

Annual Operation and Maintenance Report for Town Branch Creek Riparian Areas 2020

Water Body: Town Branch Creek (Segment 1810A), a tributary to Plum Creek
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Background & Introduction

The 2020 Texas Integrated Report identified elevated bacteria concentrations and concerns for impaired habitat, nitrates, and total phosphorus in Plum Creek, segment 1810_02. The report also listed Town Branch Creek, segment 1810A, a tributary of Plum Creek, with water quality concerns for bacteria concentrations in excess of the standard as well as excessive nitrate levels.

Riparian lands along Town Branch Creek managed by the City of Lockhart are included within two identified creek reaches: The Urban Trail Reach and the City Park Reach. These areas were the focus of an evaluation project in 2018 that identified hinderances to riparian recovery. In 2019, the City began implementing BMP's to address identified hinderances. A "grow zone" mowing setback was established along the creek encompassing about 2.43 acres and in May 2020, a rain garden was installed to slow runoff from a highly altered area of uplands. Additionally, native riparian vegetation was planted at key sites to help accelerate the recovery process and to ensure that the installed BMP's succeed through the future and continue to provide the intended water quality benefits. An Operations and Maintenance Plan was developed in Aug. 2020 to help guide City management of these areas. The purpose of this document is to provide an annual report to document maintenance and operation of riparian areas that has occurred during 2020.

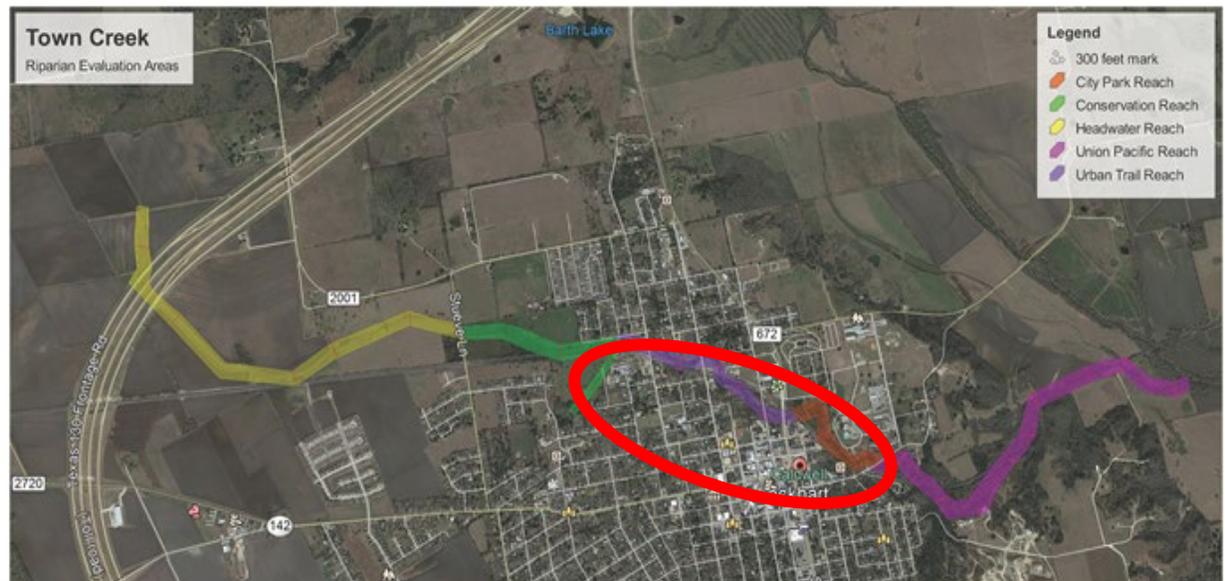


Fig 1. Aerial map of Town Branch Creek Identified Reaches showing the Riparian Evaluation Areas highlighted with the two areas where City management prevails circled in red.

Riparian Area Management in 2020

The operation and maintenance of park lands within the city of Lockhart's managed riparian areas of Town creek is guided by several principals set forth in the Riparian Area Management plan, August 8, 2020.

Guiding Principles -

- **Small yet Special and Need Preferential Treatment** - Riparian areas are special places that need preferential treatment. The same kinds of management that work well on upland areas do not necessarily work well in riparian areas.
- **Riparian Function is the Cornerstone of Sustainable Maintenance** - A functional riparian area is one that has adequate vegetation, landform or large woody material to dissipate the energy of high-flow events; protect banks from excessive erosion, stabilize channels; trap sediment; build floodplains; store water and provide recharge to shallow aquifers sustaining base flow (Prichard 1998). When these physical processes are working, good water quality as well as other values like improved aquatic habitat, and aesthetics, can be expected, as results.
- **Focus on Removing or Reducing Hinderances to Function** - Identified hinderances along Town Branch Creek's Urban Trail Reach and the City Park Reach have included: Manicured and altered residential or park landscapes next to the waterway, Mowing too close to the creek, Artificial manipulation of banks channel or sediments, Poorly designed road crossing and drainage facilities, Physical alteration of floodplain.
- **Appreciating Recovery, Watching and Waiting** - The ability to recognize, appreciate, and communicate with others the riparian recovery process is an important component. Included as an appendix to this document is [Your Remarkable Riparian Owner's Manual](#) by Steve Nelle, published by the Nueces River Authority. It provides a common-sense approach to understanding riparian areas and learning to provide the preferential treatment they require to function properly and provide water quality benefits.



Fig 2. Google Earth[™] image of the Riparian Area of Town Branch Creek's City Park Reach highlighted in orange and the rain garden site identified.

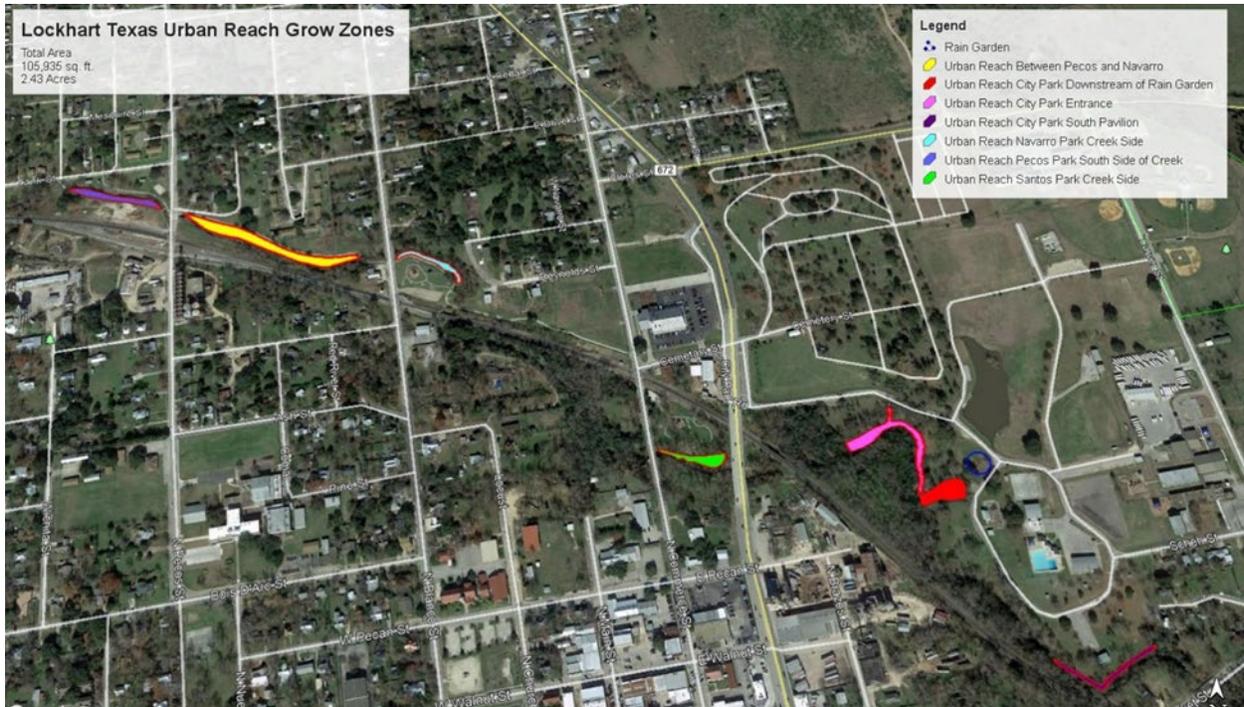


Fig 3. Google Earth[™] image of the Urban Reach of Town Branch Creek with the riparian BMP locations identified. These six established locations are being called "Grow Zones" where mowing setbacks and riparian planting was accomplished totaling 2.43 a

Operation and Maintenance for the Town Branch Creek Rain Garden and Grow Zones (prescribed and implemented)

The following operation and maintenance practices were recommended in the O&M Plan and figures presented below indicated City accomplishments during 2020 in their regard.

- Do not mow vegetation within the rain garden or around its periphery or down the drains running from it to the Creek. Remove undesirable plants, if deemed necessary, by hand, and/or use selective herbicide application, including Johnson Grass which is known to grow in the drain way.



Figs. 4. and 5. City maintenance personnel avoiding mowing in the grow zone and removing Johnson grass by hand.

- Until May 2021 provide supplemental water as necessary for the establishment of rain garden vegetation. After that time supplemental water should not be required.



Fig 6. Supplemental water for the rain garden plantings.

- Continue to limit mowing in Grow Zones, hand pulling noxious or unwanted plants and letting native riparian vegetation grow unhindered. See Your Remarkable Riparian Field Guide to Riparian Vegetation within most of Texas, for plant identification.
- Consider enlarging Grow Zones to include more of the Creek's floodplain with the idea of rotating mowed areas to help manage human activity

No activity this year

- Do not remove large logs or dead fallen trees in the creek, along the bank or in the floodplain where feasible. Instead leave them as a nursery for new riparian vegetation.



Fig 7. Fallen tree left in place in the creek.

- Vehicle traffic should be minimized, especially in the area below the rain garden crossing the small drain which was the target of riparian plantings.

No vehicles have been allowed in this restricted area since the rain gardens completion.

- New trails should not be aggressively de-vegetated, paved and should not be immediately adjacent or parallel within close proximity to creek.

No activity this year

- Consider establishing (or suggesting) periodic access trails down to the creek which should not be surfaced and should be rotated to the extent feasible

No activity this year.

- Provide educational materials to describe the reasons why these practices are carried out.



Fig 8. Informational kiosk installed near the rain garden to help build awareness and appreciation for the project.



Fig 9. Signage along the creek explaining grow zones and their purpose.

- Establish, or use one of the images provided in Your Remarkable Riparian as a visual intention statement for the riparian landscape. Post this image along with this document in City maintenance shop or staff break rooms. Make it also available to City management and elected leaders.

No activity this year.