FY2013 Basin Highlights Report
&
FY2014 Coordinated Monitoring

CANADIAN AND RED RIVER BASINS ADVISORY COMMITTEE MEETING

MARCH 19, 2013 – AMARILLO, TEXAS

ALLEN M. PAPPAS
CLEAN RIVERS PROGRAM PROJECT MANAGER

Presentation Overview

- What is the Clean Rivers Program
- Surface Water Quality Data
- Water Quality Parameters
- Water Quality Monitoring in the Canadian River Basin
- Water Quality Monitoring in the Red River Basin
- FY2014 Monitoring Considerations
- Drought Implications
- Future Goals

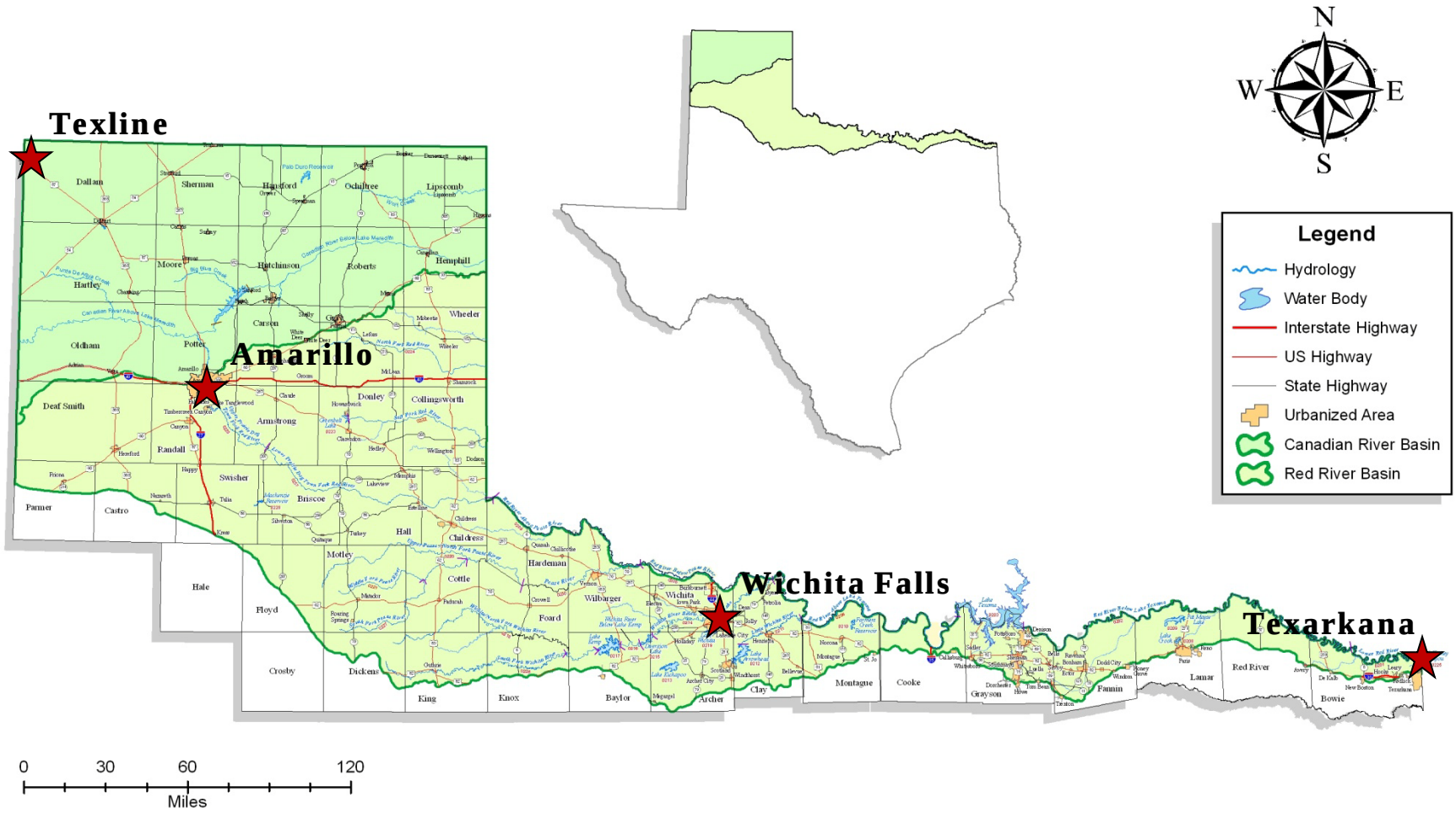
What is the Clean Rivers Program?

- A partnership between the TCEQ and regional water authorities to coordinate and conduct water quality monitoring, assessment, and stakeholder participation to improve the quality of surface water within each river basin in Texas

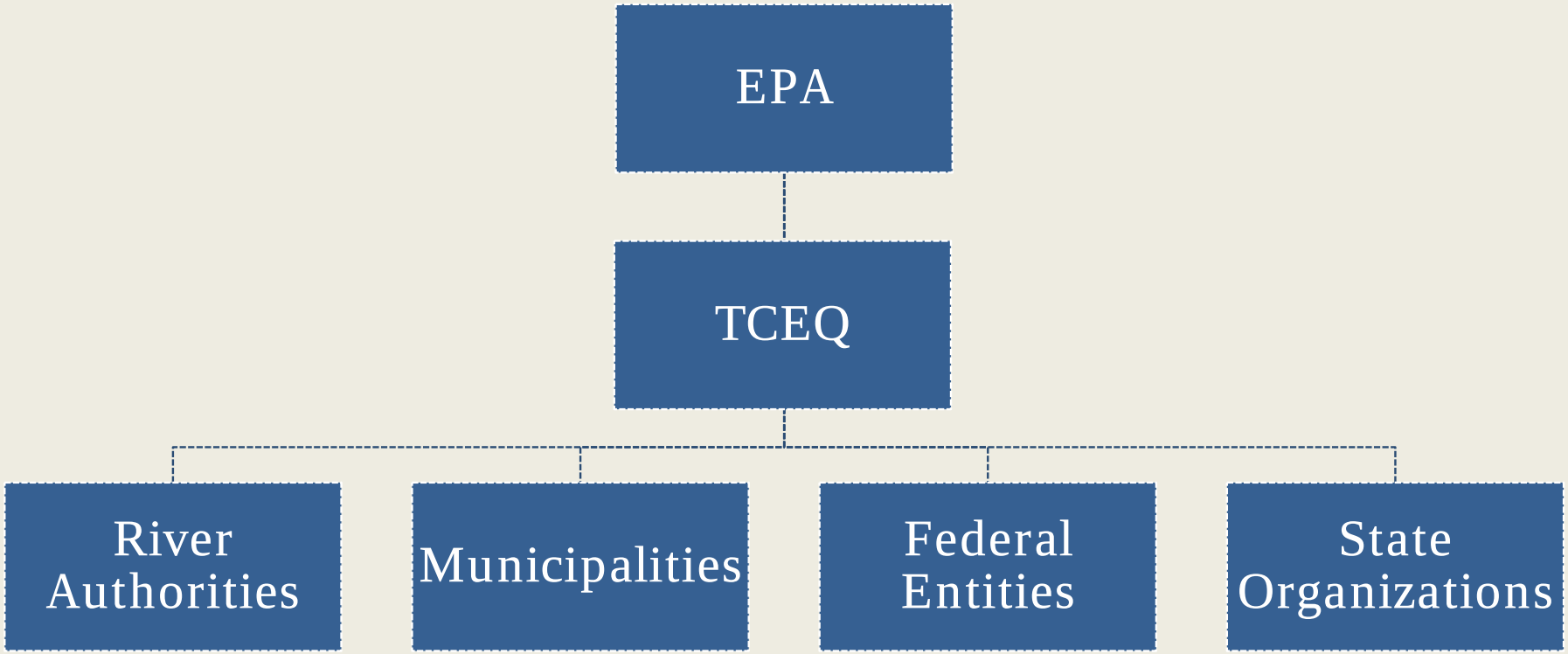
Clean Rivers Program Objectives

- Provide quality-assured data to the TCEQ for use in decision-making
- Identify and evaluate water quality issues
- Promote cooperative watershed planning
- Recommend management strategies
- Inform and engage stakeholders
- Maintain efficient use of public funds

Red and Canadian River Basins
Vicinity Map



Surface Water Quality Data



Water Quality Parameters

- Solids / Dissolved Solids
  - TSS / VSS / TDS / chloride / sulfate
- Nutrients
  - Ammonia / nitrate / total phosphorus / chlorophyll-*a*
- Bacteria
  - *E. coli* / *Enterococcus*
- Aquatic Health
  - Dissolved oxygen / pH

Water Quality Monitoring in the Canadian River Basin

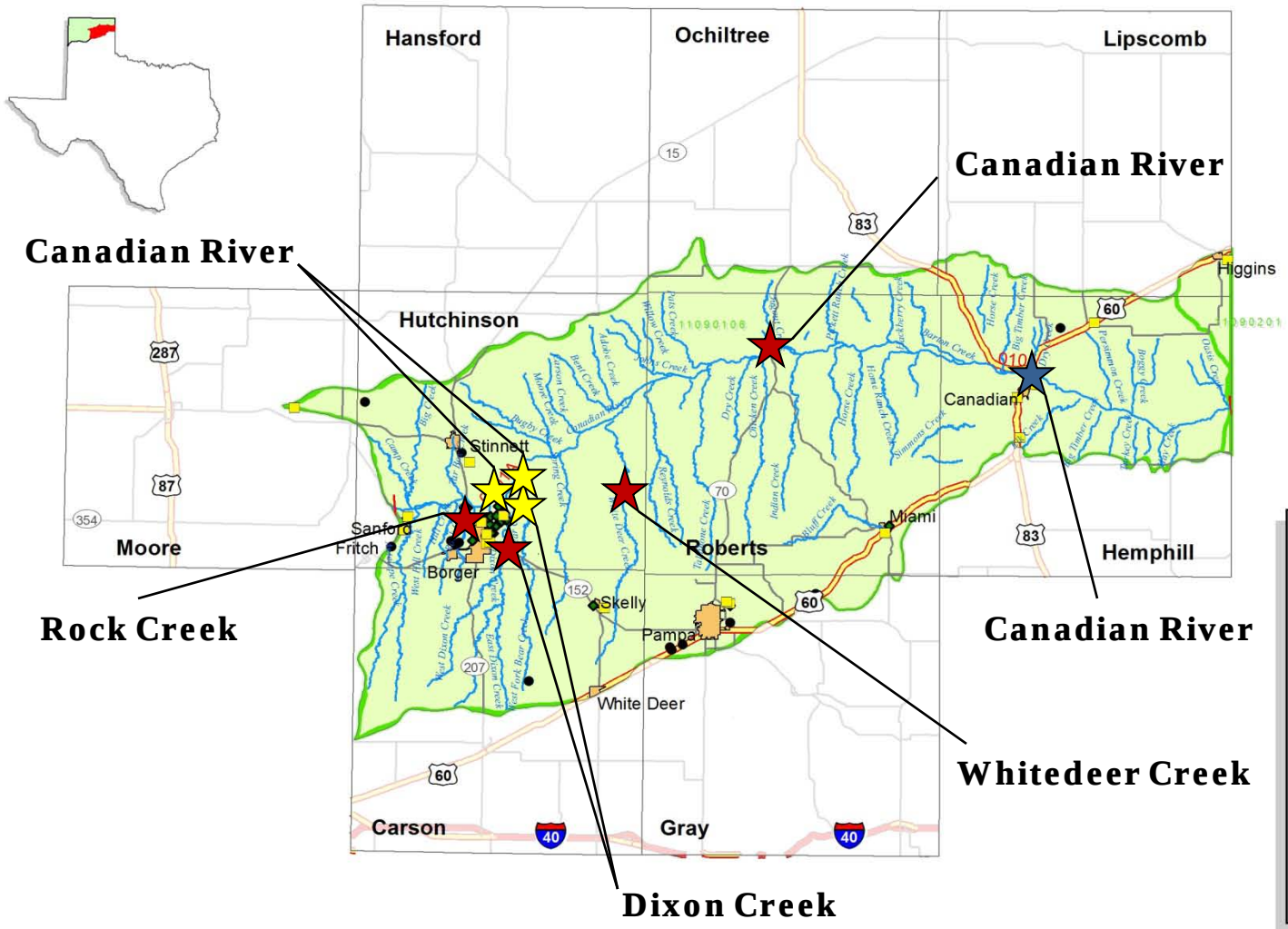
Entity	FY 2011	FY 2012	FY 2013	FY 2014*
RRA	11	14	15	15
TCEQ	4	5	5	5
USGS	9	9	9	9
Total Stations	**24**	**28**	**29**	**29**

* Proposed, CMM is March 27, 2013

Canadian Reach I

- Canadian River Below Lake Meredith (0101)
  - Bacteria impairment – new with the 2012 IR
  - Chlorophyll-*a* and ammonia concerns
- Dixon Creek (0101A)
  - Bacteria, depressed DO and selenium impairments
  - Chlorophyll-*a* and nitrate concerns
- Rock Creek (0101B)
  - No impairments
  - Nitrate, ortho/total phosphorus concerns
  - Removed impairment for bacteria
- White Deer Creek (0101C)
  - No impairments or concerns

Canadian River Basin
Reach I



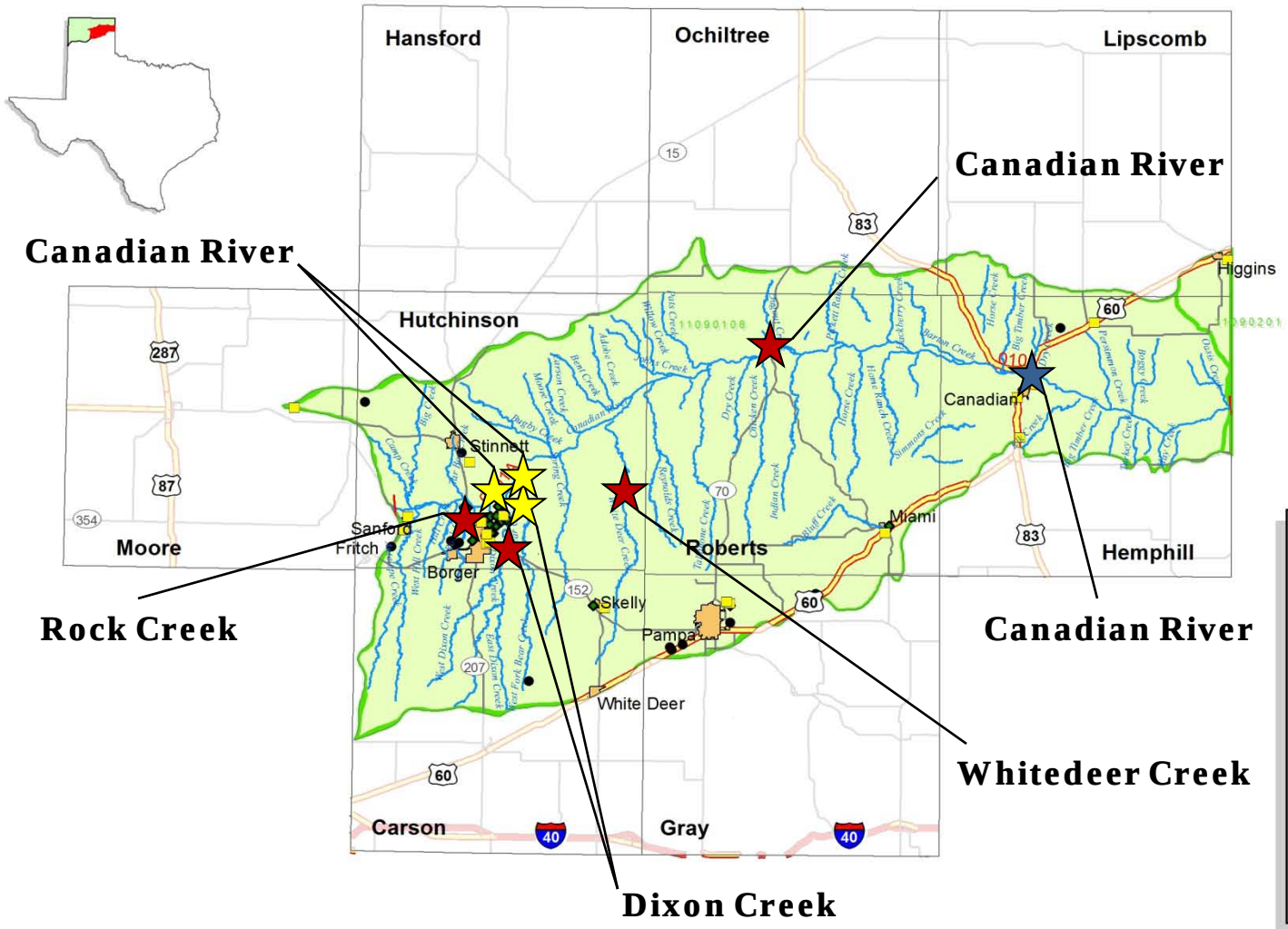
Canadian River at US 83

Canadian River at SH 70

Canadian Reach I

- Canadian River Below Lake Meredith (0101)
  - Bacteria impairment – new with the 2012 IR
  - Chlorophyll-*a* and ammonia concerns
- Dixon Creek (0101A)
  - Bacteria, depressed DO and selenium impairments
  - Chlorophyll-*a* and nitrate concerns
- Rock Creek (0101B)
  - No impairments
  - Nitrate, ortho/total phosphorus concerns
  - Removed impairment for bacteria
- White Deer Creek (0101C)
  - No impairments or concerns

Canadian River Basin
Reach I

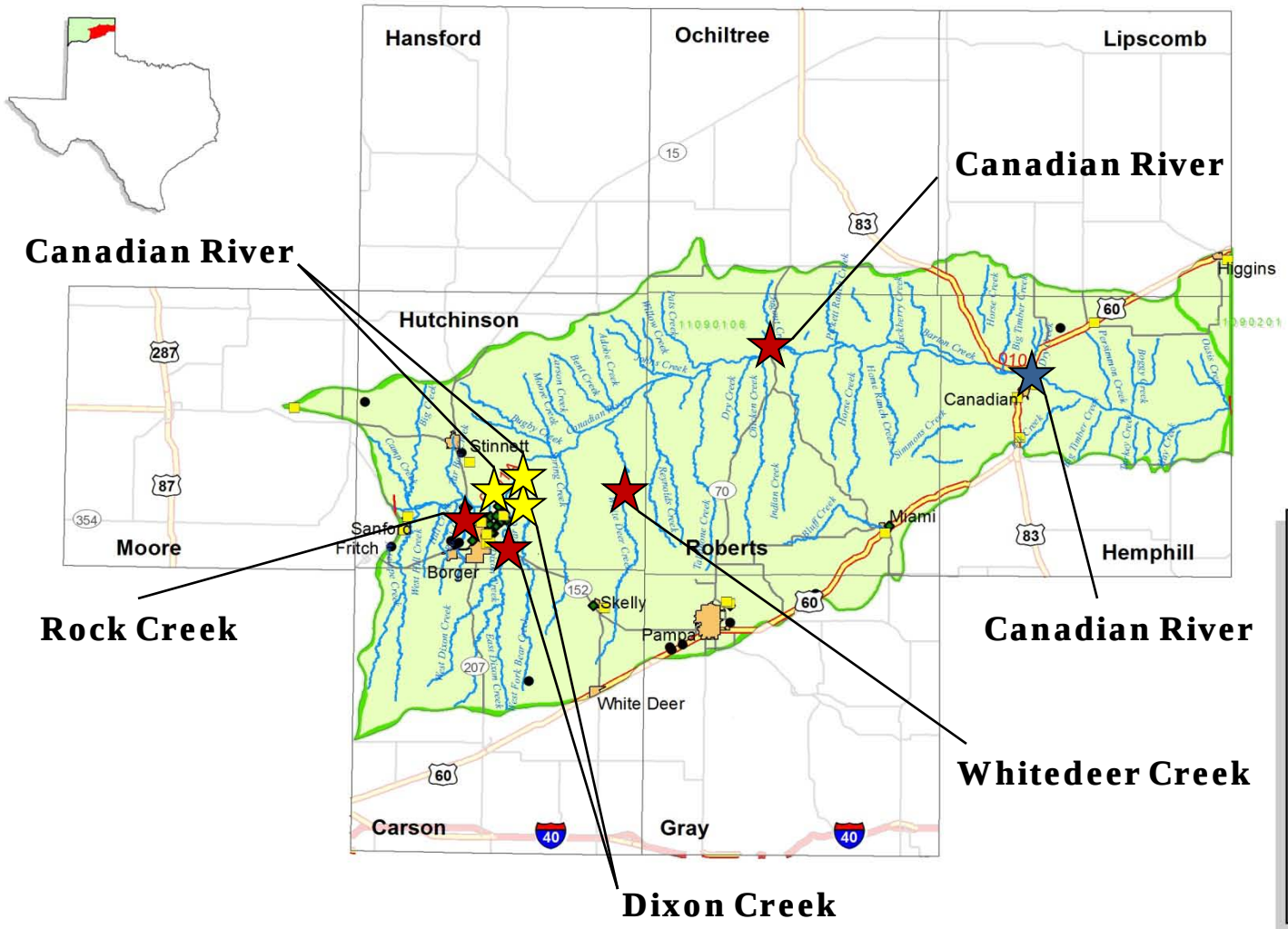


Dixon Creek at SH 152

Canadian Reach I

- Canadian River Below Lake Meredith (0101)
  - Bacteria impairment – new with the 2012 IR
  - Chlorophyll-*a* and ammonia concerns
- Dixon Creek (0101A)
  - Bacteria, depressed DO and selenium impairments
  - Chlorophyll-*a* and nitrate concerns
- Rock Creek (0101B)
  - No impairments
  - Nitrate, ortho/total phosphorus concerns
  - Removed impairment for bacteria
- White Deer Creek (0101C)
  - No impairments or concerns

Canadian River Basin
Reach I

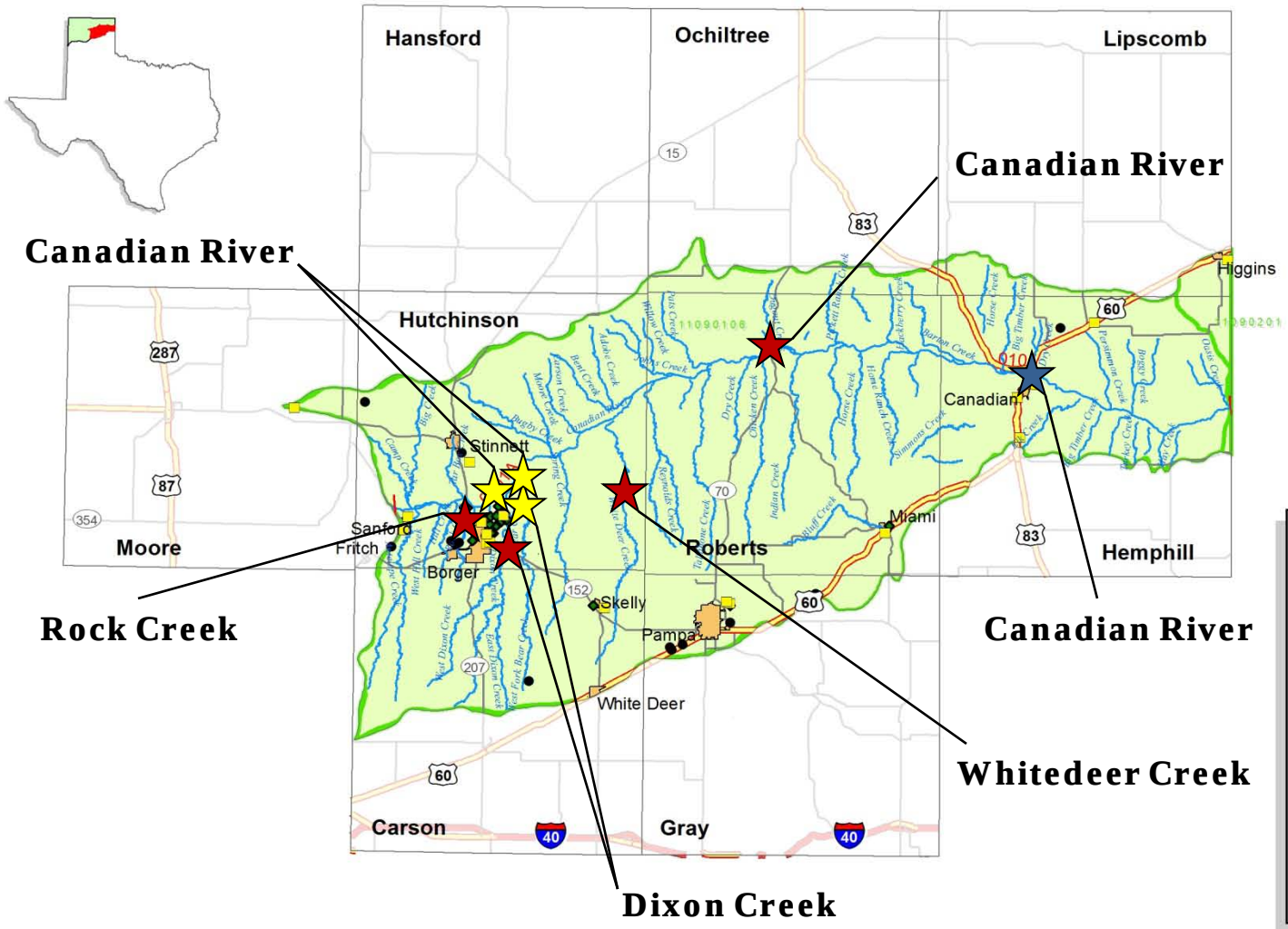


Rock Creek Near Electric City

Canadian Reach I

- Canadian River Below Lake Meredith (0101)
  - Bacteria impairment – new with the 2012 IR
  - Chlorophyll-*a* and ammonia concerns
- Dixon Creek (0101A)
  - Bacteria, depressed DO and selenium impairments
  - Chlorophyll-*a* and nitrate concerns
- Rock Creek (0101B)
  - No impairments
  - Nitrate, ortho/total phosphorus concerns
  - Removed impairment for bacteria
- White Deer Creek (0101C)
  - No impairments or concerns

Canadian River Basin
Reach I

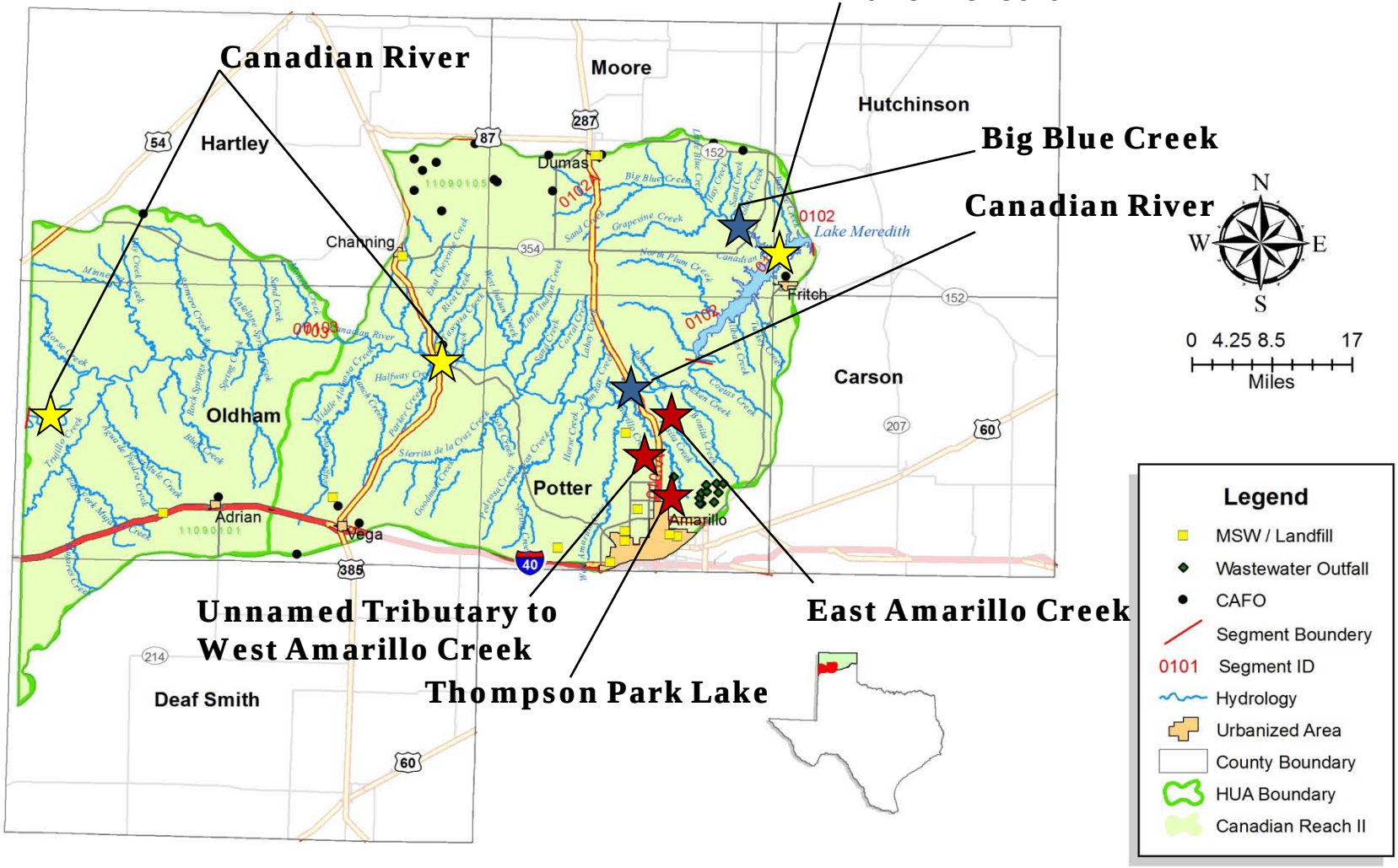


White Deer Creek at Jeep Crossing

Canadian Reach II

- Lake Meredith (0102)
  - Mercury in edible fish tissue impairment
  - No concerns
  - Removed impairments for chloride, sulfate and TDS
- Big Blue Creek (0102A)
  - No impairments or concerns
- Canadian River Above Lake Meredith (0103)
  - Chloride impairment
  - No concerns
- East Amarillo Creek (0103A)
  - No impairments
  - Chlorophyll-*a* and nitrate concerns
- Unnamed Tributary to West Amarillo Creek (0103C)
  - Chlorophyll-*a* concern
  - Removed impairment for bacteria

Canadian River Basin
Reach II

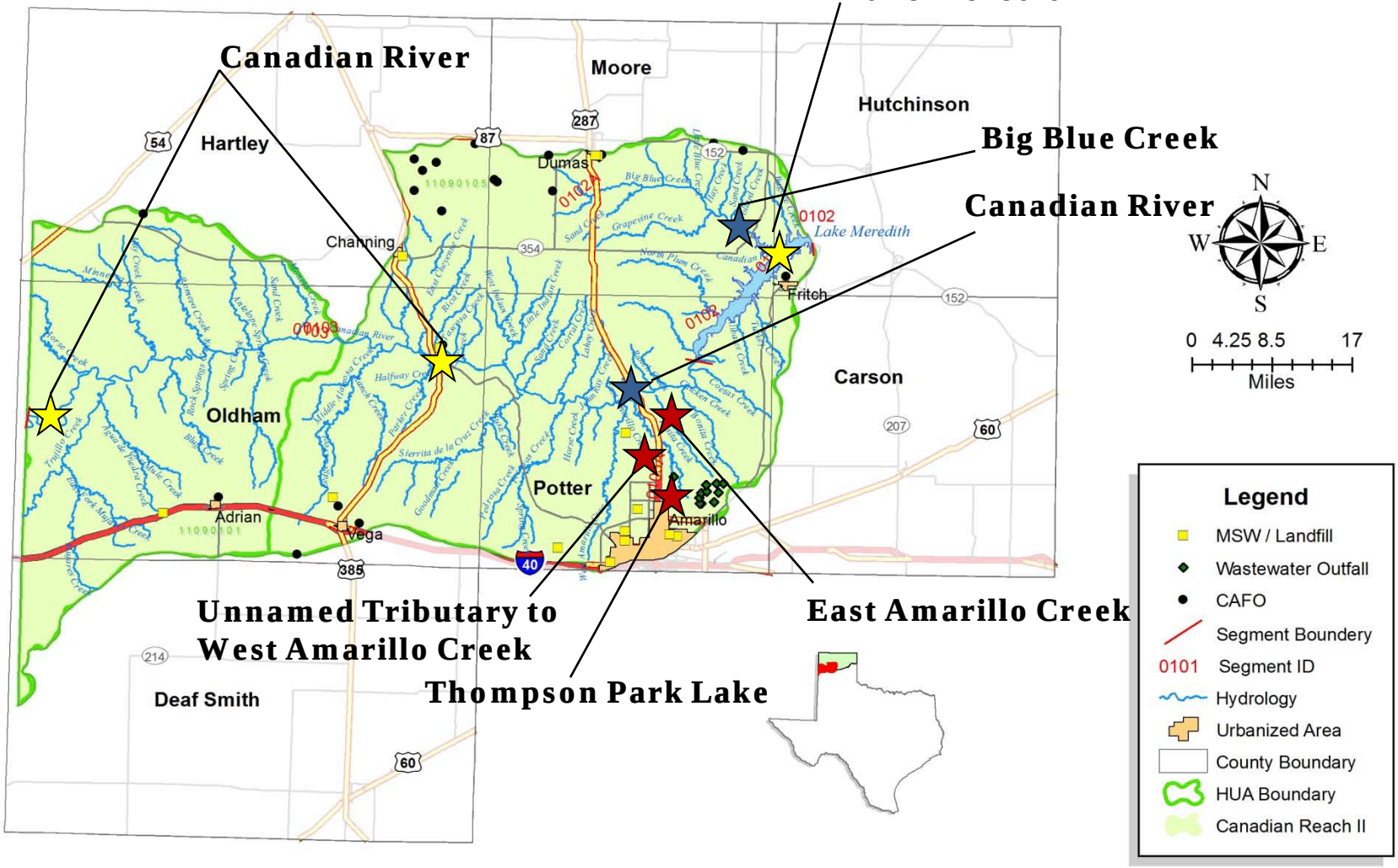


Big Blue Creek at FM 1913

Canadian Reach II

- Lake Meredith (0102)
  - Mercury in edible fish tissue impairment
  - No concerns
  - Removed impairments for chloride, sulfate and TDS
- Big Blue Creek (0102A)
  - No impairments or concerns
- Canadian River Above Lake Meredith (0103)
  - Chloride impairment
  - No concerns
- East Amarillo Creek (0103A)
  - No impairments
  - Chlorophyll-*a* and nitrate concerns
- Unnamed Tributary to West Amarillo Creek (0103C)
  - Chlorophyll-*a* concern
  - Removed impairment for bacteria

Canadian River Basin
Reach II

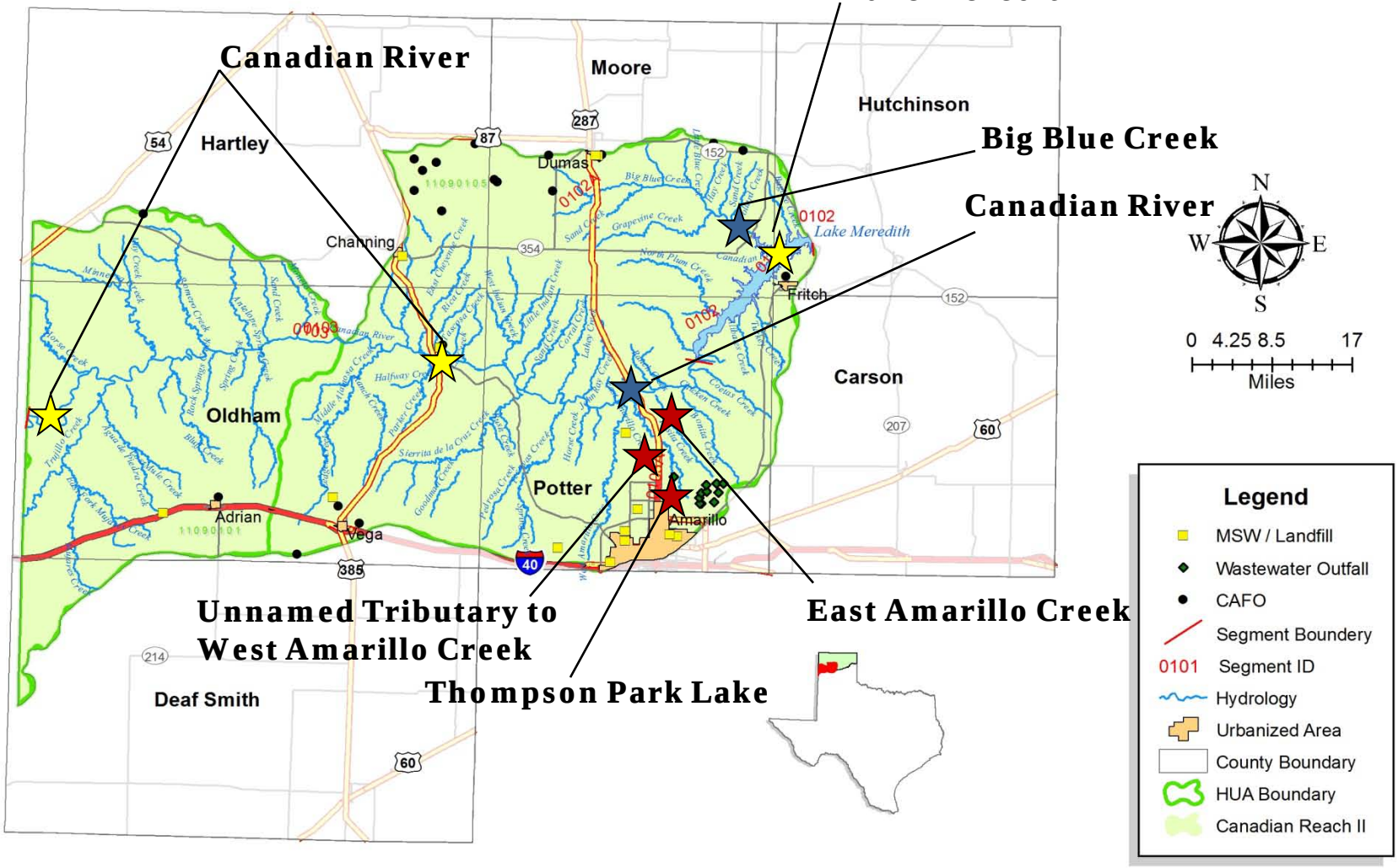


Canadian River at US 287

Canadian Reach II

- Lake Meredith (0102)
  - Mercury in edible fish tissue impairment
  - No concerns
  - Removed impairments for chloride, sulfate and TDS
- Big Blue Creek (0102A)
  - No impairments or concerns
- Canadian River Above Lake Meredith (0103)
  - Chloride impairment
  - No concerns
- East Amarillo Creek (0103A)
  - No impairments
  - Chlorophyll-*a* and nitrate concerns
- Unnamed Tributary to West Amarillo Creek (0103C)
  - Chlorophyll-*a* concern
  - Removed impairment for bacteria

Canadian River Basin
Reach II



East Amarillo Creek at Loop 335

East Amarillo Creek at Amarillo River Road WWTP

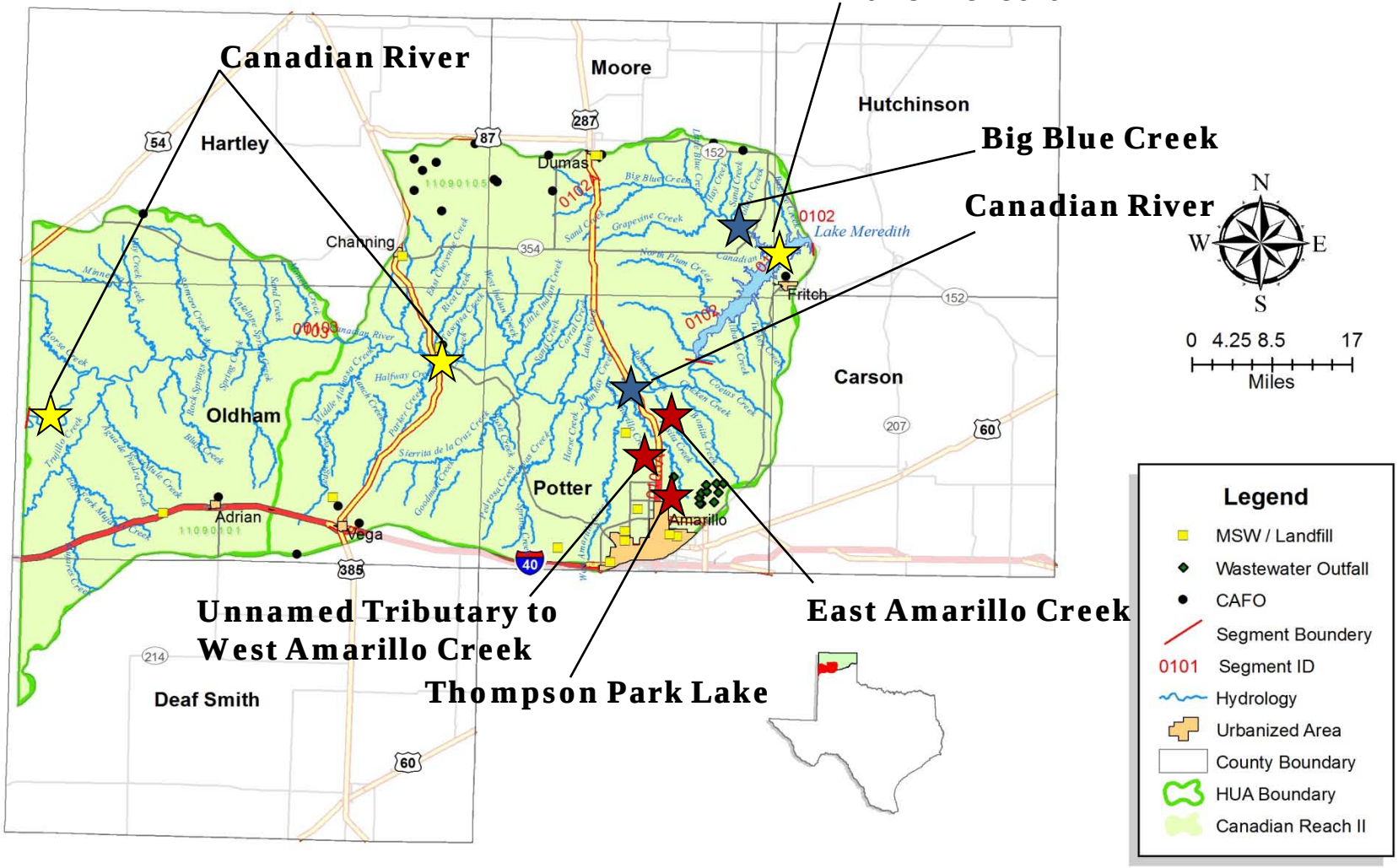
East Amarillo Creek at US 287

Thompson Park Lake

Canadian Reach II

- Lake Meredith (0102)
  - Mercury in edible fish tissue impairment
  - No concerns
  - Removed impairments for chloride, sulfate and TDS
- Big Blue Creek (0102A)
  - No impairments or concerns
- Canadian River Above Lake Meredith (0103)
  - Chloride impairment
  - No concerns
- East Amarillo Creek (0103A)
  - No impairments
  - Chlorophyll-*a* and nitrate concerns
- Unnamed Tributary to West Amarillo Creek (0103C)
  - Chlorophyll-*a* concern
  - Removed impairment for bacteria

Canadian River Basin
Reach II



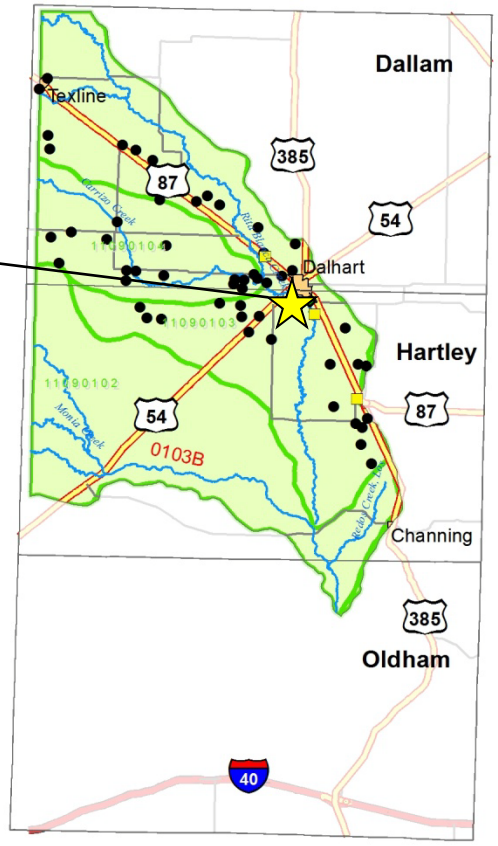
Unnamed Tributary to West Amarillo Creek

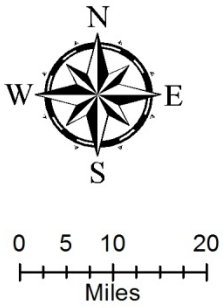
Canadian Reach III

- Rita Blanca Lake (0105)
  - pH impairment
  - Ammonia, chlorohpyll-*a*, nitrate, ortho/total phosphorus concerns

Canadian River Basin
Reach III

Rita Blanca Lake





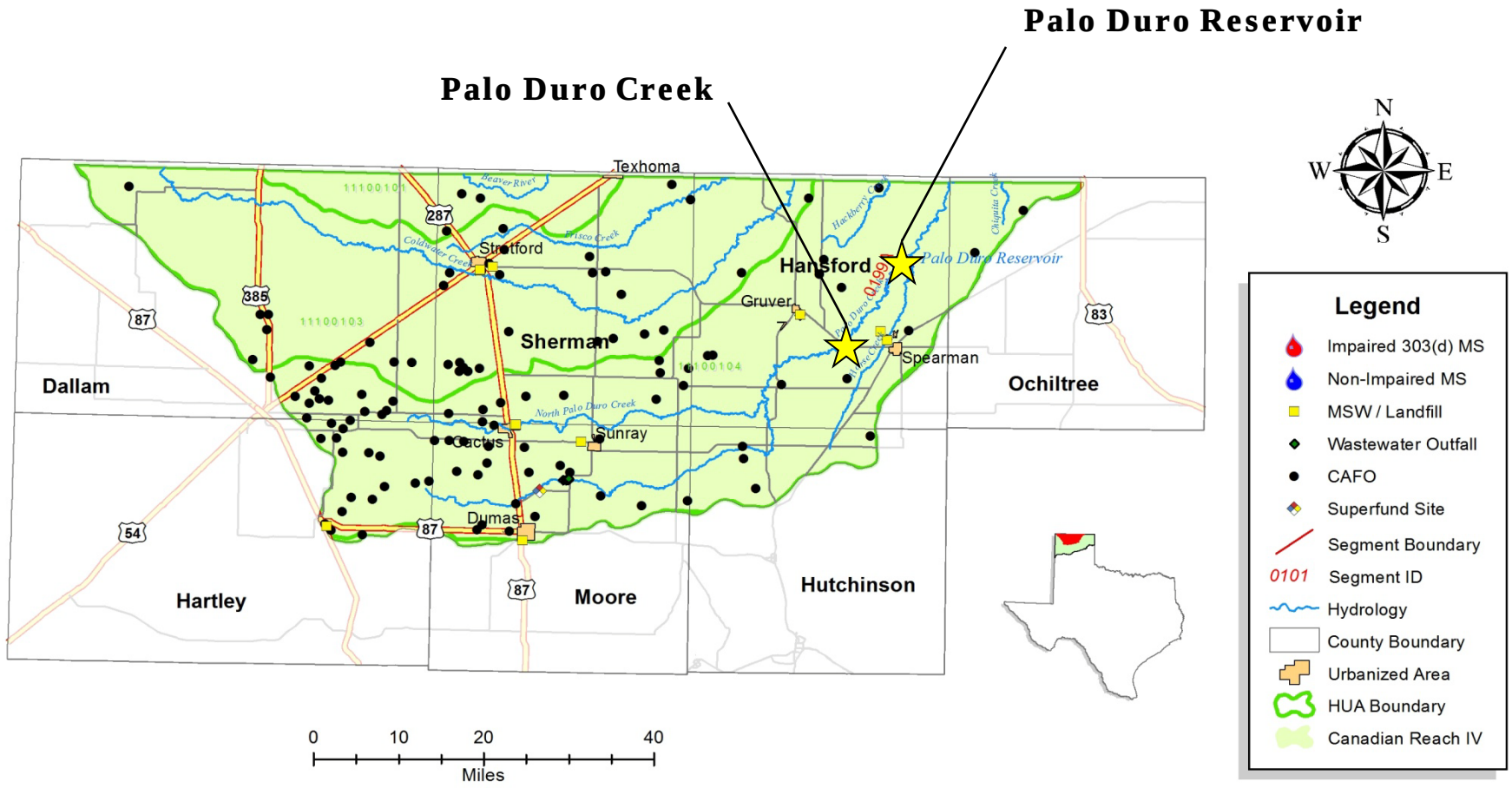
Legend

- MSW / Landfill
- Wastewater Outfall
- CAFO
- 0101 Segment ID
- Hydrology
- County Boundary
- Urbanized Area
- HUA Boundary
- Canadian Reach III

Canadian Reach IV

- Palo Duro Reservoir (0199A)
  - No impairments
  - Ortho/total phosphorus concerns

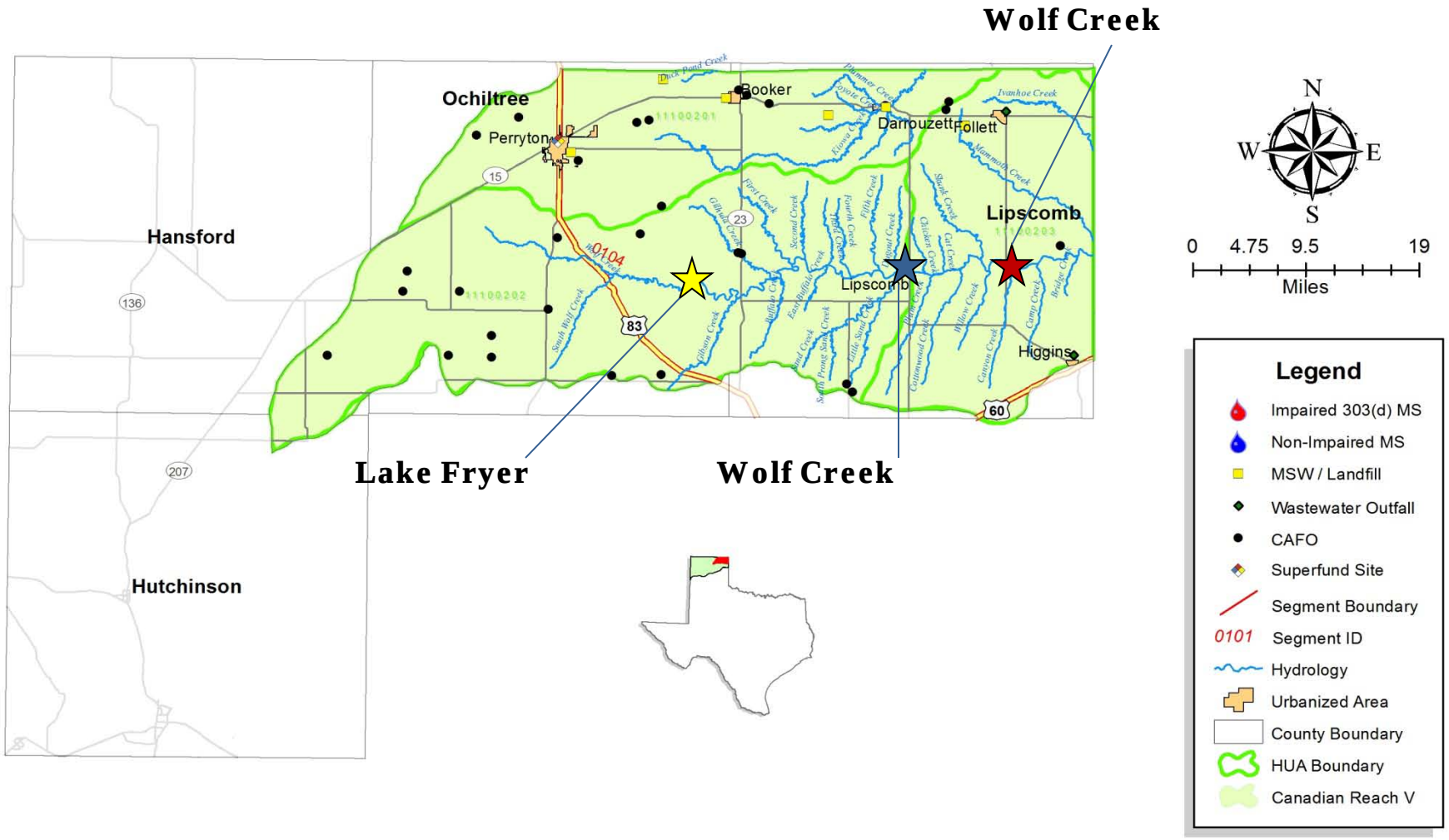
Canadian River Basin
Reach IV



Canadian Reach V

- Wolf Creek (0104)
  - No impairments
  - Chlorophyll-*a* concern
  - Removed impairment for bacteria
- Kiowa Creek (0199B)
  - No impairments or concerns

Canadian River Basin
Reach V



Wolf Creek at FM 1454

Wolf Creek at SH 305

Water Quality Monitoring in the Red River Basin – Reach IV & V

Entity	FY 2011	FY 2012	FY 2013	FY 2014*
RRA	6	8	8	8
TCEQ	7	7	7	7
USGS	8	8	8	8
Total Stations	**21**	**23**	**23**	**23**

* Proposed, CMM is March 27, 2013

Water Quality Monitoring in the Red River Basin

Entity	FY 2011	FY 2012	FY 2013	FY 2014*
RRA	33	52	64	67**
TCEQ	20	19	19	19
USGS	30	34	31	30
City of Sherman	7	7	9	9
North Texas MWD	N/A	8	7	7
Total	**90**	**120**	**130**	**132**

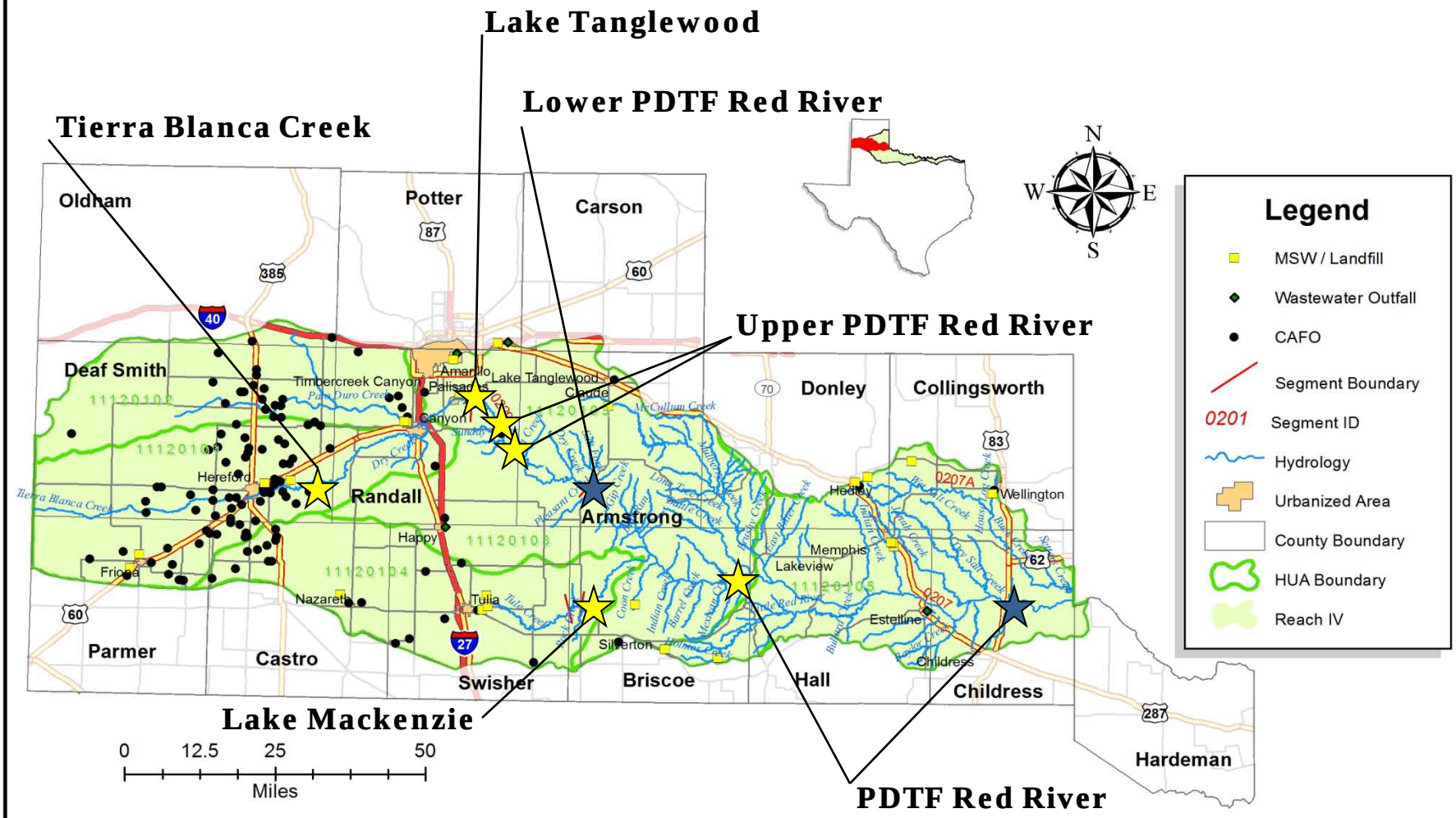
* Proposed, CMM is March 27, 2013

** SLOCS have been submitted to TCEQ to create three (3) new monitoring stations

Red Reach IV

- Lower PDTF Red River (0207)
  - Bacteria impairment
  - Chlorophyll-*a* concern
- Buck Creek (0207A)
  - No impairments
  - Nitrate concern
- Mackenzie Reservoir (0228)
  - No impairments or concerns
- Upper PDTF Red River (0229)
  - pH impairment
  - Chlorophyll-*a*, nitrate, ortho/total phosphorus concerns
- Lake Tanglewood (0229A)
  - No impairments
  - Ammonia, chlorophyll-*a*, depressed DO, nitrate, ortho/total phosphorus concerns

Red River Basin
Reach IV



Lower PDTF Red River at SH 207

Red Reach V

- Salt Fork of the Red River (0222)
  - Bacteria impairment
  - No concerns
- Lelia Lake Creek (0222A)
  - No impairments or concerns
- Greenbelt Lake (0223)
  - No impairments or concerns
- North Fork of the Red River (0224)
  - No impairments or concerns
- McClellan Creek (0224A)
  - Bacteria impairment
  - No concerns
- Sweetwater Creek (0299A)
  - Bacteria impairment
  - Depressed DO concern

Red River Basin
Reach V

Salt Fork Red River at US 83

Red Reach V

- Salt Fork of the Red River (0222)
  - Bacteria impairment
  - No concerns
- Lelia Lake Creek (0222A)
  - No impairments or concerns
- Greenbelt Lake (0223)
  - No impairments or concerns
- North Fork of the Red River (0224)
  - No impairments or concerns
- McClellan Creek (0224A)
  - Bacteria impairment
  - No concerns
- Sweetwater Creek (0299A)
  - Bacteria impairment
  - Depressed DO concern

Red River Basin
Reach V

North Fork Red River at US 83

Red Reach V

- Salt Fork of the Red River (0222)
  - Bacteria impairment
  - No concerns
- Lelia Lake Creek (0222A)
  - No impairments or concerns
- Greenbelt Lake (0223)
  - No impairments or concerns
- North Fork of the Red River (0224)
  - No impairments or concerns
- McClellan Creek (0224A)
  - Bacteria impairment
  - No concerns
- Sweetwater Creek (0299A)
  - Bacteria impairment
  - Depressed DO concern

Red River Basin
Reach V

McClellan Creek at SH 273

Red Reach V

- Salt Fork of the Red River (0222)
  - Bacteria impairment
  - No concerns
- Lelia Lake Creek (0222A)
  - No impairments or concerns
- Greenbelt Lake (0223)
  - No impairments or concerns
- North Fork of the Red River (0224)
  - No impairments or concerns
- McClellan Creek (0224A)
  - Bacteria impairment
  - No concerns
- Sweetwater Creek (0299A)
  - Bacteria impairment
  - Depressed DO concern

Red River Basin
Reach V

Sweetwater Creek at SH 152

Sweetwater Creek at SH 592

Sweetwater Creek at US 83

FY2014 Monitoring Considerations

- Additional monitoring stations have not been identified
- On-going drought conditions have impacted current monitoring
- Unlikely additional monitoring will take place until regular rainfall is present within the basin

FY2014 Monitoring Drought Implications

- Prolonged drought conditions have drastically reduced stream flow
- Traditional monitoring techniques were not applicable in these conditions
- TCEQ released an Interim Drought Monitoring Guidance in November of 2011
- Provides additional parameters to help better characterize data collected during drought conditions

FY2014 Monitoring Drought Implications

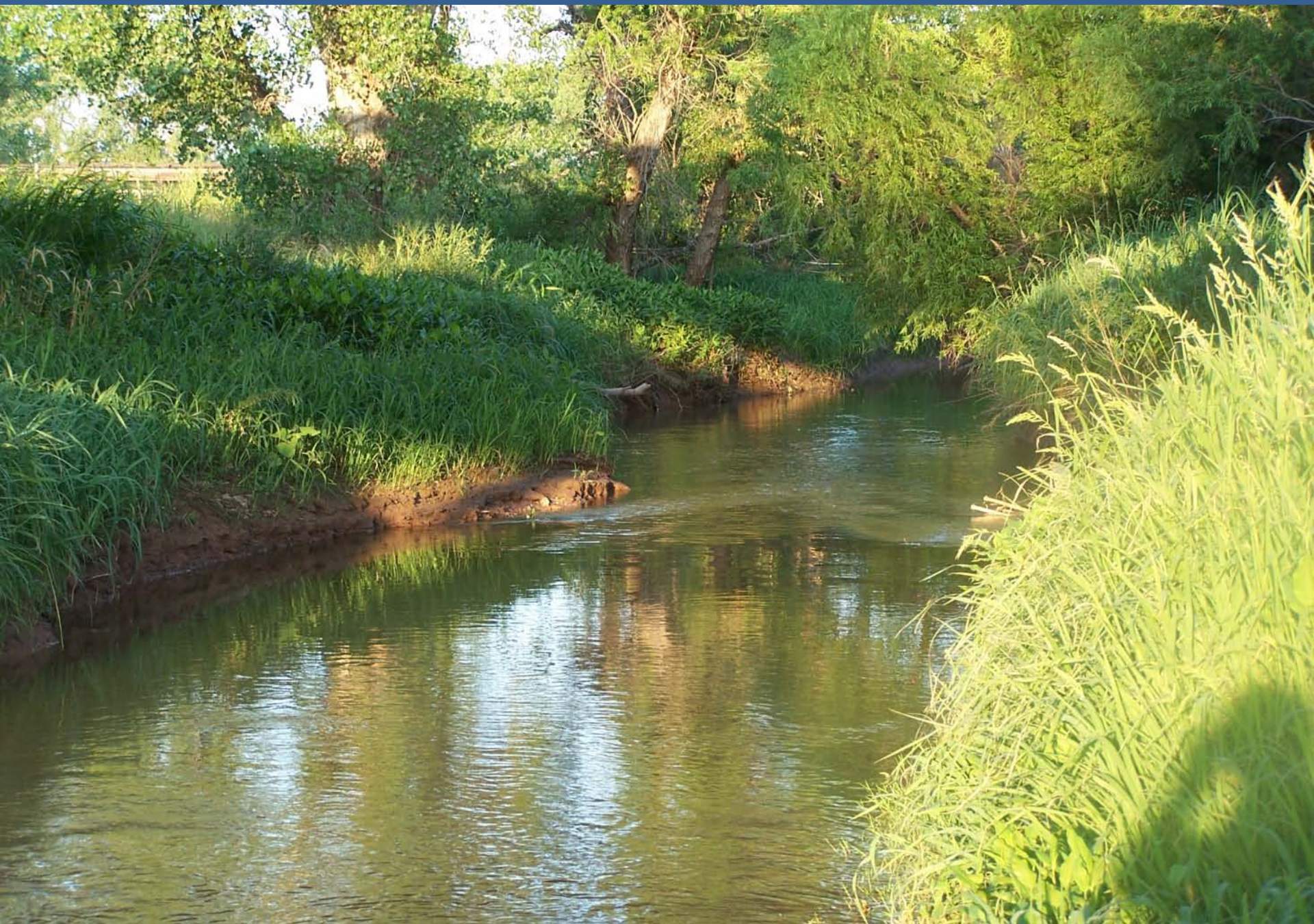
- Additional drought parameters (lake/reservoir)
  - 00051 Reservoir Stage
  - 00052 Reservoir Percent Full
  - 00053 Reservoir Access Not Possible
  - 82903 Depth of Bottom of Water Body at Sample Site
- Additional drought parameters (stream)
  - 89864 Maximum Pool Width (m)
  - 89865 Maximum Pool Depth (m)
  - 89869 Pool Length (m)
  - 89870 % Pool Coverage

East Amarillo Creek at Loop 335 on October 12, 2011

East Amarillo Creek at Loop 335 on July 23, 2012

East Amarillo Creek at Loop 335 on January 29, 2013

East Amarillo Creek at US 287 on July 28, 2010



East Amarillo Creek at US 287 on October 25, 2010

East Amarillo Creek at US 287 on January 17, 2011

East Amarillo Creek at US 287 on April 18, 2011

East Amarillo Creek at US 287 on July 25, 2011

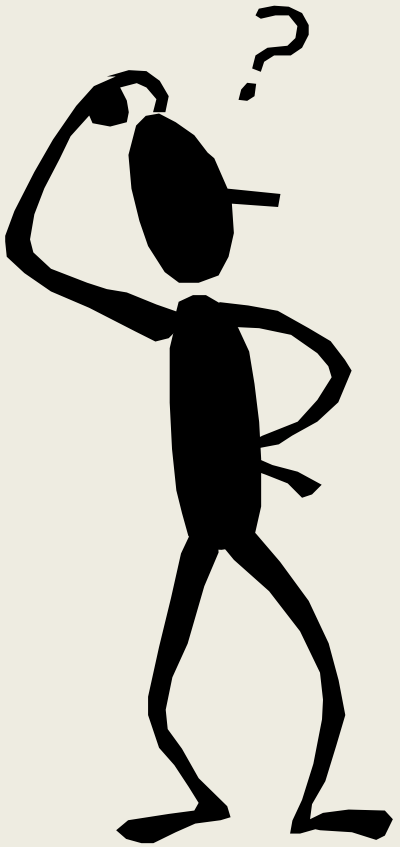
East Amarillo Creek at US 287 on July 24, 2012

East Amarillo Creek at US 287 on January 29, 2013

FY 2014 Goals

- Continue to pursue 24-hour dissolved oxygen studies to obtain data needed to better assess depressed DO impairments and concerns
- Continue to pursue additional monitoring locations to help identify already impaired water bodies
- Collect *Enterococcus* data on streams with elevated conductivity to better assess the presence of bacteria

Questions



RED RIVER AUTHORITY OF TEXAS

Clean Rivers Program Partner since 1991

NELAP accredited laboratory since 2006

Contact Information

P.O. Box 240, Wichita Falls, Texas 76307

Phone Number: (940) 723-8697 ●Fax Number: (940) 723-8531

Hours of Operation: Monday –Friday 08:00 –5:00 ●Emergency Laboratory Services: (940) 636-8024