Texas Water Resources Institute
make every drop count

TEXAS A&M | Institute of Renewable Natural Resources

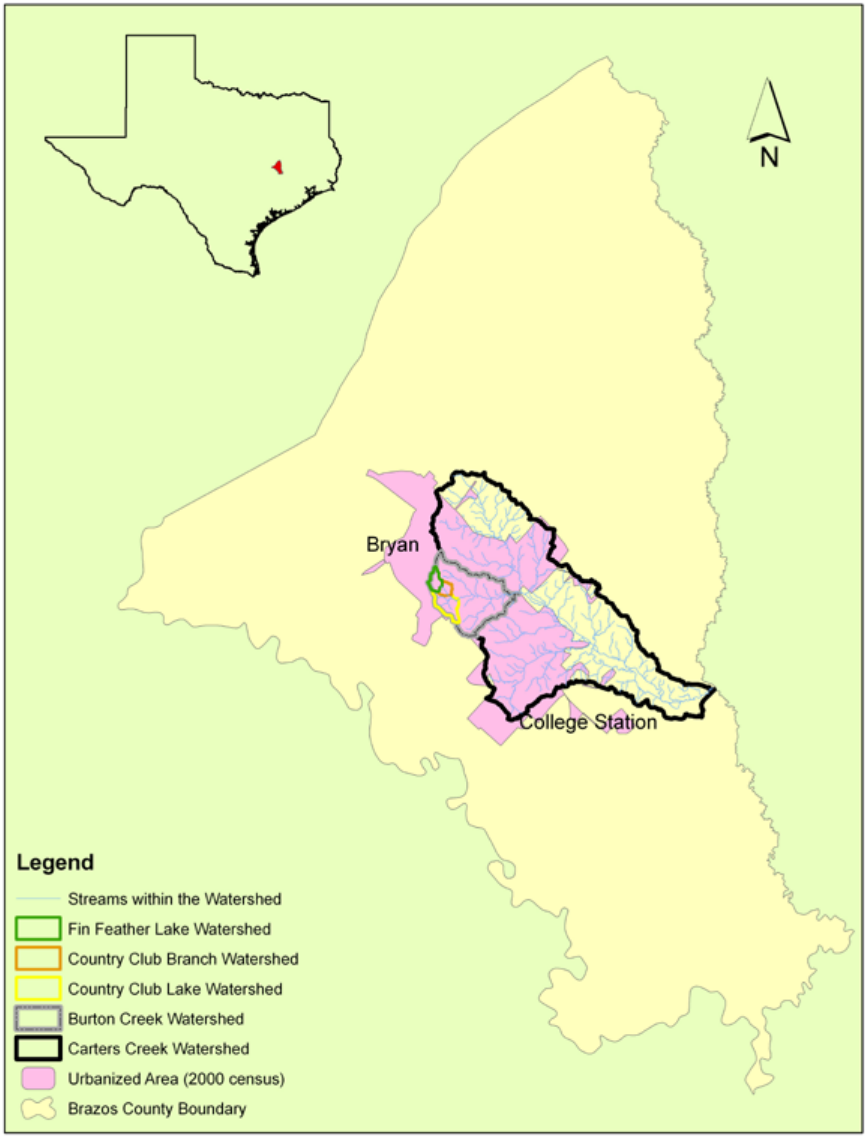
TCEQ

UPDATE ON CARTERS AND BURTON CREEK

LUCAS GREGORY
TEXAS WATER RESOURCES INSTITUTE

CARTERS CREEK WATERSHED

- Small rapidly urbanizing watershed
- Listed in 1999 for elevated bacteria
- TMDL process began in 2007



SOURCES OF POLLUTION

Point Sources

- WWTFs – 4 facilities in the watershed
  - Combined permits of ~17.7 MGD
- MS4s – 5 individual permits in the watershed

Nonpoint Sources

- Failing OSSFs
- Feral animals
- Livestock
- Pets
- Wildlife

DEVELOPMENT OF THE TMDL

- TIAER began water quality investigation and computer modeling to develop the TMDL in 2007
- Utilized the SWAT model to predict stream flows
- Developed Load Duration Curves
- Produced a Technical Support Document for TCEQ
- TCEQ TMDL Staff utilized this document to the develop the draft TMDL

I-PLAN DEVELOPMENT

- TWRI was contracted to work with local stakeholders to develop the I-Plan
  - Began in Summer 2010
- Facilitated four work groups
  - Ag & Natural Resources
  - Planning & Development
  - Stormwater and Transportation
  - Wastewater
- Worked with each group to develop management strategies

LOCAL SOLUTIONS

Management Measures

- Coordinate and expand monitoring
- Evaluate tax valuation requirements for Ag
- Identify, inspect and provide education on OSSFs
- Implement SSO initiatives
- Voluntarily implement Ag BMPs
- Promote sound development practices

Control Actions

- Implement MS4 Phase II Stormwater Management Plans
- Continue monitoring WWTF effluent in accordance with permits

TMDL AND I-PLAN PROGRESS

TCEQ REVIEW

TIMELINE

- Final Draft TMDL and TMDL I-Plan sent to TCEQ August 2011
- Initial TCEQ comments received October 2011
- Sporadic minor wording comments received between then and now
- Public comment meeting anticipated May 17th in College Station
  - Date must be approved by TCEQ Commission at April 11th meeting

NEXT STEPS

TRANSITION TO IMPLEMENTATION

319 PROPOSAL

- Project proposed to TCEQ July 2011
- Focuses on Management Measure 1.0 from the TMDL I-Plan
  - Water quality monitoring
  - Watershed bacteria source survey
- Proposal was selected for funding
- Currently under review at EPA and is undergoing minor revisions
- Funds won't be awarded until the TMDL I-Plan is approved by TCEQ

A COORDINATED EFFORT

- TWRI is leading the project and will do the bulk of work
- TAMU Soil and Crop Sciences assist with data collection and analysis
- Volunteer monitoring and survey support
- City of Bryan and City of College Station assist with data collection and analysis, GIS support, Watershed Survey support
- Brazos County, TAMU, TxDOT assist with GIS support

PROJECT TASKS

- Project Administration
- Quality Assurance
- Watershed Source Survey and GIS Mapping
- Routine and Stormflow Water Quality Monitoring
- Reconnaissance Sampling
- Stakeholder Engagement
- Final Report

WATERSHED SOURCE SURVEY

- Amass existing GIS information on the watershed
  - Wastewater Infrastructure, Stormwater Infrastructure, etc.
- Conduct physical stream walks and floats to ID potential sources
  - Small discharges to waterway, bird rookeries, bat colonies, etc.
- Incorporate into GIS and transfer findings to local GIS coordinators
- Watershed Survey Assessment
  - Combines findings from GIS survey and physical survey to identify potential problem areas

ROUTINE MONITORING

Type and Frequency

- Monthly ambient water quality monitoring
- Occurs at 4 locations
- Will continue for 2 years
- 96 samples anticipated
- Data will be submitted to TCEQ for future water quality assessments

Data Collected

- Field Data
  - Temperature
  - pH
  - DO
  - Conductivity
  - Flow
- Lab Data
  - E. coli (1603 Method)

STORMWATER MONITORING

Type and Frequency

- Automated sample collection
- Occurs at 2 locations
- Goal of 10 storm events sampled at each site
- Data will be submitted to TCEQ but **WILL NOT** be used in future water quality assessments

Data Collected

- Field Data
  - Temperature
  - pH
  - DO
  - Conductivity
  - Flow
- Lab Data
  - E. coli (1603 Method)

RECONNAISSANCE MONITORING

Types and Frequency

- Volunteer data collection using the Texas Stream Team monitoring protocol
- Monthly at 10 locations
- Data will be submitted to the Texas Stream Team database
- Not used in water quality assessments

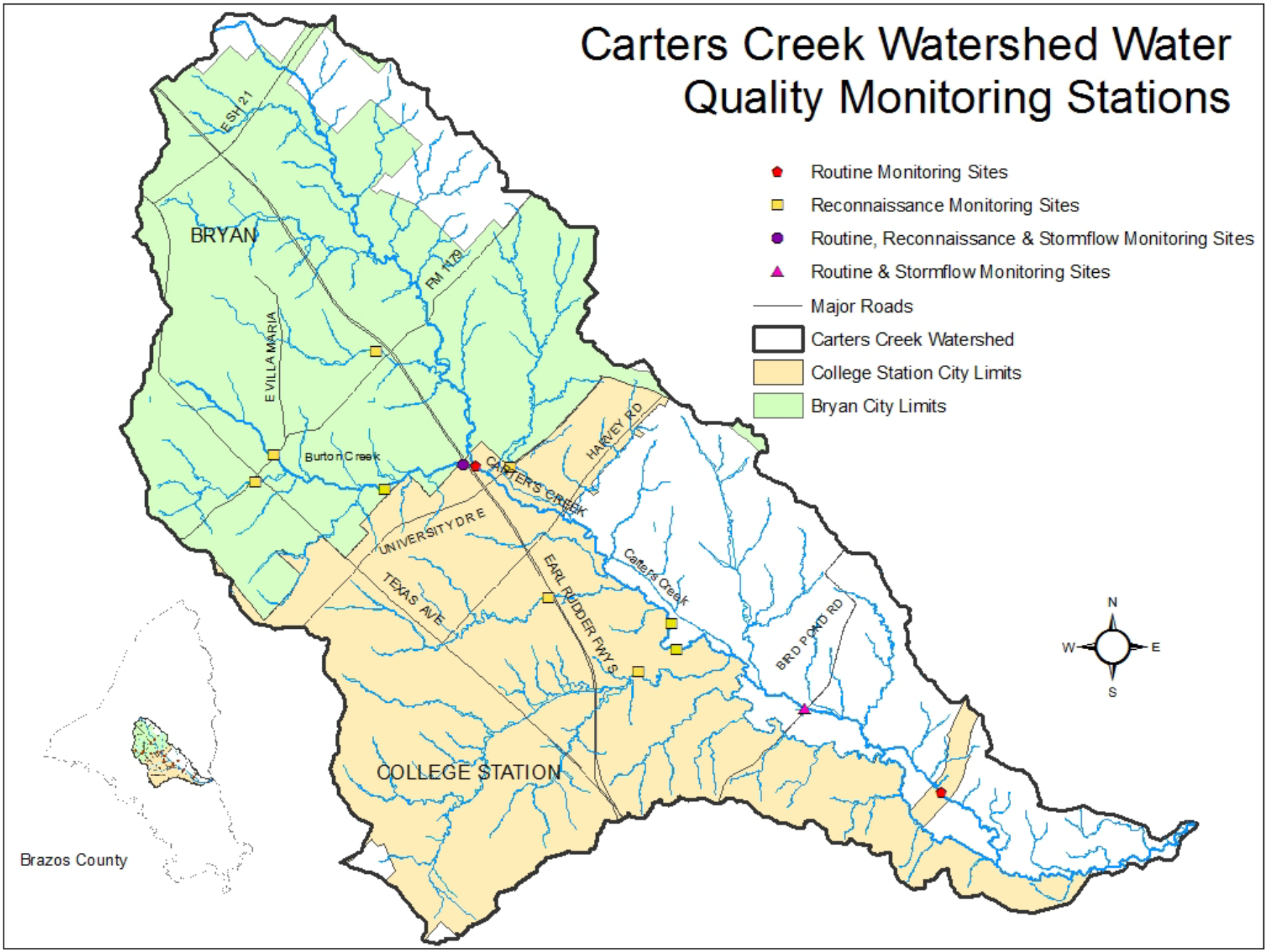
Data Collected

- Field Data
  - Temperature
  - Water Transparency
  - Total Depth
  - DO
  - pH
  - Conductivity
  - Flow Velocity
- Lab Data
  - E. coli (IDEXX Method)

WATER QUALITY MONITORING SITES

Table 1. Proposed Carters Creek Watershed Monitoring Sites.

Routine Water Quality Monitoring			
Site #	TCEQ Station #	Site Name/Location	Sampling Frequency
CC 1	11785	Carters Creek @ Bird Pond Road	monthly
CC 2	11782	Carters Creek @ SH 6 (upstream of Burton Creek confluence)	monthly
CC 3	TBD	Carters Creek @ William D. Fitch	monthly
BC 1	11783	Burton Creek @ SH 6 (downstream of WWTF)	monthly
Stormflow Monitoring			
Site #	TCEQ Station #	Site Name/Location	Sampling Frequency
CC 1	11785	Carters Creek @ Bird Pond Road	during storm events
BC 1	11783	Burton Creek @ SH 6	during storm events
Reconnaissance Monitoring			
Site #	TCEQ Station #	Site Name/Location	Sampling Frequency
BC 1	11783	Burton Creek @ SH 6 (downstream of WWTF)	monthly
BC 2	N/A	Burton Creek @ 29th St. (upstream of WWTF)	monthly
BC 3	N/A	Bee Creek @ Appomattox Dr.	monthly
BC 4	N/A	Burton Creek @ Villa Maria	monthly
BC 5	N/A	Unnamed tributary of Burton Creek @ Maloney Ave.	monthly
BRC	N/A	Briar Creek @ Hwy 6	monthly
CC 4	N/A	Carters Creek below CCWWTF outfall	monthly
CC 5	N/A	Carters Creek above CCWWTF outfall	monthly
HC	N/A	Hudson Creek @ FM 60	monthly
WPC	N/A	Wolfpen Creek @ Hwy 6	monthly


Carters Creek Watershed Water Quality Monitoring Stations
Routine Monitoring Sites
Reconnaissance Monitoring Sites
Routine, Reconnaissance & Stormflow Monitoring Sites
Routine & Stormflow Monitoring Sites
Major Roads
Carters Creek Watershed
College Station City Limits
Bryan City Limits
BRYAN
COLLEGE STATION
E SH 21
E VILLA MARIA
FM 1179
Burton Creek
CARTER'S CREEK
HARVEY RD
UNIVERSITY DR E
TEXAS AVE
EARL RUDDER FWY S
Carter's Creek
BRD POND RD
N
W
E
S
Brazos County

DATA COLLECTION OVERLAP

- With the three types of monitoring used, comparability comes into question
- Several sites purposefully overlap to allow comparison
- Sample collections will be coordinated to occur on the same dates and times at these locations
- Collection will also be paired with BRA CRP monitoring and WWTF self reported monitoring
- All data integrated into the Coordinated Monitoring Schedule

USE OF INFORMATION

- Will provide good insight into problematic areas of the watershed
- Comparative analysis of all water quality data will be done
- Watershed GIS and survey info will be considered in the data analysis
- Information conveyed to watershed stakeholders allowing informed decision making regarding future management to occur

NEXT STEPS

- Now we wait for TMDL I-Plan approval
- Upon approval of the TMDL I-Plan, project will begin
  - Current thinking is around January 1, 2013
- QAPP development will follow
- Goal is to begin monitoring within 6 months of contract initiation
- Stakeholder interaction will be maintained throughout with semi-annual meetings

THANKS!

LUCAS GREGORY
TWRI PROJECT SPECIALIST
LFGREGORY@AG.TAMU.EDU
979-845-7869