

APPENDIX L

PARK CONTEXT & REFERENCES

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APPENDIX L1

PARK CONTEXT

City Context: Consistency with Planning

The following is an overview of the relevant standards and report findings that bear on Pease Park and the Shoal Creek Greenbelt.

1) Demographics and Development Trends

Demographics of PARD-Designated Two-Miles District Park Service Area

SMSA population is 1.9 million, at a density of 2,610 people per square mile
Population grew from 790,390 in 2010 to 865,504 in 2014 (City of Austin website)

- 11th largest city in the United States
- One of the 15 fastest growing cities in the US
- 3rd highest net migration over the last five years
- Job growth is 4.1% per annum. Forbes Magazine Austin
- 3rd worst traffic congestion in the country

Downtown, UT and the Capitol

Three of the driving forces of change in the Pease Park vicinity are the growth and development of downtown, UT and the state capital complex. Downtown and UT have recently completed master plans. The Capitol complex and district has not completed a master plan but there is great potential for civic improvement if and when such a plan is completed. The certainty of the downtown and UT growth, with the likely eventual renaissance of the Capitol, has created and will greatly increase the demand for quality open space nearby. These three districts will intensify their need for Waller Creek and Shoal Creek as relief from the increase development density.

Downtown Austin Alliance website states the following:

- Downtown population 10,000 (estimated)
- 2,163 condo units have been built since 2000 (to 2014)
- 1,994 apartment units have been built since 2000 with a 90% occupancy
- 1,164 apartment units are under construction currently.
- Occupancy levels are over 90%
- 123,178 people work Downtown.

West Campus statistics:

- 17,000 residents of West Campus, up from 10,000 in 2000. (Austin Statesman 2009)
- West Campus has one of the highest population densities in the City with 13,319 people per square mile. The average age is 22 years old. (From CityData.com)
- From 2005 to 2009 there were 2,400 apartment units built. Occupancy levels are 96 to 100%.

2) University of Texas Master Plan 2012

Based on historical trends, UT Austin could grow by 2.4 million square feet, or roughly ten percent, per decade. As a new medical school is established, growth could be significantly greater. Understanding how to accommodate this growth is critical for the University and its surrounding community.

The trend line predicts a requirement of 7.2 million square feet over the next thirty years. Increased density in the central campus could accommodate about 75% of potential growth

The campus plan focuses entirely within the campus and provides does not directly affect the Pease Park project area. However, connectivity between Shoal Creek and the campus affects quality of student life. The plan is very clear in embracing Waller Creek as a major open space feature on campus.

“The master plan considers Waller Creek and San Jacinto Boulevard together as a single integrated linear space that accommodates pedestrians in both the natural setting of the creek and the urban setting of the street. By combining the two corridors, the master plan blurs the boundaries between them, and makes more space available to the creek corridor.”

In terms of its relation to the Pease Park master plan, the UT Campus reach of Waller is analogous to the Pease Park reach of Shoal Creek, creating a logical pairing of the two creeks a greenway companions flanking downtown. Additionally, the plan places implicit emphasis on 24th Street as a campus connector from Shoal Creek through the campus to Waller Creek. To a lesser degree, MLK and 29th Street serve as connectors, with 29th Street begin the ore heavily used by students due to the high density of off campus housing in the University West Neighborhood.

3) West Campus Neighborhood Overlay

The district is framed on the east by the shopping strip of Guadalupe and on the west by Shoal Creek and the park. Presently, residents can easily walk to campus and Guadalupe, but getting to Shoal Creek is more difficult due to the large number of east-west streets that dead-end along the cliff above Lamar Boulevard and the few intersections where pedestrians can safely cross. Because of this most residents find themselves driving to a park that is quite close by. One or two east-west streets should be developed with bike lanes and greater emphasis on shade [trees] which can form pedestrian feeder paths to the park, giving residents calmer alternatives to MLK and 24th Street.”

Recommendation include: Actions G.2 A GROUP OF EAST WEST STREETS WILL HAVE ADDITIONAL SETBACK REQUIREMENTS AND TREE REQUIREMENTS TO CREATE A PEDESTRIAN BOULEVARD CONNECTING THE DISTRICT AND PARKLAND ALONG SHOAL CREEK. (NOTE: 25th Street is recommended)

4) State Capitol Planning

Although there is no master plan for this district at present, concepts that have been discussed in the past will increase the quality of life, and with it the potential for downtown Austin to accommodate growth by way of densification. In particular, the thinking regarding transformation of anonymous buildings, vast parking lots and barren streets will create a connection between UT and Downtown, fostering a more attractive city center. With the improved urban environment and increased density, residents, workers and students will seek the limited available nearby green space from live/work/study environs. This in turn will place additional pressure on the pedestrian and bicycle quality of the east-west streets that reach Shoal and Waller Creeks.

5) Great Streets

The Great Streets program coverage area lies mostly outside of the Pease Park project area. Streets that are affected include MLK Boulevard, 15th Street and Lamar Boulevard. The city should evaluate application of great street standards in some form for the sake of continuity and identity.

East West Streets in the Pease Park Project Area

Viewed as corridors that connect the Shoal and Waller corridors, these streets take on added importance as possible pedestrian and bike routes. Currently some are of necessity slated as commuter corridors. By reconsidering these as “Greenway Corridor Connectors” the open space system from the river to beyond UT could be conceived as a green ladder.

15th and MLK: Capital District Corridors- these are the streets most affected by changes in the Capital district, and which have the greatest potential for urban design connections to a future improved Capital District.

MLK / 24th/ 29th: Campus Corridors These are the streets that carry the highest volume of student traffic. The West University neighborhood plan recommends improving 25th street to allow residents to use a less traveled street to reach Lamar Boulevard, and the park.

North South

There is a great opportunity to reimagine central Austin as a downtown fronting on a wonderful lakefront and framed by two reconceived green parkways: Shoal/Lamar and Waller/San Jacinto.

San Jacinto Boulevard

San Jacinto is noted here because one of the key actions of the UT master plan is to reconceive the San Jacinto / Waller corridors as a unified corridor. This approach is exactly the approach that should be applied to Pease Park and Lamar.

Lamar Boulevard

Lamar Boulevard is currently seen as more of a divider between central and west Austin. In this era of increased emphasis on pedestrian and bicycle mobility, Lamar should be improved to make it more please and attractive for those on foot and bike trying to reach the park and use the sidewalks along Lamar. Although the Great Streets standards may not apply to the developed conditions along Lamar at this point, some systematized approach to the enhanced detailed design of Lamar should be coordinated with the land owners along it, PARD, PPC and the neighborhoods.

6) City of Austin Park and Recreation Department

Long Range Plan and other documents.

A) Pease Park is defined by PARD as a District Park:

“District parks range from 31 to 200 acres, have a service area of a two mile radius, provide basic recreational opportunities found in neighborhood parks that may also utilize the land’s features in preservation and interpretation and provide major indoor and outdoor facilities. District parks are larger than neighborhood parks and are more highly developed to serve the needs of neighborhoods within their two-mile service areas. Typically, they provide the basic recreational opportunities found in neighborhood parks, plus major indoor and outdoor facilities. The land’s features play a larger role in nature preservation and interpretation than the small natural areas occasionally found in neighborhood parks.

District parks... are usually located on minor arterial roadways to encourage access by public transit, as well as by other means. These parks may have major indoor facilities such as recreation centers, senior centers and gyms. Major outdoor facilities may include regulation sport courts and playfields, group or reservation picnic facilities, junior Olympic or Olympic size swimming pools and bathhouses, trails and interpretive signage.”

Based on 2012 American Community Survey estimates, the population served in this area is 93,850. This is broken down as follows:

Male: 47,879

Female: 45,972

White: 78,018

Hispanic / Latino: 13,662

Black / African American: 3,287

Asian: 7,592

American Indian / Alaskan Native: 291

Native Hawaiian / Pacific Islander: 24

Some other race alone: 2,510

Two or more races: 2,121

Not Hispanic / Latino: 80,189

Park System Standards

Pease Park is a district park and it also functions like a neighborhood park (Kingsbury Commons), a metropolitan park (Eeyore’s Birthday), and a greenway (Shoal Creek Trail).

Neighborhood and School Parks:

Neighborhood and school parks range from two to 30 acres, have a service area of a one mile radius and provide basic recreational opportunities close to home.

Metropolitan Parks:

Metropolitan parks are, at a minimum, 201 acres with a city-wide service area that provides the greatest diversity of recreational experiences, and are generally natural resource-based and usually located along waterways.

Greenways:

Function: Greenways are multifunctional linear park systems that often link to other types of parks, serve as wildlife corridors, provide areas for flood control, means of preserving water quality, contain routes for alternate modes of transportation and function as possible utility corridor.

Size: Has a minimum width of 50’ however 200’ width is more desirable

Service Area: Varies due to size of feature.

Character: Greenways are intended for passive recreational use and typically follow rivers, creeks, scenic ravines and encompass the 100 year flood plan and water quality zone.

Level I Development: Design process for master development plan. Trail head, parking and interpretive signage.

Level II Development: Addition of benches, picnic facilities, drinking fountains, bank stabilization.

Level III Development: Formalization of area with additional signage, erosion control and landscaping.

Park Trail:

Function: Multi-purpose trails are located within parks, greenways, and natural resource areas. Located within mostly natural settings, park trails provide recreational opportunities and may also provide connectivity to other green spaces, neighborhoods, urban development, and alternative modes of transportation outside of the park.

Size:

Multi-Use Trail: All users except equestrian: **Urban – 12’ wide**, Suburban – 10’ wide, Rural – 8’ wide

All users including equestrian: Urban – 16’, Suburban – 12’ wide, Rural – 10’ wide

Single-Use Trail: **Pedestrian – 6’ wide**, Mountain Bikes (single track) – 2’ to 3’ wide, Equestrian – 6’ wide

Motorcycle – (single track, trials-type course) – 4’ minimum width

Service Area: Varies due to size, location, connections and features.

Level I Development: Design process for master development plan. Trail head, parking and interpretive signage.

Level II Development: Addition of trail amenities including benches, drinking fountains and restrooms.

Level III Development: Includes special facilities such as educational kiosk, wildlife viewing areas and special designations.

Park Trail Corridor: There should be a cleared area that is level with the trail, extending 2' from each side of the trail tread edge. An area of selective woodland thinning should extend 20' (single use) to 26' (multi-use) from the centerline of the trail. Clearing height above the trail should extend to 8' for pedestrians, to 10' for bicycles, and to 12' for horses.

B) Central West Austin Neighborhood Plan – 2010

- Improve parking facilities at Shoal Creek Greenbelt
- Improve creek crossings along Shoal Creek Greenbelt where crossings exist
- Create a park or program for teens
- Create opportunities for public art display at parks
- Ensure that some part of all playscapes are shaded with either trees or shade structures
- Post signage providing contact information for “Friends of...” program at all parks
- provide picnic benches under the oak trees located south of the 29th St bridge
- Plant shade trees and add benches along Shoal Creek Trail...to improve the pedestrian environment
- Conduct a study to determine whether there should be improvements to the off-leash area at Shoal Creek Greenbelt to reduce potential conflicts between dogs and vehicles, pedestrians and cyclists
- Plant trees along Shoal Creek in order to improve riparian habitat and aesthetics
- Improve and limit disc golf course crossings on Shoal Creek Greenbelt (superseded by PARD decision)
- Plant additional native shade trees [in] parks

C) Blueways, Greenways and Park Trails Plan

The 4.62-mile Shoal Creek Hike and Bike Park Trail is truly a multi-use trail that often finds commuters, hikers, dog walkers, and disc golf players sharing the same trail. The lower part of the trail is increasingly important for access to newly developing downtown residential and entertainment centers.

8.2 Greenbelts and Greenways Definitions and Standard Guidelines

Greenways

The term greenways and greenbelt are often used interchangeably. The term greenway is the standard term that will be used in this document to be consistent with National Recreation and Park Association (NRPA) guidelines.

A greenway is a natural corridor that often follows a river, creek, ridgeline, valley or other linear open spaces. A greenway can serve multiple functions such as: hike and bike trails, a linear park system, a wildlife corridor, an area for flood control, a means of preserving water quality, and as a bicycle and pedestrian linkage throughout a community.

A greenway can serve as an area for passive recreation such as walking and nature observation. On the other hand, more active pursuits such as mountain biking, trail running, and rock climbing may also be a part of a greenway system.

Although greenways are mostly associated with natural areas, they can also serve highly urbanized areas. In these cases, a greenway is usually a linear park system with developed recreational and alternative transportation facilities, or park nodes along the length of the system.

Greenways are often natural transportation corridors that can link various aspects of the community and the countryside via trail systems. Trail types can range from nature trails to multi-purpose trails to bicycle pathways. They may be used for both recreating and commuting.

When associated with creeks and rivers, greenways also serve to protect water quality and other environmental values. Austin's creeks are protected by the City Code through requirements for **100-year floodplain, Critical Water Quality Zone (CWQZ), and Water Quality Transition Zone (WQTZ) setbacks. Additional guidelines have been published to define Erosion Hazard Zone setbacks.** These requirements and setbacks ensure that new development does not occur too close to waterways. These setbacks ensure that new development does not occur too close to waterways. Public greenways significantly reinforce and complement these water quality setbacks. The combination of regulatory requirements and the acquisition of public lands in the creek side environment improves water quality (soils and plants filter pollutants); keeps structures and other improvements further from erosion hazards; provides for space and habitat for riparian trees, vegetation, and wildlife essential to creek health; and confers a direct and tangible connection between the community, the land and the waterways.

Greenways: A greenway corridor should have a minimum width of 50 feet from edge of creek bank, however a greater width is often desirable, especially to allow sufficient width to construct trails and other fixed facilities outside of erosion hazard areas.

8.3 Existing Greenways

Input from PARD's Public Input Meetings on City-Wide Greenways and Park Trails

- Connectivity of trails to parks and neighborhoods
- Increase security along trails
- Pursue funding for planned trail network
- Additional signage on trails
- Increase trail connectivity to mass transit areas
- Work with other COA departments to utilize their land for trail connectivity
- Work with watershed protection to prevent erosion in parks with creeks and greenways
- Work with non-profit groups to help eradicate non-native invasive plants within greenways and restore with native plants
- Increase restoration efforts in overused greenways
- Work with water utility and Balcones Canyon Preserves for public access on water quality protection lands for trail connectivity
- Continue trails and greenway land acquisition to close gaps (e.g., north of 31st Street)

Park Trail Types:

Improved Surface Trail - consists of high-use trails located mainly within urban and suburban areas. A typical tread width ranges from 10' to 16', depending on anticipated user volume. Tread surface would be granite gravel, concrete, asphalt* or other added material including porous pavement systems. These trails could have bridges, and typically have amenities such as information kiosks, benches, drinking fountains, rest rooms, exercise facilities, etc. at trail heads. Improved surface trails where possible will be built to conform to AASHTO and/or ADA standards. (*asphalt is discouraged for trails near waterways due to negative water quality impacts.) Natural Surface Trail - are located mainly in greenways or natural resource areas. A typical trail width ranges from 2' to 10' depending on specific uses. Trail tread would be existing natural soil that has been cleared, grubbed of rocks and roots, leveled and compacted. These trails would have limited amenities such as way finding. Natural surface trails would be built to conform to IMBA standards.

Special Use Park Trails

Equestrian Trail (assumed NA)

Motorcycle Trail (assumed NA)

Mountain Bike Trail (assumed NA)

Nature Trail - A natural surface trail designed to emphasize harmony with the natural environment. Trail use is by pedestrians only. Amenities would include wildlife viewing areas,

scenic overlooks, educational signage, etc. Trail access may be limited by special conditions such as bird nesting seasons or other environmental considerations

Other Modes

Connector Trails - Provide connectivity and safe travel to parks and throughout the community; and may follow various easements such as utility corridors, drainage ways, etc. Connector trails may use non-park public land or private land by means of a trail easement for the purpose of public use. One advantage of the dedication of a trail easement for public access in Texas is that State law protects private landowners from liability in such cases. The primary function of these trails is transportation, although recreational values are also present. These trails have standards similar to AASHTO

(American Association of State Highway of Transportation Officials) and depending on the specific situation, may intersect with park trails in order to promote continuous travel ways.

Shared Use Path - A multi-use trail physically separated from motorized vehicular traffic by an open space or barrier and within the highway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers/runners and other non-motorized users.

Bike Lane - A portion of a roadway which has been designated by striping, signing and pavement markings for the preferential or exclusive use of bicyclists. The primary use of a Bike Lane is bicycle commuting within the community.

Bike Route - A system of bikeways designated by the jurisdiction having authority with appropriate directional and informational route markers, with or without specific bicycle route numbers. Bike routes should establish a continuous routing, but may be a combination of any and all types of bikeways.

Bikeways - A generic term for any road, street, path or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes. These off-street modes are built to AASHTO standards. User speeds may be in the range of 10 to 15 mph, and thus may not be appropriate for pedestrian activity.

Note: It is Austin Parks and Recreation policy that motorized vehicles (excluding wheelchairs) are prohibited on trails. This includes bicycles powered by an electric motor.

8.8 Existing Major Park Trails

Over 115 miles of park trails with various types of surfaces are within Austin's parks, preserves and greenways. The core of Austin's park trail system is the downtown "hub and spoke" system that provides an inter-connected web of approximately 30 miles of park trails. The "hub" is the 10-mile Trail at Lady Bird Lake park trail that loops through central Austin. The "spoke" trails follow the various creeks that feed into the Lake. These trails that follow creeks include Shoal, Waller, Blunn, West Bouldin, Barton, and Johnson. This trail system also connects the two major "bookend" parks – Zilker Park and Roy G. Guerrero Colorado River Park. These trails provide a vital source of recreation and travel opportunities for central Austin.

Shoal Creek Trail The 4.62-mile Shoal Creek Hike and Bike Park Trail is truly a multi-use trail that often finds commuters, hikers, dog walkers, and disc golf players sharing the same trail. The lower part of the trail is increasingly important for access to newly developing downtown residential and entertainment centers.

TRAIL MANAGEMENT

Trail Safety:

Planning and Design – Designing trails for slopes, drainage, sight lines and avoidance of obstructions are essential safety considerations for trail users. Trails on Parkland shall be designed to comply with uniform guidelines referenced elsewhere in this document. Trails must be wide enough to

accommodate the intended users as noted elsewhere herein and should be designed to avoid user conflicts. Depending upon specific site conditions trail access and egress points should be provided at a minimum of every mile and/or at every street crossing. When a trail is located in the flood plain, egress points should be provided within 50' to 100' of any possible entrapment points, bridges, tunnels or street overpasses. Because lighting may be a nuisance to adjacent property owners, attracts users at unauthorized times of day and can provide a false sense of security, lighting should be restricted to trailheads, parking lots and locations on trails that pose a tread or tripping hazard.

Trail Operations and Maintenance:

The key objective of Operations and Maintenance is to ensure the safe use, enjoyment and long term success of a trail route. Routine maintenance shall occur on a day-today basis with remedial maintenance applied on an as-needed basis.

Remedial Maintenance Includes:

- Major Trail surface repair
- Plumbing and Electric repairs (restrooms, water fountains)
- Trail replacement or rerouting
- Closing and restoring unauthorized trails
- Revegetation of disturbed or eroded areas
- Invasive species removal
- Drainage corrections
- Signage replacement or additions
- Habitat enhancement

Routine Maintenance Includes:

- Trail safety inspections (railings, signage, ramps, minor trail surface issues, minor drainage repairs)
- Trail sweeping (Concrete trails only)
- Litter and Trash removal
- Public education
- Volunteer coordination
- Surface maintenance of parking lots/ trailheads
- Kiosk repair
- Crosswalk stripping
- Fence and wall repairs
- Bridge decking
- Low water and stream

7) Urban Trails Master Plan

2013 for Review

Shoal Creek Trail is one of nine urban trails. The trail extent is described as from Lady Bird Lake to 31st Street (although the inventory map stops at 24th Street). The focus of the report and recommendations is on the lower Shoal Creek Trail south of the Pease Park Master Plan area.

Shoal Creek Trail

Year Built: Early 1960s

Location: Central Austin

Length: 2.5 miles (from 5th Street to 31st Street)

Average Trail Width: 6 ft. to 8 ft.

Surface Material: Concrete

Pavement Condition: Average to fair

Access & Connectivity: Excellent; LAB, 5 bike share stations, 10 bus lines

Lighting: Lighting along Lamar Blvd (30% of trail)

Trail Amenity Features: directional signage, trailhead features at three locations along the trail

Additional Investment Required, Widening of trail where feasible and appropriate, additional signage, improve accessibility, increase amenities such as drinking fountains

Summary of Urban Trail Design Considerations:

Austin Urban Trail Dual Track Urban Trail

Standard Width 12'

10' for bicyclist side

5' for pedestrian side

Surface: Asphalt

Minimum shoulder: 2' 5' recommended

2' user separation

Vertical Clearance: 10'

Maximum Cross Slope: 2% ,8% for bicyclist side

Maximum Grade 5%

Design Speed 18mph, 30mph - 30mph

Minimum Distance from Roadway 5' 5'

General Bridge Standards

Width 14' minimum, Vertical Clearance 10' minimum, Railing 42" minimum

Trailheads

Spacing between trail access points/trailheads – 1/4 mile. Include connections to other trails, the on-street network, transit stops, bike share stations, and nearby destinations, and may incorporate scenic overlooks or pull-offs. Major trailheads can be spaced 1/2 mile or farther apart. Placement should consider on-street transportation systems like bike lanes, transit stops and bike share stations.

Trailhead design should include maps and signage that are informative while being visually easy to understand.

Two general types of trailheads include:

Access to trail from adjacent streets or trails

Access to trail from parks

Trailhead features may include:

- Trash receptacles and dog-waste pick-up stations,
- Benches or other trail furniture,
- Bicycle parking,
- Information kiosk, where appropriate
- Trail map including a "You are here" orientation, and
- Landscaping.
- Connecting to the City's

FEATURES AND AMENITIES

In order for the trails system to be a successful community amenity, the trails should appeal to a wide variety of users including both the elderly and young children. These groups will use the trail more often if the trails are designed to provide a high level of user convenience and the appropriate amenities are provided.

Recommended trail amenities include:

- Drinking Fountains provide drinking water for people (and pets in some cases).
- Bicycle Parking Racks allow trail

Signs can inform trail users of: location, orientation, distance and travel time, speed, safety and alerts and trail etiquette.

Trail amenities like drinking fountains serve basic needs. Others, like the bench can be functional and create a unique place. Bike racks allow users to safely park their bicycles if they wish to stop along the way, particularly at parks and other desirable destinations.

Art Installations make a trail system uniquely distinct. Local Art Installations make a trail system uniquely distinct. Local artists can be commissioned to provide art for the trail system. Many trail art installations are functional as well as aesthetic, as they may provide shade, and places to sit or play. Restrooms shall be ADA accessible and are appropriate at major trailheads or if previously existing in City parks along the trail route.

Pedestrian-scale Lighting improves safety by enhancing night-time visibility and the perception of security. Light fixtures should be designed at the pedestrian or bicyclist scale. High-use trails will be given priority lighting. Solar-powered lighting should be considered where feasible.

Trail Furniture such as benches at key rest areas and viewpoints encourages people of all ages to use the trail by ensuring that they have a place to rest along the way. Benches can be simple (e.g. wood slats) or more ornate (e.g. stone, wrought iron, or concrete).

Maps and Directional Signage allow users to navigate the trail system. Information kiosks with maps at trailheads and wayfinding signs throughout can provide enough information for someone to use the trail system with little introduction. A central information installation at trailheads and major crossroads also helps users find their way and acknowledges the rules of the trail. The directional signage should be ADA accessible and may include features for those with limited sight or other visual impairments, identify accessible routes, and impart a unique theme so trail users know which trail they are following and where it goes.

Reference Location Markers or mile markers are an effective way for trail users to track their location, and they enhance safety in the event of an emergency. They should communicate the trail name and reference location in miles. They may also include a unique identification number that can be relayed to emergency services personnel.

Information Kiosks provide trail users with information and the rules of the trail. A legible trail system map with a “You are here” marker is helpful for orientation. Involving school children, university students, civic organizations or the Art in Public Places program in the research, design and construction of these kiosks would be an excellent community activity. They are also useful for interpretive education about plant and animal life, ecosystems, and local history.

Trash Receptacles and Dog Waste Pick-up Stations are important trail features that can help keep the trails maintained. Periodic containers at access points should be provided. Additionally, dog waste pick-up bag dispensers should be placed at trailheads and key neighborhood access points along the route. Signs should be placed along the trail notifying dog owners to pick up after their dogs. Shade Pavilions are important to give trail users a respite from the hot Texas sun. Shade pavilions should include some furniture for trail users to rest and relax.

Landscaping should consider practical and aesthetic appeal, including trees for shade and native, low-maintenance plants. The City of Austin Watershed Protection Department and the Environmental Criteria Manual provide guidance on responsible landscaping techniques for our climate. Urban Trails under design will be reviewed by Watershed Protection and Planning Departments to ensure landscaping for the trails meets current city standards. Bike Share is a program where users can rent a bicycle at one location, ride to their destination, and return the bicycle at another location nearby. Placing bike share stations at key urban trail access points and trailheads is recommended. This would allow someone to enjoy an urban trail on a bicycle, or to commute on the urban trails by bicycle.

TOP 5 MOST IMPORTANT ACTIONS TO IMPROVE URBAN TRAILS

As identified by the Online Survey

1. Improve access to the trails from nearby neighborhoods or businesses
2. Add lighting for evening use along some sections of trails
3. Trim landscaping and obstructions to improve sight lines
4. Create separate areas for walkers and bicycle riders
5. Improve the smoothness of trails

8) Capitol View Corridors Plan

The City of Austin's Capitol View Corridors Plan influences the Pease Park Master Plan. Two key areas lie between corridors 1 and 21.

View Corridor 21 (10) Capital of Texas Highway

This corridor roughly overlaps the exceptional view of the Capitol dome near the Windsor Gateway at Harrell Street, framed by Live Oaks.

9) Neighborhood Plans

A) The Central Austin Combined Neighborhood Plan

West University/North University/Hancock

Pease Park ranked a close second to Zilker Park as the neighborhood's most visited park.

"Presently, residents can easily walk to campus and Guadalupe, but getting to Shoal Creek is more difficult due to the large number of east-west streets that dead-end along the cliff above Lamar Boulevard and the few intersections where pedestrians can safely cross. Because of this most residents find themselves driving to a park that is quite close by. One or two east-west streets should be developed with bike lanes and greater emphasis on shade which can form pedestrian feeder paths to the park, giving residents calmer alternatives to MLK and 24th Street."

Recreation Preferences: If a nearby park, greenbelt, or recreational area were to be developed or improved, what would your priorities be?

Top Ten Priorities

- Hike/bike trail
- Landscaping
- Maintenance
- Safety
- Swimming pool
- Playscape
- Leave park as it is or leave it in a natural state
- Picnic facilities
- Enhance vegetative cover, especially shade trees & native vegetation
- Park facilities: benches, shelters (Tie)
- Improve accessibility by pedestrians, cyclists, and the disabled (Tie)

Other Suggestions

- Build bigger and better pools with longer hours
- Provide a leash-free dog park area
- Jogging track
- Bike lanes
- Tennis
- Basketball

- Recreation Center
- Soccer
- Baseball
- Miscellaneous Other

Objective 5.4: Improve pedestrian and bicyclist access from the neighborhoods to Pease Park.

B) Combined West Austin Neighborhood Plan

Objective 1: Ensure access to a range of parks and open space for a range of people.

P.1.2 Improve parking facilities at the following parks:

a. Shoal Creek Greenbelt — to reduce parking overflow onto neighboring streets

Access points that need improvement include

1) Shoal Creek Greenbelt/Seiders Springs/Bailey Park/Pease

a. 34th Street to Shoal Creek Park/Seiders Springs

b. Windsor Road to Pease Park/Shoal Creek Greenbelt

c. 29th Street to Shoal Creek Greenbelt — fix gravel that is there (tough to cross)

e. Improve signage into park along Shoal Creek Boulevard

Goal 5 - Accessibility- Provide access to, from, and through the neighborhood for all residents.

Obj. 5.1 – Improve the neighborhood's sidewalk network. Concentrate on improving the ability of pedestrians to walk to schools, parks, local businesses, and downtown. The neighborhood has a high volume of cut through traffic due to nearby major roads and new commercial development on Lamar.

Action 19: Build new sidewalks, from the list below. The city should work with liaisons from the neighborhood planning team to resolve conflicts with existing utilities, landscaping, slope, aesthetic issues, and to evaluate cost impact of solutions. See also "Sidewalks" under mobility policies.

Goal 8: Aesthetics – Create attractive, pedestrian-friendly public spaces in the neighborhood

Obj. 8.1 - Improve aesthetics of streets

Action 55: Participate in and support the efforts of the West End Alliance and the West Lynn merchants to improve commercial corridors. In particular, support the goals of the West End Austin Alliance master planning effort for these corridors: creating a pedestrian friendly, mixed-use environment.

Action 56: Support the burying of utilities on Lamar Blvd. from 3rd to 15th Streets.

Action 57: Support the burying of utilities on W. 5th Street from Lamar to MoPac.

The Neighborhood Planning Team understands that funding for utility burial is currently limited but would like for these areas to be considered for future projects.

Ch 10 Recommendations and Prioritization of Needs

Pease Park recommended for master planning in LRP

Redevelop Duncan Park

Playgrounds

- Provide play and learning opportunities for toddlers (6 months to 2 years) at appropriate locations.
- Provide diversified play for 6 months to teens and special needs

Facility Improvements

- Ensure all existing and new park facilities are barrier free, and increase recreational opportunities for special needs populations
- Ensure all facilities are upgraded to achieve safety and security for all users

- Evaluate the need for shade at recreational spaces and provide as appropriate

Asset Management

Recommendations are assumed to be internal to PARD administration system wide and are not addressed here.

- Consistently inventory, track and update all PARD assets in the **Asset Management**

Database

- Utilize Capital Planning reports to better forecast budgets and schedules
- Employ Asset Management Database in creating future Master Plans
- Improve response time and effort to maintenance needs through Preventative Maintenance

Partnerships

- Continue to partner with school districts for the planning and funding of joint-use recreational facilities
- Continue to work with Austin Energy for energy conservation methods within the park system
- Work with the Watershed Protection Department and Austin Water Utility to prevent and control erosion and protect water quality along creeks within parks and greenways, and restore degraded riparian areas in parkland
- Work with youth associations to upgrade existing irrigation systems to more efficient for water conservation and cost saving measures
- Continue to work with The Trust for Public Land for land conservation efforts
- Aggressively promote and market the Adopt-a-park program
- Promote advocacy groups to support park facilities and programs

Recreation and Cultural Programs

- Expand and diversify outdoor recreation programs, nature education and adventure-based programs at appropriate indoor and outdoor facilities throughout Austin
- Develop a traveling recreation program with special consideration for high need populations
- Expand and diversify cultural programs at appropriate indoor and outdoor facilities throughout Austin
- Provide specialized programming emphasizing the “four corners” of art, history, culture and nature
- Provide programs for seniors that include aerobics in facilities throughout the park system
- Promote participation in recreation and cultural programs by conducting a public awareness campaign, and provide information through appropriate media outlets
- Pursue funding and implementation for museum restoration

Natural Resources

- Restore degraded areas of existing parkland
- Plan new parks to achieve a balance of facilities and a healthy, sustainable Natural environment
- Integrate Low Impact Development stormwater and grading techniques into existing and future park facilities and landscapes to improve water quality, help control erosion, and conserve water

Energy and Natural Resource Conservation Measures:

Continue the following best management practice; where feasible:

- Expand use and/or incorporate the following water quality and conservation measures:
 - Non-Potable Lake Water Irrigation
 - Reclaimed Water Irrigation
 - Innovative Water Quality Controls
 - Rainwater Harvesting
 - Rain gardens
 - Vegetative filter strips
 - Bio-Swales (future collaborative efforts with Watershed Protection Dept)
 - Biofiltration ponds (future collaborative efforts with Watershed Protection Dept)

- Work with youth associations to upgrade existing irrigation systems on sports fields for more efficient systems; below and above ground
 - Water Reuse - Utilize back wash water from pools and splash pads for irrigation around that pool/splash pad
 - Fill/Draw Pool Conversions to Splash Pads
 - Mandate ET-Based controllers, drip irrigation, etc
 - Pervious Pavement
 - Expand solar power use for supplementing power
 - Trip lighting on the Trail at Lady Bird Lake (future installation)
 - Expand use at additional recreation centers
- Continue use of renewable resources
 - Mulch, Dillo Dirt, Aggregate, Pervious Pavement, Use of Cedar trees for curb rails to help hold mulch in place
- Pursue additional recycling efforts within the park system
 - Recycling at recreation centers (future installation)
 - Recycling at ball fields (future installation)
- Expand technology based conservation measures
 - Web-based controls for HVAC systems at various locations with the goal to continue conversions through the facilities within the park system
- Pursue joint energy conservation efforts with Austin Energy
 - Bulb replacement on all ball fields to more energy efficient
 - Web-based climate controls for all buildings
 - Utilize Building Commissioning experts to check every aspect of buildings to be energy efficient
 - Weatherization with older buildings
 - PARC equipment selection criteria encourages the purchase of equipment with a large percentage of post consumer recycled building materials
- Emphasis on nature and adaptive landscape plants per the City of Austin's Grow Green Guide
 - Pursue efforts to modify scheduled mowing practices to work with nature instead of against
 - Shall reduce weed species by mowing prior to seed dispersal
 - Help maintain existing native grasses and wildflowers
 - Continue removal of invasive species from the under story of trees
 - Continue efforts to trim up trees for safety measures

Other Adjacent Facilities

Five park and recreation facilities and a school stadium are nearby Pease Park and the Shoal Creek Greenbelt, Together these reinforce the concept of a unified public open space corridor linking parks, recreation center, tennis courts, s stadium and skate park.

- Seiders Springs Park
- Shoal Creek Green belt
- House Park Field
- Austin Recreation center
- Austin BMX and Skate Park
- Duncan Park
- Lamar Activity Center
- Caswell Tennis Center

10) Draft DOWNTOWN PARKS AND OPEN SPACE MASTER PLAN

Downtown Austin Plan

Revised January 19, 2010

The project area of the Downtown plan extends to MLK and Lamar Boulevards. It depicts abuts but does not encompass Pease Park and the remainder of the project area. It makes reference to the Shoal Creek Greenway Action Plan. It does not include specific recommendations that affect the Pease Park Master Plan. It contains many supporting statements regarding stormwater management, trail connectivity, habitat conditions, etc.

Given the investment and attention to Lower Shoal Creek it follow that, upstream, every effort should be made to reduce flooding, improve water quality and enhance connectivity.

Numerous recommendations about the lower Shoal Creek reinforce the Pease Park Master Plan’s assumption that Downtown Austin will use the Shoal Creek Greenway to reach greener spaces in the Pease Park project area. This creates a higher level of expectation for quality and demands a response to accommodate and protect the park from ensuing increased use.

Regarding Park Quality:

The report notes: “Most of the downtown parks have neither been master planned nor designed. The layouts and amenities within the parks are generally the result of piecemeal interventions, such as the addition of trail improvements, a swing set, some picnic tables, etc., rather than the result of a thoughtful master plan followed by a detailed design and planning effort. Good public open space design ensures that the spaces and amenities function well together and support the desired activities. Excellent public open space design does this in the most sustainable and artful way, integrating all of the ten principles presented above to create a memorable and beloved public space.”

The following activities were felt to be lacking in the overall downtown system:

Pease Park Master Plan Response:

“+” = exists, “-” = Potential, “x”= does not exist and is not planned

- + Children’s playgrounds and other family-friendly spaces and activities
- + Water play, fountains
- x Swimming facilities
- + Off-leash dog areas
- x Community gardens
- Botanical and other specialty gardens, arboretums
- + Habitat preserves, bird-watching areas
- + Outdoor basketball
- Food and beverage sales and outdoor dining (proposed on an event basis)
- Public art and interactive art
- +,- Historical and ecological interpretive exhibits
- +,- Performance and special events spaces at a variety of sizes
- x Places for spontaneous performances and busking
- +,- Intimately-scaled, reflective spaces with benches
- Boules, bocce ball courts, chess tables and other small-scale, socially-oriented activities
- + Places for Tai-chi, dance, fitness classes
- X,- Art-making and other outdoor classrooms/learning
 - Bicycle rental
 - Shade structures
- +,- Public restrooms

The plan lists the City annual budget for Operation and Maintenance as begin \$85,000 per year for 9.3 acres, \$9,100 per acre.

11) Urban Parks Workgroup

October 6, 2011

The report recommends better access to parks by residents in terms of distance, increased funding and improved design, focusing largely on the quality of play environments, and innovation through partnerships.

This digest will focus on design. Access and funding are citywide issues that affect the master plan but are being addressed elsewhere. Funding and Innovation through Partnerships funding and is a leader in innovative partnerships to accomplish its goals. This is a core concern of the Pease Park Conservancy which has advocated successfully for increased funding for parks.

Due to the presence of the aging playscape and the spray pad that is located in the floodplain, the recommendations from this report are extremely important to the Pease Park Master Plan.

Three Best Practices and Innovative Trends in Park Design and Development are lists as kinetic, nature-based, mobile play.

Access:

(Note that north end of project area is not developed and does not serve the needs of the community and is thus cited as deficiency)

7. Expand financial support for providing safe pedestrian and bike access to city parks and other outdoor public spaces, in line with the City's Strategic Mobility Plan, through implementation of the Fall 2010 and succeeding bond referendums.

In addition to adding new urban parks, ensuring safe pedestrian and bike access to these parks is just as critical in order for the City to meet its ½-mile and ¼-mile park accessibility goals

City of Austin Urban Parks Workgroup Report Recommendations

October 6 2011

The relevant findings and recommendations from this report focus on recent trends and developments in the design and management of play environments elements in parks. The report focuses on Park Access, Park Funding, Park Design, and Innovations Through Partnership. The Park Design component is most relevant to the Pease Master Plan and focuses on kinetic play structures, nature based playscapes, and mobile play environments. This is relevant to and informs the Pease master plan recommendation to consider play a parkwide system in general and in particular to redesign the Kingsbury playscape to respond to this ideas.

From the report:

Create a Citizen/PARD staff work group to prepare Austin-specific comprehensive design and management guidelines for natural play areas for the review and action of City Council by December 1, 2012. These guidelines should include and build upon the best practices identified in the "Natural Play and Learning Areas National Guidelines Project" currently being developed as a joint project of the National Wildlife Federation and the Natural Learning Initiative at North Carolina State University.

In tandem with the work being done on liability issues, design and management guidelines should also be developed. Austin is fortunate to be the home for the National Wildlife Federation's new program on developing national standards for natural play. PARD is invited to use these in the development of Austin-specific guidelines.

6. Engage the Austin design and research communities (such as UT faculty working in the areas of play, public health, and cognitive development) in the creation and development of innovative playscapes.

Some of Austin's greatest resources are its cultural and intellectual capital. Strategic partnerships with both university initiatives and the design and arts communities have the potential to bring the innovation needed to help Austin perform on a national level in park design. Rather than waiting for others to approach PARD, PARD should take the initiative to identify and engage the research and design communities.

7. As part of the process for developing guidelines for natural play areas , create a list of "low hanging fruit" projects where innovative play environments can be incorporated (funded, designed and constructed) at a smaller scale with specific partners (such as neighborhood groups, nonprofit organizations, foundations, and private organizations).

- a. While developing these projects use the opportunity to create comprehensive design and management guidelines for natural play areas.
- b. Create methods for monitoring and evaluating completed parks. Consider working with existing organizations and university faculty to augment PARD's monitoring capacities.

Often the reason for not developing innovative play environments is simply the reason that it has not been done before – liability issues have not been addressed, code issues have not been fully outlined, public opinion has not been gauged. By starting with the most promising sites and partnerships, PARD can work to build a repertoire of dynamic and innovative site designs.

12) Seaholm Redevelopment District Lower Shoal Creek and New Central Library Planning and Design Coordination

January 19, 2010

This report examines the Lower Shoal Creek in terms of the major redevelopment along its banks and the Seaholm Power Plant /New Central Library project. It does not directly address Pease Park and the Shoal Creek Greenbelt. The report shows the level urban design and engineering focus on the downtown reach, and shows the need to improve the quality and capacity of the Pease project area to respond to the lower Shoal Creek investment.

13) Austin Creeks

1976

Austin Creeks was the seminal document that celebrated the city's creeks individually and as a system, as they had been, were and could be. At that time, Shoal Creek was an obvious source of concern for flood risk, and the 1981 flood bore out the need to heed the warning of the report's prophetic statement below:

Shoal Creek, the largest of the creeks within the city limits, has a watershed that is almost completely developed. As the northern end of the watershed has experienced rapid development in recent years Shoal Creek has become a significant flood problem. If the increased runoff from development is not retained at the northern end by holding ponds, the problem will continue to increase until complete channelization or the creek will become inevitable. The lessons of not planning for the ultimate development of Shoal Creek will hopefully teach us how to avoid similar problems on other creeks in the future.

APPENDIX L2

REFERENCES

REFERENCES

The following is a list of the references that have been used by the Design Team in the development of the Pease Park Master Plan. The list is broken up into three categories:

- 1) Planning Reports & Documents
- 2) Natural Resources References
- 3) Cultural Historical References

Planning Reports and Documents:

Austin B Cycle, 2014
Austin Bicycle Plan Update, 2009
Austin Creeks, 1976
Austin Parks Long Range Plans, Nov 2010
Austin Trails Master Plan, Nov 2013
Austin's Urban Forest Plan, 2013
Capital Metro – Austin System Map, 2014
Capital View Corridor Plan, 2005
Central Austin Combined Neighborhood Plan, Aug 2004
Central West Austin Neighborhood Plan, Sept 2010
City of Austin Invasive Species Management Plan, 2012
City of Austin Urban Trails Master Plan, Draft April 2014
Cultural Resources Survey of Pease Park in the City of Austin, Dec 2012
C20 Central Traffic Calming Area (Old Enfield), Jan 2013
Downtown Austin Master Plan, Dec 2011
Downtown Austin Wayfinding Graphics Manual, April 2014
Families and Children Task Force, June 2008
Future Forest Project, 2011
Graffiti Abatement on Pease Park Historic Resources, June 2013
Great Streets, 2000
Imagine Austin, June 2012
Lake Austin Growth Management Plan, 1976
Pease Park Ecological Assessment & Restoration Recommendations – Lady Bird Johnson Wildflower Center, June 2007
Pease Park Restoration and Management Project, Jill Nokes, 2006
Nature Play & Learning Area Guidelines Project, 2012
Old West Austin National Register Historic District, 2003

Old West Austin Neighborhood Plan, June 2000

Pease District Park – Site Condition Assessment, PARD 2010

Reclaimed Water Infrastructure Master Plan Update – Austin Water, Nov 2011

Seaholm Redevelopment District- Lower Shoal Creek & New Central Library, Jan 2010

Shoal Creek Greenway Action Plan, 1998

Shoal Creek Conservancy Feasibility Study, May 2013

Shoal Creek Restoration 15th to 28th Streets, 2013

Shoal Creek Watershed Environmental Integrity Index, Oct 2011

Sustainable Site Initiative, 2012

University of Texas Master Plan, 2012

Urban Parks Workgroup, Oct 2011

Waller Creek Design Plan, 2013

Watershed Protection Department – Flood Studies, 2013

Cultural Historical References:

News Paper Articles / Documents / Books (in no particular order)

“The Memorial Day Flood of 1981”, *Community Impact*, May 27, 2011

“Remembering the 1981 Memorial Day Flood”, KVUE.com, May 20, 2011

“The Memorial Day Flood: A Look Back”, John Williams, May 23, 2011

A History of Central Texas, Mary Starr Barkley, 1970

History of Travis County and Austin, 1839 to 1899, Mary Starr Barkley, 1970

“1913 City Council Resolution Adjusting Pease Park Boundary”, Austin Historical Center

“Shoal Creek Hike and Bike Trail”, Austin Historical Center

“Custer’s Meadow”; Austin Historical Center

“First Pedestrian Bridge Over Shoal Creek at Pease Park – 1970’s”, Austin Historical Center

“Split Rock – 1970’s”, Austin Historical Center

“Pease Park To Be Beautified”, *The Austin American*, 1926

“Kuehne, Hugo Franz”, *Texas State Historical Association*

“The Tavern – Enfield Grocery Store”; *Texas Woodcarver*

Academic Training in Architecture, Hugo Kuehne, 1923

“Hugo Franz Kuehne Records and Drawings – An Inventory of the Collection”; Austin History Center

“Kiwanians Propose Making Historic Site Into Real Beauty”; *The Austin Statesman*, 1926

“Praises Pease Park”; *The Austin Statesman*, 1903

- "Somebody Around Here Wants to Start A Fire"; *Texas Heritage*, 2013
- "Austin Parks: Trying to Fill the GAP"; Chase Hoffberger
- "Myths and Mangled Memories"; source unknown
- "Hikers and Bikers, Idyll of Shoal Creek"; Austin History Center
- "The Fishes Build A Trail for Austin"; Austin History Center
- "Janet Long Fish – Obituary"; Austin American Statesman, 2008
- "O.Henry"; *Wikipedia.com*
- "O.Henry and The Shoal Creek Treasure"; *Treasurenet.com*
- "The Buried Treasure of Texas Hill Country"; *Legends of America.com*
- "BEXAR Script No. 2692"; *io.com*
- "Architects, Artisans, Builders, and Suppliers"; source unknown
- Images of America: Austin's Pemberton Heights; Elizabeth A Cash and Suzanne B. Deaderick
- "Custer Lives: General Custer In Texas"; *Texas Escapes.com*
- "Historical Marker Reminds Park Lovers of Pease Gift"; *Austin American Statesman*, 1971
- "Pease Park Conservancy Holds Fundraiser"; source unknown
- "Pease Park Endowment Receives \$100,000 in Additional Funding"; source unknown
- "Richard Craig"; *West Austin News*, 2011
- "Planting a Place in the Shade: Volunteers help Pease Park turn new leaf"; Austin Chronicle; 2010
- "An Overused Oasis"; *Austin American Statesman*, 2009
- "Planting A Place In the Shade"; *The Austin Chronicle*, 2010
- "Historic Shoal Creek"; *Pemberton Journal*, 2001
- "Pease Park Eternal?"; *Pemberton Journal*, 2008
- "The First Hike and Bike: Janet Fish and the Shoal Creek Trail"; *Austin Sierra Club.org*
- Lucadia Pease & The Governor; Ed by Katherine Hart & Elizabeth Kemp
- "Pease, Elisha Marshall"; *Texas Historical Association*
- "Elisha M. Pease"; *Wikipedia.com*
- "Woodlawn"; *Wikipedia.com*
- "Eeyore's Birthday"; *Wikipedia.com*
- Abner Cook: Master Builder on the Texas Frontier; Kenneth Hafertepe
- Indian Depredations in Texas; J.W. Wilbarger
- "Sarah's Story"; *Texas Escapes.com*
- A Journey through Texas, Or a Saddle-Trip on the Southwestern Frontier; Frederick Law Olmsted
- "Update: Back-up Information for National Register Permit: Pease Park Improvements"; Kim McKnight
- "ACWP Dedicates New Pedestrian Bridge To Honor Trail Pioneer Janet Fish"; *Pemberton Journal*, 2007
- "Keeper of Fairy Glen"; *Austin American Statesman*
- "Picturesque Hike, Bike Trail Soothing Oasis of Relaxation"; *Daily Texan*, 1964
- "General Custer Camped along Shoal Creek"; *Austin Times Herald*, 1961

“Pease Park, Plan for Restoration, management, and Conservation”; *owana.org*, 2006

Websites

- <http://www.allandaleighbor.com/allandale/2012/04/the-history-of-shoal-creek.html>
- http://peasepark.com/wordpress/?page_id=4
- <http://www.examiner.com/article/seiders-springs-park-is-a-gem-worth-preserving>
- <http://www.austinexplorer.com/Locations/ShowLocation.aspx?LocationID=1352>
- http://www.waymarking.com/waymarks/WM8K0N_Seiders_Oaks
- <http://www.austinfmagazine.com/article/piecing-pease-park-back-together-2/>
- <http://www.austinlibrary.com/ahc/downloads/PARD%20bibliography%201st%20ed.pdf>
- ftp://162.89.4.117/GIS-Data/PARD/McKnight_HistoricResources/Pease_Park_Shoal_Creek/Pease%20Park/OLD%20NR%20app/Draft_Pease%20Park_photos.pdf
- <http://www.shoalcreekconservancy.org/1441-2/>
- <http://www.tedleeubanksphotography.com/Client-Galleries/Shoal-Creek-Bridges/i-Rzm9VXP>
- <http://www.shoalcreekconservancy.org/shoal-creek/bridges/>
- http://en.wikipedia.org/wiki/Edwin_Waller

Natural Resources References:

Inventory/Analysis

Barnes, 1974. Geologic Atlas of Texas, Austin Sheet. Bureau of Economic Geology, University of Texas at Austin. Austin, TX.

City of Austin, 2012. Invasive Species Management Plan.

Diamond, D. and L. Elliott, 2010. Texas Ecological Systems Project. Texas Parks and Wildlife Department.

Hauwert, N., 2014. Senior Environmental Scientist, City of Austin Watershed Protection Department. Personal communication 2014.

Kalmbach, A., 2006. “Effects of Nonindigenous Plant Species on Bird Communities in Central Texas Periurban Habitats”. Master of Science Thesis, Texas State University.

Sullivan, B.L., C.L. Wood, M.J. Iliff, R.E. Bonney, D. Fink, and S. Kelling, 2009. eBird: a citizen-based bird observation network in the biological sciences. *Biological Conservation* 142: 2282-2292.

TNC, 2003: The Five-S Framework for Site Conservation: A Practitioner’s Handbook for Site Conservation Planning and Measuring Conservation Success. The Nature Conservancy.

Travis County and City of Austin, 2011: Balcones Canyonlands Preserve Karst Monitoring and Management FY 2011 Annual Report. Department of Transportation and Natural Resources Natural Resources and Environmental Quality Division and City of Austin BCP – Austin Water Utility (AWU).

USDA-NRCS. 2013. The PLANTS Database. <http://plants.usda.gov>. Accessed November 2013.

USDA-NRCS. 2013: Web Soil Survey. Available online at <http://websoilsurvey.nrcs.usda.gov/>. Accessed September 2013.

Wilcove, D. D. Rothstein, J. Dubow, A. Phillips, and E. Losos, 1998. "Quantifying threats to imperiled species in the United States." *Bioscience*, Aug98, Vol 48, Issue 8, p607.

Young, K., 1977. Guidebook to the Geology of Travis County. The Walter Geology Library <http://www.lib.utexas.edu/geo/ggct/ch2.html#gt>. Accessed January 2014.

Natural Areas Management Guidelines

City of Austin, 2012. Invasive Species Management Plan

City of Austin Urban Forestry Board, 2013. Austin's Urban Forest Plan – A Master Plan for Public Property.

City of Austin Watershed Protection Department, 2013. Grow Zones. Watershed Protection Department. <http://www.austintexas.gov/creekside>. Accessed November 2013.

Duncan, Alex and Aaron Richter, 2012. Sapling Survival Assessment: Prioritizing Native Tree Species to use in Restoration in the City of Austin, Texas. City of Austin Watershed Protection Environmental Resource Management Division.

Hockett, Karen, and Amanda Clark, Yu-Fai Leung, Jeffrey L. Marion, and Logan Park, 2010. Deterring Off-Trail hiking in Protected Natural areas: Evaluating Options with Surveys and Unobtrusive Observation.

Lady Bird Johnson Wildflower Center, 2007. Pease Park Ecological Assessment and Restoration Recommendations.

Natural Resources Conservation Service, 2012. Specification Guide Sheet for Riparian Forest Buffer.

PBS&J, 2009. Pease Park Water Quality and Stream Restoration Project Phase I – Planning and Preliminary Design, Travis County, Texas. Document No. 090087

Texas Invasives website, 2014. <http://www.texasinvasives.org/>. Accessed March 2014.

Tu, Mandy and Barry Meyers-Rice, 2001. "Site Weed Management Plan Template". The Nature Conservancy, Wildland Invasive Species Program.