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)
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
<table>
<thead>
<tr>
<th>Activity/BMP</th>
<th>Quantifiable Target</th>
<th>Deadline</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dry Weather Screening of outfalls with a diameter &gt;36” in Four Streams TMDL area (527 outfalls total)</td>
<td>20% (~105 outfalls) per year, until all outfalls have been screened once in the permit term</td>
<td>September 30th, annually</td>
<td>WPD</td>
</tr>
<tr>
<td>Activity/BMP</td>
<td>Quantifiable Target</td>
<td>Deadline</td>
<td>Department</td>
</tr>
<tr>
<td>-------------------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Scoop the Poop</td>
<td>Fulfill 100% of requests from the Parks and Recreation Department for pet waste bags and dispensers</td>
<td>September 30th, annually</td>
<td>WPD</td>
</tr>
<tr>
<td>Scoop the Poop</td>
<td>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</td>
<td>September 30th, annually</td>
<td>WPD</td>
</tr>
<tr>
<td>Scoop the Poop</td>
<td>Check and maintain 1 kiosk at Walnut Creek Metro Park</td>
<td>September 30th, annually</td>
<td>WPD</td>
</tr>
<tr>
<td>Scoop the Poop</td>
<td>Mail information to 15 pet-friendly business and apartments</td>
<td>September 30th, annually</td>
<td>WPD</td>
</tr>
</tbody>
</table>
### Residential Education

#### TMDL Measures – Four Streams

<table>
<thead>
<tr>
<th>Activity/BMP</th>
<th>Quantifiable Target</th>
<th>Deadline</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elementary School: Earth Camp and Earth School</td>
<td>Offer Earth Camp or Earth School to 100% of AISD Elementary Schools each school year</td>
<td>September 30, annually</td>
<td>WPD</td>
</tr>
<tr>
<td>Public Outreach-Stop the Blob!</td>
<td>4 outreach events City-wide</td>
<td>September 30, annually</td>
<td>AW</td>
</tr>
<tr>
<td>Provide multi-family household facilities informational materials related to Stop the Blob!</td>
<td>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.</td>
<td>Within a month of confirmation of a grease related SSO.</td>
<td>AW</td>
</tr>
</tbody>
</table>
## Homeless Encampments – FY23

### TMDL Measures – Four Streams*

*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.

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

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

*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

<table>
<thead>
<tr>
<th>Activity/BMP</th>
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<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSI inspection pipes of lines 24” and larger in the CWQZ in Gilleland Creek, Spicewood Springs, Taylor Slough South, Waller Creek, and Walnut Creek.</td>
<td>129,000 linear feet</td>
<td>By September 30, of 2024</td>
<td>AW</td>
</tr>
<tr>
<td>TV Inspection of the sewer pipes in the CWQZ in Gilleland Creek and Spicewood Springs</td>
<td>39,500 linear feet</td>
<td>By September 30, of 2022</td>
<td>AW</td>
</tr>
<tr>
<td>TV Inspection of the sewer pipes in the CWQZ in Taylor Slough South and Waller Creek</td>
<td>21,500 linear feet</td>
<td>By September 30, of 2023</td>
<td>AW</td>
</tr>
<tr>
<td>TV Inspection of the sewer pipes in the CWQZ in Walnut Creek</td>
<td>555,000 linear feet</td>
<td>By September 30, of 2026</td>
<td>AW</td>
</tr>
</tbody>
</table>
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
Based off the engineering evaluations work orders are routed to internal maintenance groups at Austin Water for execution.

Complex situations 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/

<table>
<thead>
<tr>
<th>Overall Quality</th>
<th>FAIR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aesthetics</td>
<td>GOOD</td>
</tr>
<tr>
<td>Aquatic Life</td>
<td>VERY GOOD</td>
</tr>
<tr>
<td>Habitat Quality</td>
<td>FAIR</td>
</tr>
<tr>
<td>Recreation</td>
<td>BAD</td>
</tr>
<tr>
<td>Sediment Quality</td>
<td>GOOD</td>
</tr>
<tr>
<td>Water Chemistry</td>
<td>MARGINAL</td>
</tr>
</tbody>
</table>

Raw data available:

data.austin.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
Example:
Taylor Slough South

- 2023 E.coli survey:
  Mainstem and small tributary previously unsampled
E. coli Longitudinal Investigation
Taylor Slough South

18 July Sample Site
20 and 27 July Sites

Small trib, high E. coli, flow slips subsurface
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.

Downstream inlets have water running in them. Looking for source.

Proposed inlet to begin inspection (upstream inlet)

2618 Galewood Pl map

area to inspect for water source. Pipe path was moved at one point.
## Bacteria Source Investigations

**Four Austin Streams**

<table>
<thead>
<tr>
<th>Activity/BMP</th>
<th>Quantifiable Target</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Bacteria Source Isolation (BSI) additional E-Coli Sampling in selected Watersheds</td>
<td>Implement at least two site/reach bacteria source isolation investigations within one or more TMDL stream reaches during the permit period</td>
<td>August 2023</td>
<td>WPD</td>
</tr>
</tbody>
</table>
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