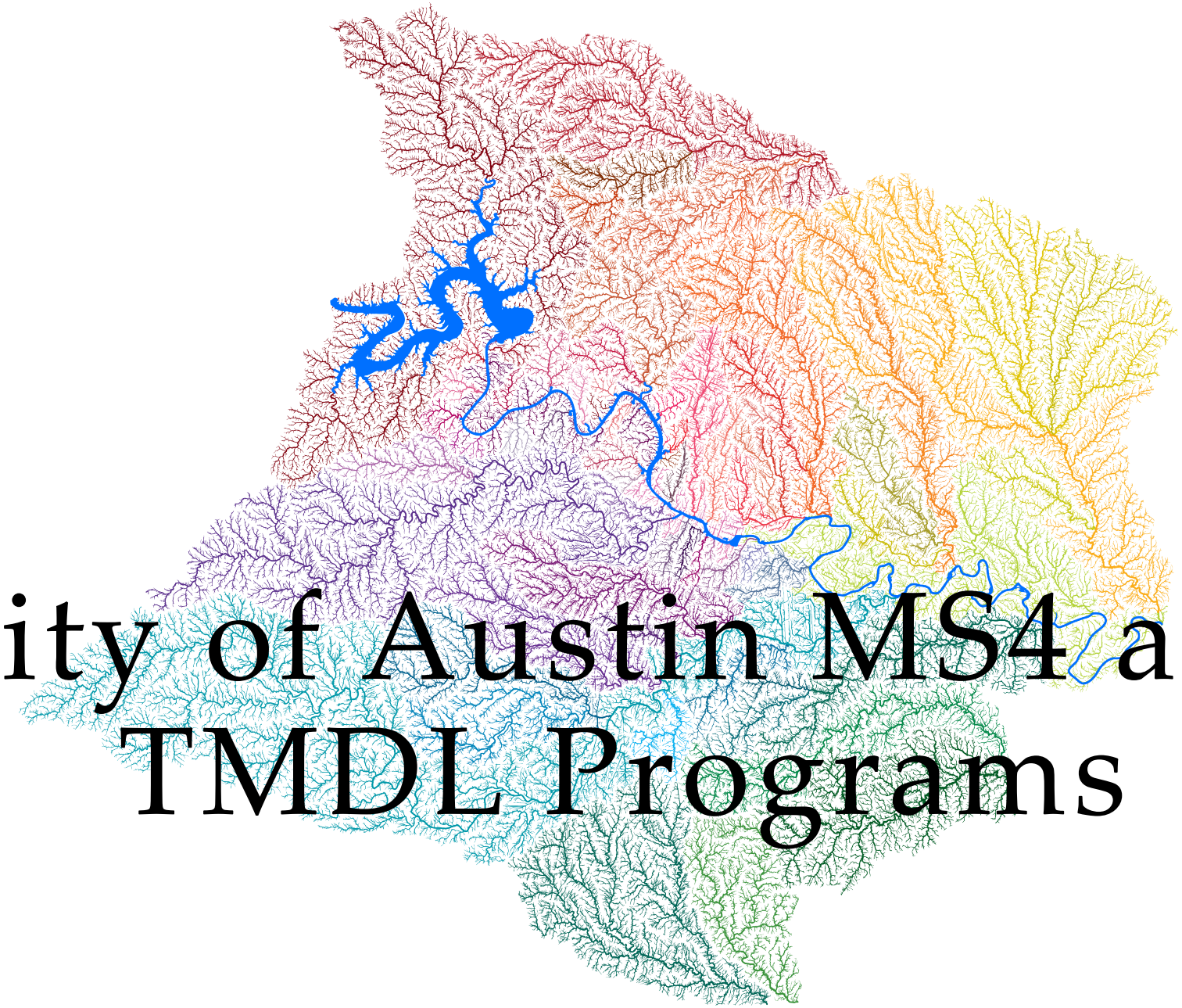


City of Austin MS4 and TMDL Programs

5 Impaired Waterbodies

contact recreation impairment due to elevated levels of fecal indicator bacteria

Gilleland Creek

Spicewood Tributary of Shoal Creek

Walnut Creek

Taylor Slough South

Waller Creek (upstream of 15th)

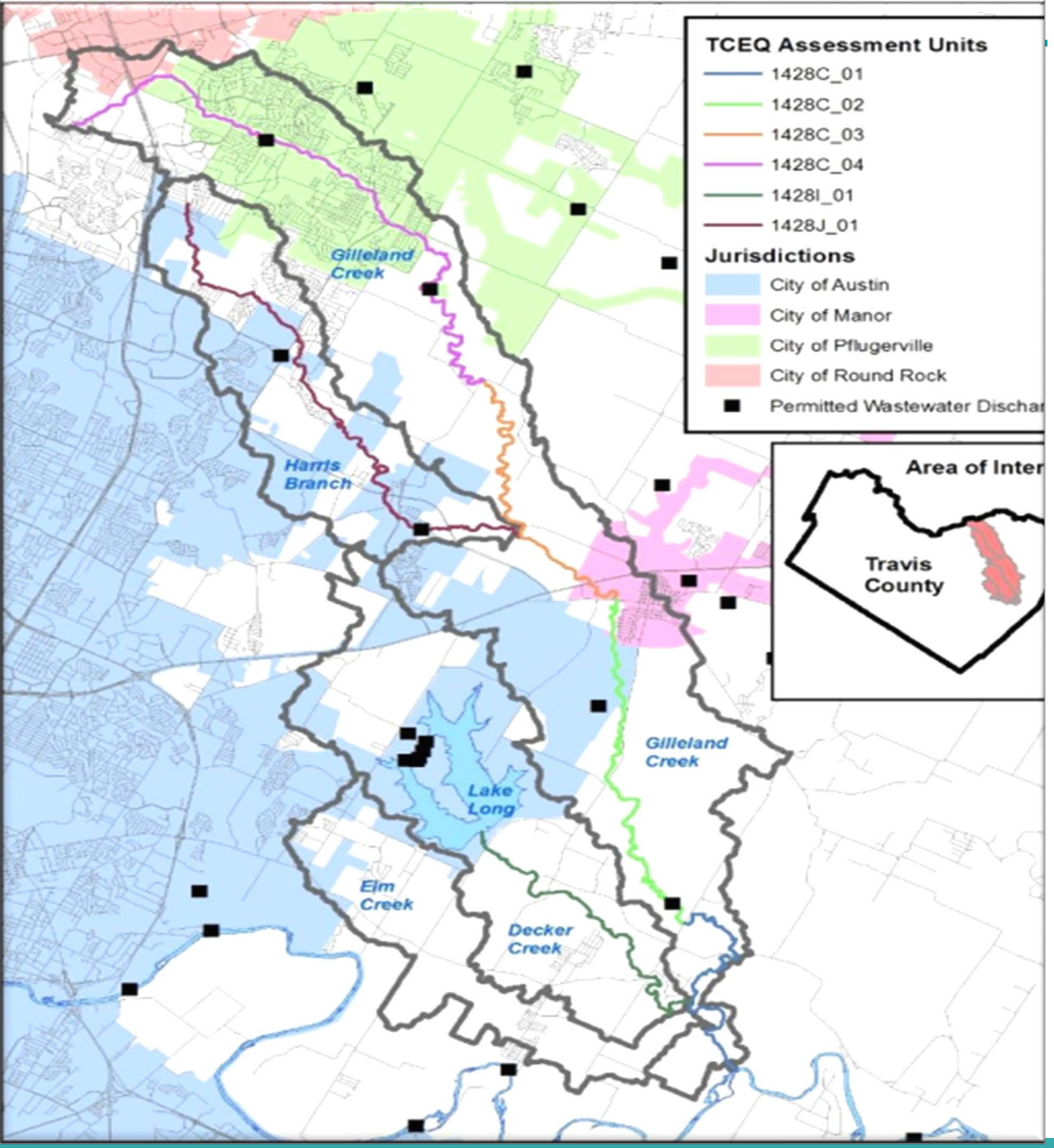
WATERSHED PROTECTION

Previous TMDL Process

- Stakeholders met to develop Implementation Plan (I-Plan)
- Facilitated by TCEQ TMDL staff
- A set of *voluntary* strategies to achieve the goal of pollution reduction were outlined in the I-Plan
- 5-year implementation period (+ revisions)

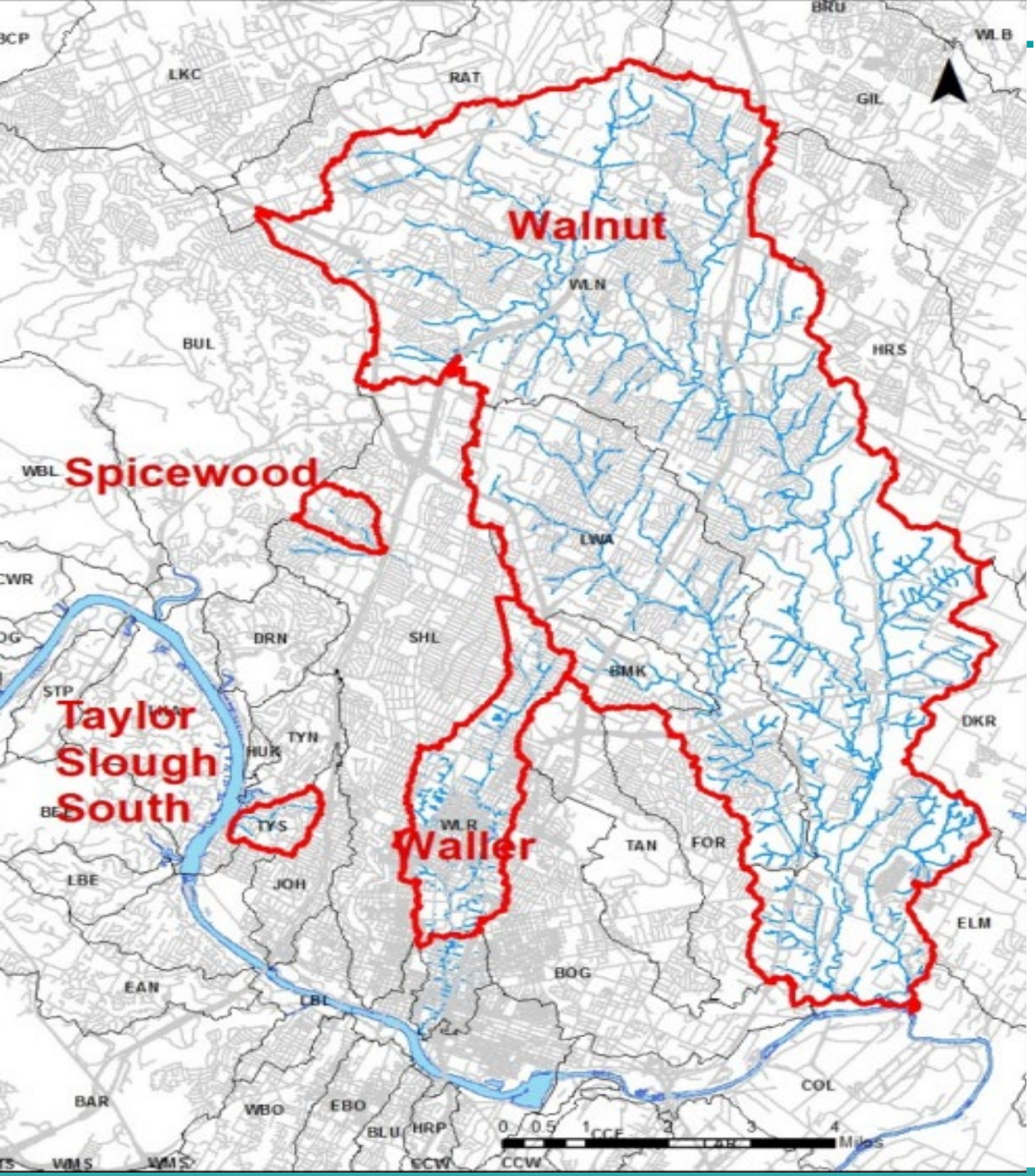
Current Process

- TMDL Control Measures in MS4 Permit (SWMP)
- I-Plan renewals are on different schedules
- Committing to TMDL measures outside of the traditional stakeholder process and sometimes skip it
- Regulatory = Caution 



Gilleland Creek

- TMDL approved by EPA in 2009
- Limited jurisdiction in the watershed
- I-Plan expired Jan 2023
- TMDL measures in SWMP



4 Austin Streams

TMDL adopted in 2015

I-plan renewed in August 2022

Making progress on some streams

TMDL Control Measures

- Illicit Discharges, Detection and Elimination (IDDE)
- Animal Sources
- Residential Education
- Homeless Encampments
- Wastewater Infrastructure and OSSFs
- Bacteria Source Investigations

IDDE

TMDL Measures – Four Streams

Illicit Discharges, Detection and Elimination

Activity/BMP	Quantifiable Target	Deadline	Department
Dry Weather Screening of outfalls with a diameter ≥36" in *Four Streams* TMDL area (527 outfalls total)	20% (~105 outfalls) per year, until all outfalls have been screened once in the permit term	September 30th, annually	WPD

Animal Sources

TMDL Measures – Four Streams

Animal Sources

Activity/BMP	Quantifiable Target	Deadline	Department
Scoop the Poop	Fulfill 100% of requests from the Parks and Recreation Department for pet waste bags and dispensers	September 30th, annually	WPD
Scoop the Poop	Support one tabling event at Walnut Creek Metro Park which is a site identified in a TMDL I-Plan and an off-leash dog park	September 30th, annually	WPD
Scoop the Poop	Check and maintain 1 kiosk at Walnut Creek Metro Park	September 30th, annually	WPD
Scoop the Poop	Mail information to 15 pet-friendly business and apartments	September 30th, annually	WPD

Residential Education

TMDL Measures – Four Streams

Residential Education

Activity/BMP	Quantifiable Target	Deadline	Department
Elementary School: Earth Camp and Earth School	Offer Earth Camp or Earth School to 100% of AISD Elementary Schools each school year	September 30, annually	WPD
Public Outreach-Stop the Blob!	4 outreach events City-wide	September 30, annually	AW
Provide multi-family household facilities informational materials related to Stop the Blob!	Offer to provide informational materials (door hangers, flyers, etc.) about proper FOG disposal to each multi-family household facility that has a grease related SSO.	Within a month of confirmation of a grease related SSO.	AW

Homeless Encampments

TMDL Measures – Four Streams*
Homeless Encampments – FY23

Activity/BMP	Quantifiable Target	Deadline	Department
Maintain portable toilets in the Walnut and Waller Creek Watersheds	Maintain 4 portable toilets in Walnut and/or Waller Creek Watersheds	September 30th, 2023	APH
WPD Project Manager Position	Fund 1 WPD full time employee for field responses related to homeless concerns	Through September 30th, 2023	WPD
PARD Project Manager Position	Fund 1 PARD full time employee for field responses related to homeless concerns	Through September 30th, 2023	PARD

**These targets will be established Walnut Creek Waller and/or Waller Creek Watersheds. Significant homeless populations historically do not reside in Taylor Slough South or the Spicewood Tributary of Shoal Creek. Data also suggests that limited populations reside in the TMDL portion of Waller Creek.*

The problem with portable toilets…

They can't be placed…

- Near a school
- Near residences
- In the floodplain
- On private property
- In a park
- In the right of way
- Too far from individuals
- Where difficult to maintain
- Near "irresponsible" camps

Other Issues

- Locking inside
- Assault
- Trash
- Vandalism
- Invitation

Some Solutions

- Trailer unit with shower and operating hours
- Non-Profits that offer services
- Permanent bathroom installed several years ago
- Recreation Centers with cooling/warming and shower hours

Wastewater and OSSFs

TMDL Measures – Four Streams

Wastewater Infrastructure and OSSFs

Activity/BMP	Quantifiable Target	Deadline	Department
OSSF Investigation and Enforcement Actions (customer driven)	Respond to 100% of complaints or notices of potential violation	September 30th, annually	AW
OSSF Investigation of illegal discharges (customer driven)	Respond to 100% of complaints or notices of potential violation.	September 30th, annually	AW
Respond to wastewater emergencies	Respond to overflow emergencies within 1 hour 95% of the time*	September 30th, annually	AW
Inspect City Owned Lift Stations	Inspect 100% of City lift stations	Weekly	AW

*AW will always strive to maintain a 1-hour response time, 95% of the time; however, in the event of a shortage of multiple staff members, weather emergencies, or other unforeseen extenuating circumstances, it will be attained 90% of the time.

Wastewater and OSSFs

TMDL Measures – All TMDL Watersheds

Wastewater Infrastructure

Activity/BMP	Quantifiable Target	Deadline	Department
MSI inspection pipes of lines 24” and larger in the CWQZ in Gilleland Creek, Spicewood Springs, Taylor Slough South, Waller Creek, and Walnut Creek.	129,000 linear feet	By September 30, of 2024	AW
TV Inspection of the sewer pipes in the CWQZ in Gilleland Creek and Spicewood Springs	39,500 linear feet	By September 30, of 2022	AW
TV Inspection of the sewer pipes in the CWQZ in Taylor Slough South and Waller Creek	21,500 linear feet	By September 30, of 2023	AW
TV Inspection of the sewer pipes in the CWQZ in Walnut Creek	555,000 linear feet	By September 30, of 2026	AW

Austin Water – Sewer Cleaning

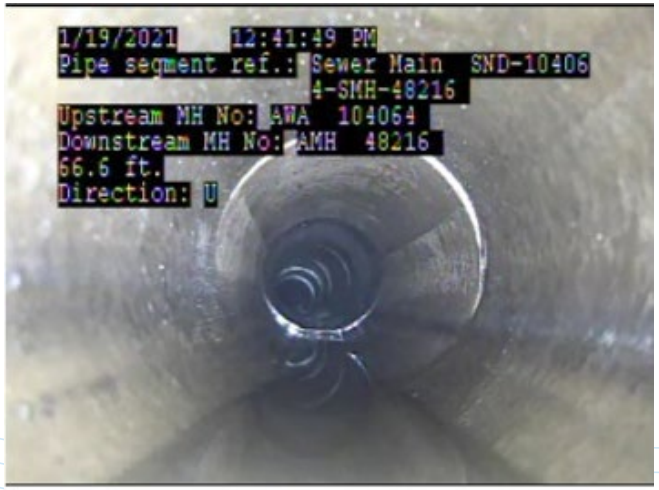
- Austin Water performs sewer cleaning by inserting a jet nozzle into the sewer main
- Debris in the sewer is collected in a basket at the downstream manhole
- Cleaning removes the debris and reduces the risk of Sewer Overflows

Austin Water – PACP Television Inspection

- Austin Water completes sewer inspections using the Pipeline Assessment Certification Program (PACP) industry standard coding system
- An operator will insert the camera into a manhole and identify all defects by viewing the camera feed from inside the CCTV truck.

Austin Water – Engineering Evaluation

- An Austin Water engineer will review the PACP codes that indicate a structural failure
- Based off the severity of the defect, a priority for the work is assigned

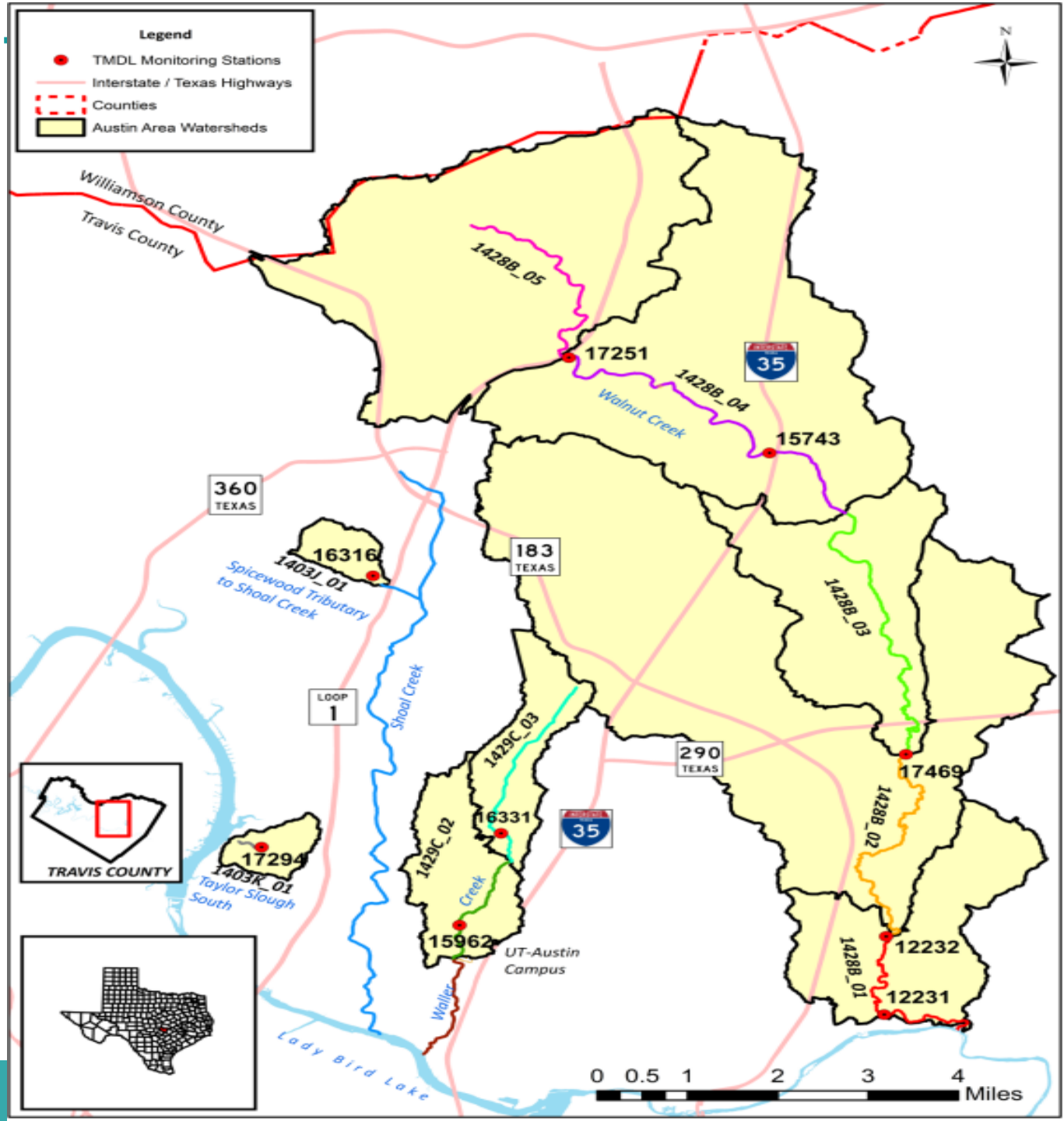


Austin Water – Maintenance and CIP

- Based off the engineering evaluations work orders are routed to internal maintenance groups at Austin Water for execution
- Complex situation are given to a contractor or executed as a Capital Improvement Project (CIP)

4 Streams Monitoring Locations

- Quarterly samples
- Data submitted to TCEQ
- Data used to compare to benchmark data



Quarterly Monitoring

(physicochemical, nutrients, bacteria, etc.)

- **pH**
- **Dissolved Oxygen**
- **Conductivity**
- **Temperature**
- ***E. coli***
- **Turbidity**
- **Total Suspended Solids**
- **Nitrate as N**
- **Ammonia as N**
- **Orthophosphorus**
- **Total Kjeldahl N**

City of Austin Watershed Protection Department's program to monitor, evaluate, and rank all of Austin's watersheds is the:

Environmental Integrity Index

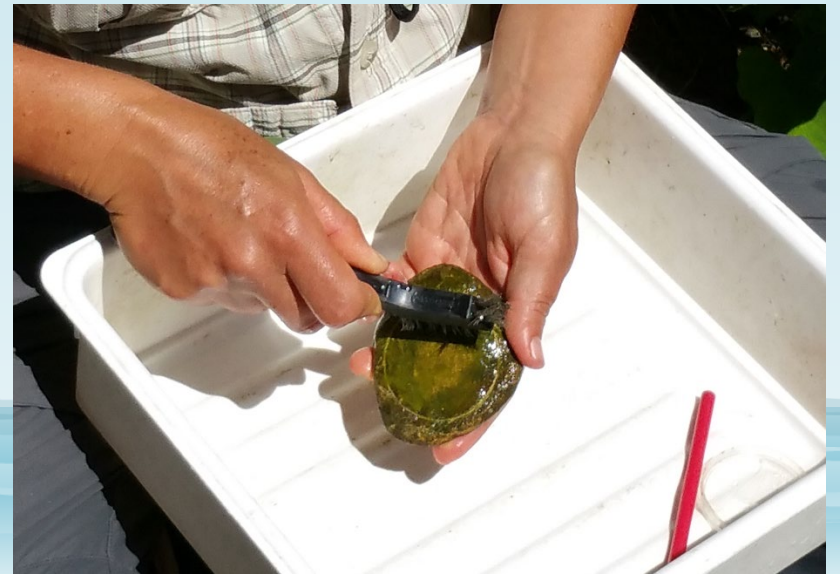
- **27** years of data
- **50+** watersheds

- physical, chemical, and biological data
- rotating watersheds/sites
- program evolves in complexity and function

Annual Monitoring

(aquatic life, physical habitat, sediment, etc)

- **Benthic Macroinvertebrates**
- **Diatoms**
- **Bank stability**
- **Riparian integrity**
- **Habitat quality**
- **Erosion**
- **Aesthetics** (trash, odor, clarity, etc)
- **Metals**
- **PAHs**
- **Pesticides, herbicides**
- **Riparian integrity**



Data is organized into 6 subindices

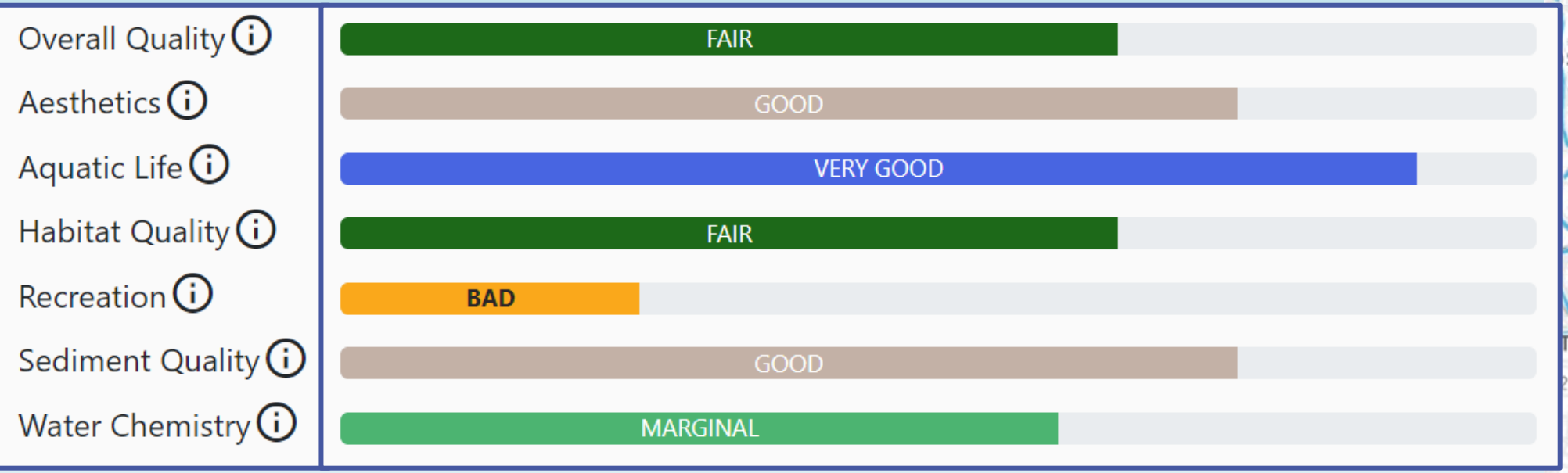
- **Water Quality** (Nutrients, E.coli)
- **Aquatic Life** (Diatoms, benthic macroinverts)
- **Contact Recreation** (E.coli)
- **Aesthetics** (clarity, odor, etc)
- **Sediment Quality**(PAHs, pesticides, herbicides, etc)
- **Habitat** (stability, vegetation, etc)

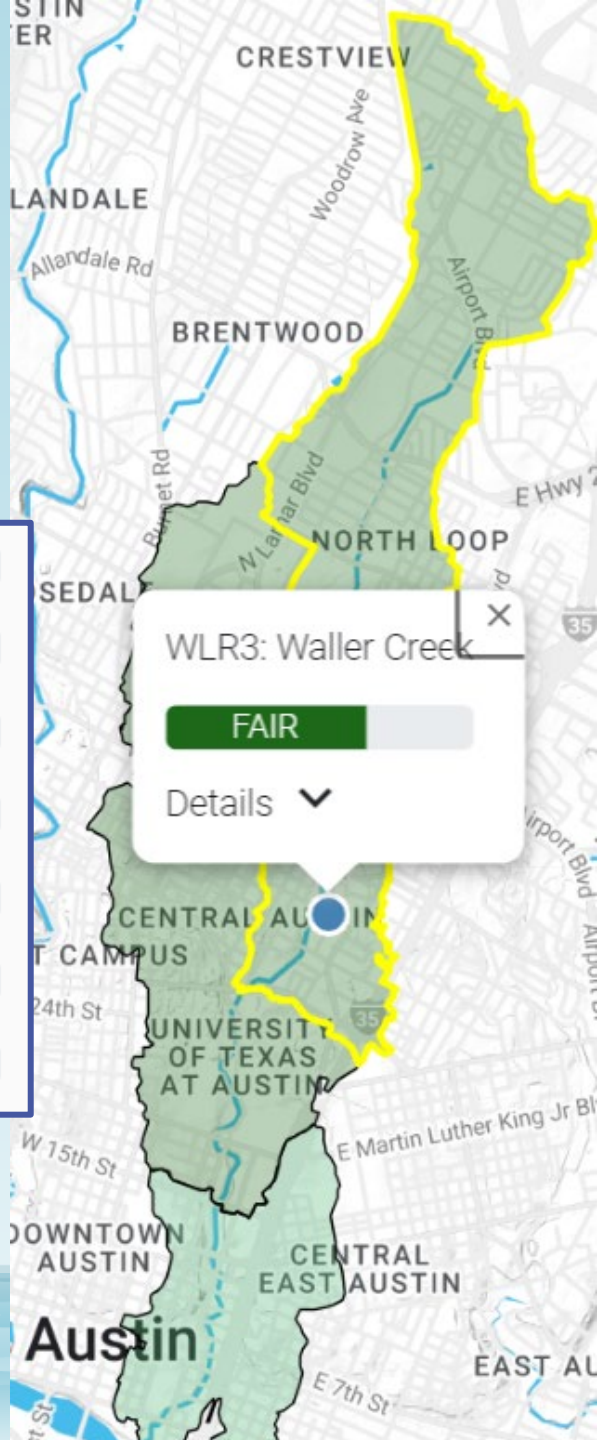
Data Summaries publicly available

through interactive map:

ATX Watersheds Find Your Watershed

https://www.atxwatersheds.com/findyourwatershed/





Raw data available: data.austintexas.gov

the official City of Austin open data portal

City of Austin Watershed Protection Department's program to identify the sources of E.coli contamination:

E.coli Source Investigation

- Longitudinal surveys of mainstem and tribs
- 100% pedestrian survey of subject creek reach
- Observations and GIS information guide sample sites
- Coordination/collaboration with Austin Water
- Rotate watersheds/sites

Example: Taylor Slough South

- Samples collected at Reed Park exceed geometric mean of 126 mpn
- Most of the channels in the watershed are in storm drains
- 2017 and 2020 surveys

Watershed Boundary
Reed Park Sample Site
Natural Channel
Storm Drain

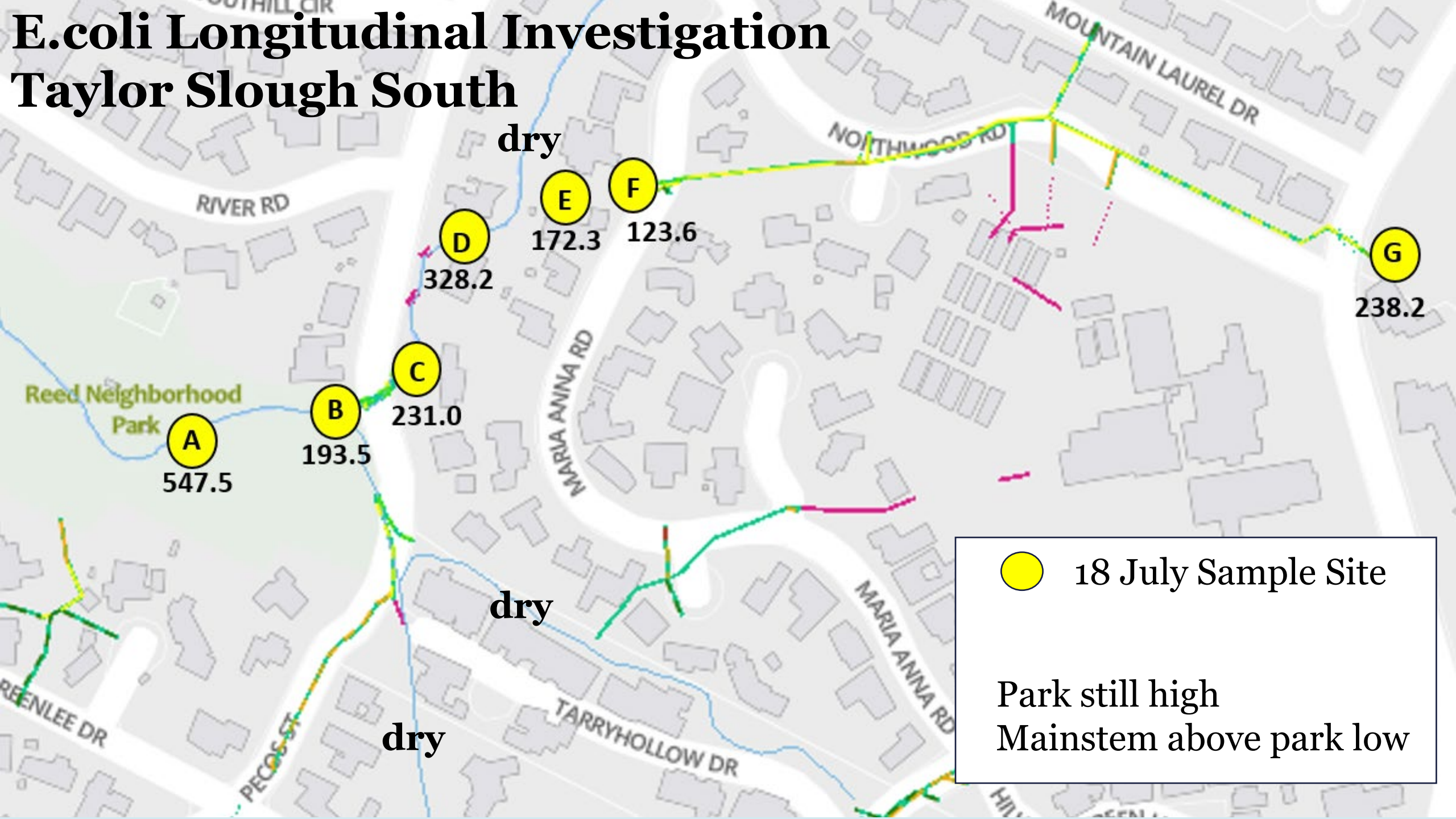
Example:
Taylor Slough South

- 2023 E.coli survey:

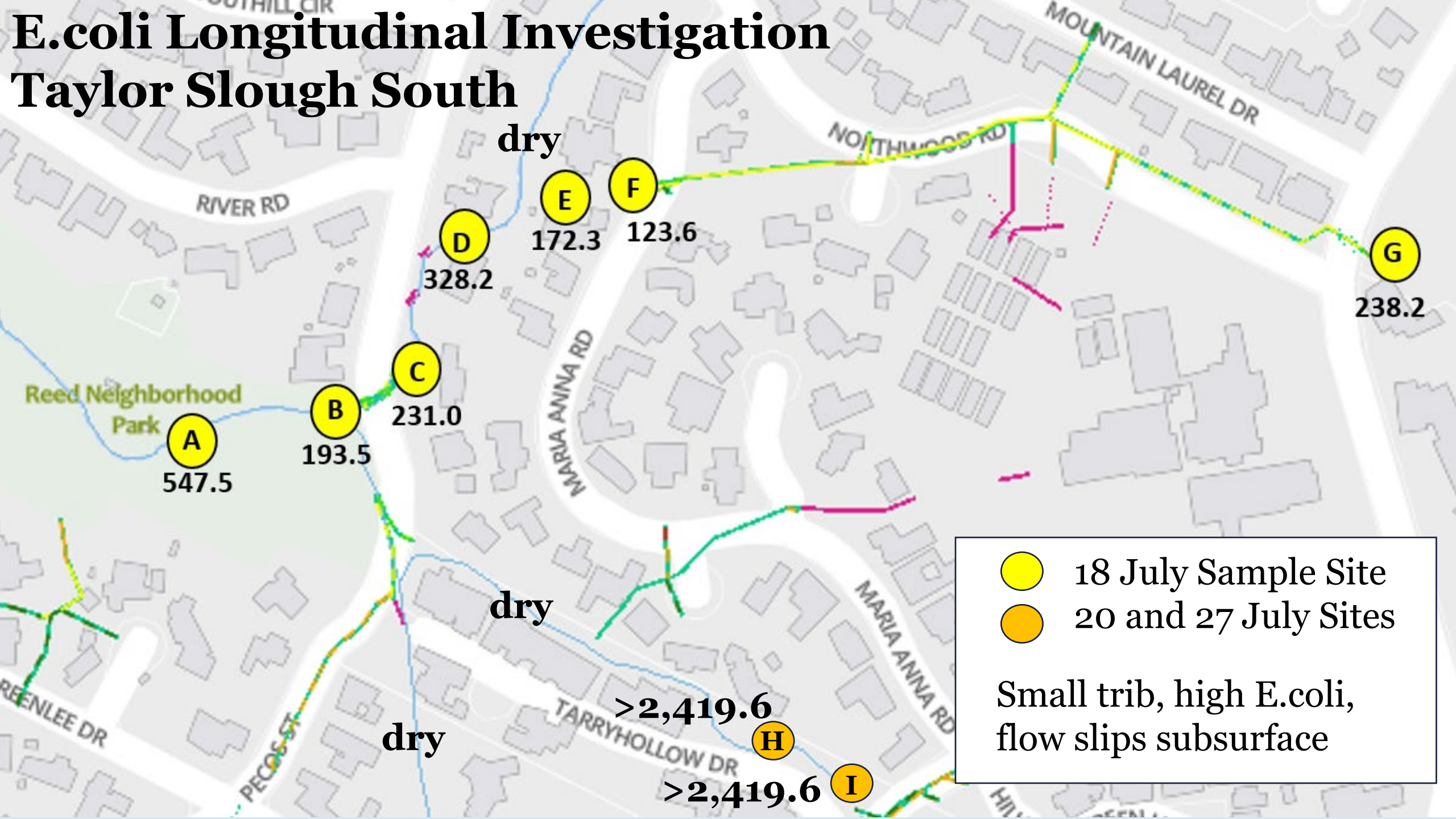
Mainstem and small tributary previously unsampled

Watershed Boundary
Reed Park Sample Site
Natural Channel
Storm Drain

E.coli Longitudinal Investigation
Taylor Slough South

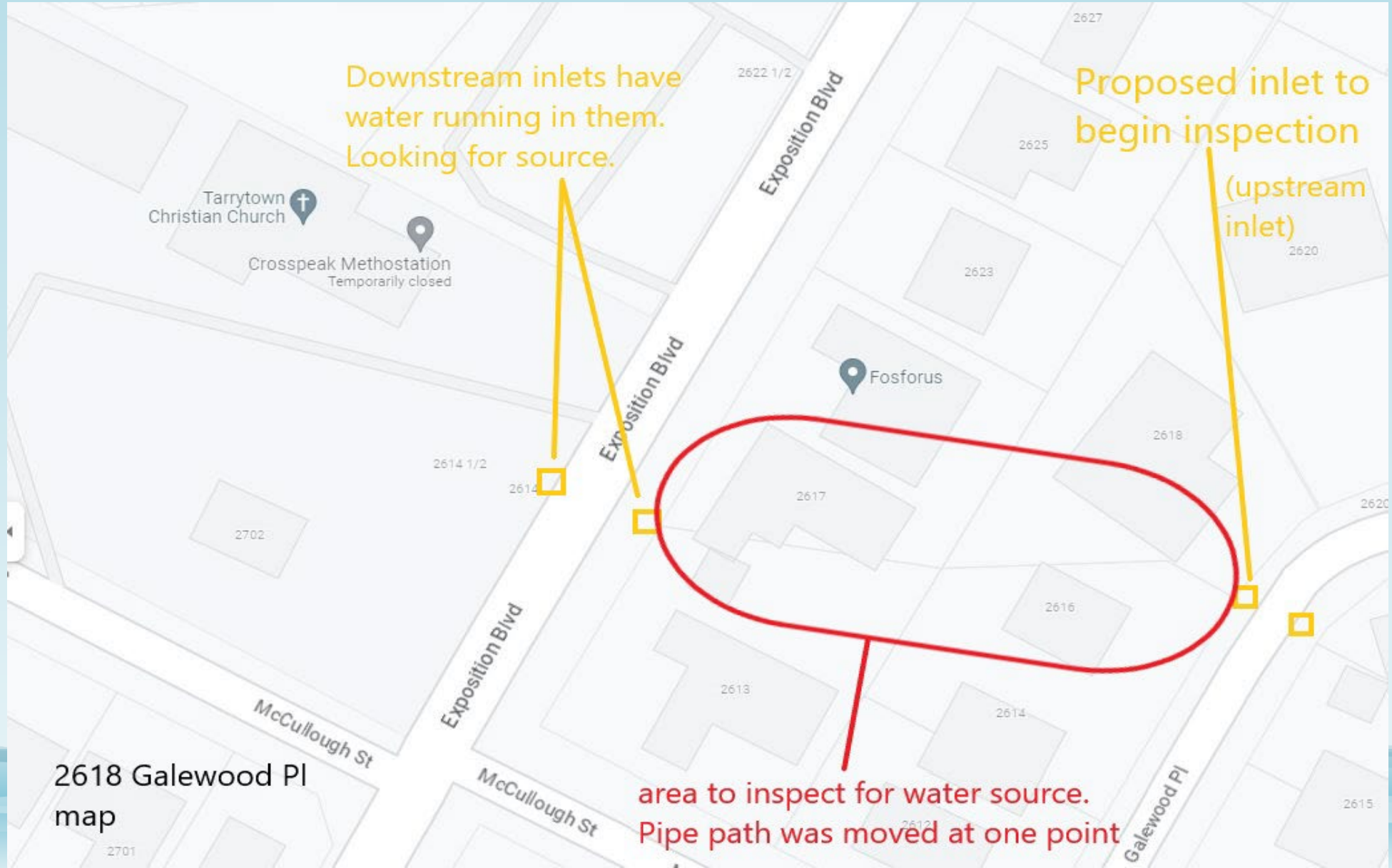


E.coli Longitudinal Investigation
Taylor Slough South



Water Quality Compliance team inspected storm drain access points to bracket the origin of subsurface flow

Referred to Field Operations TV inspection crew and Austin Water to Smoke Test and Dye trace infrastructure



Bacteria Source Investigations

Four Austin Streams

TMDL Measures – All TMDL Watersheds *Bacteria Source Investigations*			
Activity/BMP	**Quantifiable Target**	**Deadline**	**Department**
Bacteria Source Isolation (BSI) additional E-Coli Sampling in selected Watersheds	Implement at least two site/reach bacteria source isolation investigations within one or more TMDL stream reaches during the permit period	August 2023	WPD

Other Potential Controls

- Private Lift Station Maintenance
- Dumpster Management
- Pet Waste at Home
- Proper Lawn Irrigation and Watering
- Native Landscaping
- Wild Animal Sources

Challenges

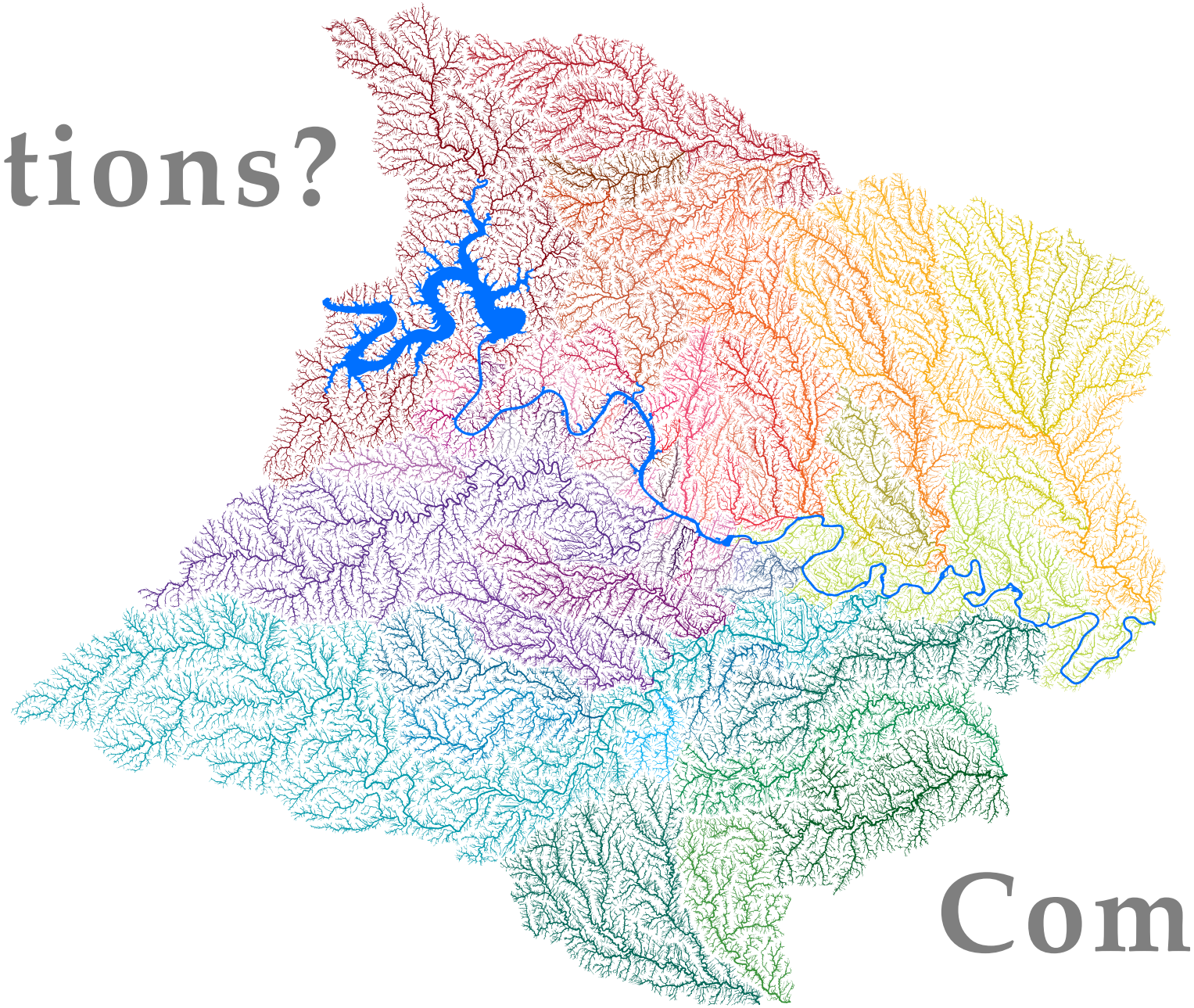
Overcommitting in SWMP

Continually improving with same resources

Measuring BMP Performance

Influencing human behavior

Questions?



Comments?