



BICYCLE AND PEDESTRIAN PLAN

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Disclaimer:

This plan was adopted as part of the 2040 Metropolitan Transportation Plan (MTP Chapter 6) and was designed as a stand-alone document. All projects identified in this document are proposed and/or illustrative and as yet unfunded.

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Bicycle and Pedestrian Plan (BPP)

INTRODUCTION

Bicycling and walking are increasingly popular alternatives to driving automobiles for trips under 3 miles where dedicated facilities have been implemented. These short trips make up a majority of travel distances for most in-town dwellers. The cities of Sherman and Denison consist of both traditional established neighborhoods as well as more recently developed communities within and out to the fringes of their city limits.

Both cities have local destinations that could easily be accessed by bicycle and pedestrian facilities considered “active transportation.” These destinations include but are not limited to work places, shopping centers, school campuses, libraries, entertainment, parks and recreation facilities. Evidence exists that more recent developments have better incorporated these alternative modes; but, so far, most are disconnected from any citywide system, and not yet fully functional as active transportation corridors.

Availability and access to contiguous and connected bicycle and pedestrian facilities can provide an added level to the quality of life for any given area – as well as quantifiable economic benefits. While there currently is not a dedicated funding source for these types of facilities, Sherman, Denison, and the Sherman-Denison Metropolitan Planning Organization (SDMPO) are now planning more comprehensively for such facilities, and exploring ways to designate funding for inclusion of these connections.

This SDMPO *Bicycle and Pedestrian Plan* (BPP) is focused within the core cities of Sherman and Denison, and considers non-motorized alternative transportation connections throughout and between the two. This plan incorporates the critical elements that were identified in a 1998 SDMPO study (that at the time included the city of Howe) and each city’s recent comprehensive plan. The 1998 BPP highlighted potential connections, but concluded that anticipated lack of funding would make any progress prohibitive.

This plan identifies elements of perceived user demand based on land use and travel behavior relating to trips under 5 miles. Active transportation elements require inclusion within the larger framework of travel demand modeling, but doing so has

been found challenging.

Bicycle and pedestrian access to and from elementary and secondary schools has been identified as mostly lacking. Gaps in the existing sidewalk system connecting to these schools became evident during the identification of existing sidewalks within ½ mile of every campus in each school district. Cities that have been made to be more walkable and bikeable are benefiting from non-motorized mobility that younger generations indicate are desirable attributes in places they choose to live, study, work and play.

For the evaluation of roadway suitability for bicycling, the first step was identification of existing roadways with posted speed limits of 30 miles per hour and below. These roads are typically more conducive to bicycle mobility – with little more than wayfinding and prescribed routine maintenance needed. Existing roadways with posted speed limits of 35 MPH and greater can also provide for safe cycling routes but usually require separated facilities such as bike lanes, cycle tracks, or sidepaths with off-street connections where available right-of-way exists.

A long term strategy for the identification of corridors eligible for more in-depth analysis (feasibility studies) has also been developed.

CURRENT REGIONAL BICYCLE AND PEDESTRIAN PLANNING

The 2035 Metropolitan Transportation Plan for the Sherman-Denison Study Area (amended April 25, 2012) named eight factors to be considered in the planning process going forward. Many of these apply to bicycle and pedestrian access and mobility. Company and community leaders are realizing the importance of increased safety for non-motorized commuters and recreationists, and are becoming advocates for including safety as a component of urban design. This plan also calls for increased focus on low income and minority communities who have traditionally been less involved in the planning process.

Dedicated pedestrian and bicycle infrastructure has proven to increase security as well as safety for all types of bicyclists between the ages of 8 and 80. Active lifestyles can be expected when infrastructure supports broader usage. Communities throughout Texas and beyond are striving to enhance the integration and connectivity of the transportation system across and between modes. Development of efficient system

management and operation is essential to preserving and improving the transportation system for all users. Historically, economic vitality has not been considered as a factor; but, this is becoming a major determinate of companies' ability to retain a healthy, productive workforce. Companies are also recognizing their employees want to live in places where they can be active and engaged in civic life, arts and culture.

THE 2040 MTP PLANNING PROCESS

To determine candidate bikeways, maps were first prepared distinguishing streets with posted speed limits at or below 30 MPH, and streets posted at faster than 30 MPH. Also shown were traffic volumes, major employers, schools, museums, and other key destinations, along with potential off-street shared use path (trail) corridors such as railroad corridors, utility corridors, creek corridors and floodplains. Additional examination was made of existing citywide and downtown area plans in both Sherman and Denison.

An Existing Conditions Map developed for this report identifies the key bicycle and pedestrian destinations in the region along with local streets at or below 30 MPH, plus roadways that are posted at or above 35 MPH. For roadways posted at or below 30 MPH, a network of on-street bike routes is proposed. For roadways at or over 35 mph, a series of connected on-street bike facilities and off-street trails are identified as candidates to be considered for further evaluation. (See Map 6-1: Existing Conditions Map)

Evaluating candidate bicycle and shared use path projects in the cities of Sherman and Denison involved examining a number of factors to determine the appropriate recommendations for each corridor. While an inventory of existing sidewalks was included, development of plans for contiguous sidewalks was not within the scope of this study. Current densities, available land and geographic features, planned new roadway infrastructure, major shopping and work place destinations, and proximities to schools and parks were all considered as routes were selected for further consideration.

New roads planned in southern Sherman hold potential for routine inclusion of more bicycle and pedestrian friendly infrastructure if developer partnerships can be cemented. Connections to surrounding corporate campuses could help attract other types of developments conducive to more active,

outdoor-oriented workforces at these companies. Below are summaries from each city's most recent comprehensive plans that convey a singular focus toward more walkable, bikeable futures.

PAST PLANNING IN SHERMAN AND DENISON THAT SUPPORT BICYCLING AND WALKING

Past plans by TxDOT, SDMPPO, and the cities of Sherman and Denison contain elements applicable to pedestrians and people who ride bicycles. This section summarizes the various references to these.

Sherman-Denison MPO

The 1998 *Sherman-Denison-Howe MPO Bicycle and Pedestrian Mobility Plan* references federal policies first established in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 which emphasized the importance of including alternative modes of travel in regional planning efforts. Subsequent reauthorizations have mirrored these goals and sought only to clarify the importance of accommodating non-motorized travel on the nation's transportation network.

In the long range transportation plan for Sherman-Denison entitled *2030: A Shared Destination, the Bicycle Transportation Long Range Plan and Pedestrian Transportation Plan* contained succinct aspirations for bicycle and pedestrian improvements in the region. The report indicates an overwhelming majority (more than 85%) in 1995 had supported adding bicycle and pedestrian infrastructure to improve safety. Yet, the analysis of the existing roadway system – the report concluded – "... showed that very few roads could be remade to accommodate a bike/ped path without costly operations."

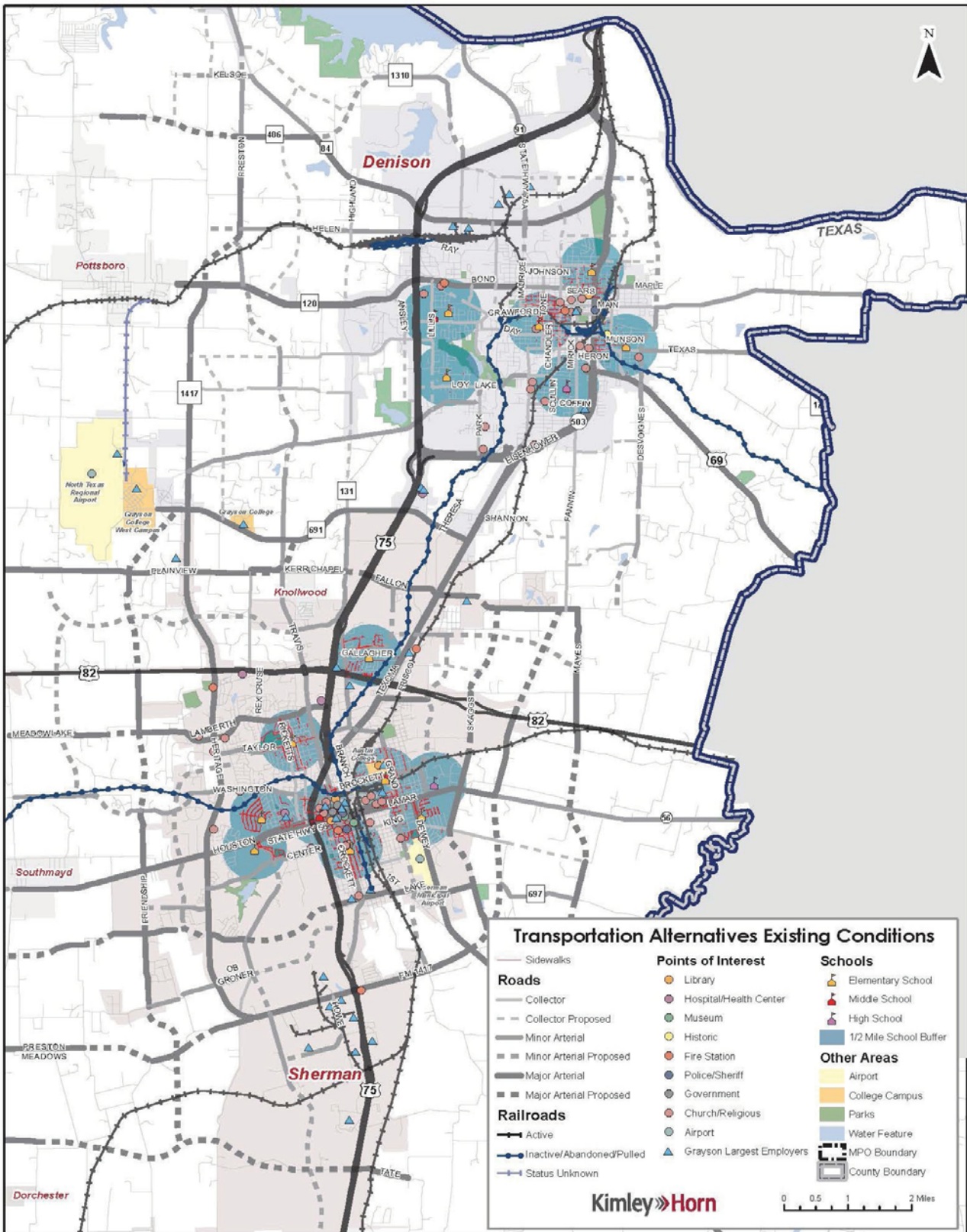
City of Sherman

The City of Sherman adopted its most recent Comprehensive Plan in July 2009. *The Sherman Comprehensive Plan 2009* addresses the needs and benefits of bicycling and walking in its overall planning framework. The Plan's Transportation section states "However, while traveling by car is the most common mode of travel, this plan recognizes that building and widening roadways will not adequately address future transportation needs in the community."

The Plan recognizes that with continued growth, high costs of

developing infrastructure, increasing fuel costs, and impacts to air quality and the environment, planning for all future travel needs throughout the City will involve looking at transportation as an interconnected system of roadways, paths, trails and sidewalks, with multiple options for getting around, including by transit, walking, and by bike.

Map 1-1 - Existing Conditions Map



The section entitled *Accommodating Greater Walking and Biking Opportunities*, says “bicycle and pedestrian facilities add to the quality of life of the community and help create a cohesive environment that is interconnected not only through roadways, but also through a system of bike lanes, trails, and sidewalks. In addition to their practical function of getting people around, pedestrian and bicycle opportunities can help meet some of the recreational needs in the community.”

The plan calls for increased multi-modal options at the site-specific level by making Downtown and large commercial developments more accessible for pedestrians and cyclists. The Plan also suggests promoting land use patterns that result in a more walkable community.

In its section on Parks and Recreation and Open Space, the Plan highlights the benefits of interconnectedness. The recreational and social value of parks is increased exponentially when linked through a series of greenbelts along natural water courses and drainageways. Trails, walkways and bikeway corridors provide the needed connections. Just as it is necessary to plan for road networks and other public infrastructure in advance of growth, it is also important to plan and protect “green infrastructure” in coordination with development. An interconnected system of bicycle and pedestrian facilities may serve as a resource for recreation and exercise, while providing an added benefit as an alternative mode of transportation. According to the 2005 Parks and Recreation Master Survey, paved walking and biking trails had the highest percentage of respondents select them as the most important facility. Furthermore, respondents identified walking and jogging as the most popular program or activity, the plan says.

City of Denison

The City of Denison’s 2002 Comprehensive Plan highlights potential trail corridors and bikeways along flood prone areas within four major creek systems: Shawnee, Duck, Pawpaw, and Iron Ore. Iron Ore Creek, the plan says, is the largest of these, which flows through the southern one-third of the planning area. The Shawnee Creek, Pawpaw Creek and Duck Creek systems, located in the north central portions of the planning area, along with their tributaries, have potential for development of linear greenway park systems and other passive recreation.

The Red River and Lake Texoma are the major physical features that serve as barriers to the city’s physical expansion. Major floodplains are also located along both the river and

lake, and are important natural features that should be protected and utilized for the development of linear park and trail systems.

Other goals include promoting a more livable city and high quality of life through good urban design practices and through a proactive approach to the City's appearance. They suggest reinforcing Denison's image and identity as a community of excellence in business, residence, leisure and education through urban design and increased public awareness and involvement.

Encouraging public/private participation and cooperation in beautification efforts are also key. Stakeholders should explore utilizing assistance that may be available from private/volunteer groups to contribute to urban design related projects such as sidewalk amenities and other improvements that help enhance public areas, including street medians and landscaped buffers. Increasing public awareness, involvement and support of urban design initiatives will require continued outreach.

The plan suggests the city should require that all new residential developments with densities greater than 1.0 dwelling unit per acre either install sidewalks along all interior and perimeter streets or provide other such alternative pedestrian transportation systems that are approved by the City of Denison.

The Denison plan says bicycling and walking need to be included in the city's comprehensive thoroughfare system, so these modes contribute to accommodating the expanding vehicular traffic volumes that are created by growth, and to also provide convenient access to major traffic generators, especially for pedestrians and people riding bicycles. The Downtown Denison Streetscape Master Plan adopted in March 2013 indicates numerous locations where a "...wide travel lane encourages higher vehicular speeds, creating an unbalanced proportion of ROW area by placing higher emphasis on vehicular use rather than pedestrian or bicycle use." The plan also highlighted that walkability was among the top five elements of streetscape design desired by the public who responded for the study; and included a Bike Plan map and discussion on bicycle connectivity and bike parking.

Texoma Area Paratransit System (TAPS)

For the Texoma Area Paratransit System, better known as TAPS Public Transit (TAPS), bicycle parking racks are not currently available at every TAPS bus shelter or terminal.

Front mounted bicycle racks with space for two bikes are installed on some TAPS buses. The front mounted bike rack is the required placement when available. Otherwise, when an attached bike carrier is not available, a bicycle may be taken onboard if it can be properly stowed and secured. Bicycles may be stored in the wheelchair section when available. Tie downs or bungee cords are required when securing a bike inside a bus. Passengers with bicycles are encouraged to ask the driver for instructions.

Summary of Plans

Both the cities of Sherman and Denison are clearly planning for a future more conducive to transportation alternatives and more active, healthier populations. Both cities' planning documents note significant references to seamless bikeway and walkway accommodation. Both acknowledge the need for inclusion and access to daily destinations.

Sidewalk improvements associated with more-recent developments reveal a robust commitment to enhanced walkability. Even though many segments remain disconnected, improved connections between trip origins and destinations appear achievable over time, and can form a strong base upon which to build for achieving a vision of complete streets in a more sustainable future for the region.

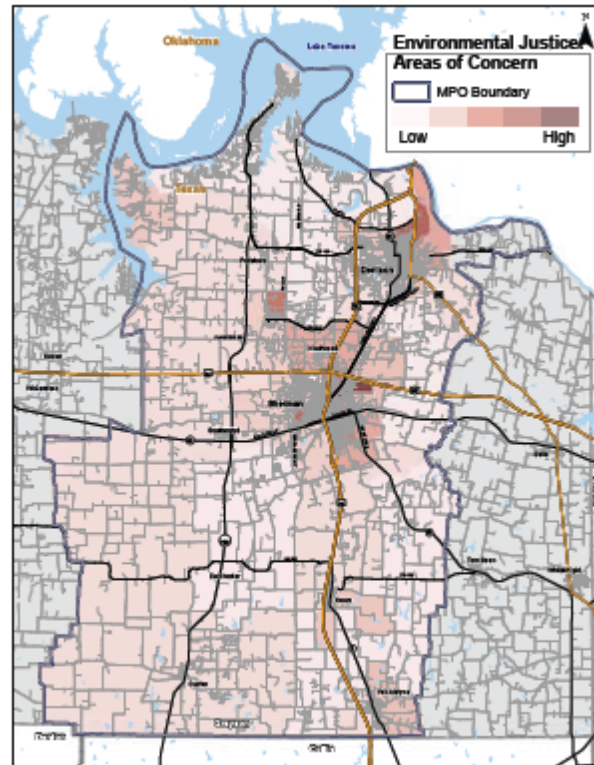
SAFE SCHOOL ACCESS

Young families of today are expressing stronger interest in having non-motorized access to routine destinations, including safe routes to schools. Students who walk or ride bicycles to school have been determined by the Centers for Disease Control and Prevention (CDC) to be more alert, healthier and score better and continuity is important as it relates to schools for reasons including health, public safety and environmental justice. The importance of sidewalk connectivity is particularly important in areas of low income due to lower levels of automobile ownership and higher proportion of parents with children walking or biking to school on a daily basis. Knowing where gaps exist is key to the pursuit of leveraged funding through initiatives such as the Transportation Alternatives Program.

CONNECTING THE DISCONNECTED AND CREATING ACCESSIBILITY

Safe walking-access to schools, including wheelchair

accessibility, addresses important needs within Sherman as well as Denison. Environmental Justice Areas (Chapter 4 in the SDMPPO's 2040 MTP) are also considered a key factor in planning for non-motorized mobility for the traditionally underserved. Existing gaps in connectivity should all be flagged by each city and school district for inclusion in any programmed roadway project coming forward. Only continued and constant focus on this strategy will eventually result in a contiguous system.



Environmental Justice Areas

Today's student populations are considering walkability and bikeability among factors when looking for places for higher learning. Already, the Austin College campus has an impressive central core walkway that serves as a miniature Central Park. Nearest the campus, perimeter sidewalks are fairly contiguous along the southern edge. While good sidewalks are an excellent draw for this institution, more focus is needed on connecting to the surrounding the city. Despite the obvious barriers due to railroad tracks on the west, north and east sides of the campus, future developments within and around the campus-owned properties should seek ways to incorporate and connect the campus central tree-shaded corridors corridors to surrounding neighborhoods. Low volume streets should be enhanced with simple wayfinding and connections to aid students in getting beyond the railroad barriers to other parts of

the city.

Grayson College on FM 691, beyond the Sherman city limit, has more daunting challenges to connectivity due to its more rural setting. Planners in the future should be mindful of the benefits of including bicycle and pedestrian accessibility to those campuses as the city grows out to the North Texas Regional Airport.

OUTCOMES AND RECOMMENDATIONS

Summary of Findings

From this BPP analysis, it became evident that considerable efforts have been made to include pedestrian accommodation with new developments; but, travel by bicycle up to this point remains generally an ‘open streets’ proposition for avid cyclists often termed “fearless” – which tends to accommodate very few cyclists other than the most experienced cyclists.

Pedestrian facility evaluation was limited to determining sidewalk gaps within ½ mile from public schools. For this study, an inventory was undertaken of existing sidewalks to determine barriers to students walking to school.

An overall map of existing conditions was created to facilitate visual evaluations of current land uses and development patterns throughout both Sherman and Denison. Findings included:

- Schools located in some areas with high proportion of low income residents have insufficient infrastructure for safe walking.
- No formal bicycle infrastructure currently exists, or appears to be programmed in any of the upcoming roadway projects in the current MTP or Transportation Improvement Program (TIP).
- No local wayfinding or bike routes were found to be established in either Sherman or Denison.
- Most major employers are sited on large open campuses that are generally accessible only by automobile or people on bicycles willing to brave rush hour traffic on traditional roadways.
- A large utility corridor bisects the west side of Sherman that could be a candidate for development as a greenway shared use path (trail) that connects between large parks.

- Several unused or abandoned railroad corridors extend from both cities, including a major potential connector between Sherman and Denison that could include a key transit link at the soon to be upgraded TAPS Transit Center facing Texoma Parkway.
- Local 30-MPH streets in both cities can be signed with wayfinding networks that foster riding longer distances with clear directions to facilitate navigation around imposing barriers.
- A network of potential collector and arterial reconfigurations were identified to guide further study as roadway upgrades are undertaken.
- A variety of roadway intersections were identified to guide further evaluation during routine reconstruction or upgrade projects.

BICYCLE & PEDESTRIAN COMPONENTS TO INCORPORATE IN 2040 NEEDS PLAN ANALYSIS

The automobile is currently the primary form of transportation for most individuals in the Sherman area. However, with continued change in the age demographics and the presence of Austin College, the need for providing and accommodating alternative modes of transportation (bicycle and pedestrian) facilities exists.

Past recommendations appear to be based solely on streets thought to have space available. While this is an excellent starting point for considering feasibility, the alignments shown in this study represent roadways that if adapted to accommodate bicycling, will comprise a connected bikeway network system. For determining which routes to incorporate into the 2040 Needs Plan Analysis – a weighted selection criteria model is included in this plan. (See PROPOSED CRITERIA FRAMEWORK FOR SELECTING AND PRIORITIZING FUNDING on page 6-9.)

This BPP plan views these accommodation challenges as achievable with focus on multiple objectives that accomplish the goals of the overall 2040 MTP. To improve safety for non-motorized modes, it is crucial to include these in all planning, programming and design-development exercises. Inclusion of widened shoulders on rural roads will better accommodate avid

cyclists within the buffer of space provided by this surface so long as it is smoothly-paved, same as for motor vehicle lanes.

Present roadways with speeds of 30 MPH or slower are likely to be viewed by most bicyclists as the most desirable routes to these slower-speed streets, busier routes will require separated facilities in order to accommodate people using bicycles needing to reach destinations along those routes. Both short-term and long-term bicycle parking should be considered at each destination.

Enhanced accommodation for bicyclists should be considered part of any future roadway improvement project. Restriping of any roadway should be viewed routinely as an opportunity to provide dedicated space for bicyclist safety.

Within more urbanized areas, contiguous sidewalks must also be a guiding principle for pedestrian safety and access. Generally speaking – safe, convenient and easy to follow routes allow both those who choose to walk or bicycle and those who rely on walking or bicycling to transit or other destinations to arrive safely and with reasonable expectation of contiguous connectivity.

Transit use is considerably enhanced when people are able to ride bicycles from their homes to nearby transit stops. Where bicycling is a viable option, a bus stop catchment area is enlarged by up to 9-times when accessed by bicycle in addition to walking up to ½ mile.

Integration and interconnectivity are key guiding principles for ensuring the availability of transportation alternatives. By adopting these principles as key components of any future transportation improvements, eventual interconnectivity is more likely. Pedestrian or bicycle accommodation is an essential part of inclusive mobility for the traditionally underserved or underrepresented populations. Mobility and access are the simplest objectives of any bicycle and pedestrian plan.



Shared Use Path (Off-Street Multiuse Trail)

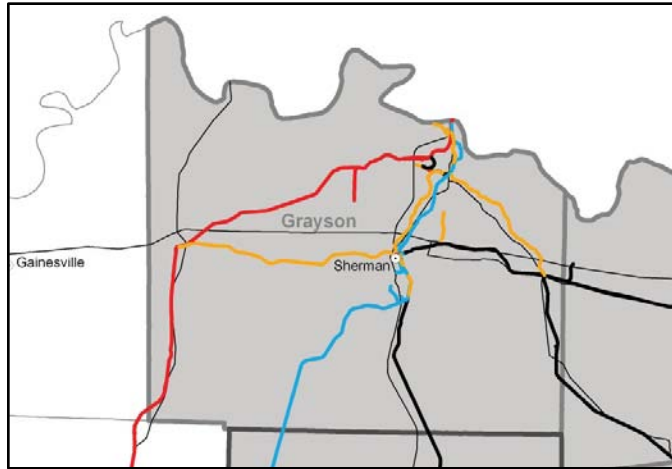
Although this study is limited to within the city limits of each city, further consideration is advised in the event city boundaries are extended, for example, westward toward the Grayson College campuses and the North Texas Regional Airport. Another potential connection from Denison is a shared use path extending north and west past Randal Lake to Eisenhower State Park along the Red River. A proposed shared use path extending southeastward from near downtown Denison could be developed within an abandoned railroad corridor if it were made available. Bikeable/walkable connections to Pottsboro were also of interest to participants.

Adoption of these by SDMPPO's member cities – particularly Sherman and Denison – has potential to result in an increasingly brighter future for this North Texas region that will yield high returns on investments for these types of infrastructure. (See Map 6-2: Proposed Overall Plan Map.)

POTENTIAL INTERCITY GREENWAY ARTERIAL TRAIL

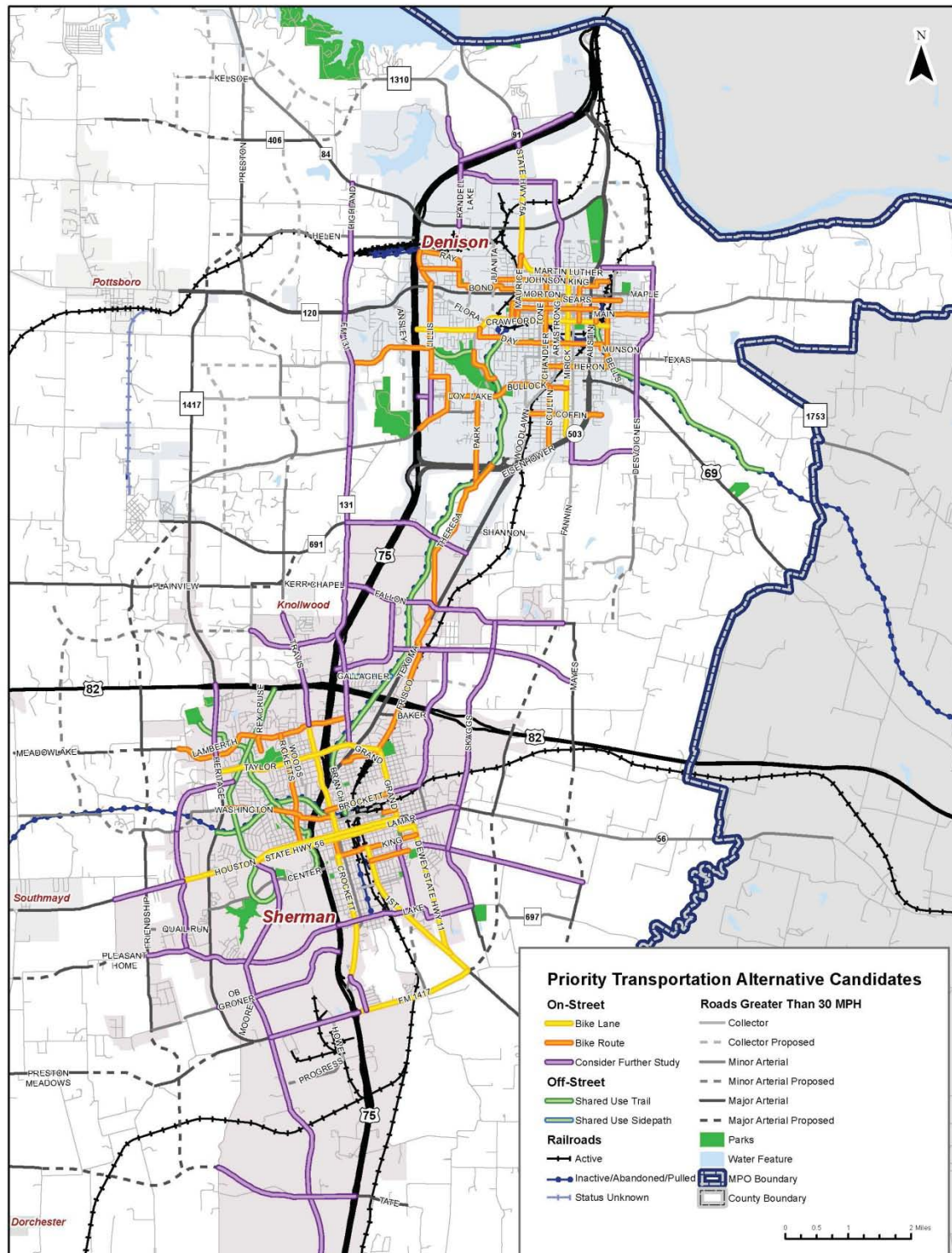
A potential intercity greenway trail connecting Denison with Sherman has been identified in public comments from previous plans – a central north/south route that roughly parallels Texoma Parkway and an active BNSF line just east of the highway. This line appears on an inventory map in a June 2013 Texas A&M Transportation Institute report on Rural Rail Transportation Districts (RRTD). The rail line is listed as inactive, and the report says the North Central RRTD was formed (but remains inactive) to address potential abandonment of a rail line owned by UP. The corridor traverses the counties of Grayson and Collin, and was eventually purchased by DART along with several others in

the area. A similar abandoned line shows to extend west to FM 1417 from central Sherman, almost to the Grayson County line.



Excerpt from 2013 TTI map of North Central Rural Rail Transportation District – (Gold line indicates Abandoned)

Map 2 - Proposed Overall Plan Map



Any abandoned or unused railroad corridor should be considered as a candidate trail connector if area landowners are in support. Although an abandonment process is in place that allows any filing for abandonment to be ‘protested’ – often times in rural areas these filings are ignored and the rail corridors are allowed to revert to ownership by adjacent land owners. Success of any potential future trail route rests on corridor preservation. Even if trails aren’t paved immediately – preserving them for future conversions helps to build optimism and create momentum that over a decade can result in many surrounding investments that make the construction of a paved trail an impressive return on investment.

RECOMMENDED SIDEWALK POLICIES

Like types of bicyclists, pedestrians have a range of needs - with walking speeds ranging from 2.5-6’ per second. All people are “universal pedestrians” at least some of the time, including people with mobility impairments. Some people have no other means of transportation than their feet due to age (children and the elderly), financial limitations, or lifestyle choice (walkers, joggers, transit users). Factors that influence the decision to walk from home to destinations such as school, shopping, work, and recreation include: perceived safety, continuous pedestrian facilities adequately separated from fast-moving motorized traffic, safe and convenient street crossings, supportive land uses, pedestrian-scale lighting, shade during hot weather, and benches/rest stops, and other street furniture.

Sherman’s Code of Ordinances sidewalk policy is referenced in Chapter 10 of the Subdivision Regulation. The city requires that “Four (4) feet sidewalks shall be installed on all street frontages of residential and commercial subdivisions and where deemed necessary by the commission or city council to provide circulation or access to schools, playgrounds, shopping centers, and transportation and other community facilities, or to provide pedestrian circulation within the subdivision. Exceptions include:

1. Sidewalks that terminate at the right-of-way of Highways 75, 82, 91 (Texoma Parkway), 11 (Dewey Avenue), FM 131 (North Travis), 691, 902, and 1417.
2. Lots adjacent to developed lots that have no sidewalk.
3. Industrial and rural type developments.

An improvement in this ordinance that would add value for pedestrians in both cities would be to require 5' sidewalks in residential areas and 6' wide sidewalks in any commercial area, and to include sidewalks on lots adjacent to developed lots that have no sidewalk, so that someday, sidewalks may be contiguous.

PROPOSED CRITERIA FRAMEWORK FOR SELECTING AND PRIORITIZING FUNDING

Following is a proposed criteria framework for use in evaluating, selecting and prioritizing funding for bicycle and pedestrian infrastructure:

Facility Type

- Shared Use Pathway (multiuse trail) – publicly owned, or built as part of future development, possibly through developer requirements or incentives
- Sidepath – a shared use path within roadway ROW where available – with adequate ROW, few commercial intersections, willingness to address intersection issues related to conflicts with sidepaths
- Bike Lanes – Arterials, collectors with adequate road width, in TIP or CIP program. (Can often be achieved through reducing the number of lanes [road diet] or narrowing inside travel lanes [lane diet].)
- Signed Bike Routes with or without Shared Lane Markings
 - residential/local streets, some collectors
- Cycle track – near schools, new developments, and re-developments where feasible
- Sidewalk – wherever adequate right of way exists.

Pedestrian and Bicycle Facility Prioritization Criteria:

- Accesses schools, parks, large employer, multifamily or mixed-use residential, or shopping within approximately 1/2-1 mile for pedestrians, 2-3 miles for bikeways, depending on barriers
- Densities surrounding/within 1/4 to 1/2 mile of a candidate corridor

- Supported by City leadership
- Right of way availability or potential availability (if known)
- Roadway Improvements in current or future TIP or CIP
- Access to transit stops with racks and/or buses with racks
- Serves both bicyclists and pedestrians
- Meets Regional/MPO funding criteria

Proposed Candidate Scoring Criteria for Access to:	
Schools (any level)	5
Parks, tourist	4
Large employer	5
Transit	3
Multi-family, mixed-use, dense	5
Shopping	3
Bike Parking included or exists	5
Supported by City	10
Environmental Justice	10
Right-of-Way	15
In current CIP	15
Serves both Bike and	10
Meets regional criteria	10
Total Maximum Points	100

TYPES OF BICYCLISTS

Different types of bicycle facilities serve essentially three types of bicyclists, each who potentially has different needs in terms of bike facility design.

Group A (Advanced) cyclists are generally confident and can operate within existing roadway space under most traffic conditions. Space on the roadway can typically be shared when a 14'+ wide outside lane is present. Group A will typically occupy a lane if less than 14' in width as allowed by state law, or prefer to ride along smooth shoulders when available. Group A cyclists tend to prefer direct access to destinations, typically riding as fast as they are able, and prefer to encounter few delays such as signals or stop signs. A relatively small percentage of people who ride bikes fall into this category; however, State law gives these cyclists full

rights to use most roadways except limited-access highways, anywhere in Texas.

Group B (Basic, less experienced adult and teenage bicyclists) and **Group C** (Children) are generally more concerned about safety, and prefer protected or off-street paths that help minimize interaction with motorized traffic. These cyclists prefer to ride on streets with bike lanes and light traffic – unless the bikeway is either buffered from motorized traffic as in a buffered bike lane, or is a protected facility such as a cycle track, a bike lane located behind parked cars, or sidepath behind a curb. Almost all people who ride bicycles are in Groups B or C.

TYPES OF BICYCLE FACILITIES

Bikeway is the universal term for various types of bicycle facilities, for both on- and off-road facilities. Other bikeway facility types include Bike Lanes, Buffered Bike Lanes, Cycle Tracks, Shared Use Paths, etc. Bike routes are not considered infrastructure; but are referred to as wayfinding treatments.

When planning for bicycle facilities, the needs of all bicyclists should be addressed. Roadway treatments should accommodate existing bicyclists and encourage those who would like to bicycle but choose not to, due to lack of existing designated facilities. The two key categories of bicycle facilities can be described as either on-street or off-street. The two primary on-street bicycle treatments include on-street signed routes (bike route signage with or without shared lane markings on the pavement), and bike lanes (bike lanes, buffered bike lanes, etc.).

Off street shared use paths (frequently called multiuse trails) are the most durable type of hard-surface, all weather facilities. Off-street facilities can be located along greenways, utility corridors, abandoned or sometimes active rail lines, and/or alongside streets, as in sidepaths.



Shared Use Path

BIKEWAY FACILITIES BY CLASS

Class I Bikeways - Shared Use Paths / Off-Street Multiuse Trails

Class I Bikeways were once typically called bike paths – now referred to as shared use paths, recognizing multiple types of users (pedestrians, skaters, etc.). A Class I Bikeway provides for bicycle travel along a paved right-of-way that is completely separated from any street or highway. Shared use paths can be used to connect corridors not otherwise served by streets; or where sufficient right-of-way exists, constructed away from the influence of parallel streets. Shared use paths should offer access opportunities not provided for bicyclists by the road system. They can also provide recreational opportunities, and in many instances, can serve as alternative commute routes if cross flow by motor vehicles and pedestrian conflicts can be minimized. Class I facilities can also be utilized to close gaps to bicycle travel caused by freeways or other infrastructure, or the existence of natural barriers (rivers, hills, etc.). Examples of Class I Bikeways include shared-use paths and sidepaths.

Mobility and access for people riding bicycles is in far greater demand in recent years, particularly in or near cities with university campuses. Younger generations are embracing the concept of incorporating physical activity into their daily routines. For many – the typical street pattern serves well for getting around to local destinations. But often – barriers such as major streets and highways, railroads and waterways, prevent travel to more destinations beyond.

Off street trails (shared use paths) can serve as neighborhood connectors to destinations beyond these barriers. These

connections may rely on a utility right-of-way, a railroad right-of-way, a route through a city park, or perhaps be a newly-constructed pedestrian bridge that connects over or beneath a highway. Underpasses are the least preferred, and if chosen, must be wide, brightly lit and inviting – with the ability of users to see through to the other side before entering the passageway. Care should be taken to prevent underpasses from ponding and silt buildup after flooding, which is dangerous to users. Less maintenance is typically needed for overhead connections. Tall railings and Uniform Building Code (UBC) standards should be applied to all structural solutions.

Off-Street Bicycle Design Elements

Design Factors

Typical widths range between 10' and 12' (generally 10' should be appropriate in Grayson County), with 2' minimum shoulder along each side of trail. A sidepath is typically similar in dimensions except within a roadway right-of-way, and requires a minimum 5' setback from curb or shoulder – or a physical barrier if setback is less than 5 feet.

Intersections / Trail and Bikeway Crossings

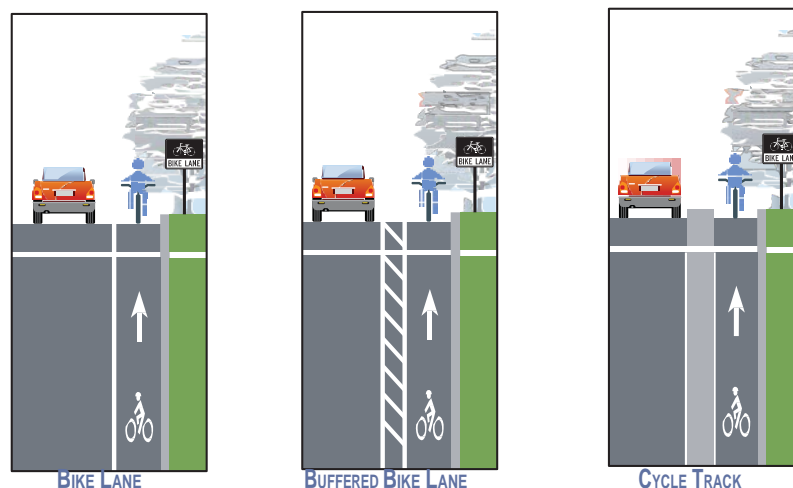
Concerns always arise regarding at-grade intersections – considered the weakest link in bicycle connectivity as well as for pedestrians. Well-designed crossings should consider speeds, grades, sight-lines and triangles, and gaps between traffic platoons. Generally, mid-block crossings should be routinely signed or signaled so that roadway traffic is made well aware of the presence of pedestrians and people riding bicycles. For routes with moderate levels of bicycle or pedestrian traffic, user-activated crossing signals may be appropriate. The Federal Highways Administration recently recommended the pedestrian hybrid beacon (PHB) as a preferred traffic control device for intersections with high volumes or speeds of cross-traffic.

Class I Bikeways - Off-Street Shared Use Path Recommendations

#	Location	City	Length (miles)	Estimate of Potential Cost
1	MKT Connector	Denison	3.8	\$1,140,000-\$1,710,000
2	Waterloo Park Trail	Denison	0.8	\$240,000-\$360,000
3	Southeast Rail Trail	Denison	3.8	\$1,140,000-\$1,710,000
4	MKT Connector	Sherman	4.9	\$1,470,000-\$2,205,000
5	Post Oak Creek Trail	Sherman	3.3	\$990,000-\$1,485,000
6	TNER West Trail	Sherman	2.1	\$630,000-\$945,000
7	US 82-Houston	Sherman	3.0	\$900,000-\$1,350,000
8	Herman Baker Park	Sherman	1.2	\$360,000-\$540,000
9	Gallagher Sidepath	Sherman	0.7	\$210,000-\$315,000
Total			23.6	\$7,080,000-\$10,620,000

Note: The cost estimates provided in this plan have been developed for planning purposes only.

Class II Bikeways - Bike Lanes, Buffered Bike Lanes, And Cycle Tracks



Class II Bikeways are typically infrastructure that is configured as bike lanes, buffered bike lanes or cycle tracks. A Class II Bikeway provides a striped and stenciled lane for one-way travel in each direction along a street or highway. Bike lanes

are established along streets in corridors where there is significant bicycle demand and where there are distinct needs that can be served by them. The purpose of these should be to improve conditions for Group B and C bicyclists in the corridors. Bike lanes are intended to delineate the right-of-way assigned to bicyclists and motorists, and to provide for more predictable movements by each. Class II Bikeways can be configured along an uphill direction as climbing lanes with a shared curb lane going downhill where the speed differential between motorists and bicyclists is much less.

Bicyclists, by State law, are allowed the use of all public roadways except limited access highways and buffers, and may fully occupy lanes of less than 14 feet to help ensure safe passing by motor vehicles. But even this can be inadequate where speed differentials are extreme, such as along freeway frontage roads. People riding bicycles are likely to travel to the same destinations as motorists; therefore, accommodating bicycle travel along all public roadways must be a guiding principle. Finding dedicated space for bicycles along collectors and arterials can be challenging. Reducing the number of lanes (road diet) and/or lane widths (lane diet) are often inexpensive options when done concurrently with roadway restriping.

Bike lanes and barrier separated cycle tracks create a higher sense of safety along high-speed high-volume roads for most users. For detailed design guidance, refer to the AASHTO Guide for Bicycle Facilities

The importance of safety in protecting vulnerable users such as bicyclists and pedestrians is even more important on high-volume high-speed roadways. Creating separated spaces, improved safety marking for these users helps to protect them as they travel. It is imperative that proven safety countermeasures be established to maintain the level of safety these users need (refer to the FHWA Proven Safety Countermeasures for guidance).

Buffered Bike Lane



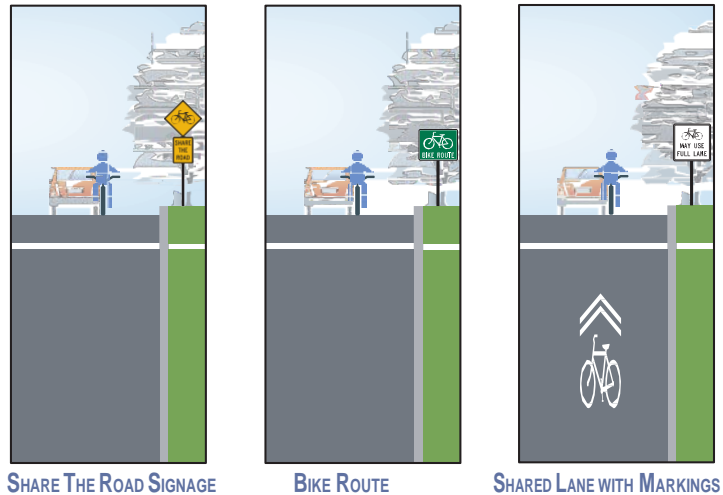
Shared Lane Marking



Class II Bikeway Recommendations

Location	City	Length (miles)	Estimate of Potential Cost
Highway 91	Denison	2.3	\$46,000-\$57,500
Crawford	Denison	3.1	\$62,000-\$77,500
Mirick	Denison	2.6	\$52,000-\$65,000
Taylor-Grand	Sherman	2.6	\$52,000-\$65,000
Travis	Sherman	1.8	\$36,000-\$45,000
Houston-Lamar	Sherman	5.9	\$118,000-\$147,500
Crockett-Travis	Sherman	2.0	\$40,000-\$50,000
1st	Sherman	2.2	\$44,000-\$55,000
Grand-Highway 11	Sherman	4.0	\$80,000-\$100,000
FM 1417	Sherman	1.9	\$38,000-\$47,500
Total		28.4	\$568,000-\$710,000

CLASS III BIKEWAYS – BIKE ROUTES / WAYFINDING



Bike Route and Bicycles May Use Full Lane Signage

Class III Bikeways, generally referred to as bike routes, provide for shared use of road space with motor vehicle traffic. These are typically identified by signage and/or pavement markings referred to as wayfinding rather than as infrastructure. Bike routes are typically shared facilities which serve either to: 1) provide continuity to other bicycle facilities, usually Class II Bikeways; or 2) designate preferred routes through high demand corridors. As with bike lanes, designation of bike routes should indicate to bicyclists that there are particular advantages to using these routes as compared with alternative routes. Normally, bike routes are shared with motor vehicles. Use of sidewalks as Class III Bikeways is strongly discouraged. Examples of Class III Bikeways include: signed bike routes, shared lane markings (SLM's), and paved shoulders.

Many slow speed neighborhood streets with speeds of 30 MPH or less can be fairly easy routes for residents to access nearby destinations. One strategy many cities use to promote bicycling and walking is to establish local destination wayfinding by using small scale signage at key decision points. Some cities utilize small markings on the pavement, others use locally-relevant graphics with standard signage described in the *Manual on Uniform Traffic Control Devices (MUTCD)*.

NETWORKS

Many cities in Texas already have robust bike route networks that help guide cyclists to important destinations. Both Denton and Fort Worth have recently implemented bikeway

accommodation throughout their downtowns. The city of Plano recently completed its more than 160-mile on-street bikeway network; local bicyclists were highly supportive of signing of a citywide system using numbered crosstown bike routes with wayfinding signage showing destination directions and distances. The city signed 38 miles of bike routes that help connect neighborhoods using this low-cost bikeway network.

Regulatory Signage

A new sign in the MUTCD provides a regulatory framework for when motorists must yield to people on bicycles. A sign stating Bicycles May Use Full Lane (R4-11) should be used along any designated route for bicycles and applies anytime travel lanes are less than 14 feet wide.



Bike Route and Bicycles May Use Full Lane Signage

Wayfinding Signage From Chapter 9 of MUTCD

An assortment of standard wayfinding signage is also included in the MUTCD. Options vary from simple route designation signage to destination blades with directional and distance information.

Shared lane markings (SLMs) are one way to alert both bicyclists and motorists of the appropriate bicycle positioning within a travel lane.

- Additional markings through busy intersections may contribute to crossing safety because they act as reminders to cross traffic to be alert for bicyclists. These markings will typically aid in indicating which side of the street bicyclists should use – with traffic, not against. (Unless a contraflow bike lane on a one-way street.).

Potential Signage from Chapter 9 of MUTCD



Wayfinding Signage

Class III Bikeways - Bike Route Recommendations

Location	City	Length (miles)	Estimate of Potential Cost
Ray-Bond	Denison	2.1	\$21,000-\$30,500
Washington	Denison	0.6	\$6,000-\$8,700
Morton-Lillis	Denison	2.1	\$21,000-\$30,500
Crawford	Denison	1.4	\$14,000-\$20,300
Park	Denison	1.4	\$14,000-\$20,300
Stafford-Loy Lake	Denison	1.3	\$13,000-\$18,900
Waterloo Lake	Denison	0.6	\$6,000-\$8,700
Loy Lake-Bullock-Brock	Denison	2.0	\$20,000-\$29,000
Maurice	Denison	1.0	\$10,000-\$14,500
Scullin	Denison	0.9	\$9,000-\$13,100
Chandler	Denison	1.8	\$18,000-\$26,100
Burnett	Denison	0.6	\$6,000-\$8,700
Crockett	Denison	0.9	\$9,000-\$13,100
Johnson	Denison	1.9	\$19,000-\$27,600
Sears	Denison	1.6	\$16,000-\$23,200
Woodard-Houston	Denison	1.4	\$14,000-\$20,300
Gandy-Fairbanks	Denison	0.4	\$4,000-\$5,800
Verna-Day-Munson	Denison	2.6	\$26,000-\$37,700
Heron	Denison	1.1	\$11,000-\$16,000
Coffin	Denison	1.2	\$12,000-\$17,400
Teresa-Exoma-Frisco	Denison	1.5	\$15,000-\$21,800
Main	Denison	0.7	\$7,000-\$10,200
Teresa-Exoma-Frisco	Sherman	4.3	\$42,700-\$61,900
Lamberth	Sherman	2.9	\$29,000-\$42,100
Ricketts	Sherman	1.8	\$18,000-\$26,100
Burton-Wood	Sherman	0.3	\$3,000-\$4,400
Rex Cruse	Sherman	0.2	\$2,000-\$2,900
Washington	Sherman	1.8	\$18,000-\$26,100
Brockett	Sherman	1.1	\$11,000-\$16,000
Pecan	Sherman	0.2	\$2,000-\$2,900
King-Crockett	Sherman	1.6	\$16,000-\$23,200
Thomas	Sherman	0.6	\$6,000-\$8,700
Total		43.9	\$439,000-\$636,600

BICYCLE AND PEDESTRIAN FACILITY DESIGN FLEXIBILITY

The Federal Highway Administration (FHWA) issued a Bicycle and Pedestrian Facility Design Flexibility memorandum dated August 20, 2013 that expresses FHWA's support for taking a flexible approach to bicycle and pedestrian facility design. The AASHTO and MUTCD guides for bicycle and pedestrian design are the primary national resources for planning, designing, and operating bicycle and pedestrian facilities. Now the National Association of City Transportation Officials (NACTO) *Urban Bikeway Design Guide* and the Institute of Transportation Engineers (ITE) *Designing Urban Walkable Thoroughfares* guide build upon the flexibilities provided in the AASHTO guides. These can help communities better plan and design safer and more convenient facilities for pedestrians and people who ride bicycles. FHWA supports the use of these resources to further develop non-motorized transportation networks, particularly in urbanized areas.

BICYCLE AND PEDESTRIAN POLICY RECOMMENDATIONS

PROPOSED ACTIVE TRANSPORTATION POLICIES

Bicycle and pedestrian transportation, a key component in a regional transportation system, is frequently referred to as Active Transportation. From a policy standpoint, it is recommended that the cities and the SDMPO adopt formula-based funding indexed to anticipated demand, as well as local and regional non-motorized mobility goals. A policy of inclusion, with emphasis in areas focused on criteria-based environmental justice, can guide decisions to a more uniform standard of recommended goals that can serve as the foundation for an active transportation network. These goals include:

- Establish a Bicycle and Pedestrian Advisory Committee consisting of local stakeholders to work with city and MPO technical and planning staff.
- Adopt policies, programs, and projects identified in this Bicycle and Pedestrian Plan.
- Improve safety and mobility for active transportation.
- Plan for and promote bicycle and pedestrian transportation, access, safety, and education.
- Incorporate sustainability and livability objectives during

any MTP project selection process.

- Include additional weighting or emphasis as appropriate and consistent with policy objectives including, but not limited to, demand management, environmental justice, social equity, environmental preservation, or consideration of transportation options and accessibility to other modes.
- Encourage or incentivize both long and short term bicycle parking facilities at destinations including at work places.
- Promote incorporation of a complete streets policy, with context sensitive solutions, and other relevant initiatives that apply to roadway planning, design, implementation, and maintenance
- Ensure that policies require roadways to safely accommodate all users including bicyclists, pedestrians, transit riders, older individuals, children, disabled persons, and motorists.
- Enhance safety for active travel by promoting education and training opportunities for bicyclists, pedestrians, motorists, and professionals who are designing and implementing roadway facilities, implementing safety infrastructure projects.
- Promote enforcement of traffic laws to reduce bicycle and pedestrian-related conflicts.
- Increase active transportation in the Sherman-Denison MPO region as an alternative to motor vehicle trips.
- Increase active travel for all trip purposes through consistent support of programs and infrastructure projects that address the six E's: Engineering, Education, Enforcement, Encouragement, Equity and Evaluation.



Bicycle Parking and Bike Lockers

EMPLOYER BICYCLE AND PEDESTRIAN COMMUTER ACCOMMODATION

An improved on- and off-street bikeway network, coupled with enhanced bicycle parking facilities and other support services (e.g., secure, covered long term parking, showers and changing facilities at employer work sites) will increase the attractiveness of bicycling. Economic policies focused on creating more bicycle and pedestrian friendly connections to large employers, and implementing economic development strategies that incorporate these with land use objectives would be consistent with public/private participation policies for infrastructure improvements that match economic development objectives for specific areas.

SIDEWALK RECOMMENDATIONS

Sidewalks are recommended along both sides of all arterial and collector streets; however, in the short and mid-term, in order to gain connectivity over a larger area, and when implemented as a project separate from overall street reconstruction, installing sidewalks along only one side of most streets is an acceptable near- and mid-term strategy. While ideally all city streets would include sidewalks, for this Plan, selected residential streets that support safer access to schools, parks, and workplaces from residential areas should be added to the citywide network.

Early in any project development process, several factors should be considered when determining whether to include new sidewalks on a project. When any of the following factors are present within TxDOT ROWs, TxDOT requires that sidewalks be included on any project:

- Facility is part of a locally adopted sidewalk planning document;
- There is evidence of pedestrian traffic (either pedestrians are observed, there is a beaten down path, or significant potential exists for pedestrians to walk in the roadway);
- Facility is located on a route to a school or a transit route;
- Where pedestrian generators/attractors exist, new sidewalk construction should be included.

Design Guidance Resources

Sidewalks

Clear zones for pedestrians should not include street lights, utility poles, sign posts, fire hydrants, mailboxes, parking meters, bus benches, bike parking, dining tables and chairs, newspaper boxes, or any other object that could impede pedestrians, including those with disabilities.

Commercial driveways should be consolidated where feasible to reduce the number of pedestrian/motor vehicle conflict points. In addition, sidewalks crossing driveways must conform to the adjacent sidewalk in width, cross slope, and grade. Where roadway grade is greater than 5 percent, the sidewalk may exceed 5 percent but must be less than or equal to the roadway grade. The cross slope maximum is 2 percent. For pedestrian paths not adjacent to public right-of-way, the maximum grade without railings is 5 percent, and the maximum ramp grade with handrails and landings is 8.3 percent. (Applies also to Shared Use Paths.)

Lighting at intersections and pedestrian crossing areas should be provided. Other areas where lighting should be prioritized include where there is a high concentration of dawn, dusk or nighttime pedestrian activity (schools, community centers, entertainment, shopping, and places of worship).

Intersection design for pedestrian travel is an essential part of roadway design, and must consider the pedestrian crossing the road. Key elements in creating pedestrian crossings include crosswalks, curb ramps, pedestrian signal heads at signalized intersections timed for expected users (if not automated, a manual call button must be accessible from or at the sidewalk), reducing the crossing distance of 4+ lane roads, pedestrian refuge islands, and lighting for intersection visibility. The curb radii at intersections are frequently designed to enhance motorized throughput, making these same intersections more daunting for pedestrians to cross. Consideration should be given to shorter crossing distances for the pedestrians by including pedestrian refuge islands for phased roadway crossing; and tighter intersection radii which may be retrofitted through application of parking lanes with curb extensions. Other types of pedestrian crossings include midblock crossings, underpasses and overpasses. Wayfinding signage should also be placed where appropriate.

Federal Highways Administration (FHWA)

“US DOT Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations” - This policy statement, released in March 2010, emphasizes the needs and requirements to integrate walking and bicycling into transportation systems and provides some recommendations on how to do so.

Manual On Uniform Traffic Control Devices (MUTCD)

- Traffic Control Sign Guidance - See the Manual on Uniform Traffic Control Devices (MUTCD).
- MUTCD Part 9. Traffic Controls for Bicycle Facilities applies to on-road bicycle facilities and to shared use paths.
- The MUTCD Official Rulings is a resource that allows web site visitors to obtain information about requests for changes, experiments, and interpretations related to the MUTCD that have been received by the FHWA.
- The MUTCD does not have a particular section for Pedestrian Facilities because pedestrian information is contained throughout the MUTCD.

American Association of State Highway and Transportation Officials (AASHTO)

- Guide for the Planning, Design and Operation of Pedestrian Facilities, American Association of State Highway and Transportation Officials (AASHTO), 2004, https://bookstore.transportation.org/item_details.aspx?ID=119
- Guide for the Development of Bicycle Facilities, Fourth Edition, AASHTO, 2012. https://bookstore.transportation.org/collection_detail.aspx?ID=116

Institute Of Transportation Engineers (ITE)

- Designing Walkable Urban Thoroughfares: A Context Sensitive Approach, Institute of Transportation Engineers, 2010. <http://www.ite.org/emodules/scriptcontent/orders/ProductDetail.cfm?pc=RP-036A-E>

Texas Department of Transportation (TxDOT)

- Texas MUTCD (Manual on Uniform Traffic Control Devices) Part 9 Traffic Control for Bicycle Facilities, Revision 1, 2012 (http://ftp.dot.state.tx.us/pub/txdot-info/trf/tmuted/2011_rev1/9.pdf)
- Roadway Design Manual, Section 2: Design Exceptions, Design Waiver and Design Variances, Texas Department of Transportation, 2010. (http://onlinemanuals.txdot.gov/txdotmanuals/rdw/design_exceptions_design_waivers_design_variances.htm#i1002915)
- Urban Bikeway Design Guide, Second Edition, National Association of City Transportation Officials (NACTO), 2012. (Guide includes innovative designs that can be used where only local funds are used, or with a Federal Highway Administration design exception. <http://nacto.org/cities-for-cycling/design-guide/>)
- Bicycle Parking Guidelines, Second Edition, Association of Pedestrian and Bicycle Professionals (APBP), 2010. (<http://www.apbp.org/?page=publications>)

BENEFITS OF BICYCLE AND PEDESTRIAN IMPLEMENTATION

Estimating future bicycle or pedestrian trips using a traditional travel demand forecasting model is challenging at best. Travel modes in cities like Sherman and Denison typically reflect a motor-vehicle based demand and resulting trip table.

ESTIMATING BENEFITS

Destinations that are part of daily routines within 1/2 to 3 miles from trip origins can be ideal candidates for walking or bicycling to daily destinations. Other transportation benefits include reduction in traffic congestion, savings in roadway repair costs, reductions in air pollution, energy conservation and improvements in overall traffic safety due to fewer cars on the road – especially around schools and busy shopping destinations. The intent of this Bicycle and Pedestrian Plan (BPP) is to foster routine incorporation of bicycle and pedestrian infrastructure-accommodation into the 2040 Metropolitan Transportation Plan (MTP).

NOTABLE POTENTIAL ECONOMIC IMPACTS

Large corporate campuses are a routine style of development in areas where available land is inexpensive. This land may often be acquired with the objective of accommodating future company growth. Huge setbacks have certain advantages for large scale security. But for employee commutes – these large-scale properties become an impossible destination by any other mode than motorized vehicles. In the past century, this worked well with auto-centric planning and development.

Today's workforce is looking for transportation options between the workplace and home, and many would welcome opportunities to arrive at work on foot or by riding a bicycle. Often times younger, more energetic employees (the healthiest and most alert while at the workplace) will choose nearby residences based on the ability to arrive at work without driving. Numerous studies show in some areas this strategy can save families more than \$7,000 per year. The average American household spends an estimated 16 percent of its budget on transportation – more than on either food or healthcare. Low-income families spend as much as 55 percent of their household budgets on transportation.

MAJOR EMPLOYER BENEFITS

The Sherman-Denison region is host to many large corporate campuses that are currently only accessible by motor vehicle. One way to increase security and safety for people seeking more active lifestyles is for these companies to partner with government investments to create “active transportation” arrivals at the workplace. A ‘bike-friendly’ worksite typically includes secure, covered long term bicycle parking, places to shower or freshen up, and lockers for a change of clothes. Some employers will offer flexible hours so commuters choosing active transportation aren't subjected to peak-hour traffic volumes.

When infrastructure connecting to job sites supports access by all types of bicyclists, employees arrive at work more alert and ready to be a more productive workforce. Employee health costs can also be reduced, and fewer sick days are often a result. Texas Instruments, Inc. in Dallas is a prime example of corporate partnering during major infrastructure redevelopment that resulted in a very popular shared use pathway connector beneath the reconstructed “High Five” interchange along LBJ Freeway (IH 635) in Dallas. Lockheed- Martin, the largest employer in the D/FW region, has an extensive and

successful active transportation support program for its employees who are members of its Corporate Employees Recreation Association (CERA).

BICYCLE TOURISM

Bicycle tourism and bicycle industry employment can boost economic activity. Ventures such as these can attract businesses, create tourism and support lifestyles of active residents. Investments in quality bicycle and pedestrian infrastructure can be good for business. An example of successful bicycle tourism ventures was presented at the *2014 Texas Trails & Active Transportation Conference* in Fort Worth. Since 2009, Russ Roca and Laura Crawford have explored bike travel through an advocacy lens, learning about and championing the many ways in which cycling can positively impact rural areas. Currently based in Portland, Oregon, Roca and Crawford are working with the Oregon Tourism Commission to market and promote the state's bicycle tourism assets. They expressed interest in coming to Texas to help define Texas assets and potential partners that create bicycle travel destinations; provide concrete examples of effective bike travel promotions and tourism partnerships; demonstrate the benefits of making the connection between local networks to regional (Texas Tourism Trails) and national systems (U.S. Bicycle Route System); and provide example strategies and partnerships that bring in new investments. More info can be found at: www.pathlesspedaled.com.

HEALTH BENEFITS

The U.S. Centers for Disease Control and Prevention (CDC) has in recent years identified many compelling reasons for people to be more active as part of their daily routines. Numerous recent studies conducted in cities across the U.S. indicate a strong connection between health and enhanced bicycle and pedestrian environments connected to commercial, educational and civic activities. CDC has a Designing and Building Healthy Places web page that focuses on how healthy community design integrates evidence-based health strategies into community planning, transportation, and land-use decisions. (Source: [http://www.cdc.gov/ healthyplaces/](http://www.cdc.gov/healthyplaces/))

The National Prevention Council published a National Prevention Strategy in June 2011 that encourages community planning for better health and wellness. In its *Strategic Directions for Healthy and Safe*

Community Environments, the council advocates (in recommendation 5) enhanced cross- sector collaboration in community planning and design - to promote health and safety. The report says coordinating efforts across sectors and governmental jurisdictions to prioritize needs and optimize investments can help foster livable, more affordable, and healthy communities. Community measures that include health can be used to benchmark existing conditions, set performance targets, track and communicate progress toward achieving community outcomes, and increase accountability.

(<http://www.surgeongeneral.gov/initiatives/prevention/strategy/report.pdf>, page 14)

In a June 2009 Advocacy Advance Project report entitled *The Economic Benefits of Bicycle Infrastructure Investments*, updated and expanded in July 2012, the League of American Bicyclists and Alliance for Biking and Walking said “In addition to costs related to driving, there are also considerable costs due to physical inactivity...The health savings resulting from physical activity, measured in 10 different studies, range up to \$1,175 per person, per year. The median annual per capita value from the ten studies was \$128. (Source: [http://www.advocacyadvance.org/site_images/content/Final_Econ_Update\(smaller\).pdf](http://www.advocacyadvance.org/site_images/content/Final_Econ_Update(smaller).pdf)).

RESIDENTIAL PROPERTY VALUES

Studies show that investments in active transportation facilities are good for home values. Realtors find that they’re selling not just houses, but the active communities that they have access to. Many smaller towns are promoting town revitalization, and increasingly are using shared use paths (trails) to foster redevelopment along abandoned or unused railroad corridors. Trails are creating strong, vital communities with increased property values and improved economic opportunities for local businesses.

According to the Rails-to-Trails Conservancy, one of the most innovative applications of this new way of thinking involves promotion of “Trail-Oriented Development” (TrOD). TrOD, the organization says, is an emerging planning tool that seeks to combine the benefits of a trail with revitalization potential associated with well-design and well-managed urban parks, thus creating more livable communities that benefit from inclusion of active transportation. (*From Trail Towns to TrOD – Trails and Economic Development*, Rails-to-Trails Conservancy, August 2007)

Earlier research conducted by the Rails to Trails Conservancy found the development of bicycle and pedestrian facilities to

be a wise economic investment for the communities through which they pass. Shared use pathways are having a positive effect on nearby properties as homebuyers and business owners realize the value that such facilities bring to a community.

INDIVIDUAL SAVINGS

Riding a bike or walking to nearby destinations can also save money including motor vehicle costs for those who choose these alternative modes of mobility. Todd Litman of the Victoria Transportation Institute estimated in 2009 that replacing a car trip with a bike trip saves individuals \$2.73 per mile.

Texas Transportation Institute states, “Gridlock costs the average peak hour traveler almost 40 hours a year in travel delay, and costs the United States more than \$78 billion each year... traffic jams are wasting 2.9 billion gallons of gas every year.”

POTENTIAL BICYCLE AND PEDESTRIAN FUNDING

TEXAS DEPARTMENT OF TRANSPORTATION

Since the passage of the Intermodal Transportation Efficiency Act in 1991, Texas Transportation Commission, through the Texas Department of Transportation (TxDOT), has periodically made funds available through the dedicated funding for the Statewide Enhancement Program (STEP) and Safe Routes to School (SRTS), (and Recreational Trails (RT) program administered by Texas Parks and Wildlife Department (TPWD).

TEXAS PARKS AND WILDLIFE GRANTS

The Texas Recreation and Parks Account (TRPA) is funded through a portion of Texas sales tax received on select sporting good items. TRPA is administered by TPWD’s Recreation Grants Branch and funds five grant programs. These grant programs include: Outdoor Recreation, Indoor Recreation, Small Community, Regional, and Community Outdoor Outreach Program. TPWD also administers the Texas apportionment of the federal MAP-21’s TAP funded Recreation Trails; and Land and Water Conservation Fund, which includes trails as a priority, through TRPA. Grant

applications are now accepted through TPWD new online portal called Recreation Grants Online: <https://tpwd-recgrants.fluidreview.com/> (<http://www.tpwd.state.tx.us/business/grants/trpa/#trpa>, June 22, 2014)

Once a project grant application has been approved, the applicant will receive the Instructions for Approved Projects, a booklet designed to provide step-by-step instructions for project administration through completion. It has several helpful flow charts and a number of checklists.

TRANSPORTATION ALTERNATIVES PROGRAM (TAP)

According to the National Association of Development Organizations, the Transportation Alternatives Program (TAP) was created in the new federal transportation law, MAP-21 (P. L. 112-141), which combines three previously separate programs—Transportation Enhancements, which funded bicycle and pedestrian infrastructure and safety programs; the Recreational Trails program, and the Safe Routes to School program. In the new TAP program, states can transfer up to 50 percent of funds to other apportioned programs.

TxDOT's proposed rules for the Transportation Alternatives Program (TAP) were announced in a June 2014 Texas Transportation Commission agenda. Under MAP-21, bicycle and pedestrian funding is specifically made available through TAP.

In FHWA's TAP implementation guidance, issued in 2012, State DOTs and Metropolitan Planning Organizations (MPOs) are not eligible for TAP funding, but can partner with local governments, school districts, and transit agencies, on transportation alternative projects.

Under the new program, after funds are set aside for the Recreational Trails program, half of a state's TAP funding is allocated to MPO's with populations of more than 200,000.

For areas with less than 200,000 people, TxDOT is anticipated to issue a Statewide TAP call for projects, but no schedule has been set. For SDMPPO the process will follow the Statewide TAP Call for Projects when announced.

Eligible project types include *the construction* of dedicated on-street bicycle facilities, shared use paths (hike and bike trails), pedestrian safety enhancements, and landscaping of transportation facilities. Grant selection and administration would typically go through the SDMPPO, which would review submitted projects for eligibility, rank the projects, and provide

the State-required Letter of Transportation Improvement Program Placement. TAP may provide monetary support for transportation activities designed to strengthen the cultural, aesthetic, and environmental aspects of the transportation system. Funding is on a cost reimbursement basis and projects selected are typically eligible for reimbursement of up to 80%. Cost overruns are not eligible for reimbursement. Historically, this has been one of the most important grants for trail projects in more urbanized areas. SRTS type projects are eligible under MAP 21's TAP. Additional information for the 2012 TxDOT STEP call for projects can be found at: <http://www.txdot.gov/business/governments/te.htm>.

OTHER FEDERALLY FUNDED PROGRAMS FOR BICYCLE AND PEDESTRIAN PROJECTS

Other federal funds are available for bicycle and pedestrian projects through a variety of sources. These include:

- **U.S. Army Corps of Engineers (USACE)** – may provide up to a 50 percent match for recreational trails within a congressionally authorized project. It also forms partnerships with volunteer trail groups who create and maintain hiking, mountain biking, and/or equestrian trails
- **U.S. Department of Interior (USDOI)** – The National Parks Service's Rivers, Trails and Conservation Assistance Program offers technical assistance in community-driven planning to local groups and cities to preserve and develop trails, greenways and open space. This program does not provide monetary funds. USDOI's National Parks Service's Land and Water Conservation program is administered by Texas Parks and Wildlife.
- **Housing and Urban Development (HUD)** typically offers funding for sidewalks in Community Development Block Grant (CDBG) areas

RECREATIONAL TRAIL GRANTS

TPWD administers the National Recreational Trails Fund in Texas under the approval of the Federal Highway Administration (FHWA). Both non-motorized and motorized trails are eligible for funding, with the maximum grant amount for non-motorized trails currently set at \$200,000. This federally funded program receives its funding from a portion

of federal gas taxes paid on fuel used in non-highway recreational vehicles. The grants can be up to 80% of project cost. Funds can be spent on construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors. The grant application is available at

http://www.tpwd.state.tx.us/publications/pwdforms/media/pwd_1067_p4000_trails_grant_application.doc.

RECREATIONAL EQUIPMENT, INC.

REI focuses its philanthropic efforts on supporting and promoting participation in active volunteerism to care for public lands, natural areas, trails and waterways. Annually, REI dedicates a portion of its operating profits to help protect and restore the environment, increase access to outdoor activities, and encourage involvement in responsible outdoor recreation. REI employees nominate organizations, projects, and programs in which they are personally involved to receive funding or gear donations. For more information, go to <http://www.rei.com/aboutrei/grants02.html>. REI employees also participate in service projects; contact the nearest REI store to learn more about their hands-on service projects which are dedicated to restoring and improving areas for outdoor recreation.

ON-LINE FOUNDATION DIRECTORY

The Foundation Center publishes an on-line directory that is fee based. Check your local library to see if they have a subscription. Otherwise, go on-line to sign up at <http://fconline.foundationcenter.org/>.

PRIVATE DONATIONS

This source of financial assistance would usually come from a citizen, organization, or business which has an interest in assisting with the development of the park system. Land dedication is not an uncommon occurrence when property is being developed. The location of a trail within a residential development offers additional value to residential units within that neighborhood. Private donations may also be received in the form of funds, facilities, recreation equipment, art or in-kind services. Donations from local and regional businesses as

sponsors for events or facilities should be pursued. A Parks Improvement Trust Fund may be set up to manage donations by service organizations, benevolent citizens, willed estates and other donated sources. The purpose of this trust is to establish a permanent source of principle value that will increase as donations occur. The principal cannot be decreased; however, the annual interest can be used for park development.

OTHER POTENTIAL FUNDING/PARTNERSHIP STRATEGIES

Examples of potential funding sources for active transportation programs and projects – in addition to federal resources – include a number of state, local, and private sources that could be tapped for active transportation accommodations. Examples of other potential sources include, but are not limited to:

- State and local general revenue collected through taxes, capital improvement bond sales, etc.
- In partnership with The Rails-to-Trails Conservancy
- Developer/impact fees
- “In lieu of” payments
- American Hiking Society’s National Trail Fund
- Bikes Belong Coalition grants
- The Robert Wood Johnson Foundation

Because the Metropolitan Transportation Plan is constrained to available financial resources, funding for inclusion of active transportation improvements will also be limited. Funding may be available from these sources:

- Include priority projects in current TIP, 5 year and 15-year plan
- Fund with City Capital Improvements Program (CIP) bond funds
- Identify areas for potential reinvestment through 4A or 4B designations
- Neighborhood or District Overlays/Dedications including Environmental Justice areas
- Impact opportunities for local corporations or private benefactors
- Endowments, Conservation Easements, Champions
- Other Community Partnerships and Major Employers

- Friends Groups
- Encourage “Stewardship of Place”
- Expand ‘Corridor Adoptions’ by friends groups to include walkability or bikeability enhancements
- Seek out other potential State and Federal Funding Sources

PARTNERSHIPS WITH VOLUNTEER GROUPS

Friends of the Trail groups are usually set up for an individual trail or trail segment. Friends groups in North Central Texas have been formed to develop trail master plans that have then been adopted by a local government agency, such as the Parks Department. They have been formed to raise funds for trail tread construction, land donations or easements, and/ or amenities such as benches, rest plazas, water fountains, and art installations. They also lead athletic events and trail corridor clean-ups and plantings. And they frequently provide volunteer safety patrols. A Friends Group should be encouraged for every trail!