



Project Title:

Urban Forestry & Natural Areas Management Guidelines for Lady Bird Lake and the Butler Trail

Budget Category:

Tree Planting and Transplanting
Education/Training
Disease or Pest Control/Hazard Reduction
Staffing/Internship
Urban Forest Assessment and Inventory
Control and Management of Invasive Species
Research
Miscellaneous (i.e. Public Tree Care)

Does the project meet the required basic criteria:

Within the Austin city limits..... YES
On public property or Civic areas as defined in 25-
2-6(A) within the Land Development Code, or
within 15 feet of these areas..... YES
For public benefit..... YES
Adhere to Land Development Code criteria..... YES

Will the project occur without UFGP award..... YES

Introduction and Objectives:

Lady Bird Lake and the Butler Trail are at the hub of what makes Austin special. Both are at the center of our community celebrations—Austin’s New Year, the Fourth of July fireworks, weekly charity runs, and annual music festivals including Austin City Limits. They are integral to civic life, with City Hall and many City offices located near the Lake. The Trail is at the center of Austin’s fitness culture; people of all ages come to jog, bike, walk their dogs, and stroll with friends. The Butler Trail along the edge of Lady Bird Lake runs through areas ranging from natural areas to dense urban development and is visited by more than a million and a half people each year. A number of variables must be considered when developing urban forestry and land management strategies for these areas including high pedestrian and bicycle traffic, infrastructure crossings, erosion issues, flooding, invasive species, steep slopes, available resources, and public opinion.

Siglo Group will complete a Site Assessment and create Urban Forestry and Natural Area Management Guidelines for the Lady Bird Lake natural areas that are associated with the Butler Trail. This project supports the mission of The Trail Foundation (TTF) by enhancing the visitor experience, heightening the ecological integrity of the natural areas, and allowing for efficient use of management resources. The end result of the project is a blueprint for long-term management of this integral part of Austin.

TTF annually puts time and resources towards the Healthy Trees for the Trail program. TTF has partnered with the City of Austin Parks and Recreation Department's (PARC) Forestry program to plant trees to increase the age and species diversity of native species of trees in the Butler Trail's native woodlands and riparian zones. In past years, we have worked closely with Forestry and American YouthWorks on invasive species removal as well. This ongoing program restores and helps diversify the woodlands habitat of the Lady Bird Lake ecosystem while protecting the health of the trees along the Trail for future generations.

Healthy Trees for The Trail has worked with volunteers to plant native tree saplings and also successfully planted over 500 small trees at the Trail since 2006. This proposed plan will compliment the Healthy Trees for the Trail program and allow TTF to take the existing ecological restoration urban forestry efforts even further. The goal is to improve the overall measurement and assessment, planning, sophistication, and effect of TTF's urban forestry work and continue to aide the PARC Forestry program and the City's nascent Urban Forestry Plan.

The Site Assessment and Urban Forestry and Natural Area Management Guidelines (The Plan) proposed here will focus on the natural areas outside of formally landscaped areas. It will identify areas appropriate for terrestrial, riparian, and aquatic restoration, as well as invasive species management. These areas will be broken up into zones based on ecologic, topographic, and hydrologic characteristics. Specific land management guidelines and goals will be created for each of these zones. The guidelines will incorporate current best management practices that include lessons learned from management successes in the Austin area associated with ecological restoration and invasive species management. In addition to providing management guidelines, the report will prioritize areas for management over a five-year period. This prioritization will be based on each area's visibility, the likelihood of achieving success in that area, the magnitude of the management issues found there, and whether the work has the potential to reduce long-term management costs. The result will be an implementable management plan specific to the natural areas around Lady Bird Lake for the next five years.

With the summer 2014 opening of the Boardwalk Trail completion project, there is great potential for planning the enhancement of the previously inaccessible woodlands west of I-35, which have needs in terms of invasive removals, and diversification of the urban forest.

The Plan will complement and be collaborative with work being done by the City of Austin Watershed Protection Department (WPD), the Parks and Recreation Department (PARC), and other local nonprofits. While many entities are involved with management and restoration work around the lake, this project represents the first time a detailed assessment and plan will be completed for the entire system. City staff in PARC and WPD have expressed support for this effort to prioritize and coordinate work being done around the lake.

This report will look at current management and restoration work, identify areas of need, and prioritize activities based on their relative importance. The end result will be the strategic use of resources to increase the ecological and aesthetic value of an exceptional natural resource in the heart of Austin, TX.

On March 6, 2014 the Austin City Council adopted the *Austin Urban Forest Plan: A Master Plan for Public Property*. Implementation of the plan will begin this year. This comprehensive management plan provides framework and guidelines for Austin's urban forest over the next 20 years.

The Urban Forest & Natural Areas Management Guidelines at Lady Bird Lake will complement the Austin Urban Forest Plan through inventorying, data acquisition, and creation of management

guidelines for 199 acres of urban forestland adjacent to Lady Bird Lake and the Butler Trail. This project will build on the growing public-private partnership between the City of Austin and The Trail Foundation.

STUDY AREA

This project targets a highly urban area in the center of the city, which has a functioning ribbon of riparian forest and some uplands, associated with the Butler Trail that circles Lady Bird Lake and various adjacent City parks. The project area comprises approximately 199 acres of public lands. This area includes a 50 to 100 foot buffer around the Butler Trail circling the lake along with adjacent natural areas that greatly expand that buffer in many locations. The study will address the natural areas within these 199 acres, which are defined as vegetated areas that are not formally landscaped. In some cases, areas that are currently mowed will be addressed for their potential to support the adjacent natural areas.

The Trail has over a million visits each year and is enjoyed by locals and tourists of all ages and backgrounds. It continues to garner increased attention due to Austin's population growth and emergence as an international tourist destination. Improvements along the Trail have received statewide architecture awards, and much needed, innovative enhancements continue to improve the Trail user experience and access to nature.

The project area lies at the crossroads of several important bioregions. Here, blackland prairies meet the karst limestone uplands of the Edwards Plateau. Within the Trail study area, the clean water from Barton Springs flows into the Colorado River, supporting aquatic and riparian habitats that are home to diverse endemic wildlife. These amazing ecological elements are just a short walk from the towering buildings of downtown Austin. The landscapes found here have inspired many over time including the lake's namesake, Lady Bird Johnson, who went on to become our nation's most well-known champion of native plants. The activities proposed in this project will build on the ecological and cultural legacy of the site.

The project area is diverse and includes not only areas adjacent to booming downtown Austin, but also traditionally underserved areas.

With the Butler Trail at Lady Bird Lake being one of the most popular and heavily used public spaces in Austin, there is great potential to communicate the purposes of the project to the general public. As part of this project, a Public Service Announcement will be created that will educate the public about the importance of urban trees. This project also presents an opportunity to invite people to be involved through volunteer activities and recording wildlife sightings.

PROJECT DESCRIPTION

Siglo Group will complete a Site Assessment and create Urban Forestry and Natural Area Management Guidelines for the Lady Bird Lake natural areas, working closely with City staff in PARD Urban Forestry and WPD. Project deliverables will include an approximately 80-page report and a supporting presentation to be presented twice by Siglo staff. The findings will include information and guidance on:

- Ecological characteristics of the natural areas;
- Plant and animal species lists;
- Management of the site's natural areas, divided up into management zones;
- Invasive species occurrences and control methods;
- Care recommendations for select trees; and
- Community involvement through citizen science, invasive species control, and monitoring.

The report will include:

- A five-year schedule of land management activities, including seasonal recommendations and monitoring protocols;
- A tree inventory for the entire 199-acre project area. The inventory will include trees 8" dbh and over in woodlands and natural areas and trees 3" dbh and over in more developed and mowed areas. In addition, planted trees over 2" dbh in the more developed areas will be inventoried.
- Supporting photos and maps (approximately 40 photos and 15 maps); and
- A compilation of results in an aesthetically pleasing package appropriate for informing the public, promoting TTF and Forestry efforts, and fundraising.

The process will include three major components: 1) data acquisition and a review of existing information about the site, 2) field assessment and baseline documentation, and 3) the development of urban forestry and natural area management guidelines. Within these major components, this project will also take into consideration historic and cultural elements and look at site challenges and opportunities. All components build on one another to create an implementable plan that will increase the ecological integrity and natural beauty of the site resulting in an enhanced user experience and a more resilient natural environment.

Siglo will draw on its experience evaluating parks and conservation lands throughout Texas including recent projects at the Laguna Gloria site for The Contemporary Austin and Pease Park for Pease Park Conservancy. An online version of the Laguna Gloria report can be seen at: <http://siglogroup.com/lagunagloriareport/>. Siglo will also engage with City staff involved with the greenway, stakeholders of The Trail Foundation, and Texas Conservation Corps staff. Analysis will combine on-the-ground assessment with sophisticated geolocation and geographic data layering. Results will be presented in a manner that conveys technical information in a usable, appealing manner that is accessible to a large audience and can be communicated electronically.

REVIEW BACKGROUND INFORMATION AND DATA ACQUISITION

Numerous organizations and governmental entities have completed projects and developed plans that have contributed to the creation and maintenance of the Lady Bird Lake trail system. This project will review relevant studies and plans including: the recently completed "City of Austin Invasive Species Management Plan" (2013); WPD's "Prioritized and Managing Invasive Plant Species in Austin, TX" (2012) guide for treating invasive species; PARD's Urban Forest Plan; as well as the ongoing documentation of Arundo treatment by WPD at 50 colonies along the lake. This existing information will be incorporated into a set of best management guidelines for the entire system going forward.

Several plans have been or are being developed for areas around the lake including Auditorium Shores, Waller Creek, Festival Beach, South Central Waterfront, and the Southeast Shores. This report will only address the areas within these planning areas that according to the plans will remain as or be restored to natural vegetation. Relevant organizations and institutions will be consulted including the Austin Parks Foundation, Waller Creek Conservancy, Shoal Creek Conservancy, and Save Barton Creek Association. Finally, infrastructure projects that may impact the natural areas along the lake such as the construction of the Boardwalk will be reviewed.

This project will also involve the collection and analysis of appropriate geographic and community data including: boundary and ownership data for surrounding parcels, available surveys, geologic data, stream network and watershed boundary maps, bird surveys, archeological site locations (if available), historic aeriels, plant surveys, endangered species records, topographic data, critical environmental features, existing and planned infrastructure including roads, and ecological systems.

BASELINE AND FIELD ASSESSMENT

The baseline assessment provides an informational framework through which we can understand land management needs and potential solutions. The site will be evaluated with regards to:

- Soils, geology, and topography;
- Historic land use and conditions;
- Aquatic, hydrologic resources;
- Plant survey (subcontract with Bill Carr, notable field botanist in Texas);
- Ecological systems and plant communities;
- Tree inventory for trees 8" dbh and above in woodlands and 3" dbh and above in developed/mowed areas as well as planted trees 2" dbh and above in developed/mowed areas;
- Bird and wildlife observations; and
- Sensitive and significant features.

The purpose of the field work is to understand and evaluate: vegetative communities, micro habitats, existing and potential problems, existing and potential opportunities, terrain, effects of previous management, and effects of existing and proposed improvements. Photopoints throughout the site will be used to create the management plan and to facilitate long-term monitoring.

Key Outcomes

Implementation of the report's recommendations will result in the restoration of natural areas within the Lady Bird Lake Natural Areas and along the Butler Trail system. This area includes a number of natural systems including aquatic, riparian, woodland, and savanna, all of which have distinct management needs. The report will provide guidelines specific to these areas, focusing on ecological integrity, while being mindful of the user's experience on this popular downtown trail system. The report will also provide guidelines on how to prioritize future management activities, including a discussion of adaptive land management principles.

The Texas Conservation Corps, working in partnership with The Trail Foundation, will use the practices and priorities identified in this assessment to guide the work of youth. The work will improve the long-term ecological integrity of this community asset as well as the user's experience while providing technical skills and training for local youth and young adults, and providing volunteer opportunities for the general public.

Approach and Methods:

Urban Forestry & Natural Areas Management Guidelines

The urban forest and natural area management guidelines will be based on ecological restoration principles using an adaptive management approach. The management plan will consider the ecological characteristics of the site, the community uses of the site, and the desired outcomes from ecological and aesthetic perspectives. The management plan will include specific management strategies with detailed methods and implementation techniques. It will address the following elements:

- Woody species recruitment and understory enhancement;
- Reintroduction and restoration of extirpated flora throughout the site;
- Riparian corridor protection and enhancement;
- Invasive species removal and control;
- Care recommendations for select trees;

- Erosion control within the natural areas using natural systems;
- Seeding and planting;
- Wildlife habitat enhancement;
- Balancing land management and user needs;
- Special management considerations around adjacent land uses;
- Monitoring and early detection protocols;
- Adaptive management techniques;
- Scheduling; and
- Activity prioritization.

The process for creating the guidelines will consist of:

1. Identifying desired outcomes through site evaluation and discussions with staff from the City of Austin, The Trail Foundation, and Texas Conservation Corps. Specific goals and priorities will be developed to guide the strategic use of available resources to achieve these desired outcomes.
2. Determine existing conditions and provide for future evaluation of management techniques:
 - a. Photopoints strategically placed throughout the site to capture areas of cultural, functional, and ecological importance (approximately 30);
 - b. General species composition and density mapped throughout the site.
3. Creating Natural Areas Management Guidelines:
 - a. Determine best practices, restoration potential, sustainable management techniques, and invasive species management;
 - b. Early detection and rapid response techniques for particular invasive species;
 - c. Five-year management and assessment schedule;
 - d. Criteria for judging success and establishment of adaptive management protocols.

Three major elements that will be looked at in greater detail and will help define the overall guidelines are restoration, invasive species management, and tree care. Each of these are crucial parts of the management plan that as a whole will result in increased ecological integrity of the Lady Bird Lake natural areas.

Restoration

Ecological restoration is the act of enhancing natural processes in a landscape where they may not exist or may be impaired. In practical terms this includes revegetation, invasive species management, increasing tree and other plant diversity, reducing erosion issues, and increasing soil health. We will be looking here at issues causing environmental degradation, as well as the potential to alter those processes and repair ecological damage. Where restoration is possible, recommendations will be made for soil amendments, seeding and planting protocols, tree canopy re-establishment or enhancement, understory and groundcover re-establishment or enhancement, erosion mitigation, protocols for re-establishing vegetation in heavily impacted areas from human and pet traffic, and riparian vegetation re-establishment.

Invasive Species Management

Invasive species management is one of the largest challenges of natural areas management along the lake. Invasive species are a threat to local biodiversity and contribute to a reduction in ecosystem services like erosion control. Because of this, invasive species management will be a focal point of this planning process. The outcome will be a set of best practices specifically chosen for the Lady Bird Lake environs. The plan will be in accordance with the recently adopted citywide invasive species

management plan and input from City staff will be a crucial part of the development of the Lady Bird Lake Natural Areas Management Guidelines as well as the prioritization of tasks. Target species for this project are priority species noted in the Invasive Species Management Plan. They include: *Alnus altissima* (tree of heaven), *Ligustrum* sp. (large and small leaf privets), *Melia Azedarach* (Chinaberry), *Nandina domestica* (nandina or heavenly bamboo), *Photinia* sp. (red-tip and Taiwanese photinias), *Arundo donax* (giant cane), *Broussonetia papyrifera* (paper mulberry), *Triadica sebifera* (Chinese tallow), *Lonicera japonica* (Japanese honeysuckle) and *Phyllostachys aurea* (golden bamboo).

Tree Care Recommendations

Part of the appeal of the Butler Trail for users, and a significant part of its ecological value, comes from the many majestic trees found throughout the Lady Bird Lake Natural Areas. Here we will look at issues for specific trees throughout the site and give recommendations for the care of trees where needed. Issues addressed will include potential Oak Wilt, drought stress, disease or insect infestation, pruning, soil enhancement, and in some cases removal.

Management Zones, Priorities, and Scheduling

The study area will be divided into smaller, more manageable zones. This will facilitate the implementation of management activities and the creation of work orders, as well as make it easier to understand and discuss the site. The divisions will be based on characteristics such as site vegetation, topography, human activity, urban impacts, and location.

The individual restoration and invasive species management tasks will be prioritized over a five-year period. This rough schedule and prioritization will provide The Trail Foundation, as well as Texas Conservation Corps, with a set of objectives that can be met on a quarterly basis in order to complete all desired work over the project's five-year time frame.

Implementation

All recommendations of the plan will be made while considering the capacity and abilities of Texas Conservation Corps. Texas Conservation Corps is a program of the local nonprofit, American YouthWorks. Its participants and staff are trained in conservation work and will function as a skilled hand-crew that can negotiate the tight spaces and uneven terrain typical of the project area to cut and remove invasive plant species and conduct associated restoration activities. The Lady Bird Lake natural areas and trail system will become a conservation service-learning laboratory for youth and young adults through this partnership with American YouthWorks.

The City of Austin, including WPD and PARD, which are integral to this project, have a long history of working with the TxCC program and TTF and have communicated their support for this project and its implementation.

Monitoring

Continued monitoring is crucial to the success of any restoration or invasive species control project. Siglo will monitor the study area annually, assessing how successful that year's management activities have been and documenting areas that need further treatment. Siglo will use photopoints throughout the study area, which will be documented in The Plan with GPS coordinates and a baseline photo for each point. During each annual monitoring visit, these baseline photos will be replicated, showing the area's condition at the time of the monitoring visit, while also building a library of images that can be used to track changes over time and show progress.

Any treated sites that are not covered by the photopoints will also be photographed and evaluated annually to determine the effectiveness of the restoration activities, as well as whether these activities need to be continued or altered. TxCC, or the entity that is completing the management tasks, will be responsible for documenting the type of treatment in each area, the time of treatment, and relevant weather information. This information will be used to help inform the monitoring assessment and will be stored along with the monitoring data. Monitoring data and a brief report will be delivered to TTF at the completion of each year's monitoring.

Timeline

The timeline is contingent on partnerships and working relationships with the City of Austin, The Texas Conservation Corps, and The Trail Foundation. Assuming reasonable schedule alignments with these groups, the report can be completed within nine months of project approval. In the first two months, Siglo will review existing natural areas plans, data, and studies and meet with staff from PARD, WPD and other stakeholders. The next four months will be spent doing fieldwork, baseline assessment of the site, and geographic analysis. The final three months of the project will be devoted to completing the final report and incorporating feedback from stakeholders. Implementation can begin as the final report is being completed. Annual monitoring will record the progress of each management activity, allowing for revisions to the plan as necessary using an adaptive management strategy. After five years, a full evaluation will be undertaken, and this information will be used to set management strategies for the next five years.

Budget: See attached documents

The comprehensive budget for the Urban Forestry & Natural Areas Management Guidelines for Lady Bird Lake and the Butler Trail is \$108,335. For purposes of this application we've separated the budget into two parts.

The first part (attachment 1) is the comprehensive budget and allows for full completion of The Plan.

The second part (attachment 2), which is being presented to the Urban Forestry Board, contains select components of the full budget in which we are seeking funding from the Urban Forestry Grant Program. This budget totals \$45,145 and focuses on individual tree inventory, assessment, and care recommendations. The remainder of the project complements individual tree information with a focus on the urban forest and natural areas of Lady Bird Lake as a whole.

Within the budget items put forth for consideration by the Urban Forestry Board we have included the tree inventory, mapping of the tree inventory and site, tree care evaluation and recommendations, assessment of invasive species issues, invasive species management recommendations, and a partial summation of the projects findings. The most substantial components of this part of the project are the tree inventory and the tree care evaluation and recommendations.

The two parts of the project—those funded through the Urban Forestry Grant and those funded from other sources— will be seamlessly integrated into the work flow and deliverables associated with the entire Urban Forestry and Natural Areas Management Guidelines for Lady Bird Lake and the Butler Trail project to create a comprehensive plan for the care and enhancement of Austin's most beloved and used urban forest over the next five years.

Personnel Qualifications: See attached document (attachment 3)

Primary Contact Information:

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