ANN and ROY BUTLER HIKE AND BIKE TRAIL SITE ANALYSIS and RECOMMENDATION

Executive Summary

Watershed Protection Department staff recognize the need to accommodate necessary improvements and updates to the Ann and Roy Butler Hike and Bike Trail (Butler Trail) for the benefit of the community. Staff also recognizes the importance of providing improvements related to safety and mobility while demonstrating enhancements to water quality protection and the restoration of environmental function. Therefore, the following report and analysis provide a recommendation for a code amendment to the current 50' setback from Lady Bird Lake and development in the Critical Water Quality zone to provide a feasible pathway that will allow future capital improvement projects to the Butler Trail while providing improved environmental protections.

The proposed code amendment would allow the improvement and reconstruction of the Butler Trail in its current alignment provided that 2:1 mitigation is provided for sections of the reconstructed trail that are located within the inner half Critical Water Quality Zone and in accordance with proposed Environmental Criterial Manual guidelines.

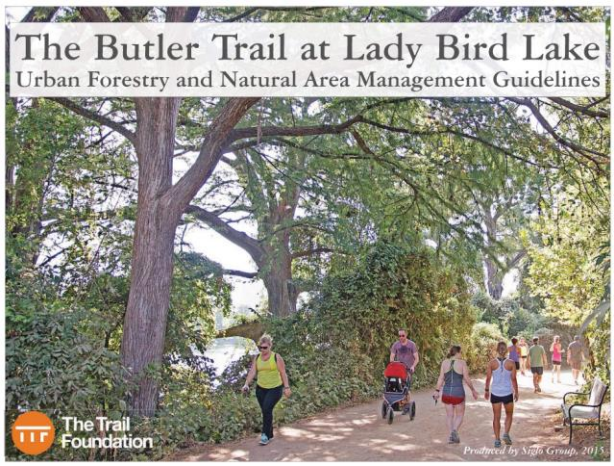
Introduction

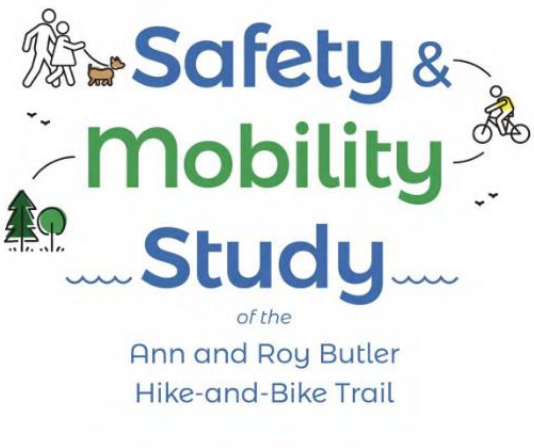
The Trail

The 10-mileButler Trail loop is located along the shores of Lady Bird Lake in Central Austin, within the Town Lake Metropolitan Park and is primarily a soft surface trail constructed with decomposed granite. Originally constructed in the 1970's, the Butler Trail has developed considerable cultural significance in the community and represents one of the most popular regional recreational amenities. Its popularity is due in part to the natural setting and views of Lady Bird Lake. The land through which the Trail runs includes several important ecological habitats and sensitive environmental areas, including Critical Environmental Features (CEFs) and Critical Water Quality Zones (CWQZ) as defined in the City of Austin's land development code. Additionally, 80% of the Trail is located within the Atlas-14 fully developed 100-year floodplain, making it vulnerable to the impacts of flooding. Given its age and the environmental vulnerabilities associated with its location, the following report examines the current conditions of the Trail and the applicable Land Development Code that impact future redevelopment and reconstruction.

Urban Forestry and Natural Areas Management Guidelines

The natural areas around the Trail not only function as a natural respite for the community but they also perform the role of reducing urban temperatures, improving air and water quality, providing wildlife habitat, and reducing erosion. A detailed documentation of these areas was developed in 2015 by The Trail Conservancy in partnership with the City of Austin - *The Butler Trail at Lady Bird Lake Natural Areas and Urban Forestry Guidelines*. These guidelines were used in the development of this report and provide information on the existing conditions of the Trail and recommendations for restoring ecological function.





Safety & Mobility Study

Considering the Butler Trail's ever-increasing popularity and its function as both a transportation and recreational amenity, The Trail Conservancy worked in partnership with the City of Austin to examine the current limitations of the trail system and recommendations for future improvements in the 2021 *Safety & Mobility Study of the Ann and Roy Butler Hike-and-Bike Trail*. The location of the Trail serves as a nexus for many neighborhoods and intersecting recreational and urban trails, as well as an opportunity for people to connect with parks and open greenspaces. The findings of this study were taken into consideration for the current recommendations provided in this report.

City of Austin Council Direction

On May 18th, 2023, Austin's City Council passed a resolution (20230518-044) directing city staff to process code amendments to the City's land development code as necessary to accommodate future capital improvements to the Butler Trail with consideration for the recommendations made by the two documents described above and including the *Ann and Roy Butler Hike-and-Bike Trail Park Operations and Maintenance Agreement*. An examination of the applicable code and recommendations for amendments to the relevant code section(s) are below.

Site Conditions

The Trail

As mentioned above, the Butler Trail is primarily a soft surface trail constructed with decomposed granite. However, over time, sections of the Trail have been reinforced and repaired with stabilized decomposed granite or concrete, with edges reinforced with stone, concrete and timber retaining walls to address overland drainage and erosion. Additionally, the Trail is connected to hard-surfaced concrete bridge and boardwalk structures that provide trail users with access across creeks that connect to the lake and over the water. A few wooden foot bridges and sections of asphalt are also represented in the Trail system. The width of the Trail varies across the system and is as narrow as 8 feet wide in some locations and as wide as 20 feet in others.

Trees and Plant Communities

The defining influences on the vegetation are the riparian corridor created by the Colorado River and the highly urbanized landscape surrounding the site. Despite the changes in land management practices over the length of Austin's history, resulting in varying degrees of impact to environmental resources, the natural areas around Lady Bird Lake have always represented an essential part of the riparian corridor extending

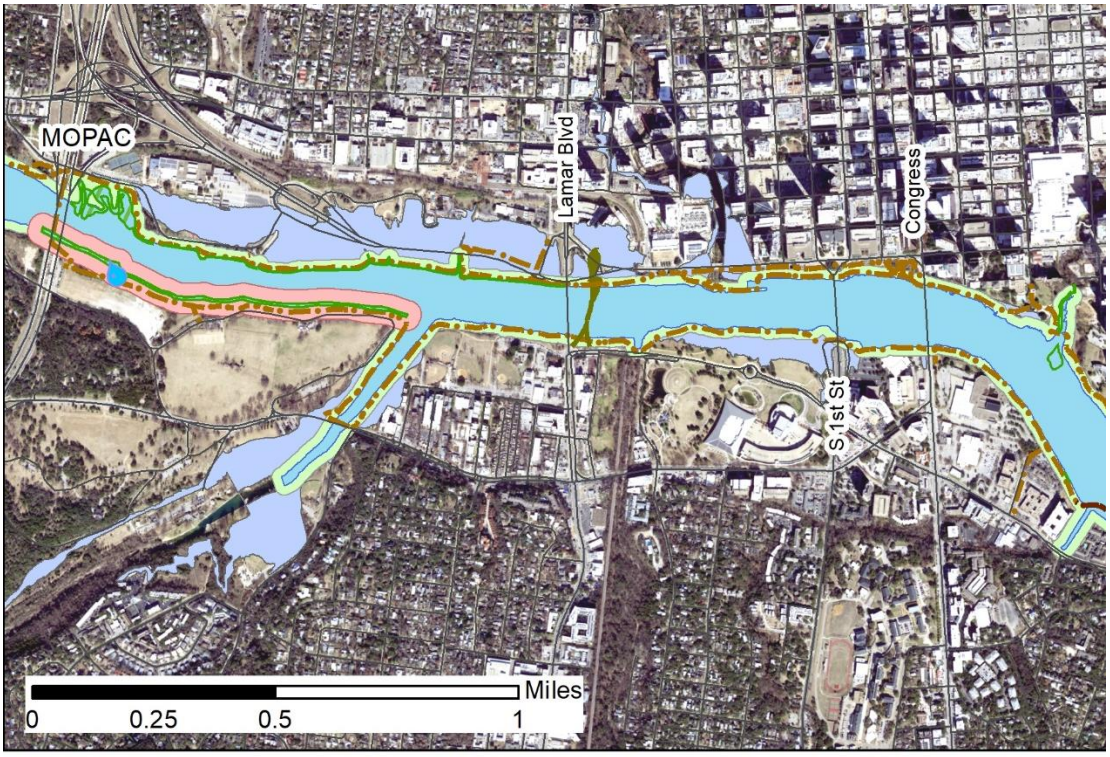
from the hilly conditions of the Edwards Plateau in the west to the relatively flat woodlands and savannas of the Blackland Prairies in the east. The vegetation surrounding the Trail is highly diverse based on the plant survey conducted by Bill Carr in 2014 as a part of the Natural Areas plan. Additionally, the Trail is flanked by both heritage and protect trees for most of the 10-mile loop. The plant communities represented on the site (and recommended for restoration) include floodplain terrace woodland, riparian woodland, savanna grasslands, and wetland areas. A more detailed documentation of these areas and restoration recommendations can be found in *The Butler Trail at Lady Bird Lake Natural Areas and Urban Forestry Guidelines*.

Critical Environmental Features

Critical Environmental Features (CEFs) are defined by the Land Development Code (LDC) 25-8-1 as features that are of critical importance to the protection of environmental resources including bluffs, canyon rimrocks, point recharge features, springs, and wetlands. Typical protective buffers associated with Lady Bird Lake CEFs that are set forth by the LDC range from 50’ minimum to 150’ maximum. There are several documented CEFs near the Trail and in many instances the Trail runs through the CEF setbacks for these features. Along the southern shore of Lady Bird Lake there are bluff and rimrock features and near Zilker Park there is one identified spring CEF adjacent to the Trail (though there are several other springs along Lady Bird Lake, notably Cold Spring, that are not within 150’ of the Trail). Additionally, there is a wetland fringe along the shoreline of Lady Bird Lake, varying in depth, diversity and currently undelineated in many places.

Topography

In several areas along the 10-mile loop, the Trail has slopes in excess of 15%. Particularly in the parkland around Zilker Park and in the Downtown region, slopes adjacent to the trail may exceed 35%, impeding relocation or modification of the Trail. The northwest and eastern portions of the Trail are in areas that are relatively flat.

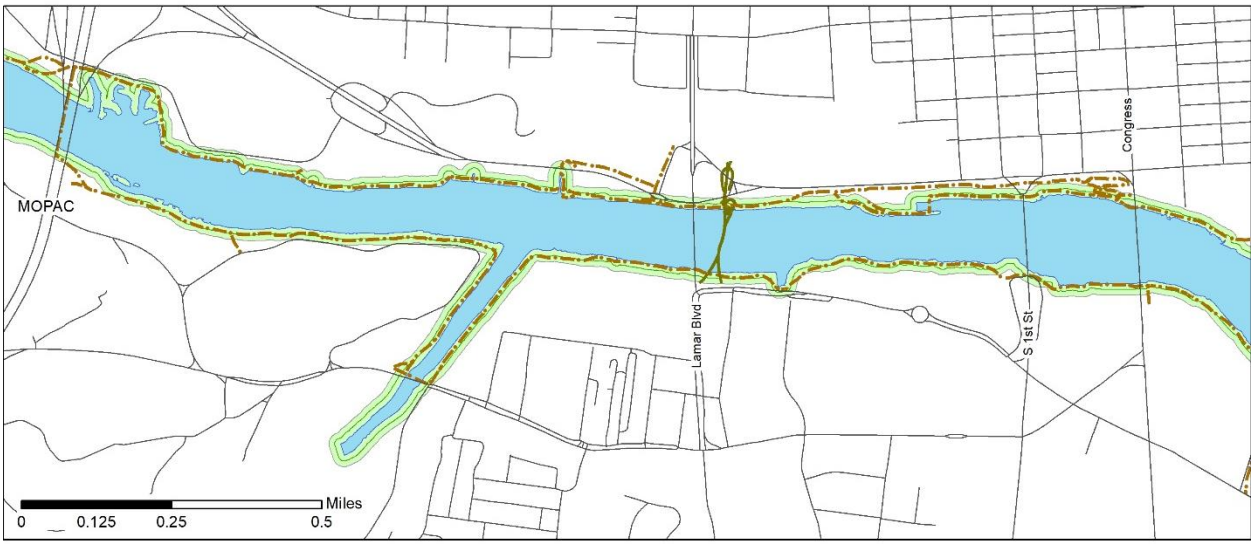


Western portion of Butler Trail (MOPAC to Congress Ave)

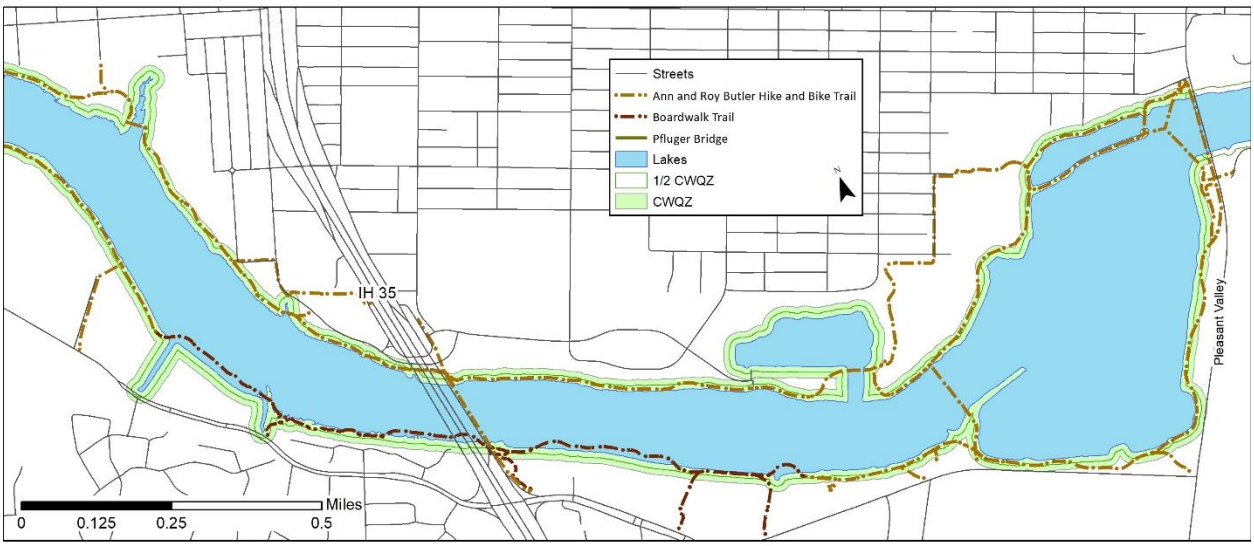
Eastern portion of Butler Trail (Congress Ave to Pleasant Valley)

CWQZ and Floodplain

As shown on the map, the Butler Trail tightly hugs the shoreline of Lady Bird Lake. In some instances, it is approximately 10 feet or less from the water. The majority of the Trail system is within the Critical Water Quality Zone (a protective buffer established by the LDC where development is restricted.) The LDC establishes the CWQZ for non-single family residential use as a 100 foot offset from the 429.0 mean sea level shoreline. A significant portion of the Butler Trail lies within the inner-half of the CWQZ which established by the LDC as a 50 foot buffer from the shoreline. Approximately 80% of the Trail is located in the 100-year fully developed floodplain and the entire trail is located in the 500-year floodplain.



Western portion of Butler Trail (MOPAC to Congress Ave)



Eastern portion of Butler Trail (east of Congress Ave to Pleasant Valley)

Site Concerns

Erosion

Heavy seasonal rain events bring high velocity stormwater flows through the parkland and onto the Butler Trail when water is diverted from adjacent impervious surfaces and directed into Lady Bird Lake as part of Austin's drainage conveyance system. Hard armored surface drainage structures, including concrete channels, drainage pipes, and culverts, are installed around the Trail and adjacent parkland to manage the impact of stormwater. However, the decomposed granite trail surface along with erosive storm flows have created erosion issues for the Trail that can worsen without improvements to the Trail, surrounding parkland, and stormwater infrastructure. Additionally, the erosive convenance of storm flows through riparian and wetland areas degrades the condition of those habitats.

Photo taken at Festival Beach (LEFT) and Longhorn Shores (RIGHT)

Impacts to Natural Areas

Vegetation growing along the edge of the Trail plays an important ecological role in stabilizing the soil, providing habitat, filtering, and slowing stormwater, and numerous other ecological benefits. The proximity of the Trail to sensitive riparian habitat along the shoreline creates a condition where heavy recreational pressure impacts the vegetation and resiliency of the plant communities. Informal trails connecting the existing Trail to the water and ever-increasing trail width due to the trails popularity and increase in use and undefined trail boundaries further exacerbate these impacts. Additionally, the soil disturbance and impacts to riparian plant communities' health make these natural areas more vulnerable to the existing pressure from invasive non-native plants.

Recommendation and Land Development Code

City staff recognize the need to accommodate necessary improvements and update sections of the Butler Trail for the benefit of the community especially those related to safety and mobility and the balance against the benefits of water quality protection and restoration of environmental function. The following recommendation for a code amendment provides a pathway forward to allow future capital improvement projects for the Butler Trail to proceed while providing environmental protections.

50 foot Setback and CWQZ

As currently required in the City of Austin's Land Development Code, hard surfaced trails or trails that are greater than 12 feet in width are prohibited within 50 feet of the shoreline (*Section 25-8-261 (B)(3)(f)*). An administrative variance process does currently exist allowing the Director of the Watershed Protection Department to provide approval of a trail not otherwise allowed in the CWQZ (*Section 25-8-42 (B)(2)(d)*). Code sections mentioned here are provided below.

Cited Code Sections

§ 25-8-261 - CRITICAL WATER QUALITY ZONE DEVELOPMENT.

In all watersheds, development is prohibited in a critical water quality zone except as provided in this Division. Development allowed in the critical water quality zone under this Division shall be revegetated and restored within the limits of construction as prescribed by the Environmental Criteria Manual.

(B) Open space is permitted in a critical water quality zone if a program of fertilizer, pesticide, and herbicide use is approved by the Watershed Protection Department, subject to the conditions in this Subsection.

> (3) A hard surfaced trail may cross the critical water quality zone pursuant to Section 25-8-262 (*Critical Water Quality Zone Mobility Crossings*). A hard surfaced trail that does not cross the critical water quality zone may be located within the critical water quality zone only if:
>
> > (a) designed in accordance with the Environmental Criteria Manual;
> >
> > (b) located outside the erosion hazard zone unless protective works are provided as prescribed in the Drainage Criteria Manual;
> >
> > (c) limited to 12 feet in width plus one-foot compacted sub-grade shoulders, unless a wider trail is designated in a Council-adopted plan;

(d) located not less than 25 feet from the centerline of a waterway if within an urban watershed;

(e) located not less than 50 feet from the centerline of a minor waterway, 100 feet from the centerline of an intermediate waterway, and 150 feet from the centerline of a major waterway if within a watershed other than an urban watershed;

(f) located not less than 50 feet from the shoreline of Lake Travis, Lake Austin, Lady Bird Lake, and Lake Walter E. Long, as defined in Section 25-8-92; and

(g)located not less than 100 feet from the ordinary high water mark of the Colorado River downstream from Longhorn Dam.

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(C) The requirements of this subsection apply along Lake Travis, Lake Austin, Lake Walter E. Long, and Lady Bird Lake.

(1) A dock, public boat ramp, bulkhead or marina, and necessary access and appurtenances, are permitted in a critical water quality zone subject to compliance with Chapter 25-2, Subchapter C, Article 12 (*Docks, Bulkheads, and Shoreline Access*). For a single-family residential use, necessary access may not exceed the minimum area of land disturbance required to construct a single means of access from the shoreline to a dock.

(2) Disturbed areas must be restored in accordance with the Environmental Criteria Manual and the following requirements:

(a) Within a lakefront critical water quality zone, or an equivalent area within 25 feet of a shoreline, restoration must include:

(i) at least one native shade tree and one native understory tree, per 500 square feet of disturbed area; and

(ii) one native shrub per 150 square feet of disturbed area; and

(b) Remaining disturbed areas must be restored per standard specifications for native restoration.

§ 25-8-42 - ADMINISTRATIVE VARIANCES.

(B) The director may grant a variance from a requirement of:

(2) Section 25-8-261 (*Critical Water Quality Zone Development*), only if:

(d)necessary to allow a hard surfaced trail to be located in an area not otherwise allowed under Subsection 25-8-261(B)(3);

Code Amendment Recommendation

While the intent of the 2017 CWQZ code update was done to protect the shoreline of Lady Bird Lake, it unintentionally impacted the existing Butler Trail by making the majority of the trail system non-compliant. Staff requests an update to the language that would accommodate the current Butler Trail alignment and width while continuing to provide protection to the shoreline through mitigation and improvements to the health of the floodplain.

Three specific amendments to 25-8-261 (CRITICAL WATER QUALITY ZONE DEVELOPMENT) are proposed:

- 25-8-261 (B)(3)(c) to allow the Butler Trail to exceed 12 feet width
- 25-8-261 (B)(3)(f-g) to allow the Butler Trail to be located within 50 feet of the shoreline of Lady Bird Lake with mitigation for impact.
- 25-8-261 (C)(2) to remove the requirement for additional restoration for shoreline disturbance associated with shoreline access for the Butler Trail.

Draft ECM Guidelines

An update to the Environmental Criteria Manual (ECM) will follow the approval of this code amendment and will provide guidance that includes but is not limited to establishing distance from the shoreline, minimum mitigation requirements, alternative compliance, and protective works to prevent erosion.

Natural Area Management Guidelines Update and the ECM

The guidelines outlined in the ECM will be considered and developed alongside an update to The Trail Conservancy's update to the Natural Areas and Urban Forestry Management Guidelines, a comprehensive study examining the ecology of the Butler Trail system. The concurrence of these two updates will enhance the effectiveness of the ECM guidelines to improve ecological function and help direct project design teams towards the best opportunities for achieving alternative compliance regarding mitigation requirements. - Additionally, the update to TTC's guidelines will provide an opportunity to engage the community through outreach, education, and collaboration to improve the ecology of the site in tandem with the safety and mobility improvements of the Trail.