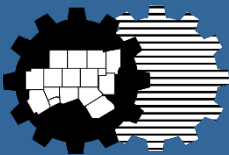


DRAFT

2018 Update to the
**Water Quality Management Plan
for the NCTCOG Region**



Produced by the North Central Texas Council of Governments
May 2018

www.nctcog.org/WaterResources

DRAFT

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Acronyms

AU	Assessment unit
CWA	Clean Water Act
CWSRF	Clean Water State Revolving Fund
DMR	Discharge monitoring report
DWU	Dallas Water Utilities
ECHO	Enforcement and Compliance History Online
EPA	Environmental Protection Agency
FOG	Fats, oils, and grease
I-Plan	Implementation Plan
MGD	Million gallons per day
MPA	Metropolitan Planning Area
MUD	Municipal Utility District
NCTCOG	North Central Texas Council of Governments
NTMWD	North Texas Municipal Water District
OSSF	Onsite sewage facility
POTW	Publicly owned treatment works
RIS	Research and Information Services Department
RUAA	Recreational use attainability analysis
SSO	Sanitary sewer overflow
SSOI	Sanitary Sewer Overflow Initiative
TCEQ	Texas Commission on Environmental Quality
TMDL	Total maximum daily load
TPDES	Texas Pollution Discharge Elimination System
TRA	Trinity River Authority
TRWD	Tarrant Regional Water District
TSSWCB	Texas State Soil Water Conservation Board
TWDB	Texas Water Development Board
UAA	Use attainability analysis
USGS	U.S. Geologic Survey
UTRWD	Upper Trinity Regional Water District
WQMP	Water Quality Management Plan
WPG	Water planning group
WPP	Watershed protection plan
WRC	Water Resources Council
WWTP/F	Wastewater treatment plant/facility

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Water Quality Management Plan (WQMP) Background

The North Central Texas Council of Governments (NCTCOG), as the designated Water Quality Planning agency for the North Central Texas area, is responsible for developing the regional Water Quality Management Plan (WQMP). NCTCOG serves Collin, Dallas, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant, and Wise Counties (Figure 1). The purpose of this WQMP update is to support current and future planning decisions concerning water quality efforts, wastewater infrastructure development, watershed management, and related issues on both a regional and state level. The WQMP update provides a framework and strategies for water quality, wastewater management, and water supply challenges that contribute to protecting or improving water quality in North Central Texas. The water quality management program also facilitates the review of infrastructure projects to ensure that they are consistent with the regional WQMP.

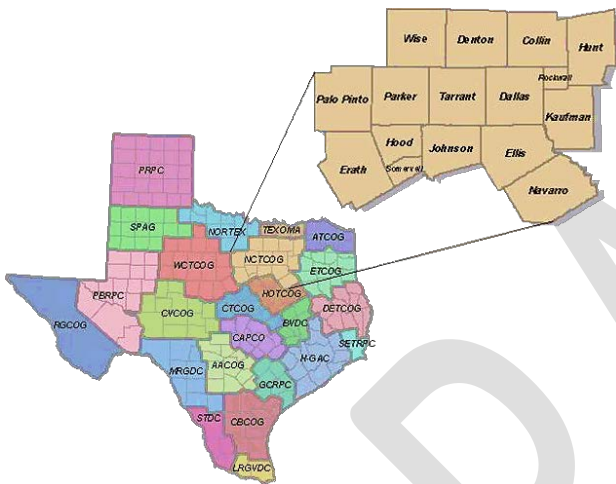


Figure 1. NCTCOG Region

In 1975, NCTCOG was designated by the Governor of Texas as the water quality management planning agency for the North Central Texas region. Protection of water resources and the provision of wastewater services are overseen on a statewide basis by the TCEQ, who relies on NCTCOG for oversight, conformity review, and evaluation of capacity for wastewater services in the North Central Texas region. The water quality management planning process is mandated by the Section 208(a) of the Clean Water Act (CWA) for the purpose of encouraging and facilitating the development and implementation of area-wide waste treatment management plans. Implementation of the act is the responsibility of state and local planning agencies.

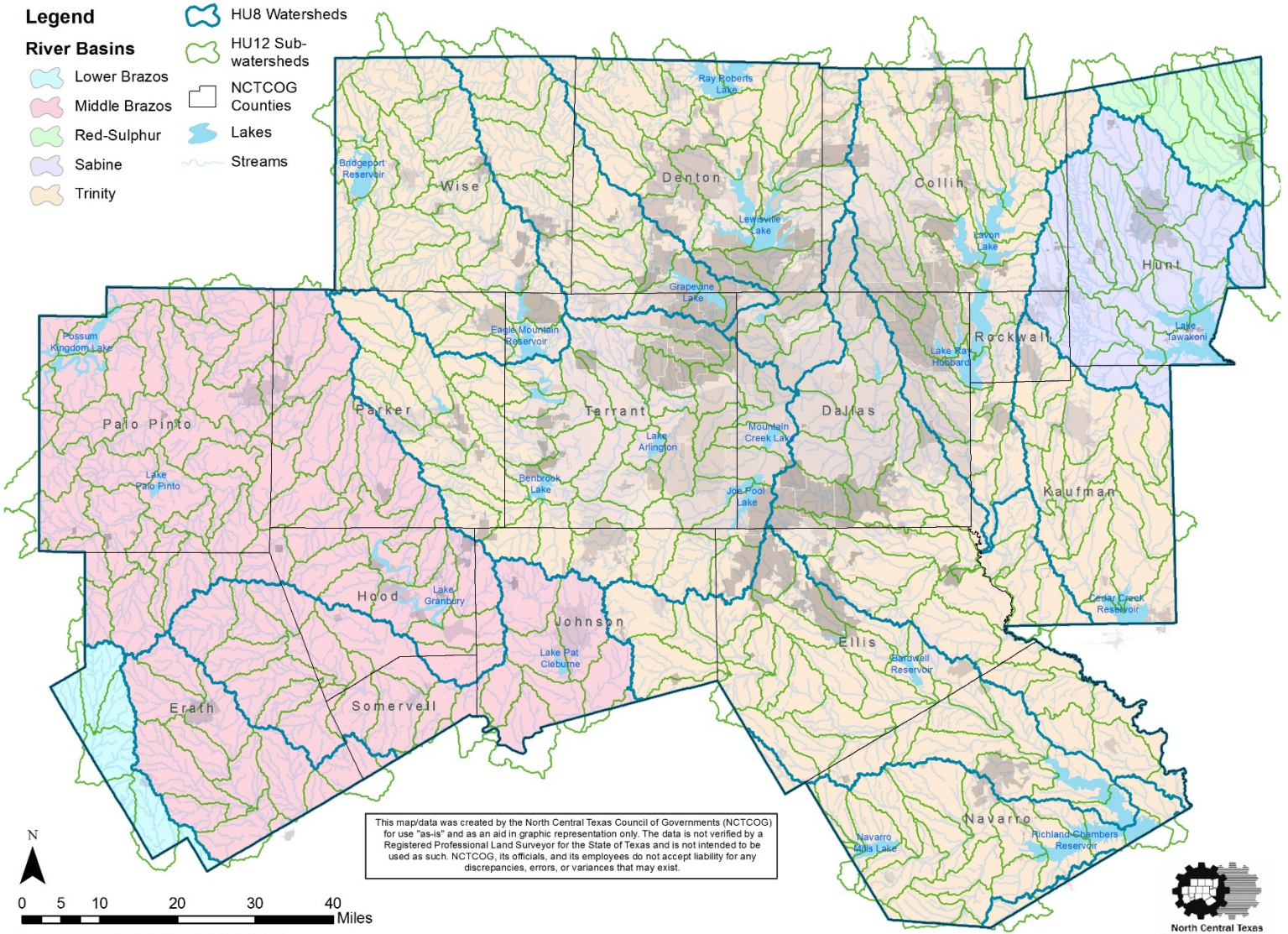
Each WQMP is reviewed by the Water Resources Council (WRC), a committee that advises NCTCOG's Executive Board on technical and policy issues related to water resources matters. A public comment process and public hearing is provided to allow for stakeholder review of the plan and provide opportunity for comments. After the public hearing, public comments are incorporated to produce a final plan which is presented to NCTCOG's Executive Board for adoption. The adopted plan is subsequently submitted to TCEQ for review and approval.

2018 Water Quality Management Plan Update

The North Central Texas Council of Governments (NCTCOG), as the designated water quality planning agency for the North Central Texas area, is responsible for the developing the regional Water Quality Management Plan (WQMP). Since developing the first WQMP in 1975, the NCTCOG 16-county region has grown by 4.5 million people. The historical population growth and projected growth has required and will continue to require water resources planning to address water quality, wastewater capacity, and water supply needs. The WQMP is a summary of potential needs and priorities for improving water quality and continuing regional efforts to meet wastewater capacity needs for the expanding population.

The NCTCOG Region is composed of over 330 sub-watersheds that include a myriad of diverse land uses working to support the growing population of the NCTCOG region (Figure 2). Entities across North Texas work to maintain and improve water resources with the development of management plans to help meet future needs.

Figure 2. NCTCOG Region River Basins, Watersheds, and Subwatersheds

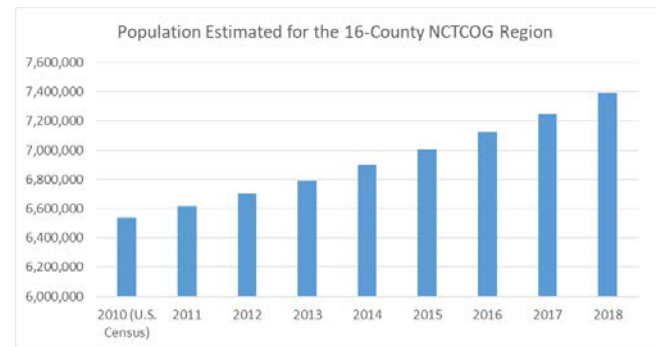


Population Estimates and Projections

The Dallas-Fort Worth region continues to experience high levels of population growth, and forecasts project this trend will continue through 2045. The continual growth in the region is important to agencies tasked with maintaining or improving water quality, providing adequate capacity for wastewater treatment, and ensuring sufficient drinking water supplies.

Several methods of growth analysis are used to establish existing and projected growth trends in the North Central Texas region. NCTCOG's Research and Information Services (RIS) Department produce annual population estimates, and in 2015, developed population and employment projections for 2040 for the 12-county Metropolitan Planning Area (MPA). In October of 2017, the RIS department published an updated population and employment projection for 2045 for the 12-county MPA, which can be found in Table 1. The projected population data provides a uniform base for infrastructure planning and resource allocation in the MPA. The Texas Water Development Board (TWDB) also produces population projections, which NCTCOG uses to measure population

Figure 3. Population estimates for the 16-County NCTCOG Region, 2010-2018



Source: NCTCOG RIS Department, 2018

Table 1. Existing Population Estimates and Projections by Planning Area in the North Central Texas Region

NCTCOG Estimated and Projected Populations by Planning Area						
	2000 U.S. Census April 1	2010 U.S. Census April 1	2017 NCTCOG Estimate January 1	2018 NCTCOG Estimate January 1	2040 Population Projection	2045 Population Projection
12-County MPA*	5,197,317	6,417,724	7,115,910	7,257,790	10,676,844	11,246,516
16-County NCTCOG Region	5,309,277	6,539,950	7,247,010	7,390,080	-	-

*The 12-County Dallas-Fort Worth Metropolitan Planning Area (MPA) consists of: Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties.

Source: U.S. Census Bureau; NCTCOG Population Estimates and Projections

The NCTCOG region experiences considerable annual population change. Analysis of where existing growth is occurring within the region is important to understand growth patterns to assist with future planning needs. To assist with this effort, a list of NCTCOG city population estimates for 2010 - 2018 can be found in Appendix A. Additionally, the map seen in Figure 4 shows the top 10 cities with the highest percent change (red) and largest absolute growth (blue). Percent change in population shows the relative change in size of a population from 2016 to 2018, and tends to occur in smaller cities. Absolute growth indicates the actual number of people the population increased (or decreased) by from 2017 to 2018. Growth values for the NCTCOG region can be seen in Table 3 and Table 4.

As seen in Figure 4, the four core counties – Collin, Dallas, Denton, and Tarrant Counties – are experiencing significant population growth as compared to the rest of the NCTCOG Region. These counties are responsible for an estimated 82% of the population growth in 2017 and will continue to receive increases in population through 2045, according to the NCTCOG RIS 2045 population projections (values available in Table 2).

Table 2. Core Counties Population Estimates and Projections

County	2010 County Population Estimate	2018 County Population Estimate	2040 County Population Projection	2045 County Population Projection
Collin	782,341	969,730	1,560,421	1,689,170
Dallas	2,368,139	2,529,150	3,357,469	3,445,189
Denton	662,614	844,260	1,241,681	1,346,314
Tarrant	1,809,034	1,989,810	3,084,649	3,263,616

Source: U.S. Census Bureau, 2010; NCTCOG Population Estimates and Projections

Figure 4. 2018 Population Estimates for the NCTCOG Region

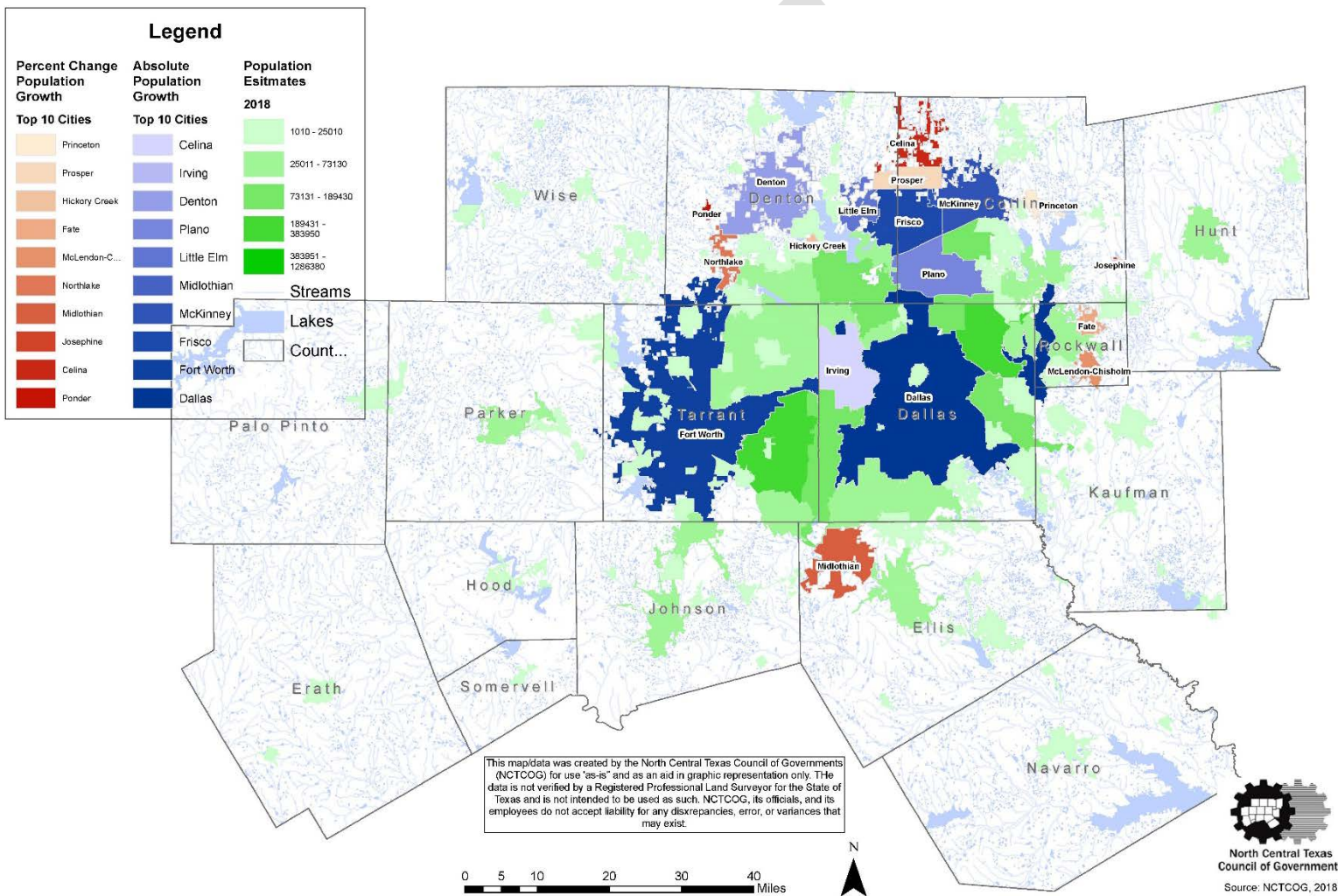


Table 3. Top 10 Cities Experiencing the Largest Percent Population Change in the NCTCOG Region, 2017-2018

City	2017 Population	2018 Population	Percent Population Growth (2017-2018)
Ponder	1,780	2,330	30.9%
Celina	10,310	13,090	27.0%
Josephine	1,160	1,450	25.0%
Midlothian	24,450	30,400	24.3%
Northlake	3,010	3,630	20.6%
McLendon-Chisholm	2,780	3,270	17.6%
Fate	11,380	13,240	16.3%
Hickory Creek	3,870	4,430	14.5%
Prosper	20,160	22,650	12.4%
Princeton	9,460	10,560	11.6%

Source: NCTCOG Population Estimates, 2018

Table 4. Top 10 Cities Experiencing the Highest Absolute Growth in the NCTCOG Region, 2017-2018

City	2017 Population	2018 Population	Absolute Population Growth (2017-2018)
Dallas	1,270,170	1,286,380	16,210
Fort Worth	815,430	829,560	14,130
Frisco	161,400	172,940	11,540
McKinney	169,710	179,970	10,260
Midlothian	24,450	30,400	5,950
Little Elm	38,250	42,040	3,790
Plano	277,720	281,390	3,670
Denton	128,160	130,990	2,830
Celina	10,310	13,090	2,780
Irving	234,710	237,490	2,780

Source: NCTCOG Population Estimates, 2018

Recreational Use-Attainability Analysis (RUAA) Studies

The Texas Commission on Environmental Quality (TCEQ) is responsible for establishing and enforcing water quality standards for Texas waterways. The TCEQ employs several tools to define appropriate water quality standards for each stream segment across the state. One tool, the Use Attainability Analysis (UAA), reevaluates the designated (or presumed) use of a water body. An UAA would be performed if a water body's water quality standard is questioned as appropriate for local conditions. Analysis of use is based on the physical and flow characteristics of the stream; supporting information from individuals and organizations with firsthand knowledge; and historical and existing patterns of use (TCEQ, 2016). The most common UAA is the Recreational Use-Attainability Analysis (RUAA), which determines what category of recreational use is appropriate for a particular water body. There are four categories:

Primary Contact Recreation: Activities that are presumed to involve significant risk of ingestion of water

Secondary Contact Recreation 1: Activities that commonly occur but have limited body contact, incidental to shoreline activity

Secondary Contact Recreation 2: Activities with limited body contact, incidental to shoreline activity

Non-contact Recreation: Activities that do not involve a significant risk of water ingestion, such as those with limited body contact, incidental to shoreline activity.

RUAA studies within the NCTCOG Region and can be found in Table 5. Performing a RUAA has the potential to change the designated water quality standard of a waterway, which could cause a waterway to achieve attainment for certain pollutants, and no long be considered impaired. The outcome for 1 RUAA study in Erath

County for Resley Creek (TCEQ, 2018) has been determined. Stream segments with pending outcomes are still undergoing public comment and EPA approval of the TCEQ recommendations.

Table 5. NCTCOG Region Recreational Use Attainability Analysis Final Outcomes

Basin	Segment (SEG_ID)	Segment Description	Original Designated Use	Final Outcome (as of May 2018)	When RUA Was Conducted
Brazos	1226K	Little Daffau Creek	Primary Contact Recreation	Pending	Summer 2009
Brazos	1226E	Indian Creek	Primary Contact Recreation	Revised designated use to Secondary Contact Recreation 1 ^b	Summer 2009
Brazos	1226F	Sims Creek	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255A	Goose Branch	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255B	North Fork Upper North Bosque	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255C	Scarborough Creek	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255F	Unnamed Tributary of Scarborough Creek	Primary Contact Recreation	Pending	Summer 2009
Brazos	1221F	Walnut Creek	Primary Contact Recreation	Revised designated use to Secondary Contact Recreation 2 ^c	Summer 2009
Brazos	1221A	Resley Creek	Primary Contact Recreation	Revised to a designated use of Secondary Contact Recreation 2 ^c	Summer 2009
Brazos	1255E	Unnamed Tributary of Goose Branch	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255G	Woodhollow Branch	Primary Contact Recreation	Pending	Summer 2009
Brazos	1223A	Armstrong Creek	Primary Contact Recreation	Pending	Summer 2009
Brazos	1255	Upper North Bosque River	Primary Contact Recreation	Pending	Summer 2009
Brazos	1226H	Alarm Creek	Primary Contact Recreation	Pending	Summer 2012
Brazos	1226M	Little Green Creek	Primary Contact Recreation	Pending	Summer 2012
Brazos	1255I	Dry Branch	Primary Contact Recreation	Pending	Summer 2012
Brazos	1204A	Camp Creek	Primary Contact Recreation	Pending	Summer 2012
Sabine	0507G	South Fork of Sabine River	Primary Contact Recreation	Pending	Summer 2010 and 2011
Trinity	0810	West Fork Trinity River Below Bridgeport Reservoir	Primary Contact Recreation	Retained designated use of Primary Contact Recreation ^a	Summer 2010
Trinity	0810A	Big Sandy Creek	Primary Contact Recreation	Revised designated use to Secondary Contact Recreation 1	Summer 2009
Trinity	0810C	Martin Branch	Primary Contact Recreation	Retained designated use of Primary Contact Recreation	Summer 2010
Trinity	0838C	Walnut Creek	Primary Contact Recreation	Pending	Summer 2010

- ^a Primary Contact Recreation has a geometric mean of 126 colonies of *E. coli*/100 mL
- ^b Secondary Contact Recreation 1 has a geometric mean of 630 colonies of *E. coli*/100 mL
- ^c Secondary Contact Recreation 2 has a geometric mean of 1030 colonies of *E. coli*/100 mL

TPDES Permitted Dischargers in the NCTCOG Region

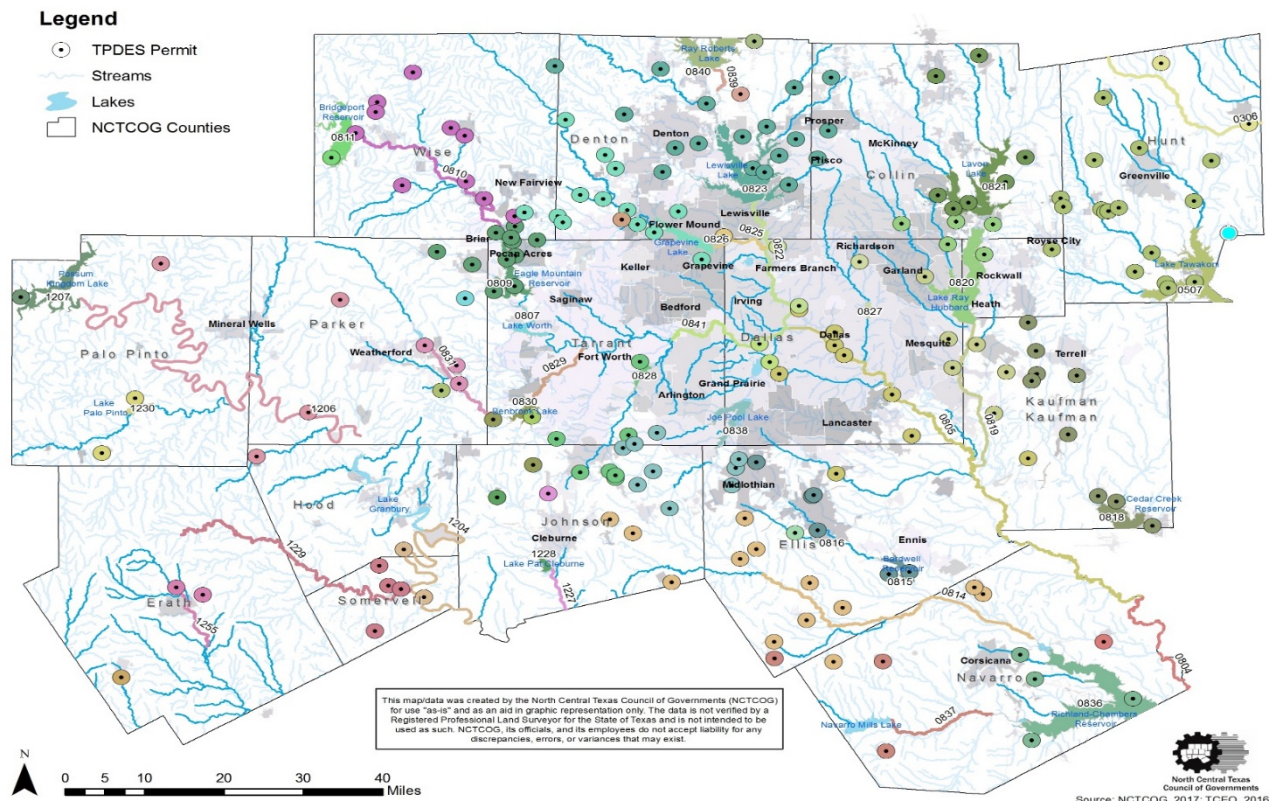
Local, state, and federal regulations require pretreatment programs as part of the National Pollutant Discharge Elimination System (NPDES), which is administered at the state level by TCEQ's Texas Pollution Discharge Elimination System (TPDES) program. The TPDES program controls water pollution by regulating point sources that discharge pollutants into waterways. Any industrial, municipal, or other facility must obtain a TPDES permit if their discharge goes directly into surface waters. This includes but is not limited to wastewater treatment plants.

NCTCOG developed a database of TPDES permits, compiling permit renewals and major and minor amendments occurring in the NCTCOG Region. The database maintains records for each permit, providing pertinent information, including: permit applicant; permit location; any permit modifications; permitted flow (gallons per day); and the outfall path of the permitted discharge. Information on the map indicates the most recent iteration of received TPDES wastewater permits, color coding them to the water body receiving the permitted discharge.

The map provides a snapshot of permitted discharge within the region. This information can be used in planning for future capacity and help identify priority water bodies or watersheds that may need preventative action in order to maintain designated water quality standards.

For more information about each TPDES permit, the TPDES database can in Appendix B.

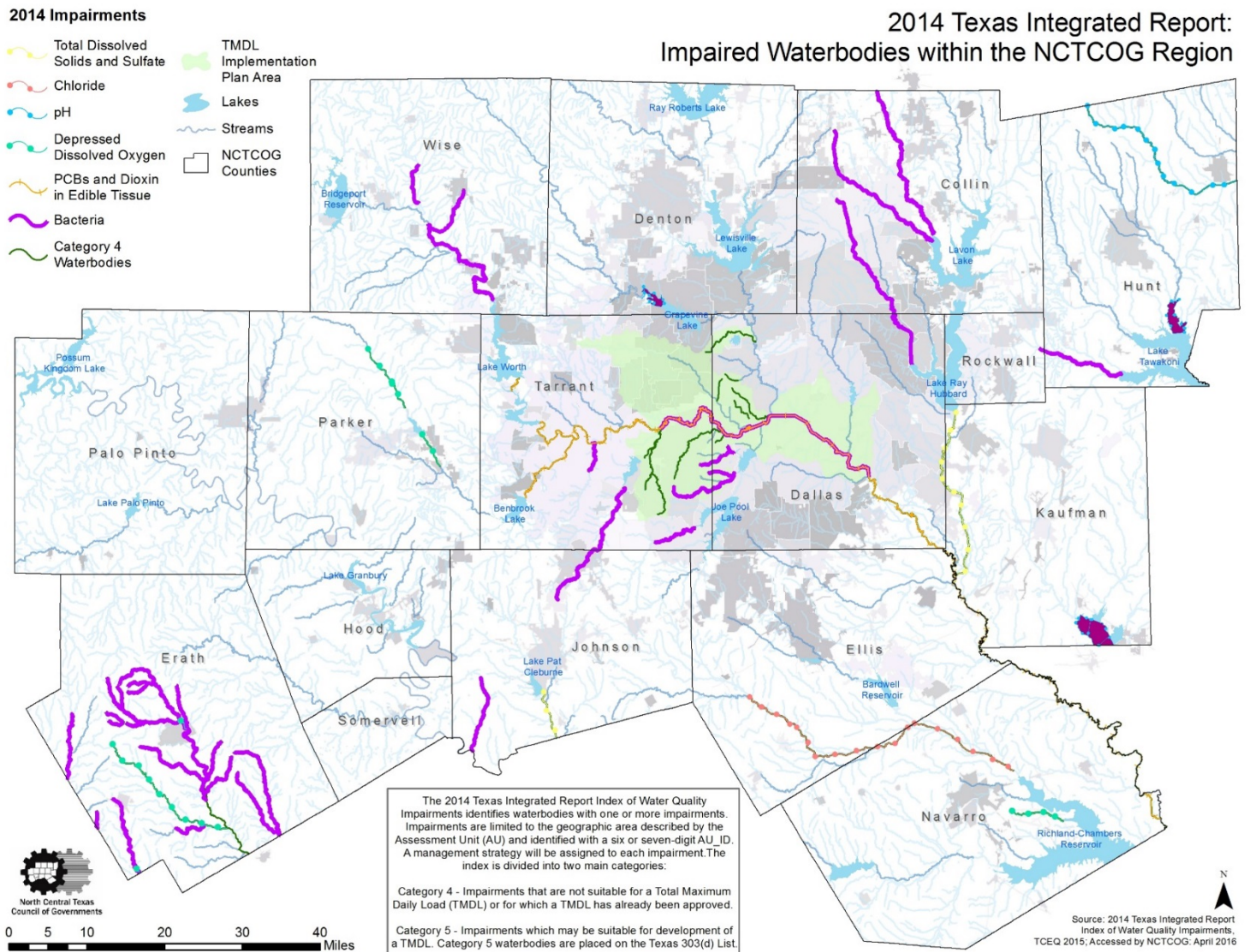
Figure 5. TPDES Permitted Dischargers in the NCTCOG Region



NCTCOG Region Water Quality Overview

The water quality in the NCTCOG Region is important to the health, safety, and welfare of residents, ecosystems, and long-term economic growth. As of 2014, the NCTCOG Region has 50 water bodies that are in non-attainment and listed on the Texas 303(d) List. The Texas 303(d) List is comprised of water bodies that are labeled as category 5, meaning the water bodies have or will have planned management strategies implemented as an effort to improve the water quality to meet the designated water quality standard.

Figure 6. 2014 Texas Integrated Report - Impaired Water Bodies within the NCTCOG Region



The map displays the 2014 Texas 303(d) List of impaired surface water bodies by pollutant. Impairments are limited to the geographic area described by the Assessment Unit (AU) and identified with a six or seven-digit AU_ID. 303(d) water bodies are to have a management strategy assigned to address the impairments. Specific strategies may include: TMDL development; water quality standards evaluation; or additional monitoring. Water bodies are removed from the Texas 303(d) List for any one of the following seven reasons:

Standards are met. Additional monitoring data demonstrate that water body meets applicable water quality standards

Error in listing. Errors in the data or procedures used to list the water body invalidate the original basis for listing

New procedures used. Procedures used by the state to assess water quality monitoring data are routinely improved and revised. Data set for a listed water body may be reassessed with more accurate procedures and be found to attain the standard or criteria. The strength of the data set and quality of the water must also meet the requirement for delisting using revised methods.

New standards. Water quality standards and criteria have been revised, and listed water body attains the new standards or criteria.

TMDL approval. The EPA approves a TMDL designed to attain water quality standards for the water body (Category 4a).

Water body expected to meet. Based on water quality controls in place (other than a TMDL), attainment of the water quality standards is expected in the near future (Category 4b).

Impairments not caused by a pollutant. New information demonstrates that the impairment is not caused by a pollutant, and that water quality conditions cannot be changed by the allocation and control of pollutants through the TMDL process (Category 4c).

NCTCOG and entities across the region actively engage in pollution prevention strategies to reduce the amount of pollution entering into the regional waterways. These activities help improve the water quality throughout the region and support efforts working towards removing water bodies from the Texas 303(d) list. Such strategies include:

- Municipal separate storm sewer (MS4) operators (such as cities and transit authorities) are required to reduce pollution that could contaminate stormwater and run-off into local waterways. NCTCOG coordinates the [Regional Stormwater Management Program](#) to engage MS4s to implement regional efforts to achieve the permit requirements for their individual permits.
- Entities throughout North Texas have begun the development and implementation of watershed protection plans (WPPs) in an effort to improve and prevent water quality pollution.
- Entities in the Dallas-Fort Worth Metroplex participate in the [TMDL Implementation Plan program](#), which aims to reduce the amount of bacteria entering into the Greater Trinity River and some of its tributaries.
- Volunteer organizations, such as the [Texas Stream Team](#), coordinate citizens to monitor water quality to provide additional information to help cities and other entities recognize waterways being impacted by pollution.

Total Maximum Daily Load (TMDL) Implementation Plan

NCTCOG supports the development and implementation of the Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) to address bacteria levels in the Greater Trinity River Region (Figure 8). A TMDL measures the amount of pollutant that a stream segment can receive and still maintain the water quality standards for its designated use.

The *Implementation Plan (I-Plan) for 21 Total Maximum Daily Loads for Bacteria in the Greater Trinity River Region* was approved by the TCEQ Commissioners in 2013 and updated in 2017 to include 4 additional TMDLs, Upstream of Mountain Creek Lake. The I-Plan describes strategies that can be taken to reduce the levels of bacteria loading in portions of the Trinity River and its tributaries that are listed as impaired for bacteria in the Texas Integrated Report Index of Water Quality Impairments (which includes the 303d List). The Implementation Plan has outlined strategies to reduce bacteria loading in the following waterways:

- Upper Trinity River (Segment 0805, upper end)

- Elm Fork Trinity River tributaries of Grapevine Creek and Cottonwood Branch (Segments 0822A and 0822B)
- Lower West Fork Trinity River (Segment 0841) and 11 of its tributaries
- Tributaries of Mountain Creek Lake (Segments 0841F, 0841K, 0841N, and 0841V)

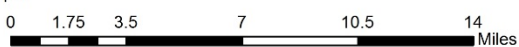
Figure 7. TMDL I-Plan Area and Impaired Water Bodies



Legend

- Bacteria Impaired Segments
- Cottonwood Branch & Grapevine Creek TMDLs
- Lower West Fork TMDLs
- Above Mountain Creek TMDLs
- Upper Trinity TMDLs
- Streams
- Lakes
- Dallas-Fort Worth International Airport
- NCTCOG Counties

This map/data was created by the North Central Texas Council of Governments (NCTCOG) for use "as-is" and as an aid in graphic representation only. The data is not verified by a Registered Professional Land Surveyor for the State of Texas and is not intended to be used as such. NCTCOG, its officials, and its employees do not accept liability for any discrepancies, errors, or variances that may exist.



Source: NCTCOG, 2017; TCEQ, 2017

The TMDL Coordination Committee, the I-Plan’s managing body, is made up of stakeholders within the TMDL area including: local governments, special districts, non-profit organizations, and other interested parties. There are three Technical Subcommittees that convene annually to review and evaluate the efforts underway related to relevant implementation strategies. TMDL Technical Subcommittees make recommendations to the TMDL Coordination Committee on the priority status and efficacy of the implementation efforts underway within the TMDL area. NCTCOG continues to support regional efforts to implement strategies identified in the I-Plan and work with stakeholders to make progress in meeting TCEQ’s and the region’s goal of reducing bacteria concentrations to within acceptable risk levels for contact recreation.

The TMDL Implementation Plan program works annually to initiate and continue efforts for each implementation strategy in the I-Plan. The efforts underway since the inception of the TMDL I-Plan have been outlined in the first annual TMDL Implementation Status [Report](#). To view the report, visit www.nctcog.org/TMDL.

Watershed Protection Plans

A Watershed Protection Plan (WPP) is a coordinated framework for implementing water quality protection and restoration strategies within a watershed. WPPs holistically address all the sources and causes of impairment to both surface and groundwater resources. Developed and implemented through diverse, well integrated partnership of stakeholders, a WPP assures the long-term health of the watershed and is one of the ways that entities in the NCTCOG region are helping with pollution prevention efforts. As seen in Figure 7, there are seven watershed protection plans under development or implementation in the NCTCOG region. See Table 6 for more information on the current status of each WPP.

Figure 8. Watershed Protection Plans in the NCTCOG Region

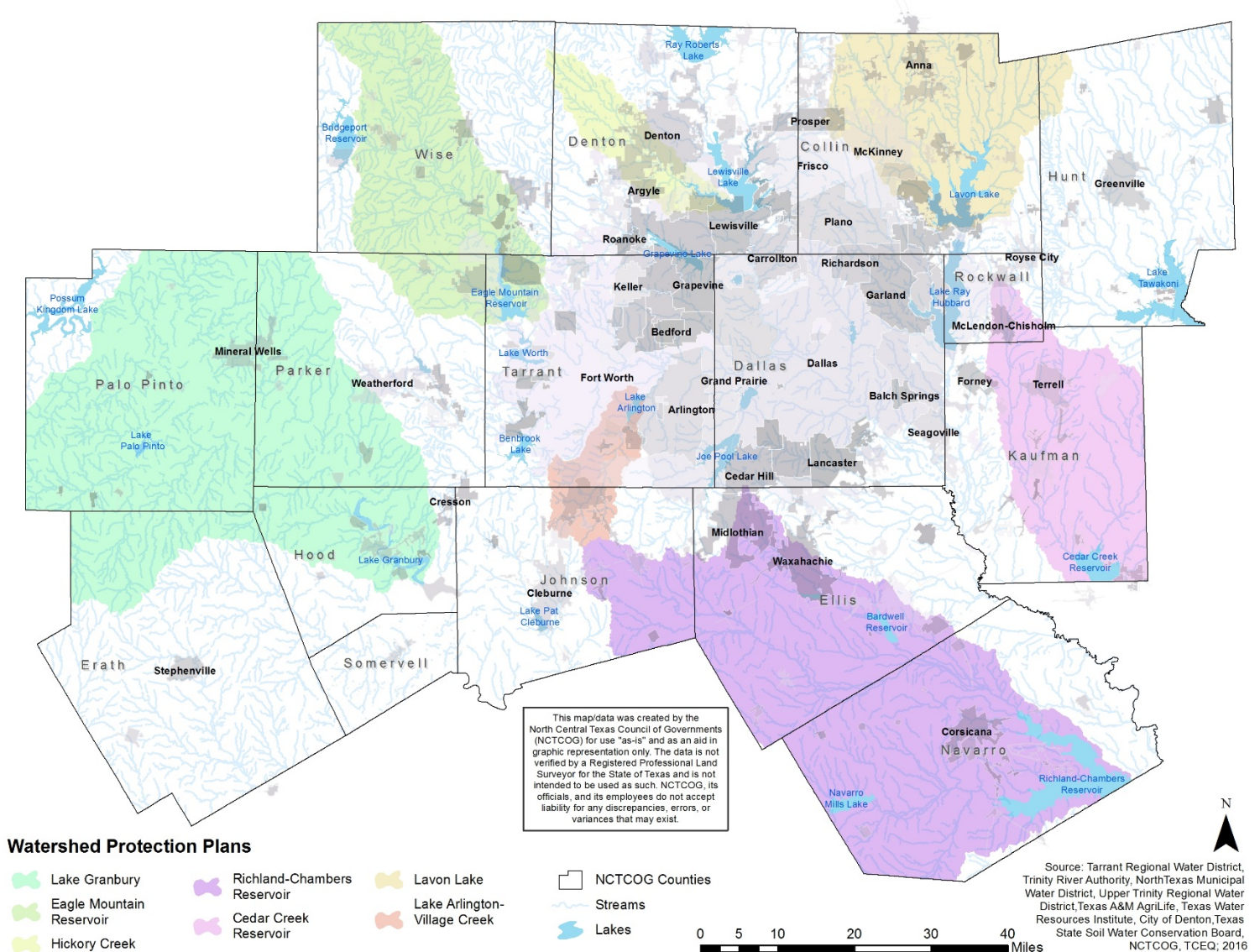


Table 6. North Central Texas Watershed Protection Plans Status Update

Watershed Protection Plan	Pollutant of Concern or Impairment ^a	Location	Partners	Status (as of May 2018)
Lake Arlington-Village Creek	Impaired for bacteria Of concern for chlorophyll-a	143 square miles from Village Creek headwaters near Joshua in northern Johnson County, extending 35 miles to Lake Arlington in southeastern Tarrant County.	City of Arlington Trinity River Authority (TRA) Texas Commission on Environmental Quality (TCEQ)	SELECT and load duration curve analyses has been completed and preliminary efforts for large-scale illegal dumping/floatable trash identification study have been started. The draft Watershed Protection Plan has been written and modified with stakeholder input. Final draft is anticipated to be sent to the EPA in September 2018.
Cedar Creek Reservoir	Of concern for chlorophyll-a	1,007 square miles southwest of Dallas, 3 miles northwest of Trinidad on Cedar Creek in the Trinity River Basin in Rockwall, Kaufman, and Henderson Counties.	Tarrant Regional Water District (TRWD) Texas Water Resources Institute (TWRI) Texas State Soil Water Conservation Board (TSSWCB)	Conducting implementation under 319(h) grant funding.
Eagle Mountain Reservoir	Of concern for chlorophyll-a	9,200 acres on the West Fork of the Trinity River, just north of Lake Worth in northwestern Tarrant and southwestern Wise Counties.	Tarrant Regional Water District (TRWD) Texas Water Resources Institute (TWRI) Texas State Soil Water Conservation Board (TSSWCB)	Conducting Implementation under 319(h) grant funding.
Lake Granbury	Of concern for bacteria	Along the Brazos River draining into Lake Granbury in Parker, Palo Pinto, Hood, and Erath Counties.	Brazos River Authority (BRA) Texas Water Resources Institute (TWRI)	Project on wrapped up due to lack of stakeholder interest.
Hickory Creek	Of concern for bacteria	Extends west from I-35 through the City of Denton, draining to Lake Lewisville in Denton County	City of Denton Texas Commission on Environmental Quality (TCEQ)	Conducting implementation under 319(h) grant funding. Recently obtained approval from the EPA due to monitoring and numeric criteria development in absence of 303(d) list generated criteria.
Lavon Lake	Impaired for bacteria	769 square miles in the Lavon Lake watershed above Lavon Lake in Grayson, Fannin, and Collin Counties.	North Texas Municipal Water District (NTMWD) Texas A&M AgriLife Texas State Soil Water Conservation Board (TSSWCB)	Conducting Implementation under 319(h) grant funding through education and outreach programs, and promoting watershed protection through the youth program, Water 4 otter. The Draft WPP was approved by the EPA as of December 2017.
Richland-Chambers Reservoir	Of concern for chlorophyll-a	Northwest of Richland-Chambers Reservoir in parts of Johnson, Ellis, Hill, Limestone, and Navarro Counties.	Tarrant Regional Water District (TRWD) Texas A&M AgriLife	Watershed Protection Plan is under development.

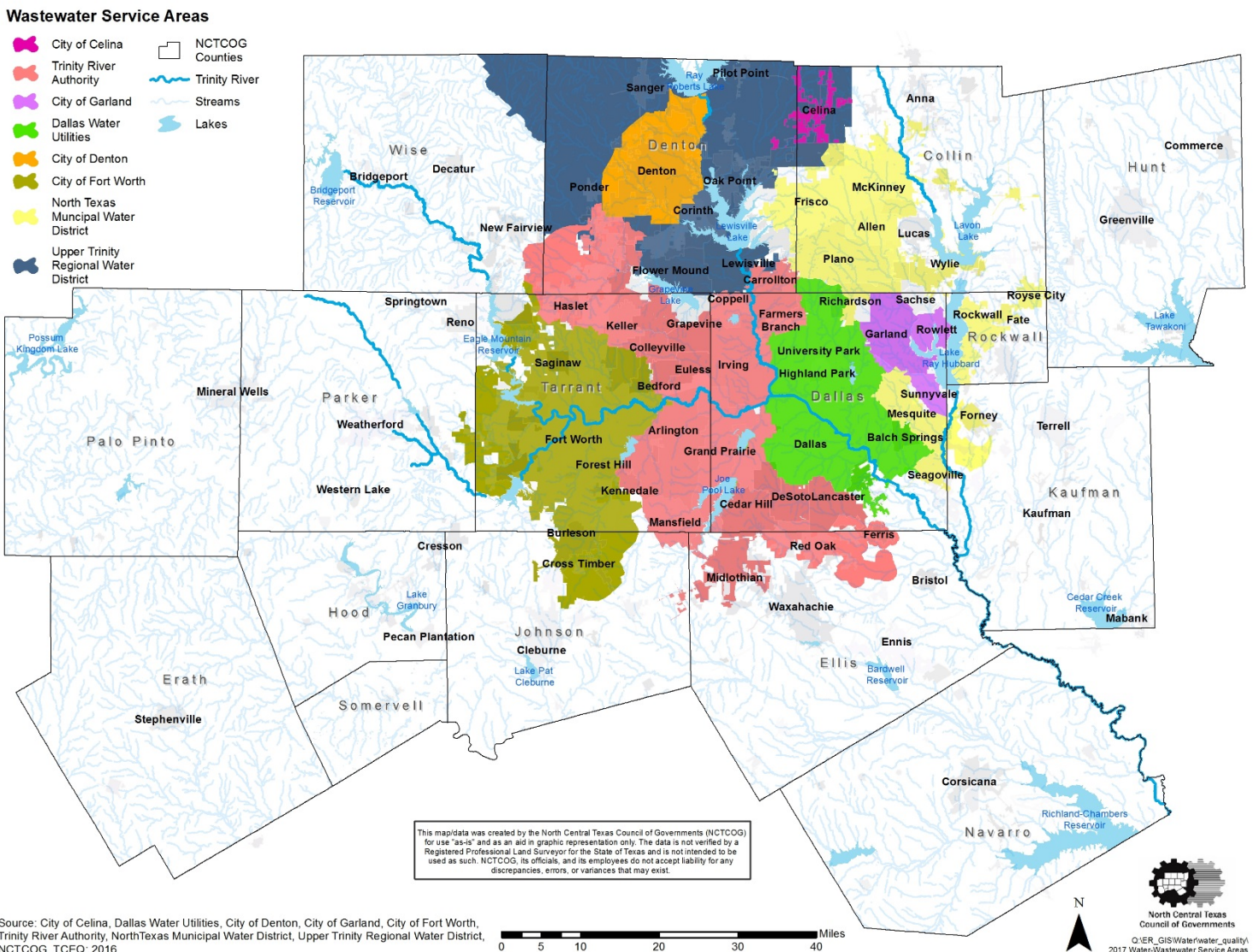
^a When a waterbody is “impaired” it is not meeting its applicable water quality standard. When a waterbody is “of concern” it is at risk of near-nonattainment for its designated use. Pollutant level reflects status of water body at inception of watershed protection plan. Source: TRA; NTMWD; TCEQ; Texas A&M AgriLife; TWRI; City of Denton; TSSWCB; NCTCOG, 2017

NCTCOG Region Wastewater System Overview

Ensuring adequate capacity to treat wastewater from new residential and commercial development in addition to the existing residents and businesses is a long-term planning need in the NCTCOG region. Wastewater service providers monitor growth trends to ensure their systems address issues such as plant expansions or new infrastructure that might be needed to meet future wastewater demands. Furthermore, several communities in the region have invested in wastewater infrastructure over the past year to upgrade or build new wastewater treatment facilities to treat increasing amounts of wastewater.

Communities located on the perimeter of the urbanized area and rural communities may become more dependent on each other to partner, or engage in existing partnerships, to provide cost efficient wastewater services. For such a densely populated and growing region, the need for adequate treatment services is a crucial component to protecting water quality, and is a priority to the seven wastewater joint system providers and individual wastewater system operators. The joint system providers in the region serve many local governments as members or customers. The Water Resources Council recommends that regional wastewater system providers aim to incorporate new entities into the existing systems, rather than have new systems operate independently. Service area of wastewater systems, as seen in Figure 9, can serve as an indicator of the expanding wastewater capacity within the region.

Figure 9. Wastewater Service Areas in the NCTCOG Region



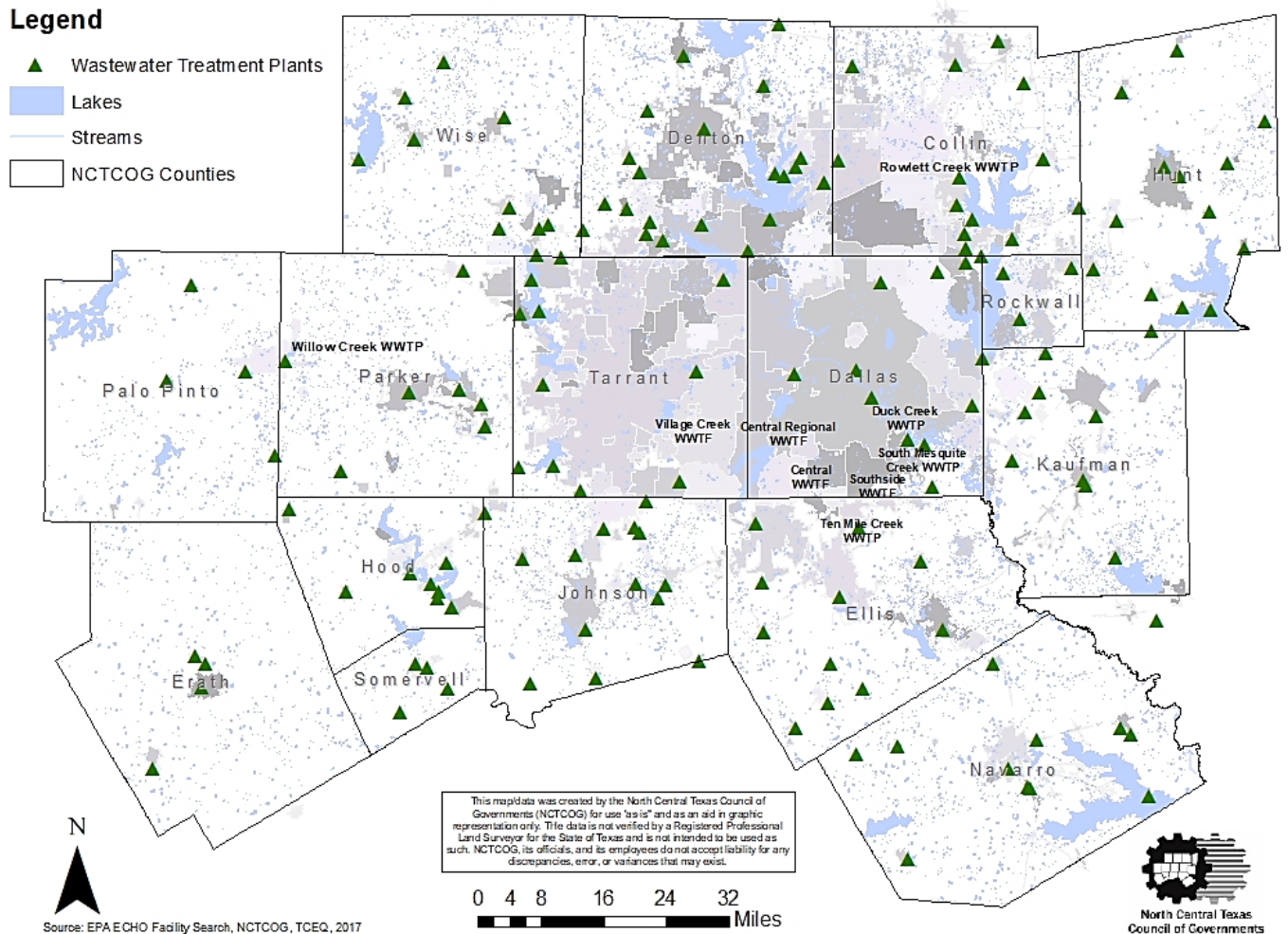
NCTCOG Region Wastewater Treatment Plants

Wastewater service providers operate wastewater treatment plants (WWTPs) as a part of the wastewater system. WWTPs are regulated by TCEQ and are required to acquire TPDES permits for discharges to receiving water bodies. The permit limits are set by the state to avoid pollutant overloads to surface waters.

The TPDES program helps to control discharges of pollutants into surface waters. Every TPDES permittee must submit monthly Discharge Monitoring Reports (DMR) to TCEQ which can be used to assess the monthly and yearly wastewater effluent and discharges of individual wastewater treatment plants (WWTPs). There are 111 minor and 44 major WWTPs in the NCTCOG region. WWTPs are designated as minor when the design flow is less than or equal to 1 million gallons per day (MGD). The largest design flow values are found within the urbanized Dallas and Tarrant County.

Details regarding discharge rates and permit compliance data for the 155 major and minor wastewater facilities in the 16-county region can be found in Appendix C. The DMR data obtained from the TCEQ and used by NCTCOG reflects measurements from 2017 (January 2017 – December 2017). Figure 10 shows the permitted wastewater facilities in the NCTCOG region.

Figure 10. Wastewater Treatment Plants in the NCTCOG Region



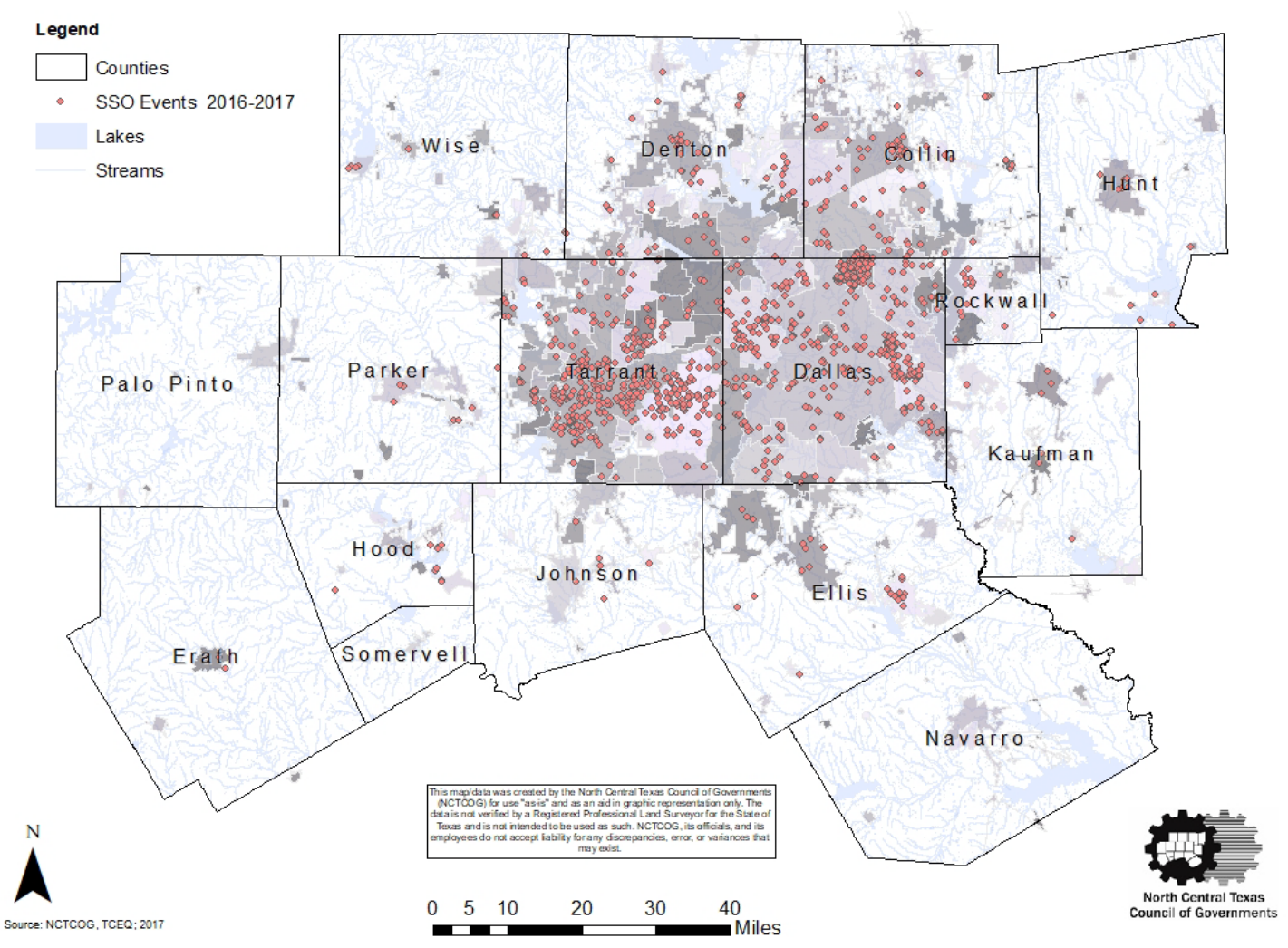
Sanitary Sewer Overflows in the NCTCOG Region

Sanitary sewer overflows (SSOs) are a type of unauthorized discharge of untreated or partially treated wastewater from a collection system or its components (TCEQ, 2016). SSOs can occur if there is significant inflow/infiltration, if the collection system is poorly operated or maintained, or the collection system lacks adequate capacity to collect or store flows for treatment. Figure 11 indicates the total number of reported SSOs during 2016 - 2017 in the NCTCOG region.

Infrastructure solutions to address SSOs can be both time consuming and costly to address. The NCTCOG region has recognized that a significant way to minimize the number of SSOs is with education and outreach aimed at the proper disposal of fats, oils, and grease (FOG) which cause blockages in the sewer mains. The Wastewater And Treatment Education Roundtable (WATER) supports a region wide effort to educate the public on FOG and to educate regional entities with trainings and workshops through the [Cease The Grease North Texas](#) initiative.



Figure 11. Sanitary Sewer Overflows in the NCTCOG, 2016 - 2017



Clean Water State Revolving Fund (CWSRF) Items in the NCTCOG Region

As the designated water quality management planning agency, NCTCOG is required to undertake 208/201 coordination with the TCEQ. NCTCOG evaluates Clean Water State Revolving Fund (CWSRF) projects that aim to develop and implement wastewater treatment management plans and practices to meet the goals of the Clean Water Act, and to coordinate with the state agency to ensure that plans developed under Section 208 are consistent with companion requirements under Section 201, which relates to facility planning and funding of treatment facilities or infrastructure. The 208/201 coordination activities typically involve examination of facility plans submitted as part of funding applications. NCTCOG compares the facility planning information with regional goals and plans included as part of the current amended area-wide Water Quality Management Plan.

NCTCOG performs a conformance review and provides the project plans to the Water Resources Council for expert input. NCTCOG compiles the feedback and submits responses to TCEQ for each project, acknowledging whether they were consistent with the current Water Quality Management Plan. NCTCOG received five CWSRF projects to review during Fiscal Year 2018. Table 7 provides information on each CWSRF project and summarizes the NCTCOG review outcome.

Table 7. Clean Water State Revolving Fund Items Conformance Review

Entity	Date Reviewed	Project Summary	Is the project consistent with NCTCOG's current WQMP?
City of Arlington	February 6, 2018	Replacement/rehabilitation of approximately 4,050 LF of existing 24" ductile iron that is the Lake Arlington Golf Course interceptor pipeline and 2,516LF of 8"-15" aerial crossings of local creeks in five locations throughout the city.	Yes; NCTCOG and the Water Resources Council found the project consistent with the regional plan.
City of Euless	February 6, 2018	The expansion and improvement of the existing Village Creek Reclaimed Water System in order to address increased demands on the existing water infrastructure, and reduce per capita potable water usage.	Yes; NCTCOG and the Water Resources Council found the project consistent with the regional plan.
City of Hurst	March 13, 2018	Replacement of an existing 15" and 18" diameter wastewater pipeline lying between State Highway 10 and Redbud Drive, a distance of approximately 2,700LF, with a planned 28" diameter HDPE wastewater pipeline using a combination of trenchless methods where possible.	Yes; NCTCOG and the Water Resources Council found the project consistent with the regional plan.
City of Quinlan	May 7, 2018	Replacement of approximately 10,000 LF existing clay tile sewer lines, manholes and all associated appurtenances. Rehabilitation/replacement of approximately 180 manholes.	Yes; NCTCOG and the Water Resources Council found the project consistent with the regional plan.
City of Stephenville	January 2, 2018	Engagement in a Sanitary Sewer Overflow Initiative (SSOI) and subsequent enforcement order with the TCEQ, establishing a plan for the City to improve the performance of its wastewater collection system.	Yes; NCTCOG and the Water Resources Council found the project consistent with the regional plan.

Source: TCEQ Notices; TWDB; NCTCOG, 2018

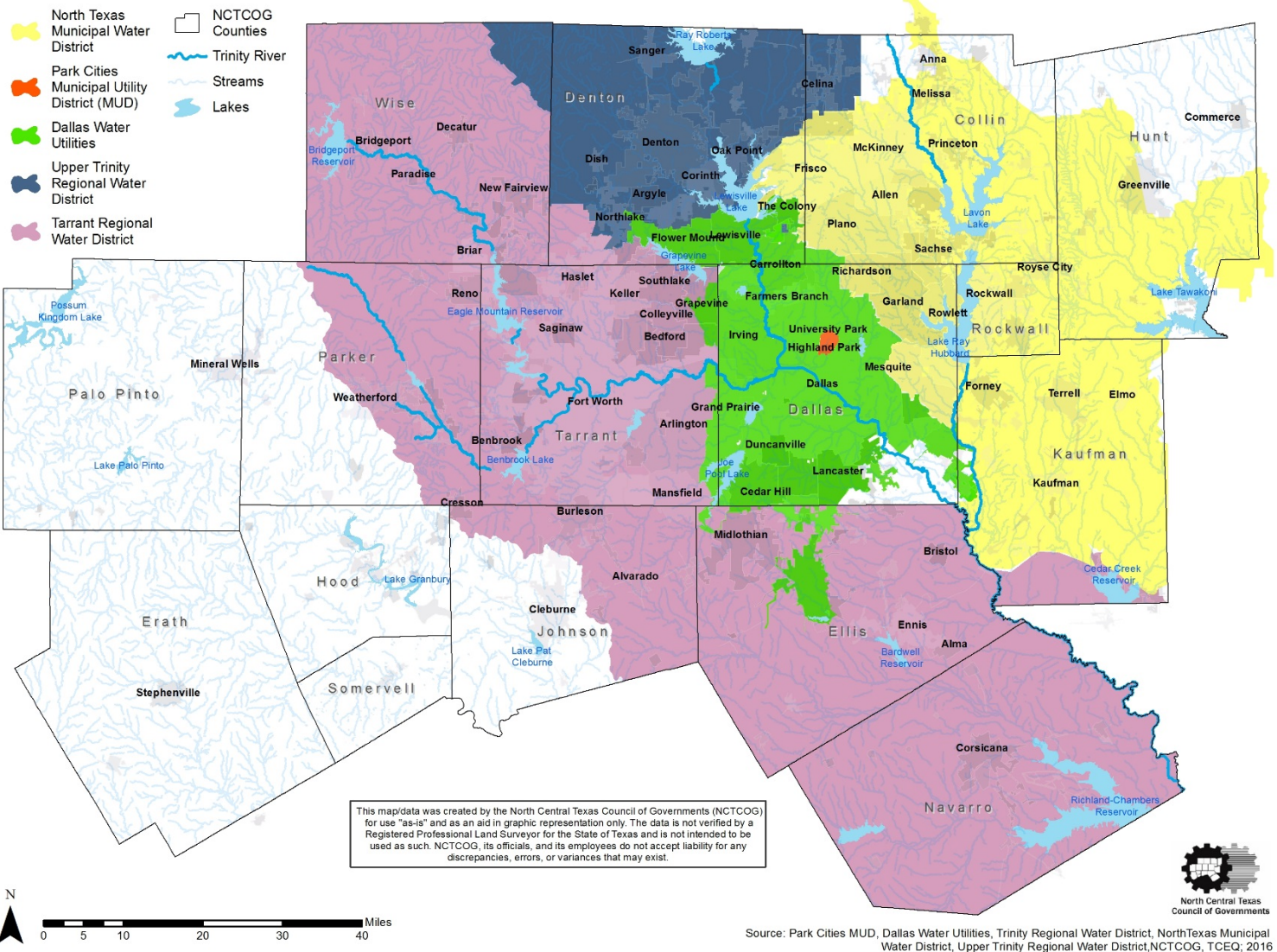
NCTCOG Region Water Services Areas

A water district is a local, governmental entity that provides limited services to its customers and residents. Water districts are created when a group of cities and utilities come together for the purpose of planning water use on a multi-community basis. Water districts help to plan for current and future water use by collecting funds and allocating capital for water related infrastructure projects within the region.

Figure 12 shows the major water providers in the NCTCOG region and the areas served with a diverse set of water needs and services. The cooperation of multiple cities and utilities on the water districts board help to facilitate compliance with water, wastewater, and reclaimed water. A complete list of all water districts in the NCTCOG region can be found in Appendix D.

Figure 12. Water Service Areas in the NCTCOG Region

Water Service Areas



The NCTCOG region utilizes analysis on available water supply, water shortage, and water demand developed by the Region C Water Planning Group who are tasked with developing a regional water plan to recommend management strategies for water in North Texas. The Region C Water Plan projects that 90% of the water shortages in 2070 will be for municipal users and predicts Collin, Dallas, Denton, and Tarrant Counties will have

the largest water needs in 2070. These forecasted needs encourage regional stakeholders to continue collaborating on best management for meeting future water supply demands. NCTCOG supports the Region C management strategies for achieving water supply goals as laid out in the [2016 Region C Water Plan](#).

There are 16 regional water planning areas in Texas. Six NCTCOG region counties fall into different regional water planning jurisdictions, however the recommendations for water management strategies serve to accomplish the same goals as Region C. [The Region G Water Plan](#) serves Plano Pinto, Erath, Hood, Somervell, and Johnson Counties, and the [Region D Water Plan](#) serves Hunt County.

Wastewater And Treatment Education Roundtable

Aiming to reduce potential damage to the region's household plumbing systems and wastewater treatment systems as well as to decrease hazards to water quality, the Wastewater And Treatment Education Roundtable (WATER) supports educational efforts related to the proper disposal of items such as wipes; paper towels; feminine hygiene and personal care products; medicines; household hazardous waste; and fats, oils, and grease (FOG). As part of this effort, WATER supports a regional FOG collection during the holidays. To learn more on how to properly dispose of problematic items, visit www.CeaseTheGreaseNTX.com.

TMDL Implementation Plan Program

NCTCOG is currently working in conjunction with the TCEQ on the Total Maximum Daily Load (TMDL) Implementation Plan (I-Plan) Program addressing bacteria loading for several impaired water bodies in the Dallas-Fort Worth Metroplex. A TMDL measures the amount of pollutant that a waterway can have and still meet the water quality standards for its designated use. 21 waterways in North Central Texas are currently included in the TMDL I-Plan program. NCTCOG coordinates with regional entities to conduct and document efforts to help reduce the bacteria impairment in the stream segments. For more information, please visit www.nctcog.org/TMDL.

Texas SmartScape

Texas SmartScape is an outreach program to educate residents on landscape best management practices, including the benefits of using plants that are native or adapted to our regional climate and local conditions. The program goals are to conserve local water supplies and improve stormwater runoff quality by reducing the amount of water needed to maintain landscapes while decreasing the amount of pesticide, fertilizer, and herbicides used. Many cities in the North Texas region have also participated in a recent effort to promote Texas SmartScape plants and the program by partnering with nurseries and garden centers on plant sale events. To learn more, please visit www.TXsmartscape.com.

Regional Ecosystem Framework

The development of the Regional Ecosystem Framework (REF) was a collaboration between the Transportation and Environment and Development department at NCTCOG. The REF uses a watershed approach to define areas of ecological importance. The REF was developed into an interactive viewer that allows users to evaluate the ecological priorities at the subwatershed level and overlay additional spatial data relevant to efforts to conserve natural areas or mitigate environmental impacts of infrastructure projects. For more information and to view the interactive mapping application, please visit www.nctcog.org/REF.

COMMON VISION Program

The Trinity River COMMON VISION Program is the coordination of local governments along the Trinity River who launched a regional initiative that promote a safe, clean, enjoyable, natural, and diverse Trinity River. The program established the Corridor Development Certificate (CDC) process to stabilize flood risks along the Trinity River. A CDC permit is required to develop land within a specific area of the Trinity floodplain. Under the CDC process, neighboring local governments along the Trinity River Corridor are given the opportunity to review and comment on projects in each other's jurisdiction. This process will help prevent any increase flood risks as the Metroplex continues to grow. For more information, please visit http://www.nctcog.org/envir/SEEsafe/fpm/C_V_background.asp.

Vision 303(d) Program

In 2011, the state of Texas and EPA developed a new approach to address impaired water bodies. The 303(d) Vision Watershed Priority Strategy improves on the TMDL approach and provides an opportunity to use different methods to address impairments. Through the 303(d) Vision project, Texas A&M AgriLife Research and Extension and a team of partner organizations and stakeholders initiated a 7 year effort to address bacterial impairments in the Upper Trinity River Basin. Currently, the program is conducting education and outreach programs as well as gathering and analyzing existing data on bacteria impairments in the basin and if there are already efforts to protect them. The second phase of the effort will be implementation of needed strategies in the identified impaired areas. For more information, please visit <http://www.nctcog.org/envir/SEEclean/wq/utrbcc.asp>.

iSWM (*integrated Stormwater Management*)

The Integrated Stormwater Management program (iSWM) for Construction and Development is a cooperative initiative that assists cities and counties achieve their goals of water quality protection, streambank protection, and flood mitigation, while also helping communities reach their construction and post construction obligations under state stormwater permits. The program consists of 4 types of documents and tools that can be utilized by regional entities. There are 15 founding iSWM communities in the North Central Texas Region. Moving forward, cities will go through a certification to become an iSWM community. For more information, please visit www.iSWM.nctcog.org.

Trash Free Waters

The EPA is currently working to develop a program with a focused set of national and regional actions that support trash prevention and reduction initiatives by many public and private stakeholders, resulting in significantly less trash entering watersheds. The goal is to begin approaching zero loadings of trash into coastal watersheds and ecosystems within 10 years. NCTCOG is working in partnership with communities along the Trinity River on a Trash Free Waters project to help reduce aquatic trash in the Trinity. For more information, please visit www.epa.gov/trash-free-waters.

For more information on these and other programs from the North Central Texas Council of Governments, visit www.nctcog.org/envir.

Appendix A. NCTCOG Cities Population Estimates (2010 – 2017)

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