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Toby Baker, *Commissioner*
Jon Niermann, *Commissioner*
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 19, 2016

Allen M. Pappas
Red River Authority of Texas
P.O. Box 240
Wichita Falls, TX 76307-0240

Re: Amendment #3 to the RRA 2016-2017 CRP Quality Assurance Project Plan

Dear Mr. Pappas:

Enclosed is a copy of the referenced QA document for your files, and distribution.

Please ensure that copies of the QAPP are distributed to each project participant as required by Section A3. The documentation of QAPP distribution and subcontractor commitment to QAPP requirements must be available for review during monitoring system audits.

If you have any questions, please contact your TCEQ Clean Rivers Program project manager, or you may contact me at (512) 239-0011, or by email at daniel.burke@tceq.texas.gov.

Sincerely,

Daniel R. Burke
Lead CRP Quality Assurance Specialist

enclosure

cc: Russell Bond, TCEQ CRP Project Manager, MC 234

Amendment # 3
to the Red River Authority of Texas'
Clean Rivers Program FY 2016-2017 QAPP

Prepared by the Red River Authority of Texas
In Cooperation with the
Texas Commission on Environmental Quality (TCEQ)

Questions concerning this QAPP should be directed to:

Red River Authority of Texas
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Effective: Immediately Upon Approval by all parties

JUSTIFICATION

This document details the changes made to the Authority's basin-wide Quality Assurance Project Plan to update **Appendix B** and **Appendix C** for FY 2017 monitoring. Additionally, **Table A7.1-A** was updated to reflect the correct matrix for TCEQ parameter code 00021, Air Temperature (Degrees Fahrenheit).

SUMMARY OF CHANGES

Appendix A, Table A7.1-A – Measurement Performance Specifications

Table A7.1-A – Measurement Performance Specifications was corrected to reflect the correct matrix for TCEQ parameter code 00021, Air Temperature (Degrees Fahrenheit).

Appendix B – Sample Design and Schedule

Information in **Appendix B – Sample Design and Schedule** is amended to reflect changes resulting from the Authority's annual Coordinated Monitoring Meeting, which was held at the Authority's Offices in Wichita Falls, Texas on April 27, 2016.

Appendix C – Station Location Maps

Canadian and Red River Basin Reach Maps were updated to reflect monitoring stations for FY 2017.

DETAIL OF CHANGES

Appendix A, Table A7.1-A – Measurement Performance Specifications

Table A7.1-A – Measurement Performance Specifications was corrected to reflect the correct matrix (Air) for TCEQ parameter code 00021, Air Temperature (Degrees Fahrenheit). The matrix was inadvertently classified as "water" when Amendment #2 to the Authority's *FY 2016-17 QAPP for the Canadian and Red River Basins* was approved.

Appendix B – Sample Design and Schedule

The following information in **Appendix B – Sample Design and Schedule** is amended to reflect changes resulting from the Authority's annual Coordinated Monitoring Meeting, which was held at the Authority's Offices in Wichita Falls, Texas on April 27, 2016:

1. **Sample design rationale FY-2017**
2. **Table B 1. 1 – Sample Design and Schedule FY 2017**

Appendix C – Station Location Maps

Canadian and Red River Basin Reach Maps were updated to reflect monitoring stations for FY 2017.

These changes include removing the following stations from their respective reach maps:

1. Station 18652 from the Red River Basin Lower Reach I map
2. Station 15446 from the Red River Basin Upper Reach I (City of Sherman) map
3. Station 17599 from the Red River Basin Upper Reach I (City of Sherman) map

Additionally, the following stations were added to their respective reach maps:

1. Station 15779 from the Red River Basin Lower Reach I map
2. Station 13636 to the Red River Basin Reach II map
3. Station 17947 to the Red River Basin Reach II map
4. Station 20162 to the Red River Basin Reach II map

DISTRIBUTION

QAPP Amendments/Revisions to Appendices will be distributed to all personnel on the distribution list maintained by the Authority.

These changes will be incorporated into the FY 2016-17 QAPP document and TCEQ, the Authority and all program participants will acknowledge and accept these changes by signing this amendment.

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Table A7.1-A Measurement Performance Specifications

Parameter	Units	Matrix	Method	Parameter Code	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard %Rec	Precision (RPD of LCS/LCSD)	Bias % Rec. of LCS	Lab
FIELD PARAMETERS										
Days Since Precipitation Event (days)	Days	Other	TCEQ SOP V1	72053	NA[3]	NA	NA	NA	NA	Field
Depth of Bottom of Water Body at Sample Site	Meters	Water	TCEQ SOP V2	82903	NA[3]	NA	NA	NA	NA	Field
Dissolved Oxygen (mg/L)	mg/L	Water	TCEQ SOP V1, SM 4500-O G	00300	NA[3]	NA	NA	NA	NA	Field
Evidence of Primary Contact Recreation (1 = Observed, 0 = Not Observed)	NU	Other	NA	89979	NA[3]	NA	NA	NA	NA	Field
Flow Mth: 1=GAGE 2=ELEC 3=MECH 4=WEIR/FLU 5=DOPPLER	NU	Water	TCEQ SOP V1	89835	NA[3]	NA	NA	NA	NA	Field
Flow Severity: 1=No Flow, 2=Low, 3=Normal, 4=Flood, 5=High, 6=Dry	NU	Water	TCEQ SOP V1	01351	NA[3]	NA	NA	NA	NA	Field
Maximum Pool Width at Time of Study (Meters)	Meters	Other	TCEQ SOP V2	89864	NA[3]	NA	NA	NA	NA	Field
Maximum Pool Depth at Time of Study (Meters)	Meters	Other	TCEQ SOP V2	89865	NA[3]	NA	NA	NA	NA	Field
pH (Standard Units)	Standard Units	Water	TCEQ SOP V1, EPA 150.1	00400	NA[3]	NA	NA	NA	NA	Field
% Pool Coverage in 500 Meter Reach[1]	%	Other	TCEQ SOP V2	89870	NA[3]	NA	NA	NA	NA	Field
Pool Length, Meters[1]	Meters	Other	TCEQ SOP V2	89869	NA[3]	NA	NA	NA	NA	Field
Present Weather (1=CLEAR,2=PTCLDY,3=CLDY,4=RAIN,5=OTHER)	NU	Other	NA	89966	NA[3]	NA	NA	NA	NA	Field
Primary Contact Observed Activity(# of People observed)	# of people observed	Other	NA	89978	NA[3]	NA	NA	NA	NA	Field
Reservoir Access Not Possible Level Too Low Enter 1 if Reporting	NS	Other	TCEQ Drought Guidance	00051	NA[3]	NA	NA	NA	NA	Field
Reservoir Percent Full[2]	% Reservoir Capacity	Water	TWDB	00053	NA[3]	NA	NA	NA	NA	Field
Reservoir Stage (Feet Above Mean Sea Level)[2]	FT Above MSL	Water	TWDB	00052	NA[3]	NA	NA	NA	NA	Field
Reservoir Storage (Acre-Feet)	Acre-Feet	Water	TWDB	00054	NA[3]	NA	NA	NA	NA	Field
Transparency, Secchi Disc (Meters)	meters	Water	TCEQ SOP V1	00078	NA[3]	NA	NA	NA	NA	Field

Table A7.1-A Continued Measurement Performance Specifications

Parameter	Units	Matrix	Method	Parameter Code	AWRL	Limit of Quantitation (LOQ)	LOQ Check Standard %Rec	Precision (RPD of LCS/LCSD)	Bias % Rec. of LCS	Lab
FIELD PARAMETERS										
Specific Conductance, Field (µS /cm @ 25°C)	µS /cm	Water	TCEQ SOP V1, SM 2510 B, EPA 120.1	00094	NA[3]	NA	NA	NA	NA	Field
Stream Flow, Estimate (CFS)	cfs	Water	TCEQ SOP V1	74069	NA[3]	NA	NA	NA	NA	Field
Stream Flow, Instantaneous (CFS)	cfs	Water	TCEQ SOP V1	00061	NA[3]	NA	NA	NA	NA	Field
Temperature, Air (Degrees Fahrenheit)	°F	Air	N/A	00021	NA[3]	NA	NA	NA	NA	Field
Temperature, Water (Degrees Celsius)	°C	Water	TCEQ SOP V1 SM 2550 B	00010	NA[3]	NA	NA	NA	NA	Field
Water Clarity 1=Excellent 2=Good 3=Fair 4=Poor	NU	Water	NA	20424	NA[3]	NA	NA	NA	NA	Field
Water Color 1=BRWN 2=RED 3=GRN 4=BLCK 5=CLR 6=OT	NS	Water	NA	89969	NA[3]	NA	NA	NA	NA	Field
Water Odor (1=Sewage, 2=Oily/Chemical, 3=Rotten Eggs, 4= Musky, 5=Fishy, 6=None, 7=Other (Write in Comments))	NU	Water	NA	89971	NA[3]	NA	NA	NA	NA	Field
Water Surface (1=CALM,2=RIPPLE,3=WAVE,4=WHITECAP)	NU	Water	NA	89968	NA[3]	NA	NA	NA	NA	Field
Wind Intensity (1=Calm,2=Slight,3=Mod.,4=Strong)	NS	Other	NA	89965	NA[3]	NA	NA	NA	NA	Field

[1] To be routinely reported when collecting data from perennial pools.
[2] As published by the Texas Water Development Board on their website http://waterdatafortexas.org/reservoirs/statewide.
[3] Reporting to be consistent with SWQM guidance and based on measurement capability.

References:
1. TCEQ SOP, V1 - TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods, 2012 (RG-415).
2. TCEQ SOP, V2 - TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data, 2014 (RG-416)

Red River Authority of Texas
Clean Rivers Program

Appendix B:
Task 3 Work Plan and Sampling Process Design and Monitoring Schedule (Plan)

Sample Design Rationale FY 2017

The sample design is based on the legislative intent of the Clean Rivers Program. Under the legislation, the Basin Planning Agencies have been tasked with providing data to characterize water quality conditions in support of the *Integrated Report*, and to identify significant long-term water quality trends. Based on Steering Committee input, achievable water quality objectives and priorities and the identification of water quality issues are used to develop work plans, which are in accord with available resources. As part of the Steering Committee process, the Authority coordinates closely with the TCEQ and other participants to ensure a comprehensive water monitoring strategy within the Red and Canadian Basins watersheds.

Canadian River Basin

Monitoring in the Canadian River Basin will remain the same as in FY 2016 for all participating entities with no exceptions.

Red River Basin

Monitoring in the Red River Basin will remain the same as in FY 2016 for all participating entities, with the following exceptions detailed below.

Red River Authority of Texas

The Authority will make the following changes:

Description	Station ID	Change(s)
Bois d' Arc Creek at SH 78	18652	Discontinue monitoring[1]
Farmer's Creek Reservoir	10139	Discontinue quarterly metals/hardness[2]
Smith Creek at US 271	17044	Discontinue quarterly metals/hardness[2]
Smith Creek at CR 31700	21026	Discontinue quarterly metals/hardness[2]
Smith Creek at Loop 286	21027	Discontinue quarterly metals/hardness[2]
South Fork Wichita River at Low Flow Dam	13636	Adding quarterly monitoring[3]
Red River at SH 37	15779	Adding quarterly monitoring[3]
North Fork Buffalo Creek Reservoir	20162	Adding quarterly monitoring[3]
Lake Iowa Park	17947	Adding quarterly monitoring[3]

City of Sherman

The City of Sherman will make the following changes:

Description	Station ID	Change(s)
Sand Creek at SH 56	15446	Discontinue monitoring[1]
Post Oak Creek at FM 1417 NW	17599	Discontinue monitoring[1]
Choctaw Creek at Luella Road	10112	Reduction in monitoring[4]
Pickens Lake	16945	Reduction in monitoring[5]
Dean Gilbert Lake	21130	Reduction in monitoring[5]

1-Monitoring is being dropped entirely. No monitoring is scheduled to be conducted during FY 2017.
2-Metals/Total Hardness samples will no longer be collected by the Authority during FY 2017. Quarterly conventional sampling will continue during FY 2017.
3-The Authority will begin quarterly monitoring in FY 2017. These stations were not monitored during FY 2016.
4-Reduce monitoring to two (2) conventional and four (4) bacteria, flow and field events per year.
5-Reduce monitoring to three (3) conventional, bacteria and field events per year.

North Texas Municipal Water District

The North Texas Municipal Water District (NTMWD) has no changes for FY 2017 and will follow the same monitoring schedule as in FY 2016. Please note that there may be a change to the station description for Station 15388 pending a review of the description and the station location by NTMWD Staff.

TASK 3: WATER QUALITY MONITORING

Objectives: Water quality monitoring will focus on collecting information to characterize water quality in a variety of locations and conditions. These efforts will include a combination of:

- planning and coordinating basin-wide monitoring;
- routine, regularly-scheduled monitoring to collect long-term information and support statewide assessment of water quality; and
- systematic, regularly-scheduled short-term monitoring to screen water bodies for issues.

Task Description: **Monitoring Description** – The goal of the Performing Party's Clean Rivers Program monitoring is to provide quality assured data for water bodies throughout both the Canadian and Red River Basins in an effort to promote the accurate assessment of water quality. When possible, the Performing Party strives to accomplish this task by helping to ensure water quality monitoring within every assessment unit of all identified water bodies.

For FY 2016, the Performing Party will monitor and collect water quality samples for analysis from a minimum of 50 stations in the Canadian and Red River Basins. The monitoring schedule will be designed in such a way that a proportionate amount of sites will be visited each month allowing for the monitoring of each site once per quarter of the year.

In FY 2017, the Performing Party will monitor at a similar level of effort as in FY 2016. The actual number of sites, location, frequency, and parameters collected for FY 2017 will be based on priorities identified at the Basin Steering Committee and Coordinated Monitoring Meetings and included in the amended Appendix B schedule of the Performing Party's QAPP.

All monitoring procedures and methods will follow the guidelines prescribed in the Performing Party's QAPP, the TCEQ Surface Water Quality Monitoring Procedures, Volume 1: Physical and Chemical Monitoring Methods (RG-415) and the TCEQ Surface Water Quality Monitoring Procedures, Volume 2: Methods for Collecting and Analyzing Biological Assemblage and Habitat Data (RG-416).

Coordinated Monitoring Meeting - The Performing Party will hold an annual Coordinated Monitoring Meeting as described in the CRP Guidance. Qualified monitoring organizations will be invited to attend the working meeting in which monitoring needs and purposes will be discussed segment by segment and station by station. Information from participants and stakeholders will be used to select stations and parameters that will enhance overall water quality monitoring coverage, eliminate duplication of effort, and address basin priorities. A summary of the changes to the monitoring schedule will be provided to the participants within two weeks of the meeting. The changes to the monitoring schedule will be entered into the statewide database on the Internet (http://cms.lcra.org) and communicated to meeting attendees. Changes to monitoring schedules that occur during the course of the year will be entered into the statewide database on the Internet and communicated to meeting attendees.

Progress Report - Each Progress Report will include all types of monitoring and indicate the number of sampling events and the types of monitoring conducted in the quarter.

Deliverables and Due Dates:

September 1, 2015 through August 31, 2016

A. Conduct water quality monitoring, summarize activities, and submit with Progress Report - December 15, 2015; March 15 and June 15, 2016
B. Coordinated Monitoring Meeting - between March 15 and April 30, 2016
C. Coordinated Monitoring Meeting Summary of Changes - within 2 weeks of the meeting
D. Email notification that Coordinated Monitoring Schedule updates are complete - May 31, 2016

September 1, 2016 through August 31, 2017

A. Conduct water quality monitoring, summarize activities, and submit with Progress Report - September 15 and December 15, 2016; March 15 and June 15 and August 31, 2017
B. Coordinated Monitoring Meeting - between March 15 and April 30, 2017
C. Coordinated Monitoring Meeting Summary of Changes – within 2 weeks of the meeting
D. Email notification that Coordinated Monitoring Schedule updates are complete - May 31, 2017

Site Selection Criteria

This data collection effort involves monitoring routine water quality, using procedures that are consistent with the TCEQ SWQM program, for the purpose of data entry into the SWQMIS database maintained by the TCEQ. To this end, some general guidelines are followed when selecting sampling sites, as basically outlined below, and discussed thoroughly in TCEQ *SWQM Procedures Manual*. Overall consideration is given to accessibility and safety. All monitoring activities have been developed in coordination with the CRP Steering Committee and with the TCEQ. The site selection criteria set forth here may not apply to all programs. The site selection criteria specified are those the TCEQ would like considered in order to produce data which is complementary to that collected by the state and which can be used in assessments, etc. Other criteria may be considered and should be described.

1. Locate stream sites so that samples can be safely collected from the centroid of flow. Centroid is defined as the midpoint of that portion of stream width which contains 50 percent of the total flow. If few sites are available for a stream segment, choose one that would best represent the water body, and not an unusual condition or contaminant source. Avoid backwater areas or eddies when selecting a stream site.

2. At a minimum for reservoirs, locate sites near the dam (reservoirs) and in the major arms. Larger reservoirs might also include stations in the middle and upper (riverine) areas. Select sites that best represent the water body by avoiding coves and back water areas. A single monitoring site is considered representative of 25 percent of the total reservoir acres, but not more than 5,120 acres.

3. Routine monitoring sites are selected to maximize stream coverage or basin coverage. Very long segments may require more stations. As a rule of thumb, stream segments between 25 and 50 miles long require two stations, and longer than 50 miles require three or more depending on the existence of areas with significantly different sources of contamination or potential water quality concerns. Major hydrological features, such as the confluence of a major tributary or an in-stream dam, may also limit the spatial extent of an assessment based on one station.

4. Because historical water quality data can be very useful in assessing use attainment or impairment, it may be best to use sites that are on current or past monitoring schedules.

5. All classified segments (including reservoirs) should have at least one routine monitoring site that adequately characterizes the water body, and should be coordinated with the TCEQ or other qualified monitoring entities reporting routine data to TCEQ.

6. Routine monitoring sites may be selected to bracket sources of pollution, influence of tributaries, changes in land uses, and hydrological modifications.

7. Sites should be accessible. When possible, stream sites should have a USGS or IBWC stream flow gauge. If not, it should be possible to conduct flow measurement during routine visits.

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0101	1	1	CANADIAN RIVER BRIDGE AT US 60-83 AT CANADIAN	10032	RR	RT									4			4	4		4
0101	1	1	CANADIAN RIVER BRIDGE ON SH 70 NORTH OF PAMPA	10033	RR	RT									4			4	4		4
0101A	1	1	DIXON CREEK AT SH 152 WEST OF RR2171 EAST OF BORGER	17045	RR	RT									4			4	4		4
0101A	1	1	DIXON CREEK 150 M UPSTREAM OF HUTCHINSON COUNTY ROAD, UPSTREAM OF CANADIAN RIVER CONFLUENCE NE OF BORGER	10016	RR	RT	2											2	2		2
0101B	1	1	ROCK CREEK 15 M DOWNSTREAM OF CHICKASAW RD BRIDGE IN ELECTRIC CITY NEAR BORGER	10024	RR	RT									4			4	4		4
0101C	1	1	WHITE DEER CREEK AT JEEP TRAIL CROSSING APPROX 0.45 KM EAST OF THE DUNCAN RANCH COMPLEX AT THE END OF HUTCHINSON COUNTY ROAD 26	21174	RR	RT									4			4	4		4
0102A	1	1	BIG BLUE CREEK 250 YDS UPSTREAM OF FM 1913 APPROXIMATELY 21 MI SE OF DUMAS	15270	RR	RT									4			4	4		4
0103	1	1	CANADIAN RIVER BRIDGE AT US 87-287 NORTH OF AMARILLO	10054	RR	RT												4	4		4
0103A	1	1	EAST AMARILLO CREEK 15 METERS UPSTREAM OF CITY OF AMARILLO RIVER ROAD WWTP OUTFALL	10017	RR	RT									4			4	4		4
0103A	1	1	EAST AMARILLO CREEK IMMEDIATELY DOWNSTREAM OF US 287 NORTH OF AMARILLO	10018	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0103A	1	1	EAST AMARILLO CREEK AT LOOP 335 AND US 287 IN AMARILLO	21024	RR	RT									4			4	4		4
0103A	1	1	THOMPSON PARK LAKE NORTH END OF NORTH LAKE 213 M W OF US 87 FRONTAGE RD AND 1.34 KM NORTH OF NE 24TH ST IN AMARILLO	15775	RR	RT									4			4			4
0103C	1	1	UNNAMED TRIBUTARY OF WEST AMARILLO CREEK AT LOOP 335 EASTBOUND ACCESS ROAD 470 M EAST OF ITS INTERSECTION WITH FM/RM 1061 NORTHWEST OF AMARILLO	17056	RR	RT									4			4	4		4
0104	1	1	WOLF CREEK BRIDGE AT SH 305 NORTH OF LIPSCOMB	10058	RR	RT									4			4	4		4
0104	1	1	WOLF CREEK 50 M UPSTREAM OF FM 1454 APPROXIMATELY 27.4 KM/17 MI EAST OF LIPSCOMB	10059	RR	RT									4			4	4		4
0199B	1	1	KIOWA CREEK AT SH 15 EAST OF DARROUZETT	10009	RR	RT									4			4	4		4
0201D	5	2	BARKMAN CREEK 35 M EAST OF RICHMOND RD OVERPASS/FM 599 0.97 KM NW OF FM 559/HOLLY CREEK ROAD INTERSECTION 11.5KM NW OF TEXARKANA	15059	RR	RT									4			4	4		4
0201A	5	2	MUD CREEK AT US 259 3.1 KM NORTH OF DE KALB	15319	RR	RT	2								4			4	4		4
0202	5	2	RED RIVER DOWNSTREAM LAKE TEXOMA AT US 259 9.3 KM NORTH OF US 259/FM 114 INTERSECTION 21 KM NORTH OF DEKALB	10125	RR	RT									4			4	4		4
0202	5	2	RED RIVER AT NORTHBOUND US 271 IN ARTHUR CITY 0.75 KM NORTH OF FM 197/US 271 INTERSECTION	10126	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0202	4	2	RED RIVER AT SH 78 355 M NORTHWEST OF FANNIN CR 200/SH 78 INTERSECTION AT TEXAS STATE LINE 10 KM NORTHEAST OF CITY OF RAVENNA	10127	RR	RT									4			4			4
0202	5	2	RED RIVER AT SH 37 0.30 KM NORTH OF SH 37/FM 195 INTERSECTION 27.75 KM NORTH OF CLARKSVILLE	15779	RR	RT									4			4	4		4
0202	4	2	RED RIVER AT US 75 NORTH OF DENISON	21031	RR	RT									4			4	4		4
0202A	4	2	BOIS D' ARC CREEK AT FM 1396 NORTHWEST OF HONEY GROVE	20167	NM	RT					12				12			12	12		12
0202A	4	2	BOIS D'ARC CREEK AT FM 409 NORTHWEST OF HONEY GROVE	21029	NM	RT					12				12			12	12		12
0202A	4	2	BOIS DARC CREEK AT FM 898/OAK HILL ROAD 1.4 KM NORTHEAST OF CITY OF WHITEWRIGHT	15036	RR	RT									4			4	4		4
0202A	4	2	BOIS D'ARC CREEK AT FM 2945 IN FANNIN COUNTY	21706	NM	RT					12				12			12	12		12
0202C	5	2	PECAN BAYOU AT FM 1159 9.62 KM NORTHEAST OF CLARKSVILLE IN RED RIVER COUNTY	16001	RR	RT									4			4	4		4
0202B	4	2	CORNELIASON CREEK AT FM 1897 NORTH OF BELLS	10117	RR	RT									4			4	4		4
0202C	5	2	PECAN BAYOU AT BLANTON CREEK CEMETARY ROAD/RED RIVER CR 2235 11.65 KM NORTH OF CITY OF BAGWELL	14472	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0202D	5	2	PINE CREEK AT SOUTHBOUND US 271 APPROX 7.8 KM NORTH OF THE CITY OF PARIS PERMIT WQ001012-000 CAMPBELL SOUP SUPPLY COMPANY	10120	RR	RT									4			4	4		4
0202D	5	2	SIX MILE CREEK AT FM 195 NORTHEAST OF PARIS	21298	RR	RT									4			4	4		4
0202E	4	2	DEAN GILBERT LAKE NEAR THE DAM SOUTHWEST OF THE HWY 82 AND FM 1417 INTERSECTION IN SHERMAN TEXAS	21130	SH	RT									3			3			3
0202E	4	2	POST OAK CREEK AT FIRST COUNTY ROAD CROSSING DOWNSTREAM SHERMAN WWTP 0.33 KM SOUTH OF E FM 1417/SH 11 INTERSECTION 5.75 KM SE OF SHERMAN	10114	SH	RT									4			6	6		6
0202E	4	2	POST OAK CREEK AT FM 1417 0.25 KM WEST OF SH 11/FM 1417 INTERSECTION 5.3 KM SOUTHEAST OF SHERMAN	10115	SH	RT									4			6	6		6
0202F	4	2	CHOCTAW CREEK AT SH 11 1.6 KM SOUTHEAST OF FM 1417/SH 11 INTERSECTION 7 KM SOUTHEAST OF SHERMAN	10111	SH	RT									4			6	6		6
0202F	4	2	CHOCTAW CREEK AT LUELLA ROAD 7.3 KM SSE OF SHERMAN FIRST CROSSING UPSTREAM CONFLUENCE WITH POST OAK CREEK	10112	SH	RT									2			4	4		4
0202F	4	2	CHOCTAW CREEK AT US 82 5.07KM DOWNSTREAM OF SH 56 EAST OF SHERMAN	18370	SH	RT									4			6	6		6
0202G	5	2	SMITH CREEK AT SOUTHBOUND US 271 385 M UPSTREAM OF THE CONFLUENCE WITH PINE CREEK 7 KM NORTH OF CITY OF PARIS	17044	RR	RT									4			4	4		4
0202G	5	2	SMITH CREEK AT LAMAR CR 31700 NEAR CITY OF PARIS	21026	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0202G	5	2	SMITH CREEK AT LOOP 286/US 82 IN THE CITY OF PARIS	21027	RR	RT									4			4	4		4
0202H	5	2	BIG PINE CREEK SOUTH BANK AT FM 410 EAST/NORTH	18513	RR	RT									4			4	4		4
0202I	5	2	LITTLE PINE CREEK AT FM 195	18514	RR	RT									4			4	4		4
0202O	4	2	PICKENS LAKE MID LAKE AT HERMAN BAKER PARK 1.0 KM EAST OF FM 1417 AND 700 M NORTHEAST OF END OF SOUTHRIDGE LANE SOUTHWEST OF SHERMAN	16945	SH	RT									3			3			3
0203	4	2	LAKE TEXOMA NEAR BIG MINERAL ARM 4.1KM EAST OF US 377/OXFORD DRIVE INTERSECTION 1.5 KM E OF WEST SHORE 15 KM NORTHWEST OF POTTSBORO	10130	RR	RT									4			4			4
0202L	4	2	HONEY GROVE CREEK AT FANNIN CR 2770	21030	NM	RT					12				12			12	12		12
0202M	4	2	LAKE BONHAM APPROX 265 METERS NORTH AND 165 METERS EAST OF THE INTERSECTION OF FM 273 AND WESTVIEW DRIVE	21032	NM	RT					12				12			12			12
0202N	5	2	HICKS CREEK APPROX 400 M UPSTREAM OF PINE CREEK CONFLUENCE AT PRIVATE ROAD 1.55 KM EAST OF US 271 10 KM NNE OF THE CITY OF PARIS	10121	RR	RT									4			4	4		4
0202N	5	2	HICKS CREEK AT US 271 11 KM NORTH OF THE CITY OF PARIS	10122	RR	RT									4			4	4		4
0203	4	2	LAKE TEXOMA AT US 377 0.42 KM NORTH OF TEXAS BANK ON US 377 8.05 KM NORTH OF GORDONVILLE	10131	RR	RT									4			4			4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0203	4	2	LAKE TEXOMA-LITTLE MINERAL ARM AT BOAT RAMP AT SIMMONS SHORE IN PRESTON 4.5 KM E OF FM 120 5.5 KM N OF FM 406 12.5 KM NNW OF DENISON	15388	NM	RT					12				12			12			12
0203	4	2	LAKE TEXOMA LITTLE MINERAL ARM SOUTHEAST OF PRESTON SHORE NEAR INTAKE STRUCTURE EQUIDISTANT BETWEEN SHORELINES 1.5 KM EAST OF FM 120	17480	RR	RT									4			4			4
0203	4	2	LAKE TEXOMA 260 METERS DUE WEST FROM LAKE TEXOMA DAM 282 METERS EAST AND 392 METERS NORTH TO THE INTERSECTION OF FM 1310 AND NORTH SH 91 NORTH OF DENISON	20545	NM	RT					12				12			12			12
0203C	4	2	MUSTANK CREEK AT SPALDING ROAD 0.47 KM WEST OF SPALDING ROAD/SIEBERT HILL LANE INTERSECTION 1.75 KM EAST OF SADLER	17504	RR	RT									4			4	4		4
0203D	4	2	DEAVER CREEK AT US 82 EAST OF SADLER	17503	RR	RT									4			4	4		4
0204	3	2	RED RIVER AT US 81 2.1 KM NORTH OF US 81/PARR ROAD INTERSECTION 6.5 KM NORTH OF RINGGOLD	10133	RR	RT									4			4	4		4
0204	3	2	RED RIVER AT FM677 NORTHWEST OF SAINT JO	20168	RR	RT									4			4	4		4
0204B	4	2	MOSS LAKE AT SPILLWAY 130 M WEST OF FM 1201 467 M NORTH OF FISH CREEK DAM INTAKE STRUCTURE 18.25 KM NORTHWEST OF GAINESVILLE	15447	RR	RT									4			4			4
0205	3	2	RED RIVER BRIDGE ON IH 44/US 277/US 281 313 M NORTHEAST OF TEXAS SHORE NEAR MID BRIDGE 4.0 KM NORTHEAST OF CITY OF BURKBURNETT	10134	RR	RT									4			4	4		4
0205	3	2	RED RIVER AT US 183/US 70 N 10.5 KM NORTH NORTHEAST OF OKLAUNION	16733	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0205A	3	2	WILDHORSE CREEK AT US 281/277/IH44 3.1 KM NORTHEAST OF BURKBURNETT	10096	RR	RT									4			4	4		4
0206	3	2	PRAIRIE DOG TOWN FORK RED RIVER AT SH 6 12.75 KM NORTH OF QUANAH	10135	RR	RT									4			4	4		4
0206A	3	2	GROESBECK CREEK AT SH6 NORTH OF QUANAH	20166	RR	RT									4			4	4		4
0206C	3	2	NORTH GROESBECK CREEK AT FM 1166 NORTHWEST OF QUANAH	21297	RR	RT									4			4	4		4
0207	1	2	LOWER PRAIRIE DOG TOWN FORK RED RIVER AT US 62-83 3.4 KM NORTH OF US 83/RR 2465 INTERSECTION 16 KM NORTH OF CHILDRESS	10136	RR	RT									4			4	4		4
0207	1	2	LOWER PRAIRIE DOG TOWN FORK RED RIVER AT SH 207 10 KM SOUTHWEST OF FM 2272/SH 207 INTERSECTION 30.45 KM SOUTH OF CLAUDE	13637	RR	RT									4			4	4		4
0207	1	2	LOWER PRAIRIE DOG TOWN FORK RED RIVER AT US 70 70 M SOUTHWEST OF THE NORTHERN TIP OF SOUTHBOUND US 70 BRIDGE 26.4 KM NORTH OF TURKEY	16037	RR	RT									4			4	4		4
0207A	1	2	BUCK CREEK AT US 83 1.5 M NORTH OF US 83/SH 256 INTERSECTION 30.7 KM NORTH OF CHILDRESS 16.8 KM SOUTHWEST OF DODSON	15811	RR	RT									4			4	4		4
0207A	1	2	BUCK CREEK IMMEDIATELY UPSTREAM OF RR 1547 IN COLLINGSWORTH COUNTY WEST OF WELLINGTON	20366	RR	RT									4			4	4		4
0210	3	2	FARMERS CREEK RESERVOIR/NOCONA LAKE MID LAKE NEAR DAM 1.3 KM SW OF OAK SHORES ROAD/FM 2953 INTERSECTION 0.36 KM SOUTH OF MID DAM	10139	RR	RT									4			4			4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0211	3	2	LITTLE WICHITA RIVER AT FM 2332 0.63 KM UPSTREAM FROM MOUTH AT RED RIVER CONFLUENCE 9.2 KM NORTHWEST OF RINGGOLD	10140	RR	RT									4			4			4
0212	3	2	LAKE ARROWHEAD MID LAKE NEAR DAM 609 M SOUTH OF MID DAM 765 M SE OF LITTLE WICHITA R INTAKE STRUCTURE 14 KM NE OF SCOTLAND	10142	RR	RT									4			4			4
0213	3	2	LAKE KICKAPOO NEAR MID DAM 521 M SOUTH OF NORTH FORK LITTLE WICHITA RIVER INTAKE STRUCTURE 13.8 KM SOUTH OF US 82/SH 25 INTERSECTION	10143	RR	RT									4			4			4
0214	3	2	WICHITA RIVER AT FM 368 325 M NORTH OF FM 368/FM 1206 INTERSECTION 7.38 KM SOUTHWEST OF CITY OF IOWA PARK 9.15 KM NORTH OF HOLLIDAY	10154	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT SH 25 1.3 KM NORTH OF SH 258/SH 25 INTERSECTION 14.5 KM NORTHWEST OF CITY OF HOLLIDAY	10155	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT FM 810 1.25 KM SOUTH OF FM 1740/FM 810 INTERSECTION 9.65 KM WEST OF BYERS	10145	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT END OF EASTLAND LANE 0.75 KM SE OF RIVER ROAD/EASTLAND LANE INTERSECTION 5.5 KM NORTH NORTHEAST OF WICHITA FALLS	10148	RR	RT									4			4	4		4
0214	3	2	WICHITA RIVER AT SH 240 345 M NORTHWEST OF SH 240/EASTSIDE DRIVE/FRONT STREET INTERSECTION IN WICHITA FALLS	10150	RR	RT									4			4	4		4
0214A	3	2	BEAVER CREEK AT FM 2326 2.0 KM SOUTHWEST OF SH 25/FM 2326 INTERSECTION 22 KM NORTHWEST OF HOLLIDAY	15120	RR	RT	2								4			4	4		4
0214A	3	2	BEAVER CREEK AT US 283/US 183 2.23 KM SOUTH OF FM 1763/US 283 INTERSECTION 22.1 KM SOUTH SOUTHEAST OF VERNON	15121	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0214B	3	2	BUFFALO CREEK AT FM 1814/BELL ROAD 3.6 KM SOUTH OF CITY OF IOWA PARK	10097	RR	RT									4			4	4		4
0214B	3	2	BUFFALO CREEK AT COLEMAN PARK ROAD 2.95 KM SOUTHWEST OF IOWA PARK 1.7 KM UPSTREAM OF FM 368	16036	RR	RT									4			4	4		4
0214B	3	2	LAKE IOWA PARK IN MAIN POOL 0.4 KM UPSTREAM FROM CENTER OF DAM STRUCTURE 22.5 KM NORTHWEST OF WICHITA FALLS	17947	RR	RT									4			4			4
0214B	3	2	NORTH FORK BUFFALO CREEK RESERVOIR MID LAKE NEAR DAM 211 M NORTH AND 158 M WEST OF DAM RELEASE	20162	RR	RT									4			4			4
0214C	3	2	HOLLIDAY CREEK AT HARDING STREET 97 M EAST OF WILLIAMS AVENUE/HARDING STREET INTERSECTION IN WICHITA FALLS	10095	RR	RT									4			4	4		4
0214C	3	2	HOLLIDAY CREEK AT WICHITA FALLS COUNTRY CLUB GOLF COURSE APPROX 120 METERS NORTH AND 10 METERS WEST OF THE INTERSECTION OF BRIDWELL STREET AND 30TH STREET IN WICHITA FALLS	21025	RR	RT									4			4	4		4
0214E	3	2	SOUTH CANAL 80 M DOWNSTREAM OF LAKE DIVERSION SPILLWAY NEAR DUNDEE	18831	RR	RT									4			4	4		4
0214F	3	2	UNNAMED TRIBUTARY OF BUFFLAO CREEK AT COLEMAN PARK ROAD DOWNSTREAM OF THE CITY OF IOWA PARK WWTP	21172	RR	RT									4			4	4		4
0215	3	2	DIVERSION LAKE NEAR DAM 0.64 KM NORTHWEST OF SPILLWAY FACE 390 M WEST OF DAM EQUIDISTANT BETWEEN SHORELINES 22.8 KM WEST OF HOLLIDAY	10157	RR	RT									4			4			4
0216	3	2	WICHITA RIVER AT US 183/US 283 NEAR LAKE KEMP DAM 10.7 KM NORTH US 82/US 283 INTERSECTION 9.8 KM NORTH OF MABELLE	10158	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0217	3	2	LAKE KEMP NEAR DAM 0.80 KM SW OF WATER INTAKE STRUCTURE AT WICHITA RIVER 0.72 KM NORTH OF WILLINGHAM LOOP 1.64 KM WEST OF US 283	10159	RR	RT									4			4			4
0218	3	2	NORTH WICHITA RIVER AT FM 1919 5.25 KM NORTHWEST OF BAYLOR CR 129/FM 1919 INTERSECTION 16.8 KM NORTHWEST OF SEYMOUR	10161	RR	RT									4			4	4		4
0218	3	2	NORTH WICHITA RIVER AT SH 6 19KM SOUTH OF CROWELL AND 7.5 KM NORTH OF TRUSCOTT	10162	RR	RT									4			4	4		4
0218	3	2	NORTH FORK WICHITA RIVER 6 KM DOWNSTREAM OF COTTONWOOD CREEK 2.04KM UPSTREAM OF COTTLE CR 493 NEAR PADUCAH	15119	RR	RT									4			4	4		4
0218A	3	2	MIDDLE WICHITA RIVER 240 M UPSTREAM OF FARRER CREEK 24.25KM EAST OF US 83/FM 1168 INTERSECTINO 30.15 KM NORTHEAST OF GUTHRIE	14900	RR	RT									4			4	4		4
0219	3	2	LAKE WICHITA NEAR MID DAM 376 M SE OF END OF CITY ACCESS RD IN WICHITA FALLS 2.94KM SW OF SOUTHWEST PKWY/LAKE PARK DR INTERSECTION	10163	RR	RT									4			4			4
0220	3	2	PEASE RIVER AT FM 104/RR 104 16.7 KM SOUTH OF KIRKLAND	10167	RR	RT									4			4	4		4
0221	3	2	PEASE RIVER ON THE MIDDLE FORK, 0.5 KM UPSTREAM FROM CONFLUENCE WITH NORTH FORK, 32 KM NORTHEAST OF PADUCAH, TX	10169	RR	RT									4			4	4		4
0221	3	2	PEASE RIVER MIDDLE FORK AT US 62-83 SOUTH OF CHILDRESS	10170	RR	RT									4			4	4		4
0222	1	2	SALT FORK RED RIVER 80 M DOWNSTREAMM OF US 83 AT SOUTH BANK 11 KM NORTH OF WELLINGTON	10171	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field
0224	1	2	NORTH FORK RED RIVER AT US 83 4.25 KM NORTH OF SHAMROCK	10178	RR	RT									4			4	4		4
0224	1	2	NORTH FORK RED RIVER BRIDGE AT FM 2473 SOUTHWEST OF WHEELER	10179	RR	RT									4			4	4		4
0224A	1	2	MCCLELLAN CREEK AT SH 273 0.22 KM SOUTH OF SH 273/HUDGINS ROAD INTERSECTION 10.5 KM NORTH OF CITY OF MCLEAN	10064	RR	RT									4			4	4		4
0226	3	2	SOUTH FORK WICHITA RIVER AT SH 6 6.7 KM NORTH OF BENJAMIN	10185	RR	RT									4			4	4		4
0226	2	2	SOUTH FORK WICHITA RIVER AT LOW FLOW DAM 1.69 KM DOWNSTREAM OF KING CR 274 10.6 KM EAST OF GUTHRIE	13636	RR	RT									4			4	4		4
0230	3	2	PEASE RIVER AT US 287 0.91 KM SOUTHEAST OF RR 925/US 287 INTERSECTION 4.6 KM NORTHWEST OF DOWNTOWN VERNON	10166	RR	RT									4			4	4		4
0230	3	2	UPPER PEASE/NORTH FORK PEASE RIVER AT US 283 3 KM NORTH OF VERNON	10165	RR	RT									4			4	4		4
0230A	3	2	PARADISE CREEK AT US 287 3.75 KM EAST OF VERNON	10094	RR	RT									4			4	4		4
0299A	1	2	SWEETWATER CREEK AT RR 592/FM 592 3.33 KM NORTH OF SH 152/RR 592 INTERSECTION 14.15 KM EAST OF WHEELER	10070	RR	RT									4			4	4		4
0299A	1	2	SWEETWATER CREEK AT US 83 6.25 KM NORTH NORTHWEST OF WHEELER	10072	RR	RT									4			4	4		4

TABLE B1.1
Sample Design and Schedule - FY 2017

Segment	TCEQ Region	Basin	Site Description	Station ID	Collecting Entity	Monitoring Type	24 Hr DO	Aq Hab	Benthics	Nekton	Metals Water	Organics Water	Metals Sed	Organics Sed	Conventional	Amb Tox Water	Amb Tox Sed	Indicator Bacteria	Inst Flow	Fish Tissue	Field

Segment: State river segment where station is located

Region: TCEQ Region where station is located
Basin: (1) Canadian (2) Red
Site Description: Description of sampling site
Station ID: TCEQ Station ID numbers

Collecting Entity: Entity conducting surface water quality monitoring
(RR) Red River Authority of Texas
(SH) City of Sherman
(NM) North Texas Municipal Water District

Metals Water: Samples collected by NTMWD will be analyzed by NTMWD.
Conventional: Samples of nutrients, minerals and dissolved calcium collected and analyzed by laboratory
Ind Bact: Indicator Bacteria
Inst Flow: Instantaneous flow measurement at time of sampling
Field: Parameters measured in the field; i.e. temperature, pH, dissolved oxygen, conductivity, etc.

Red River Authority of Texas
Clean Rivers Program

Appendix C:
Station Location Maps

Station Location Maps

Maps of stations monitored by the Authority are provided below. The maps were generated by the Authority. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact:

Allen M. Pappas
Red River Authority CRP Project Manager
(940) 723-8697

Figure 1-1

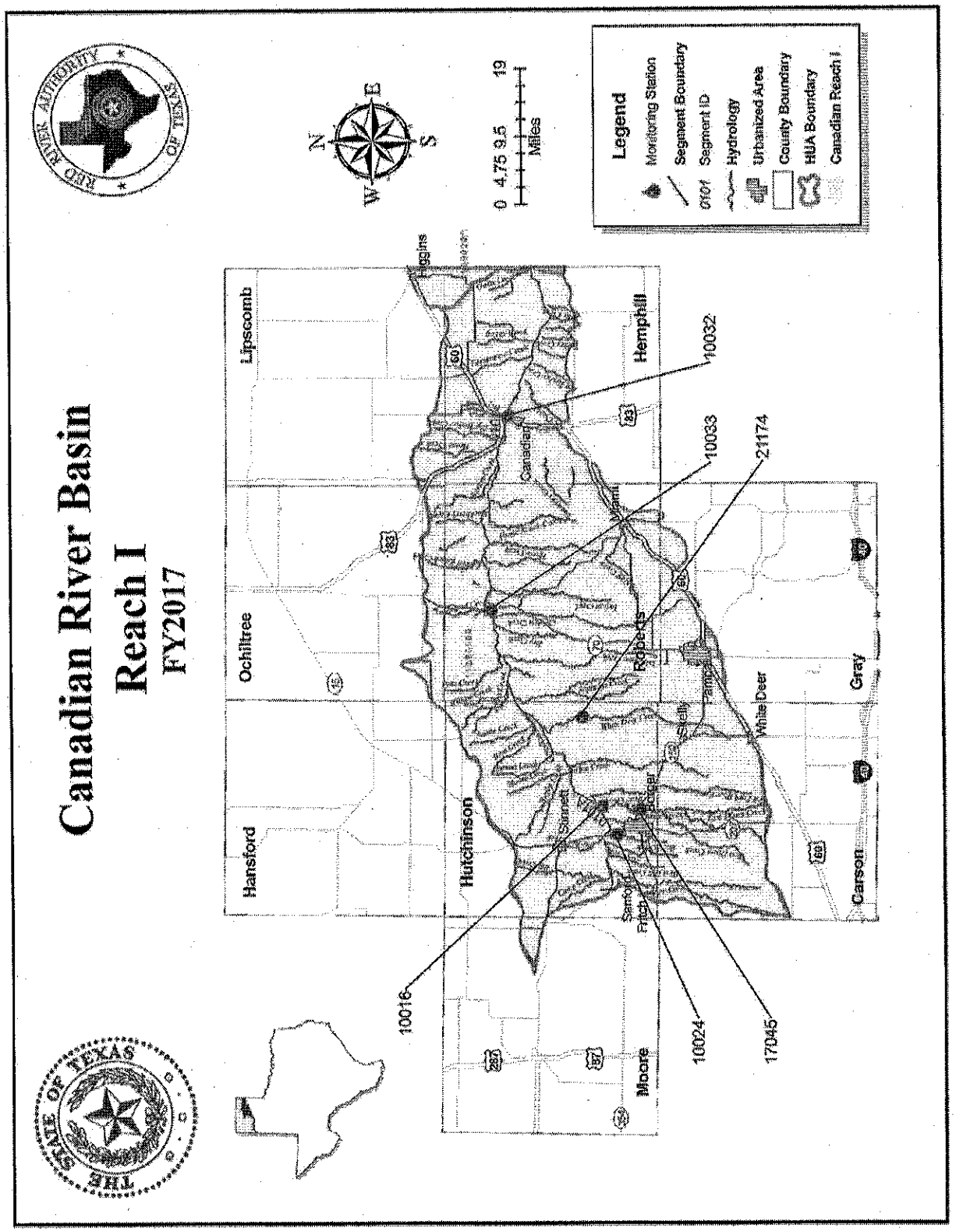

Canadian River Basin
Reach I
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Canadian Reach I
0 4.75 9.5 19
Miles
N
E
S
W
Lipscomb
Ochiltree
Hansford
Hutchinson
Hemphill
Roberts
Moore
Carson
Gray
White Deer
Canadian
Miami
Sunnett
Borger
Stinnett
Pampa
Skellly
Higgins
10032
10033
21174
10016
10024
17045

Figure 1-2

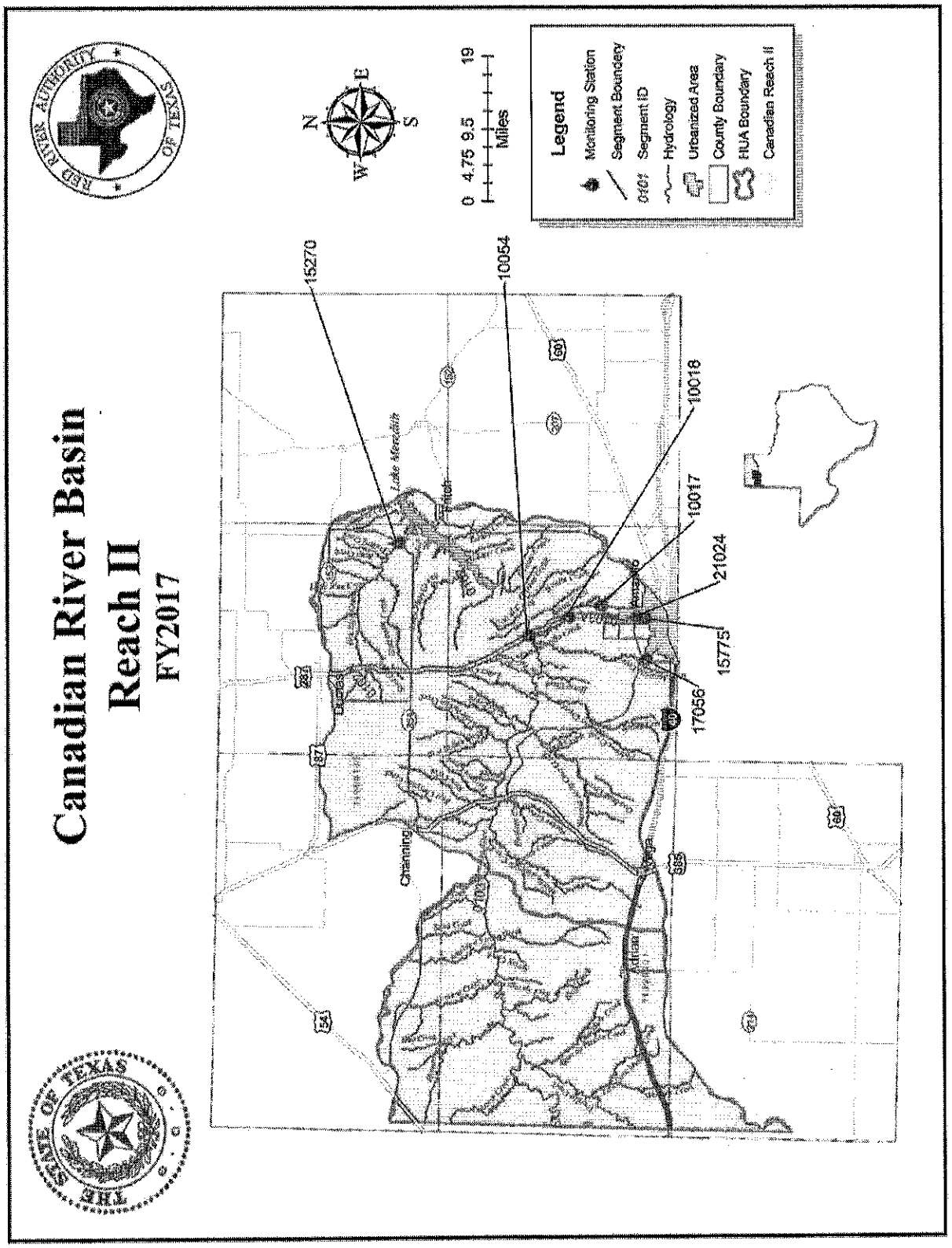

Canadian River Basin
Reach II
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Canadian Reach II
0 4.75 9.5 19
Miles
N
E
S
W
15270
10054
10018
10017
21024
15775
17056
Lake Meredith
Fritch
Channing
Adrian
Vega
Amarillo
Dumas
THE STATE OF TEXAS
RED RIVER AUTHORITY OF TEXAS

Figure 1-3

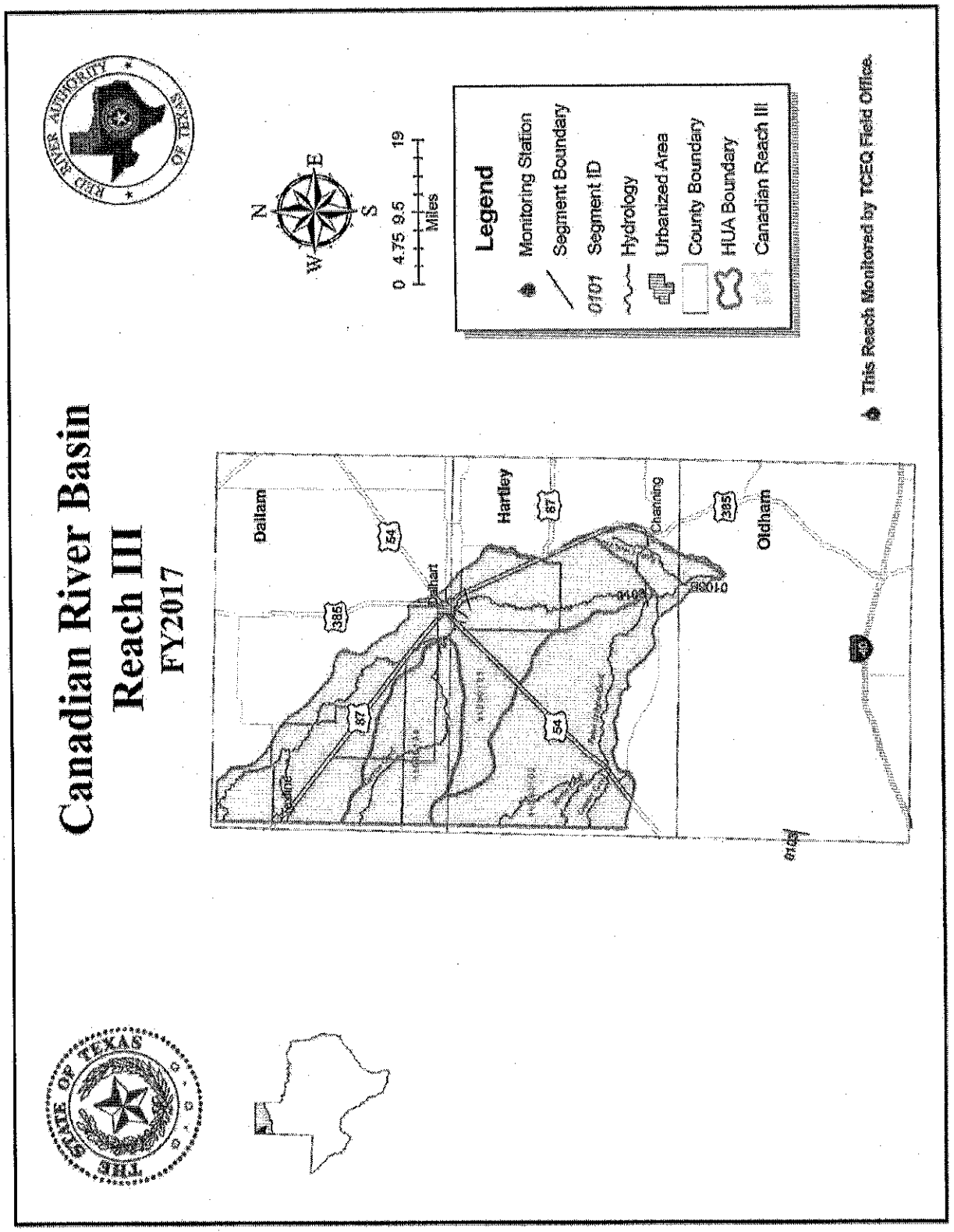

Canadian River Basin
Reach III
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Canadian Reach III
0 4.75 9.5 19
Miles
N
E
S
W
This Reach Monitored by TCEQ Field Office.
Dallam
Hartley
Oldham
Channing
Dalhart
54
87
385
0103
THE STATE OF TEXAS
RED RIVER AUTHORITY OF TEXAS

Figure 1-4

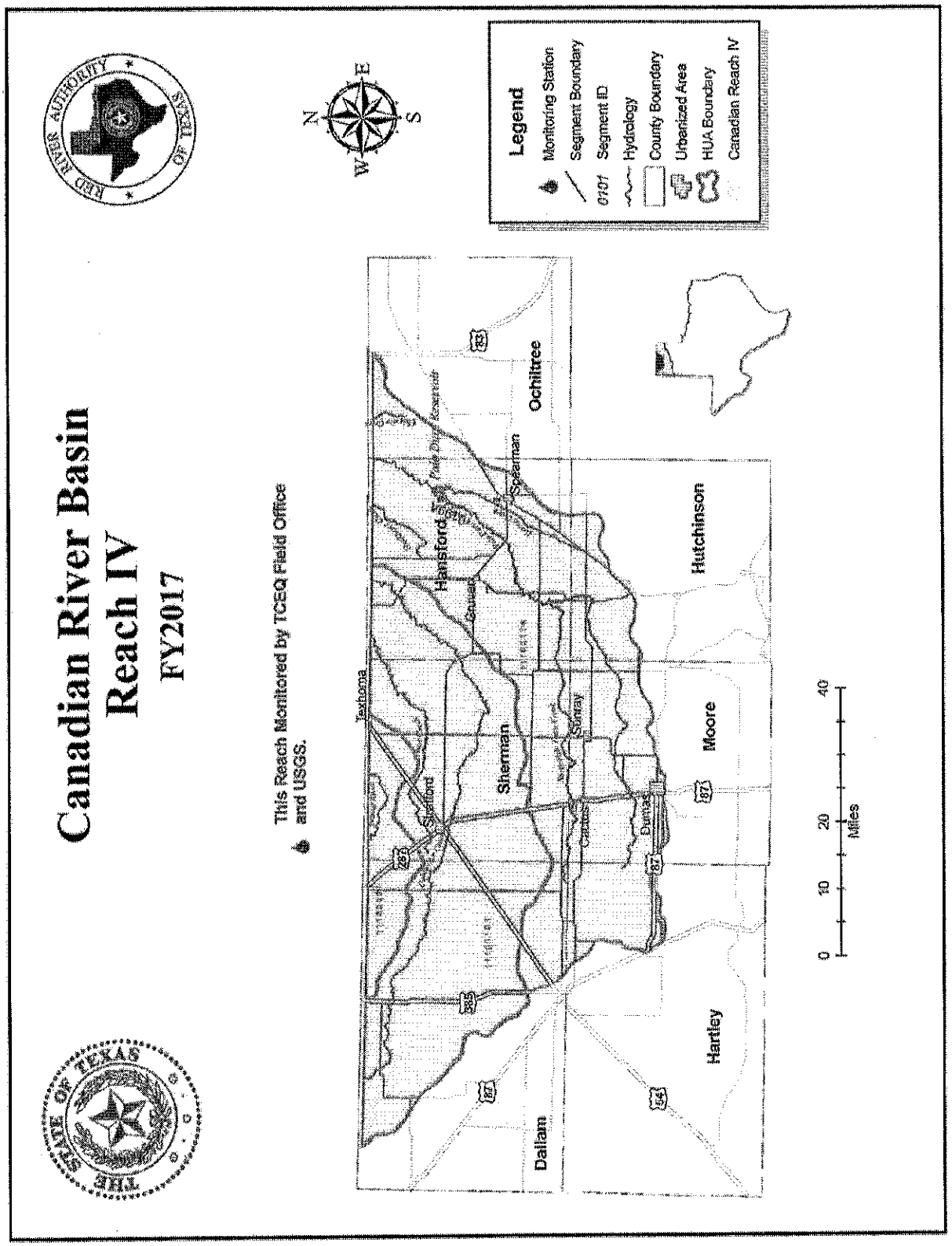

Canadian River Basin
Reach IV
FY2017
This Reach Monitored by TCEQ Field Office and USGS.
Legend
Monitoring Station
Segment Boundary
0101 Segment ID
Hydrology
County Boundary
Urbanized Area
HUA Boundary
Canadian Reach IV
N
E
S
W
Ochiltree
Hansford
Hutchinson
Sherman
Moore
Hartley
Dallam
Texhoma
Spearman
Stratford
Sunray
Dumas
0
10
20
40
Miles

Figure 1-5

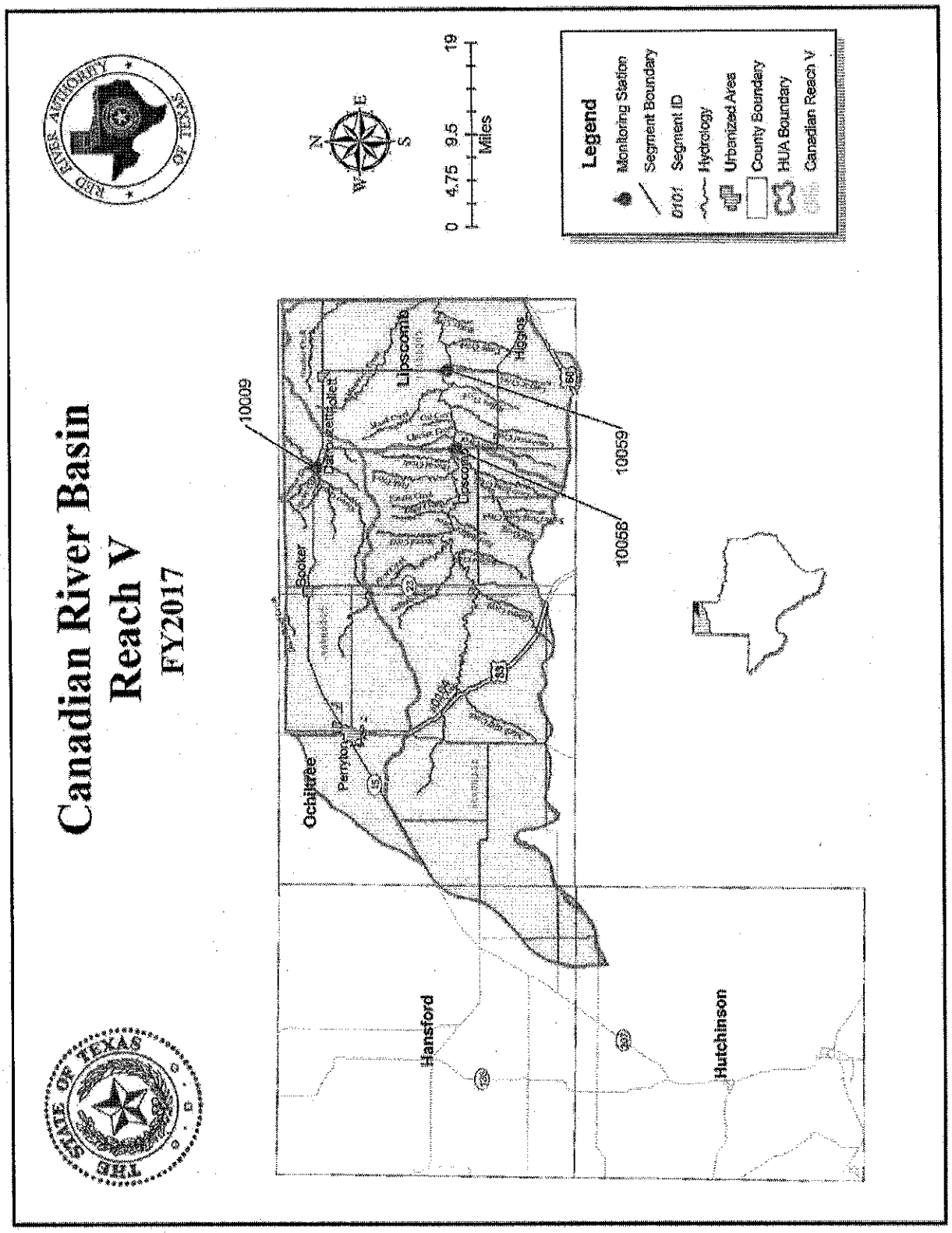

Canadian River Basin
Reach V
FY2017
RED RIVER AUTHORITY OF TEXAS
THE STATE OF TEXAS
N
W
E
S
0 4.75 9.5 19
Miles
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Canadian Reach V
10009
10058
10059
Ochiltree
Perryton
Booker
Darrouzett
Lipscomb
Lipscomb
Higgins
Hansford
Hutchinson

Figure 2-1.1

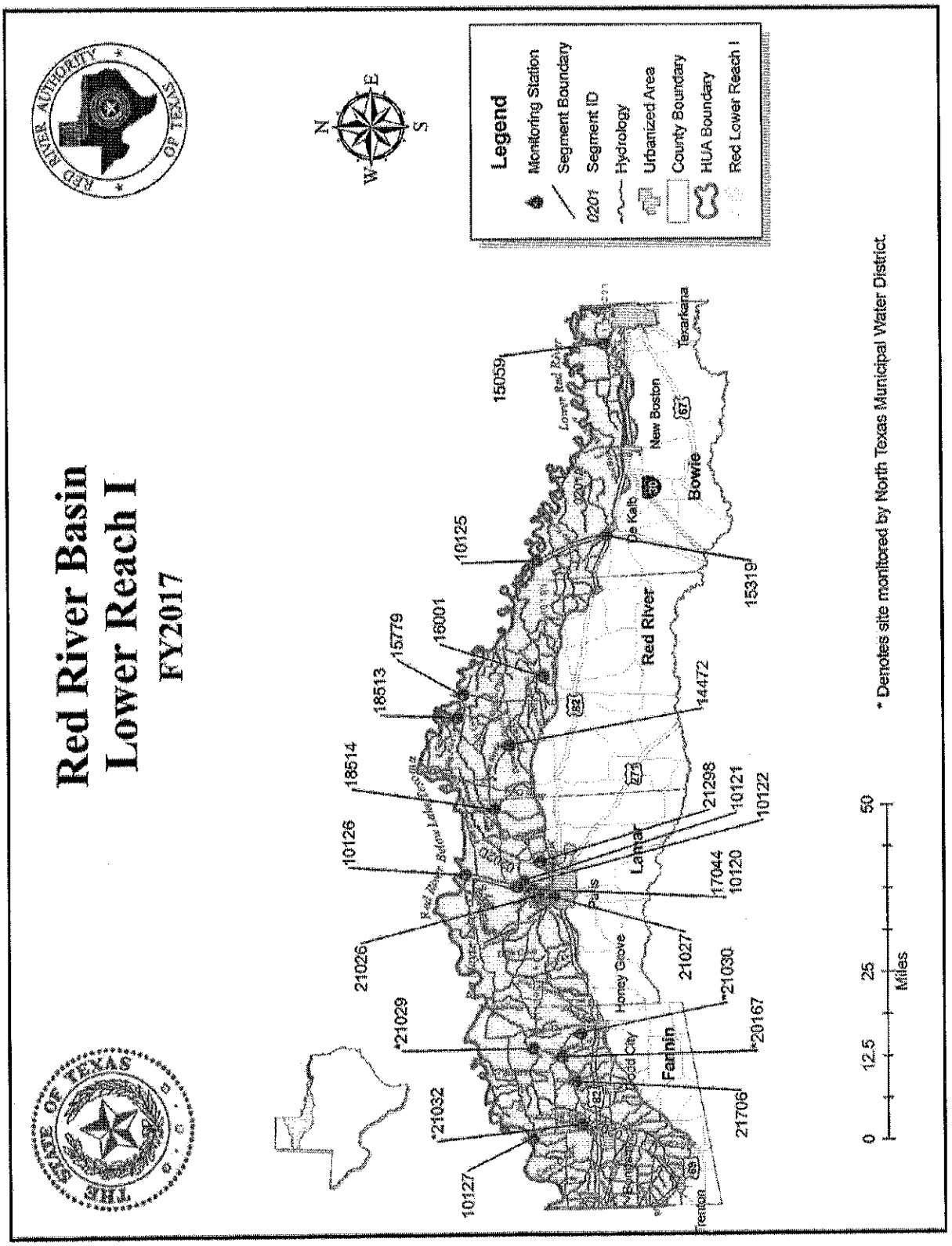

Red River Basin
Lower Reach I
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Lower Reach I
* Denotes site monitored by North Texas Municipal Water District.
Red River
Bowie
Lamar
Fannin
New Boston
De Kalb
Honey Grove
Texarkana
Paris
Trenton
0
12.5
25
50
Miles
15059
10125
15319
16001
15779
18513
14472
18514
21298
10121
10122
10126
17044
10120
21026
21027
21030
21029
20167
21032
21706
10127

Figure 2-1.2

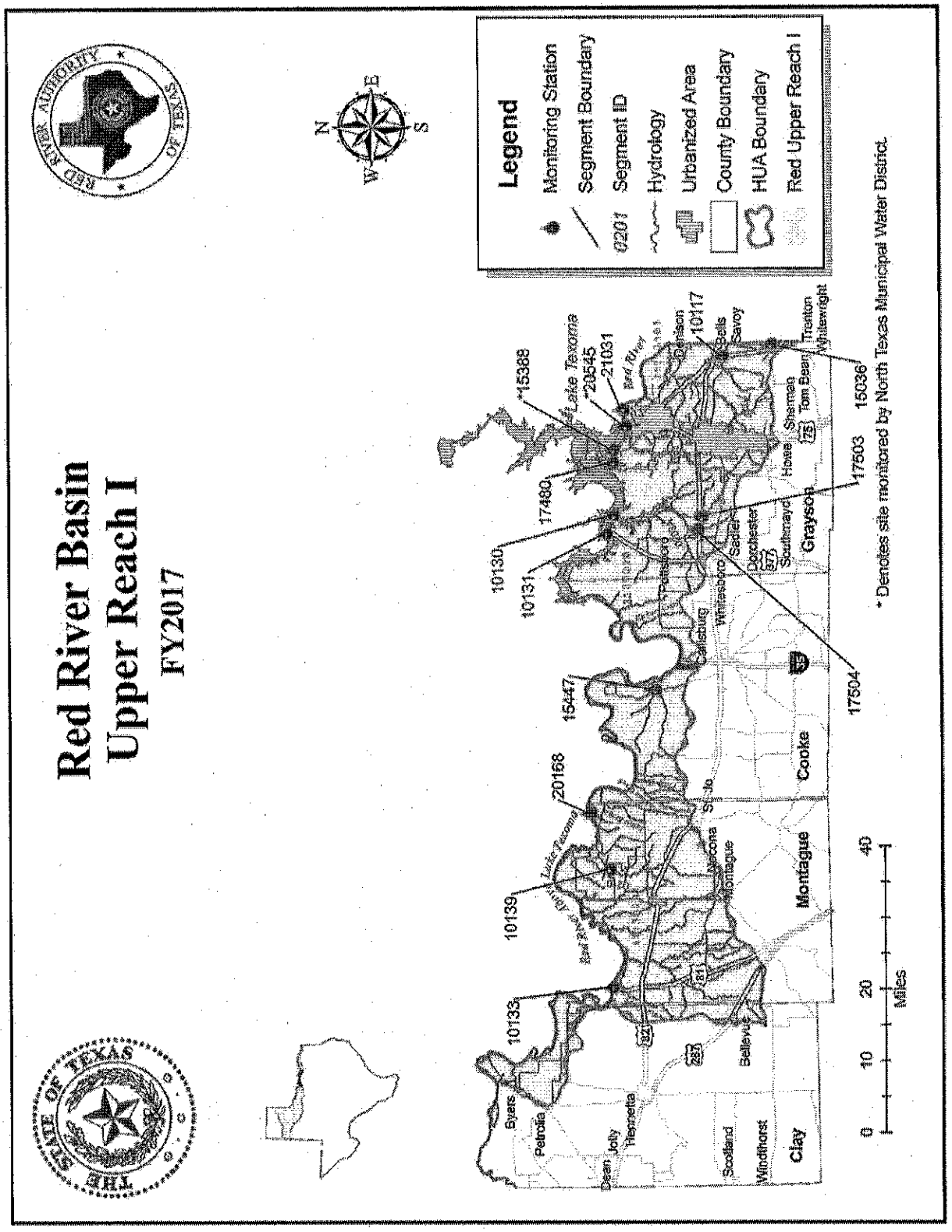

Red River Basin
Upper Reach I
FY2017
Legend
Monitoring Station
Segment Boundary
0201 Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Upper Reach I
* Denotes site monitored by North Texas Municipal Water District.
Lake Texoma
Red River
Clay
Montague
Cooke
Grayson
Byers
Petrolia
Dean
Jolly
Henrietta
Scotland
Windthorst
Bellevue
Nocona
Montague
Callisburg
Whitesboro
Pottsboro
Sadler
Dorchester
Southmayd
Howe
Sherman
Tom Bean
Trenton
Whitewright
Bells
Savoy
Denison
10133
10139
20168
15447
10130
10131
17480
15388
20545
21031
10117
15036
17503
17504
0
10
20
40
Miles

Figure 2-1.3

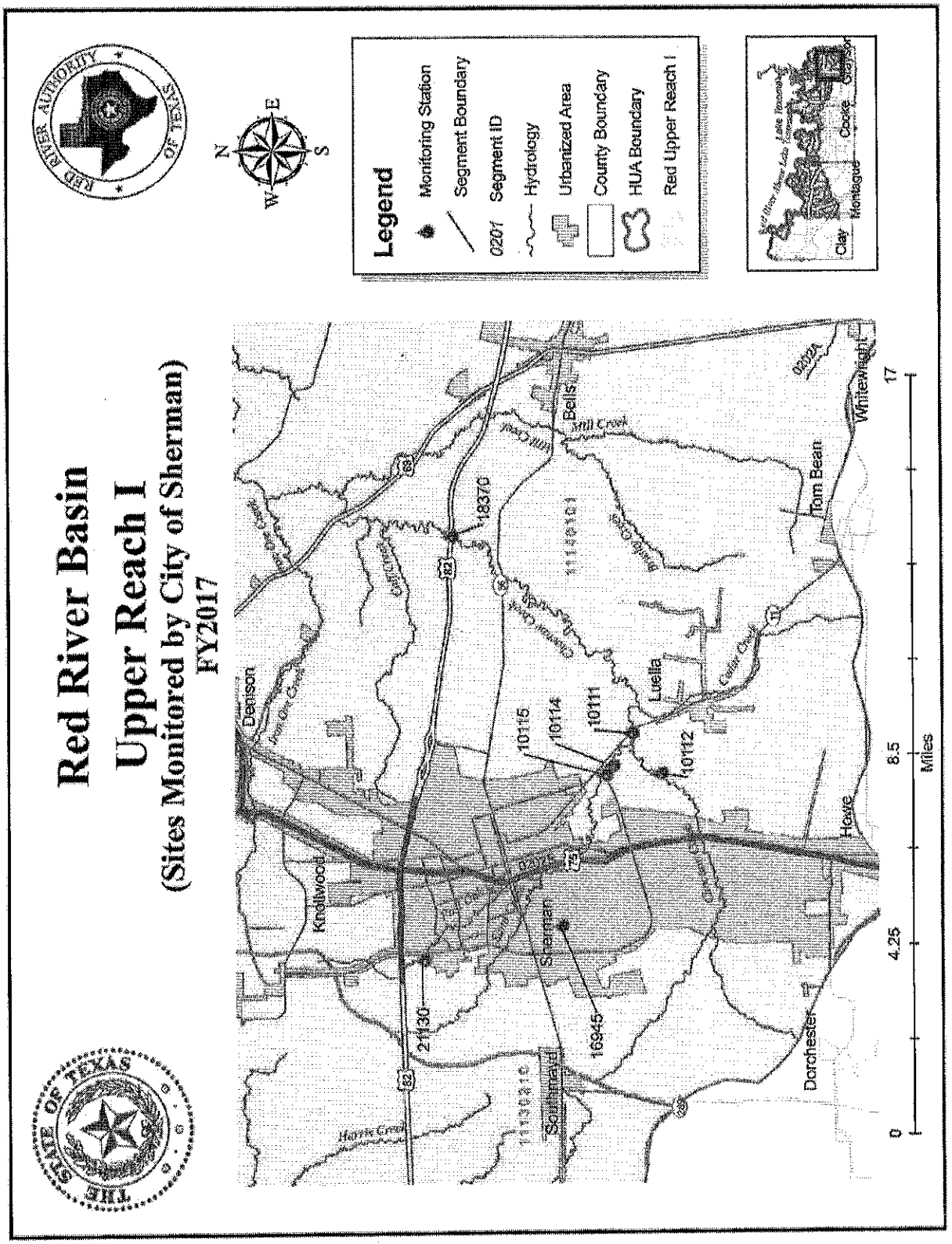

Red River Basin
Upper Reach I
(Sites Monitored by City of Sherman)
FY2017
Legend
Monitoring Station
Segment Boundary
0201 Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Upper Reach I
Denison
Knollwood
Sherman
Southmayd
Luella
Bells
Tom Bean
Whitewright
Howe
Dorchester
18370
10115
10114
10111
10112
21130
16945
0
4.25
8.5
17
Miles

Figure 2-2

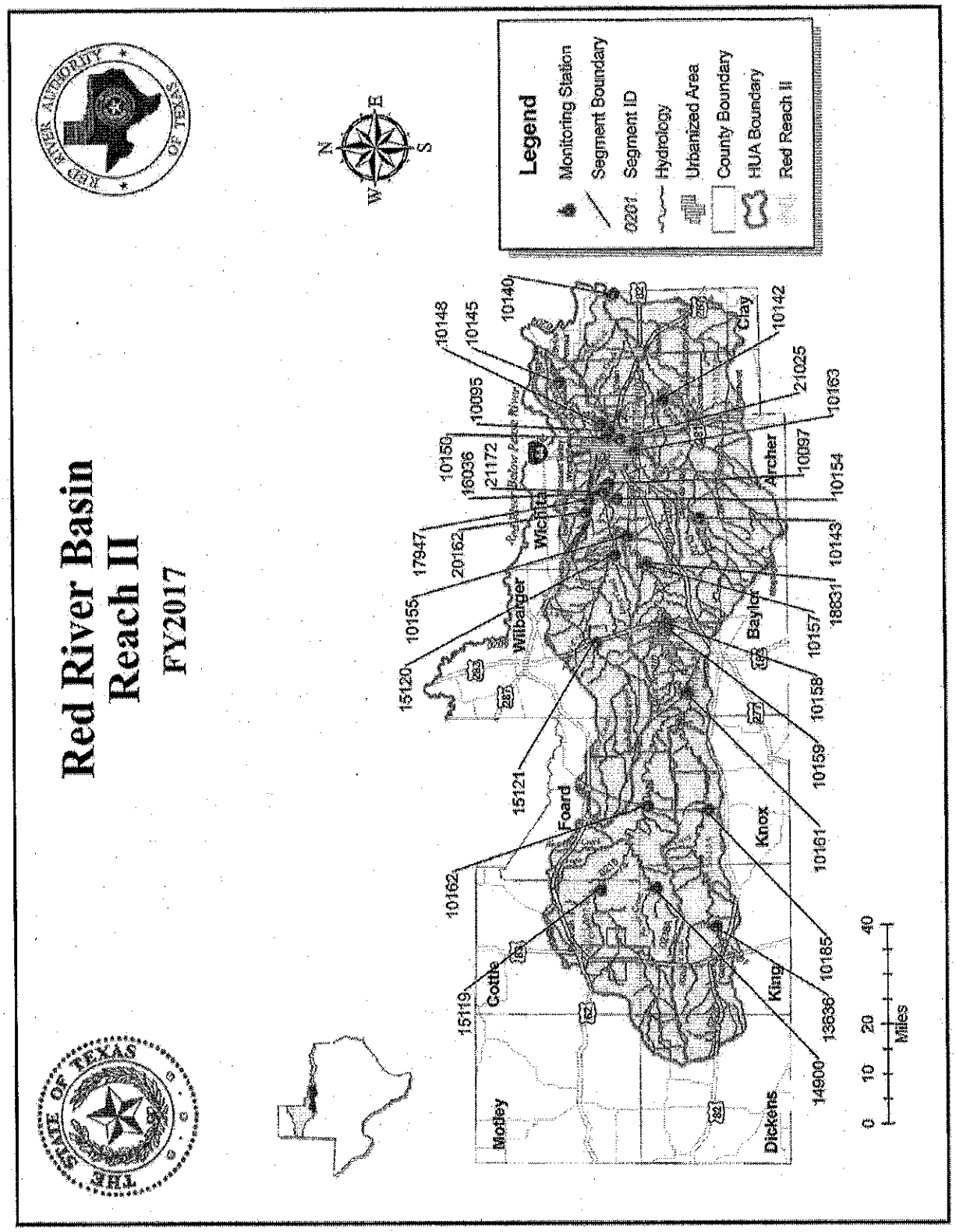

Red River Basin
Reach II
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Reach II
Motley
Dickens
Cottle
King
Foard
Knox
Wilbarger
Wichita
Baylor
Archer
Clay
0 10 20 40
Miles

Figure 2-3

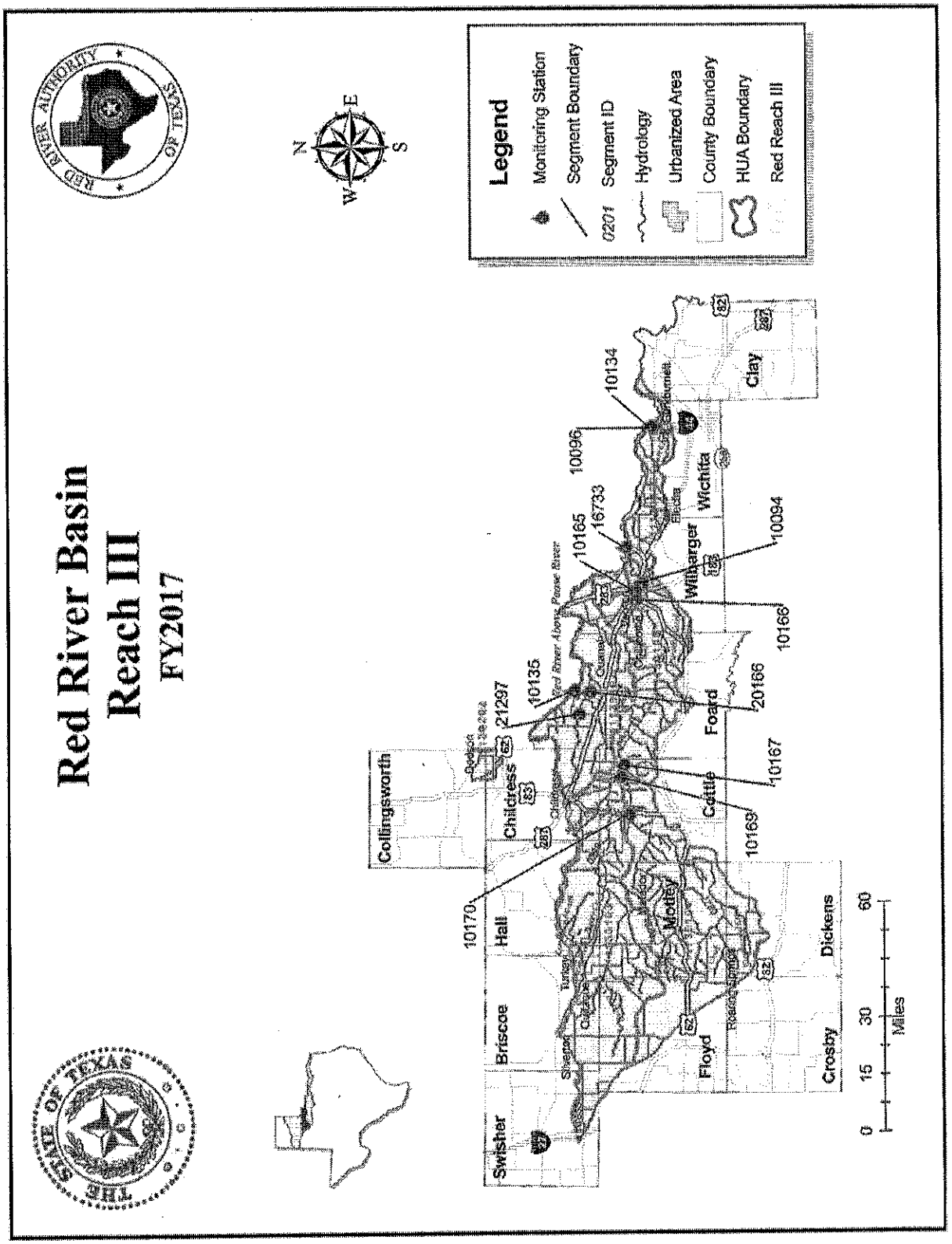

Red River Basin
Reach III
FY2017
Legend
Monitoring Station
Segment Boundary
Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Reach III
N
E
S
W
Collingsworth
Childress
Hall
Briscoe
Swisher
Cottle
Foard
Motley
Floyd
Crosby
Dickens
Wilbarger
Wichita
Clay
10170
21297
10135
10165
16733
10096
10134
10094
10166
20166
10167
10169
0
15
30
60
Miles

Figure 2-4

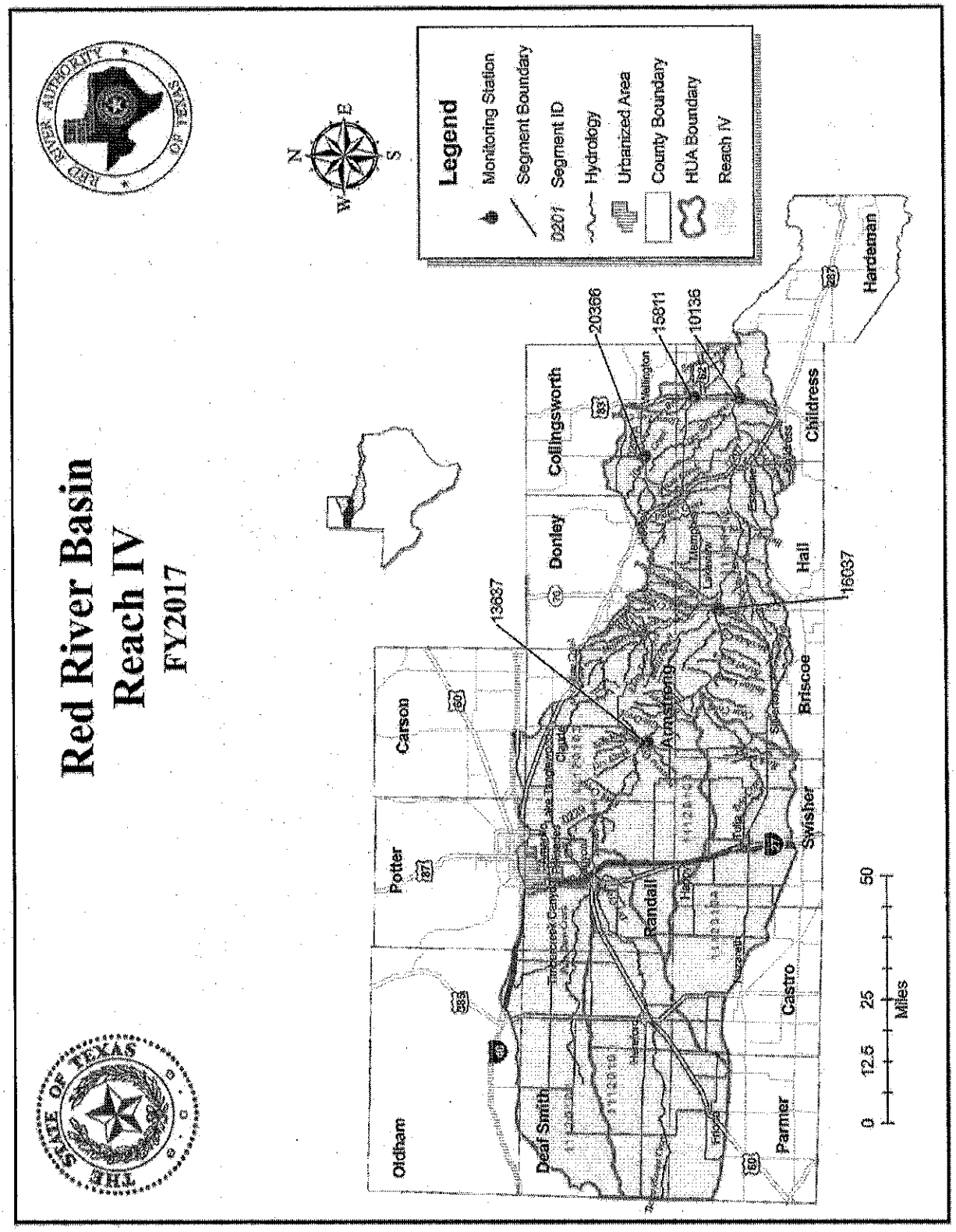
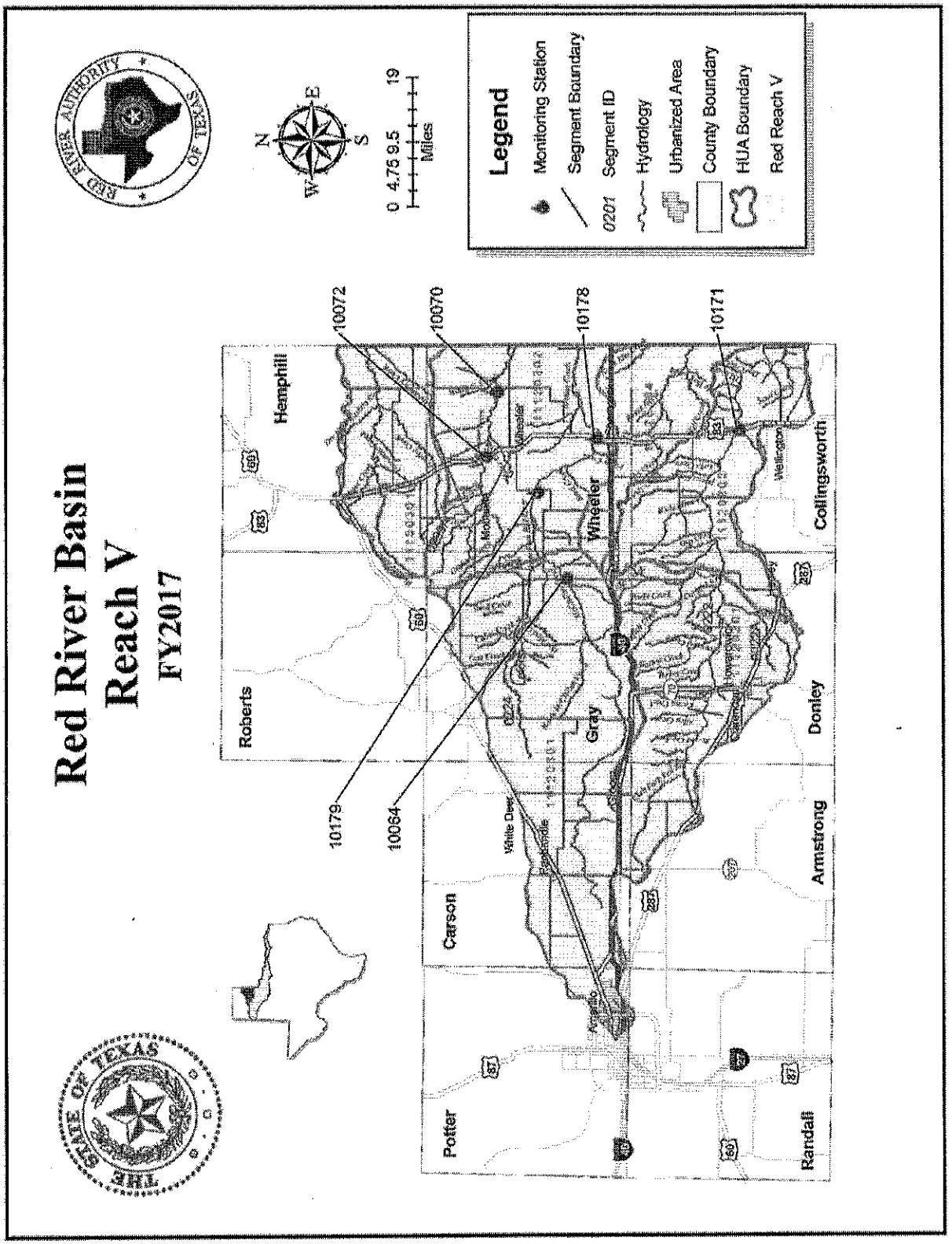

Red River Basin
Reach IV
FY2017
Legend
Monitoring Station
Segment Boundary
0201 Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Reach IV
N
E
S
W
Oldham
Deaf Smith
Potter
Carson
Randall
Armstrong
Donley
Collingsworth
Hardeman
Childress
Hall
Briscoe
Swisher
Castro
Parmer
20366
15811
10136
13637
16037
0
12.5
25
50
Miles

Figure 2-5


Red River Basin
Reach V
FY2017
Legend
Monitoring Station
Segment Boundary
0201 Segment ID
Hydrology
Urbanized Area
County Boundary
HUA Boundary
Red Reach V
0 4.75 9.5 19
Miles
N
E
S
W
10072
10070
10178
10171
10179
10064
Hemphill
Roberts
Wheeler
Gray
Collingsworth
Donley
Armstrong
Carson
Potter
Randall
Wellington
White Deer
Pantanole
Amarillo