

Status of Additions to Indicator Bacteria TMDLs in the Lake Houston and Armand Bayou Watersheds

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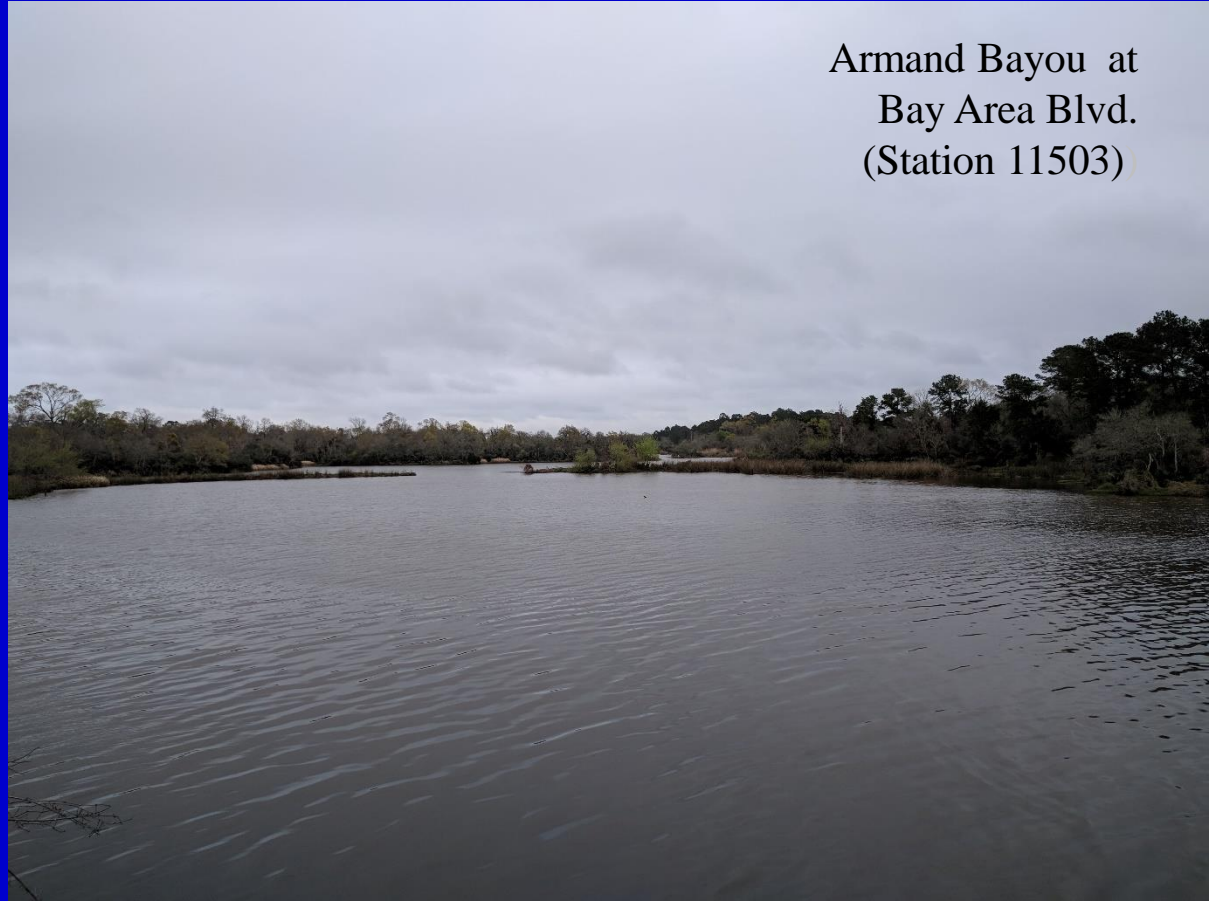
Acknowledgements

- Agency Lead:
Texas Commission on Environmental Quality (TCEQ)
- Support Funding:
U.S. Environmental Protection Agency (EPA)

Major Presentation Topics

- Previously completed TMDLs
- Overview & status of two present TMDL projects

Armand Bayou at
Bay Area Blvd.
(Station 11503)

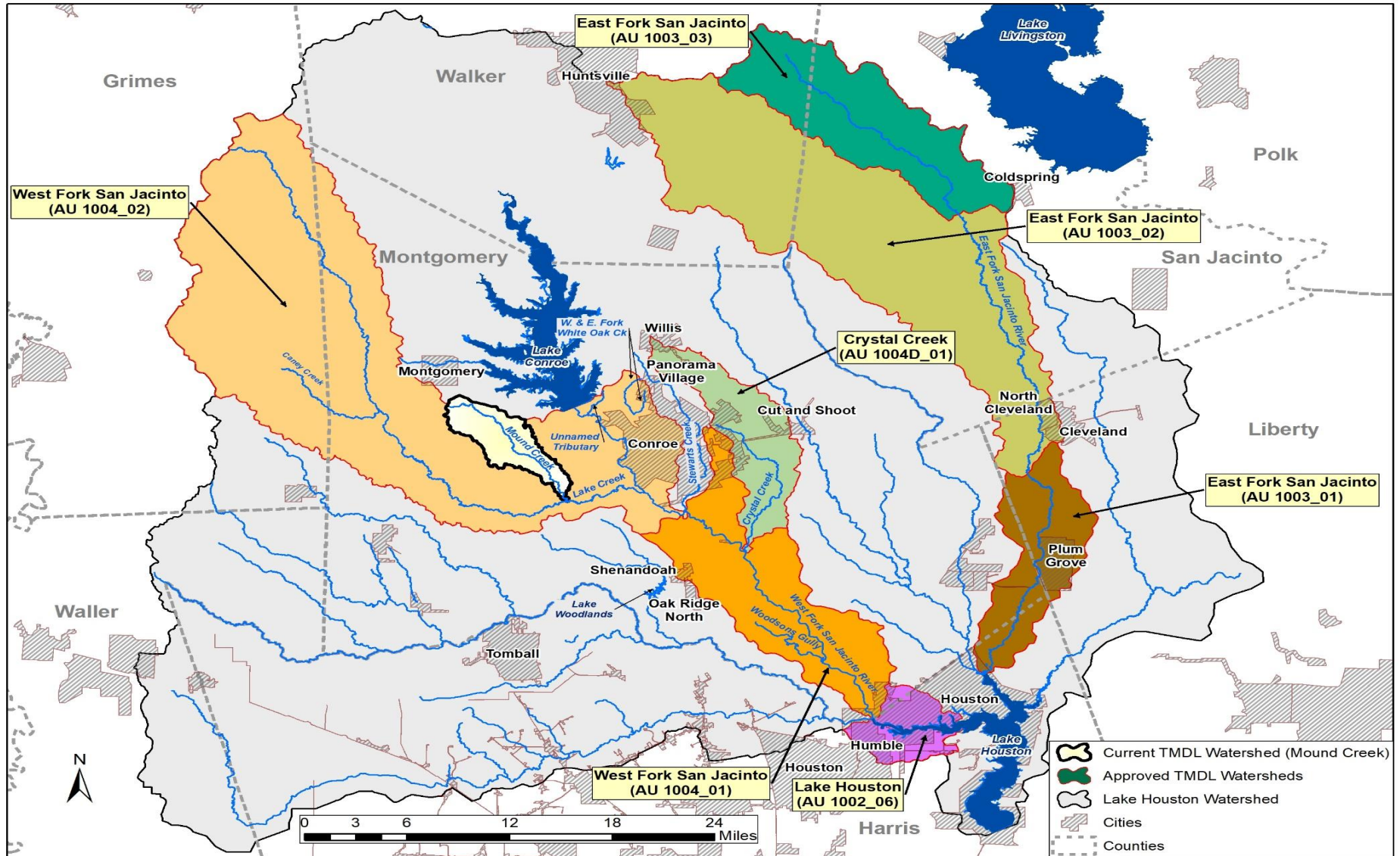


Previously Completed Indicator Bacteria TMDLs for Watersheds in the East and West Fork San Jacinto River and Tributaries

Adopted by TCEQ: Aug. 24, 2016; Approved by EPA: Oct. 7, 2016

Segment Name	Segment Number	Assessment Unit (AU)
Lake Houston	1002	1002_06
East Fork San Jacinto	1003	1003_01, 02 & 03
West Fork San Jacinto	1004	1004_01 & 02
Crystal Creek	1004D	1004D_01

Lake Houston Watershed showing areas of seven completed TMDLS

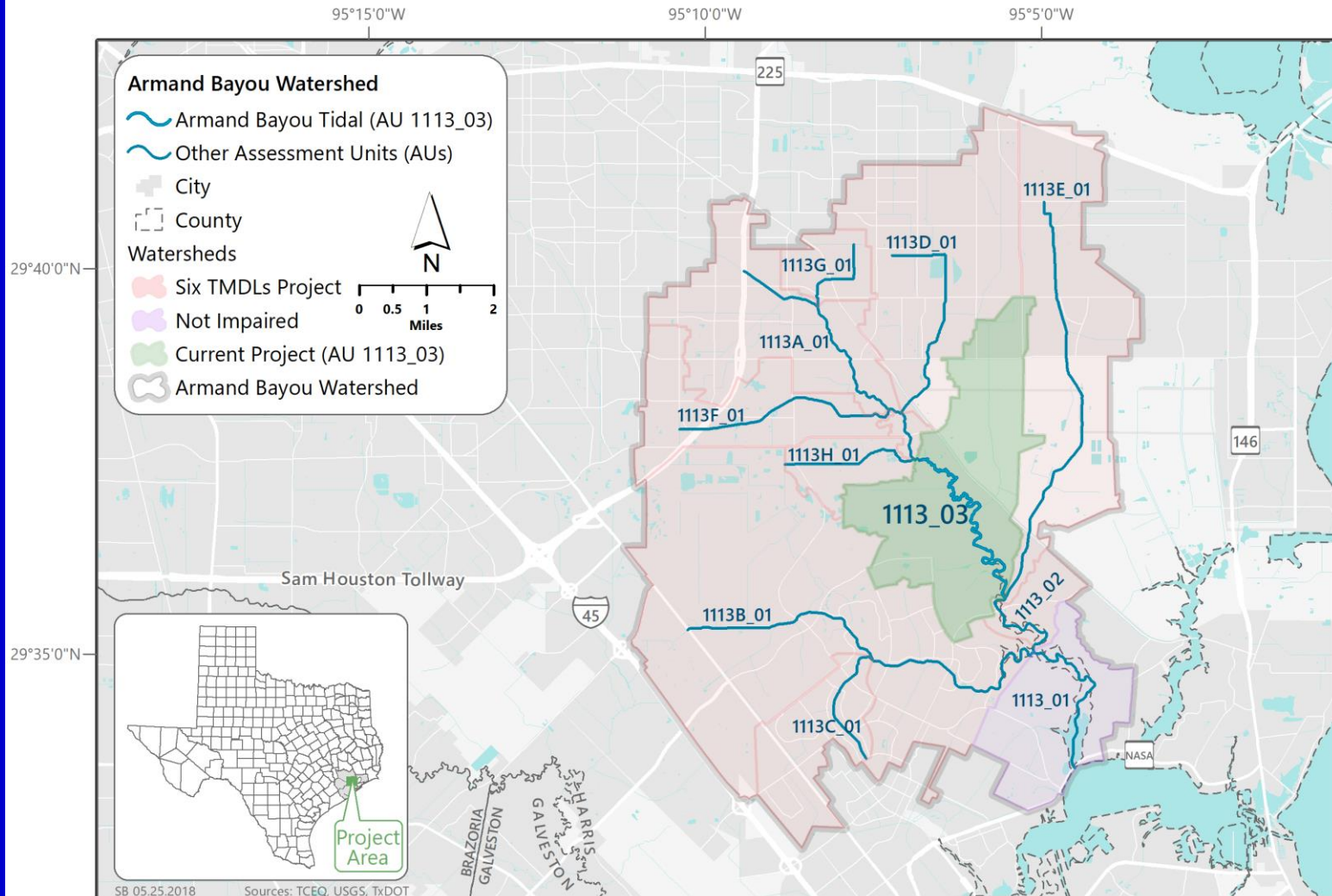


Previously Completed Indicator Bacteria TMDLs for Watersheds in the Armand Bayou Watershed

Adopted by TCEQ: Aug. 5, 2015; Approved by EPA: Oct. 2,
2015

Segment Name	Segment Number	Assessment Unit (AU)
Armand Bayou Tidal	1113	1113_02
Armand Bayou Above Tidal	1113A	1113A_01
Horsepen Bayou Tidal	1113B	1113B_01
Unnamed Tributary to Horsepen Bayou	1113C	1113C_01
Willow Springs Bayou	1113D	1113D_01
Big Island Slough	1113E	1113E_01

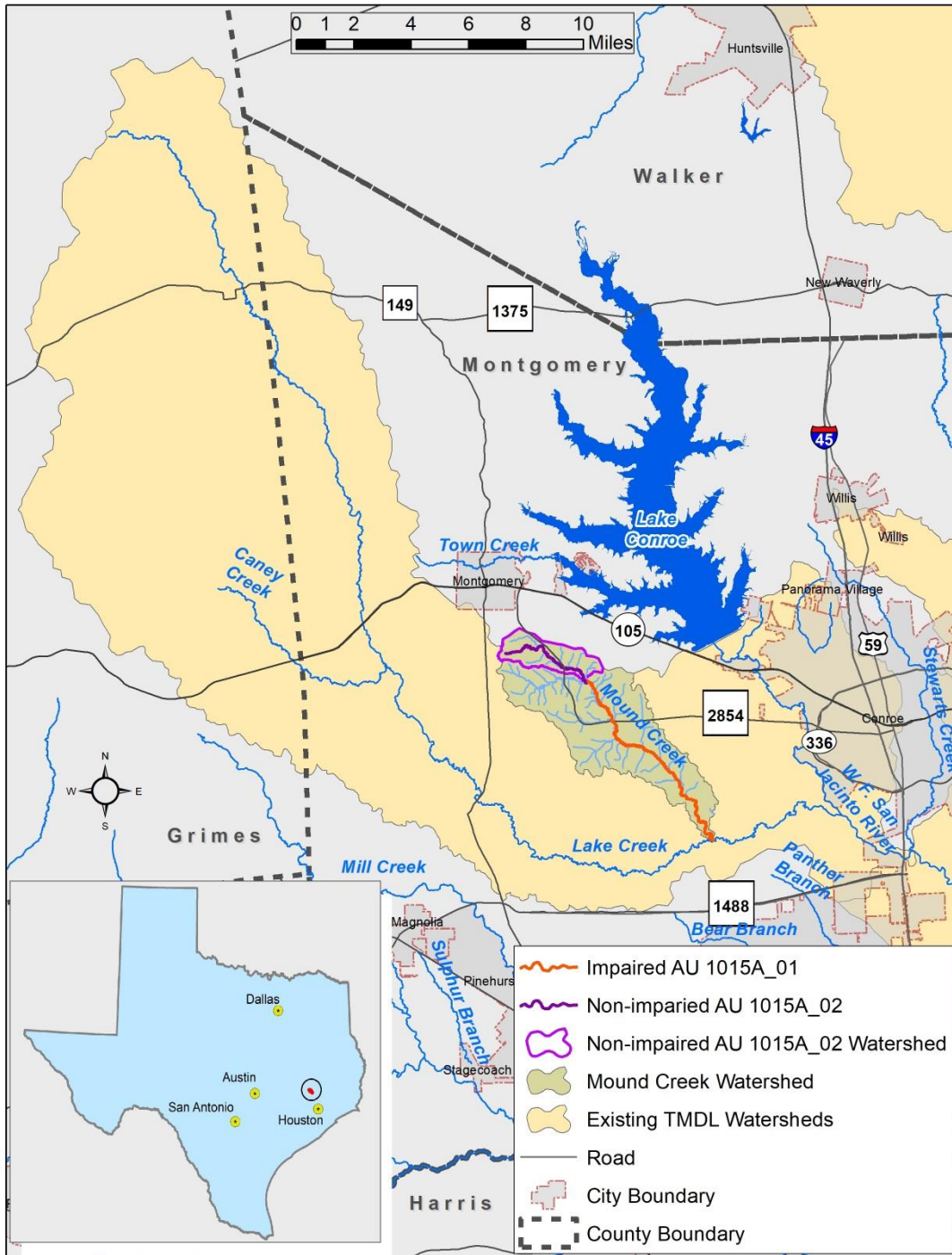
Armand Bayou Watershed showing areas of six completed TMDLs



FIRST NEW PROJECT

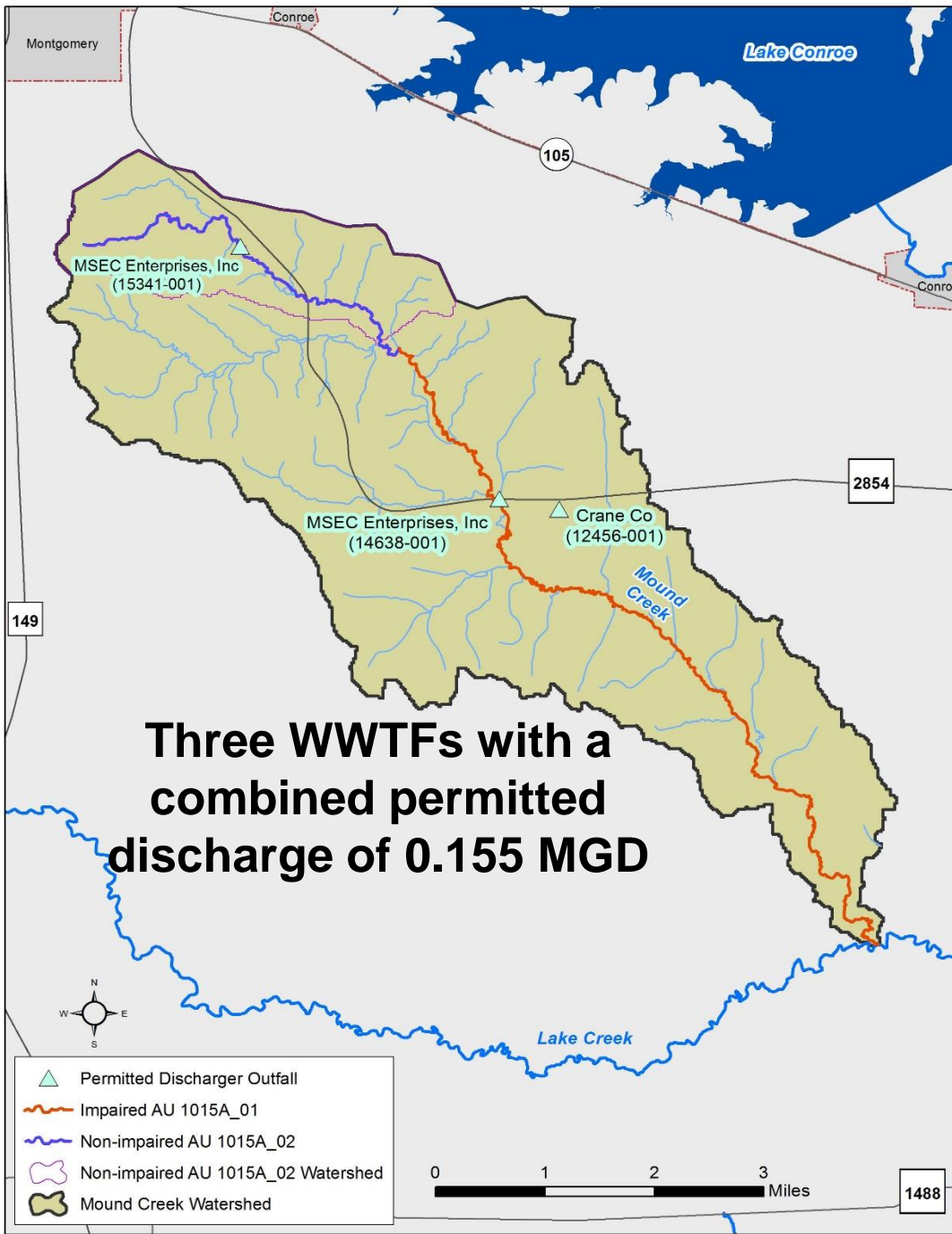
Addendum to Seven TMDLs for Indicator Bacteria in Lake Houston, East & West Fork San Jacinto River, and Crystal Creek Watersheds

- Project water body
 - Mound Creek (1015A_01)
- Approach for TMDL – FDCs/LDCs



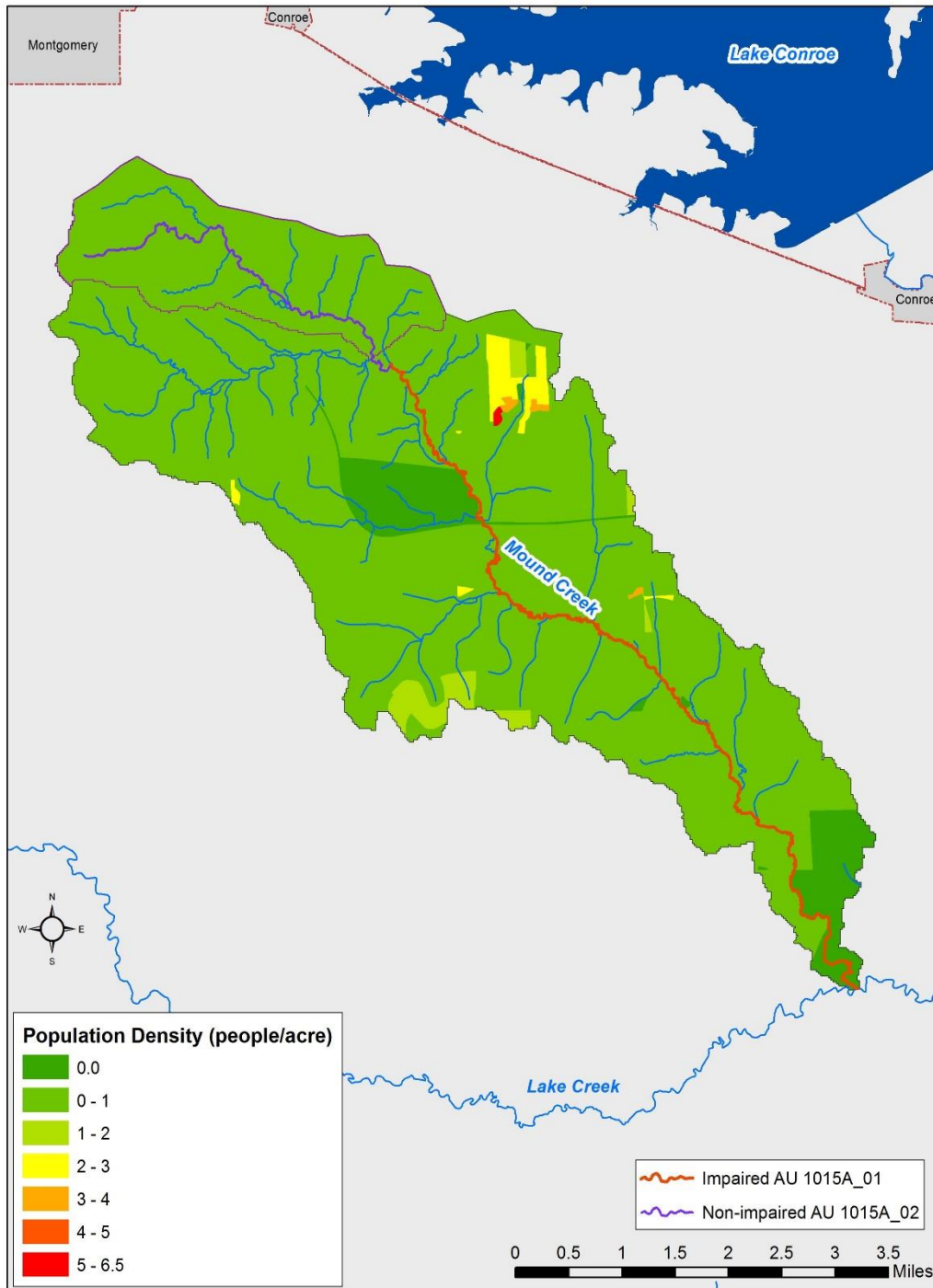
Summary Integrated Report Findings for *E. coli* Assessment (criterion = 126 MPN/100 mL)

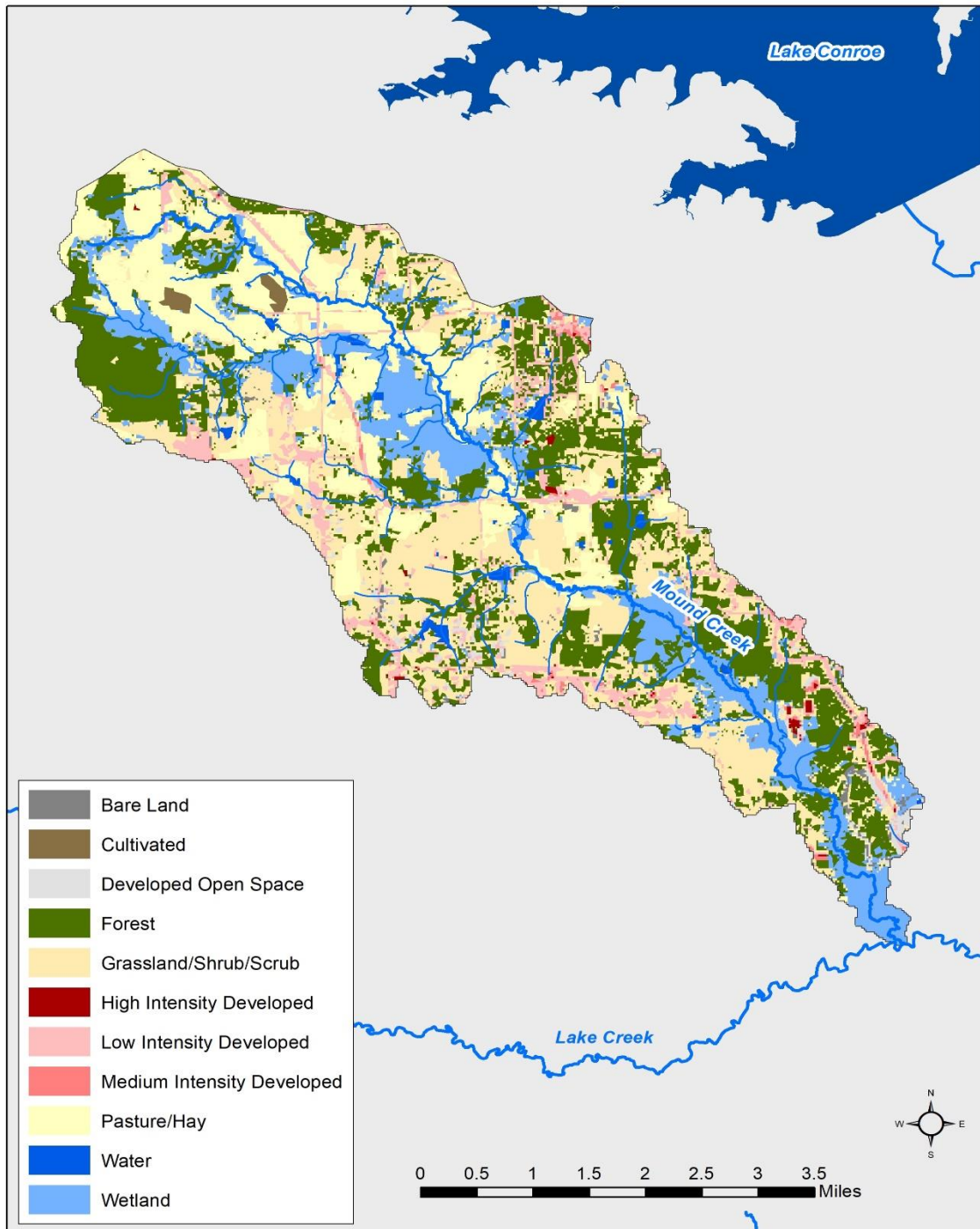
Integrated Report Year	AU	Station	No. of Samples	Data Date Range	Geometric Mean (MPN/100 mL)
2014	1015A_01	17937	21	2005-2012	387
2016 (draft)	1015A_01	17937	27	2007-2014	334

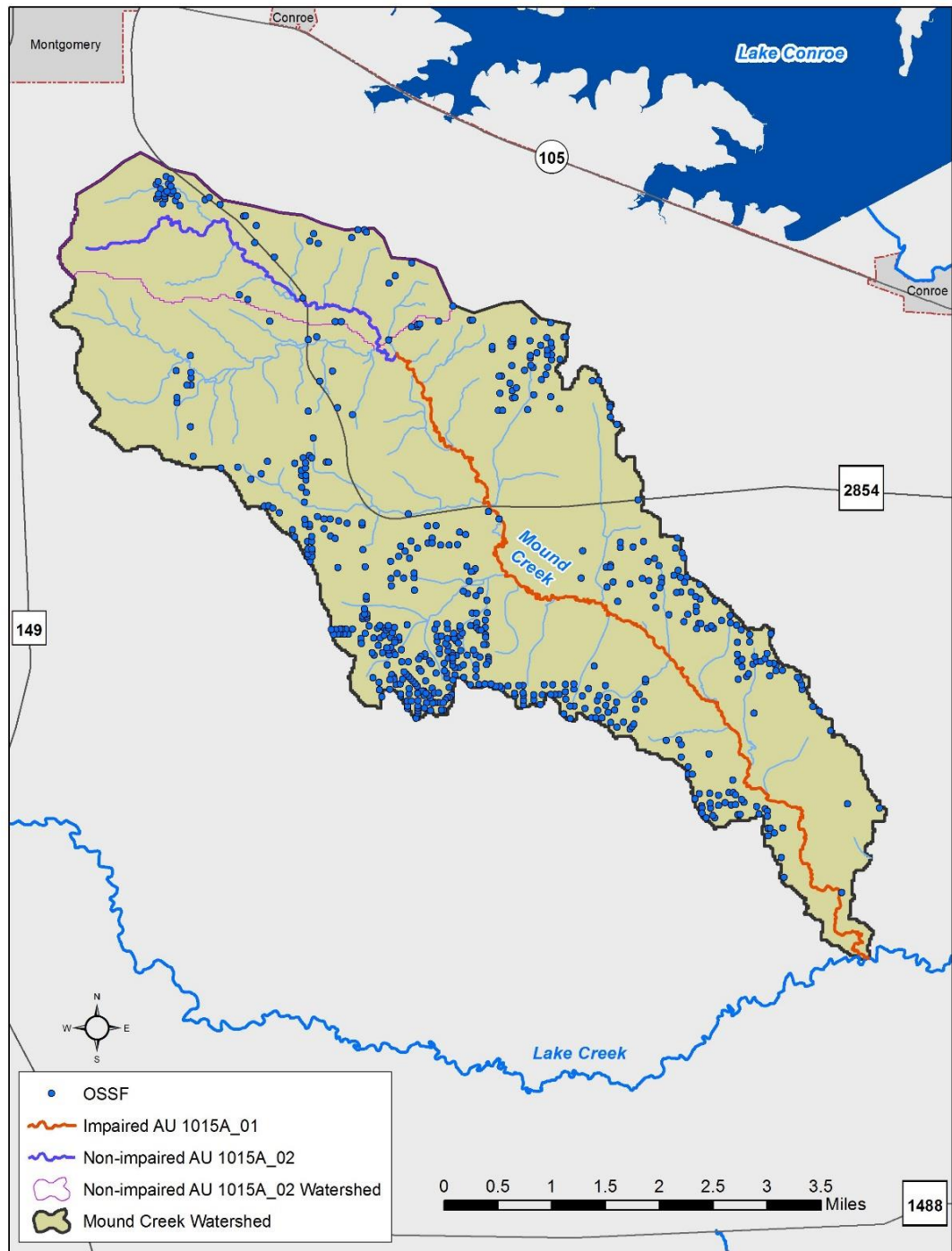


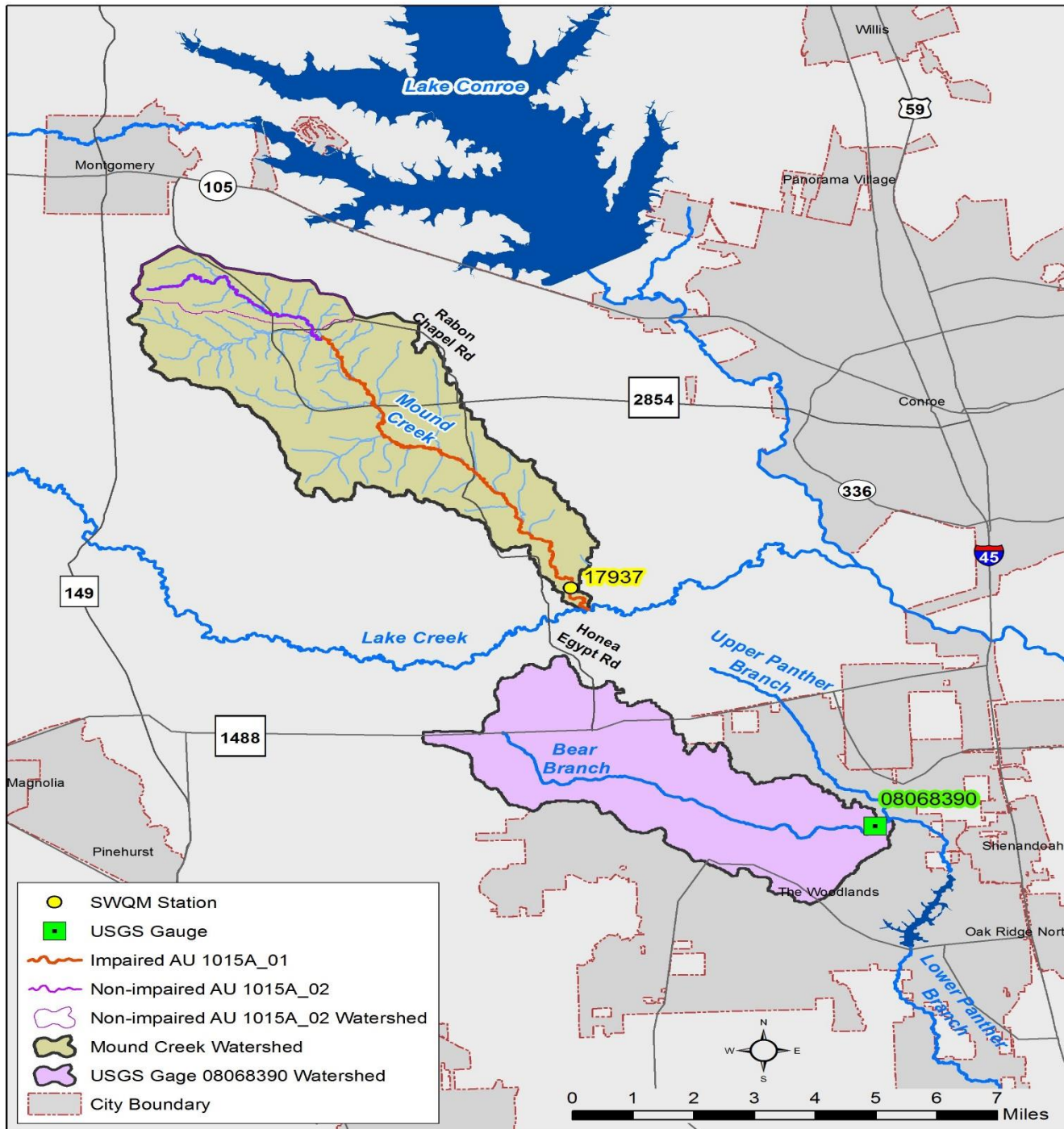
Estimated Area under Stormwater Permit Regulations

AU Area within 2010 Urbanized Areas (acres)	AU Area under construction and Industrial stormwater permits (acres)	AU watershed area (acres)	Percentage of drainage area under stormwater regulation (%)
0	108	13,421	0.80





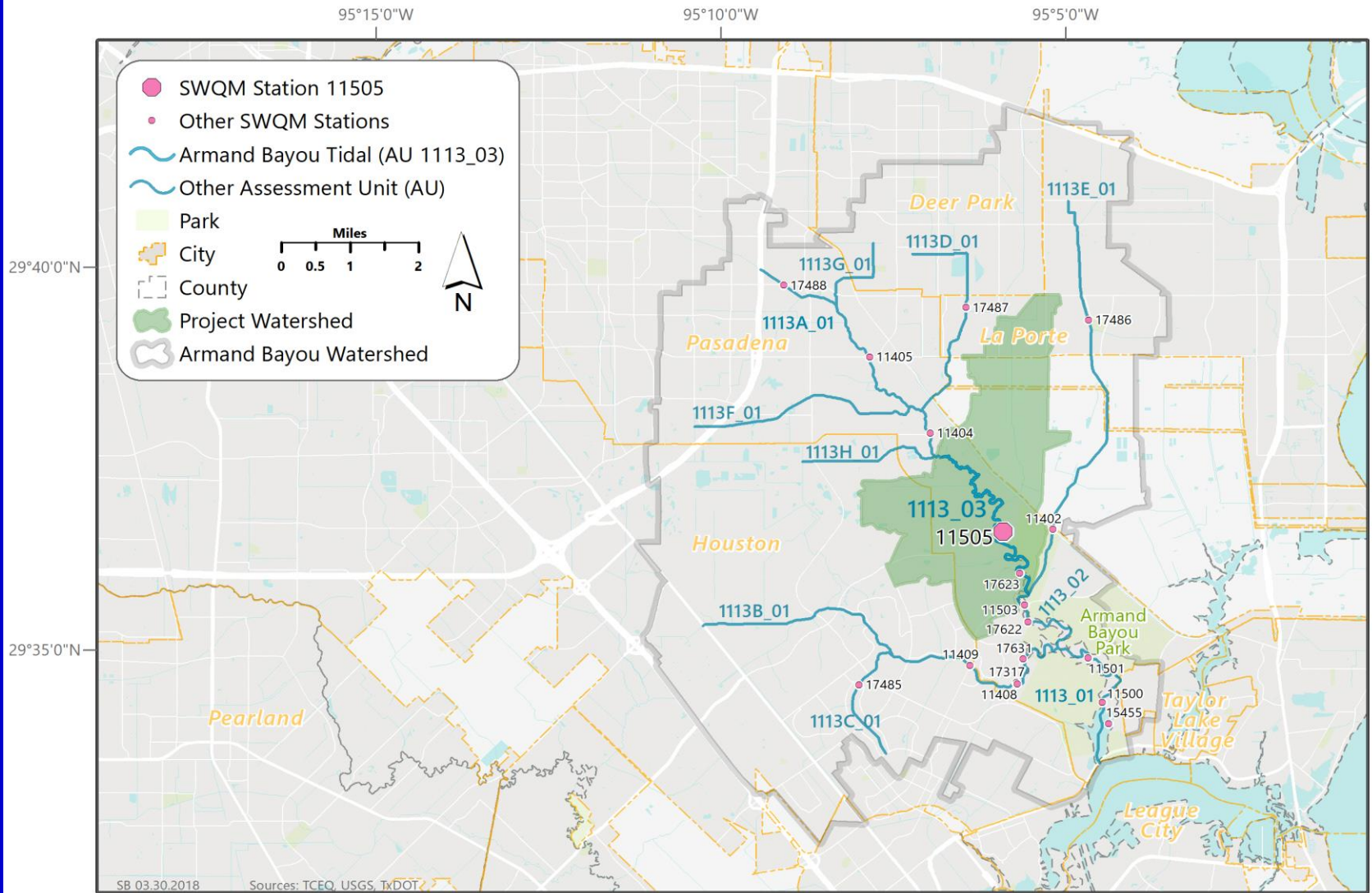




Second NEW PROJECT

Addendum to *Six TMDLs for Indicator Bacteria in the Armand Bayou watershed*

- Project waterbody
 - Armand Bayou (1113_03)
- Approach for TMDLs – Modified LDC to account for tidal influence



Summary Integrated Report Findings for *Enterococcus* Assessment (criterion = 35 MPN/100 mL)

Integrated Report Year	AU	Station	No. of Samples	Data Date Range	Geometric Mean (MPN/100 mL)
2014	1113_03	11505	24	2005-2012	48
2016 (draft)	1113_03	11505	23	2007-2014	62

Estimated Area under Stormwater Permit Regulations

AU	AU Area within 2010 Urbanized Areas (acres)	AU watershed area (acres)	Percentage of drainage area under stormwater regulation (%)
1015A_01	4,561	4,581	99.6

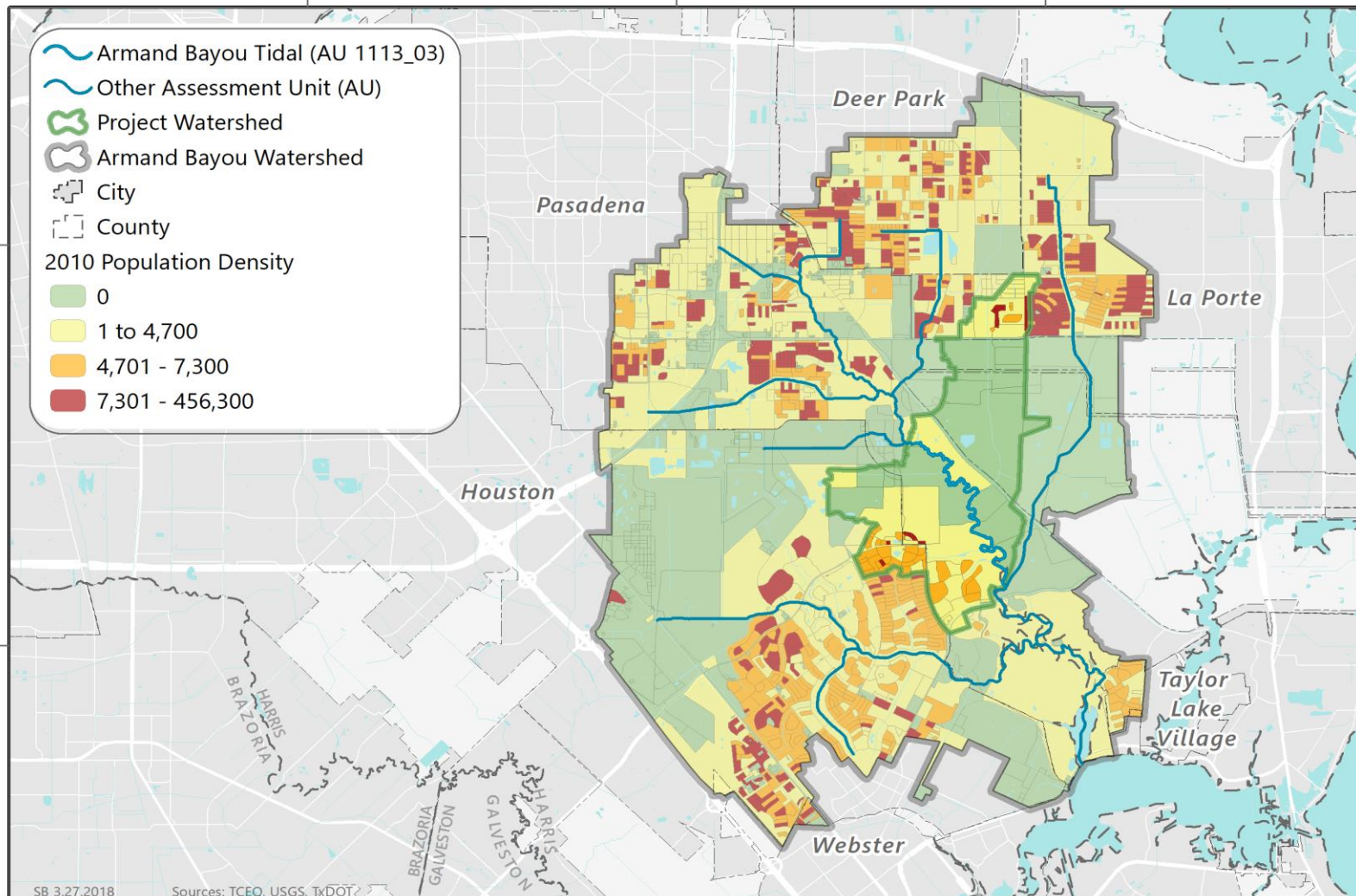
95°15'0"W

95°10'0"W

95°5'0"W

29°40'0"N

29°35'0"N






















95°15'0"W

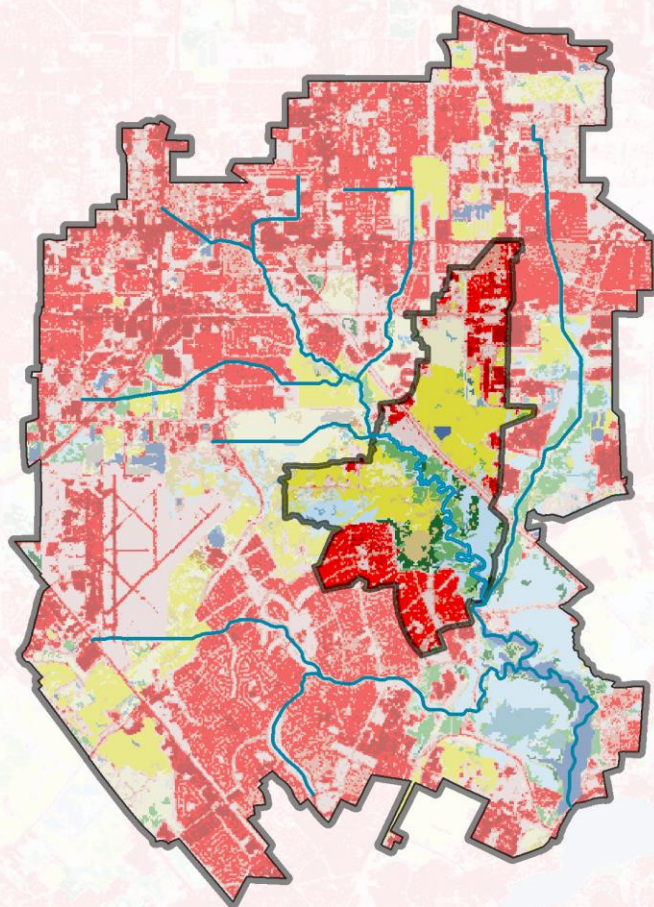
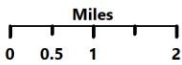
95°10'0"W

95°5'0"W

29°40'0"N

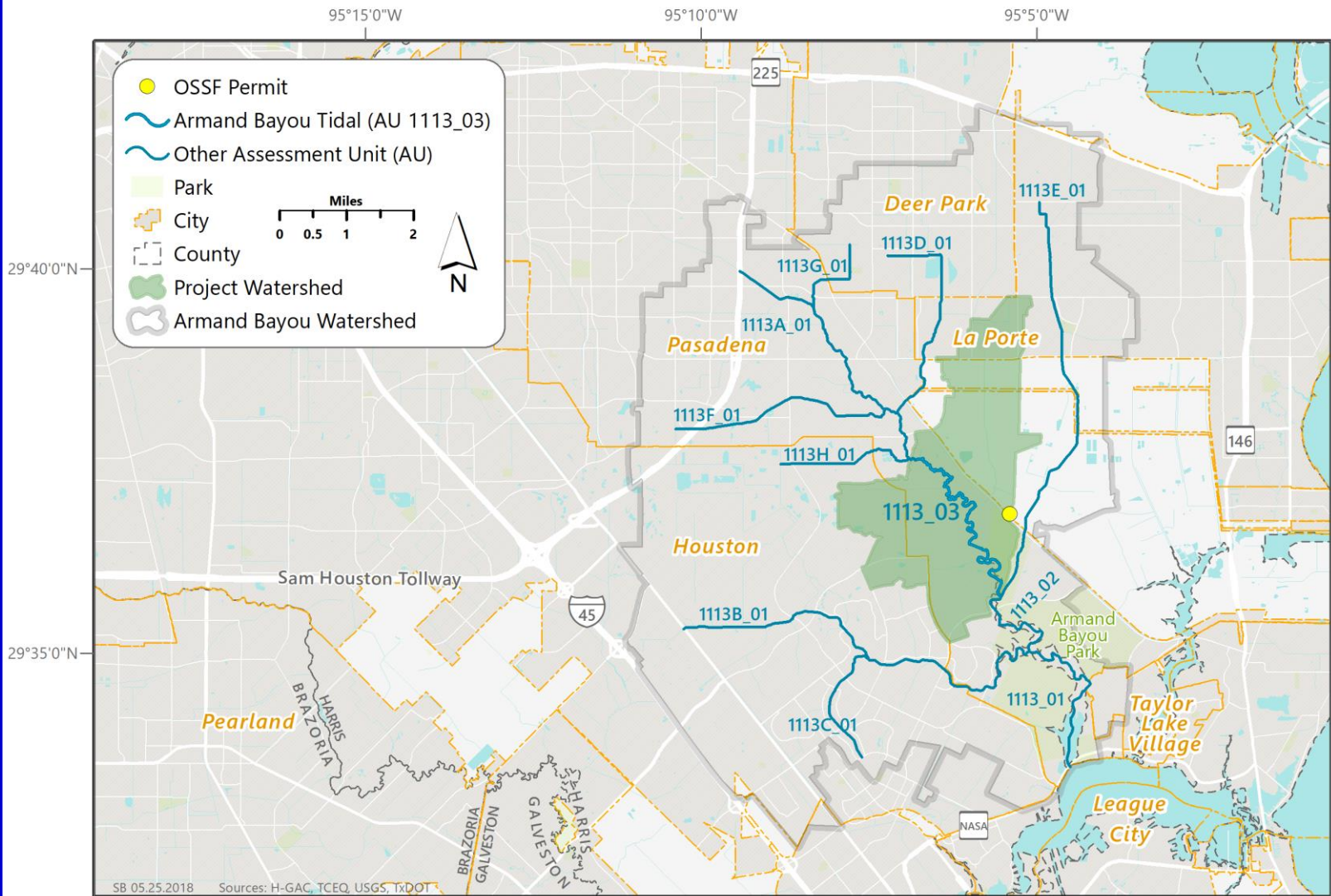
29°35'0"N

-  Armand Bayou Tidal (AU 1113_03)
-  Other Assessment Unit (AU)
-  Project Watershed
-  Armand Bayou Watershed
-  Open Water
-  Developed, Open Space
-  Developed, Low Intensity
-  Developed, Medium Intensity
-  Developed, High Intensity
-  Barren Land
-  Deciduous Forest
-  Evergreen Forest
-  Mixed Forest
-  Shrub/Scrub
-  Herbaceous
-  Hay/Pasture
-  Cultivated Crops
-  Woody Wetlands
-  Emergent Herbaceous Wetlands



SB 03.27.2018

Sources: TCEQ, USGS



Modified LDC

- Requires development of a regression of salinity to streamflow at the sampling station used for LDC development
- Allows for use of a mass balance approach to calculate the volume of seawater for a given day based on the salinity of the stream.

Status of TMDL Development

- Technical Support Documents (TSDs) to be completed by the end of Aug. 2018
- TSDs will be posted on TCEQ website (TCEQ will notify BIG when they are available for public review and comment)
- TCEQ will use TSDs to develop addenda to be included in Water Quality Management Plan updates

Thank You

Any Questions?

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