



City Council
Agenda Memo

City Council Meeting Date: 8/13/2015

TO: Robert Hanna, City Manager

FROM: Jon James, AICP Director of Planning and Development Services

SUBJECT: Ordinance & Public Hearing: (Final Reading) An ordinance creating and adopting the Bike Master Plan

GENERAL INFORMATION

The City of Abilene adopted a “Bikeway Plan” in 1983 as part of the City’s Master Thoroughfare Plan that identified locations for bike paths, bike lanes, and bike routes. However, many, if not most, of the recommendations of the 1983 Plan were never realized. One of the goals of the City’s Comprehensive Master Plan is to make the city friendlier for bicyclists and bicycling as an accepted and accommodated mode of transportation. In 2014, an update to the 1983 Bike Plan was initiated. A Citizen Advisory Roundtable was formed to facilitate this update. This group, comprised of a diverse range of citizens, established a vision and a set of goals that, if implemented, will lead to an improved transportation system in Abilene that better accommodates bicyclists. Relying on input from professional staff, input obtained from two public meetings, and the advice of the Citizen Advisory Roundtable, a vision was formed for the role of bicycling in our City. This vision is reflected in the following statement: “*Abilene will be a community where bicycling is a viable means of transportation with a comprehensive network of bicycle facilities*”.

Bicycle facility improvements can range from minimal (designated bike route) to moderate (striped bike lane) to intensive (protected bike lanes and bike paths). One of the questions asked throughout this process, which will also be asked of the Council, is “what kind of City do we want to be in relation to bicycles?” Everything from “Bike at your own risk” to “Bike Friendly” was considered (see attachment). The recommendations of this plan can be best described as “Bike Accommodating”. This is not a plan to make Abilene a City known for top notch bicycle facilities, but instead is a more cautious plan to better and more safely accommodate those who would choose to use bicycles for transportation in our community. The goal of the plan is to outline strategies and facilities that will not only benefit those who bicycle today, but that promotes bicycling as a means of transportation for the future.

SPECIAL CONSIDERATIONS

FUNDING/FISCAL IMPACT

STAFF RECOMMENDATION

Staff recommends approval of adoption of the update to the City of Abilene Bicycle Plan

BOARD OR COMMISSION RECOMMENDATION

ATTACHMENTS:

Description	Type
<input type="checkbox"/> Ordinance	Ordinance
<input type="checkbox"/> Draft Bike Plan	Ordinance
<input type="checkbox"/> Bike Map	Backup Material

AN ORDINANCE TO AMEND THE CITY'S COMPREHENSIVE PLAN AND THOROUGHFARE PLAN AMENDING AND ADOPTING THE CITY OF ABILENE BICYCLE PLAN; PROVIDING A SEVERABILITY CLAUSE; DECLARING A PENALTY AND CALLING A PUBLIC HEARING.

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF ABILENE, TEXAS:

PART 1: That the City of Abilene Bicycle Plan within the Thoroughfare Plan of the City of Abilene, an element of the City's Comprehensive Plan, is hereby amended as shown on Exhibit "A" and made a part of this ordinance for all purposes.

PART 2: That if any provision or any section of this ordinance shall be held to be void or unconstitutional, such holding shall in no way affect the validity of the remaining provisions or sections of this ordinance, which shall remain in full force and effect.

PART 3: That any person, firm or corporation violating any of the provisions of this chapter shall be deemed guilty of a misdemeanor, and upon conviction thereof, shall be punished by a fine of not more than Five Hundred Dollars (\$500.00). Each day such violation shall continue or be permitted to continue, shall be deemed a separate offense.

PASSED ON FIRST READING this 23rd day of July A.D. 2015.

A notice of the time and place, where and when said ordinance would be given a public hearing and considered for final passage, was published in the Abilene Reporter-News, a daily newspaper of general circulation in the City of Abilene, said publication being on the 10th day of July, 2015, the same being more than fifteen (15) days prior to a public hearing to be held in the Council Chamber of the City Hall in Abilene, Texas, at 8:30 a.m., on the 13th day of August, 2015, to permit the public to be heard prior to final consideration of this ordinance. Said ordinance, being a penal ordinance, becomes effective ten (10) days after its publication in the newspaper, as provided by Section 19 of the Charter of the City of Abilene.

PASSED ON SECOND AND FINAL READING THIS 13th day of August, A.D. 2015.

ATTEST:

CITY SECRETARY

MAYOR

APPROVED:

CITY ATTORNEY

City of Abilene BICYCLE PLAN 2015



Table of Contents

<i>EXECUTIVE SUMMARY</i>	4
<i>INTRODUCTION</i>	5
<i>PURPOSE OF THE PLAN</i>	6
<i>PUBLIC PARTICIPATION</i>	8
<i>EXISTING POLICIES AND PLANS</i>	9
<i>BICYCLE FACILITIES</i>	11
<i>BICYCLISTS AND USER SKILL LEVELS</i>	12
<i>PROMOTION AND EDUCATION</i>	13
<i>BICYCLE FACILITIES DESIGN</i>	15
<i>GOALS AND OBJECTIVES</i>	16
<i>BICYCLE PLAN PROJECTS</i>	19
<i>APPENDIX A – ACRONYMS AND DEFINITIONS</i>	26
<i>SOURCES</i>	27

Special Thanks and Recognition

Bicycle Planning Roundtable

Phil Ashby
Bobby Burke
Tom Burnett
Isaac Chantos
Cindy Chitwood
Jill Collett
Capt. Carlos Colon
Tommy Downing
Dr. Kerri Hart
Alan Hufstutler
Tammy Kister
Bill Leach
Travis McClure
Jim MacDonald
James Oliver
Kathy Owen
Coleman Patterson
Richard Rodgers
Brandon Rogers
Bob Sanderson
Terri Scott
Mark Spurlock
Lt. Joe Tauer
Rick Tomlin

City of Abilene Staff

Jon James, Planning Director
E'Lisa Smetana, MPO Executive Director
Dean Carter, MPO GIS Technician
Ed McRoy, Assistant Planning Director
Ben Bryner, Planning Manager
James Rogge, Interim City Engineer
Megan Santee, Public Works Director
James Condry, Traffic & Transportation
Administrator

Planning and Zoning Commission

Fred Famble, Chair
Bruce Bixby
Robert Calk
Joy Ellinger
Tim McClarty
Clint Rosenbaum
Mike Dunnahoo

Abilene City Council

Mayor Norm Archibald
Councilman Shane Price
Councilman Bruce Kreitler
Councilman Anthony Williams
Councilman Jay Hardaway
Councilman Kyle McAlister
Councilman Steve Savage

**Recommended by the Planning &
Zoning Commission:
June 1, 2015**

**Approved by the City Council:
_____, 2015**

EXECUTIVE SUMMARY

The City of Abilene’s Bicycle Plan recognizes the importance of addressing the access and mobility needs of bicyclists to travel throughout the community safely and efficiently. It serves as a guide for the provision of bicycle facilities and the encouragement of bicycling as a safe, enjoyable, and healthy means of travel.

This plan provides the blueprint for creating an environment where people can choose to travel by bicycle. It provides guidance for the development and implementation of an interconnected network of designated on-street bicycle facilities (lanes and routes) as well as off-road paths.

The enthusiasm for this plan by the citizens was very encouraging. A vision was established that states “**Abilene will be a community where bicycling is a viable means of transportation with a comprehensive network of bicycle facilities**”. Goals and objectives were established to ensure that this plan continues to grow and move forward as the City of Abilene progresses into the future. With a vision in place, along with the framework for future bicycle facilities, the next step will be to secure funding to make this plan a reality and truly realize the vision and goals of this Plan.

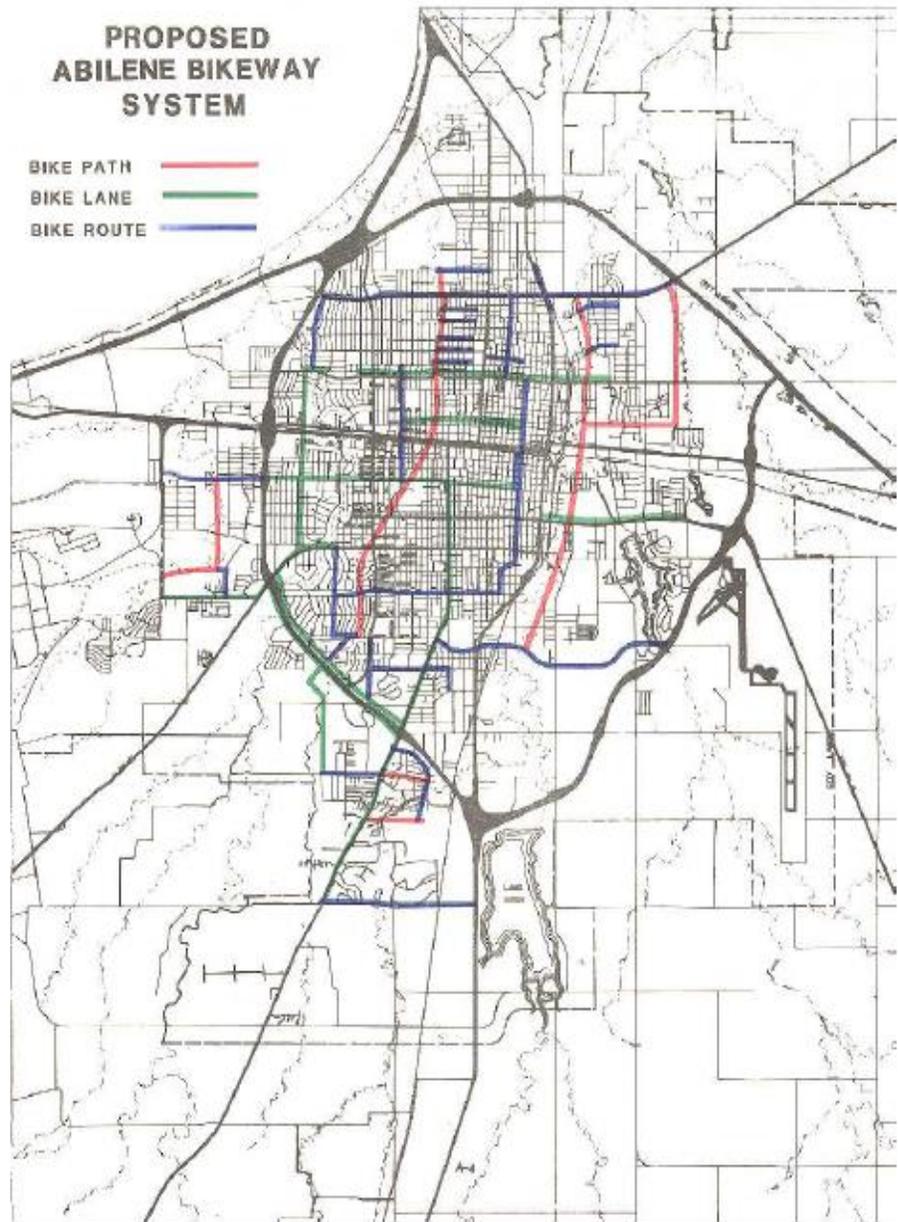


INTRODUCTION

The City of Abilene adopted a “Bikeway Plan” in 1983 that identified locations for bike paths, bike lanes, and bike routes. The need to evaluate existing infrastructure and plan for new infrastructure to complete gaps or deficiencies in the system has been an on-going part of planning since that time. However, many, if not most, of the recommendations of the 1983 Plan were never realized.

In 2014, interest in reevaluating the 1983 Bike Plan and updating it to refocus efforts on improving bicycle transportation in Abilene was initiated. A Citizen Advisory Roundtable was formed to facilitate this update. This group, comprised of a diverse range of citizens, established a vision and a set of goals that will lead to an improved transportation system in Abilene that accommodates bicyclists. Relying on input from professional staff, input obtained from two public meetings, and the advice of the Citizen Advisory Roundtable, a vision was formed for the role of bicycling in our City. This vision is reflected in the following statement:

“Abilene will be a community where bicycling is a viable means of transportation with a comprehensive network of bicycle facilities”.



PURPOSE OF THE PLAN

The City of Abilene’s Bicycle Plan recognizes the importance of addressing the access and mobility needs of bicyclists to travel throughout the community. This plan’s purpose is to serve as a guide for the expansion of bicycle facilities and the encouragement of alternative transportation modes (such as bicycling and walking) as an enjoyable, economical, and healthy means of travel in and around the Abilene area. It provides guidance for the development and implementation of an interconnected network along with suggested projects for on-street bicycle facilities as well as off-road paths with the hope that it will enhance and encourage safe bicycle travel.

A good transportation system looks at all modes of transportation and how these modes interact with each other. Bicycling is a relatively inexpensive mode of transportation and thus can be used to provide transportation to individuals who cannot afford to buy, insure, and maintain an automobile, in addition to those who choose to travel by bicycle. The connections that the bicycle system has to other modes such as transit play a big role in ensuring that there are ways to connect throughout the community from homes and places of employment to recreation, shopping, parks, and schools.

It is important to remember that initiatives such as this bicycle plan benefit the entire community, not just bicyclists. The system can be used by visitors who choose to tour areas by bicycling or walking. Some of these facilities, such as shared-use paths, are also for those mobility challenged citizens using walkers and wheelchairs, the vision and hearing challenged, older citizens and children, people pushing strollers, kids learning to ride tricycles and bicycles, and so forth. According to the 2010 Census, 22% of Abilene residents are under 16 (25,937 children) and cannot drive and many low income Abilene families cannot afford automobiles (7% of households do not have a car – that’s 1 out of every 14 homes). In addition, already in Abilene 5% of work trips are by walking, bike, or transit (that’s 1 out of every 20 trips that is not by automobile).

"Livability means being able to take your kids to school, go to work, see a doctor, drop by the grocery or post office, go out to dinner and a movie, and play with your kids at the park—all without having to get in your car." — Ray LaHood, former Secretary of Transportation, U.S. DOT Source: National Complete Streets Coalition, PowerPoint presentation, January 2013



This Plan is not meant to serve as a standards manual for the design and construction of bicycle facilities. Rather, it is intended to provide a thoughtful, deliberate plan to establish the policy and project guidance for future decision-making in the City, as developed by a coalition of citizens who represent a broad range of the community, including not only bicyclists, but representatives of major institutions and organizations in Abilene.

The end result of this plan is a set of recommended goals and projects that together will improve

bicycling in Abilene as these recommendations are implemented. It is a blueprint for identifying and funding bicycle projects throughout the community so citizens will be able to go to or through other neighborhoods, access transit, parks and recreation areas, shopping, employment, cultural and entertainment venues, educational institutions, and other destinations. All of these things lead to a more livable community that includes a better transportation network connecting places of interest which in turn leads to a better quality of life for all. In addition, these improvements can help attract new residents, students, businesses, and industry by establishing Abilene as a progressive City that places an emphasis on quality of life.

The League of American Bicyclists has established what they refer to as the “*Five E’s of Bicycle Planning*”. These are established essential elements for a bicycle friendly America that can be applied to make a great, safe system: Engineering, Education, Encouragement, Enforcement, and Evaluation.

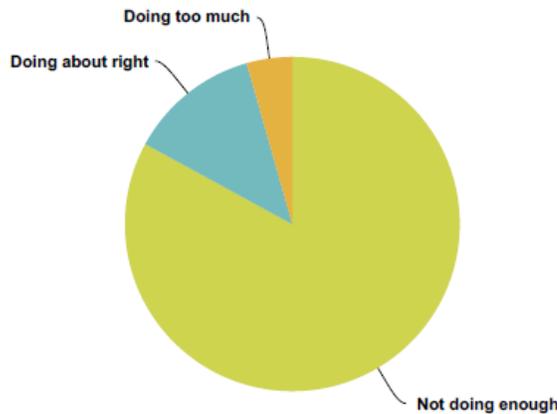
- **Engineering/Design – Creating safe and convenient places to ride and park**
A thoughtfully designed and carefully engineered system with abundant connectivity is the first step when proceeding to add new segments to the system.
- **Education – Giving people of all ages and abilities the skills and confidence to ride**
Bicycle safety education is essential to prevent injuries and collisions between bicyclists and pedestrians, and bicyclists with other vehicles or objects. Periodic training and workshops may be held throughout the year and in various neighborhoods to enable as many citizens as possible to attend and learn.
- **Encouragement – Creating a strong bike culture that welcomes and celebrates bicycling**
The City should be a strong advocate and continually take pro-active steps to encourage and promote active and frequent participation by the public by emphasizing the healthy, recreational aspects. Although Abilene does not currently have significant air quality issues, it is important to show how increasing bike and pedestrian activities lead to fewer vehicles on the road, thus relieving congestion while reducing air pollution.
- **Enforcement – Ensuring safe roads for all users**
Basic laws and regulations need to govern bicycling and the rules of the road to ensure safety for all road users, both bicyclists and motorists. With a good set of laws and regulations in place that treat bicyclists equitably within the transportation system, the next key issue is enforcement. Law enforcement officers must understand these laws, know how to enforce them, and apply them equitably to ensure public safety. Having law enforcement partners and great policies in place is essential to promoting bicycling.
- **Evaluation – Planning for bicycling as a safe and viable transportation option.**
As network segments are built over time, the four previous E’s listed above are perpetually being evaluated as to what could, or should, be done to make existing and new segments safer, to determine the best sites to locate connections and amenities, better methods to educate and encourage use of the system, and what changes should be made to the enforcement element.

PUBLIC PARTICIPATION

Along with the Citizen Advisory Roundtable, two public meetings were held to gather input from interested citizens. Citizens were asked to draw on a City map where they would like bicycle facilities, and they were asked questions like “who do we want to be” and “where would you ride”. As part of this planning process, an online survey was conducted. A total of 632 individual responses were received. Of those asked “Are the streets in Abilene bike friendly” the overwhelming response of 73% stating that the City is not bike friendly at all. When asked why they don’t bike in Abilene: 83% were concerned with safety, along with 75% who felt the lack of bike routes/lanes was a factor. In addition, when asked “How do you believe the City of Abilene is doing to improve conditions for bicycling?” 83% felt the City was not doing enough.

Q7 How do you believe the City of Abilene is doing to improve conditions for bicycling?

Answered: 616 Skipped: 16



Answer Choices	Responses	
Not doing enough	82.95%	511
Doing about right	12.66%	78
Doing too much	4.38%	27
Total		616

Citizens also shared many thoughts and ideas including the need to focus on better education, not just for bicyclists, but for drivers as well. Many of the concerns focused on the need for improvements to make bicycling safer in the community. Overall the encouragement and enthusiasm for becoming a more bike friendly City was prevalent throughout the survey responses, many of which were from citizens who do not currently ride a bicycle in the City.

EXISTING POLICIES AND PLANS

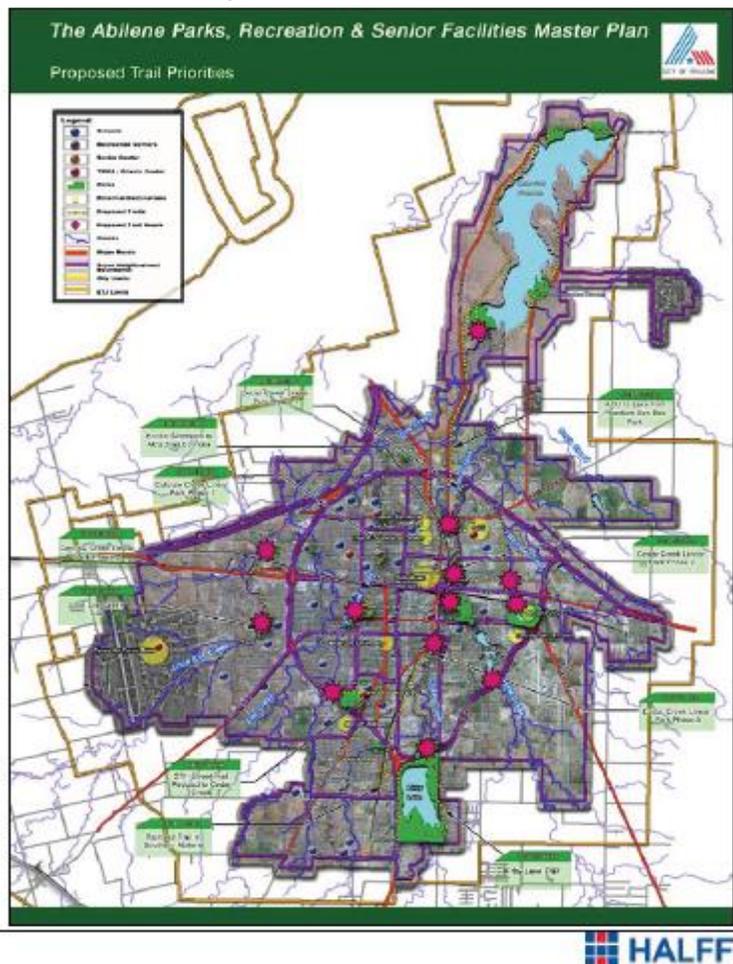
Local Planning

The original impetus for development of the *1983 Bicycle Plan* came from several directions. Initially, the City received a Federal Highway Administration grant in 1980 for a bikeway study. In 1981, the City Council adopted "in concept" the Abilene Energy Management Plan, which outlined a number of energy savings programs – one being to facilitate increased usage of bicycles. At the February 1983 Planning and Zoning Commission meeting, the Commissioners approved a request by staff to work with a Citizens Advisory Committee to develop a bikeway plan. This plan officially became part of the City of Abilene’s Thoroughfare Plan in December of 1985.

In 2004, the City updated the *Comprehensive Plan*, which outlines the future vision for growth and development of the community. In this plan, there are several references to the importance and desire for interconnected networks throughout the city. Included within the plan are the following objectives:

- Develop a safe pedestrian and bicycle environment that connects residential with commercial and employment areas and community facilities;
- Promote development that is characterized by a mix of mutually supportive and integrated residential and non-residential land uses, and a network of interconnected streets with good pedestrian and bicycle access and connections to the transit system.

Opportunities for trails along specific corridors in the city are discussed in the *Rediscovering Our Parks: The Abilene Parks, Recreation, and Senior Facilities Master Plan: 2008 - 2018*. This plan looks at the many corridors in Abilene that lend themselves to creating a citywide system of trails. This plan also discusses on-street or striped bike lanes along with off-street (shared-use paths) and bicycle parking amenities in the parks. These recommendations have been incorporated into this plan.



State & Federal Planning

In December of 1991 the *Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)* was signed into law. ISTEA reinforced the need for bicycle planning and stressed the accommodation of bicycles as an accepted mode of transportation. It marked a significant shift in the focus of federal transportation policy. New flexible funding, along with increased public involvement in the transportation planning process, created opportunities to improve conditions for bicyclists. In April 1994, the U.S. Department of Transportation announced ambitious national goals to double the percentage of trips made by foot and bicycle in the United States, and to simultaneously reduce the number of injuries and fatalities suffered by bicyclists and pedestrians by ten percent. The National Bicycling and Walking Study, in which these goals were set, also had an action plan outlining how public agencies at all levels of government could play a part in achieving these goals. States and Metropolitan Planning Organizations across the country began completing plans to address bicycle and pedestrian issues, in part to meet the requirements of ISTEA, but also coinciding with increased interest in bicycling across the country.

In 2005, transportation legislation continued to stress the importance of bicycling with the signing of the *Safe, Accountable, Flexible, Efficient, Transportation Equity Act: A Legacy for Users (SAFETEA-LU)* into law. This transportation legislation provided, among other features, a greater emphasis on bicycling and pedestrian travel and safety. In July of 2012, the new transportation funding legislation that is known as *Moving Ahead for Progress in the 21st Century (MAP-21)* was signed into law. MAP-21 is a milestone for the U.S. economy and the surface transportation program through its ability to guide the system's growth and development. MAP-21 creates a streamlined and performance-based surface transportation program and builds on many of the highway, transit, bicycle, and pedestrian programs and policies that were established in 1991. A strong component of this law is the reinforcement of bicycling as an important mode of transportation.

BICYCLE FACILITIES

There are three main types of bicycle facilities: bike lanes, bike routes, and bike (shared-use) paths.

A **bike route** is a roadway or bikeway, either with a unique route designation or with Bike Route signs, along which bicycle guide signs may provide directional and distance information. It is based on a “Share the Road” concept. It is a shared roadway that is open to both bicycle and motorized vehicles. It is important to note that, with rare exception such as freeways, bicycles are allowed on any roadway that allows a motor vehicle, regardless of whether it is designated as a bike route.

A **bike lane** is a portion of roadway that has been designated by striping and pavement markings for the preferential or exclusive use of bicyclists. It is intended for one-way travel, usually in the same direction as the adjacent vehicular traffic lane, unless designed as a contra-flow lane. It can consist of re-striping an existing road if sufficient lane width for vehicular traffic exists or it can consist of addition additional road width when widening or constructing new roads.

A **bike (or shared-use) path** is a bikeway physically separated from vehicular traffic. It can either be within the roadway right-of-way or off the roadway network. These paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users and most are designed for two-way travel.

Bike Route



Bike Lane



Bike (Shared-use) Path

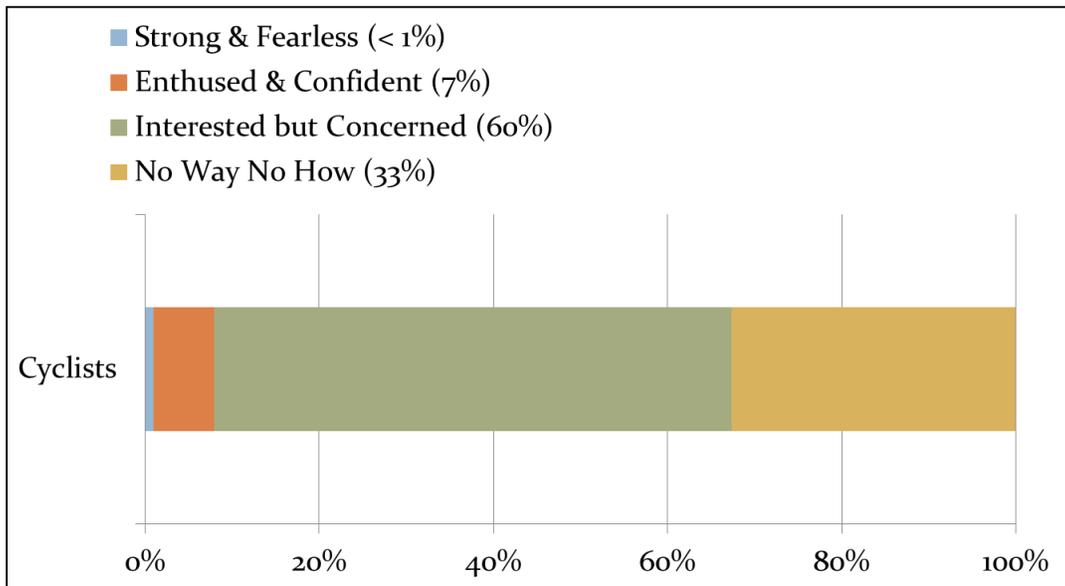


There is also a hybrid facility called the **protected bike lane** which offers additional separation from traffic but still within the roadway.



BICYCLISTS AND USER SKILL LEVELS

Based on research by the City of Portland, Oregon, we can view potential bicyclists in one of four general categories. The “Strong and Fearless” are those that will ride regardless of roadway conditions. The “Enthusied and Confident” are comfortable sharing the road with vehicular traffic and they like bicycle lanes and bicycle routes. The “Interested but Concerned” are those that are interested in bicycling and would like to ride but are concerned about safety. They would ride if they felt safer on the roadways. This group represents about 60% of citizens and is largely the group that the recommendations of this plan will help the most. Separate facilities, like bike lanes and multi-use paths, are preferred by this group. The “No Way No How” group represents those not interested in bicycling at all for any reason.



Source: *Four Types of Cyclists* by Roger Geller, Bicycle Coordinator for the Portland Office of Transportation

Where there is a choice between several routes, cyclists generally choose a route which provides the best balance of the following characteristics:

- ◆ Directness between the origin and destination points,
- ◆ Minimal gradients to be negotiated,
- ◆ Well-maintained and constructed riding surfaces
- ◆ Lower volumes of motor vehicle traffic, and
- ◆ Pleasant environmental surroundings.



PROMOTION AND EDUCATION

While bicycling and walking are alternate ways to get from one point to another, they also have fun and healthy exercise benefits. There are many important reasons to develop a well-designed, attractive, highly connected system. Biking or walking to the store, school, or work is a time-efficient way of attaining an acceptable level of fitness. Personal benefits may include improved productivity, self-image, greater sense of independence, and improved social relationships. In addition to the health benefits, trips made by non-motorized means produce no air pollution, contribute to less road congestion, and may take less time, especially if convenient bike parking is available. However, according to numerous surveys, the number one reason that people do not ride bicycles is because they are afraid to be in the roadway on a bicycle with motor vehicles. In the survey the City of Abilene conducted, some of the reasons why people do not ride included “no safe facilities”, “cars traveling too fast”, “do not feel safe on the bicycle”, along with many others. So in an effort to overcome this challenge an important component of the bicycle plan is promotion and education.

It is important to have a complete, well-designed, safe and attractive system. There should be ample, convenient connections throughout neighborhoods, especially to parks, schools, retail areas, employment, and to transit facilities.

One method of promoting awareness and use of the system is through map distribution and activities promotion. Bike maps and information can be made available in conjunction with information located at transit stops and at the transit center. Maps can also be provided to the Chamber of Commerce, Frontier Texas, TxDOT offices, and similar sites, as well as on websites. The City can partner with local organizations to encourage fun runs and other bicycle activities (such as bike rodeos for kids or ciclovias, where streets are closed for bike-only special events). In



Treadaway - Photo courtesy of Mark Spurlock

conjunction with encouragement, education can explain how to navigate the system safely, including wayfinding signage along routes with distance to popular destinations or points of interest, and where amenities are located (e.g., maps/system diagrams, covered benches for rest and shade, water fountains, restrooms, bike lockers, and so forth).

There are countless ways to promote usage of the bike network. A few examples include: maintain bikeways and related facilities in a condition favorable to safe and efficient use by cyclists and pedestrians; ensure safe conditions for cyclists and pedestrians through signage, traffic controls, engineering, and law enforcement; encourage the addition of safety signage on shared roadways and bike facilities; support safety education programs for cyclists; promote awareness and use of the bikeway system through map distribution, both in-print and online versions; and partner and work with local civic and other groups and other interested parties to promote bicycling events and activities.

Addressing Bicyclists Concerns

The 2002 National Survey of Pedestrian and Bicyclist Attitudes and Behaviors, offer insight into why and how people bicycle and can help local governments determine how to increase bicycling in their areas. In a survey conducted in 2002, the Bureau of Transportation found that bicyclists riding in areas without bike paths or lanes are nearly twice as likely to feel endangered (mostly by motorists) as are bicyclists with paths or lanes, and more than four times as likely to be dissatisfied with how their community is designed for making bicycling safe. Knowing this, communities can better understand bicyclists concerns and can lead to better plans for providing the most appropriate new infrastructure and programs to encourage bicycling.

Support Facilities

Support facilities such as bicycle parking (e.g., secure bike racks and/or lockers), shower, and locker facilities can encourage bicycling by reducing the threat of theft and making bicycling more convenient. Properly designed bike racks should be considered near major shopping and employment centers. These facilities should be considered for new developments that are likely to receive bicycle traffic including, but not limited to commercial centers, recreational facilities, schools, and employment centers. Where possible, activity centers should be encouraged to add bicycle parking facilities if they are lacking and new development should be required to install adequate bicycle parking. Bicycle parking facilities should be chosen based on: Cost, ease of use, ability to prevent theft and damage, and aesthetics. Access to shower and locker facilities may help encourage people to commute by bicycle. Shower and locker facilities provide employees with the option to shower and dress at work. This is an important consideration for bicycle commuters, as the environmental conditions a bicycle commuter will encounter may vary.

Land Use and Transportation

Bikeway planning undertaken apart from planning for other modes can lead to a viewpoint that these facilities are not integral to the transportation system. If bikeways are regarded as amenities, bicycling may not receive sufficient consideration in the competition for financial resources and available right-of-way. Integrating land use and transportation planning allows new developments to implement these strategies from the onset. Communities planned to support balanced transportation make walking, bicycling, and public transit attractive options. In established communities, many of these goals can be met with "in-fill" development to increase density, changes in zoning laws to allow mixed-use development, and building bicycle and pedestrian connections in areas where they are currently lacking.

Public Transit

Transit trips begin and end with a walk or bike ride. Pedestrian and bicycle facilities in transit corridors make transit systems more effective and a high priority should be given to providing sidewalks and bikeways on transit routes and on local streets feeding these routes from neighborhoods. Bus stops should provide a pleasant environment for waiting passengers, with shelters, bike lockers, landscaping, adequate buffering from the road and lighting. Bus stop design should minimize conflicts with other non-motorized users, such as bicyclists on bike lanes or pedestrians walking past passengers waiting to board. Regional and statewide planning could

include accommodating bicycles on all buses, bikeways leading to transit centers and park and ride lots, and secure bicycle parking provided at these locations.

BICYCLE FACILITIES DESIGN

Bicycle facility improvements can range from minimal design consideration (such as adding roadway striping and signage) to full detailed design (such as constructing a bike path). All bicycle facilities should meet the minimum design standards recommended by the National Association of City Transportation Officials (NACTO) or the American Association of State Highway and Transportation Officials (AASHTO). Pavement striping, signage, signals, etc. should be in accordance with the most current Texas version of the Manual on Uniform Traffic Control Devices (MUTCD).

As noted in the Goals and Objectives, the City intends to update standard street designs to ensure that new streets and redeveloped streets, where shown on the adopted Bike Plan Map, are properly designed to meet the needs of bicyclists.

The general costs used in this plan are based on a national review prepared by the University of North Carolina Highway Safety Research Center titled “Costs for Pedestrian and Bicyclist Infrastructure Improvement (Prepared for the Federal Highway Administration, October 2013). These cost estimates are for the average project cost nationwide and can vary significantly from project to project, recognizing that there are many variables which affect final cost such as site conditions, utility adjustments, right-of-way acquisition, environmental factors, construction costs, and many others. These figures are NOT intended to provide an exact estimate for a particular project, but are provided to give a sense of the relative costs of the different types of facilities, which played a role in the recommendations of certain types of facilities on the Plan Map.

Bike Paths: \$481,000 per mile

Bike Lanes: \$133,000 per mile

Bike Routes*: \$3,200 per mile

*signs only

GOALS AND OBJECTIVES

In order to advance a bicycle plan, the first step was to establish an overall vision for bicycling in Abilene followed by more detailed goals and objectives to track the progress made toward achieving that vision. Through the public input process, citizens were asked to identify how important bicycling should be in future transportation planning for the City, recognizing that being more bike friendly comes with a cost. Five options were presented to answer the question “Who do we want to be?” from a do nothing approach (Bike at your own risk) to most streets being designed for bicyclists (Bike Friendly). Below is a list of the options:

Bike at your own risk

Streets are primarily for cars with little or no accommodation made for bicycles. Limited or no accommodations for advanced, basic, or children cyclists. Almost no cost.

Bike Minimal

Recognizing that streets are mostly for cars, minimal accommodations will be made for bicycles on known routes to ensure that these routes present fewer obstacles for advanced cyclists. Little or no accommodation for basic or children cyclists. Limited cost.

Bike Tolerant

While streets are primarily for cars, street design will accommodate bicycles in high priority locations such as near parks and schools. Accommodations on select streets will be made for all cyclists, with a priority on advanced cyclists on major streets and basic/children cyclists on safe routes to schools. Low cost.

Bike Accommodating

Bicycle accommodations will be considered for all streets, but will be balanced vs need/costs to prioritize a limited number of streets to create a basic network throughout most parts of the City near neighborhoods, shopping, parks, and schools. Focus on this limited number of streets will be to accommodate all 3 types of bicyclists on most of the selected streets. Moderate cost.

Bike Friendly

Most, if not all, streets will be designed as "complete streets" to accommodate all street users, including bicycles. With few exceptions, all new streets and street reconstruction will accommodate all 3 types of cyclists. High cost.

Based on input from the public and discussions with the Bicycle Planning Roundtable, it was determined that the Abilene area should be somewhere between a “Bike Friendly” and “Bike Accommodating” City. In order to achieve that, the following goals and objectives were established for the City of Abilene’s Bicycle Plan:

Goal 1: Develop a well-connected bicycle network that links a variety of destinations together into a cohesive transportation system. (Engineering/Design)

Objectives:

- 1.1 Develop a safe bicycle environment that connects neighborhoods with commercial, employment areas, and community facilities.
- 1.2 Identify priority origins and destinations and increase access to these locations through bicycle improvements on connecting streets.
- 1.3 Update the Land Development Code and City design standards to ensure new roads include bicycle facilities.
- 1.4 Ensure that routine maintenance schedule and standards for sweeping, surface repair, litter removal, repainting of striping, signage and signal actuation devices for bicycle facilities is included in the City's general street maintenance schedule.
- 1.5 Adopt a complete streets policy to ensure that the entire right-of-way is planned, designed, constructed, and maintained to provide safe access for all users.
- 1.6 Update the Land Development Code and street design standards to ensure that new roads accommodate bicyclists by default and that not providing bicycle accommodations on new roads should be the exception. In general, new major arterials should be designed to accommodate either shared-use paths within the right-of-way, or bike lanes. Minor arterials should generally be designed with bike lanes. Collector streets should generally be designed with bike lanes or, in some cases, as bike routes.
- 1.7 Apply for Federal, State, and private grants for bicycle projects.
- 1.8 Dedicate 5% of annual Capital Improvement Projects (CIP) funds for bicycle improvements.
- 1.9 Ensure that adequate funds are included in annual operating budgets to ensure adequate long-term maintenance of bike lane striping, paths, intersection markings, etc.
- 1.10 Prioritize road maintenance, both repairs and general maintenance activities, such as street-sweeping, along designated bicycle facilities.
- 1.11 Develop standards for bicycle route signage and wayfinding based on national standards.

Goal 2: Educate users of all transportation modes about bicycle safety, rights, and responsibilities. (Education/Enforcement)

Objectives:

- 2.1 Initiate, develop, and implement educational outreach programs, including training programs, websites, public service announcements, etc, for bicyclists, pedestrians, and motorists to learn about safe bicycling and driving practices.
- 2.2 Identify partners to provide bicycle education, enforcement, and encouragement programs.
- 2.3 Encourage local law enforcement agencies to recognize the vulnerabilities of cyclists and pursue enforcement strategies to help address safety concerns.

- 2.4 Consider implementing the “Idaho stop” or “rolling stop” which allows bicyclists to treat a stop sign as a yield by adopting a local policy, if possible, and/or advocating for state law changes, if necessary.

Goal 3: Enhance the livability of the Abilene area by improving transportation and recreation alternatives and establishing Abilene as a bicycling destination. (Encouragement)

Objectives:

- 3.1 Partner with other local and regional organizations to support existing and new programs that promote bicycling and active lifestyles, including bicycling events, such as races, fun rides, ciclovias, and other opportunities to both encourage cycling and to educate the public.
- 3.2 Increase incentives for biking to work or other destinations and provide the amenities such as priority bike parking locations at local businesses. Update the Land Development Code to require bicycle parking for appropriate schools, businesses, and institutions.
- 3.3 Ensure that coordination among various facility types and among partner agencies (City, County, State, and neighboring cities) occurs to promote a continuous network.
- 3.4 Evaluate the effectiveness of the plan every three years.

Goal 4: Reduce the number and severity of vehicle-bicycle conflicts and crashes. (Education/Evaluation)

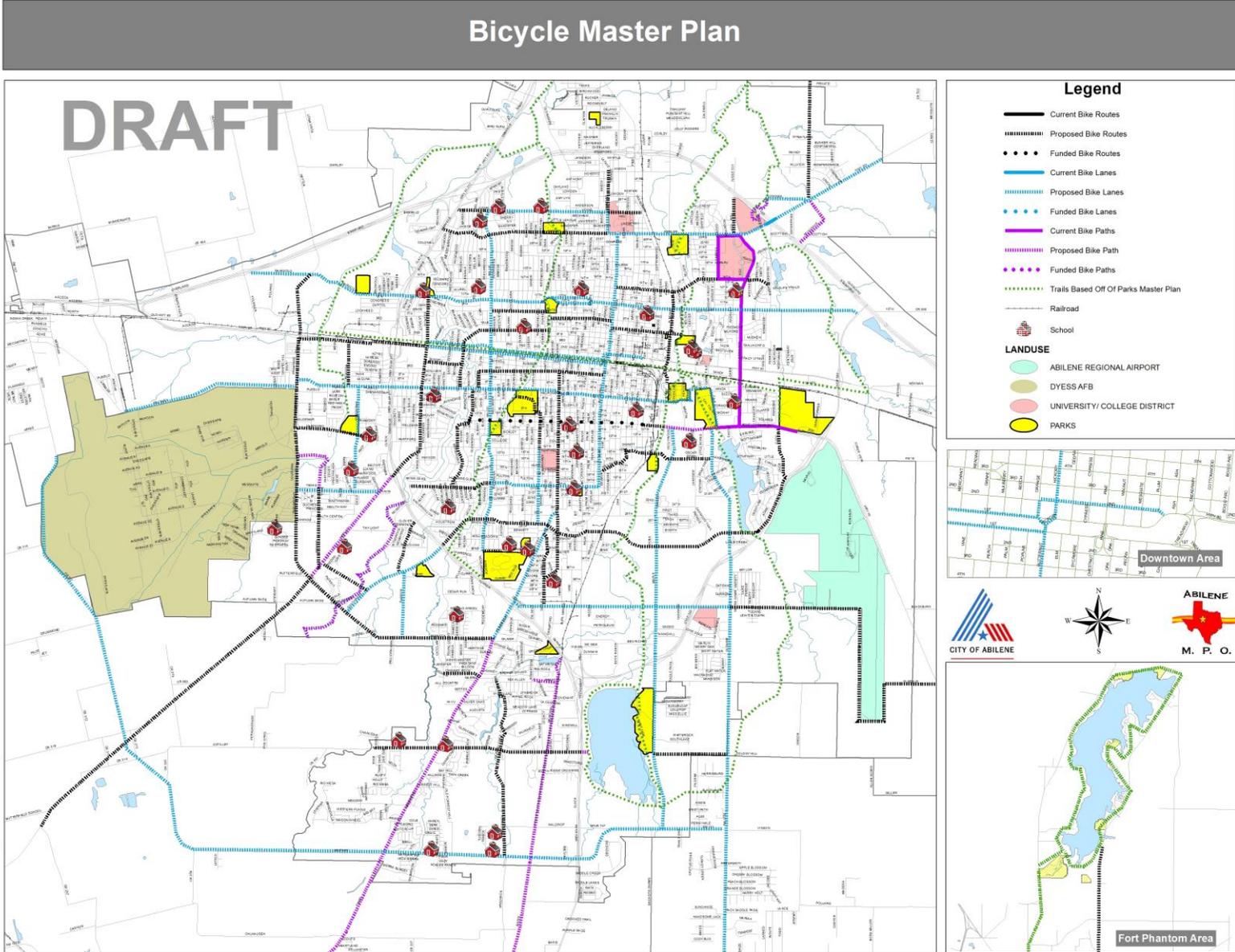
Objectives:

- 4.1 Prepare public awareness campaigns and work with local entities to ensure both automobile drivers and cyclist are aware of the laws, regulations, and safety precautions necessary to ensure safe travel for all.
- 4.2 Secure data tracking of vehicle-bicycle crashes to evaluate locations for possible improvements and to gauge the success of efforts over time.

BICYCLE PLAN PROJECTS

This plan is not intended to be static but recognizes the need for periodic revision and is intended to expand upon the general goals and strategies of the Comprehensive Plan, not to supersede the recommendations of that Plan.

To implement the Bicycle Plan, a strategy needs to be developed to achieve a plan that will not only benefit today's bicyclist but promote bicycling as a means of transportation for the future. This strategy will include identifying how the existing infrastructure can be modified to improve opportunities for bicycling and make cyclists safer, look at future investments in infrastructure to see where appropriate facilities to promote bicycling and the safety of cyclists can be made, and finally to look at potential funding sources to expedite the process. As part of this process a list of potential projects has been developed that takes this strategy into account. This project list showcases both the desired bicycle lanes, routes, and shared-use paths needed to both sustain and flourish a transportation system where the bicycle can move throughout with connections to other modes of transportation. All projects and related construction is contingent on finding the necessary funding sources. In some cases it may be necessary to split and construct some projects in two or more phases, if or when practical.



PROPOSED BIKE ROUTES						
PROJECT	BEGINNING POINT	ENDING POINT	FACILITY LENGTH - FEET	UNIT COST	ESTIMATED COST *	PRIORITY GIVEN
ACU Drive	Ambler Ave.	I 20	2,572			
Almond Street	North 6th Street	North 13th Street	2,973			
Ambler Ave.	Hickory Street	Hwy 83/84	12,024			
Antilley Road	HWY 83/84	Twin Oaks Drive	14,964			
Arnold Blvd.	Hartford Street	B 83/84	6,507			
Berry Lane	Oldham Lane	Pecan Street	6,334			
Bishop Road	Hwy 277	Dub Wright Blvd.	5,784			
Buttonwillow Creek	Rex Allen Drive	Woodlake Drive	1,276			
Chimney Rock Road	Catclaw Drive	Buffalo Gap Road	2,685			
Colony Hill Road	Maple Street	FM 1750	5,258			
CR 109 (Elmdale Road)	Industrial Blvd.	County Line	12,933			
Dub Wright Blvd	Hwy 277	Hartford Street	11,071			
East Industrial Blvd.	FM 1750	CR 109 (Elmdale Road)	21,774			
East Lake Road	HWY 351	Seminole Road	23,828			
Elmwood Drive	South 20th Street	South 27th Street	7,825			
Expo Drive	South 11th Street	Loop 322	3,664			
Fairway Oaks Blvd.	Woodlake Drive	Hardwick Road	6,716			
FM 3438	B 83/84	Marigold Street	4,812			
Foxfire Drive	Hwy 277	Southwest Drive	3,709			
Frontage road 83/84	Expo Drive	South 27th Street	4,482			
Grand Ave.	Buffalo Gap Road	Industrial Blvd.	5,258			
Hardwick Road	Fairway Oaks Blvd.	FM 707	5,084			
Hartford Street	Reagan School	Dub Wright Blvd.	5,013			
Hwy 277	CR 257	Rebecca Lane	26,493			
Leggett Street	South 7th Street	Westwood Street	4,198			
North 6th Street	Westwood Street	Park Ave.	5,570			

North 7th Street	Hickory Street	Cedar Creek	5,129			
North 8th Street	Catclaw Creek	Hickory Street	4,400			
North 13th Street	Hickory Street	Cedar Creek	5,571			
North 16th Street	Judge Ely Blvd.	Griffith Road	1,791			
Orange Street	Ambler Ave.	Anson Ave.	3,044			
Pioneer Drive	North 10th Street	South 14th Street	11,117			
Post Oak Road	Clack Street	Southwest Drive	3,845			
Rail Road ROW	North 7th Street	South 3rd Street	3,590			
Rebecca Lane	Buffalo Gap Road	Hwy 277	14,609			
Riverside Blvd.	South 3rd Street	South 7th Street	1,223			
Ross Ave.	South 14th Street	Oscar Rose Park	5,275			
Ruidosa Drive	Steffens Street	South 7th Street	3,101			
Russell Ave.	Leggett Street	Pioneer Drive	2,608			
Sayles Blvd.	Grand Ave.	South 3rd Street	15,204			
South 1st Street	Presidio Drive	Pioneer Drive	3,802			
South 3rd Street	Riverside Blvd.	Treadaway Blvd.	8,913			
South 11th Street	Cedar Creek	Treadaway Blvd.	1,555			
South 14th Street	South Clack Street	Pioneer Drive	2,775			
South 20th Street	Brookhollow Street	Willis Street	5,915			
South 27th Street	Loop 322	Hwy 83/84	24,522			
South 32nd Street	Willis Street	Barrow Street	1,324			
State Street	Willis Street	Catclaw Creek	4,092			
Steffens Street	FM 3438	Presidio Ct.	5,206			
Vogel Ave.	N Treadaway Blvd.	Simmons Ave.	2,152			
Vogel Ave.	Willis Street	Hwy 83/84	2,388			
Westway Drive	Butternut Street	South 14th Street	2,757			
Woodlake Drive	Buttonwillow Creek	Fairway Oaks	344			

PROPOSED BIKE LANES						
PROJECT	BEGINNING POINT	ENDING POINT	FACILITY LENGTH	UNIT COST	ESTIMATED COST *	PRIORITY GIVEN
Ambler Ave.	Hickory Street	I 20	10,730			
Ambler Ave.	Hickory Street	Simmons Ave.	641			
Buffalo Gap Road	HWY 83/84	Sayles Blvd.	7,123			
Buffalo Gap Road	Industrial Blvd.	Rebecca Lane	3,022			
Butternut Street	South 20th Street	South 1st. Street	8,787			High
Corsicana Street	South 7th Street	Texas Ave.	7,346			
FM 1750	Loop 322	South 11th Street	9,350			
FM 1750	Loop 322	Weatherman Lane	28,474			
FM 707	FM 1750	Tye City Limits	71,231			
Hickory Street	North 1st Street	Ambler Ave.	9,513			
Hwy 351	I 20	City Limits	8,795			
Industrial Blvd.	Buffalo Gap Road	FM 1750	15,560			High
Lowden Street	Hwy 351	Rainey Road	2,976			
Maple Street	ES 11th Street	FM 707	29,105			High
Marigold Street	Hwy 83/84	I 20	11,376			
Military Drive	Tye City Limits	FM 3438	12,516			
North 1st Street	Pioneer Drive	Orange Street	12,678			
North 2nd Street	Orange Street	North 1st Street	2,835			
North 10th Street	Hickory Street	Loop 322	17,546			
North 10th Street	Hickory Street	Willis Street	8,935			
North 10th Street	Hwy 83/84	Willis Street	6,171			
North 11th Street	Grape Street	Westmoreland Street	2,949			
Orange Street	North 1st Street	North 2nd Street	370			
Orange Street	North 1st Street	South 1st Street	253			
Ross Ave.	South 14th Street	South 20th Street	5,357			
Sharon Road	Southwest Drive	Rebecca Lane	4,708			
Simmons Ave.	Ambler Ave.	Vogel Ave.	1,453			
South 1st Street	Pioneer Drive	Butternut Street	12,794			

South 7th Street	Barrow Street	Arnold Blvd.	16,169			High
South 7th Street	Butternut Street	Barrow Street	5,682			High
South 7th Street	T & P Lane	Butternut Street	8,429			High
South 20th Street	Willis Street	Butternut Street	7,739			
South 20th Street	Willis Street	Butternut Street	7,739			
Southwest Drive	Hwy 83/84	Rebecca Lane	8,291			
T & P Lane	South 5th Street	South 11th Street	2,615			
Texas Ave.	Hwy 277	Dub Wright Blvd.	5,866			
Vogel Ave.	Willis Street	Simmons Ave.	8,566			
Willis Street	South 11th Street	State Street	7,764			High
Willis Street	South 32nd Street	South 11th Street	9,378			High
Willis Street	State Street	Vogel Ave.	7,254			High

PROPOSED BIKE PATHS						
PROJECT	BEGINNING POINT	ENDING POINT	FACILITY LENGTH	UNIT COST	ESTIMATED COST *	PRIORITY GIVEN
Antilley Road	Hwy 83/84	Parks Trail, Kirby Lake	450			
Bishop Road	Texas Ave.	Dub Wright Blvd.	4,483			
Buffalo Gap Road	Country Place	Hwy 83/84	29,021			
Elm Creek	City Limit	Hwy 83/84	14,883			
Hwy 277 South	Rebecca Lane	South Clack Street	9,082			
Memorial Drive	Antilley Road	Hwy 83/84	6,965			
Memorial Drive	FM 707	Antilley Road	7,665			
Memorial Drive	FM 707	Hardwick Road	10,042			
Musgrave Blvd.	I 20	HWY 351	4,113			
Preston Trail	Memorial Drive	Robertson Drive	1,703			
Rainey Road	Lowden Street	Ambler Ave.	3,496			
South 11th Street	T & P Lane	Cedar Creek	3,824			

APPENDIX A – Acronyms and Definitions

Bicycle—A pedal-powered vehicle upon which the human operator sits. The term “bicycle” for this publication includes three- and four-wheeled human-powered vehicles, but not tricycles for children. In some states, a bicycle is considered a vehicle, while in other states it is not.

Bicycles Facilities—A general term denoting improvements and provisions to accommodate or encourage bicycling, including parking and storage facilities, and shared roadways not specifically defined for bicycle use.

Bicycle Lane or Bike Lane—A portion of roadway that has been designated for preferential or exclusive use by bicyclists by pavement markings and, if used, signs. It is intended for one-way travel, usually in the same direction as the adjacent traffic lane, unless designed as a contra-flow lane.

Bicycle Locker or Bike Locker—A secure, lockable container used for individual bicycle storage.

Bicycle Network—A system of bikeways designated by the jurisdiction having authority. This system may include bike lanes, bicycle routes, shared use paths, and other identifiable bicycle facilities.

Bicycle Rack or Bike Rack—A stationary fixture to which a bicycle can be securely attached.

Bicycle Route or Bike Route—A roadway or bikeway designated by the jurisdiction having authority, either with a unique route designation or with Bike Route signs, along which bicycle guide signs may provide directional and distance information. Signs that provide directional, distance, and destination information for bicyclists do not necessarily establish a bicycle route.

Bikeway—A generic term for any road, street, path, or way which in some manner is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Roadway—The portion of the street or highway right-of-way, including shoulders, intended for vehicular use.

Shared Roadway—A roadway that is open to both bicycle and motor vehicle travel.

Shared Use Path—A bikeway physically separated from motor vehicle traffic and either within the roadway right-of-way or within an independent right-of-way. Shared use paths may also be used by pedestrians, skaters, wheelchair users, joggers, and other non-motorized users. Most shared use paths are designed for two-way travel.

Shoulder—The portion of the roadway contiguous with the traveled way that accommodates stopped vehicles, emergency use, and lateral support of sub-base, base, and surface courses. Shoulders, where paved, are often used by bicyclists and can be used as designated bike lanes with proper design.

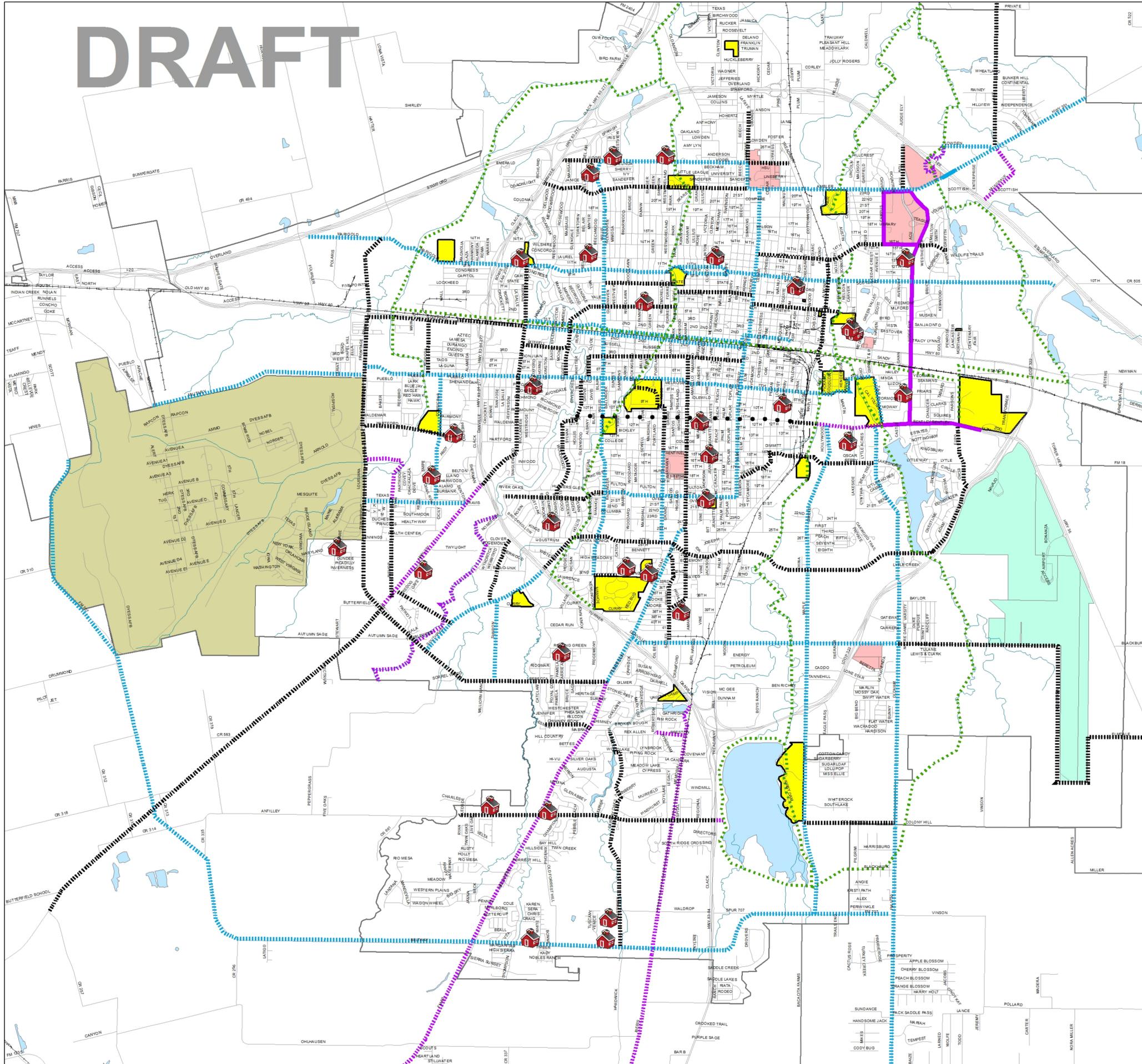
Trail—A type of shared use path specifically designed for recreational purposes and often associated with parks and natural corridors.

SOURCES

1. National Bicycling and Walking Study: Ten Year Status Report
http://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/study/index_10yr.cfm#chap4
2. American Association of State Highway Transportation Officials (AASHTO) *Guide to the Development of Bicycle Facilities, 4th Edition, 2012*
3. National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide*
4. FHWA's Manual on Uniform Traffic Control Devices (MUTCD), *Part 9: Traffic Controls for Bicycle Facilities*
5. *Four Types of Cyclists* by Roger Geller, Bicycle Coordinator for the Portland Office of Transportation

Bicycle Master Plan

DRAFT

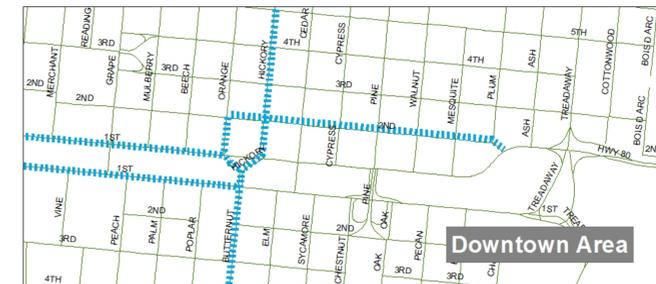


Legend

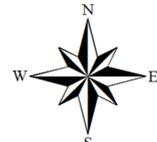
- Current Bike Routes
- Proposed Bike Routes
- Funded Bike Routes
- Current Bike Lanes
- Proposed Bike Lanes
- Funded Bike Lanes
- Current Bike Paths
- Proposed Bike Path
- Funded Bike Paths
- Trails Based Off Of Parks Master Plan
- Railroad
- School

LANDUSE

- ABILENE REGIONAL AIRPORT
- DYESS AFB
- UNIVERSITY/ COLLEGE DISTRICT
- PARKS









ABILENE
M. P. O.

