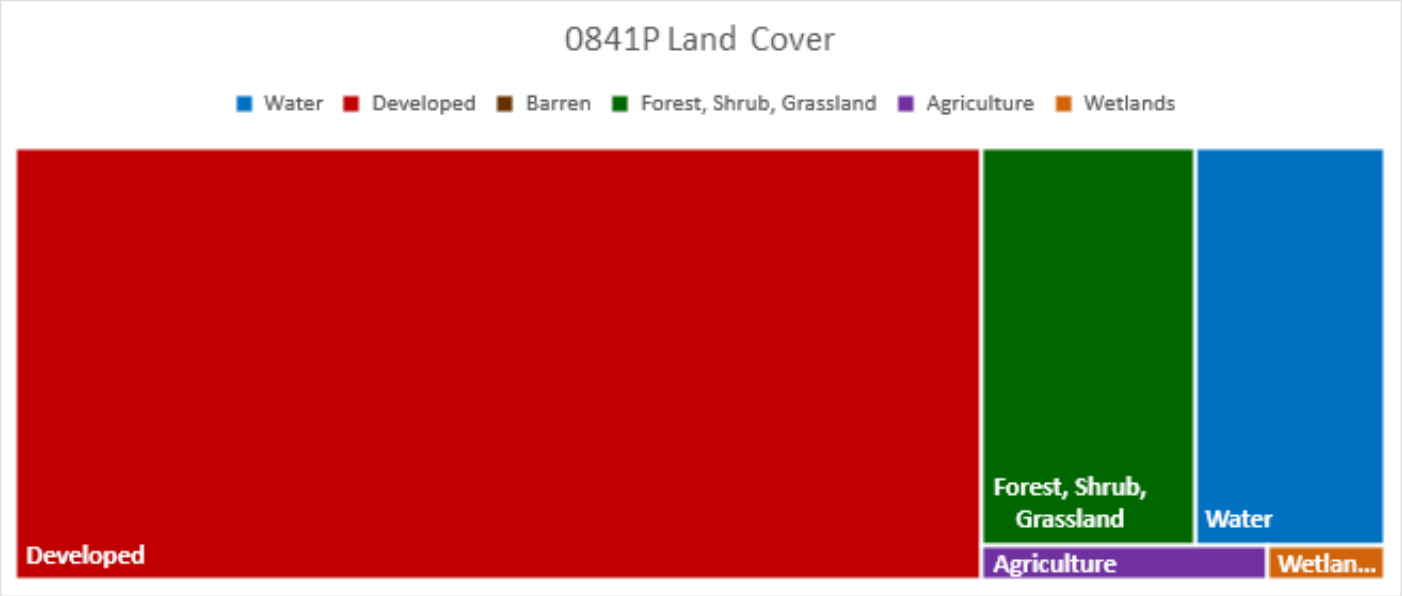

Figure 184: 0841P relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Arlington.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 49 samples had a geometric mean of 257.97 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 2/24/2021 at stations 10722 and 20836. There were 54 samples with a geometric mean of 476.83 MPN/100 mL. Values ranged from 2 to 120000 MPN/100 mL and 68.5% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.

Potential Stakeholders

- City of Arlington
- City of Grand Prairie
- Homeowners and HOA's

0841Q - North Fork Fish Creek

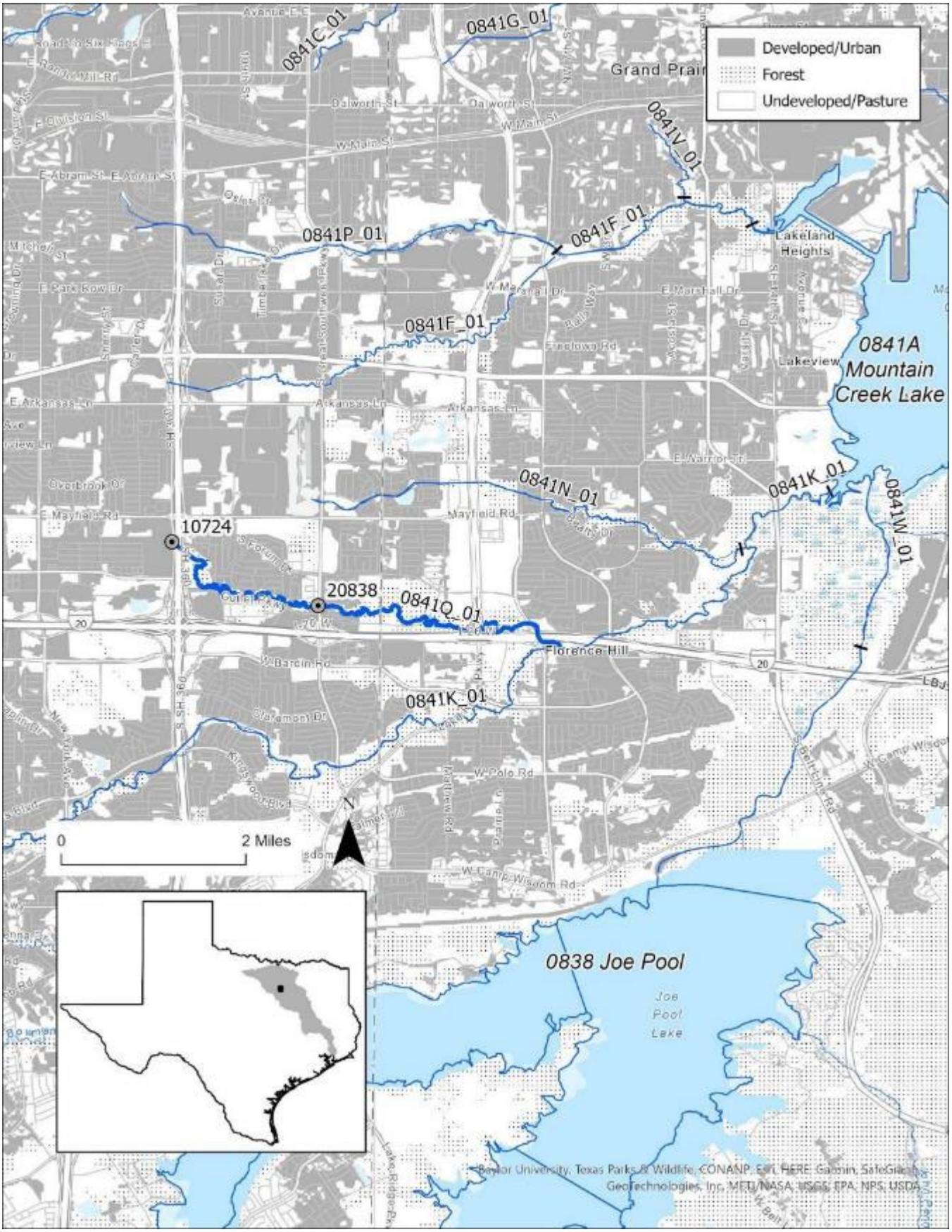

Figure 185: Map of Segment 0841Q

Figure 186: North Fork Fish Creek at South Great Southwest Parkway in Grand Prairie

Segment Description

This unclassified segment is a 4.9-mile stretch of North Fork Fish Creek running from SH 360 in Arlington to the confluence with Fish Creek in Grand Prairie.

Assessment Units and Monitoring Stations

- **0841Q_01** - North Fork Fish Creek from confluence with Fish Creek in Dallas County upstream to SH 360 in Tarrant County
  - Perennial freshwater stream
  - **10724** - Fish Creek North Branch at SH 360 southbound service road approximately 365 meters south of East Mayfield Road in Arlington
    - Sampling conducted by Arlington from 2013 to 2014
  - **20838** - North Fork Fish Creek at South Great Southwest Parkway in Grand Prairie 115 meters north of intersection with Sara Jane Parkway
    - Sampling conducted by Grand Prairie from 2013 to 2014
    - Sampling conducted by TRA from 2014 to 2017

Hydrology

Unclassified segment 0841Q is a first order stream at its most downstream end. There is limited flow data available in this segment. Based on flow measurements between 2013 and 2017, the median was 0.2 cfs with minimum and maximum flows of 0.02 and 1.4 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.2 cfs
- Index Period – 0.9 cfs
- Critical Period – 0.09 cfs

Land Use and Natural Characteristics

The watershed is developed with some wooded riparian areas and lies within the Northern Blackland Prairie ecoregion.

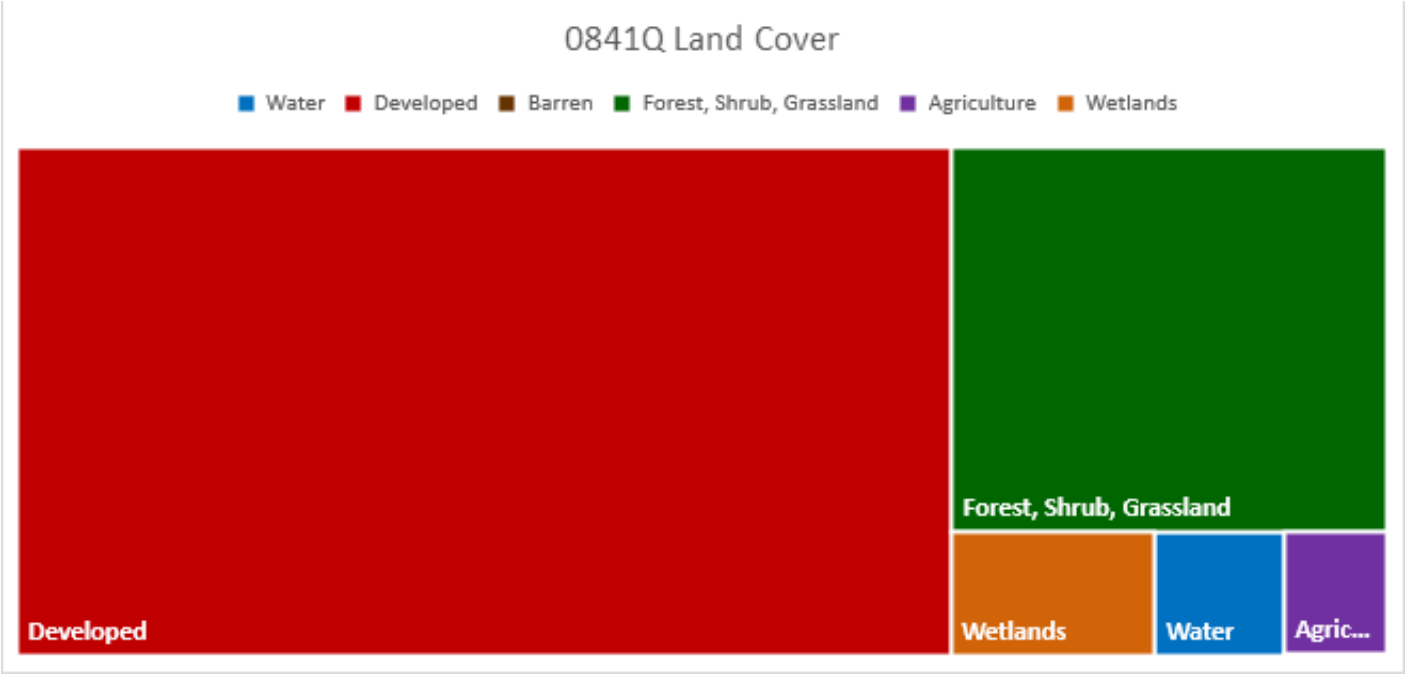

Figure 187: 0841Q relative land cover totals.

Ongoing Projects

- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2016. Based on the 2020 Integrated Report, 41 samples had a geometric mean of 196.08 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 7/25/2017 at stations 10724 and 20838. There were 35 samples with a geometric mean of 192.35 MPN/100 mL. Values ranged from 19 to 14000 MPN/100 mL and 42.9% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- City of Grand Prairie
- Homeowners and HOA's

0841T - Village Creek

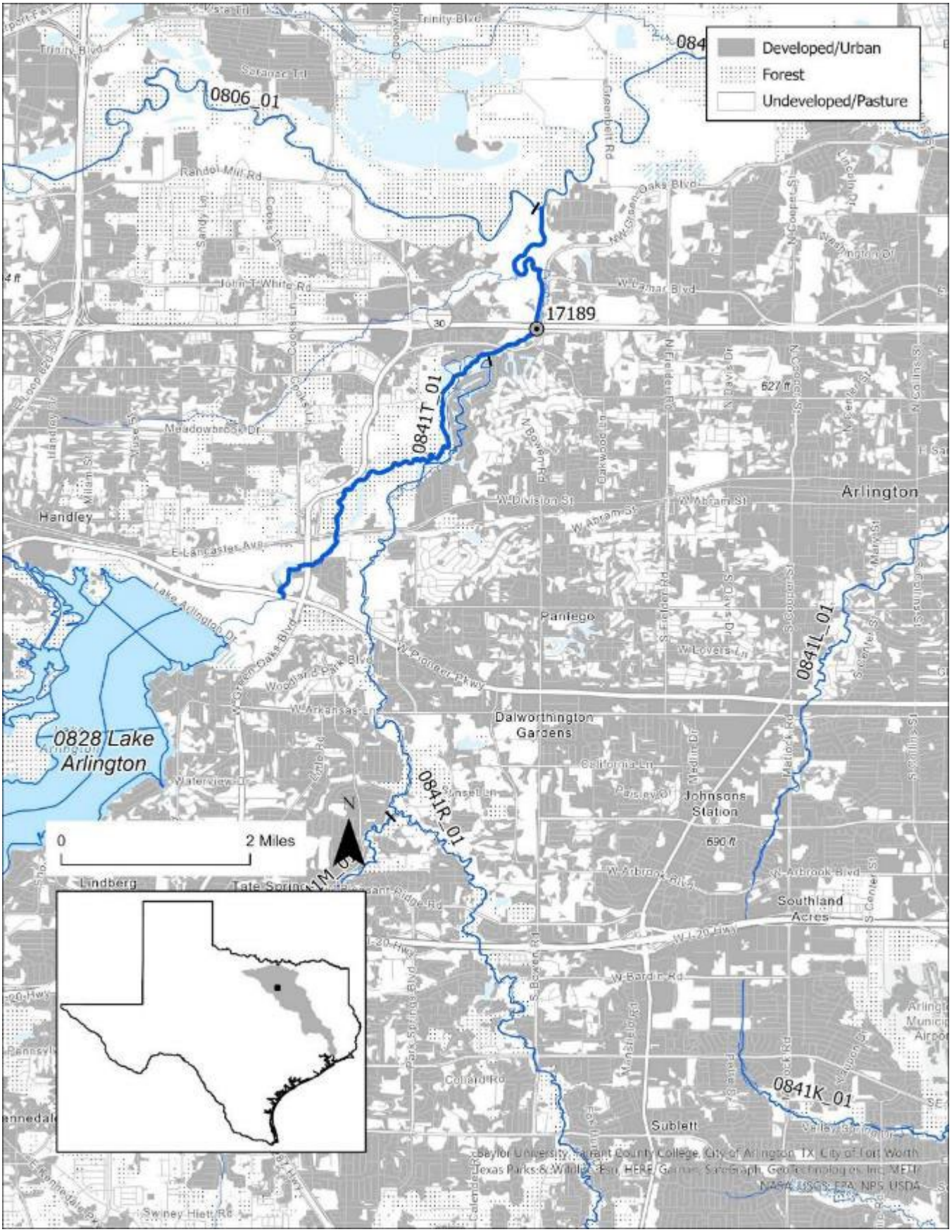

Figure 188: Map of Segment 0841T

Figure 189: Village Creek at IH 30 in Arlington

Segment Description

This unclassified segment is a 7-mile stretch of Village Creek running from SH 303 approximately 0.75-miles downstream of Lake Arlington to the confluence with the West Fork Trinity River.

Assessment Units and Monitoring Stations

- **0841T_01** - A 7 mile stretch of Village Creek running upstream from confluence with West Fork Trinity River to SH 303 approximately 0.75 miles downstream of Lake Arlington
    - Freshwater stream, intermittent with perennial pools
    - **17189** - Village Creek immediately upstream of IH 30 in Arlington
        - Sampling conducted by Arlington from 2013 to 2022

Hydrology

Unclassified segment 0841T is a fourth order stream at its most downstream end. Based on flow measurements between 2013 and 2021, the median was 4.2 cfs with minimum and maximum flows of 0.03 and 61 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 3.7 cfs
- Index Period – 7.7 cfs
- Critical Period – 2.1 cfs

Land Use and Natural Characteristics

Although the watershed is developed, the area directly adjacent to the stream is wooded with some grass and pasture land. The watershed lies within the Eastern Cross Timbers.

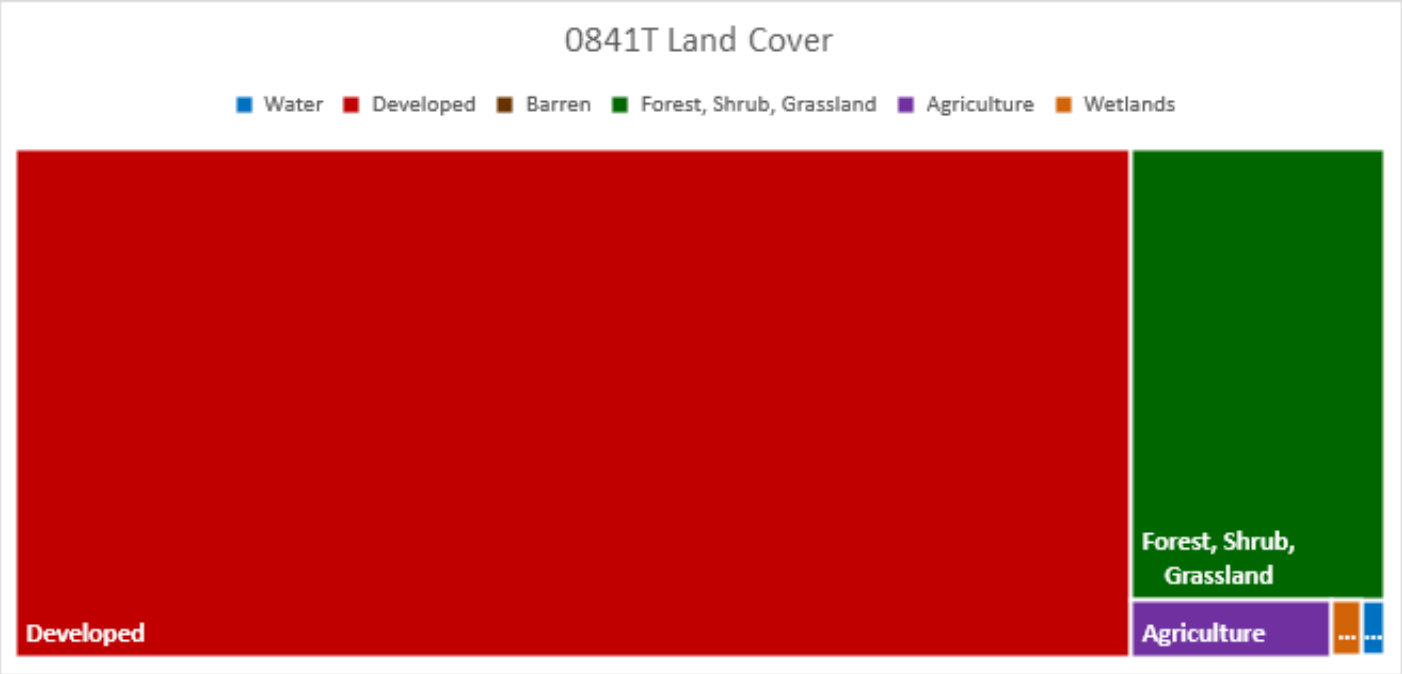

Figure 190: 0841T relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Arlington.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was identified as having concerns for Recreation Use due to elevated levels of *E. coli* in 2020. Based on the 2020 Integrated Report, 25 samples had a geometric mean of 136.67 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 7/23/2013 to 2/23/2021 at station 17189. There were 37 samples with a geometric mean of 153.31 MPN/100 mL. Values ranged from 12 to 2600 MPN/100 mL and 45.9% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.
- Runoff containing waste from wildlife.
- Direct deposition by wildlife.
- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Arlington
- Trinity United Methodist Church – Arlington

- Homeowners and HOA's
- City of Forth Worth
- Waterchase Golf Club
- Village Creek Waste Water Treatment Plant

0841U - West Irving Creek

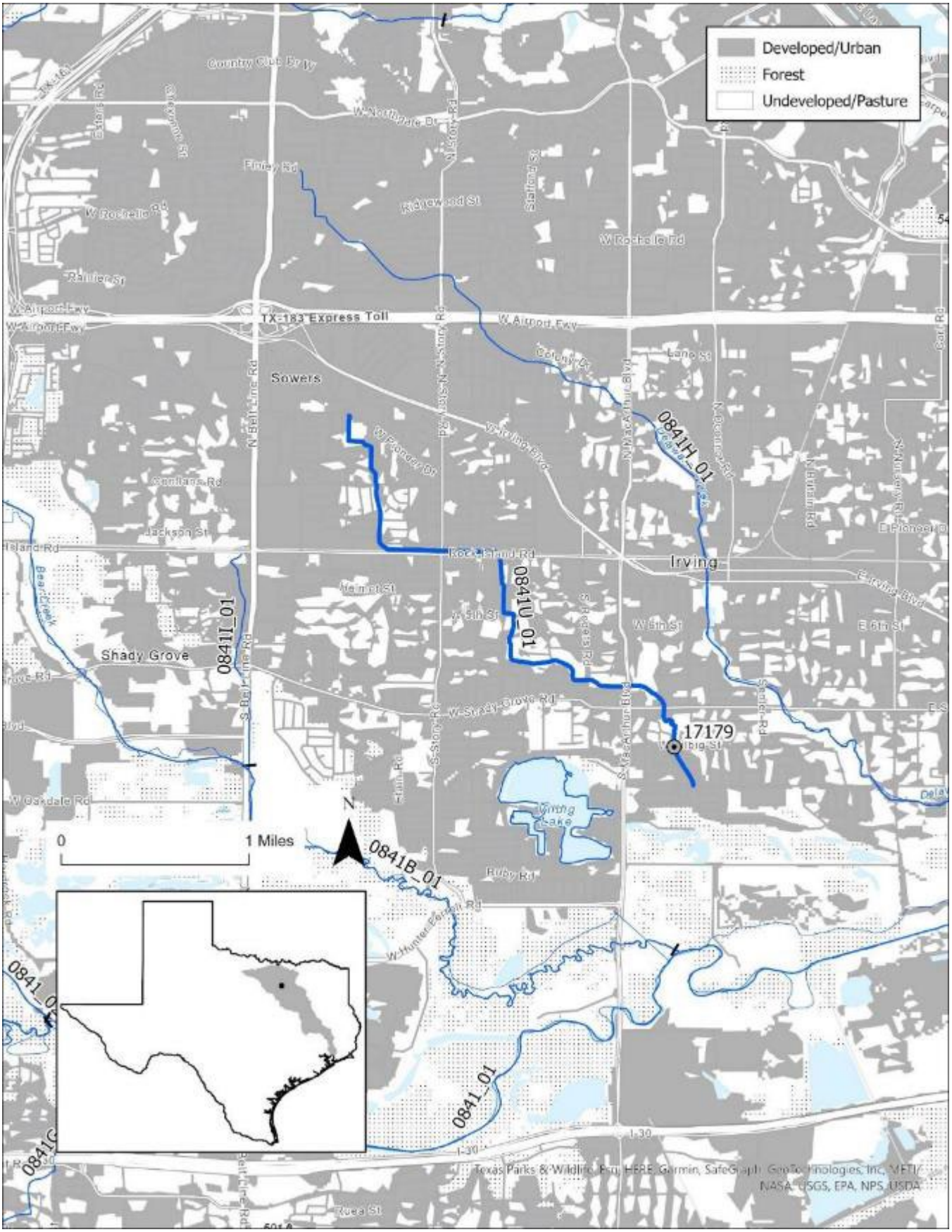

Figure 191: Map of Segment 0841U

Segment Description

This unclassified segment is a 4-mile stretch of West Irving Branch running from near West Pioneer Drive in Irving to Oakdale Road.

Assessment Units and Monitoring Stations

- **0841U_01** - A 4 mile stretch of West Irving Branch running upstream from approximately 0.4 miles downstream of Oakdale Road to just south of Sowers Road in Irving in Dallas County
  - Intermittent freshwater stream
  - **17179** - West Irving Branch at West Vilbig Street in Irving
    - Sampling conducted by Irving from 2013 to 2022

Hydrology

Unclassified segment 0841U is a first order stream at its most downstream end. Based on flow measurements between 2013 and 2020, the median was 0 cfs with minimum and maximum flows of 0 and 1.4 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0 cfs
- Index Period – 0.05 cfs
- Critical Period – 0 cfs

Land Use and Natural Characteristics

The watershed is developed and lies within the Northern Blackland Prairie ecoregion.

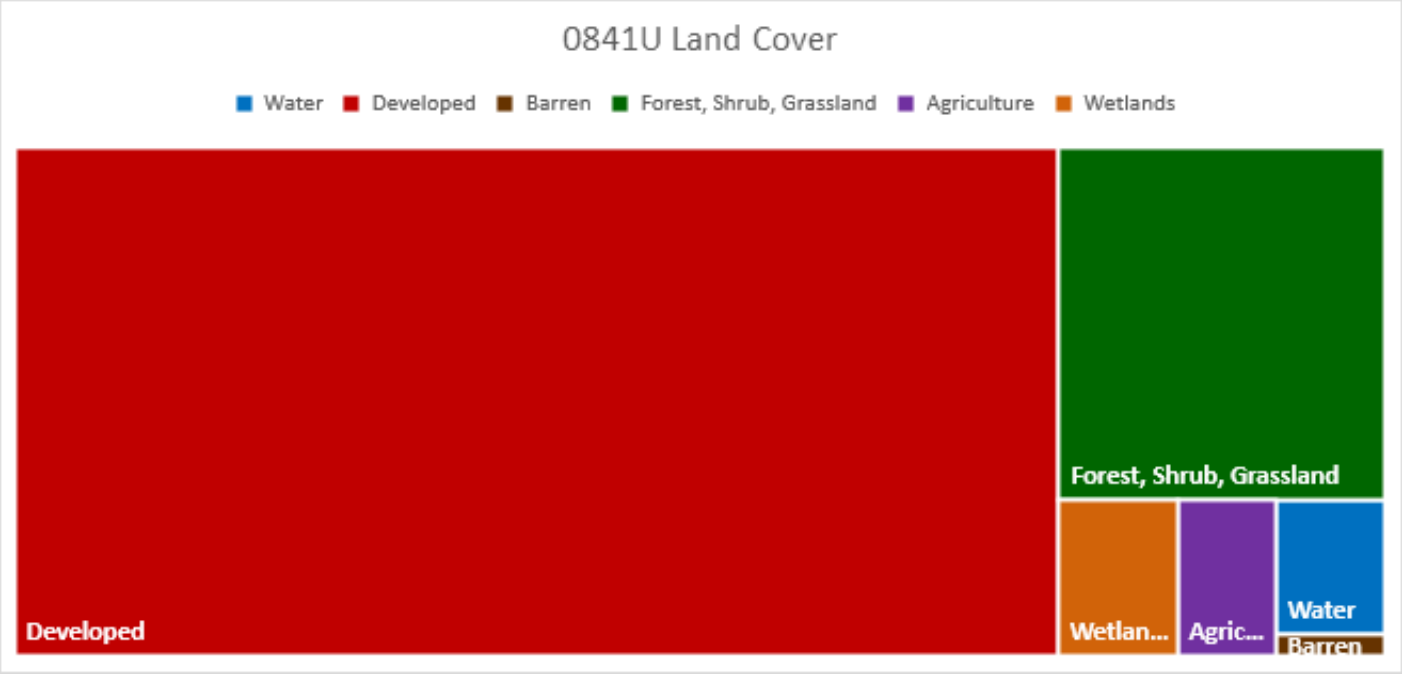

Figure 192: 0841U relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Irving.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2006. Based on the 2020 Integrated Report, 36 samples had a geometric mean of 333.31 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/23/2013 to 11/3/2020

at station 17179. There were 42 samples with a geometric mean of 416.92 MPN/100 mL. Values ranged from 8 to 48000 MPN/100 mL and 69% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Runoff containing waste from pets.

Recommendations for Improving Water Quality

- Pet waste best management practices.
- Homeowner education about pet waste.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Irving
- Homeowners and HOA's

0841V - Crockett Branch

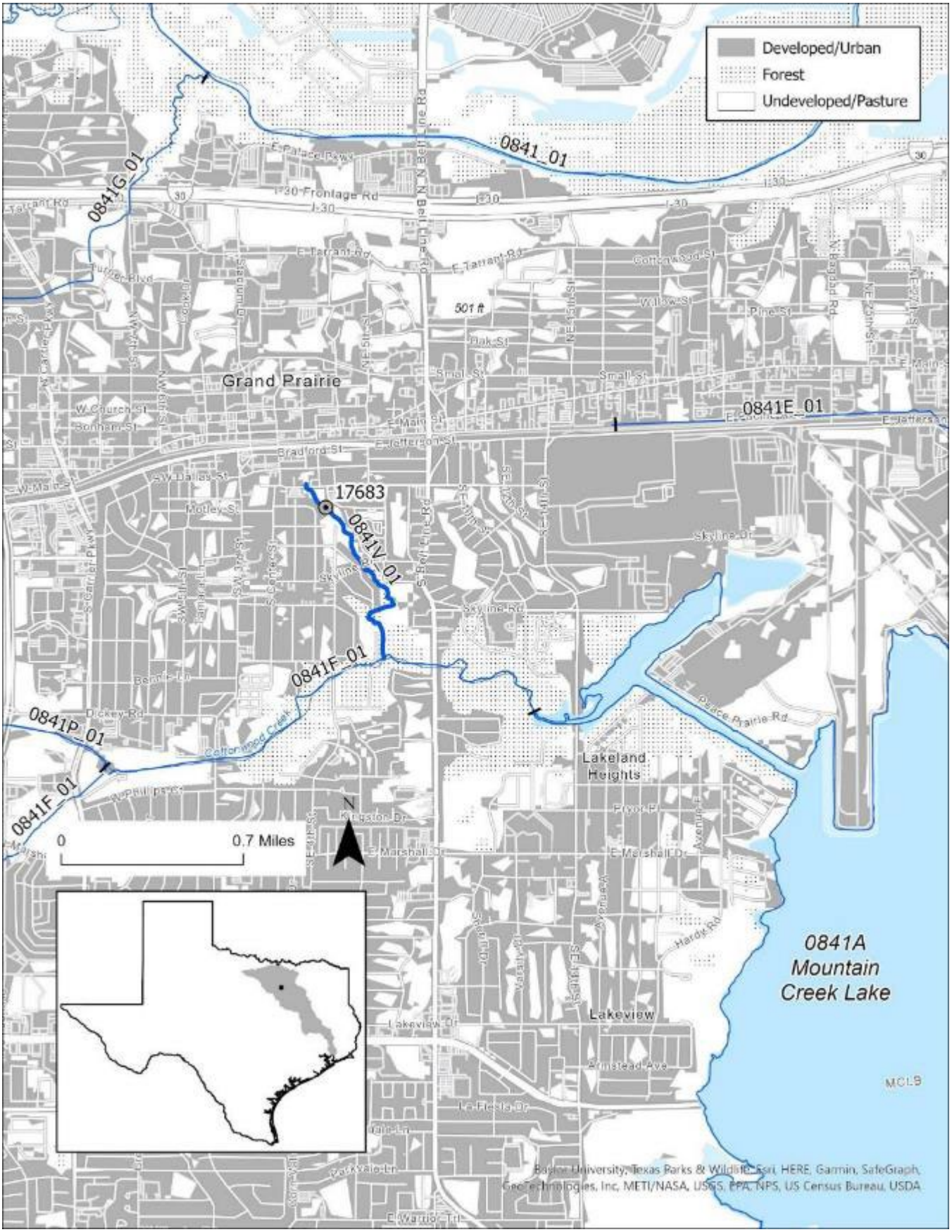

Figure 193: Map of Segment 0841V

Figure 194: Crockett Branch downstream of East Grand Prairie Road

Segment Description

Crockett Branch is a 1-mile stream running from the headwaters near East Jefferson Street in Grand Prairie to the confluence with Cottonwood Creek.

Assessment Units and Monitoring Stations

- **0841V_01** - A 1 mile stretch of Crockett Branch extending upstream from the confluence with Cottonwood Creek to the upper end of the creek
  - Perennial freshwater stream
  - **17683** - Crockett Branch Cottonwood Creek 179 meters downstream of East Grand Prairie Road in Grand Prairie
    - Sampling conducted by Grand Prairie from 2013 to 2022

Hydrology

Unclassified segment 0841V is a first order stream at its most downstream end. Based on flow measurements between 2014 and 2021, the median was 0.043 cfs with minimum and maximum flows of 0 and 2.4 cfs. The median flows for the non-index period (October 16 to March 14), index period (March 15 to June 30 and October 1 to October 15), and critical period (July 1 to September 30) are listed below.

- Non-Index Period – 0.05 cfs
- Index Period – 0.4 cfs
- Critical Period – 0.4 cfs

Land Use and Natural Characteristics

The watershed is developed and lies within the Northern Blackland Prairie ecoregion.

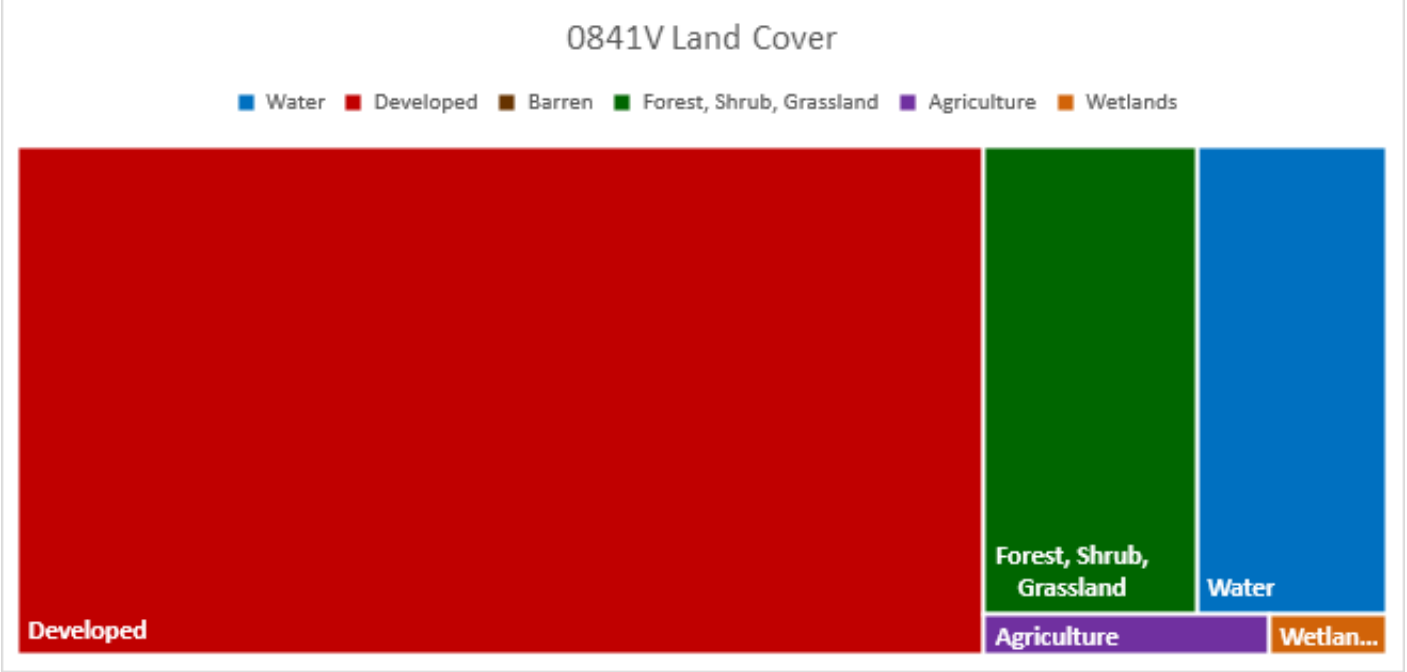

Figure 195: 0841V relative land cover totals.

Ongoing Projects

- Routine water quality monitoring by the City of Grand Prairie.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Description of Water Quality Issue

This segment was first found to be not supporting the Recreation Use due to elevated levels of *E. coli* in 2010. Based on the 2020 Integrated Report, 44 samples had a geometric mean of 431.94 MPN/100 mL which exceeded the standard of 126 MPN/100 mL. Data for the period of record for this report were collected from 1/22/2013 to 2/23/2021 at station 17683. There were 91 samples with a geometric mean of 463.98 MPN/100 mL. Values ranged from 0.5 to 9700 MPN/100 mL and 89% of the samples exceeded the standard.

Potential Causes of Water Quality Issue

- Failing wastewater infrastructure.

Recommendations for Improving Water Quality

- Wastewater infrastructure inspection and repair.
- North Central Texas Council of Governments Total Maximum Daily Load Implementation Plan.

Potential Stakeholders

- City of Grand Prairie
- Homeowners and HOA's