

CHAPTER 2: EXISTING CONDITIONS

To determine and plan for future needs, it is important to consider existing factors that will influence and affect a successful bicycle, pedestrian, and greenways system. This chapter provides an overview of the City of College Station, a description of natural and manmade features, and the bicycle, pedestrian, and greenway facilities that currently comprise the system.

As a part of the City's Comprehensive Plan Update, an Existing Conditions report was formulated which gave an understanding of the current conditions in College Station. Included in this chapter are relevant findings from that report and other information that had implications for developing this Plan.

DEMOGRAPHICS

College Station has been growing at an average annual rate of 2.1% since 1990. In 2009, the population was estimated to include approximately 93,149 people with a projected population increase of over 40,000 for a total of over 134,000 people by 2030. Population density for the City, based on Census 2000, can be seen in Map 2.1: Population Density.

As home of Texas A&M University, one of the State's largest public institutions, College Station has a large number of college students living in the community. The student population is currently 48,787 (Fall 2009) and the University population has been increasing at a rate of 1% annually.

The median age in the City of College Station is 21.9 years old, based on the 2000 Census, due mainly to the large number of college aged students that live in the City. 14.4% of College Station's population in 2000 was under the age of 18, 51.2% from 18 to 24 years of age, 21.3% from 25 to 44 years of age, and 9.4% from 45 to 64 years of age. Seniors (age 65 and older) made up just 3.6% of the City's population, a low number compared to 8% for the region and 10% for the State of Texas. Over the past decade, however, the City has seen an increase in the number of seniors living in the area. People aged 50 years and older are the fastest growing cohort in the City with an increase of 84% between 1990



and 2000. As the Baby Boomer generation continues to age, it is likely that the City of College Station will continue to see an increase in the population age 50 and older, while maintaining relatively stable school-aged and college-aged populations.

As a City that will continue to serve a young, college-aged population and an aging population, providing an adequate and accessible bicycle and pedestrian system is fundamental to an effective transportation system. As population density increases, traffic congestion may increase resulting in the need for more alternatives to decrease auto-dependency.

LAND USE CHARACTERISTICS AND THE BUILT ENVIRONMENT

The Land Use and Community Character chapter of the City's Comprehensive Plan lays the foundation for the preferred pattern of land development that will occur over the next 20 years.

Since 1990, development has continued to move south towards the southern City limits, beyond William D. Fitch Parkway [SH 40]. Between 2000 and 2007, the City processed 244 plats with 18% of those being in the Extraterritorial Jurisdiction, as shown in Map 2.2: Platted Growth.



Areas with higher density and mixed-use developments are usually more conducive to walking and bicycling. Sprawling growth with low-density development and a limited mix of uses will decrease connectivity and the ability to bicycle and walk. According to the on-line survey conducted for this Plan, most citizens are willing to walk about one mile and bicycle about two to five miles to run errands or commute to work or school.

As development continues to increase, the loss of open space will also increase. This will require the City to balance future growth and land development with the protection of greenways. The City will need to be strategic when planning for bicycle and pedestrian facilities, as well as the greenway system, by considering the location of differing land uses and the intensity of development in order to create a successful system. The Comprehensive Plan identifies neighborhood, district, and corridor planning areas that will provide opportunities to identify and improve facilities that are outdated or introduce new ones.

COMMUNITY DESTINATIONS AND ATTRACTIONS

Connecting people and places is an important component of this Plan. This section identifies destinations that individuals are likely to walk or bike to work, school, or for recreation. Map 2.3: Key Destinations identifies some community destinations and attractions around College Station that will be considered in this planning effort and some are provided below:

- Major employers: Texas A&M University, College Station Independent School District, Reynolds and Reynolds, and the City of College Station.
- Districts: Existing - Northgate and Wolf Pen Creek; Future - Spring Creek, Presidential Corridor Gateway, and Speedway.
- Key Destinations: Shopping centers, grocery stores, Post Oak Mall, George Bush Presidential Library, College Station Conference Center, and the Lincoln Center.
- Parks: The College Station Parks and Recreation Department has 51 parks across the City totaling 1,316 acres of parkland – 34 neighborhood parks, 8 community parks, 7 mini-parks, 2 regional parks, and an arboretum.
- Schools: The College Station Independent School District has 7 elementary schools, 2 intermediate schools, 2 middle schools, 1 alternative campus, and 1 high school.



NATURAL FEATURES

College Station lies in the coastal plains region of Texas with a favorable climate that offers warm summers and mild winters. The topography is relatively flat to gently sloping with elevation ranging from 200 feet to 366 feet above sea level as demonstrated in Map 2.4: Elevation. These conditions make College Station an ideal location for bicycling and walking throughout a considerable amount of the year.

Hydrology and Floodplain

Brazos County is made up of numerous streams that flow into the Navasota and Brazos River basins. Map 2.5: Hydrology and Floodplain illustrates the system that lies in and around the City of College Station and its floodplain. Bee Creek, Lick Creek, Wolf Pen Creek, and their tributaries (including Spring Creek and Alum Creek) flow into Carters Creek. Carters Creek and Peach Creek flow into the Navasota River, while White Creek flows into the Brazos River.

Floodplains

Floodplains are flat or nearly flat land adjacent to streams or rivers that experience occasional or periodic flooding. Regulatory boundaries of these floodplains have been categorized by the Federal Emergency Management Agency (FEMA) to help preserve their flood carrying capacity. They include 100-year flood areas (i.e., 1% annual chance of a flood event or special flood hazard areas) and 500-year flood areas (i.e., 0.2 % annual chance of a flood event).



There are approximately 3,962 acres of 100-year flood areas within the College Station City limits and an additional 235 acres of 500-year flood areas. Currently, 1,696 acres of 100-year flood areas are preserved through agricultural zoning and an additional 462 acres are owned by the City of College Station.

The protection of floodplains is crucial in managing the dangers associated with flooding. Regulations for residential and non-residential structures currently limit allowable activities in special flood hazard areas designated by FEMA.

It will be important to limit development in the floodplain except where necessary for such elements as road crossings, utility corridors and multi-use paths. Care and sensitivity will be needed as these areas are subjected to the impacts of urbanization. Tools such as the protection of riparian areas (described below) and the protection of these areas through the greenways program should be used.

FEMA also offers a Community Rating System that reduces flood insurance rates in communities that protect greenways and other open spaces. The amount of reduction varies between 5-45% depending on the floodplain management activities of a city. The City of College Station's current floodplain management requirements do exceed FEMA minimum standards and expect to be accepted into the program in 2010 with an estimated 5-15% rate reduction.

Riparian Areas

Riparian areas are corridors of natural vegetation along streams. They create transitional zones between streams and the impacts of development. The benefits of these areas include floodplain and storm water management; stream bank stabilization; water quality protection;

and wildlife and aquatic habitat protection. If a riparian area is not protected, destruction of property can occur through the erosion of stream banks and increased flooding. The degradation of water quality; increased water temperature; and reduction in fish and wildlife diversity are detriments that may occur without the protection of this riparian area. Restoration of these areas will need to be explored in areas that have been degraded or disturbed and may include stream channel restoration and stream bank stabilization.

Storm Water

Urbanization can harm the quality of local water resources. It can degrade water quality and increase the amount of runoff and flooding that occurs due to the increase of impervious surfaces (e.g., rooftops, roads, and parking lots). Storm water runoff increases during precipitation events because it is not absorbed into the soil and, therefore, flows rapidly downstream. In order to manage and alleviate the occurrence of pollutants entering streams, the City of College Station is developing a Storm Water Management Plan. Under the regulation of the Clean Water Act of 1972 is to “restore and maintain the chemical, physical and biological integrity of the Nation’s waters,” the City has begun implementing programs and practices to control polluted storm water runoff. The program intends to eliminate the discharge of pollutants to the maximum practicable extent; protect water quality; satisfy the appropriate water quality requirements of the Clean Water Act; and manage storm water activities through the Storm Water Management Plan. The Plan includes public education; participation and outreach; pollution prevention; construction site runoff control; and post construction site runoff control.

The highest and best function for our rivers and streams and their floodplains is the conveyance and temporary storage of floodwaters. Greenways serve to protect the flood control function of these floodplains and riparian areas. Limiting the placement of buildings and other impervious surfaces, such as parking lots, or even fill in these areas, can help reduce unnecessary flooding, manage storm water runoff, and decrease stream bank erosion that can affect the future health and effectiveness of our rivers and streams.

Soils

According to the 2002 Soil Survey of Brazos County, Texas, soils within the City include areas in the Post Oak Savannah with light and sandy soil with dense clay subsoil less than a foot under the surface and prairie vegetation with dark loams and clays. Land around the floodplains is predominantly sandy and loamy, impacting the shrinking and swelling of the soil. The floodplains consist of loamy and clayey soils that drain poorly and are not considered desirable for urban development.

When constructing multi-use paths, it will be important to find the most stable, well-draining soils which can bear the intended traffic. Although multi-use paths will be built within the floodplain, frequently flooded areas should be avoided to minimize silt and debris clean-up.

VEGETATION AND WILDLIFE

Brazos County falls within the Post Oak Savannah and Blackland Prairie ecoregions.

The Post Oak Savannah is dominated by native bunch grasses and forbs, scattered mainly with Post Oaks and Blackjack Oaks.⁴ According to the Texas Parks and Wildlife Department, Black Hickory, Cedar Elm, Sugarberry, and Eastern Red Cedar are also common. Understory of wooded areas typically includes Yaupon, American Beautyberry, and Greenbriar. Native grasses include Little Bluestem, Indiangrass, Switchgrass, and Texas Wintergrass.

Post Oaks are high quality native trees that grow slowly, are sensitive to root damage, and are not easily replanted.⁵ They are also sensitive to environmental changes and to standing water, soil compaction, and other harsh conditions. Overwatering or soil compaction can fill air spaces in the soil which will suffocate the tree roots.

The Blackland Prairies form parallel bands within the Post Oak Savannah. Canopy trees within this area include Live Oaks, Pecan, Cedar Elm, Eastern Red Cedar, various oaks, and American Elms. Grasses include Big Bluestem, Indiangrass, and Little Bluestem.



According to the Soil Survey of Brazos County, the Post Oak Savannah provides more than half the wildlife habitat in the County. Within bottomland hardwoods, wildlife may include white-tailed deer, wild turkey, feral hogs, gray fox, and owls. Within wooded wetlands, wildlife may include ducks, great blue heron, green heron, beaver, and alligators. Within rangelands, wildlife may include white-tailed deer, red-tailed hawk, Harris sparrow, fox sparrow, bobcat, coyote, cottontail, and raccoon.

Threatened and endangered species in the Brazos County are listed in Appendix F. The

Red wolf, Houston toad, Interior Least Tern and the whooping crane are currently on the Federal list of endangered species for the Brazos County. A rare orchid, the Navasota Ladies'-tresses, is also a Federally endangered plant that can be found in the Post Oak Savannah region.

⁴ Texas Forest Service. "Trees of Texas," 2008 <<http://texastreeid.tamu.edu/content/texasEcoRegions/PostOakSavanah/>>.

⁵ Sally Wasowski and Andy Wasowski, Native Texas Plants: Landscaping Region by Region (Houston, TX: Gulf Publishing Company, 1997).

TRANSPORTATION SYSTEM

The transportation system in College Station and its Extraterritorial Jurisdiction is made up of a road network and alternate modes of transportation through the bicycle, pedestrian, and greenway system, as well as transit. The City's Comprehensive Plan identifies the transportation network needs for the next 20 years. Using projected population and employment growth figures based on the Future Land Use & Character map, a travel demand model of vehicle trips forecasted the need for significant investments in new and expanded streets and the bicycle, pedestrian and greenways system. It was determined that in order to prevent increased congestion and degradation of service levels in various locations around the City, transportation investments would need to be coupled with increases in transit ridership, a reduction in vehicle miles traveled, and increased bicycling and walking. The success of the transportation network is dependent upon multi-modal design of new roads and expansion of the bicycle, pedestrian, and greenway system.

The existing road network in College Station consists of over 286 miles as illustrated in Map 2.6: Existing Roads. Earl Rudder Freeway [SH 6] and a majority of major arterials including Texas Avenue [BUS 6], University Drive [FM 60], and Harvey Road [SH 30] are part of the Texas Department of Transportation's (TxDOT's) highway system. The Thoroughfare Plan, an element of the City's Comprehensive Plan, also consists of over 250 miles of future roads as shown in Map 2.7: Thoroughfare Plan.

Traffic Volumes

Since the late 1990s, traffic volumes have decreased in some core areas of the City and increased in southern College Station as referenced in Map 2.8: Traffic Volumes. Some roads in the area that have had an increased in volume include Wellborn Road [FM 2154] just south of Harvey Mitchell Parkway [FM 2818] and University Drive [FM 60], east of Earl Rudder Freeway [SH 6].

High volumes of motor vehicle traffic can create safety issues and diminish comfort levels for bicyclists and pedestrians, especially when approaching intersections and crossing major freeways. These barriers can hinder bicycling and walking.



Bus Transit System

Currently there are three different operators of bus transit in the College Station/Bryan area:

- The District (formerly Brazos Valley Transit Authority) provides public bus services for seven counties including Burleson, Grimes and Brazos.
- Texas A&M University Transportation Services provides bus services to and through campus.
- College Station Independent School District (CSISD) provides bus services for students. Students who live within a two mile radius of the school they attend are not provided with bus service and are encouraged to bicycle and walk.

Map 2.9: Existing Transit Routes portrays existing routes for The District and Texas A&M University but does not include CSISD routes. Providing adequate pedestrian crossings, shelters, and bicycle parking at bus stops and bicycle racks on the front of buses are a few options that could contribute to a functional multi-modal system.

BICYCLE, PEDESTRIAN, AND GREENWAYS SYSTEM

Since the adoption of the City's first Bicycle Master Plan in 1980, the City has developed approximately 33 miles of striped bicycle lanes and 59 miles of bicycle routes as shown on Map 2.10: Existing Bicycle Facilities. There are approximately 130 miles of sidewalks around the community and 8 miles of multi-use paths consisting of side paths and greenway trails as shown on Map 2.11: Existing Pedestrian Facilities. The greenways program also has acquired roughly 500 acres of property through fee simple acquisition, easements, and dedications. (Both maps referenced above provide a representation of greenway property around the City of College Station). There are an additional four miles of bike lanes, seven miles of sidewalks, and six miles of multi-use paths which have been funded and will be under design or construction in the next few years. These projects are also identified on the above maps, respectively.



The greenways system is administered by the Greenways Program Manager position in the Planning and Development Services Department. This position serves as primary lead on managing various elements of the greenways system including planning, land stewardship, safety, and programs. The maintenance element is shared by the Parks and Recreation Department and the Public Works Department. Maintenance is focused on trails and areas within greenways that serve as drainage ways.

The Planning and Development Services Department has assumed the role of managing the various elements of the bicycle and pedestrian program. The Greenways Program Manager and the Transportation Planning Coordinator (also in the Planning and Development Services Department) share this role. The maintenance element is led by the Public Works Department.

Figure 2.1: Current Lead and Supporting Departments by Element provides a breakdown of the departments that currently take the lead or support different elements of the system. This figure includes some supporting departments, although many others may play a role in each element. A number of elements currently have supporting departments but a lead department does not exist specifically for the bicycle and pedestrian portion.

Element	Lead Department		Supporting Department	Supporting Department	Supporting Department
	Greenways	Bike/Ped.			
Planning	P&DS	P&DS	P&R	PW	
Design and Construction	CP	CP	P&DS	P&R	PW
Land Stewardship	P&DS	N/A	CP		
Safety	P&DS		Police	PW	HR
Programs	P&DS		P&DS	Fire/Police	P&R
Maintenance	P&R (trails within parks) and PW(properties that serve as drainage ways and trails outside parks)	PW (bike lanes, bike routes and sidewalks)	PW	P&R	

* Capital Projects (CP); Human Resources (HR); Parks and Recreation (P&R); Planning and Development Services (P&DS); and Public Works (PW).

FIGURE 2.1: CURRENT LEAD AND SUPPORTING DEPARTMENTS BY ELEMENT

Current Maintenance

Responsibility for maintaining the bicycle, pedestrian, and greenways system is currently shared by multiple departments. As outlined above in Figure 2.1, the Public Works Department maintains on-street facilities (bike lanes, bike routes and sidewalks), multi-use paths outside of parks, and some greenway property that serve as drainage ways. The Parks and Recreation Department maintains multi-use paths that are within parks. There currently is not a department that maintains greenway property except in the instance where there are drainage issues. Multi-use paths and sidewalks, most of which are concrete, are replaced as needed. Figure 2.2 provides a summary of the current types of maintenance performed by the City.

Types of Maintenance	Greenway Property	Multi-use Paths	On-Road Bicycle Facilities	Pedestrian Facilities
Crack Sealing and Other Surface Repairs – to prevent water incursion and extend the life of the road	N/A	N/A	As needed	N/A
Drainage Control	As needed			
Erosion Control - stabilization	As needed	As needed	N/A	N/A
Graffiti and Vandalism Control	As needed			
Mowing, Mulching, and Edging	As needed	1-2 times per month	Once a month	As needed although the majority are maintained privately
Pavement Overlays – improve conditions by removing cracks, bumps, potholes, and ridges in the pavement	N/A	N/A	As needed	N/A
Repainting Pavement Markings	N/A	As needed	2-3 years for paint; 7 years for thermoplastic	N/A
Replacing Dangerous Grates and Utility Covers	N/A	N/A	As needed	N/A
Seal Coating and Rejuvenation – Seal coat process extends the life of the road, creates a new traffic surface, improves traction, and safety. An annual survey is performed to determine streets to seal coat.	N/A	N/A	As needed	N/A

Sign Replacement	As needed	As needed	Hi-intensity sheeting every 7 years	As needed
Sweeping – to remove debris such as loose gravel, sand, and garbage	N/A	N/A	Monthly; some areas twice a month	N/A
Trash and Debris Removal	As needed	Monthly	As needed	As needed
Tree and Shrub Trimming	As needed			

FIGURE 2.2: MAINTENANCE BY FACILITY

Current Programming Efforts and Information

A number of educational, encouragement, and enforcement programs as well as events currently exist in College Station, and a few are described below.

Mayor's Council on Physical Fitness (City of College Station Effort on Encouragement)

The Mayor's Council on Physical Fitness was established in June 2008. The Mayor's Council assists in the development and support of physical fitness awareness and other programs. It is designed to allow the City of College Station to interact further with the health and fitness community. Sample programs to increase physical activity levels have been developed and include a walking health fair and running and walking rally.

Risk Watch (City of College Station Effort on Education)

The College Station Fire Department offers Risk Watch, an injury prevention curriculum, to College Station Independent School District elementary schools. Risk Watch is a comprehensive curriculum that addresses topics including motor vehicle safety, fall prevention, and bicycle and pedestrian safety.

Hard Hats for Little Heads⁶ (City of College Station and Community Effort on Education and Encouragement)

Hard Hats for Little Heads was created by the Texas Medical Association (TMA) to help reduce head injuries among Texas children. It is funded by a grant from the TMA Foundation, through a gift from Blue Cross and Blue Shield of Texas and contributions from physicians and their families. They provide up to 50 Consumer Product Safety Commission certified helmets per event with a matching purchase for local giveaways. The number of head injuries in Texas (the most common cause of serious disability or death in bicycle crashes) can be reduced by 85% with proper use of

⁶ The Texas Medical Associates. "Hard Hats for Little Heads," 2009 < <http://www.texmed.org/Template.aspx?id=217>>.



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a helmet. TMA's Hard Hats for Little Heads encourages the use of helmets in all wheeled sports activities such as bicycling, skateboarding, inline skating, and riding a scooter.

The City of College Station Police Department and local organizations have participated in this cause in the past. Some of these events have also included bicycle rodeos and educational events.

Brazos Valley Injury Prevention Coalition (City of College Station and Community Effort on Education and Encouragement)

This coalition was formed to help reduce injuries and deaths in the community. It is made up of citizens, parents, caregivers, medical providers, educators, and safety experts who collaborate on programs and distribute educational materials. Some programs they support include local health fairs and bicycle rodeos. Some of the organizations and agencies involved include College Station and Bryan Police and Fire Departments, the Texas Department of Public Safety, Brazos Health Department, the Texas Transportation Institute, Texas A&M Police Department, and the Brazos County Sheriff's Office.

Keep Brazos Beautiful? (Community Effort on Education and Encouragement)

The mission of Keep Brazos Beautiful, Inc. is to educate and build partnerships with citizens, civic organizations, businesses, and governmental agencies on the importance of beautifying the community, conserving resources, and protecting the environment. This is accomplished through beautification and litter abatement, public awareness (including more than 40 educational programs), waste minimization, and recycling. Every year Keep Brazos Beautiful, Inc organizes a community-wide litter cleanup, Don't Mess with Texas Trash-Off, where tons of litter and debris are removed from area neighborhoods, parks, streams, and school campuses in College Station and Bryan.

⁷ Keep Brazos Beautiful. <<http://keepbrazosbeautiful.org/>>.