



A NETWORK OF GREENWAYS FOR COLLEGE STATION

FINAL MASTER PLAN
DOCUMENT

Adopted by College Station
City Council on 5/27/99



ACKNOWLEDGMENTS

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City of College Station

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FOR
COLLEGE STATION**

March 1999

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A Network of Greenways for College Station

A Master Plan Document

February 1999

The purpose of this document is to provide guidance in the implementation of those portions of the City of College Station's 1997 Comprehensive Plan that address the development of "greenways" within the City.

I. "Greenways" - What Are They?

Increased development in and around Texas cities is creating a variety of concerns for residents and planners. The increase in hard surfaces created through development often leads to drainage and flooding problems. Land use changes from rural agricultural to commercial and residential create a landscape that has lost the rural charm for which Texas is known. The pattern of land use is oriented toward the automobile making it difficult for people to walk or ride bicycles. The designation and development of greenway systems in and around urban areas can help with all of these concerns and enhance community quality of life in many ways.

Just what are greenways? Greenways are corridors that follow natural features like the floodplain of creeks, or human-made features such as utility corridors, roads or railroad beds. When designated along creeks and rivers, greenways help improve water quality and reduce the effects of flooding in floodplains.

Besides providing floodplain control and improving water quality, greenways are becoming increasingly recognized as ways to connect people and places. Greenways provide alternative transportation choices, provide people a safe place to pursue different outdoor recreation activities, including walking, bicycling, in-line skating, and jogging and provide an aesthetically appealing contrast to asphalt and concrete. Greenways are also recognized as an economic asset. Greenways have proven to increase real estate values of adjacent properties, and to attract tourists, and to produce tourism revenues. Greenways also help protect flora and fauna by preserving natural areas and facilitating movement along natural corridors.

Many Texas cities have greenways or greenway systems that are functioning in the ways noted above. Houston has greenways along several of its bayous providing trails for recreation and open space for flood control. Plano has greenways woven among its suburban neighborhoods connecting them to schools and shopping areas. San Antonio has one of the country's most famous greenways, The Riverwalk, which serves as a major tourist attraction. For many years Austin has been developing a "hub and spoke" system of greenways that radiate off of Town Lake near its central business district. These "spokes" integrate natural open space into the community while providing trails for alternative transportation and recreation.

II. The "Greenway Idea" in College Station

The greenway idea is not new to College Station. In the late 1980's a group of forward looking citizens and city officials saw potential in one of College Station's most important creeks. A 1.5 mile section of Wolf Pen Creek became the focus of an urban development plan which would have created a business district with a greenway at its heart. A public park was developed as a part of the project but connections up and down stream were never realized. This project has been revived in the last few years and appears to be moving forward. The Wolf Pen Creek corridor has the potential to be one of College Station's centerpieces in the future.

The 1995 Brazos 20/20 Vision process, which was a countywide initiative, also provided fuel for ideas related to greenways in and around College Station. Citizen working groups charged with developing visions for “infrastructure” and “the environment” in the region developed numerous recommendations related to using open space floodplains for drainage and recreation. One 20/20 idea proposed that floodplains along the Navasota and Brazos Rivers be connected to those along area creeks to create a long distance trail system for transportation and recreation.

The College Station Comprehensive Plan, adopted by the City Council in August of 1997, included several goals and objectives that directly address the need for a system of greenways. A summary of these goals follows.

Land Use Goals of the plan indicate that “College Station should encourage land use that is in harmony with the environment.” One of the key objectives that addresses this goal recommends that College Station “prohibit reclamation of the floodway associated with Carter, Lick and Wolf Pen Creeks and the Brazos River to prevent upstream flooding” and to provide the city with a network of open space.

Community Appearance Goals in the plan say that “College Station should promote a beautiful and safe environment.” It goes on to say that one way to accomplish this is to “promote good site design, provide a good appearance, minimize drainage impacts and increase pedestrian safety”.

Transportation Goals in the comprehensive plan say that “College Station should balance the development of all modes of transportation to assure the fast, convenient, efficient and safe movement of people and goods to, from, and within the community while continuing to protect the integrity of neighborhoods.” An objective set to help accomplish this indicates the community should “develop adequate, safe systems for pedestrian and bicycle movement among neighborhoods, schools, parks, retail/office areas and the University.

Goals for Parks and Recreation in the plan recommend that “College Station should enhance its system of parks, recreation facilities and open space” and “encourage additional connections by a system of linear parks/parkways which utilize creek beds, drainage ways, and other natural features”. The recommendation is also made to “develop greenbelts to connect park and residential areas by “develop[ing] a donation/purchase policy to acquire elected portions of the 100 year floodplain to provide natural corridors of open space for passive recreation that will link parks to one another and to residential areas.” *A Parks Master Plan is currently being prepared that will reference and incorporate this Greenways Master Plan.*

III. The Greenways Implementation Task Force

As part of this newly adopted plan, City Council appointed an 11 member Greenways Implementation Task Force (GITF) to prepare a Greenways Master Plan for the City. The charge to the GITF was:

To develop recommendations related to the implementation of the greenways portion of the College Station Comprehensive Plan including:

- Define greenways as they relate to the CS Comprehensive Plan
- Identify potential uses for specific greenway areas
- Determine potential methods of land acquisition or reservation
- Prioritize specific areas to be dedicated and “developed” as greenways

- Develop one or more proposed projects for consideration in the 1999 capital improvement program.

The Task Force met twice a month to discuss goals and objectives, inventory existing greenways, develop a definition and classification system and prioritize greenways based on specific criteria. The City had a successful bond election in November of 1998 where 3.5 million dollars were allocated for greenways acquisition.

IV. Greenways Defined

Part of the charge of the Task Force was to develop a definition of greenways specific to this area. This definition includes more than just floodplains and creeks. It is broader and is meant to allow the City to ultimately incorporate human-made corridors as part of an overall greenways system.

***Definition:** Greenways in College Station (and Brazos County) are defined as linear open spaces that follow natural features like the floodplains of creeks and rivers or human-made features such as utility, road or rail corridors. College Station's floodplains will serve a variety of functions, including but not limited to, floodplain mitigation, provide trails to link neighborhoods, parks, public institutions and businesses, provide for aesthetic beauty, recreation and alternative transportation and protect wildlife and plants. Greenways along human-made corridors, associated with facilities like roads and utilities, will provide trail connections for alternative transportation and recreation. They will help link economic nodes, cultural/historic areas, parks and residential areas. Greenways in College Station should form a network and should be diverse in their form and function linking developed urban corridors with undeveloped natural areas.*

V. Inventory of Current Greenway Resources

College Station has a variety of linear features that could be designated and developed as part of a greenway system. Several creeks run through its center and help to create its borders. The floodplains associated with these creeks have the greatest potential to meet the goals of creating natural greenways in College Station. They contain natural open space and run through neighborhoods, past schools and shopping areas. Area creeks (Carter, Bee, Lick, Spring, Wolf Pen and Alum) are key greenway resources. (Figure 1)

Peach Creek, South of College Station, White Creek to the west as well as the Navasota and Brazos Rivers all offer future floodplain and trail connections in and around College Station. (Figure 2) As suggested by Brazos 20/20 Vision, College Station and Bryan have the potential to make these water features into a soft infrastructure of natural areas and trails for the benefit of residents and tourists alike. There are also human made features like the Gulf States / C.S. Utilities / Exxon right-of-way (ROW) in east College Station. This Utilities ROW extends along the entire length of northeastern College Station as well as south to Navasota and north to Hearne. The use of railroad rights-of-way for trails is also common throughout the United States with over 900 trails currently in existence. Any current railroad rights-of-way that are vacated in the future should be considered for conversion to rail trail based greenways. (For additional detail concerning all of these existing linear features refer to Figures 7-11 in Appendix 1)

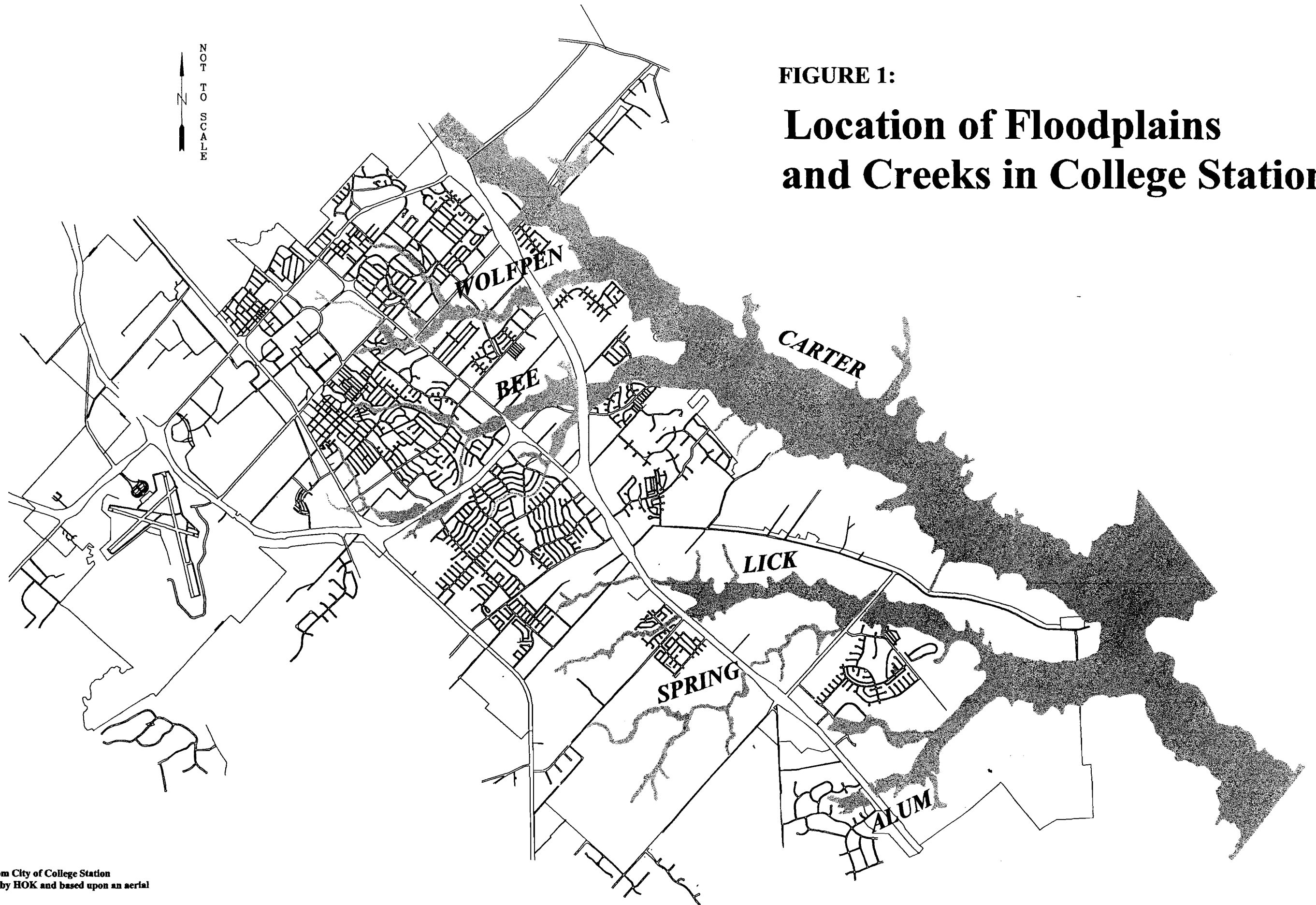


FIGURE 1:
Location of Floodplains
and Creeks in College Station

Note: Floodplain data taken from City of College Station Comprehensive Plan produced by HOK and based upon an aerial survey done in 1994.

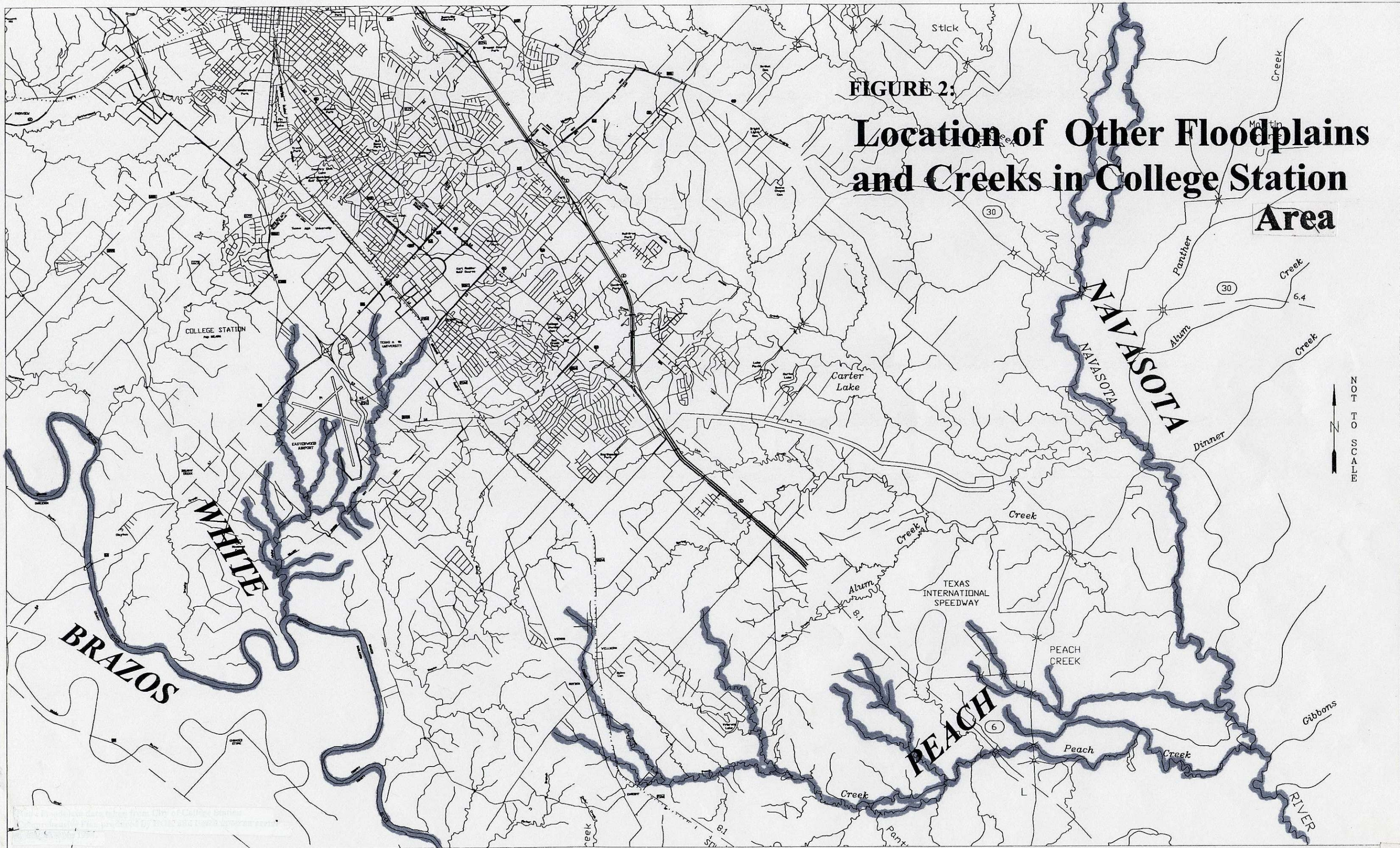


FIGURE 2:
**Location of Other Floodplains
and Creeks in College Station
Area**

VI. Natural Greenways Classification System

Having defined and inventoried the existing network of greenways, GITF began to develop a system for classifying the different types of greenways. Individual greenway pieces must be viewed as parts of a larger whole and prioritized based on criteria specific to all of College Station. A greenway classification system should take several criteria into consideration. The following are important ones for consideration.

- Level of development/improvements of the greenway
- The type of development (e.g., residential, industrial) that currently exists, or is anticipated, along the greenway corridor.
- Potential for connections that the corridor can provide for human use and movement of wildlife.
- The type of use the corridor is likely to receive (e.g., commuting to work or school, recreation and exercise or nature study).
- The type of feature the corridor follows (e.g., a creek or an abandoned rail bed).
- Public ownership or private ownership

It should be noted that due to the linear nature of a greenway corridor it may contain different combinations of these criteria along its length. One continuous greenway could be classified several different ways as it moves from one area through a neighborhood and on to a rural park.

College Station's GITF devised a classification system containing three different types of greenways based on function; Urban, Suburban and Rural and described characteristics for each. Characteristics include connectivity, access, corridor width, trail type, development inside the greenway and development surrounding the greenway (*Figure 3*). The description of each type can be found below.

Urban Greenways:

Urban greenways will be the most highly developed of the three types of greenways. The primary functions served by these greenways will be to provide for flood control, recreation, transportation, economic and aesthetic purposes. Wildlife protection and service as a utility corridor will serve as secondary functions. (*Figure 4*)

Characteristics:

Urban greenways will provide connections between commercial areas along the greenway and surrounding areas. Highly visible access to the greenways will occur at frequent intervals between the surrounding development and the corridor. The width of the corridor will be determined by the floodway line, plus some additional area, to be determined for each specific site. The trail, within the corridor, will be designed to handle primarily pedestrian traffic. It will be a wide trail, having a hard, smooth surface. Urban greenways will be used quite intensely, simply because of where they are located and the surrounding uses. Improvements to the channel should occur only as needed using the softest technique possible. Development surrounding urban greenways will occur at the highest intensity, will be in close proximity to the edge of the corridor and should be sensitive to the creek. This development will be primarily commercial and multi-family residential. Examples of urban greenways in College Station are the main channels of Wolf Pen Creek and Bee Creek from Texas Avenue to SH 6 East Bypass.

FIGURE 3

TYPE OF GREENWAY	FUNCTIONS*				CHARACTERISTICS			
	Primary	Secondary	Connection	Access	Corridor Width	Trail Type	Development within the greenway	Development outside of the greenway
Urban Greenways ex. Wolf Pen Creek, future City Complex (Red)	B,C,D,E,F	A,G	Many connections between commercial areas and links to surrounding areas	-Highly visible -Variety of types	-Floodway critical determinant of width, plus some area	-Pedestrian traffic only -Wide, hard surface -Possibly separate trail for bike/blade	-Highest intensity of use -Channel improvements made only if necessary, using softest technique feasible -Bridge structures should provide separation of grade to allow for safe and convenient passage of users	-Highest intensity use and in close proximity to the floodway; sensitive to the creek -Primarily commercial and multi-family residential
Suburban Greenways ex. Bee Creek, Upper Lick Creek (Blue)	B,C,D,E,F	A,G	Between user and destination ex. neighborhood to: -neighborhood, business, park, school, etc.	Visibility denotes access (may include lighting, signage, picnic area, playground)	Entire floodplain (or if surrounding development is present, what can reasonably be obtained)	Multiple use, relatively wide, medium to hard surface to accommodate recreational/ transportation use	-Trail itself is the focus -Channel improvements made only if necessary, using softest technique feasible -Bridge structures should provide separation of grade to allow for safe and convenient passage of users	-SF; low to medium density MF -Commercial, schools, retail, mixed use
Rural Greenways ex. portions of Lick Creek and Carter Creek (Yellow)	A,B,F	C,D,E,G	-Limited connections to human-made features; strongest connections to natural features -Developed with wildlife movement in mind	Minimal access to allow for a low level of human use	Entire floodplain; possibly wider in some areas to include key natural and cultural areas	Trails with soft surfaces, designed for low levels of human use	-Limited trails developed either for connections or for access to/from destination points -Limited channel improvements allowed -Bridge structures should provide separation of grade to allow for safe and convenient passage of users	Some park-like amenities located at destination points (i.e. parking, picnic areas, interpretive facilities, restrooms, etc.)

*A: Protect Wildlife
B: Flood Control
C: Recreation
D: Transportation

E: Economics
F: Aesthetics
G: Utility Corridor

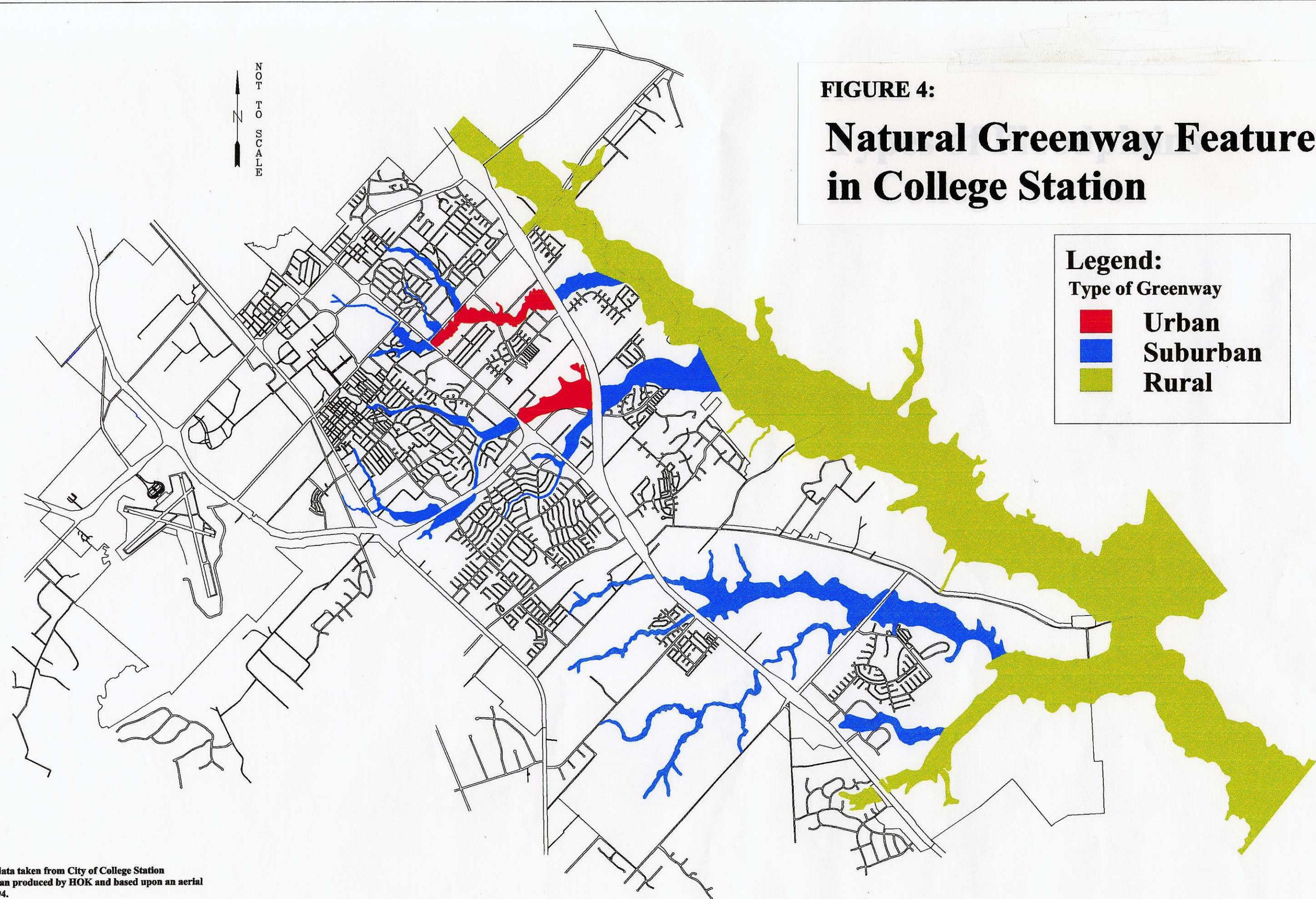
FIGURE 4:

Natural Greenway Features in College Station

Legend:

Type of Greenway

- **Urban**
- **Suburban**
- **Rural**



Note: Floodplain data taken from City of College Station Comprehensive Plan produced by HOK and based upon an aerial survey done in 1994.

Suburban Greenways:

As with urban greenways, the primary functions served by suburban greenways will be to provide for flood control, recreation and transportation, and to serve economic and aesthetic purposes. Wildlife protection and service as a utility corridor will be secondary functions. (Figure 4)

Characteristics:

There will be moderate to high levels of use. These corridors will connect users and their destinations such as neighborhood to other neighborhoods, to businesses, to parks or to schools. Access points will be visible and may include lighting, signage, picnic areas or playgrounds. The width of a suburban greenway should be the entire floodplain, or if surrounding development is present, what can reasonably be obtained. The trails will serve a variety of recreational and transportation uses and will be relatively wide with a medium to hard surface. The trail itself, is the focus of the greenway. Channel improvements should only be made if necessary and using the softest techniques feasible. Bridge structures should provide grade separation for safe passage of users. Surrounding development will consist of low to medium density single family, multi-family, mixed use, retail commercial and uses such as churches and schools. Examples of what could someday be suburban greenways in College Station are portions of Bee Creek and Wolf Pen Creek west of Texas Avenue and Lick and Spring Creeks from their beginnings to the confluence with Alum Creek.

Rural Greenways:

The primary functions of rural greenways are to control flooding, to protect wildlife and to increase aesthetic value. Recreation, transportation, economics and service as a utility corridor will serve as secondary functions. (Figure 4)

Characteristics:

This type of greenway would exist in a mostly "natural" state with connections made for wildlife movement and some trails developed for public use. The surrounding land use would be primarily agricultural, undeveloped open space or low density residential. Riparian areas would see very little, if any, modification. Trails would be more primitive, designed for lower levels of use and may connect larger nature oriented parks or preserves. User amenities would be less common and found only at destination points. The corridor width would contain the entire floodplain and possibly more in some areas to include key natural or cultural areas. There would be limited channel improvements allowed and bridge structures would be grade separated to allow safe passage of pedestrians and bicyclists. As it currently exists, much of the Carter Creek floodplain would be an example of this type of greenway. Lick Creek also provides an example.

VII. Natural Greenways Prioritization

Once the classification was complete and various characteristics described for each greenway, the Task Force identified several criteria to be used in evaluating the various greenways for acquisition priority. The criteria are (1) whether structural flooding problems exist, (2) whether there are existing CIP projects or plans impacting the greenway, (3) the immediacy of development near the greenway, (4) the amount of undeveloped land surrounding the greenway, and (5) whether the greenway provides a link to existing schools, parks, residential and commercial areas. Criteria (3) and (4) indicate the potential to gain greenspace in areas where development is imminent.

As there were already projects underway addressing the areas where flooding had occurred, criteria one was not as critical to this process as others at this time. *(Figures 5 & 6 describe and locate greenways by priority. Appendix 2 provides scoring method)*

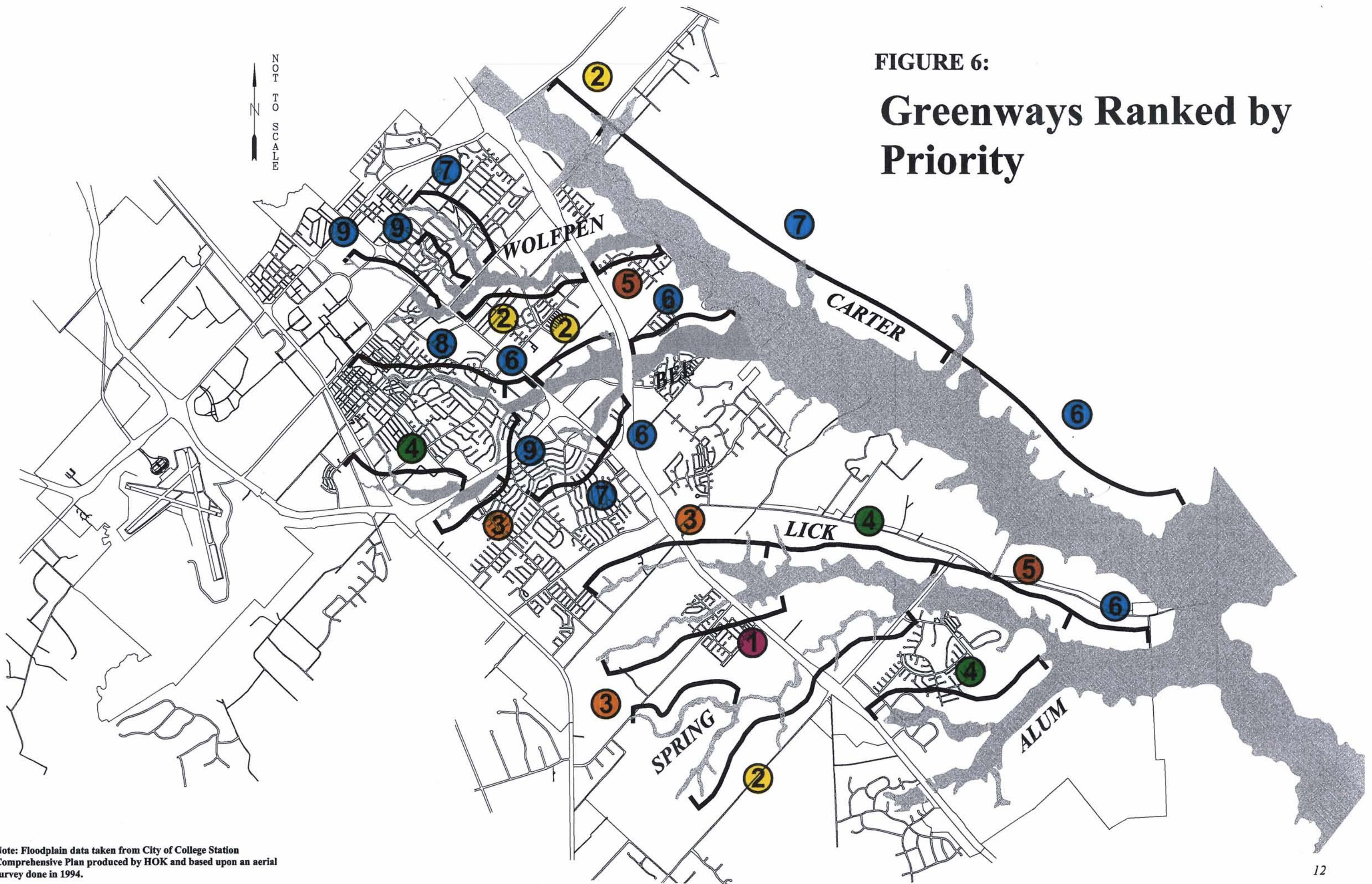
FIGURE 5
Greenways Prioritization Matrix

Ranking	Creek	Section	Location Description (Approximate)	# of Points	Matrix Reference #
1	Lick	South Fork	E. of Wellborn (start) to confluence with Main channel (E of Hwy 6)	10	21
2	Wolf Pen	Main	Texas Ave. east to Trib. B	9	5
2	Wolf Pen	Main	Trib. B to Trib. A	9	6
2	Wolf Pen	Main	Trib. A east to Holleman/Dartmouth intersection	9	7
2	Wolf Pen	Main	Holleman/Dartmouth intersection to Hwy 6 Bypass	9	8
2	Bee	Main	Texas Ave. to Hwy 6 Bypass	9	16
2	Spring	South Fork	W. end of Crowley tract to confluence w/ N. Fork & Main channel	9	26
2	Spring	Main	Confluence w/ N & S Forks (Crowley tract) to Hwy 6	9	27
2	Spring	Main	Hwy 6 to confluence w/ Lick Creek (Greens Prairie Road)	9	28
2	Carters	Mike Davis tract	University to Harvey	9	31
3	Bee	Trib. B - S. Fork	Wellborn (start) to confluence w/ Trib. B & N. Fork (Welsh)	8	12
3	Lick	North Fork	Btw. Graham & Rock Prairie to confluence w/ Main (E. of Hwy 6)	8	20
3	Spring	North Fork	E. of Wellborn to confluence w/ S. Fork & Main channel (Crowley tract)	8	25
4	Bee	Trib. B - N. Fork	W. of Wellborn to confluence w/ Trib. B & S. Fork (Welsh)	7	11
4	Lick	Main	Confluence of N. & S. Forks (E. of Hwy 6) to confluence w/ Spring Creek	7	22
4	Alum	Un-Named Trib	Hwy 6 to confluence w/ Lick Creek (Lick Creek Park)	7	29
4	Alum	Main	Confluence w/ Un-Named Trib to confluence w/ Lick Creek	7	30
5	Wolf Pen	Main	Hwy 6 to confluence w/ Carters Creek	6	9
5	Lick	Main	Confluence w/ Spring Creek to confluence w/ Alum Creek	6	23
6	Bee	Main	Confluence w/ Trib. B (Southwood) to Texas Ave.	5	15
6	Bee	Trib. A-2	Texas Ave. to SH 6 Bypass	5	18
6	Bee	Main	Hwy. 6 Bypass to confluence w/ Carters Creek	5	19
6	Lick	Main	Confluence w/ Alum Creek (Lick Creek Park) to city limits	5	24
6	Carters		Confluence w/ Bee Creek to confluence w/ Lick Creek	5	33
7	Wolf Pen	Trib. A	Lincoln (start) to confluence w/ Main channel (Harvey)	4	1
7	Bee	Trib. A-1	Rio Grande to Texas Ave.	4	17
7	Carters		Harvey to confluence w/ Bee Creek	4	32
8	Bee	Main	Jersey (start) to confluence w/ Trib. B (Southwood)	2	10
9	Wolf Pen	Trib. B-1	Francis (start) to confluence w/ Main channel (Harvey)	1	2
9	Wolf Pen	Trib. B-2	Dominik to Harvey	1	3
9	Wolf Pen	Trib. C	Campus (start) to confluence w/ Main channel (W. of Texas Ave.)	1	4
9	Bee	Trib. B-2	2818 to confluence w/ Main channel	1	14

FIGURE 6:

Greenways Ranked by Priority

NOT
TO
SCALE



Note: Floodplain data taken from City of College Station
Comprehensive Plan produced by HOK and based upon an aerial
survey done in 1994.

VIII. General Guidelines for Development and Maintenance of Greenway Trails

Since one of the objectives of greenways is to provide open space, development of these corridors should be kept to a minimum. The cross sections included in **Appendix 3** (from Appendix C, Wolf Pen Creek Siltation Study, Turner Collie & Braden, Jan. 1998) vary in intensity from no development in rural greenways to masonry or gabion lined channels in urban greenways. The general guideline to use in selecting a cross section is to select the least intensive, least structural, most natural section that will work.

Though each trail should be individually designed to take full advantage of its unique natural surroundings, there are a few general guidelines that should guide all decisions in proper trail planning, construction, and maintenance:

Design for Sustainability: A trail that is well constructed can almost take care of itself. After surveying the area for topography, soil types, and drainage patterns, one should:

- Find the most stable, well-drained soils which can bear the intended traffic.
- Layout the trail so that it will be resistant to deterioration both from rain and use. Techniques such as climbing turns, in which a trail curves up a slope rather than going straight up, can greatly lessen the physical stress to the user and prevent erosion. Straight trails perpendicular to a slope become channels for rainfall.
- The most frequently flooded areas should be avoided for trail development to minimize silt and debris clean-up.

Minimize Environmental Impact: Learn about the area where the trail is planned. Aim to disturb the environment surrounding the trail as little as possible, especially in ecologically sensitive areas. Educate users through educational signs and brochures to respect the land and the life it supports.

Harmonize with the Environment: Whether in the forest or urban environment, the trail should blend and harmonize with its environment. Use natural construction materials, place signs only where necessary, and choose unobtrusive colors for signs and trail features.

Scenic Views and Special Features: Take advantage of all the trail corridor can offer. Summits, streams, scenic views, historic features, and other interesting features can all add to the experience. Pick viewpoints along the trail and make getting there as interesting as possible.

User Enjoyment: Arrange appropriate trails and related access points within the greenway system to provide good access for all residents. The smoothness of the trail and installation of guide rails will contribute to the accessibility of the trail. Plan and arrange trails that provide a great view, an interesting historic, cultural or ecological feature to make the trip more enjoyable. Identify intersections and connections that are especially important for alternative transportation within the community and integrate them into the system. For mountain bikers or equestrians, trail width, height, and sight distance are considerations. Enhance the usefulness and safety of greenway trails by providing well designed, grade separated crossings at high use intersections with roadways.

Adjacent Landowners: A buffer between the trail and neighboring landowners protects both the integrity of the user's experience and the privacy of the local residents. Work carefully with property owners as partners.

Construction and Maintenance Guidelines

Any development that occurs in or near the greenway should comply with the characteristics outlined in Figure 3 as well as the following:

Construction Techniques: Trails should be built in dry areas to minimize siltation and erosion damage. Where this is not possible, elevate the trail tread above the existing terrain using appropriate methods.

A well designed and constructed trail takes into consideration drainage. Rolling dips involve a leveling of the trail every 50-100 feet as it climbs a slope. This leveling for a short distance helps drainage. Waterbars, made of rocks or logs should be a last resort. They are obstacles to users and are hard to maintain.

Signs: Signs can indicate the trail name, landmarks and points of interest, educational information, warnings, distances, public facilities, the location of nearby potable water, and the location of other trails. Blazes are painted marks on trees or small signs with trail logo placed to reassure trail users they are still on the right trail. Before placing the first sign or blaze, travel the trail and not locations where signs and blazes should be placed. Map the location of signs for ease of finding when doing future maintenance.

Maintenance: Trails should be maintained at least twice a year to clear downed trees, debris, and repair water damage. It's a good idea to schedule maintenance before each heavy use season to make the trail safe and enjoyable for the majority of users. Routing maintenance can be performed by trail-adopter groups. These are volunteers who want to help agencies maintain the trails they use most.

IX. Strategic Implementation Actions

Implementation of the Greenways Plan is a long term process involving several areas within the City organization as well as City/community partnerships. The cooperative efforts of the Brazos Greenways Council, citizens on the GITF and city staff in the preparation of this plan is an example of the kind of partnership possible. The adoption of this plan and the passage of bond funds in 1998 for greenways acquisition are a very positive start. There are additional actions over the long term that should be taken to insure the successful implementation of this plan.

Strategy #1: Acquisition

1. **Action:** The City should accept dedications that are consistent with the greenway characteristics specified in this plan.
Responsible Party: Development Services
Supporting Party: Parks
2. **Action:** Encourage voluntary conservation, preservation, and dedication of greenways by landowners. The Brazos Greenways Council and other similar groups, in cooperation with the City should meet with local developers to educate and discuss the value and benefits of conservation and preservation to their particular property.
Responsible Party: Brazos Greenway Council

3. **Action:** Develop a program for acquisition of greenways corresponding with the 5-year capital improvement program and the prioritization in this plan. Coordinate this acquisition program with other City projects requiring acquisition, such as parks, streets, and utility projects.
Responsible Party: Public Works
Supporting Parties: Public Utilities, and Parks
4. **Action:** Utilize City funding sources, including bond funds if necessary, to acquire land acquisition services. Preference should be given to funding a staff position for FY99-00 that could be supplemented with outside contracts for acquisition services, if necessary.
Responsible Parties: Parks, Public Works, and Fiscal Services
5. **Action:** Pursue and acquire external funding sources such as grants for continued greenway acquisition. Refer to **Appendix 4** for a list of possible funding sources.
Responsible Parties: Parks and Public Works
6. **Action:** Develop guideline incentives that encourage developers to voluntarily dedicate lands that promote greenway connections between developments.
Responsible Party: Development Services

Strategy #2: Regulation

Refer to *Appendix 5* for a summary of existing regulations as they relate to greenways.

1. **Action:** Amend the City's subdivision regulations to include greenway definitions and classifications with reference to the Greenways Master Plan. Guidelines should encourage street layout to maximize access, visibility and connections to and within the greenway network. Develop guidelines for greenway preservation through land dedication, conservation easements and/or fee simple acquisition.
Responsible Party: Development Services
Supporting Party: Parks
Timeline:
Develop ordinance language - Summer 1999.
Review with internal departments - Summer 1999.
Present to focus group - Winter 1999.
Consideration by P&Z and City Council - Winter / Spring 1999-00.
2. **Action:** Monitor the recently revised parkland dedication ordinance as it is used to determine if additional changes are necessary to support the Greenways Master Plan.
Responsible Party: Parks
Supporting Party: Development Services

3. **Action:** Amend the City's drainage ordinance to reflect the greenways definition and classification in terms of corridor width and channel guidelines (level of alteration, structural/nonstructural).
Responsible Party: Public Works
Timeline:
Develop ordinance language - Summer / Fall 1999.
Review with internal departments - Fall 1999.
Present to focus group - Winter 1999.
Consideration by P&Z and City Council - Winter / Spring 1999-00.
4. **Action:** Investigate overlay zones that aid in greenway protection and prepare zoning ordinance amendments if appropriate.
Responsible Party: Development Services
Timeline:
Research other communities and literature - Summer 1999.
Develop ordinance language - Summer / Fall 1999.
Review with internal departments - Fall 1999.
Present to focus group - Winter 1999.
Consideration by P&Z and Council - Winter / Spring 1999-00.
5. **Action:** Amend the Zoning Ordinance (Ord. 1638) to reference the Greenways Master Plan in Planned Development Districts and elsewhere as appropriate.
Responsible Party: Development Services
Timeline:
Develop ordinance language - Summer / Fall 1999.
Review with internal departments - Fall 1999.
Present to focus group - Winter 1999.
Consideration by P&Z and City Council - Winter / Spring 1999-00.
6. **Action:** Service Plans for future annexations should require dedication of greenway resources that are important to the overall greenways system.
Responsible Party: Development Services

Strategy #3: Construction, Maintenance and Operations
--

1. **Action:** Acquire adequate funding for greenway development from various sources. Refer to Appendix 4 for a list of possible funding sources.
Responsible Parties: Parks and Public Works
2. **Action:** Design and construct trails by following the development and maintenance guidelines found in Section VIII. of this plan.
Responsible Party: Parks
Supporting Party: Public Works
3. **Action:** Develop a program for long term maintenance of publicly held greenways.
Responsible Party: Parks
Supporting Party: Public Works
4. **Action:** Incorporate maintenance costs into budgets of future years.
Responsible Parties: Parks and Public Works

5. **Action:** Design greenways in floodplains to handle flood water, while preserving other natural resources. Use the expertise of outside resources as well as city staff.
Responsible Party: Public Works

Strategy #4: Coordination / Promotion
--

1. **Action:** Allocate additional resources for coordinating the Greenways Master Plan and its implementation. Preference should be given to funding a staff position for FY99-00 that could be supplemented with outside contracts for acquisition services, if necessary.
Responsible Party: City Management / City Council
2. **Action:** Coordinate with other agencies when greenways cut across jurisdictional boundaries.
Responsible Party: Development Services
Supporting Parties: Parks, Public Works, and Public Utilities
3. **Action:** Monitor and continue to advocate a greenways system in College Station.
Responsible Party: Brazos Greenways Council and/or other appropriate groups
4. **Action:** Engage neighborhood associations to promote greenways in currently developed areas and to assist with upkeep (by adoption) of those areas after designation.
Responsible Party: Brazos Greenways Council and/or other appropriate groups
5. **Action:** Encourage interested outside groups to develop and maintain a detailed inventory of the wildlife, vegetation, wetlands, and other important natural features that exist along area creeks so that creek based greenways can be designated and developed to enhance wildlife and plant habitats.
Responsible Party: Brazos Greenways Council and/or other appropriate groups
6. **Action:** Provide for access to unique areas along greenways where people can enjoy and study natural processes.
Responsible Party: Parks
7. **Action:** Develop and maintain public information relative to greenways in College Station.
Responsible Parties: Development Services, Parks, Public Works
Supporting Parties: Public Relations, Public Utilities, and Brazos Greenways Council, College Station Library

IX. Appendices

APPENDIX 1

Existing Creeks in College Station

The primary creeks described below are considered to be those with high potential for greenway designation in the near future. They are creeks that have either been developed, and are thus accessible to much of the current population, or in areas where development is proceeding at a rapid pace.

Carter Creek (Figure 7)

This creek enters College Station just north of University Drive (Hwy 60) and flows several miles along the city's northeastern border. It represents approximately a 7 mile corridor between the northern city limit and Lick Creek Park to the southeast. Carter Creek is a primary drainage for much of southeastern Brazos County. Most of the other creeks in College Station flow into Carter. As the map indicates Carter Creek currently provides a large floodplain boundary for eastern College Station. The floodplain area gets broad (over 1 mile wide in places) as it flows toward its confluence with the Navasota River. The land along Carter Creek is mostly undeveloped but is bordered on the west by several large subdivisions. Windwood, Raintree, Emerald Forest, Fox Fire and Wood Creek Subdivisions are all close to the Carter Creek floodplain. Bee, Lick and Wolf Pen Creeks, each flow into Carter Creek from more developed areas in West College Station. Carter Creek has the potential to be a greenway system "backbone" in College Station with several other creeks forming the "ribs" that connect to it.

A greenway designated along the floodplain of Carter Creek offers opportunities to maintain a rural character in the landscape along College Station's eastern boundary. The Comprehensive Plan indicates that land along the northwest end of Carter Creek (for about 2 miles) is primarily medium density residential due to the subdivisions mentioned. The northeast end and the remaining length of the creek to the Navasota River (about 5 miles) is recommended to be kept as agricultural land to support rural or low density residential development.

The northern end of College Station's section of Carter Creek holds important potential for connections with several current or future public use areas. The Brazos Center (approximately 1 mile north of the Bryan/College Station border at Carter Creek) and its associated nature park are one such area. A new 150 acre athletic park located adjacent to Carter Creek between University Drive (Hwy 60) and Harvey Road (Hwy 30) includes a portion of the Carter Creek floodplain in its boundary and could be joined to the greenway via a trail system. On the opposite side of the athletic park a new interpretive trail has been developed and is maintained by Texas A&M University's Department of Wildlife and Fisheries Science. This trail could also be connected to a Carter Creek trail, via the athletic park, providing better access.

At its southern end, the Carter Creek floodplain links to the Lick Creek floodplain within a few hundred yards of Lick Creek Park. With over 500 acres of minimally developed land, Lick Creek Park is the county's premier natural area. The park provides habitat for most species of indigenous animal and plant life that exist in Brazos County including an endangered plant known as the Navasota Ladies Tress. The park is also a popular place for bike riding, walking and wildlife watching. A Carter Creek floodplain and trail connection to this park would help maintain a valuable wildlife corridor while enhancing

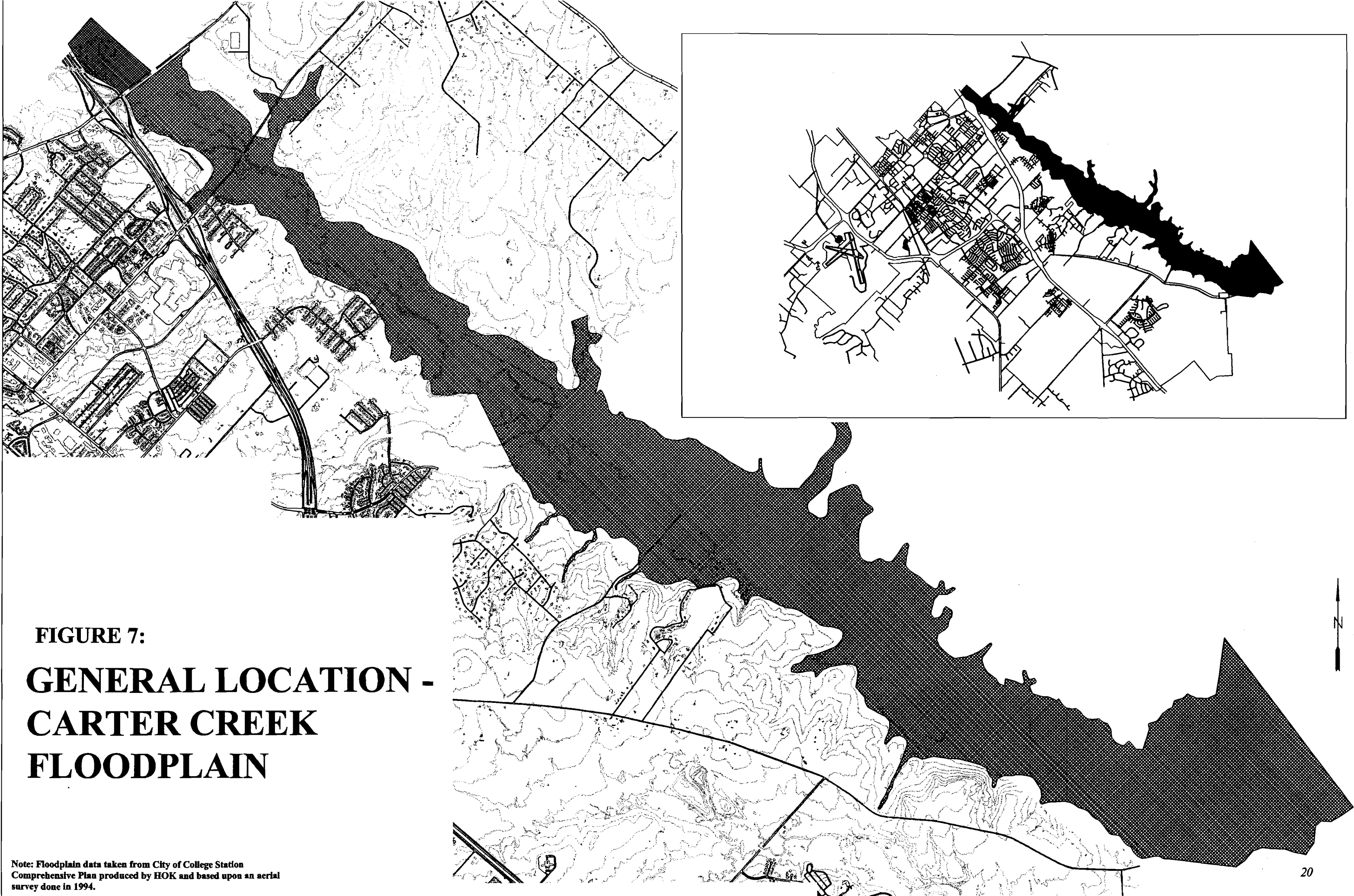


FIGURE 7:

**GENERAL LOCATION -
CARTER CREEK
FLOODPLAIN**

Note: Floodplain data taken from City of College Station
Comprehensive Plan produced by HOK and based upon an aerial
survey done in 1994.

public access and recreational use. In between these north and south points, Carter Creek could be linked to the neighborhood areas (currently 5) that have been developed along its edge.

Wolf Pen Creek (Figure 8)

Wolf Pen Creek originates on the campus of Texas A&M University and flows easterly into Carter Creek approximately 2.5 miles down stream. The creek's headwaters have become more and more developed as TAMU has grown over the past 25 years. Roof tops and parking lots shed a large percentage of rainfall as runoff directly into the creek. The main channel and one Wolf Pen tributary enter College Station from the campus. Wolf Pen Creek forms a corridor approximately 0.5 mile in length as it flows between George Bush and Texas Avenues. It passes through CSISD property before running through a residential area and intersecting Tributary C coming off the TAMU Golf Course and behind the Redmond Terrace Shopping Center. At this point the creek flows under Texas Avenue and into a Wolf Pen Creek Special District. This district forms a corridor approximately 1.3 miles long and was established in the late 1980's as a part of a plan to develop a public space that would have included a hike and bike trail, arboretum, library, arts center and several other civic facilities. A community park and amphitheater were developed as phase 1 of this project and exist on the creek today but a majority of this greenway was never developed as intended. Most of the existing park is directly in the floodplain and its facilities were designed to withstand flood conditions. The creek exits the special district as it passes under the Highway 6 freeway. Wolf Pen Creek then flows along the edge of the Raintree subdivision before its confluence with Carter Creek at the subdivision's northeast corner (approximately 0.7 miles from Hwy 6 to the confluence).

At present, Wolf Pen Creek is a more central feature in College Station than Carter Creek. Past plans for the development of a special district between Texas Ave and Highway 6 are again in motion. The Recreation and Parks Department conducted two citizen workshops in 1997, the outcome of which indicated strong support for moving ahead with the intent of the original master plan for the area. This history suggests that the section of Wolf Pen Creek between Texas and Highway 6 continues to offer potential as a more developed, or urban, greenway. This greenway would provide for commercial development while putting the creek and associated floodplain at the heart of the area. Businesses would face onto, rather than back up to, the creek, its trees and trails.

There are important potentials for connections at several points along the central section of Wolf Pen. The earlier Wolf Pen Creek Plan suggested that TAMU and residential areas to the west be connected by trail under Texas Avenue. This connection would likely require redevelopment from current box culverts to a configuration that would provide a more "open" feel with better natural lighting. The reauthorization of the Intermodal Surface Transportation Efficiency Act (ISTEA) as TEA21, and the widening of Texas Ave to 6 lanes in the next three years present funding and engineering opportunities to make this connection a reality. The "College Station Bike Loop," *Figure 12.)* which was funded through ISTEA in 1994, is currently under final design. This facility was laid out to intersect and possibly share trails developed in the Wolf Pen Creek area. Plans indicate the bike loop will intersect the area at it's eastern end near the

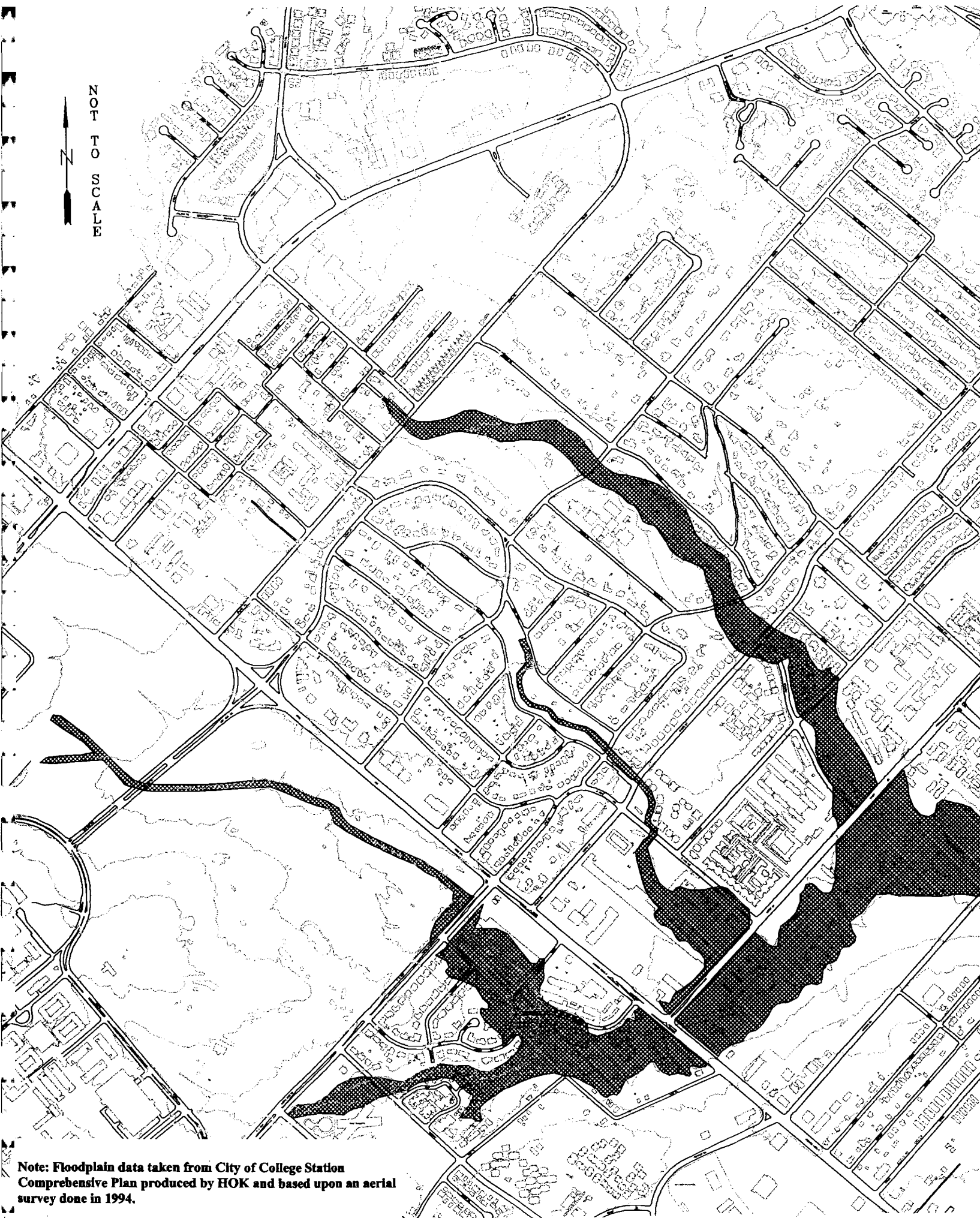


FIGURE 8:

GENERAL LOCATION - WOLFPEN CREEK FLOODPLAIN

Note: Floodplain data taken from City of College Station
Comprehensive Plan produced by HOK and based upon an aerial
survey done in 1994.

University Commons Apartments, follow the creek through the Wolf Pen District and depart the west end at the new “George Bush East” road extension. Finally, Wolf Pen could also be connected by protected floodplain and associated trails to Carter Creek at the confluence of the two creeks behind the Raintree Subdivision. Currently Highway 6 poses a barrier to an uninterrupted connection, much as Texas Avenue does to the west.

Bee Creek (Figure 9)

Bee Creek generally flows southeast from TAMU to a confluence with Carter Creek covering approximately 4.2 miles along its main corridor (tributary A and remaining channel). However, three primary tributaries, each of which runs through different parts of the community, form the creek. Tributary A forms on the TAMU campus a second, tributary B, forms in the Southside Area and the third, tributary C, forms in Southwood Valley. As with Wolf Pen, development has occurred along the upper reaches of these tributaries. The upper Bee Creek tributaries are largely characterized by the neighborhoods that border them and by the parks that each runs through. Tributary A runs from campus through the eastern portion of the Southside Historic Area and through Bryson, Lemon Tree and Bee Creek Parks. Tributary B originates in the western portion of the Southside Historic Area, through the Wayne Smith Park/Lincoln Center area, by A&M Consolidated High School, behind the College Station Library, through Georgie K. Fitch Park and finally through additional neighborhoods before converging with tributary A in Bee Creek Park. After converging, these two tributaries form the main channel which flows through the Anderson Arboretum, under Texas Avenue, and along side College Station property and undeveloped agricultural property before converging with tributary C. Tributary C forms in Southwood Valley and runs through Brother’s Pond Park, CSISD property at Southwood Elementary, behind neighborhood homes, through Longmire Park and finally through an undeveloped area to its confluence with the main creek at Highway 6 and Emerald Forest Drive. After the convergence of this third tributary at Highway 6, Bee Creek moves through the Emerald Forest Subdivision and to its confluence with Carter Creek.

Bee Creek and its tributaries offer a suburban feel with connections between neighborhoods, schools, parks, civic areas and commercial developments. Some of the upper reaches of the creek corridor have been developed close to the creek making trail connections difficult and creating flooding problems. However, existing parks present opportunities for trail connections and flooding can be avoided if development is kept out of the down stream floodplain. As with Wolf Pen, parks associated with Bee Creek have been included on the route of the College Station Bike Loop. If the trail portions of this loop are developed as planned they will connect Lemon Tree, Bee Creek, Cy Miller and Central Parks each of which is located in or along the corridor. An important consideration along this corridor is the Texas Avenue crossing which represents a significant barrier to bike and pedestrian traffic. Plans call for a separation of grade between trail and road (trail underpass) at this intersection. The Bee Creek corridor east of Texas Avenue is relatively undeveloped in comparison to it’s upper tributaries. More open “natural” areas exist along this stretch. Highway 6 at Emerald Forest creates a potential barrier to bike and pedestrian traffic but could possibly be accommodated with the existing underpass at Emerald Forest Drive.

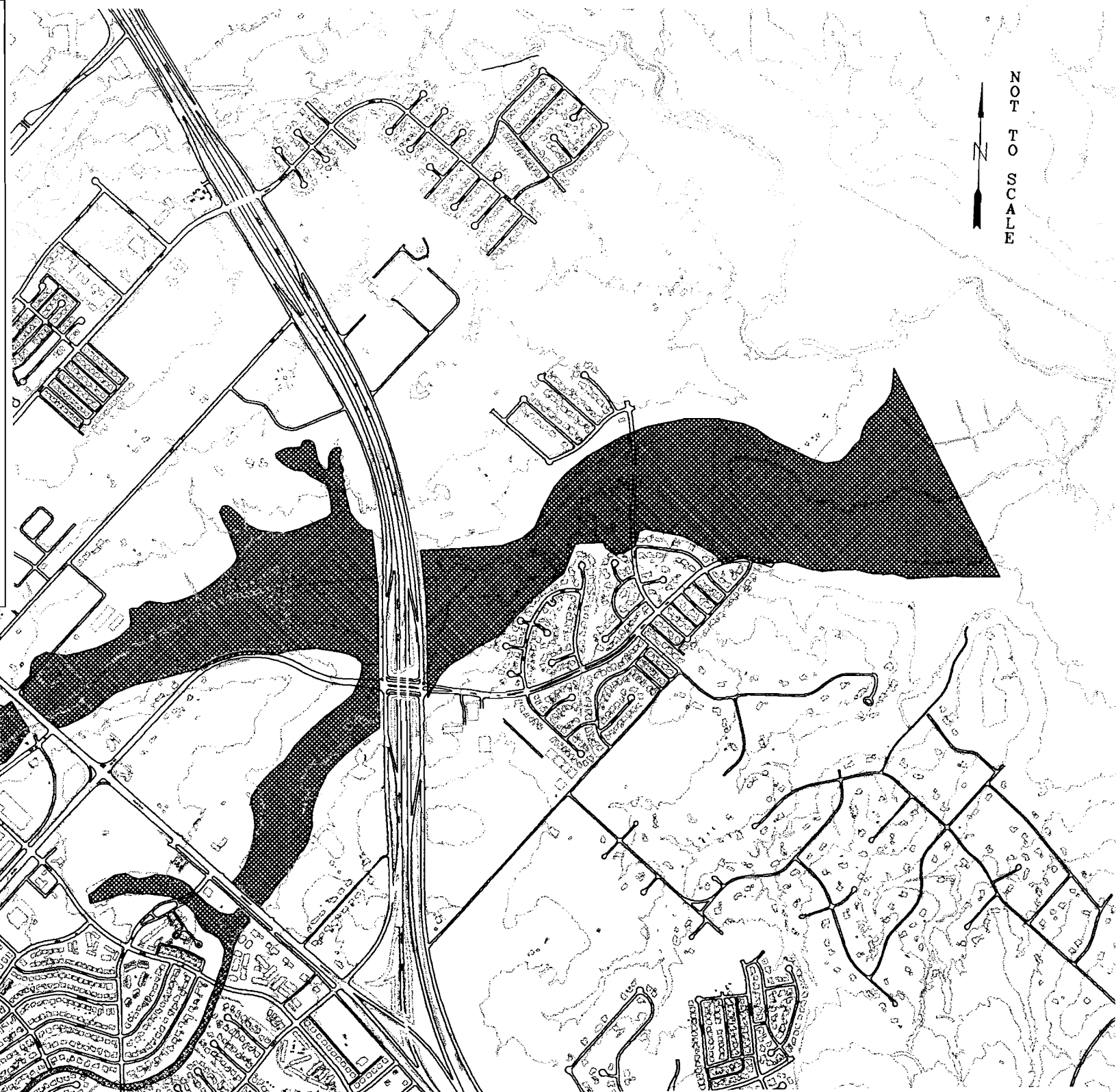
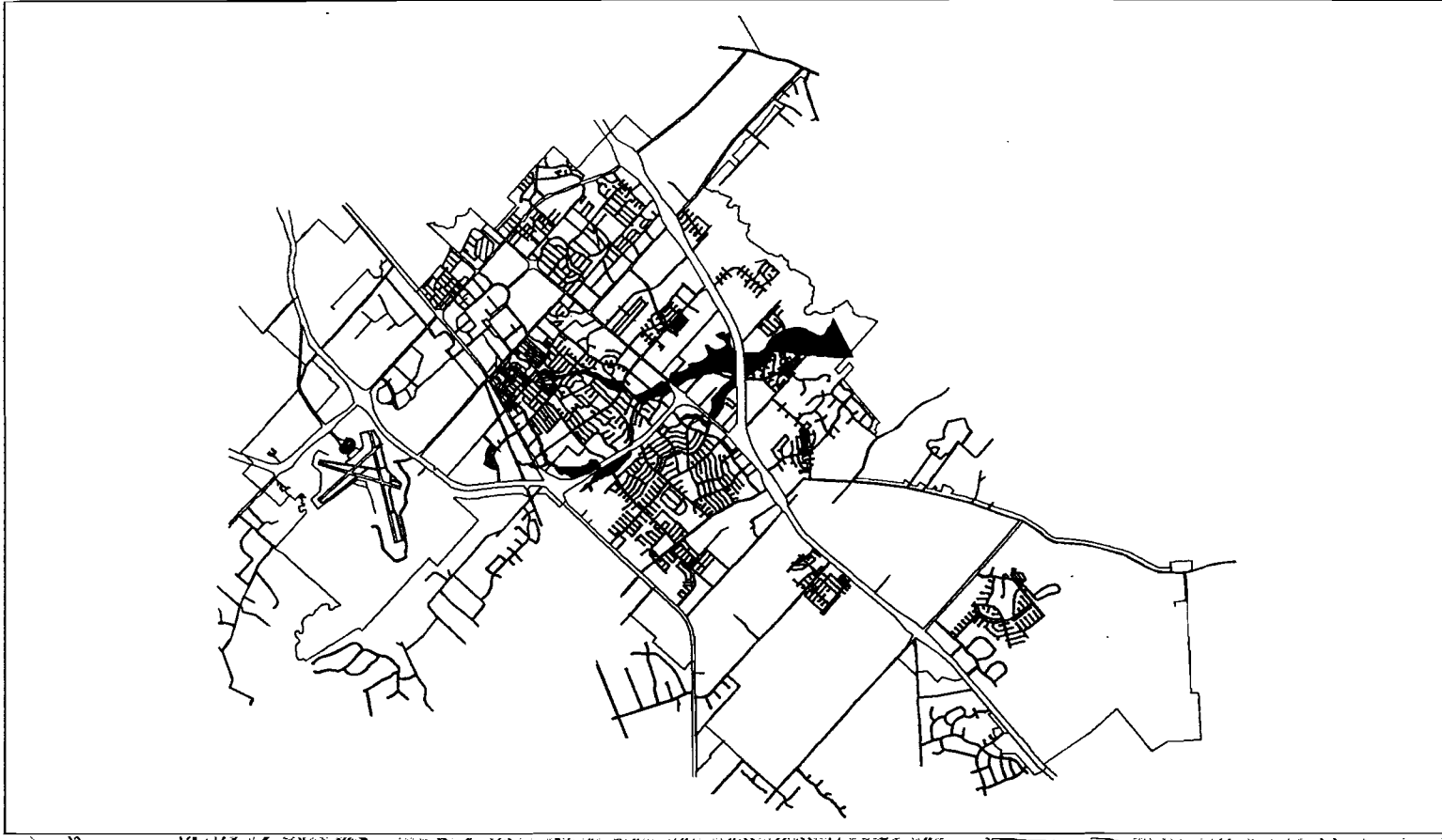


FIGURE 9:
GENERAL LOCATION -
BEE CREEK
FLOODPLAIN

Note: Floodplain data taken from City of College Station
Comprehensive Plan produced by HOK and based upon an aerial
survey done in 1994.

Lick Creek (Figure 10)

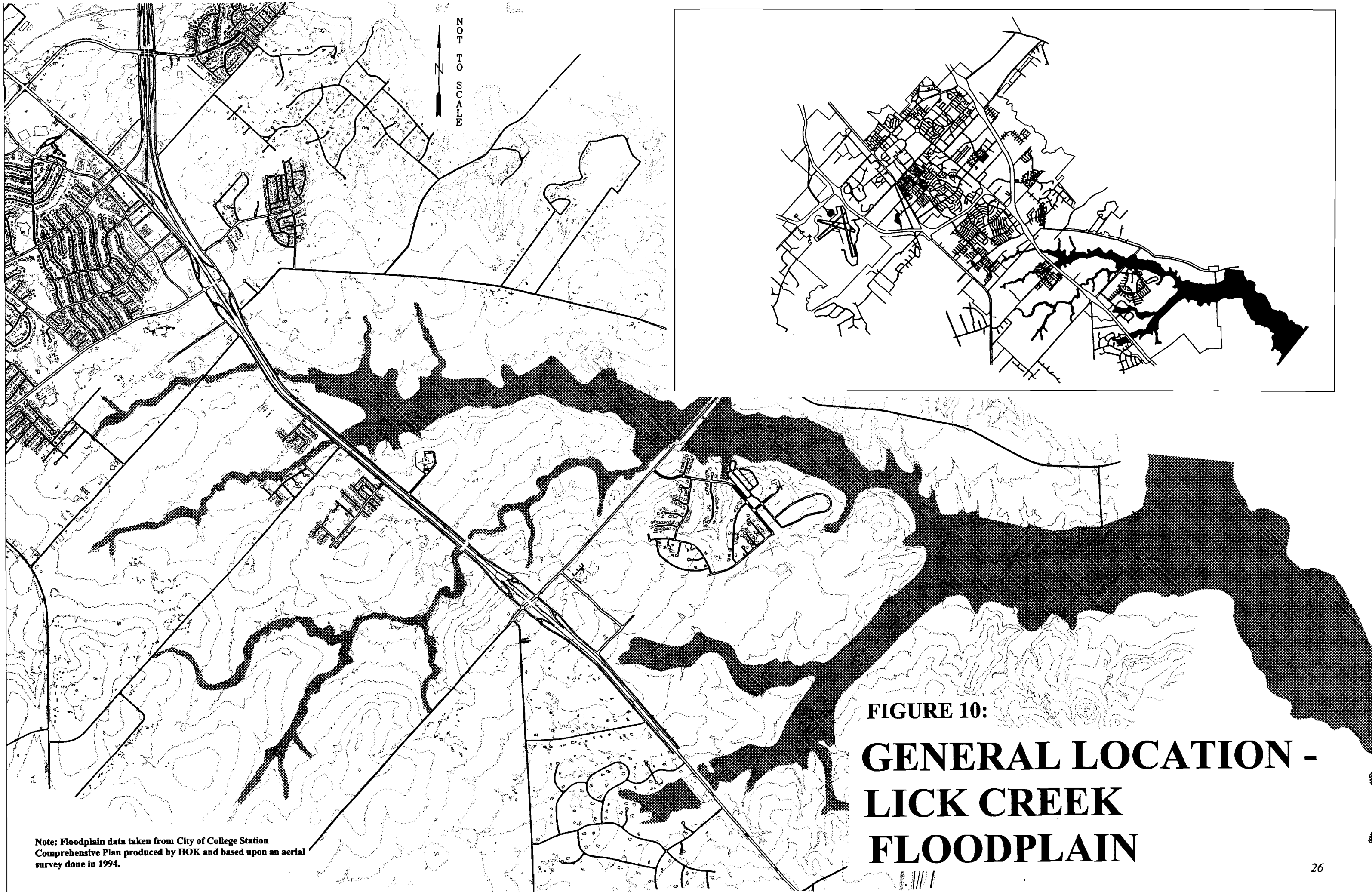
Lick Creek flows southeast from south central College Station into Carter Creek. The creek's primary corridor is approximately 4.3 miles from its western origin, in a developing suburban area, to where it enters Lick Creek Park southeast of Pebble Creek. Much like creeks and floodplains described above, roads and other development have separated Lick Creek into distinct sections. The upper section has two tributaries, both of which lie west of Highway 6 in land rapidly developing as medium density residential. Immediately west of Highway 6 the Springbrook Homeowners Association owns a 0.5 mile stretch of undeveloped corridor along Lick Creek's primary tributary. The homeowner's corridor has been left undeveloped. A proposed subdivision plat for the upstream area includes protected floodplain/storage which will connect to the existing Springbrook area. Lick Creek's other tributary, located to the north, is somewhat smaller and remains is an undeveloped area. The College Station Public Utilities Center is the only development adjacent to this tributary. Once the creek moves across Highway 6 the tributaries converge and form the main channel which extends for approximately 2 miles before intersecting Greens Prairie Road. The creek's floodplain corridor along this stretch is well forested and little development exists. A defunct landfill, a health care facility and an active landfill are present along this reach of the creek. Just prior to Greens Prairie Road, Spring Creek flows into Lick Creek and extends southwesterly back across Highway 6 and into the "Crowley Development," a mixed use development planned at the intersections of Highway's 6 & 40. After passing under Greens Prairie Road the creek follows the northern boundary of the Pebble Creek Country Club Golf Course for approximately 1 mile before flowing into Lick Creek Park. It is important to note that College Station Parks and Recreation administers land in a right-of-way (ROW) that runs through Pebble Creek Subdivision, and connects the Lick Creek floodplain to the western most edge of Lick Creek Park. This ROW could provide a connection for bike and pedestrian use between these two areas.

Lick Creek and its tributaries (including Spring Creek) offer opportunities to keep several miles of floodplain undeveloped, reducing flood danger, and providing trail connections among the neighborhoods, schools and business development that appears eminent. On the upper end of the creek the primary tributary offers connections between neighborhoods (existing and new) and a CSISD Middle School which is under construction. Through the mid section Lick Creek offers connections between future neighborhoods, the existing Pebble Creek area, and two regional recreation areas (the future park to be developed at the landfill site and Lick Creek Park). The Crowley Development area, west of Highway 6 on Spring Creek, has been planned to include greenway areas that offer potential connections to floodplains and trails along lower Lick Creek.

Other Potential Greenway Locations: (Figure 11)

The Gulf States Utilities right-of-way

The Gulf States Utilities ROW extends along the entire length of northeastern College Station. It runs for approximately 7.5 miles within the city limits and intersects each of the 4 creek floodplains described above. This ROW runs from the new athletic park in northern College Station to the Pebble Creek Subdivision at the southern end of town. Parts of the ROW are integrated into Raintree Park in the Raintree Subdivision, it runs through the existing landfill (soon to be park land) and finally it abuts Lick creek park at

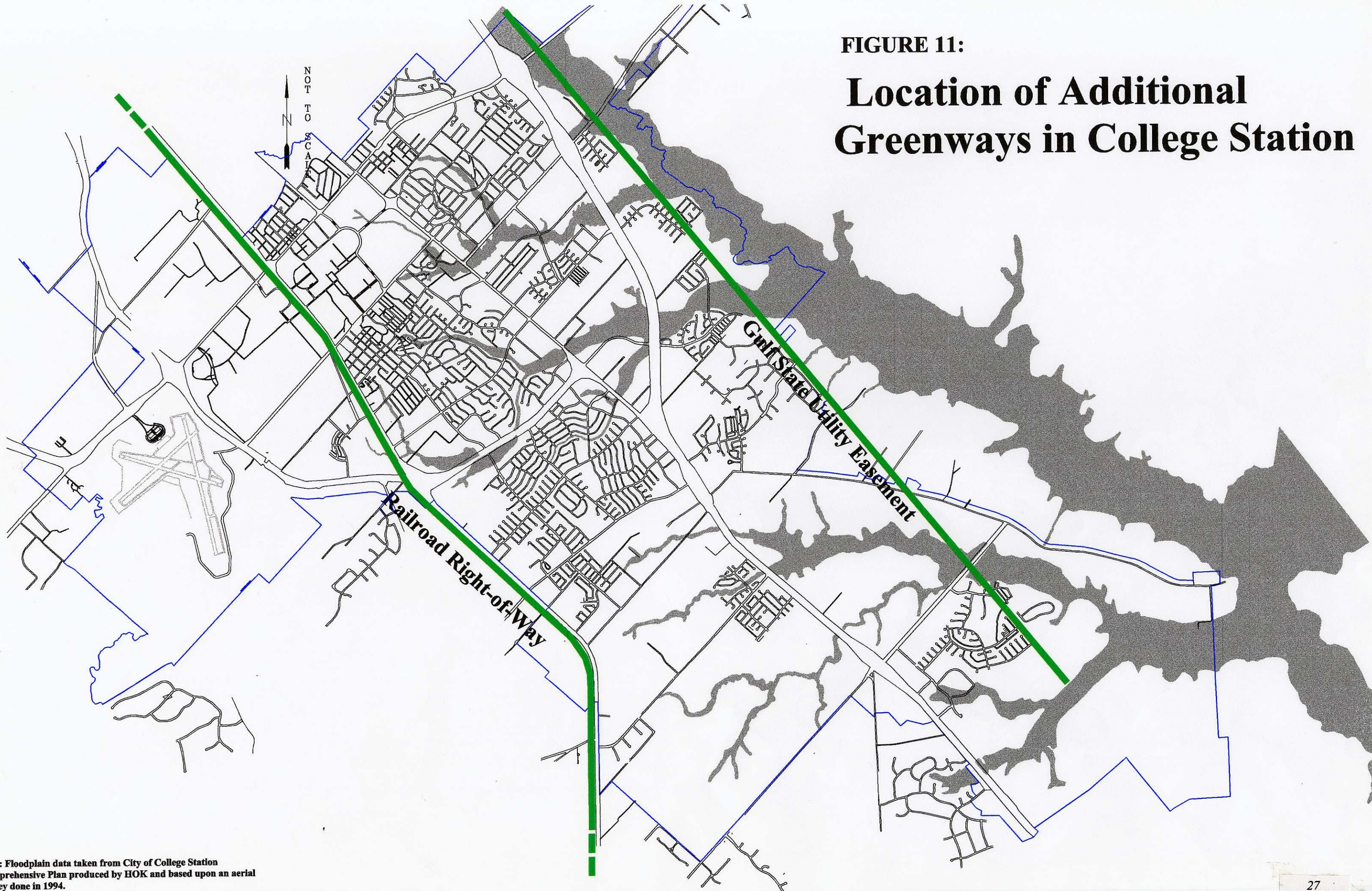


Note: Floodplain data taken from City of College Station
Comprehensive Plan produced by HOK and based upon an aerial
survey done in 1994.

FIGURE 10:
GENERAL LOCATION -
LICK CREEK
FLOODPLAIN

FIGURE 11:

Location of Additional Greenways in College Station



Note: Floodplain data taken from City of College Station Comprehensive Plan produced by HOK and based upon an aerial survey done in 1994.

its southern most point. In the future this ROW has the potential to connect three major community parks and one neighborhood park with many residential areas. Because it intersects each of the primary creeks it also has the potential to connect to trails that might be developed along those floodplains. The Gulf States ROW was specifically noted in the city's Comprehensive Plan as a possible future corridor for bike travel to provide alternative transportation between north and south. Parts of this ROW are already designated public areas and are officially under the jurisdiction of the Parks and Recreation Department.

Rail Ways

Though College Station was founded based on a rural college, and the rail line that served it, there has been talk for many years of significantly altering the latter. College Station's only rail line runs along Wellborn Road for its entire length. This location also represents the geographical "ridge line" through the twin city area. In recent years it has been seen as an impediment to growth in western College Station because it impedes automobile traffic. Concerns for potential toxic chemical spills in the center of one of the country's largest universities also arise from time to time. The upshot of these concerns has been a concerted effort to reconfigure the way trains run through the city. If a relocation of the rail occurs then a potential will exist for the abandoned line to be designated as a "rail trail." Much like the Gulf State Utilities ROW, this rail ROW extends along the entire length of western College Station and then through the heart of historic Bryan. As a greenway trail the rail corridor could connect many student apartment complexes in southwest College Station to the university. The trail might also be developed as link between the George Bush Library/TAMU and historic Bryan to promote tourism between these two areas.

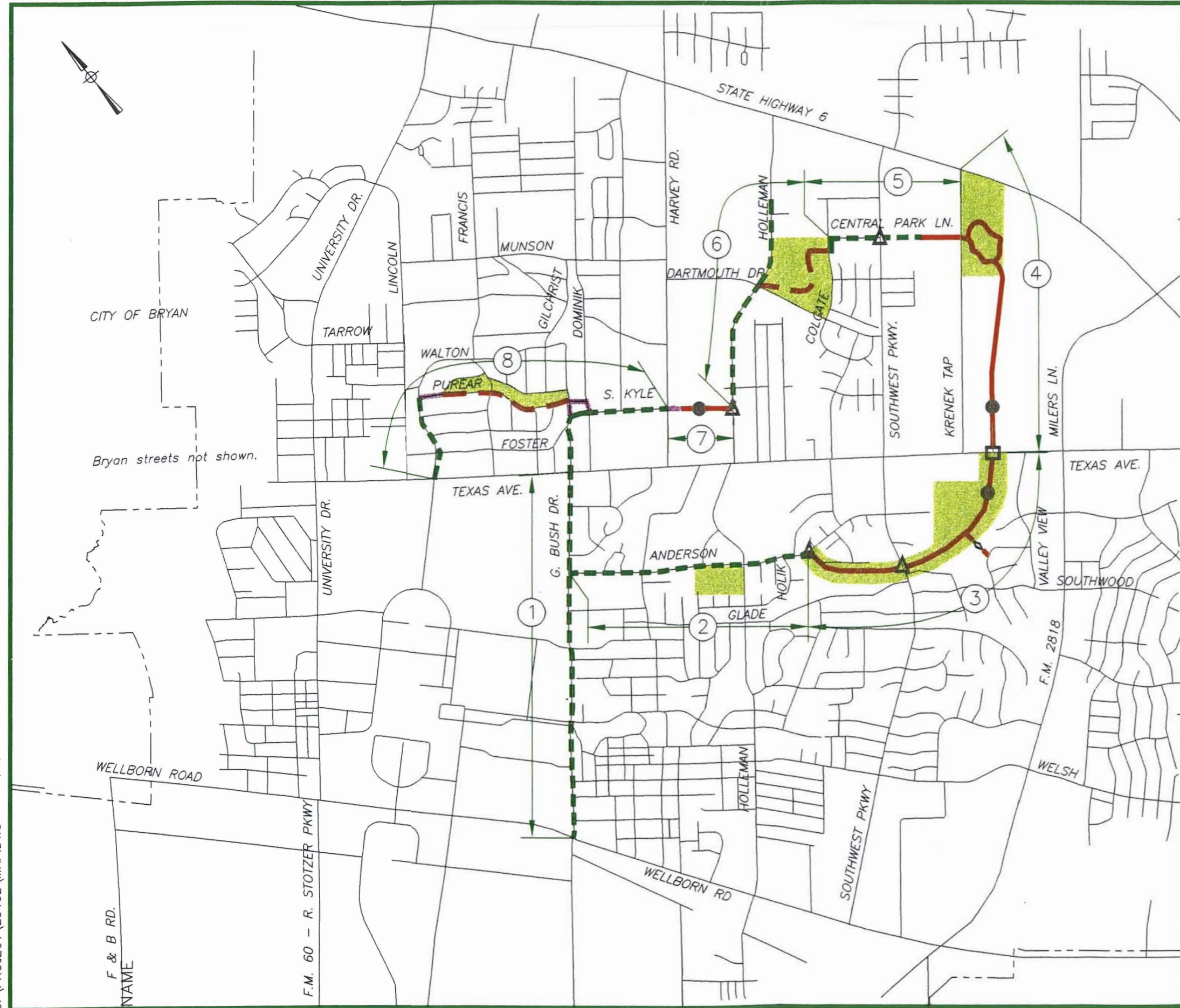


FIGURE 12

 **CITY OF COLLEGE STATION**

COLLEGE STATION BIKE LOOP

PRELIMINARY

Statewide Transportation Enhancement Program

Legend:







-  Proposed Concrete Trail
-  Existing Concrete Trail
-  Proposed Bike Lane
-  Existing Bike Lane
-  Proposed Bike Route
-  Proposed Bridge
-  Box Culvert Crossing
-  Crosswalk Signal
-  Low Water Crossing
-  City Park
-  Segment Limits

Exhibit 1 Location Map

APPENDIX 2

GITF Scoring of Criteria for Greenway Prioritization

Criteria I - Linkage

Existing Link (E) = 5 points

Future Link (F) = 3 points

None (N) = 0 points

Criteria II - Immediacy of Development

On-going current development = 4 points

Development projected to occur in 1 to 5 years = 3 points

Development projected to occur in 5 to 10 years = 2 points

Development projected to occur after 10 years = 1 point

Criteria III - Amount of Undeveloped Land Surrounding the Greenway

Substantial = 3 points

Moderate = 2 points

Minimal = 1 point

Not Applicable = 0 points

Greenways Matrix

	CREEK	SECTION	LOCATION DESCRIPTION (approximate)	TYPE	STRUCTURA FLOODING PROBLEMS	EXISTING CIP/PROJEC PLAN	IMMEDIACY OF DEVELOPMEN IN YEARS	AMOUNT OF UNDEVELOPED LAND (MIN/MOD/SUBST.)	LINK
1	Wolf Pen	Trib A	Lincoln (start) to confluence with Main channel (Harvey)	Suburban	N	N		MIN.	F
2	Wolf Pen	Trib B - 1	Francis (start) to Dominik	Suburban	N	N		MIN.	N
3	Wolf Pen	Trib B - 2	Dominik (start) to Harvey	Urban	N	N		MIN.	N
4	Wolf Pen	Trib C	Campus (start) to confluence with Main channel (W. of Texas Ave)	Urban	Y	N		MIN.	N
5	Wolf Pen	Main	Texas Ave. east to Trib. B	Urban	Y	Y	ON-GOING	MOD.	F
6	Wolf Pen	Main	Trib. B. to Trib. A.	Urban	N	Y	ON-GOING	MOD.	F
7	Wolf Pen	Main	Trib. A east to Holleman/Dartmouth intersection	Urban	N	Y	ON-GOING	MOD.	F
8	Wolf Pen	Main	Holleman/Dartmouth intersection to Highway 6 Bypass	Urban	N	Y	ON-GOING	MOD.	F
9	Wolf Pen	Main	Highway 6 to confluence with Carters Creek	Suburban	N	N	10+	MOD.	F
10	Bee	Main	George Bush (start) to confluence with Trib B (Southwood)	Suburban	Y	N		MOD.	N
11	Bee	Trib B - N Fork	W of Wellborn (start) to confluence with Trib B and S Fork (Welsh)	Suburban	N	N	10+	SUB.	F
12	Bee	Trib B - S Fork	Wellborn (start) to confluence with Trib B and N Fork (Welsh)	Suburban	N	N	1-2	MOD.	F
13	Bee	Trib B - 1	Welsh to 2818	Suburban	N	N		MIN.	F
14	Bee	Trib B - 2	2818 to confluence with Main	Suburban	Y	Y		MIN.	N
15	Bee	Main	Confluence with Trib B (Southwood) to Texas Ave.	Suburban	Y	Y		NA	E
16	Bee	Main	Texas Ave. to Highway 6 Bypass	Urban	N	N	3-5	SUB.	F
17	Bee	Trib A - 1	Rio Grande to Texas Ave.	Suburban	Y	N		MOD.	F
18	Bee	Trib A - 2	Texas Ave. to SH 6 East By-Pass	Suburban	N	Y	5-7	SUB.	F
19	Bee	Main	Highway 6 Bypass to confluence with Carters Creek	Suburban	Y	N	10+	MIN.	F
20	Lick	North Fork	Btw. Graham & Rock Prairie (start) to confluence with Main channel (E. of SH 6 East By-Pass)	Suburban	N	N	5-7	SUB.	F
21	Lick	South Fork	E of Wellborn (start) to confluence with Main channel (E of Hwy.6)	Suburban	N	N	1-3	MOD.	E
22	Lick	Main	Confluence of N and S Forks (E of Hwy 6) to confluence with Spring Creek (Greens Prairie Road)	Suburban	N	N	10+	SUB.	F
23	Lick	Main	Confluence with Spring Creek (Greens Prairie) to confluence with Alum Creek (Lick Creek Park)	Suburban	N	N	ON-GOING	MOD.	N
24	Lick	Main	Confluence with Alum Creek (Lick Creek Park) to city limits	Rural	N	N	NA	NA	E
25	Spring	North Fork	E of Wellborn (start) to confluence with S Fork and Main channel (Crowley tract)	Suburban	N	N	5-7	SUB.	F
26	Spring	South Fork	W end of Crowley tract (start) to confluence with N Fork and Main channel (Crowley tract)	Suburban	N	N	3-5	SUB.	F
27	Spring	Main	Confluence with N and S Forks (Crowley tract) to Hwy. 6	Suburban	N	N	2-4	SUB.	F
28	Spring	Main	Hwy. 6 to confluence with Lick Creek (Greens Prairie Road)	Suburban	N	N	1-2	SUB.	F
29	Alum	Un-named Trib	Hwy. 6 (start) to confluence with Lick Creek (Lick Creek Park)	Rural	N	N	10+	SUB.	F
30	Alum	Main	Confluence with Un-named Trib (Lick Creek Park) to confluence with Lick Creek (Lick Creek Park)	Rural	N	N	10+	SUB.	F
31	Carters	Mike Davis trac	University to Harvey	Rural	N	Y-PRIVATE		SUB.	F
32	Carters		Harvey to confluence with Bee Creek	Rural	Y	N	20+	MIN.	F
33	Carters		Confluence with Bee Creek to confluence with Lick Creek	Rural	N	N	20+	MOD.	F

APPENDIX 3

Cross Sections

Exhibit 1 – Typical Section For Alternative 1

Vegetated Channel Lining and Channel Enlargement Combination

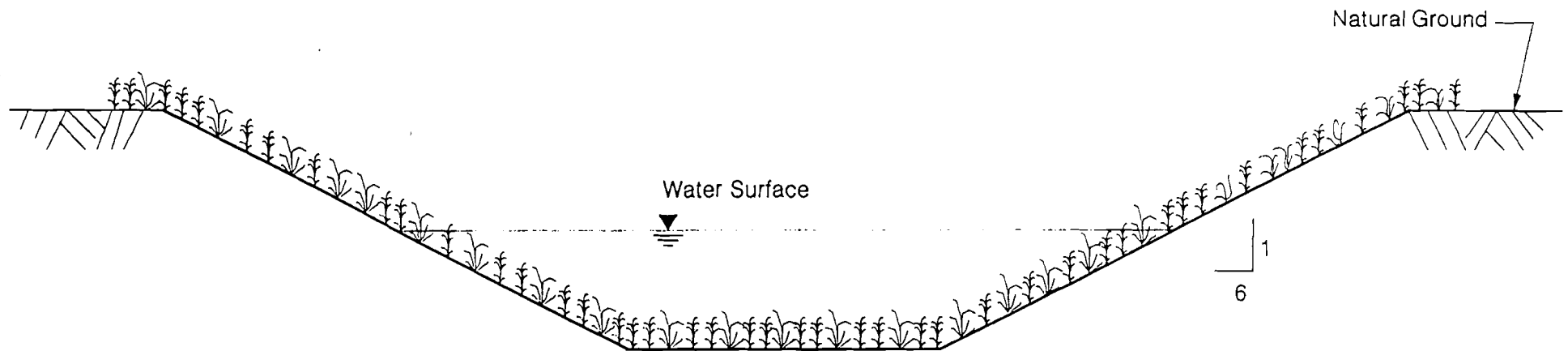


Exhibit 2 – Typical Section For Alternative 2
Geosynthetic Reinforced Vegetation Lining

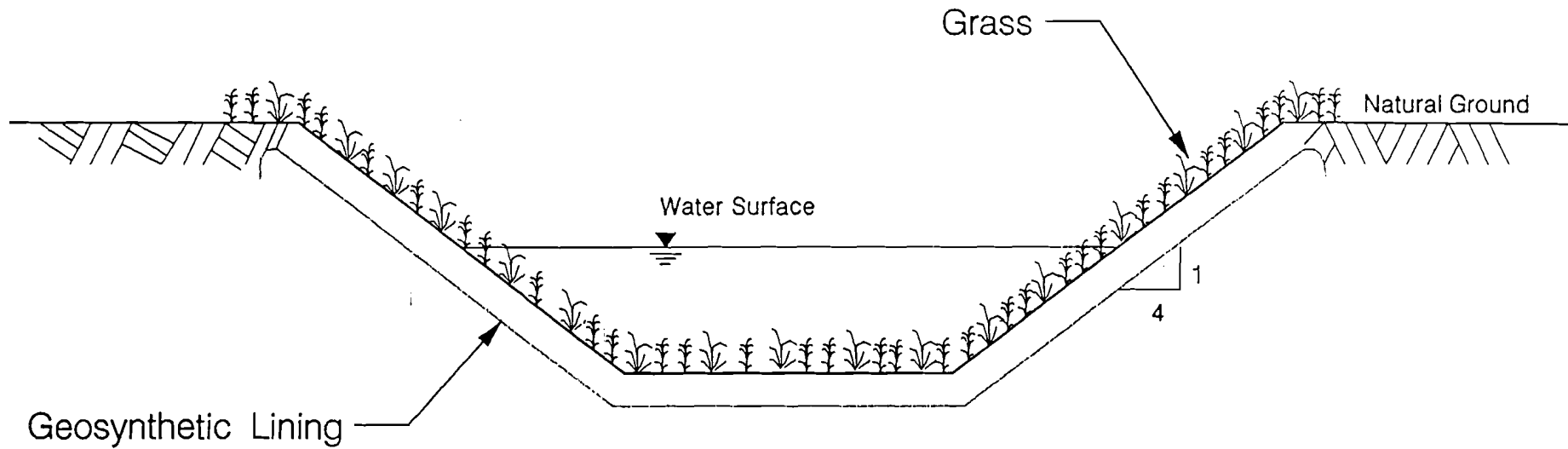


Exhibit 3 – Typical Section For Alternative 3
Concrete Slope Paving or Rip-Rap

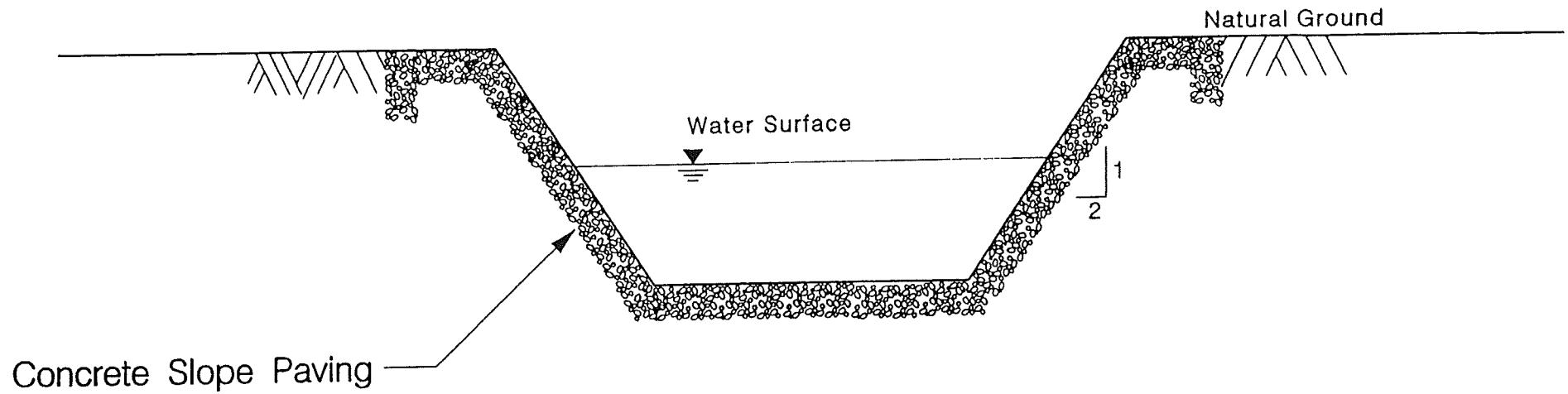
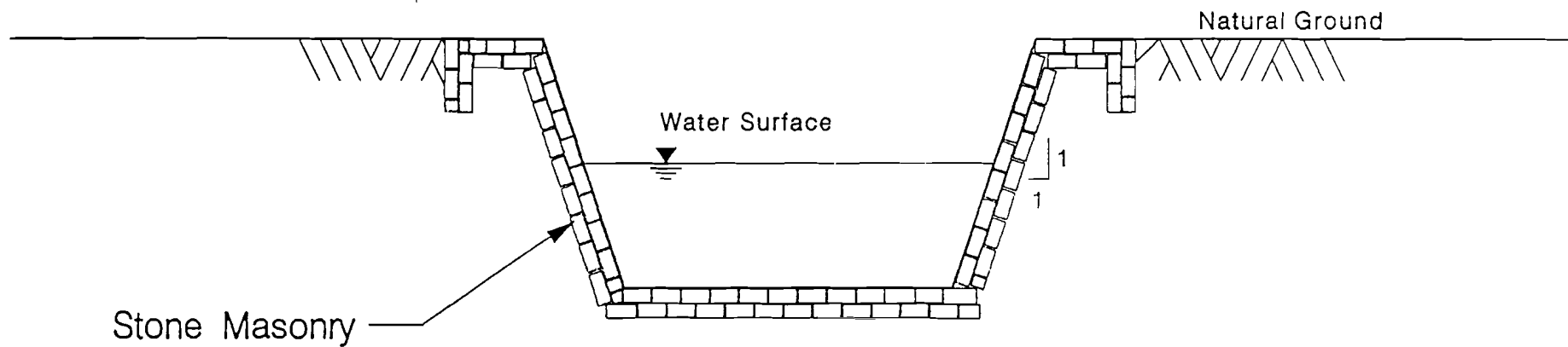


Exhibit 4 – Typical Section For Alternative 4
Stone Masonry



APPENDIX 4
Funding Sources

TRAILS & GREENWAYS FUNDING SOURCES

A. *State and Federal Funding/Assistance Opportunities*

State and federal transportation dollars for bicycle and pedestrian related trail projects may become a viable source of funding for some trail segments. A mix of government and private grants and local fundraising may be necessary to implement a local trails and greenways system. The following are several state and Federal programs which may provide a source of funds:

1) *ISTEA Transportation Enhancement Funds*

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) established the Transportation Enhancement Program which is an 80:20 cost-share reimbursement program. In Texas this program dispersed approximately \$180 million for non-motorized commuter trails, scenic beautification along highways, historic preservation and rehabilitation, rail-trail conversions, mitigation of water pollution from highway runoff, and archaeological planning and research. This program is currently going through a reauthorization process, which should be completed during fiscal year 1998 (October 1, 1997). The College Station Bike Loop project was funded through this program and is now in the design process.

Contact: Texas Department of Transportation
Design Division
125 E. 11th St.
Austin, TX 78701
(512) 416-2748

2) *National Park Service*

The Rivers, Trails and Conservation Assistance (RTCA) Program of the National Park Service, provides direct technical assistance to non-profit groups and state and local governments in planning community-based conservation of river and trail corridors. RTCA may serve as a link to trail resources, expertise and funding opportunities for the College Station greenways project. RTCA staff may also provide planning strategies and products to guide and advance the project.

Contact: National Park Service
Rivers, Trails and Conservation Assistance Program
P.O. Box 5888 or P.O. Box 718
Arlington, TX 76005-5888 Sante Fe, NM 87504-0728
(817)695-9228 (505)988-6723

3) *Texas Recreational Trails Fund*

This funding program requires the sponsor (cities, counties, eligible special districts, state agencies, federal agencies, and eligible private organizations) to pay for 50% of the total project costs. Federal dollars from the Symms National Recreational Trails Fund cover 50% of the total project costs. This program will provide funds to construct new trails, improve/maintain existing trails, develop/improve trailheads or trailside facilities, and acquire corridors/easements.

Contact: Texas Parks and Wildlife Department
4200 Smith School Road
Austin, TX 78744
(512)389-4737

4) *National Bicycle & Pedestrian Clearinghouse*

Contact them for a copy of An Analysis of Current Funding Mechanisms for Bicycle and Pedestrian Programs at the Federal, State and Local Levels (#FHWA-PD-93-008).

Contact: National Bicycle & Pedestrian Clearinghouse
1506 21st Street, NW Suite 210
Washington, DC 20036
800-760-NBPC
e-mail: nbpc@access.digex.net

B. *Private and Non-Profit Funding Opportunities*

1) *American Greenways DuPont Grant Program*

The idea behind this small grant program (\$500-2,500) is to encourage action-oriented greenway projects. Keys to determining which projects will receive grants are the importance of the project to local greenway development efforts, how likely the project is to produce tangible results, and the extent to which the grant results in matching funds from other sources. Applications must be received by the end of December to be eligible for funds in the following year.

Contact: The Conservation Fund
1800 N. Kent Street, Suite 1120
Arlington, VA 22209
(703)525-6300

2) *Home Depot*

Home Depot is committed to giving back to the Communities where their employees and customers live and work. They provide small grants that can be used to buy tools and supplies at Home Depot or they can provide volunteers (Team Depot) to work on a project. They concentrate on affordable housing, at-risk youth, and the environment. Since there is not a local outlet this may not be feasible.

Contact the local District Manager.

3) *National Bicycle and Pedestrian Advocacy Campaign Grant*

Grants are available to state and local pedestrian and bicycle advocacy groups in three grant types: Minimum Support Grants (\$1,000) for routine membership activities and improving contact with the Bicycle Federation of America; Growth Grants (\$1,000-5,000) to enhance membership acquisition and development programs and to fund advocacy projects; Model Program Grants (\$5,000-15,000) to develop and implement projects and programs of more than local significance.

Contact: Bicycle Federation of America
1818 R. Street, NW
Washington, DC 20009
(202)332-6986

4) *National Rivers Coalition REI Seed Grant Program*

Recreational Equipment, Inc. (REI) donated \$70,000 in 1997 to support grassroots river conservation. The funds are administered by the National Rivers Coalition, which consists of: American Canoe Association, American Rivers, American Whitewater Affiliation, National Wildlife Federation, River Management Society, River Network, Sierra Club, and The Wilderness Society.

The program seeks protection of the national's river resources and the public's access to them. This is one of the few funding programs designed to support direct grassroots, lobbying. the program does not support general education, scientific research, or water quality monitoring, despite their importance to river conservation. Grants range from \$200-\$1,000 and can cover project-specific expenses such as printing, mailing, travel, phone, and meetings. Grants cannot pay for salaries or for hiring outside consultants. This might be a source for the publication and distribution of the final greenways plan.

Contact: Chad Smith, American Rivers
1025 Vermont Ave., NW, Suite 720
Washington, DC 20005
(202)547-6900

activities. These grants may not be used for general institutional support; capital costs of purchasing land, building or equipment; travel funds for attending conferences; academic research; or political activities. grants are for one year only and for a maximum of \$10,000. This may be something appropriate to the greenway links with Lick Creek Park.

Contact: World Wildlife Fund Innovation Grants
Executive Director
The Sonoran Institute
6842 East Tanque Verde Road, Suite D
Tucson, AZ 85715
(520)290-0828

C. Additional Funding and Assistance Resources

1) Texas National Guard

A number of Texas National Guard units are located in Texas. These units may be willing to perform various civic services in their local community such as constructing trail bridges and trails. The U.S. Army Corps of Engineers also has a "Guard" program which may be able to provide similar types of assistance. This type of assistance will be limited to those projects that are related in some way to the particular unit's combat mission (is: engineer units constructing trails, etc). Most Texas National Guard units do not have these types of missions.

2) Developer Impact Fees

Impact fees may be used as a funding source provided they meet the requirements of Chapter 395 of the Texas Local Government Code.

3) "Friends" Groups

Establishing a "Friends of the Trail" group may be the best asset in developing a trail. This group could be responsible for fund raising, building projects, education projects, and some of the maintenance and implementation. Recruit assistance from existing local community services programs to accomplish similar projects. The "Brazos Greenways Council" is one local organization that may assist with this type of project and may become more of an asset in fund raising as the actual projects are identified and prioritized.

4) Hotel/Motel Tax

Using a portion of the existing Hotel/Motel Tax may be preferable to new tax measures for trails and greenways; this is money primarily collected from tourists and other visitors to the region. Use would have to comply with existing state statutes regarding the use of these funds and would be limited to those areas that are deemed to be tourism related. This funding source is unlikely due to the current and projected commitments for this revenue source.

5) *Leasing Sub-Surface Utility Rights beneath Greenway Corridors*

Several trail efforts have been successful in funding their entire trail development efforts through the leasing of sub-surface rights to telecommunications firms. The Northern Virginia Regional Parks Authority sold a 20-year lease for a fiber optics cable beneath one of their trail corridors for \$250,000 annually. Other utilities such as water, sewer, and natural gas may also be interested in discussing opportunities for shared use of corridors. This may be limited in our community due to the fact that water, sewer and electric utilities are city-owned. However, alignment and acquisition of future ROWs could be a coordinated effort with a greenways and trails plan. Currently, the best opportunity for this type of trail is along the Exxon/Gulf States Utilities ROW that is located on the communities east side and has the start of a trail system in two areas.

6) *Local Bond Issues*

A local bond can be used as the sole source of funding for trail or greenway acquisition and development, but it is preferable to leverage these local dollars with funding from additional sources. \$3.5 million is being recommended for greenway acquisition in the next bond election scheduled for November 3, 1998. This is the most promising source for the acquisition of large tracts of land in undeveloped areas.

7) *Private Fundraising*

In-kind contributions or donated materials: labor, equipment, advertising space/support, printing, signs, picnic tables, benches, trees, etc.

Cash contributions: individuals, businesses/corporations, civic organizations, foundations, family trust/foundations, memberships, special events, bake or T-shirt sales, adopt-a-mile (-foot, -bridge, -bench, -stream, -etc.) This option is difficult and not suitable for large scale projects. It is more practical for small, designated items and is a good way to generate more grass roots support.

8) *Scout Troops*

Scout troops throughout the state have been involved in the adoption and construction of trails. They are more suitable for small "one-time" projects than large scale development. Eagle scout projects are one good example of this and include things like construction of trails, small bridges, etc.

9) *Special Sales Tax*

The local option sales tax could be increased a small amount - less than 1 cent - to provide capital for a trails or greenways system. If adopted, these revenues would reduce the amount currently available to the general fund and other existing commitments. This would actually be a special reserve of a portion of the existing sales tax and would not generate any additional revenue.

10) *Drainage Utility District:*

The city currently use the existing revenue from the drainage utility district for capital construction projects that improve drainage. This revenue is due to end after five years, however, it could be extended through city council action. It is a flat fee system and could be used for acquisition of floodways and floodplains in areas that would be a direct benefit to drainage-related problems. This would be a viable approach to long term mitigation of future drainage problems. The current rate generates approximately \$850,000 on an annual basis.

SUMMARY

Due to the anticipated size of the project and the need to act quickly in acquiring key tracts of land in advance of development, the most viable option is the use of general obligation bond and drainage utility district funds. This method provides adequate funds" up front" to acquire the land. Other sources of revenue listed above can then be explored for specific needs associated with things such as trail development, promotion of the trails and greenways system and planning functions,. Care must be given to the amount of resources expended if obtaining specific grant funds to ensure an adequate return. An overall strategy should be developed at an early stage to designate what funding sources will be utilized for the various components of the trails and greenways systems and responsibilities assigned to specific departments or agencies charged with the implementation process.

APPENDIX 5

Current Regulations

Drainage Ordinance

Greenways are not addressed under the City's current drainage development policies. However, floodplain development is addressed and that is where most of the greenways are proposed. The current floodplain development policies follow FEMA's guidelines for floodplain development. There are no prohibitions to development in floodplains and there are no incentives to keeping floodplains or floodways undeveloped or accessible. There are no aesthetic or land use guidelines in current policies. The City does require that residential structures in the floodplain be elevated to 1 foot above the 100 year floodplain elevation, that non-residential structures be floodproofed and that any improvements to or encroachments on the floodplain not cause more than a 1 foot rise in the 100 year floodplain elevation. These requirements come from FEMA. In addition to FEMA's requirements, the City sets some design standards for channel improvements; most of which are geared toward preventing erosion and minimizing maintenance cost.

Drainage development policies require the dedication of drainage easements or rights of way. The following minimum standards are currently used to determine the limits of the area to be dedicated.

- The minimum width of any drainage easement is 15 feet.
- The minimum width for any easement on an open channel will be the top width of the channel plus 20 feet.
- Access from a public street must be provided to all drainage easements.
- All easement widths shall be sufficient to cover drainage pathways (100 yr. flood)

Subdivision Regulations

The City's current regulations address subdivision layout relative to greenways and open space with only a few broad statements. It is stated that regard shall be shown for natural features such as trees, watercourses, historical spots, and similar community assets. Land subject to flooding or topographically unsuitable shall not be platted for residential purposes and such land should be set aside for uses that will not be endangered by periodic or occasional flooding.

Parkland Dedication Ordinance

The City has, as part of its Subdivision Regulations, a parkland dedication section that requires a land or monetary dedication for neighborhood parkland. The ordinance states that typically areas within the 100 year floodplain are unsuitable for neighborhood park development. However, policy has been to accept some floodplain land for parkland as long as there is a reasonable amount of non-floodable land that can be developed with park improvements. A revised parkland ordinance approved by Council in January, 1999, states more definitively that consideration will be given to floodplain or floodable lands as long as, due to its elevation, it is suitable for park development. This statement encourages the location of neighborhood parkland adjacent to or along greenways.