

CHAPTER 3: NEEDS ASSESSMENT

A comprehensive bicycle, pedestrian, and greenways system can provide the community with a number of benefits and can support a variety of needs. The system can create a positive impact that contributes to the community's overall quality of life by creating transportation, recreation, health, environmental, and economic benefits. Identifying and evaluating the existing use of facilities, as well as preferences and safety concerns will help with the development and management of the system. This chapter provides an overview of the benefits described above, identifies types of users and their preferences, evaluates existing data on use and safety, and summarizes needs and preferences expressed through the citizen engagement process and other planning efforts.

BENEFITS

Transportation

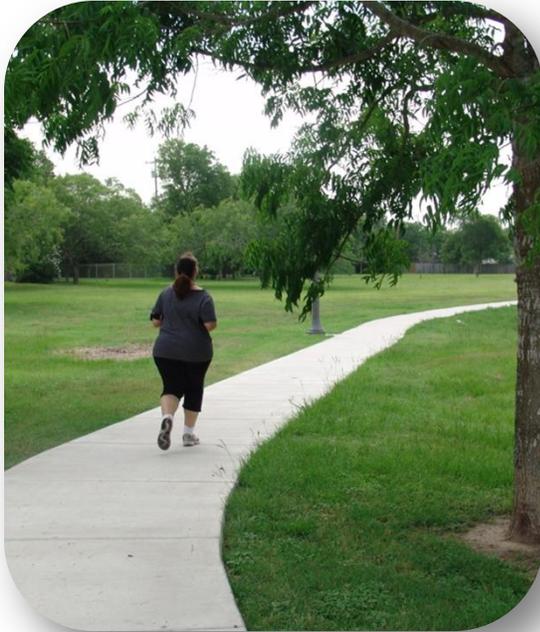
Well designed bicycle, pedestrian, and greenway facilities can play an important role in the overall transportation system. They provide opportunities to bicycle and walk short travel distances to work, school, or to run errands. A 2001 National Household Transportation Study found that almost half of all trips are less than three miles in length.⁸ With the right facilities in place, a destination one mile away would take on average 20 minutes by foot or 6 minutes by bicycle.

Bicycle, pedestrian, and greenway facilities create alternative transportation choices that can minimize automobile dependency, reduce traffic congestion, and offer an affordable means of travel. For citizens who do not have an automobile or cannot drive, bicycle, pedestrian, and greenway facilities are a necessity.



⁸ National Transportation Household Survey. Department of Transportation, Federal Highway Administration, (Washington, D.C., 2001, <<http://nhts.ornl.gov/>>).

Along with on-street facilities, multi-use paths along greenways create off-street corridors that connect users to various key destinations such as parks, work, schools, shopping centers, and neighborhoods without the need for an automobile.



Healthy Living

There is a correlation between the greater amount of time a person spends exercising and their improved health. Physical activity increases strength, flexibility, endurance, relieves stress, improves mood, and enhances psychological well-being⁹. Prevention and control of chronic conditions that lead to cardiovascular disease, cancer, and diabetes can begin with physical activity. The U.S. Surgeon General recommends a daily amount of physical exercise of at least 30 minutes for adults and 60 minutes for children.¹⁰

A community that plans and develops a bicycle, pedestrian, and greenway system provides residents with a safe environment that supports an active lifestyle. Studies have shown

that people who exercise regularly have 14% lower claims against their medical insurance, 41% fewer claims greater than \$5,000, and spend 30% fewer days in the hospital.¹¹ This can, in turn, reduce health care costs for an individual and their employer.

Environmental

Significant environmental benefits can result from a bicycle, pedestrian, and greenways system. The use of bicycle, pedestrian, and greenway facilities instead of an automobile can help improve air quality, minimize noise pollution, and reduce energy consumption. Greenways along streams and rivers help with floodplain management; protect open space and riparian areas; maintain corridors for wildlife and plant habitat; and improve water quality.

⁹ Department of Health and Human Services, National Center for Chronic Disease Prevention and Health Promotion, Report: Physical Activity and Health: A Report of the Surgeon General (Atlanta, GA, 1996).

¹⁰ U.S. Department of Health and Human Services Office of the Surgeon General, <http://www.surgeongeneral.gov/topics/obesity/calltoaction/fact_adolescents.htm>

¹¹ National Park Service, Report: Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors, <<http://www.nps.gov/pwro/rtca/econ8.pdf>>.

Bicycling and walking reduce congestion on streets which, in effect helps reduce air pollution associated with vehicle exhaust emissions and fossil-fuel consumption. Greenways protect open space for their natural, cultural, and historical significance that would otherwise be lost to development. They also serve to prevent development from encroaching in flood prone areas that need to remain in their natural state to function properly and provide appropriate flood water storage capacity. This prevents flooding that can be costly to the property owner and can sometimes save peoples' lives.

As the City expands and develops, additional impervious surfaces, such as building footprints, streets, and parking lots, create increased storm water runoff (precipitation that does not absorb into the soil) that carry pollutants (sediment, oil, gas, pesticides, fertilizers, etc.) into streams and can degrade water quality. Development also has an adverse impact on streams through possible stream channelization, tree canopy removal, and stream bank erosion from increased flows. Wildlife and plant habitats that receive food, shelter, and overall protection from open space are also affected. Greenways serve to mitigate these negative impacts by filtering pollutants in the water and air, retaining water to help prevent erosion, and sustaining their ecological importance for wildlife and plants. They also allow for the reclamation and restoration of degraded stream channels, provide vegetated buffers between different land uses, and create opportunities for environmental education.

Economic

The most successful communities – those most attractive to homebuyers, businesses, and tourists – offer easy access to outdoor recreation activities through bicycle, pedestrian, and greenway facilities. The National Parks Service reports that greenways can increase a community's local economic activity by enhancing property values, increasing the municipality's tax base, and attracting and retaining businesses to the area.¹²



Many communities have begun to see development of greenways and pedestrian facilities as a way to save money. Walking and bicycling versus using an automobile to commute to work and run errands results in significant personal cost savings. A decrease in traffic volumes also lowers

¹² National Park Service, Report: Economic Impacts of Protecting Rivers, Trails, and Greenway Corridors, <http://www.nps.gov/pwro/rtca/econ_all.pdf>.



the costs that local municipalities must put towards maintenance and the repair of streets. Setting aside personal property for land conservation can also result in tax savings/credits for participating individuals.

The community as a whole may indirectly profit from the development of multi-use paths along greenways. Studies have shown that residential neighborhoods, as well as commercial and office spaces, located adjacent to or near a greenway are considered more desirable and as a result have higher property values. Many businesses looking to relocate their operations are often looking for a community that can provide their employees with these facilities. In 1992, a study of users and property owners along three multi-use paths in California, Florida, and Iowa estimated that the average economic activity was \$1.2 to 1.8 million annually.¹³

Many cities have realized that a greenway system provides a cost effective alternative to expensive flood-control measures. When left in a natural state, except for the addition of multi-use paths, there is a reduction in flood damage to homes and other significant infrastructure. Finally, as mentioned in Chapter 2: Existing Conditions, FEMA offers the Community Rating System that reduces flood insurance rates in communities that already protect greenways and other open spaces.

Other Benefits

Getting outdoors and using available facilities also creates opportunities to recreate, strengthen ones social network of friends, and interact with neighbors. It creates a sense of place and a healthy, stable community atmosphere that contributes to an overall quality of life. Greenways also provide the ability to connect with nature, escape from the built environment, and create buffers between land uses.

TYPES OF USERS

Understanding the needs and preferences of bicyclists and pedestrians can affect how to plan for a system that will result in increased use. Below, different types of bicyclists and pedestrians are described.

Bicyclists

A bicyclist has the same rights on a street as a motorist and must abide by the same rules. Table 3.1: Bicyclist User Groups outlines three different types of bicycle users as identified by the American Association of State Highway Transportation Officials (AASHTO). Most bicyclists or

¹³ The Impacts of Rail Trails, A Study of Users and Nearby Property Owners from Three Trails. National Park Service, Rivers, Trails, and Conservation Assistance Program, 1992, <http://www.nps.gov/ncrc/programs/rtca/helpfultools/impact_railtrail_final.pdf>.

potential bicyclists will fall within Group B, adults who are basic or beginner riders may not prefer or have the confidence to use the street as a motorist. Special accommodations should be considered such as bike lanes or routes where there are lower amounts of traffic or no automobiles at all. In order to encourage ridership, facilities that meet the needs of each user group will require consideration in the system and this Plan.

User Group	Preferences	Skill Level
Group A – Adult - Advanced	Fast, convenient, and direct route. Facility type: Entire road lane or bicycle lane.	Can ride on street with motor vehicles comfortably and under most traffic conditions.
Group B – Adult - Basic/Beginner	Avoid roads with fast or busy motor vehicle traffic. Facility type: Bicycle routes, bicycle lanes, or multi-use paths away from traffic.	Less confident of their ability to ride in traffic; unfamiliar with rules of the road; and may walk across intersections.
Group C – Children	Usually avoid using on-street facilities to avoid motorists. Facility type: Sidewalks and multi-use paths.	Limited bicycle handling skills.

TABLE 3.1: BICYCLIST USER GROUPS¹⁴

Pedestrians

All trips begin and end on foot as a pedestrian. Pedestrians include those that walk, jog, and run and range in age from toddlers to the elderly. There is a need to provide accommodations for all types of users including children, those using wheelchairs, and the visually impaired. Preferences include safe routes that are free from obstacles and gaps and buffered from motor vehicles.

TYPES OF TRIPS

Whether walking or bicycling, two main types of trips exist: utilitarian and recreation. A utilitarian trip is usually a commute to work and school or to run errands. Users typically want the shortest, most direct on street route. Users who are bicycling or walking for recreation are doing so for their leisure or health. They mostly prefer off street multi-use paths that are scenic, winding, provide shade, and perhaps create a loop.

EXISTING BICYCLE AND PEDESTRIAN ACTIVITY

An awareness of the concentrations of bicycle and pedestrian activity in College Station is important to help determine the condition and demand of facilities. There is relatively little data on the amount of residents who bicycle and/or walk for transportation or recreation in College

¹⁴ American Association of State Highway Transportation Officials, Guide: Guide for the Development of Bicycle Facilities (Washington, D.C., 1999).

Station. The two sources described below are utilitarian in nature. They are limited to data on adults traveling to and from work and students traveling to and from Texas A&M University campus. No data is available for recreational activity.

Studying bicycle and pedestrian activity throughout the City will be important in determining how policy and facilities influence use.

Journey to Work

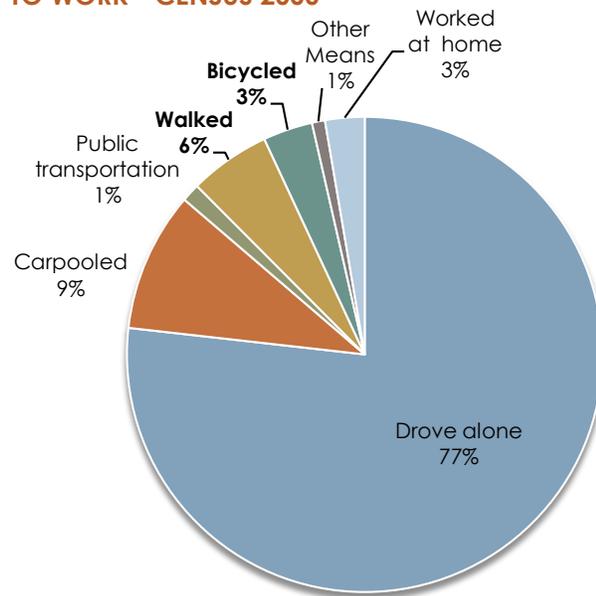
The U.S. Census Journey to Work survey is conducted every 10 years and captures the mode used to travel to work by participants 16 years and older within a one week period. One limitation in the survey was only information on the primary mode of transportation for traveling to work was requested which limits responses from users who may use more than one mode.

In 2000, the survey revealed that six percent of College

Station residents commuted to work by walking and three percent commuted by bicycling, as shown in Figure 3.1. Appendix G provides summary tables for 1990 and 2000 data. These figures compare favorably with state (two percent walked and point twenty-four percent bicycled) and national (three percent walked and point thirty-eight percent bicycled) data. These percentages, however, are down from 1990 which showed that ten percent of College Station residents walked and five percent bicycled to work. The scale of the community, however, has changed in the last 10 years, which could play a factor in the difference. Growth continues to extend south while key destinations continue to be in the core part of College Station. Providing a greater number of bicycle and pedestrian facilities, as well as encouraging mixed-use development, can help to change this historical trend.

The percentage of bicyclists by census tracts across the City are illustrated in Map 3.1: 2000 Census Journey to Work – Bicycle Trips.¹⁵ The highest percentage of commutes to work by bicycle occurred around Texas A&M University and older parts of College Station.

**FIGURE 3.1 - CITY OF COLLEGE STATION
JOURNEY TO WORK - CENSUS 2000**



¹⁵ United States Census Bureau, American Fact Finder, 2000, <<http://census.gov/>>.

Bicycle Commutes to Texas A&M University

Texas A&M University and surrounding neighborhoods have the largest amount of trip generation in the form of bicycle and pedestrian activity.

In 2005, the Texas Transportation Institute conducted a study utilizing bicycle counts and surveys to evaluate existing conditions and bicycle activity to and from Texas A&M University. Key findings included the following:

- Almost 2000 bicycle commuters enter campus every day;
- The highest levels of bicycle traffic were on the southwest and north sides of campus;
- A potential of an additional 500 students would commute if safe and direct routes to campus were available;
- Bicycle commuters surveyed reported inadequate facilities, aggressive motorist behavior, and intersections as obstacles; and
- Over 25% of non-bicycle commuters surveyed reported that improved facilities might encourage them to commute by bicycle.¹⁶



BICYCLE AND PEDESTRIAN SAFETY

Safe bicycle and pedestrian facilities are of paramount importance to retaining users and encouraging increased activity. The survey responses collected for this Plan reinforced this statement with safety being of utmost concern.

A number of factors can affect safety, including the physical condition and level of maintenance of facilities, comfort and experience levels of users, knowledge of and adherence to traffic laws, and weather conditions. In order to improve safety and use of facilities in College Station, these factors should be considered in maintenance, education, and enforcement. To assess the current level of safety, bicycle and pedestrian crash data were analyzed. This analysis, however, is limited to crashes that were reported to the City of College Station Police Department. This data included the type of crash and injury; location; and time and date of incident.

¹⁶ Texas Transportation Institute, Report: Evaluating Bicycling Commuter Experiences at Texas A&M University and Adjacent Areas in the City of College Station, Texas, (College Station, TX, 2005).

Between 2003 and 2008, there were 195 reported crashes involving a motor vehicle and a bicyclist or pedestrian. Findings and results of the analysis are summarized below:

- Most crashes occurred in the core of the City and along the following major corridors, as illustrated in Map 3.2: Pedestrian Crash Data and Map 3.3: Bicycle Crash Data:
 - Pedestrian crashes - University Drive [FM 60], George Bush Drive [FM 2347], Harvey Road [SH 30], Southwest Parkway, and Welsh Avenue.
 - Bicycle crashes - University Drive [FM 60], George Bush Drive [FM 2347], Texas Avenue [BUS 6], University Oaks Boulevard, Southwest Parkway, and Welsh Avenue.
- There was on average 20 pedestrian crashes and 15 bicyclist crashes reported each year.
- There were three pedestrians and one bicyclist killed over the five year period.
- 44% of pedestrian crashes and 50% of bicycle crashes resulted in some sort of injury.
- Crossing at intersections or crosswalks accounted for 46% of pedestrian crashes and 54% of bicycle crashes.
- The highest number of pedestrian crashes (five) occurred at the intersection of College Main and University Drive [FM 60].
- The highest number of bicycle crashes (three) occurred at the intersection of George Bush Drive [FM 2347] and Anderson Street.
- For bicycle crashes, seven a.m., one p.m., and during the afternoon between four and six p.m. were the most common (eight or more crashes).
- For pedestrian crashes, two a.m. and during the afternoon between four and six p.m. were the most common (eight or more crashes).

Additional studies will be needed in the future to help determine factors contributing to these crashes. This will help the City improve the physical conditions of facilities and the safety of bicyclists and pedestrians.



CITIZEN ENGAGEMENT SUMMARY

Public input was collected through a variety of methods during the planning process.

Focus groups, an on-line survey, three community meetings, and comments by email helped identify opportunities and concerns of citizens. These comments and ideas were analyzed and used to create the recommendations in this Plan.

Focus Groups

Five focus group meetings were conducted. Two meetings were offered for homeowners' association representatives, one for developers, one for students, and one for special interest groups. Approximately 22 people attended and input was received through the use of the nominal group technique. This allowed for the generation of ideas and comments that were then grouped by theme or category and prioritized. Appendix H provides a list of priorities by group that resulted from these meetings.

Community Meetings

Three community meetings were conducted where citizens had the opportunity to provide input and feedback on the bicycle, pedestrian, and greenway system. Project updates were provided, recommendations presented, and relevant mapping exercises performed by attendees.

The first community meeting was held in February of 2009 and included about 40 people who were introduced to the planning process and were asked to provide comments, ideas, and issues through comment cards, group discussion, and mapping exercises. During break-out sessions, facilitators guided the participants through goal prioritization and mapping exercises which included the opportunity to identify favorite and least favorite open space areas and bicycle routes, as well as top destinations. Following the break-out sessions, each group provided a brief summary of their groups' discussion to the larger audience.



The second community meeting was held in May of 2009 and was attended by about 30 citizens who provided input on the system development component of the Plan. This included the proposed location of additional bike lanes, bike routes, sidewalks, and multi-use paths. Comments, ideas, and issues were also collected at this meeting through comment cards, group discussion, and mapping exercises.



Bicycle, Pedestrian, and Greenways Master Plan

The third and final community meeting was held in November of 2009 and was attended by about 50 citizens who provided input on system management and implementation. This included proposed priorities for each facility type. Comments cards, group discussion, and a mapping exercise were also a part of this meeting.

On-line Survey

An on-line survey, administered through SurveyMonkey.com, was available from March until May 2009. Outreach was achieved through the project website, radio, television, newspaper, Facebook, and email with over 260 responses. The survey contained 18 questions, including some on needed improvements for bicycle, pedestrian, and greenway facilities and some on what discourages bicycle and pedestrian activity. Appendix I and J provide the survey and results.

MAJOR THEMES

A number of themes emerged throughout this input process and were considered and analyzed in the development of the goals, strategies, and actions items presented in this Plan. They are representative of the desires of the residents of College Station. Some of these themes are listed below.

Land Use and Streets

There is a need for mixed-use developments that provide places within walking and bicycling distance and protect open space and natural features. Numerous corridors are currently limited where roads are designed exclusively for automobiles and carry lots of traffic. There is also a need to provide parking lots that are pedestrian friendly; greenway trails that follow streams; and trees that provide shade and create buffers between the sidewalk and the street.

More Facilities

Additional bicycle, pedestrian, and greenway facilities such as bike lanes, sidewalks (on both sides of streets), and multi-use paths should be added to the system. Increasing right-of-way widths, road diets (a technique used to reduce the number of lanes on a roadway for multi-modal travel) in the center of the City, bicycle boxes, signage, and grade separations should all be considered. Facilities should accommodate all types of users such as walkers, joggers, commuters, recreation cyclists, etc.

Connectivity

Some facilities are currently disjointed or do not connect to anything. There is a need and desire to connect key destinations, especially Texas A&M University, neighborhoods, schools, parks, commercial developments, and the City of Bryan. East to west connections are also needed to cross Earl Rudder Freeway [SH 6].

Safety

Intersections were a major concern along a number of right-of-way corridors. Proper use of facilities and trash cans in bike lanes were also concerns. Multi-use paths are needed to allow students to reach schools without the need to cross intersections. Additional safety related issues are referenced in the education and management sections below.

Education

There is a need to educate users on where and how to bicycle and walk, legally and safely. Some bicyclists go the wrong way in bike lanes and ignore stop signs which can be dangerous for motorists and bicyclists. Motorists need to be educated on sharing the road to prevent aggressive behavior and parking in bike lanes. Potential users also need to be informed of the benefits (creating alternate modes of transportation, encouraging healthy living, and protecting the environment) of the system. Greater awareness and advocacy of greenways and greenway trails should also be established.

Management

Existing facilities need routine maintenance to prevent hazards. Bike routes and bike lanes need to be swept to clear debris such as broken glass, trash, and gravel. Other hazards include gutters filled with debris, pot holes, and fading bike lane striping. Some sidewalks are also deteriorating and are in need of repair. Concerns in regards to greenways included the lack of vegetation (e.g., Bee Creek), sediment in creeks (e.g., Wolf Pen Creek), and the existing negative impacts of urbanization to wildlife and aquatic species.

Right-of-Way

A significant amount of response and discussion revolved around the following roads as were identified as either barriers and/or in need of improvements:

- Barron Road,
- Earl Rudder Freeway [SH 6],
- Harvey Mitchell Parkway [FM 2818],
- Harvey Road [SH 30],
- Holleman Drive,
- Rock Prairie Road,
- Southwest Parkway,
- Texas Avenue [BUS 6],
- University Drive [FM 60],
- Wellborn Road [FM 2154],
- Welsh Avenue, and
- William D. Fitch Parkway [SH 40].



Input from Other Planning Efforts

Other sources of information were used to form recommendations in this Plan, including the College Station Comprehensive Plan and the Parks and Recreation Department's City-wide Needs Assessment.

The recent update to the City's Comprehensive Plan (2009-2030) was used as the foundation for the Bicycle, Pedestrian, and Greenways Master Plan. It included a series of focus group meetings, a community meeting (Citizens Congress) and a City-wide survey that helped shape recommendations in this Plan. Chapter 5 - Parks, Greenways and the Arts and Chapter 6 - Transportation provide planning considerations, goals, and strategies that relate to the bicycle, pedestrian, and greenway system.

In 2005, the City of College Station, in conjunction with the Department of Recreation, Parks and Tourism Sciences at Texas A&M University, conducted a City-wide Needs Assessment. It included a series of focus groups, a community meeting, and a City-wide survey. Relevant findings included the need or desire for "improving the trail network by adding additional trail infrastructure and 'connecting existing trails to each other, schools, residential neighborhoods, and businesses, as well as the need to concentrate on "greening the City" by increasing tree plantings, vegetation and color throughout the City.'