

Killeen-Temple MPO Regional Thoroughfare and Pedestrian/Bicycle Plan

Final Report

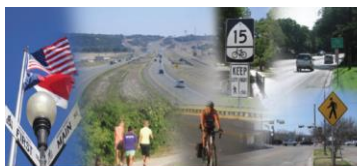
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Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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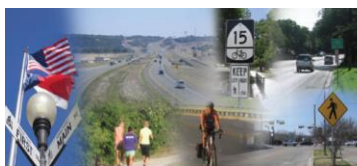
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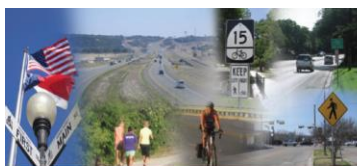


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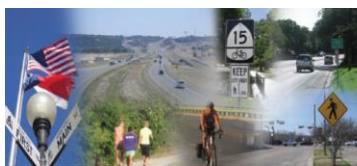
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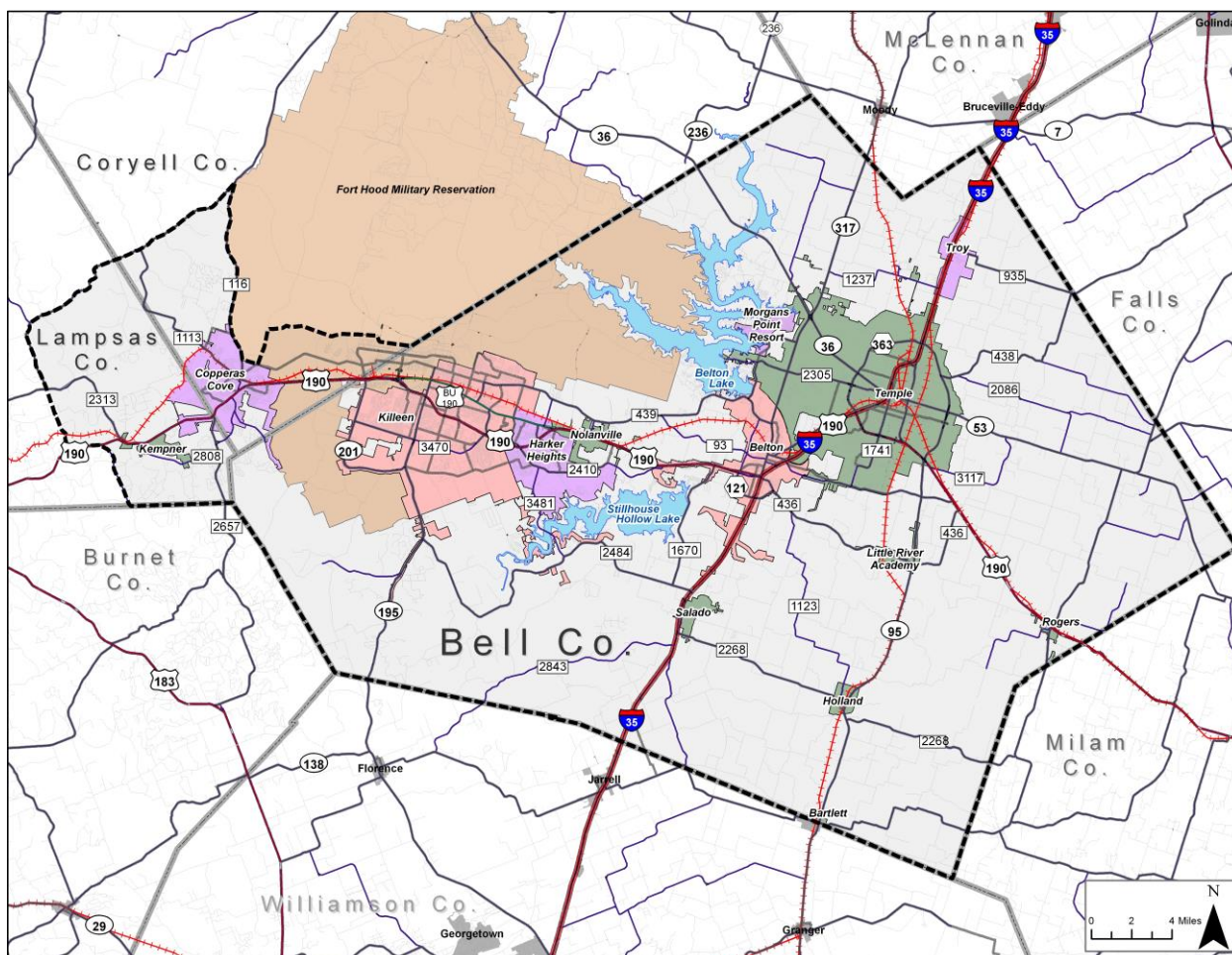
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

1. Introduction

1.1 Killeen-Temple MPO

The Killeen-Temple Metropolitan Planning Organization is responsible for establishing a continuing, cooperative, and comprehensive transportation planning process within the urbanized area located in Central Texas. KTMPO's planning area, shown in Exhibit 1, includes all of Bell County and small portions of Coryell and Lampasas Counties. The MPO is governed by a Policy Board which consists of elected officials from city, county, and state government (or appointees of those officials). The Policy Board is supported by a Technical Committee whose membership consists of staff from various city, county, regional, and state entities. The MPO is staffed with planners from the Central Texas Council of Governments.

Exhibit 1: KTMPO Planning Area



Source: Wilbur Smith Associates, 2011.



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The MPO has developed this Regional Thoroughfare and Pedestrian/Bicycle Plan as one of the key elements of its transportation planning process in order to create a forward-thinking blueprint for the transportation system in the region. This “advance planning” tool provides a vision for the future regional transportation system that is required for the continued mobility and prosperity of the region well into the future. More specifically, it defines the roadway, bicycle, and pedestrian facilities needed to serve both existing and long-term future development.

For organizational purposes, the plan is comprised of two distinct, but related components: a thoroughfare element and a pedestrian/bicycle element. These two elements are similar in that they both establish a long-term vision for the mobility needs of the region. However, they differ in terms of the level of detail regarding the specific transportation recommendations required to realize the full transportation network.

1.2 Plan Development Process

The original version of this plan was adopted by the MPO Policy Board on October 22, 2008. However, in 2009, the MPO more than doubled the geographic extent of its planning boundary by expanding to cover all of Bell County and additional portions of Coryell and Lampasas Counties. Therefore, the MPO embarked on an effort in October 2010 to update the original Regional Thoroughfare and Pedestrian/Bicycle Plan to not only include its expanded jurisdictional area, but also incorporate recently updated local plans.

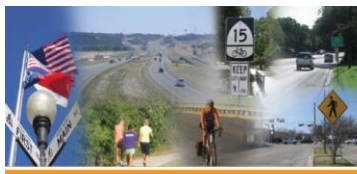
The primary focus of the 2011 update was to incorporate the significant efforts made by MPO member jurisdictions in the realm of bicycle facility planning, especially in the cities of Belton, Killeen, and Temple.

1.2.1 Regional Coordination

This updated plan reflects a continuing collaborative effort among MPO-member jurisdictions, the MPO Technical Committee, and the MPO Policy Board. The project utilized a substantial amount of existing information from the MPO’s GIS database; project schematics and other planning documents from both Fort Hood and the Texas Department of Transportation; and the formal Comprehensive Plans, Thoroughfare Plans, and Master Trail Plans adopted by the cities of Belton, Copperas Cove, Harker Heights, Killeen, Temple, and the Village of Salado.

Significant efforts were made during the development, review, and refinement of this plan to include the technical expertise, public input, and political leadership within the KTMPO MPO planning area. All local government agencies were contacted to gather their insight as to the long-term needs for their communities and to refresh the planning assumptions that were made during the development of their latest plans. A careful review by the MPO Technical Committee ensured participation of a wide cross-section of local government technical staff. For the original version of the plan, public meetings were held at five locations around the region to allow for comment from the general public. For the 2011 update, two public open house meetings





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were conducted, on January 25, 2011 in Temple and on January 27, 2011 in Killeen. All feedback was reviewed and incorporated into this final plan as necessary. The updated plan culminated in the adoption by the MPO Policy Board on February 16, 2011.

1.2.2 Relationship to Other Planning Documents

The regional thoroughfare element of the plan is primarily a map that provides a vision for the ultimate roadway build-out for major roadway facilities. Similarly, the recommended bicycle accommodations presented in the plan represent an ideal network of non-motorized transportation routes. As such, the recommendations pertaining to future thoroughfares and bicycle accommodations contained herein should not be construed as a commitment by any MPO-member jurisdiction to fund or construct any facility, in any particular location, at any particular time. Other planning and programming documents (such as the Metropolitan Transportation Plan (MTP), the Transportation Improvement Program, and various county and city capital improvement programs) will specify individual projects that, over time, will accumulate to define the ultimate build-out of the transportation network presented in this plan. In other words, this plan simply creates a master guide for the development of the regional transportation system and helps guide the MPO in the identification of projects for its next MTP.



Both elements of this plan explicitly support many of the MPO's goals stated in its most recently endorsed Mobility 2035 Metropolitan Transportation Plan, namely:

- **Accessibility and Mobility** – The plan improves access to goods, jobs, services, housing and other destinations within the region and beyond by defining a cohesive, interconnected, regional transportation system.
- **Travel Options** – By developing a long-range planning document that considers both motorized and non-motorized transportation, the plan defines a transportation system characterized by an interconnected, hierarchical network of roadways and bicycle and pedestrian facilities, thereby promoting transportation alternatives.
- **Economic Vitality** – The plan enhances the economic vitality of the region by efficiently and effectively connecting people to jobs, goods, and services. In addition, a robust regional bicycle network can bring significant economic benefits to the region.
- **Equity** – The plan addresses the future needs in all parts of the region in a balanced fashion, thereby assuring that impacts of transportation projects needed to support the development of the plan do not adversely affect particular communities disproportionately.
- **Transportation and Land Use** – The plan seeks to encourage the development of sustainable land use patterns by providing a grid-like framework around which development can occur, while simultaneously improving access to jobs, services, and housing to everyone in the region.
- **Health** – The plan explicitly encourages transportation investments in bicycle and pedestrian facilities to help promote healthy and active lifestyles.

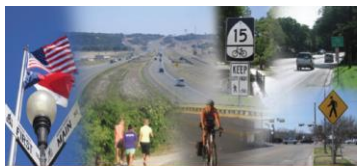


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The remaining chapters of this plan are organized as follows:

- **Chapter 2** – Purpose and Approach
- **Chapter 3** – Functional Classification System
- **Chapter 4** – Thoroughfare Network
- **Chapter 5** – Bicycle-Pedestrian Network
- **Chapter 6** – Next Steps
- **Appendices**



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2. Purpose and Approach

2.1 Planning Context

Over the last half century, the counties within the KTMPO planning area have experienced a steady annual population growth rate of nearly 2.5% per year. While this rate of growth is anticipated to slow down in the future, the absolute growth numbers will remain strong. In fact, according to the latest population estimates developed for the regional travel demand model, the estimated population for the region is expected to grow from a 2005 population of approximately 327,000 to just less than 485,000 by the year 2035, an increase of nearly 50%.

This steady increase in population is expected to occur throughout the region, with no single area absorbing all of the growth. On the western side of the region, the City of Copperas Cove is anticipating large amounts of residential growth and, in response, has been actively planning for major bypasses around the city to remove through traffic from the city along US 190. In the central part of the region, Fort Hood will continue to be a large generator of traffic and will greatly contribute to the demands placed on the region's major roadways. To the south of the base, the cities of Killeen and Harker Heights are anticipating a large amount of residential growth along the southern tiers of their jurisdictions. Finally, sustained growth in both the medical and industrial sectors within the City of Temple will continue to be a catalyst for further residential and commercial development in the eastern sector of the KTMPO region.

A well-coordinated transportation system is critical to the region's quality of life.



In light of this anticipated strong and steady growth pattern, the MPO is aware that a well-coordinated transportation system will be instrumental in maintaining and enhancing mobility, providing for economic development opportunities, and increasing the region's quality of life. It also recognizes that the future transportation system should be one that fosters connectivity among various origins and destinations. Moreover, it further understands that connectivity is not exclusively achieved through linkages in the roadway system, but also through bicycling and pedestrian facilities that offer additional transportation options. Therefore, this plan contains both a comprehensive regional thoroughfare plan and a detailed pedestrian and bicycle transportation plan.

Because of a regional thoroughfare plan's long-term outlook, it is often difficult to fathom the growth that can occur over a 40 or 50 year horizon. Exhibit 2 assists in this understanding by presenting aerial photography from 1965 and the present day, a time span roughly equivalent to



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that of the planning horizon for this plan document. These images provide local examples of once predominantly rural land that has developed into thriving urban environments with a dense grid of thoroughfares and local streets.

Exhibit 2: Then and Now (1965 and Present Day)

Killeen – Stan Schlueter Loop and Robinett Road

Then

Now



Harker Heights and Nolanville – Old Nolanville Road and Nola Ruth Boulevard

Then

Now



Temple – H.K. Dodgen Loop and 31st Street

Then

Now



Source: Central Texas Council of Governments, 2010.



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2.1.1 What is a Regional Thoroughfare Plan?

In general terms, a thoroughfare plan is a long-range master plan for the orderly development of an efficient roadway transportation system. Most importantly, it defines an interconnected hierarchical system of current and proposed roadways that is required to meet the anticipated long-term growth within an area. The facilities identified within a thoroughfare plan typically include arterial, collector, and existing local streets¹ which together operate to provide continuity and connectivity within the roadway system. In addition to addressing future traffic needs on the existing roadway system, thoroughfare plans also contain extensions of existing roadways as well as the construction of new roadways in emerging growth areas. A thoroughfare plan presents general alignments, needed rights of way, and typical cross-sections for new, proposed roadways, as well as for existing facilities that will need to be widened or extended.

Historically, thoroughfare plans have been developed as part of municipal Comprehensive Plans. However, regional thoroughfare plans are becoming more prevalent as regional planning agencies recognize the need for not only improving inter-municipality coordination, but also for taking a more regional approach to transportation planning. There are three **Key Concepts** to understand with regard to a regional thoroughfare plan:

- **The Future Will Look Different than Today** – Within thoroughfare plans, existing roadways are categorized according to their anticipated future function, which may not necessarily be the same as the function they currently serve. Some of these proposed roadways may not be constructed for many decades, if ever, while others may not be too far from the proverbial drawing board. The timing of construction will depend upon a myriad of factors including actual development activities, changing priorities, and available resources.
- **Many Routes are Conceptual Only** – For regional planning purposes for the long-term future, proposed roadways are often presented as very conceptual alignments. These alignments are not intended to reflect exact routes. Rather, the precise alignment of these routes will be determined much later through preliminary engineering and design activities.
- **The Plan Takes a Longer-Term View** – While city thoroughfare plans typically look at foreseeable changes and needs over a 20-year period, this regional thoroughfare plan supposes an even longer-range perspective, extending well into the future. In short, it is a “master blueprint” of an area’s ultimate future roadway system.



¹ Future local streets are not depicted on thoroughfare plans because these roadways provide access to individual parcels. Therefore, their ultimate alignments are based upon unique land development plans generated collaboratively between local governments and land developers.



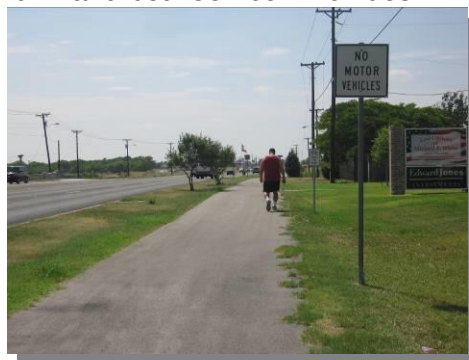
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The plan that has been developed for the KTMPO planning area has been based upon existing thoroughfare plans that have been approved by local elected officials and augmented by additional analysis and scrutiny to ensure that long-term regional transportation needs are met.

2.1.2 What is a Regional Pedestrian/Bicycle Plan?

Similar to the Thoroughfare Plan, the Pedestrian/Bicycle Plan is a long-range master plan for the orderly development of pedestrian and bicycle facilities within and between communities. There is a hierarchy of pedestrian and bicycle facilities identified within the plan that includes on-street bikeways along arterial, collector, and existing local streets to provide continuity and connectivity within the roadway system, plus a system of trails to connect to parks, schools, and employment centers. The plan presents adaptation of bicycle and pedestrian accommodations into existing facilities that may require widening or extension to fulfill the vision defined in the Thoroughfare Plan.



2.2 Planning Goals and Objectives

The two elements of this plan each have their own unique goals and objectives.

2.2.1 Thoroughfare Planning Objectives

Traditionally, thoroughfare plans serve a variety of purposes. The **primary objective** for this plan is to guide the carefully planned and orderly development of an adequate street and highway system to serve both the present and future mobility and access needs of the public. As will be discussed in more detail later in this document, this plan is based upon anticipated development trends and patterns as identified in discussions with various entities involved in local and regional land use and transportation planning.

Additional objectives of this regional thoroughfare plan include the following:

- ensure the continuity, connectivity, and cohesiveness of the roadway network
- identify corridors critical to non-vehicular travel to enable their incorporation into later roadway design phases when roadways are constructed or expanded
- provide a guide for preserving and securing rights of way that are necessary to support the network of roadways and non-vehicular corridors in the region
- provide advanced knowledge of planned transportation infrastructure improvements so that informed decisions about both private and public land development activities can be made



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Within the context of the above objectives, the Regional Thoroughfare Plan for the KTMPO planning area has been developed with the following **applications** in mind:

- to develop a single source of information available for a higher level of coordination among the various jurisdictions that share the responsibility for creating and maintaining the region's roadway transportation system
- to establish a comprehensive approach by which the various municipalities responsible for thoroughfare development can coordinate their individual efforts
- to generally increase local governmental and public involvement in the regional transportation planning process
- to provide a foundation upon which local governments with regulatory powers can develop or update their own thoroughfare plans
- to encourage consistent roadway cross-section assumptions for new or improved roadways throughout the region
- to promote a regional vision of both vehicular and non-vehicular mobility, by realizing that action undertaken in one jurisdiction will affect mobility in adjacent ones

Continued development and maintenance of the regional plan will be important in ensuring an efficient, integrated, and well-connected transportation network that accommodates future regional mobility needs. Additional discussion regarding the maintenance and implementation of the Thoroughfare Plan is presented in Chapter 6.

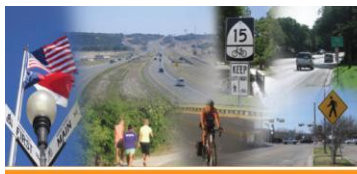
2.2.2 Pedestrian/Bicycle Planning Goals and Objectives

The non-motorized transportation modes of bicycling and walking are becoming more essential elements of the transportation system. As communities all over the U.S. have been increasing their emphasis on bicycling and walking, they have made investments to improve conditions for these modes. In early 2010, U.S. Department of Transportation Secretary Ray LaHood strengthened this trend with a new policy:

"The DOT policy is to incorporate safe and convenient walking and bicycling facilities into transportation projects. Every transportation agency, including DOT, has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. Because of the numerous individual and community benefits that walking and bicycling provide — including health, safety, environmental, transportation, and quality of life — transportation agencies are encouraged to go beyond minimum standards to provide safe and convenient facilities for these modes."

Based on guidance from the Bicycle and Pedestrian Advisory Committee, local agency staff, and other stakeholders and reinforced by the DOT policy, the following goals were established for the KTMPO planning area to make it a better and safer place for pedestrian and bicycle transportation:

Goal #1: Promote the increased use and safety of bicycling as a mode of transportation through the development of a comprehensive system of on-street and off-street facilities, by supporting facilities at destinations and developing programs for education and public awareness.



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Goal #2: Promote pedestrian safety and mobility through the provision of sidewalks, crosswalks, and other pedestrian accommodations, and through the enhancement of the comfort, convenience, and popularity of pedestrian activities.

Goal #3: Increase the awareness of local policy-makers, planners, engineers, and motorists of walking and bicycling as viable modes of transportation to further their public acceptance as legitimate users of the publicly-financed transportation infrastructure.

The purpose of these goal statements is to provide overall direction for the development of the Pedestrian/Bicycle Plan. **These goal statements should be considered for adoption as a matter of policy by each local jurisdiction.**

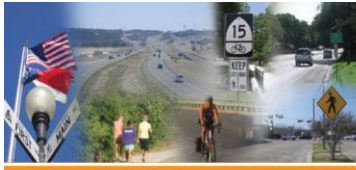
To achieve these goals, objectives have been established to measure the success of the plan towards meeting the stated goals. The objectives include the following categories:

- Accessibility
- Safety
- Interagency Coordination and Policies
- Design Considerations
- Education
- Funding

Each of these related categories is associated with the development of the Pedestrian/Bicycle Plan. The following sections outline each area of emphasis and specific objectives related to the development and implementation of this plan.

Accessibility - Providing access to multiple areas of the region for all citizens is an important consideration in the development of transportation facilities. Provision of safe bicycle and pedestrian facilities improves access to the significant portion of the region's population that cannot drive a car. Access should be provided at the neighborhood, area, and regional levels to accommodate access for cycling and walking to major employment centers and activity centers; recreational facilities; community facilities such as schools, libraries, community centers, and transit facilities; and other major destinations. Planning for pedestrian access should also incorporate the needs of mobility impaired persons, including blind, deaf, and wheelchair-bound individuals. The following objectives specify the intent of providing access through the development and implementation of the Pedestrian/Bicycle Plan.

- A1. Identify and develop a network of bikeways and walkways that provides access to major employment, shopping, and other activity centers, including schools and recreational areas
- A2. Provide continuity in the non-motorized network and cross physical barriers to promote accessibility at neighborhood, area, and regional levels
- A3. Begin collecting bicycle and pedestrian mode share base data and set goal of increasing bicycle and pedestrian mode share by 50% by the year 2030
- A4. Establish guidelines and programs for support facilities, such as bicycle racks, to accommodate and encourage use of bicycles for travel to and from key destinations



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Purpose and Approach

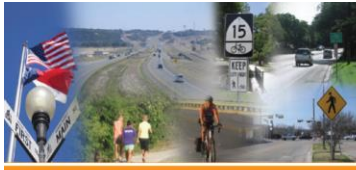
- A5. Provide a network of bikeways and walkways that maximizes the use of parks, open spaces, and public rights of way to enhance work commute, recreational, and other bicycling opportunities
- A6. Recognize the needs of all users, including people with disabilities, in the design and equitable provision of transportation facilities, with emphasis on the development of bicycling and walking networks in areas of the region with high numbers of low-income and disabled residents
- A7. Maximize the potential for increasing transit mode share by providing safe bicycling and walking routes to transit stops

Safety - Considerations related to safety must be an integral part of the development of the Pedestrian/Bicycle Plan. The provision of safe routes for cyclists and pedestrians is of prime importance. The following objectives are related to safety:

- B1. Collect and analyze data on crashes involving pedestrians and bicyclists, with the goal of reducing the number of such incidents by at least ten percent by the year 2030
- B2. Disseminate safety information to cyclists, motorists, and pedestrians through public service announcements, school and community group safety programs, and other public health programs
- B3. Train law enforcement staff on accurate reporting of pedestrian and bicyclist related crashes and the importance of providing a safe and equitable environment for bikeway and walkway users
- B4. Integrate routine maintenance of bikeway and walkway facilities into public works operations budgets to maximize safety and usability of the non-motorized transportation network

Interagency Coordination and Policies - There are numerous governmental jurisdictions and public services entities that have control of public rights of way, which may potentially be used to provide bicycle and pedestrian facilities. Key jurisdictions in the KTMPO planning area include its member cities, Bell, Coryell, and Lampasas Counties, Fort Hood, local Independent School Districts, the Texas Department of Transportation, and the US Army Corps of Engineers. It is important to coordinate with these agencies and organizations and to understand their internal policy framework and the legislative mandates within which they must operate. Public entities as well as organizations in the private sector can and should become partners in the development and implementation of the bikeway and walkway system. The following objectives highlight the considerations relative to interagency coordination and policies:

- C1. Encourage coordination among implementing agencies within the KTMPO planning area regarding the Pedestrian/Bicycle Plan
- C2. Coordinate the bicycle and pedestrian system plan with other governmental entities, public service companies, and coordinating agencies
- C3. Adhere to the US DOT's bicycle and pedestrian policy and facilitate compliance with the directives of Safe, Accountable, Flexible Transportation Equity Act-Legacy for Users (SAFTEA-LU) and future reauthorizations



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- C4. Encourage private developers and employers to incorporate pedestrian and bicycle access, safety, and mobility into their development projects and places of business
- C5. Establish clear roles and responsibilities for all participating agencies in the implementation of the Plan

Design - Proper design of bikeway and walkway facilities will encourage and facilitate bicycling and pedestrian use by ensuring safety, connectivity, and practicality of the non-motorized transportation system. The following objectives are related to design considerations:

- D1. Utilize context-sensitive design standards and current best practices in the development of the bikeway and walkway network and associated support facilities
- D2. Design the bicycle and pedestrian network in response to neighborhood and user needs
- D3. Design the bikeway network in response to area and regional travel patterns and characteristics
- D4. Provide support facilities for trip end uses such as bicycle racks at commercial destinations, secure bicycle parking at transit stops, and showers/changing rooms at work locations
- D5. Integrate pedestrian and bicycle facility planning and implementation with roadway construction and maintenance projects
- D6. Ensure that bikeway and walkway development is responsive to natural and manmade opportunities and constraints

Education - Education of the citizenry and public agency staff regarding the Pedestrian/Bicycle Plan is important for several reasons. Cyclists need information on the availability of bicycle routes and safe use of the roadway system. Pedestrians, especially school children, must be taught basic safety rules. Motorists must respect the presence of cyclists when traveling along roadways on or off the designated bikeway system and understand the Texas Vehicle Code regarding bicyclists' rights and responsibilities. Public agencies must make informed decisions to include pedestrians and cyclists in transportation planning and implementation. Developing and disseminating information is a key component to a successful education and safety program. The following objectives outline the considerations for education:

- E1. Engage in appropriate law enforcement efforts to manage safe use of pedestrian and bicycle facilities.
- E2. Offer training and education events on best practices for pedestrian and bicycle planning and design to MPO member jurisdictions
- E3. Provide bicycle and pedestrian safety information to motorists and the general public
- E4. Publish print and online information, such as bicycle route maps, to encourage walking and bicycling



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- E5. Promote bicycling and walking through community events such as established local, statewide, and national programs, including Bike-to-Work Week and Walk-to-School Day

Funding – The ability to fund needed projects is often the largest stumbling block towards the development and expansion of the non-motorized transportation network. There must be a collective and political will to expand the walking and bicycling environment, and a public commitment to fund it. These commitments to encourage and uphold the precepts of the Plan will determine the success of the implementation of the Plan's vision. The following funding objectives will help close the gap between demonstrated need and current funding levels:

- F1. Consider all types of transportation funding for the non-motorized transportation network, including local bond elections for capital projects and general funds for maintenance and low-cost improvements
- F2. Consider setting aside a percentage of Surface Transportation Program funds for pedestrian and bicycle improvements
- F3. Develop a phased and prioritized implementation plan that takes advantage of available funding opportunities
- F4. Create development codes and policies to require or incentivize private developers to include pedestrian and bicycle facilities in new developments
- F5. Promote public/private partnerships in development, implementation, operation, and maintenance of bicycle and pedestrian facilities

These objectives are concise statements providing guidance for achieving the goals of the Pedestrian/Bicycle Plan. Chapter 5 describes the development of the plan, outlines the needs and resources of the region, and recommends facilities for implementation.

2.3 Consideration of Other Modes of Travel

2.3.1 Public Transportation

Public transportation within the KTMPO planning area is provided by the Hill Country Transit District (The HOP). Although transit was not examined to the depth that thoroughfares and bicycle and pedestrian networks were, transit is a crucial element in each component. Within the thoroughfare element of this plan, care was taken to examine roadways where bus transit is currently operating and include these roadways in the thoroughfare system as appropriate. In addition, a typical section was included for controlled access facilities to demonstrate the configuration for managed lanes, which would provide an express lane for both automobiles and buses. Within the pedestrian/bicycle element of this plan, special attention was paid to non-motorized transportation access to transit stops.

The HOP also operates two regional connector services, one between US 190 and Stan Schlueter Loop in Killeen and the Scott & White Hospital/Temple College area at Dodgen Loop and 31st Street in Temple, with intermediate stops in Nolanville and Belton; and one between



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the Wal-Mart at US 190 and Constitution Drive in Copperas Cove and 4th St between Avenue C and Avenue D in Killeen.

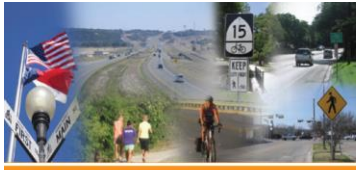
Likely future service expansion areas include southern and western Killeen and western and southwestern Temple. In fact, during the development of this plan, the HOP announced that in March 2011 they will begin a new fixed route service along the WS Young Drive and Featherline Road corridor in southern Killeen.



As the KTMPO area grows, the role of transit as a tool to help relieve congestion will also need to grow. In particular, as demand for express transit service along primary corridors such as US 190 grows and as congestion on the existing general purpose main lanes increases, managed lanes will be an important tool to maintain timeliness and reliability of express service. As agencies in the region plan for these primary corridors, it will be important to involve transit representatives in the planning process to accommodate these future transit needs. Generally, as the role and need for transit increases in the area, additional dedicated funding sources for transit may also be merited.

2.3.2 Air and Rail

While air and rail transportation modes were not expressly examined as part of this planning effort, they were given consideration. For air transportation, the thoroughfare system surrounding the Killeen-Fort Hood Regional Airport was considered for completeness with regard to the proposed future controlled access extension of SH 201 toward IH 35. For rail, careful consideration was given to minimize new crossing locations for thoroughfares and mitigate its barrier effect for bicycles and pedestrians.



3. *Functional Classification System*

3.1 Purpose of a Functional Classification System

For the purpose of a thoroughfare plan, a functional classification system provides unified definitions of the existing and future roadway system. The use of functional classification was mandated by the Federal-Aid Highway Act of 1973 to guide the provision of aid for transportation improvement projects, and this legislative requirement is still in effect today. From a practical sense, identification of the functional role of roadways is a useful tool for communities to assess and improve upon the connectivity and service being provided by their transportation system. A regional functional classification system enables the following activities:

- **provokes discussion** among jurisdictions where roadways meet along common boundaries and where the functional classification of the facility is substantially different from what one or both jurisdictions have planned for locally
- communicates to public and private stakeholders the **potential need for future right of way** along existing and new location corridors so that they may plan their development activities accordingly, as well as to provide information to local jurisdictions so that they may acquire and/or preserve adequate right of way
- provides local jurisdictions information on the relative application of **access management, transit, bicycle, and pedestrian strategies** for each corridor as improvements are programmed and abutting land uses are developed

By identifying the types of facilities needed, a regional thoroughfare plan also provides information to agencies and private land owners for the purpose of short- and long-term decision making. For example, a school district needs to know if a roadway abutting school property will remain a meandering, low-traffic farm-to-market roadway in the future or if it is planned to be a multi-lane, high-traffic freeway that may be more dangerous for parents and children to access. Similarly, property owners benefit from having better information about planned regional transportation improvements when deciding the best use of their property.



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Functional Classification System

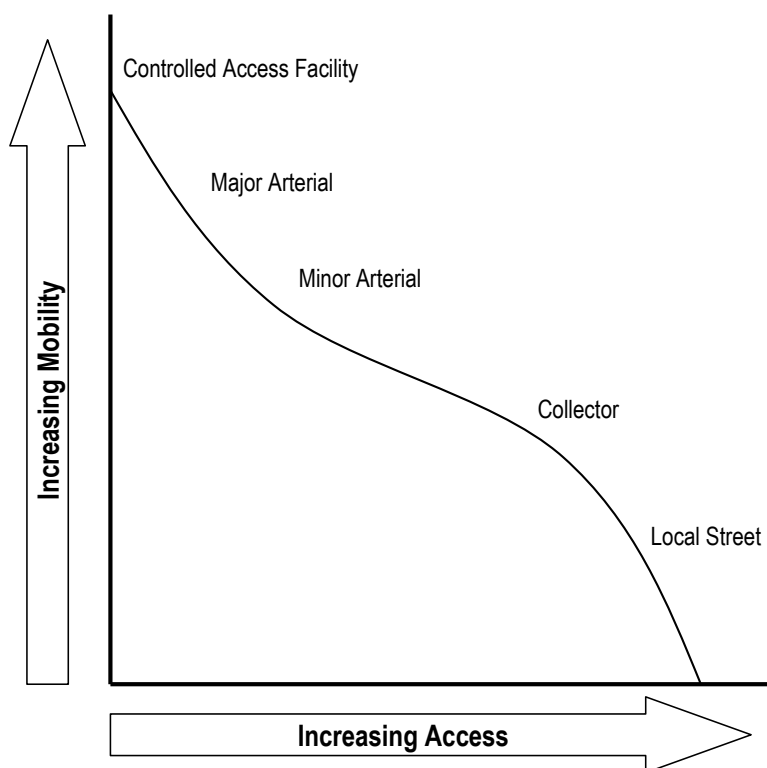
3.2 Functional Classification Basics

Functional classification of roadways considers the relationship between the type of trips served, the type of areas served, and characteristics of facilities themselves. Functional classification systems should also consider safe and efficient access and mobility for both motorized and non-motorized transportation.

3.2.1 Type of Trips Served: Mobility versus Access

A fundamental concept for roadway systems is that of channelization of traffic flow from facilities offering the highest level of access (local streets), to facilities collecting these flows (collector streets), then to facilities able to transport these larger flows longer distances (arterials), and then even larger flows even longer distances (controlled-access arterials). Equally fundamental is the concept that as the need for mobility increases, the level of access that a facility provides to abutting land uses decreases. This relationship is shown in Exhibit 3. The balance that a facility demonstrates between serving mobility and access is a substantial part of defining a facility's functional classification.

Exhibit 3: Mobility / Access Relationship



Source: Adapted from *Access Management Manual*, Texas Department of Transportation, revised June 2004.



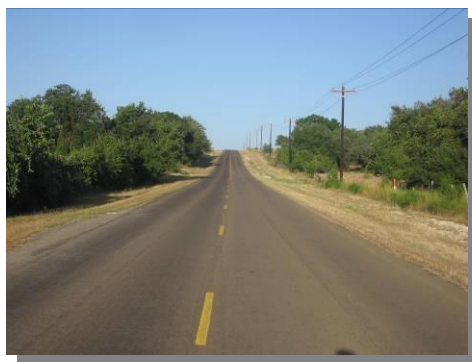
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Functional Classification System

3.2.2 Areas Served: Surrounding Land Uses

The type of land uses that are served by the different facilities also plays a role in defining functional classification. Local and collector roadways predominantly serve residential land uses. Minor arterials often serve civic (governmental, schools, parks, etc.), smaller retail, and industrial (light and heavy) land uses. Major arterials may serve regional destinations such as free-standing high-volume retail businesses and large-scale employers. Controlled-access arterials may serve the needs of shopping malls or outlets, retailers with regional draw, or special event-type facilities for entertainment or athletics. These relationships between functional classification and land use are not strict rules; they merely describe the typical relationship between facilities and their abutting land uses.

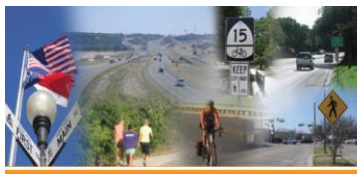
An additional fundamental understanding is that rural and urban areas may have different needs and applications with regard to functional systems. The KTMPO study area includes both urban and rural areas. The urban areas include not only Killeen and Temple, but the communities of Belton, Copperas Cove, Harker Heights, Holland, Kempner, Little River-Academy, Morgan's Point Resort, Nolanville, Rogers, Troy, and the Village of Salado, as well as portions of Fort Hood. The rural areas surround and intersperse these urban areas. The regional classification system should reflect the different needs of the urban and rural areas and be a cohesive system. For the purpose of planning into the long-term future, the regional classification system should also consider the potential build-out of rural areas as they transition to urban areas.



3.2.3 Facility Characteristics

In considering a facility's existing functional classification, its current physical characteristics are relevant as well. Physical characteristics are not the primary determinant, because mobility needs will attract traffic volumes whether or not the facility was constructed to handle those volumes. On the other end of the spectrum, the highest grade of facility will not attract high volumes unless it is routed where people want to go.

Besides mobility and accessibility, the characteristics most often considered in defining a facility's functional classification include: number of lanes, lane width, posted speed, median treatment, level of access to abutting land uses and other roadway facilities, and connectivity to surrounding facilities.



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Functional Classification System

3.3 Approach for Development of a Regional Classification System

3.3.1 Compilation of Relevant Classification Systems

The first step in developing the regional thoroughfare network was to gather the following local thoroughfare plans and compile a list of the classification systems used in each plan:

- Belton, August 2006 Comprehensive Plan
- Copperas Cove, April 2007 Comprehensive Plan
- Harker Heights, January 2007 Comprehensive Plan
- Fort Hood, 2008 Postwide Traffic Engineering and Safety Study
- Killeen, June 2010 Thoroughfare Plan
- Temple, November 2008 Comprehensive Plan
- Village of Salado, May 2002 Comprehensive Plan

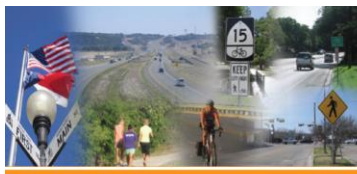
An additional resource was a previously assembled MPO-approved functional classification of roadways, discussed in the next section which was based primarily on the Federal Highway Administration and Texas Department of Transportation definitions.

3.3.2 Initial Translation from Local Systems

To the extent possible, the local classification systems and typical cross-sections were translated into the proposed regional classification system in the first column of Exhibit 4. This exercise provided the initial understanding of how each facility functions locally, within each of the jurisdictions in the region.

Exhibit 4: KTMPO Functional Classification System Approximate Table of Equivalency

Functional Classification	KTMPO 2005	Belton	Copperas Cove	Fort Hood	Harker Heights	Killeen	Temple	Village of Salado
Controlled Access Arterial	- Freeway or Expressway							
Major Arterial	- Principal Arterial	- Major Thoroughfare - Major Arterial	- Primary Arterial - Secondary Arterial	- Primary Arterial	- Arterial	- Principal Arterial	- Principal Arterial (Divided)	- Minor Arterial (Divided)
Minor Arterial	- Minor Arterial	- Minor Arterial	- Minor Arterial	- Secondary Arterial	- Arterial	- Minor Arterial	- Minor Arterial	
Collector	- Urban Collector - Rural Major Collector - Rural Minor Collector	- Collector	- Major Collector - Collector	- Collector	- Major Collector - Minor Collector	- Collector	- Collector	- Major Collector - Minor Collector



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3.3.3 Development of General Regional Definitions

Along with the above existing classification systems, the following criteria were considered to develop the table shown in Exhibit 5:

- type of trips using the facility
- area types being served
- roadway characteristics

This table includes examples of existing facilities by function, description on trips served, accessibility measures, and general facility characteristics including posted speed.

3.3.4 Complete Street Considerations

An important consideration for the regional and local transportation network is safe and efficient access and mobility for both motorized and non-motorized transportation. Thoroughfare design has historically been driven primarily by vehicular capacity and level-of-service, with provision for other modes as a secondary criterion. A truly multimodal transportation system should safely integrate automobiles, bicycles, pedestrians, transit, school buses, freight, and emergency vehicles. This planning approach has come to be known as the “complete streets” concept and is based on the premise that accommodation of all road users is necessary rather than optional. Studies have shown that the benefits of integrating this concept in the planning and design of a roadway network include improved safety, increased walking and bicycle activities for health, and reduced carbon emissions.

It is neither feasible nor desirable to accommodate all transportation modes on all roadways within a network. For example, due to high vehicular volumes and high vehicular speeds, controlled access arterials are not ideal for pedestrians. Non-motorized transportation modes are better suited to arterials, collectors, and local streets. The essence of the “complete streets” concept is the safe accommodation of all transportation modes.

The final four columns in Exhibit 5 take the general functional classes defined for the KTMPO region and identify access management, transit, bicycle, and pedestrian strategies that are assumed to apply in the development of the typical cross-sections and ultimate implementation by jurisdictional agencies. However, it should be noted that sidewalks and bike lanes alone do not make a street “complete”. Details such as streetside width, block lengths, visibility of crosswalks, curb parking, and median width greatly influence how walkable a street is. The “complete streets” toolbox also includes bus shelters and crossings, bus lanes, raised crosswalks, and numerous other measures. To this end, “complete streets” policies and plans have been adopted by the United States Department of Transportation as well as MPOs in Texas such as the San Antonio-Bexar County MPO, Capital Area MPO, and the Houston-Galveston Area Council. “Complete streets” policies ensure that transportation network planning and design safely accommodate and integrate all road users as new streets are developed and existing roads redesigned.



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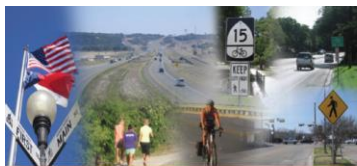
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Exhibit 5: KTMPO Functional Classification System

Functional Class	Examples	Sample Image	Types of Trips Served	Accessibility by Abutting Land Uses	Typical Posted Speed (mph)	Typical Volumes (vehicles/day)	Access Management Strategy	Transit Strategy	Bicyclist Strategy	Pedestrian Strategy
Controlled Access Arterial	- IH 35 - US 190 between Copperas Cove and IH 35		Serving regional trips and the major centers of activity of a metropolitan area, the highest traffic volume corridors, and the majority of the longest local trips.	Serving minimal access points by other major arterials and significant rural facilities. In addition, these provide direct access to the area's highest activity centers.	55-70 mph	>40,000	Access by formal application to federal and state jurisdictions, justified based upon need balanced with safety and mobility measures.	Express Service (Mainlanes) Local Service (Frontage Roads)	n/a	n/a
Major Arterial	- Loop 121 in Belton - US 190 in Copperas Cove - SH 36 in Temple		Complements the controlled-access facilities, provides connectivity within the region and with outlying areas.	Serving traffic from minor arterials; abutting high activity, non-residential land uses; managed access to driveways of lower activity centers.	Urban: 35-60 mph Rural: 45-70 mph	15,000-50,000	On state system, application under driveway guidelines. Consider corridor-long access management overlays and raised medians channeling turn movements.	Express and Local Service	Advanced Cyclists	Urban: Where appropriate
Minor Arterial	- Avenue B in Copperas Cove - Elms Road in Killeen - N. 31 st Street in Temple		Serving trips between adjacent neighborhoods and sub-areas.	Serving traffic from surrounding collectors and to non-residential activities, access to driveways somewhat managed.	Urban: 35 mph Rural: 35-60 mph	5,000-30,000	Access management strategies should be encouraged where appropriate and possible.	Local Service	Urban: Basic Cyclists Rural: Advanced Cyclists	Urban: Desirable
Collector	- Harley Drive in Harker Heights - Florence Road in Killeen - Main Street in Salado		Typically trips that are near their origin or destination point, primarily connecting neighborhoods within and among sub-regions.	High access to local streets and driveways.	Urban: 25-35 mph Rural: 35-50 mph	1,000-15,000	Access management where necessary to address safety concerns for vehicles and non-vehicular traffic.	Local Service	Urban: Basic Cyclists, potentially Children Cyclists Rural: Advanced Cyclists	Urban: Desirable

Source: Wilbur Smith Associates, 2011.

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It is important to note that this Killeen-Temple MPO regional classification system provides a tool to evaluate the regional system. It is not intended to override the classification systems of the various communities, since those systems serve a more local purpose. This regional classification system identifies where pedestrians and bicycles may be accommodated, but is only the beginning of the process to develop a network of “complete streets”. The next step is for the Killeen-Temple MPO to work with jurisdictions and communities to develop and implement “complete streets” policies and plans that will facilitate a safe and sustainable transportation network.

3.4 KTMPO Typical Cross-sections by Functional Classification

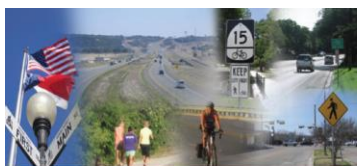
The cross-section designs that follow are tailored for each classification in the KTMPO planning area. Local comprehensive plans and development codes were examined as a starting point. Cross-sections were then refined so that they could be utilized under various conditions. In the development of the typical sections, **two core assumptions** were applied:

- **Existing Facilities Will Not Always Follow these “Rules”** – A facility’s existing physical characteristics are only one component of determining its functional classification. As an area changes, so may a facility’s function. However, some communities may not have had the resources nor did not want to impact surrounding land uses in order to upgrade the roadway to accommodate the traffic growth.
- **Plan for the Ultimate Facility** – Because a primary objective of this plan is to preserve appropriate right of way for future corridors, all typical cross-sections were created to encompass features that would be included in an ultimate, build-out facility. Therefore, most of the typical cross-sections are shown as urban facilities, including curbs, raised medians, and/or turning lanes. Features to accommodate bicycles and pedestrians are also included. In the near term, new location interim facilities may be constructed to rural standards (fewer lanes, no center turn lane, shoulder, etc.). However, the right of way obtained should accommodate the ultimate typical cross-section of the facility.

3.4.1 Typical Controlled-Access Arterial

Existing controlled-access arterials such as IH 35 and US 190 between Killeen and IH 35 are the facilities at the highest end of the mobility spectrum – with access only at ramp locations. They serve the major centers of activity of a metropolitan area, the highest traffic volume corridors, and the majority of the long distance local trips in and through the region.

Due to recent changes in statewide policy, future controlled-access arterials along new location routes are less likely to include frontage roads. According to the KTMPO regional functional definition from above, controlled-access arterials may need to be able to accommodate express transit service along the mainlanes and local transit service along the frontage roads. Neither bicyclists nor pedestrian accommodation is planned as a general rule, although in some instances frontage roads can accommodate very experienced cyclists. Right of way can vary substantially between 250 feet and 500 feet in width, owing to such factors as presence of frontage roads, locations of interchanges, median treatment, and design exceptions for constrained areas. Typical cross-sections are shown in Exhibit 6.



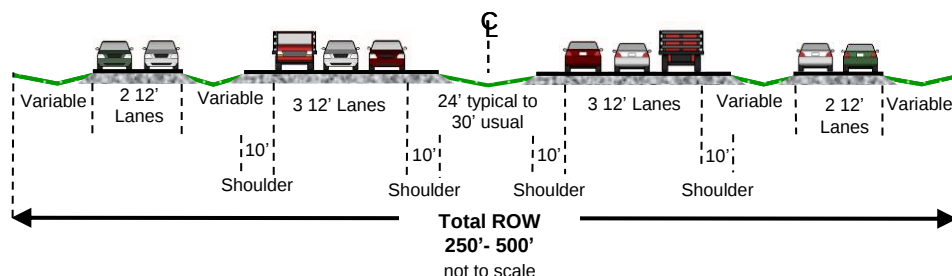
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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Exhibit 6: Typical Cross-sections – Controlled-access Arterials

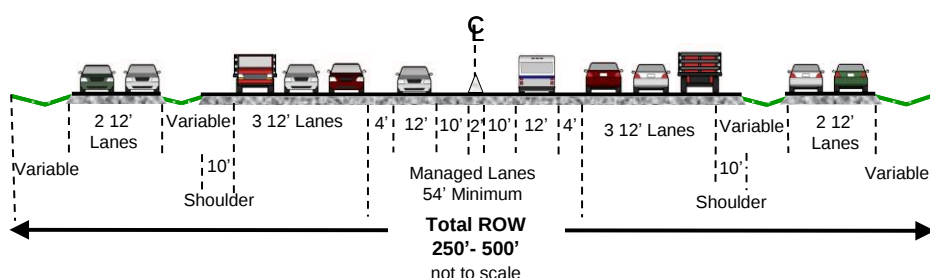
4-6 Lanes

Controlled Access Facility (4-6 Lanes) with Frontage Roads



4-6 Lanes with Additional Managed Lanes

Controlled Access Facility (4-6 Lanes) with Managed Lanes and Frontage Roads



Source: Wilbur Smith Associates, 2011.

3.4.2 Typical Major Arterial

Major arterials are the workhorses of a region's transportation system. They complement the controlled-access facilities by providing connectivity within the region and with outlying areas, and also serve traffic from minor collectors and higher-activity, typically non-residential, land uses. Examples of existing facilities that function as major arterials in the KTMPO area include: Loop 121 in Belton, US 190 through Copperas Cove, and SH 36 through Temple. These examples refer to the facility's existing typical cross-section and functional characteristics, not necessarily their long-term future functional role.

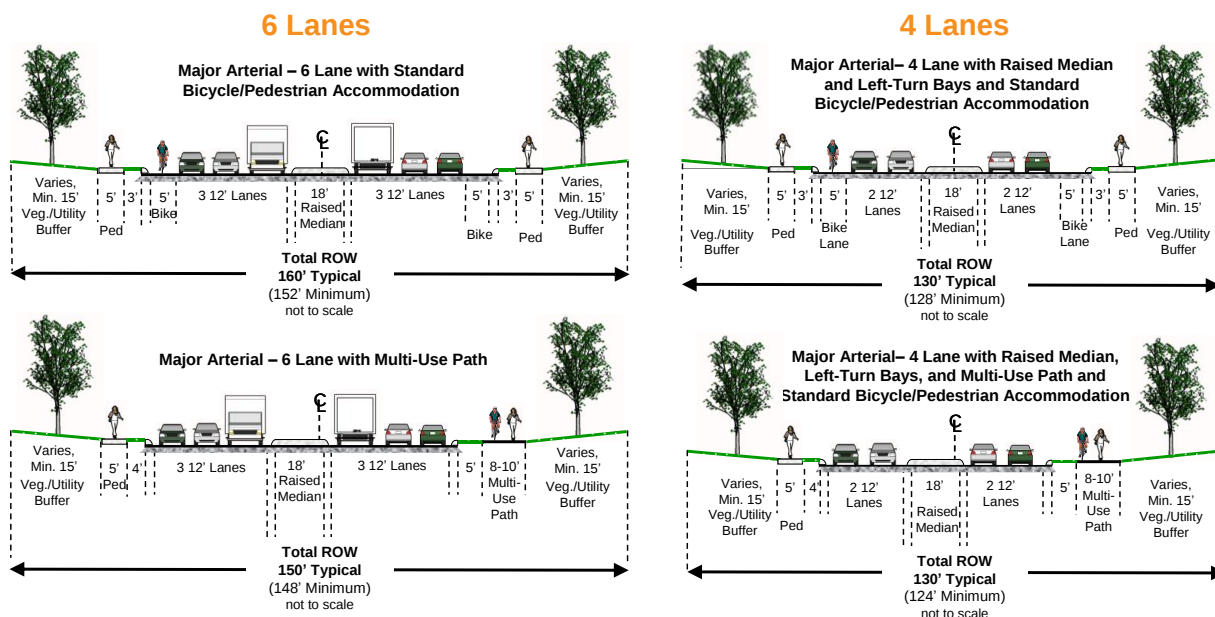
Future major arterials will typically need to include between four and six lanes for vehicle traffic. According to the KTMPO regional functional definition, in addition to auto and truck vehicle traffic, major arterials should be able to accommodate express and local transit service, advanced cyclists, and pedestrians as appropriate. Because of the higher volumes anticipated for major arterials, a bicycle lane is provided instead of a shared auto/bicycle outer lane. In areas with higher recreational cyclist traffic or where safety is a concern, a parallel multi-use path may better accommodate cyclists than an on-street bicycle lane.



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Exhibit 7: Typical Cross-sections – Major Arterials



Source: Wilbur Smith Associates, 2011.



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Functional Classification System

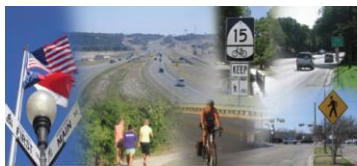
3.4.3 Typical Minor Arterial

Minor arterials function similarly to major arterials, and yet they do have distinguishing characteristics. They serve trips within and between adjacent neighborhoods and sub-areas, and provide greater access to and from abutting land. Minor arterials are also typically used in industrial areas because of the need to accommodate larger trucks from abutting land uses and the need to more quickly access the longer distance arterial system. Examples of existing facilities that function as minor arterials in the KTMO area include: Avenue B in Copperas Cove, Elms Road in Killeen, and North 31st Street in Temple. These examples refer to the facilities' existing typical cross-section and functional characteristics in 2008, not necessarily their long-term future functional role.

Depending upon their location, future minor arterials may feature typical cross-sections such as:

- four travel lanes with continuous center left-turn lane ("5 lanes") in areas with generally higher volumes and more turning movements;
- four undivided travel lanes (without median or center left-turn lane), which is a typical cross-section application serving industrial areas, or where the right of way is too constrained to include a center left-turn lane; or
- two travel lanes with continuous center left-turn lanes (3 lanes) for areas where right of way is constrained and/or traffic volumes do not merit a larger facility.

According to the KTMO regional functional definition, in addition to vehicle traffic, minor arterials should be able to accommodate local transit service, advanced and basic cyclists, and pedestrians. A striped bicycle lane is desirable; a shared auto/bicycle outer lane is also suitable, provided it is wide enough and vehicular volumes and speeds are relatively low. In areas with higher recreational cyclist traffic or where safety is a concern, a parallel multi-use path may better accommodate cyclists than an on-street bicycle lane. In such situations, however, it is crucial that proper access to intersection crossings is maintained. A multi-use path on one side of the street can make turning movements to the opposite side of the street unsafe. Land use practices can also create unsafe conditions for multi-use paths alongside streets if there are multiple driveways across the paths with inadequate traffic controls or warning signs for both motorists and bicyclists.

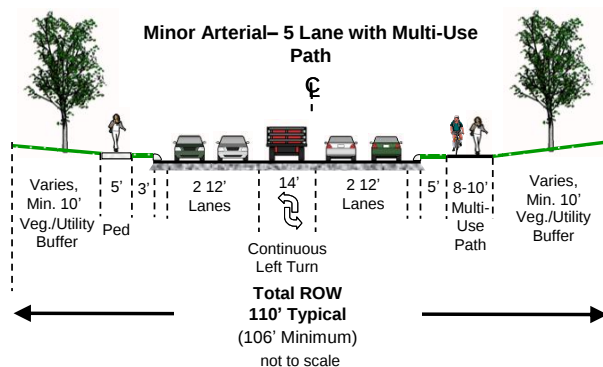
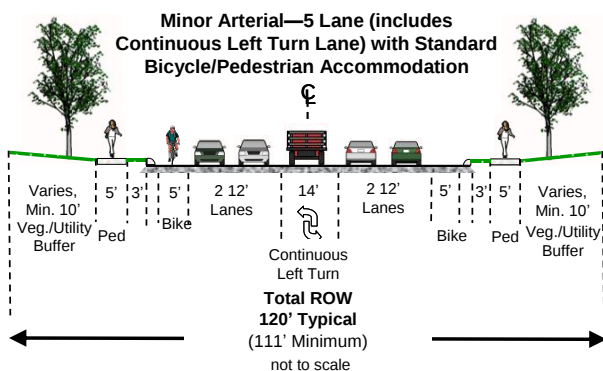


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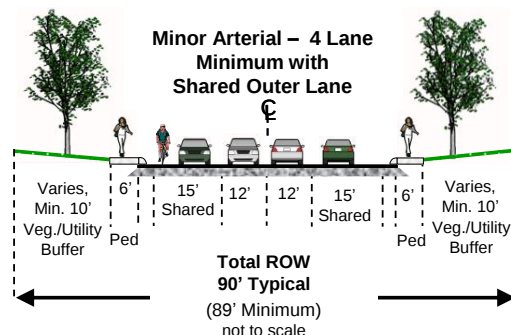
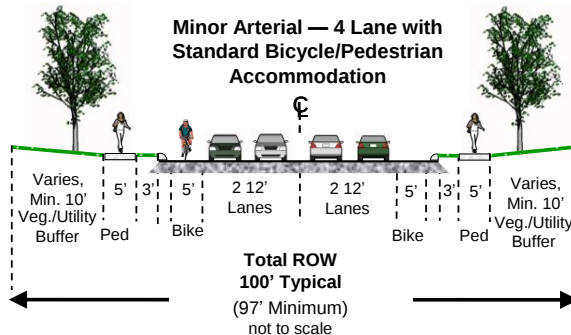
Functional Classification System

Exhibit 8: Typical Cross-sections – Minor Arterials

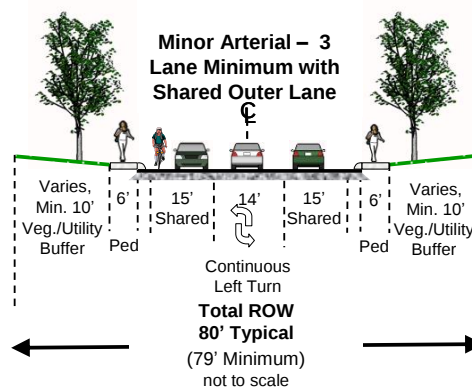
5 Lanes



4 Lanes



3 Lanes



Source: Wilbur Smith Associates, 2011.



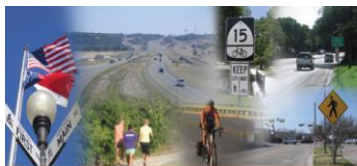
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Functional Classification System

3.4.4 Typical Collector

As the name suggests, collectors primarily collect traffic from local streets and distribute it to the surrounding arterial network. They also serve shorter trips within neighborhoods and sub-areas, but they should not generally be longer than two miles to avoid slipping into a minor arterial role by attracting too many longer through trips. Collectors offer high access to both local streets and driveways serving abutting land uses of various intensities. Examples of existing facilities that function as collectors in the KTMPO area include: Harley Drive in Harker Heights, Florence Road in Killeen, and Main Street in Salado. These examples refer to the facilities' existing typical cross-section and functional characteristics in 2008, not necessarily their long-term future functional role.

Future collectors will typically not be larger than four lanes for vehicle traffic, with two lanes being much more common. According to the KTMPO regional functional definition, in addition to automobile and truck vehicle traffic, collectors should be able to accommodate local transit service, advanced, basic, and potentially child cyclists, and pedestrians.

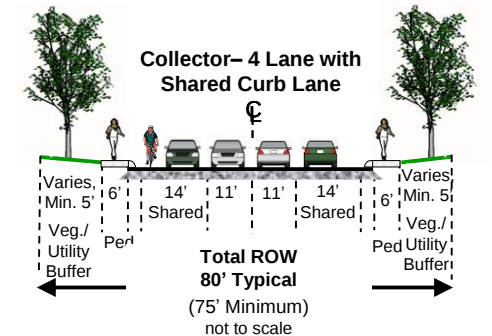
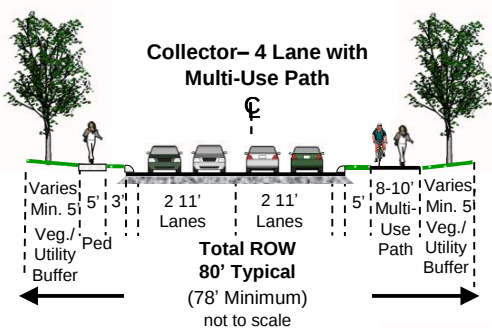
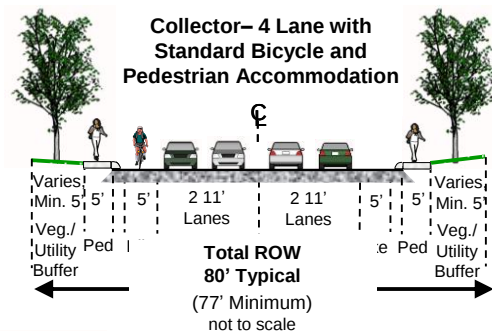


Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

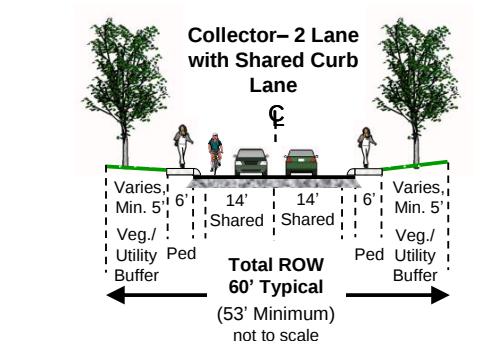
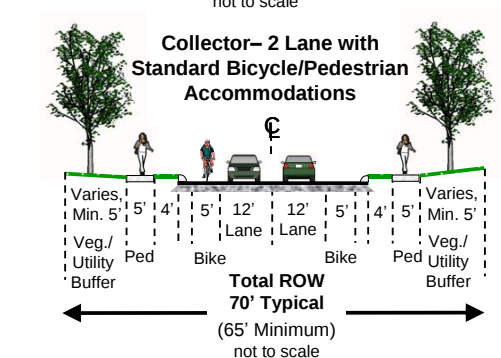
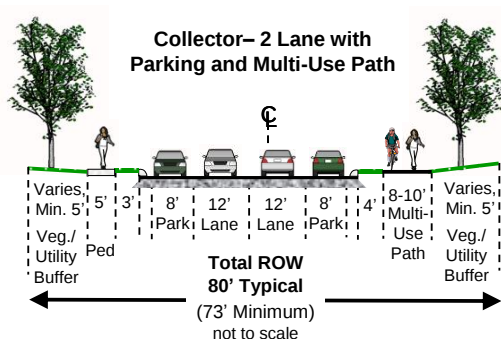
Functional Classification System

Exhibit 9: Typical Cross-sections – Collectors

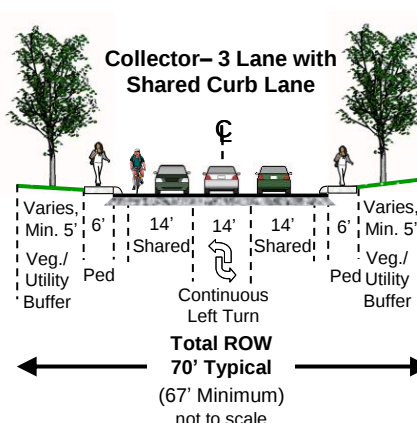
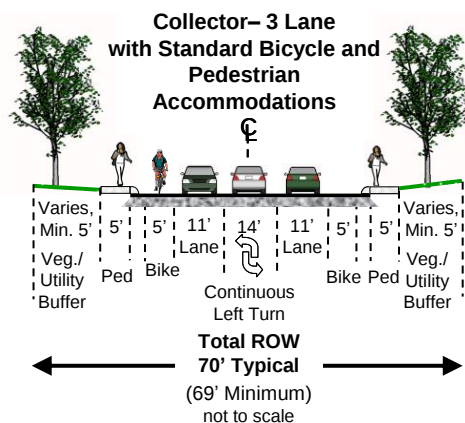
4 Lanes



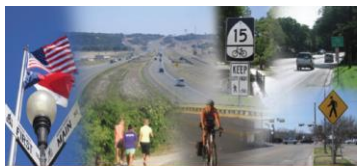
2 Lanes



3 Lanes



Source: Wilbur Smith Associates, 2011.



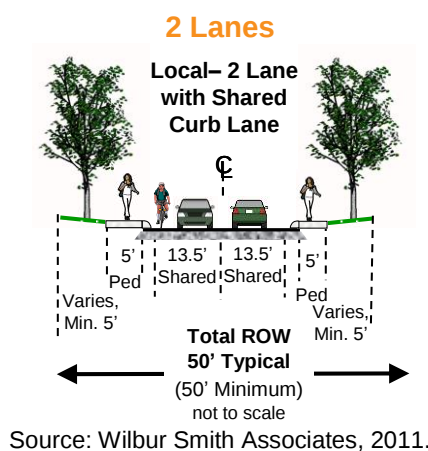
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Functional Classification System

3.4.5 Local Streets

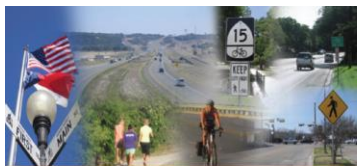
Because of the regional focus of this plan, local streets are not addressed in any detail. They provide the highest level of access to abutting land uses and their look and character demonstrate the most variation between local jurisdictions, sub-areas, and even neighborhoods. The typical cross-section shown below is provided for perspective only. Because increased bicycling and walking is a regional goal, bicycle and pedestrian accommodations have been included.

Exhibit 10: Typical Cross-section – Local Streets



3.5 Summary Table of Typical Cross-Section Characteristics

Exhibit 11 summarizes the elements of the typical cross-sections presented above.



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Functional Classification System

Exhibit 11: Summary Table of Typical Cross-Section Characteristics

Design Element	Controlled-Access Arterial	Major Arterial	Minor Arterial	Collector
Desirable ROW Width	Varies up to 500'	160' (6 lanes)	120' (5 lanes)	80' (4 lanes)
Minimum ROW Width	250'	130' (4 lanes)	80' (3 lanes)	60' (2 lanes)
Typical Pavement Width (BOC to BOC)	Varies substantially	106' (6 lanes) 82' (4 lanes)	75' (5 lanes) 47' (3 lanes)	57' (4 lanes) 31' (2 lanes)
Auto Lane Width	According to TxDOT Design	12'	12'	11' minimum
Median Treatment	According to TxDOT Design	Raised Median desirable (18' desirable)	Continuous Center Left Turn Lane desirable (14' minimum)	Continuous Center Left Turn Lane for high turn-movement areas (14' desirable)
Outside Vegetation/Utility Buffer (minimum)	According to TxDOT Design	15'	10'	5'
Shared Auto/Bike Lane	N/A	n/a	15'	14'
Multi-Use Path	N/A	8' minimum 10' typical 12' desirable for multi-use Additional 2' grated/smooth on both sides 3' horizontal clearance on both sides		
Bike Lane (higher speeds/volumes)	N/A	4' minimum (excluding curb) 5' desirable (excluding curb) 5' minimum in presence of on-street parking 6' maximum (to discourage parking in the bike lane)		
Shoulder Bikeway (rural areas)	N/A	4' minimum 6'-8' standard No more than 8' (to discourage parking in the bike lane)		
Sidewalk Area	N/A	Consider multiple elements: - Landscape furniture/car door opening zone: 2' minimum if paved, 4' minimum if landscaped and no other buffer, 3' minimum if landscaped and in presence of bike lane or wider outer shared lane - Paved sidewalk: 5'-8' depending on pedestrian volumes Frontage zone: minimum of 1' to a fence or property line, minimum of 2' to storefronts with doors opening onto sidewalk (other considerations also apply, e.g. utilities)		
Paved Sidewalk	N/A	5' minimum; 6' if attached to back of curb with no buffer (landscape strip, bike lane, parking, etc.)		

Source: Wilbur Smith Associates, 2011. BOC = Back of Curb



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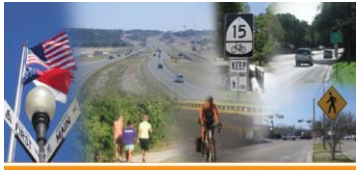
Functional Classification System

3.6 Atypical Facilities Meeting Specific Needs

As discussed above, roadways in established areas may operate functionally as a higher order facility than their existing typical cross-section would indicate. In many cases, the cost—in absolute dollars and in community and environmental impacts—outweighs the potential benefit of upgrading the facility. In these cases, the functional role of the facility should be recognized and other strategies employed to maximize its operational functionality, such as access management and signal optimization.

In other cases, the typical cross-section examples above are too general to fit a particular need, such as along community “Main Streets”, in downtown Central Business Districts, and in Historic Districts. It is in these cases that the KTMPO Regional Thoroughfare Classification System and Thoroughfare Plan map should be flexibly applied, recognizing unique community needs.





4. *Thoroughfare Network*

4.1 Initial Network Definition

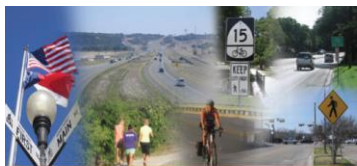
Following the definition of the regional functional classification system discussed above, the facility definitions described in the previous chapter were used to define the regional thoroughfare system.

Of course, the development of the regional thoroughfare network started with existing local thoroughfare plans as a basis. As such, the following local plans were used:

- Belton, August 2006 Comprehensive Plan
- Copperas Cove, April 2007 Comprehensive Plan
- Harker Heights, January 2007 Comprehensive Plan
- Fort Hood, 2008 Postwide Traffic Engineering and Safety Study and July 2010 Real Property Master Plan – Long Range Component
- Killeen, June 2010 Thoroughfare Plan
- Temple, November 2008 Comprehensive Plan
- Village of Salado, May 2002 Comprehensive Plan

Exhibit 12 presents thoroughfare maps from all of these planning documents. In addition, Appendix A provides single-page images of each map for additional reference.

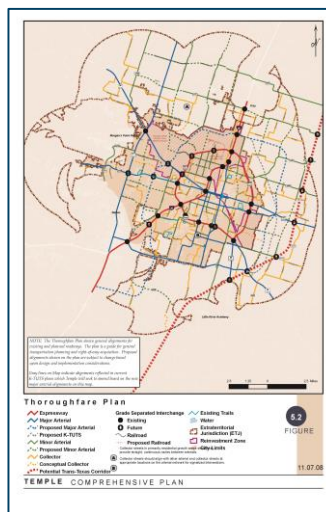
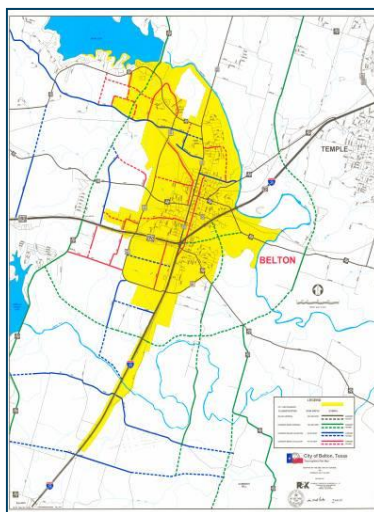
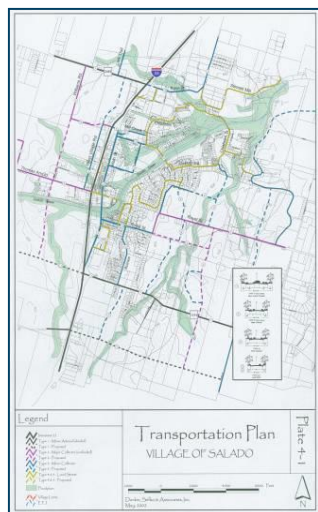
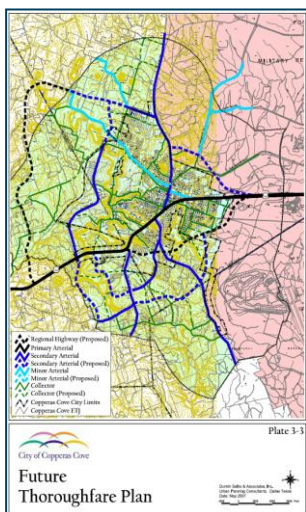
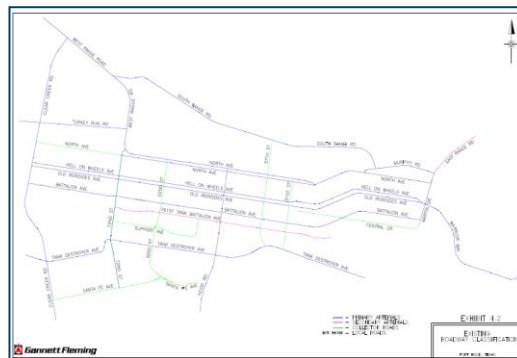
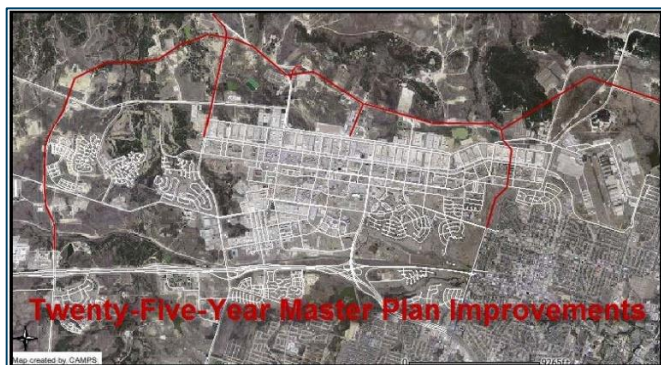
While the locally identified classifications provided an initial reference for identifying the regional classification of each facility, it was not assumed that this translation would be an automatic conversion. Rather, the analysis started with the locally identified classifications, and then carefully considered the system from a regional perspective to develop the final regional thoroughfare network.

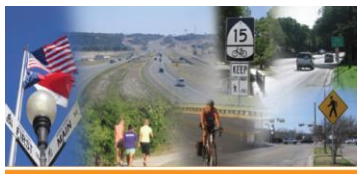


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Thoroughfare Network

Exhibit 12: Existing Local Thoroughfare Plans





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Thoroughfare Network

4.2 Understanding Local Planning Issues

4.2.1 Transportation Programming and Planning Documents

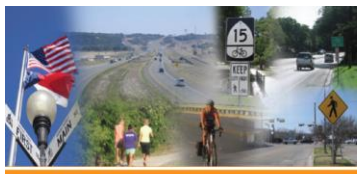
Next, to get a better understanding of the projects that are currently planned and programmed within the MPO planning region, as well as the surrounding counties, each of the following statewide short- and long-range transportation planning documents were thoroughly reviewed:

- KTMO's FY2011-2014 regional Transportation Improvement Program
- TxDOT's FY2011-2014 Statewide Transportation Improvement Program
- TxDOT's 2010 Unified Transportation Program
- KTMO's *Mobility 2035* Metropolitan Transportation Plan, October 2009
- Capital Area MPO's 2035 Metropolitan Transportation Plan, May, 2010
- Waco MPO's *Connections 2035* Metropolitan Transportation Plan, February, 2010

4.2.2 Stakeholder Involvement

Both in-person telephone meetings were held with every municipality within the MPO planning area, each county surrounding, and including, Bell County, all Independent School Districts with campuses located within the KTMO planning area, Fort Hood, and the Texas Department of Transportation. These discussions were aimed at understanding their perspective on growth, transportation, and land use issues in their jurisdictions, and how those issues may influence this plan. Information gathered from these meetings were completely documented and subsequently used to help guide the development of the regional thoroughfare network.

Municipalities within KTMO Planning Area	Other Regional Stakeholders
• City of Belton • City of Copperas Cove • City of Harker Heights • City of Holland • City of Kempner • City of Killeen • City of Little River/Academy • City of Morgan's Point Resort • City of Nolanville • City of Rogers • City of Temple • City of Troy • Village of Salado	Inside KTMO Planning Area • Bell County • Coryell County • Lampasas County • Fort Hood • Texas Department of Transportation Outside KTMO Planning Area • Burnet County • Falls County • McLennan County • Milam County • Williamson County



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Thoroughfare Network

4.2.3 Other Resources

In addition to the review of regional planning documents and follow-up conversations and meetings with area stakeholders, the following data sources were used to fine tune the final pieces of the regional thoroughfare network:

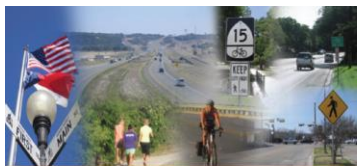
- a series of hard-copy functional classification maps that the MPO staff hand-annotated during its functional classification update project back in 2005
- the MPO's regional travel demand model's socio-economic data inputs, recently updated to forecast year 2035 population and employment levels by traffic analysis zone²
- GIS data representing the following:
 - major traffic generators, including schools, hospitals, and major retail shopping areas
 - police and fire stations
 - existing fixed route transit services
 - railroads
 - environmental data, including floodplains, lakes, rivers, streams, and contours

4.3 Analysis Approach

Using regional planning documents, anecdotal information, and a variety of technical information mentioned above, a systematic and analytical process was employed to develop the future regional thoroughfare network. This process involved the consideration and scrutiny of the following factors:

- **Already Constructed Facilities** – Anecdotal information provided by municipalities and field recognizance were used to determine the status of all proposed thoroughfares found in the municipal thoroughfare plans.
- **Hierarchical Connections** – As a general rule, higher classified facilities should not end at lower classified facilities. Nearly all instances where such breaches of the rule occurred within the municipal thoroughfare plans were rectified. The primary exception to this is where a collector is allowed to end at a local road. These occurrences are typically found where large neighborhoods are bound on one or more sides by some large barrier, such as a lake.
- **Jurisdictional Boundaries** – In the rare instances that the classification of thoroughfares did not match at city boundaries, such differences were reconciled, primarily by applying other considerations listed here.
- **Filling gaps** – Because the municipal thoroughfare plans do not cover the entire KTMPO planning area, classification of thoroughfares was applied in unincorporated areas by applying other criteria listed here.
- **Thoroughfare Length** – In order to promote the development of regional routes, the desired length of major arterials was considered to be at least five miles. Lengths for minor arterials and collectors in existing and projected urban sections were aimed at one-half to two, and one-quarter to one-half mile, respectively. In the more remote rural

² While it is recognized that these values may be further refined during the course of the Metropolitan Transportation Plan development process, it is reasonable to assume that this data provides a sufficient understanding of the expected development trends of the region.



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- portions of the region, minor arterials and collectors were allowed to extend far beyond the guidelines of their urban counterparts.
- **Thoroughfare Spacing** – A concerted effort was made to build the thoroughfare network using established criteria for spacing between thoroughfares. In general, spacing for major arterials was sought to be between two and four miles, while minor arterials were targeted to be spaced between one-half to two miles apart. These spacing requirements were slightly relaxed when dealing with the extremely rural portions of the planning area.
 - **Continuation of the Grid** – Extension of the thoroughfare network into the currently undeveloped areas of the region was made to follow as much of a grid-like pattern as possible.
 - **Rural Collectors** – Because the Thoroughfare Plan has a very long-term planning horizon, existing Farm-to-Market roads that currently function as collectors in rural areas were sought to become future major arterials.
 - **Jogs and Off-sets** – To maintain the capacity of higher classified facilities as well as maintain route continuity of the lower classified facilities, some jogged intersections were replaced with typical four-way intersections.
 - **Parcel Boundaries** – To the extent possible, conceptual, proposed thoroughfare alignments were created to follow existing parcel boundaries.
 - **Constraints** – Special care was given to minimize the traversal of critical features of the natural environment, including lakes, rivers, creeks, floodplains, and hilly terrain. In addition, existing development areas, the access restrictions at Fort Hood, and the railroad lines and switching yards presented connectivity issues for some parts of the system.

4.4 Future Regional Thoroughfare Network

The Future Regional Thoroughfare Network is presented in Exhibit 13 through Exhibit 18. It represents the culmination of the previously described analytical and collaborative process. Fundamentally, the network represents an extension of the concepts presented in many of the municipal plans and extends them out to a longer planning horizon to the area's possible ultimate build-out.

This regional thoroughfare network is not intended to constrain any local government in any way. Rather, it shows approximate alignments for potential new or enhanced thoroughfares that should be considered in platting of subdivisions, right of way dedication, and construction of major roadways within the region. This meets the primary objective of the Thoroughfare Plan to ensure that adequate rights of way are preserved on appropriate alignments and of sufficient width to allow the orderly and efficient expansion and improvement of the thoroughfare system.

It is important to repeat that this plan simply represents one of the initial steps in the transportation planning process. The region's long-range Metropolitan Transportation Plan, due to next be updated in 2014, will use the long-term perspective presented in this plan as one tool to develop a financially constrained plan with specific short-term and long-term projects to be developed over the next 25 years.

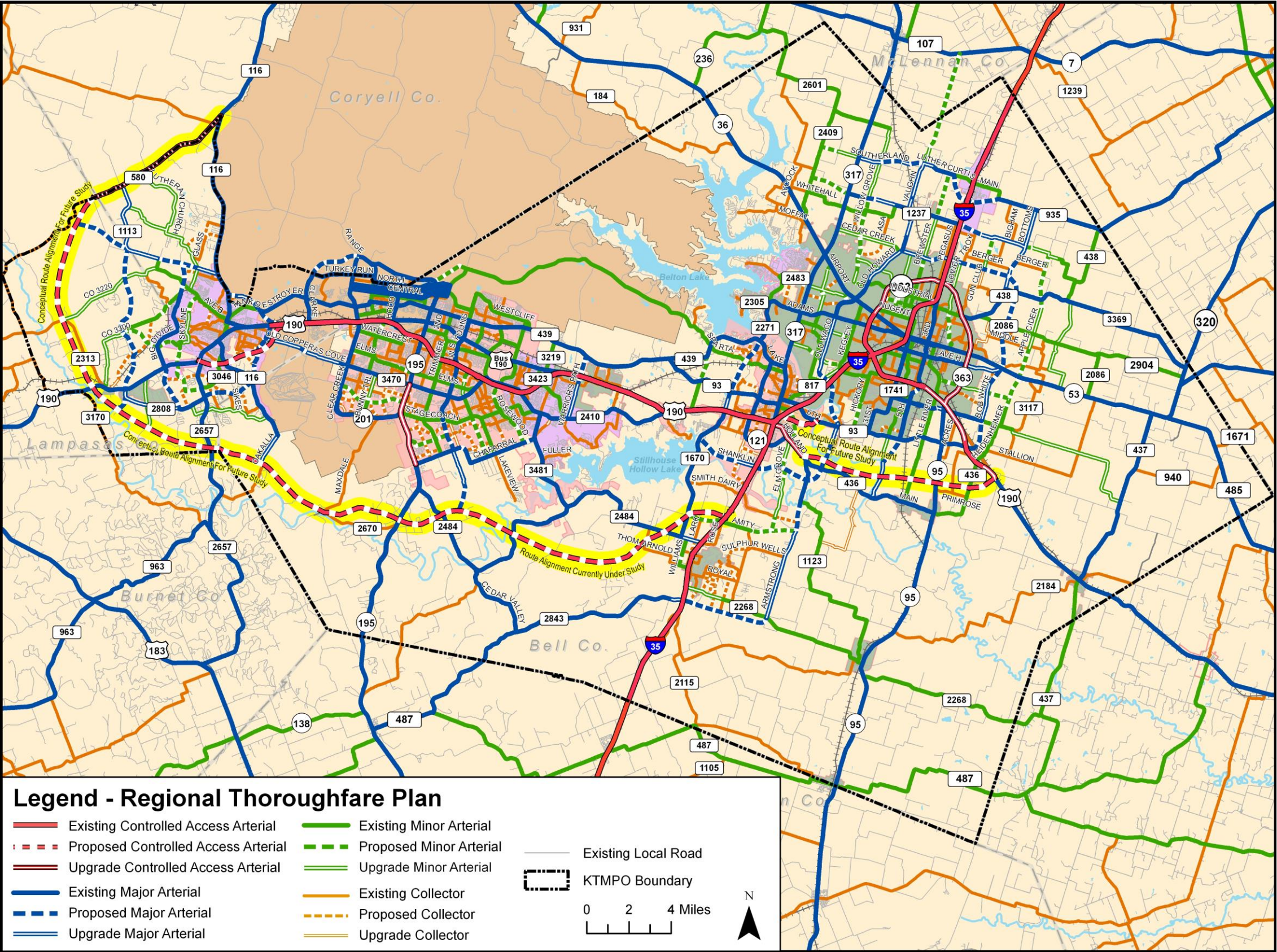


Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Thoroughfare Network

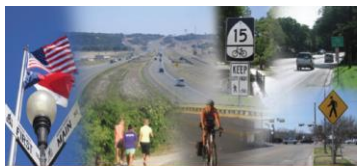
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Exhibit 13: KTMPO Future Regional Thoroughfare Plan Map



Source: Wilbur Smith Associates, 2011.

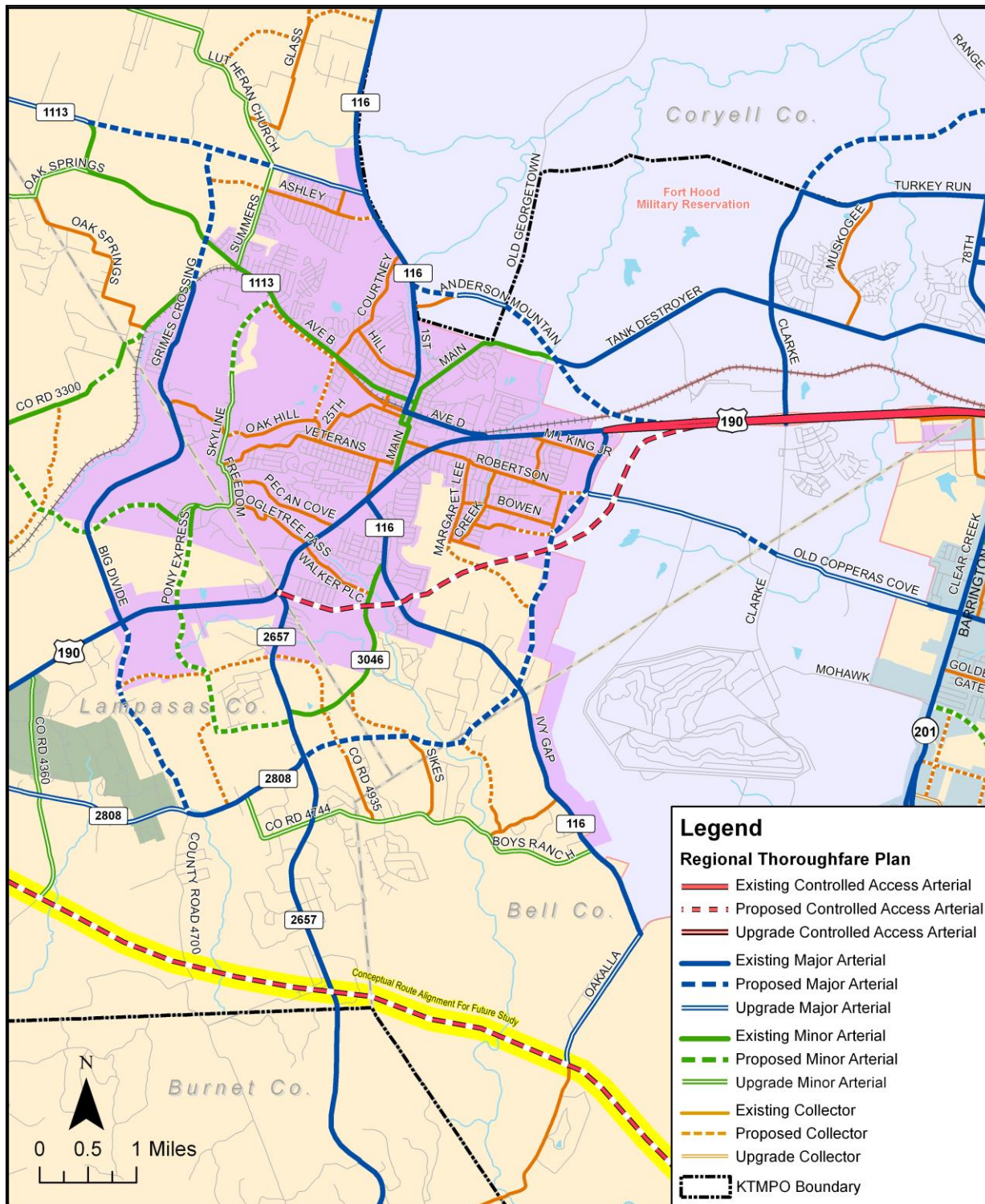
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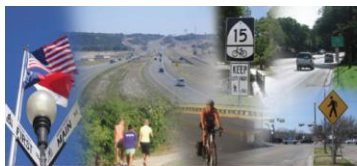
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Thoroughfare Network

Exhibit 14: KTMPO Future Regional Thoroughfare Plan Map (Copperas Cove)



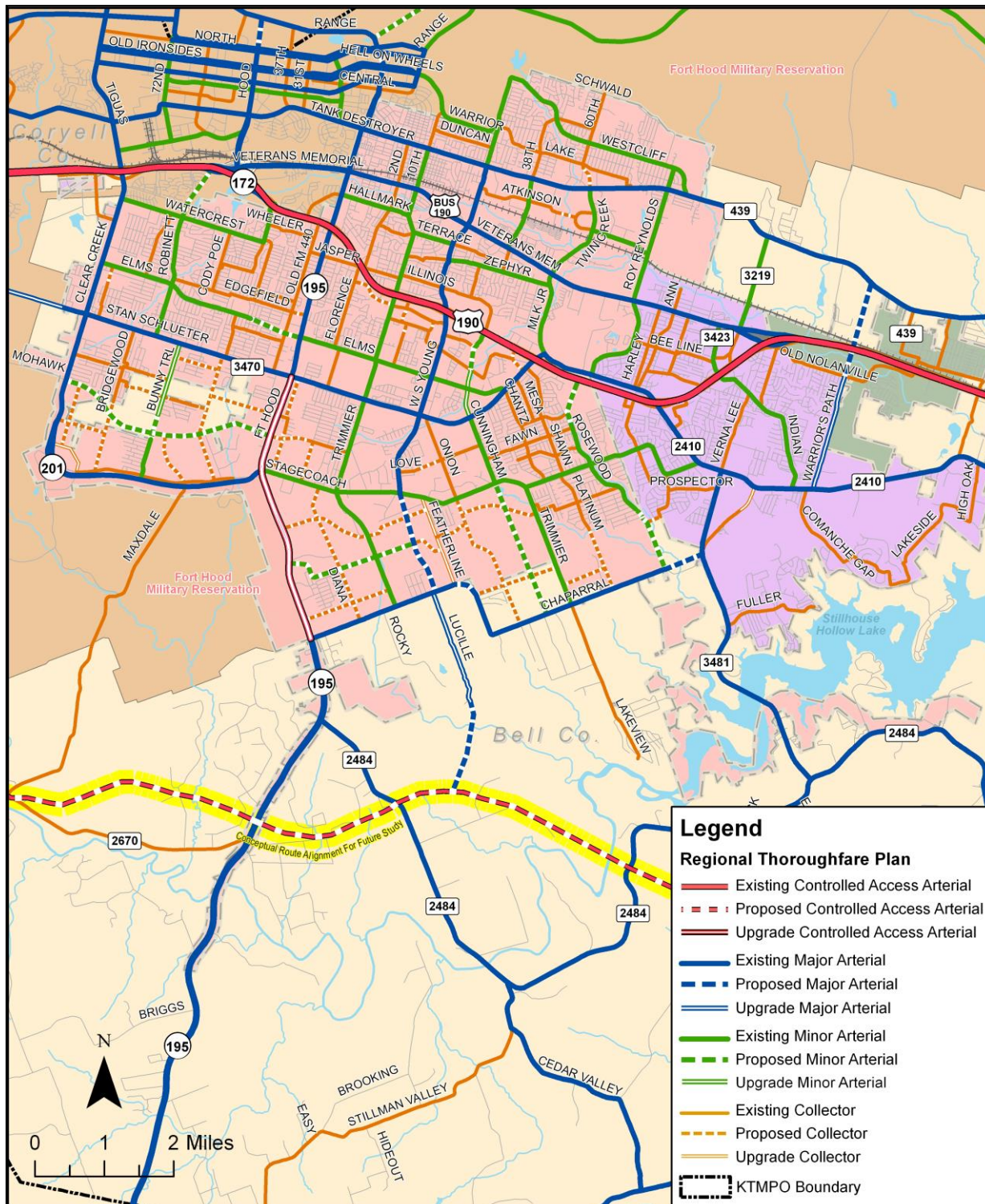
Source: Wilbur Smith Associates, 2011.



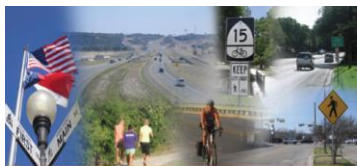
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Thoroughfare Network

Exhibit 15: KTMPO Future Regional Thoroughfare Plan Map (Killeen)



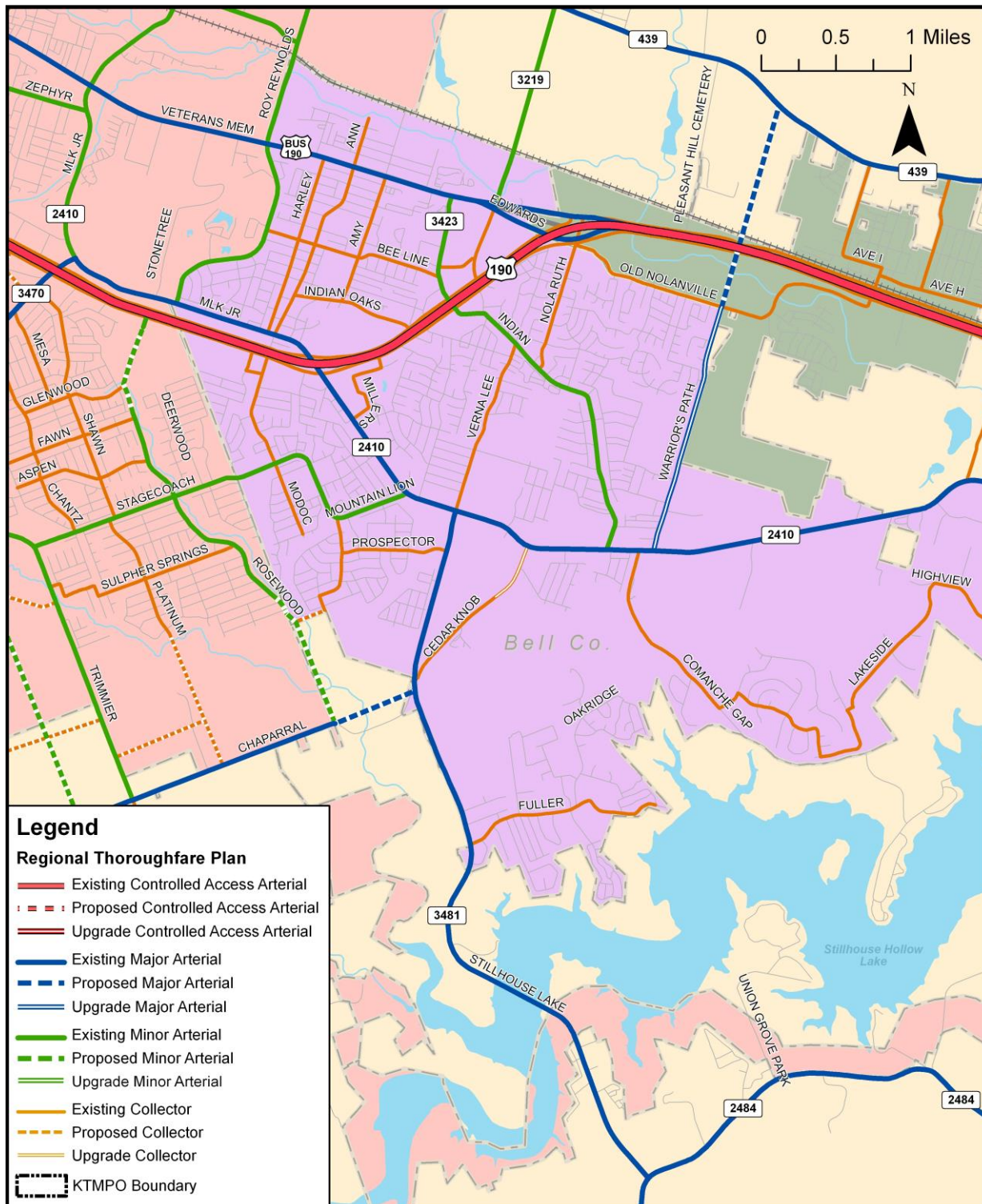
Source: Wilbur Smith Associates, 2011.



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

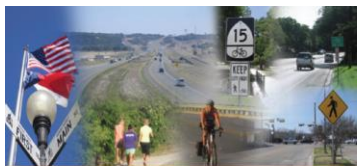
Thoroughfare Network

Exhibit 16: KTMPO Future Regional Thoroughfare Plan Map (Harker Heights)



Source: Wilbur Smith Associates, 2011.

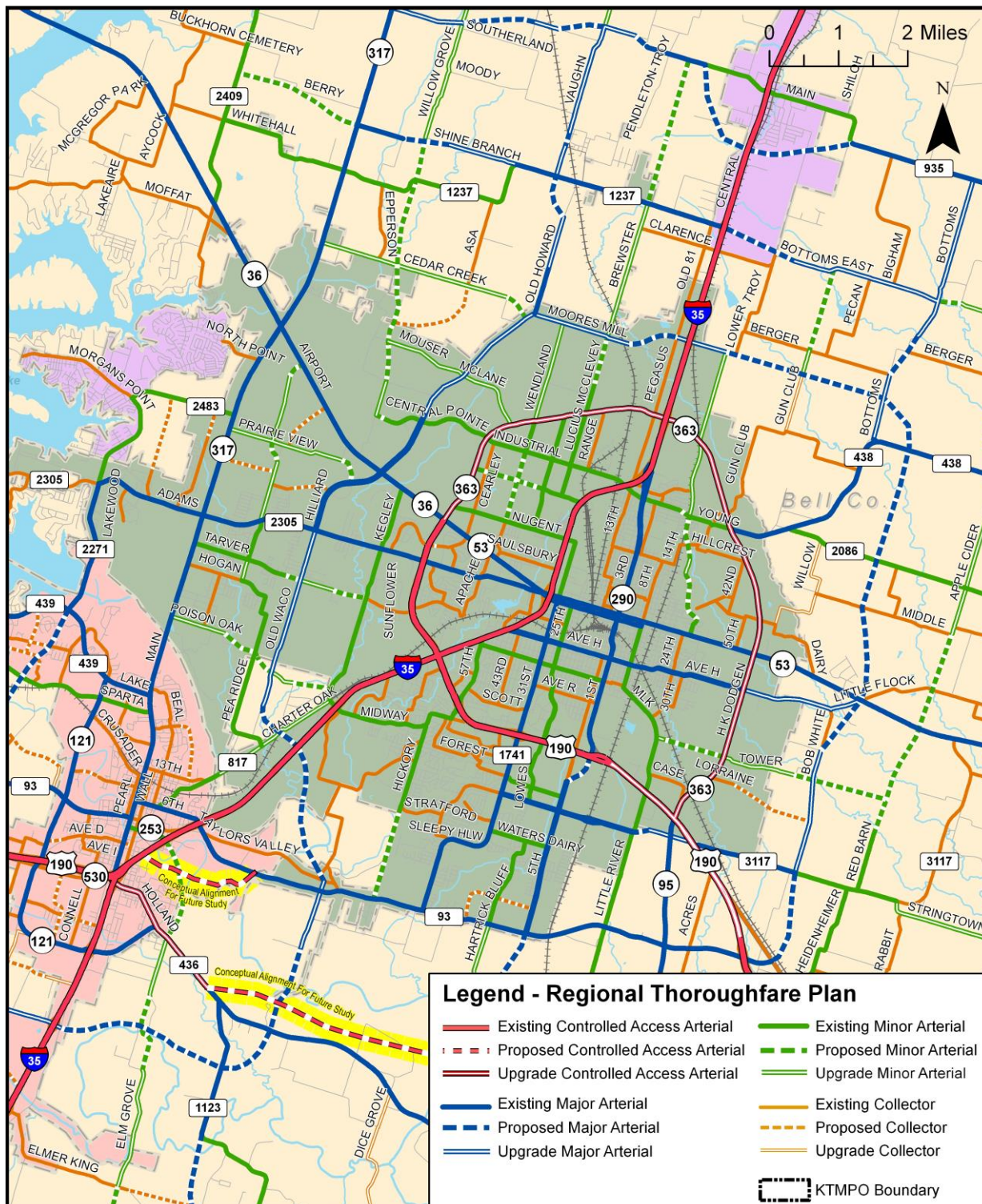


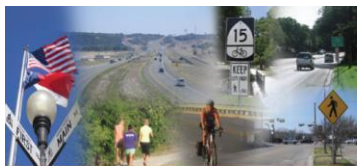


Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

Thoroughfare Network

Exhibit 18: KTMPO Future Regional Thoroughfare Plan Map (Temple)





Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

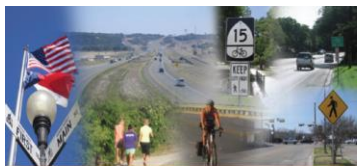
Thoroughfare Network

4.5 Summary Examination of Network Mileage

Once the regional thoroughfare network was defined, a calculation of roadway mileage by classification was generated. Because FHWA guidelines pertain to typical urbanized areas, roadways outside the jurisdiction of the cities and roadways within Fort Hood were excluded from the analysis. According to Exhibit 19, the percentage of mileage within each category falls close to the ranges recommended by the FHWA's 1989 Functional Classification Guidelines. As expected, most categories are on the high-end or slightly exceed FHWA guidelines. This is because, as is typical for a regional-level plan, future local roadways are undercounted in comparison to other types of future facilities.

Exhibit 19: Summary Examination of Network Mileage

Classification	Thoroughfare Mileage	Thoroughfare Percentage	FHWA Guidelines on extent of urban functional classification systems
Controlled Access Arterials and Major Arterials	252	13%	5-10%
Controlled Access Arterials and Major Arterials, plus Minor Arterials	403	21%	15-25%
Collectors	341	18%	5-10%
Locals	1,182	61%	65-80%



5. *Bicycle-Pedestrian Network*

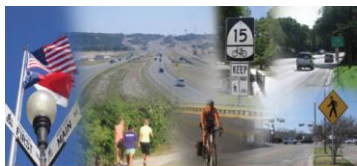
5.1 Introduction

The short distances Americans travel for many of their daily trips make bicycling and walking a highly viable transportation mode. Nearly 40% of all trips are under two miles, a distance easily accomplished by bicycle or on foot by a reasonably physically fit adult or child. In addition, 80% of all trips people take are not for commuting to work, but are for other purposes, many of which do not necessarily demand a car to accomplish. However, while there is potential for many more people to bicycle and walk for transportation, the lack of a safe, direct and usable bicycle and pedestrian network often makes it difficult. Not unlike many regions across the state, and indeed the country, the Killeen-Temple region faces the challenge of a less than complete bicycle/pedestrian network. However, as will be discussed, many of the cities within the region are making significant strides toward improvement.

This chapter will present the current walking and bicycling network, what MPO member jurisdictions are doing to expand that network, existing barriers and safety conditions within the network, and current and future pedestrian and bicycling needs. Based upon an assessment of existing conditions and local initiatives, a vision of the future pedestrian and bicycle network, along with supporting programs and policies, will be presented.

5.2 Existing Conditions for Bicycling and Walking

A bicycle is legally recognized by the State of Texas (and many other states) as a vehicle, with all the rights and responsibilities for roadway use that are also provided to motor vehicles. As such, cyclists can legally ride on any roadway in the region (except controlled access highways such as the Interstate 35 main lanes). However, certain roadways are more “bikeable” than others. Local and collector streets are suitable for use by most adult bicycle riders, as long as traffic volumes are not high and speeds are less than 35 miles per hour. Arterial streets typically carry higher traffic volumes with speeds of 35 to 45 miles per hour, and are used by only the more skilled and assertive bicyclists. With proper education in bicycle operation and safety, many people could safely bicycle on existing roadways, even those without bicycle accommodations. Rural arterials with shoulders and/or very low traffic volumes attract sports cyclists interested in longer-distance travel with fewer interruptions.



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

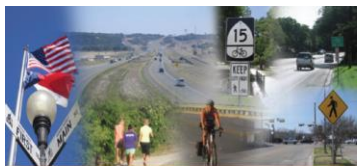
Bicycle-Pedestrian Network

5.2.1 Existing Bicycle Facilities

Throughout the KTMPO planning region, there exist a number of public walking, jogging, and bicycling trails as well as on-street bicycle accommodations. Some of the more significant facilities in the region are presented in Exhibit 19.

Exhibit 20: Significant Existing Bicycle Facilities

	Belton - 1.4 mile long concrete multi-use trail along Nolan Creek		Temple - 2.5 mile asphalt multi-use side path along the north side of FM 2305
	Copperas Cove - 2.1 mile long concrete side path along the north side of FM1113 (Avenue B)		Temple - 2.1 mile concrete trail along creek west of 5th Street
	Copperas Cove - 1.6 miles of trails within City Park South		Temple - 2.1 mile long concrete multi-use loop trail in Lions Park
	Fort Hood - Over 40 miles of recreational trails around the base, which includes over 15 miles of trails on the south side of Lake Belton		Temple - 1.8 mile long concrete multi-use trail in James Wilson Park
	Fort Hood - Nearly 13 miles of on-street striped bicycle lanes along Clear Creek Road, Tank Destroyer Boulevard, Hell-On-Wheels Avenue, and Old Ironsides Avenue		Temple - 1.3 mile concrete trail along Pepper Creek
	Killeen - 1.9 mile concrete multi-use trail in the Killeen Community Center Park		Temple - 0.6 mile designated bicycle route along Midway Dr



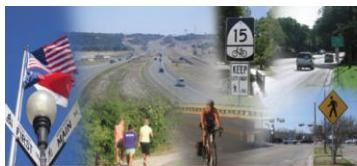
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Bicycle-Pedestrian Network

5.2.2 Local Bicycle-related Initiatives

Many of the major cities in the region are diligently working to improve conditions for bicycling. Specifically, the following efforts have recently been completed or are underway:

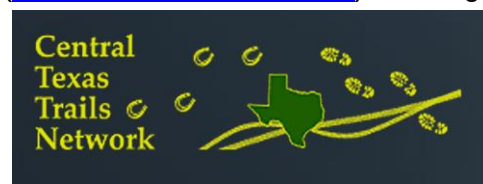
- **Belton** – The City of Belton's Parks and Recreation Strategic Master Plan contains a Bike & Trail Plan element. The city has recently received Transportation Enhancements funding for a northern extension of the existing Nolan Creek Hike & Bike Trail to connect to the University of Mary-Hardin Baylor campus. The City of Belton requires that bicycle accommodations be included on the city's new roadway projects, and bicycle lanes are being added to key corridor through its Capital Improvement Program.
- **Copperas Cove** – The City of Copperas Cove is pursuing the creation of more trails to augment its existing network. While the city does not currently have a bicycle plan for city streets, the city's Chamber of Commerce has aggressively promoted bicycling as a tourist attraction. The Chamber's program has succeeded in drawing cyclists from across the state for weekend excursions, resulting in a boost to the local economy.
- **Fort Hood** – Bicycling is seen as a key recreation and fitness activity for military personnel and their families and is promoted as such by the post's Office of Morale, Welfare and Recreation. To that end, Fort Hood has implemented bicycle facilities on several key corridors including Tank Destroyer Boulevard and the Hell-On-Wheels Boulevard and Old Ironsides Boulevard one-way couplet. Fort Hood is very interested in creating more bicycle facilities and is seeking federal funding to pay for them. The rural roads on the northern and western extremities of the base are very popular bicycling routes, and are so outstanding for fitness and sport cycling that Fort Hood was chosen as the site of the Texas State Road Racing Championships in 2010.
 
- **Harker Heights** – Building upon current efforts to construct more off-street trails servicing the city's parks, the City of Harker Heights is slated to create a bicycle master plan in 2011. Many of the roads to the southeast of the city are popular recreation and sport cycling routes, drawing riders from all over Central Texas.
- **Killeen** – The city's recently adopted Comprehensive Plan emphasizes the need and desire to make the city more livable and healthy by improving the pedestrian and bicycle network. To that end, city staff have created a draft Hike and Bike map that includes many new on- and off- street bicycle facilities. A planned Texas A&M Central Texas campus at the southwest quadrant of the SH195-SH201 intersection provides an opportunity for the development of safe bicycle/pedestrian facilities connecting to and within the new campus. As there will be limited on-campus housing for the eventual 13,000 student population, off-campus housing may be developed on the opposite sides of SH195 and SH201, which would require safe bicyclist conveyance along and crossing these major arterials.
 



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- Temple** – The City of Temple has recently completed hike and bike trail projects along 5th St in south Temple and along Pepper Creek on the west side of the city. Building upon its recently completed Trails Master Plan (May of 2010), the city is also working on grant funding to construct more priority projects both in off-street corridors and adjacent to roadways. In addition, Temple is currently compiling a plan to establish bicycle lanes and bicycle routes on key city streets.
- Central Texas Trails Network** – Begun as a citizen-driven effort several years ago, this project has evolved into a web-based guide to off-street trails throughout the region and is maintained by staff at the Killeen-Temple MPO (www.centraltexastrails.org). Although currently intended to promote trails for recreation, a goal of the effort is to include trail connections that serve local and regional bicycle transportation facilities.



5.2.3 Existing Pedestrian Facilities

The existing pedestrian system is comprised primarily of the roadside sidewalks that are present throughout the region. While many of the older, core urban areas in the region have extensive sidewalk systems, recent patchwork development and a lack of a consistent regional sidewalk development policy has led to many gaps in the sidewalk network. In recent suburban developments, sidewalks are constructed only along the frontage of the development, with the subsequent gaps left to be filled in when the adjacent parcels are developed. While this sidewalk development policy is perhaps cost-effective, it has the unfortunate benefit of leaving the full potential of walking as a viable transportation option unrealized.

As recommended in the original 2008 plan a sidewalk inventory along all roadways functionally classified as collectors and above was performed during the fall of 2010 to assess the coverage of the “primary” sidewalk system. The result of this inventory is shown in Exhibits 22 to 26.

In an effort to quantify the extent of coverage of the regional sidewalk system, a “Sidewalk/Roadway” ratio was calculated for each jurisdiction within the KTMPO planning area. This ratio was calculated by first dividing the length of sidewalks along arterials, collectors, and frontage roads by twice the length of arterials and collectors, plus the length of frontage roads, then by multiplying by 100.

In theory, the maximum sidewalk/roadway ratio is 100.0%, which would describe an arterial/collector system that has sidewalks on both sides of every roadway, except frontage roads which would have a sidewalk on only one side of the road. The results of this calculation are shown in Exhibit 21. It should be noted that within these calculations and in Exhibits 22 to 26 the crosswalk connecting two sidewalks is considered to be a sidewalk.

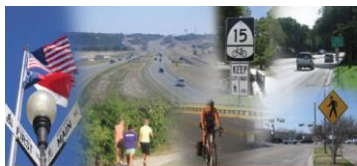


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Exhibit 21: Summary of Sidewalk Coverage Mileage

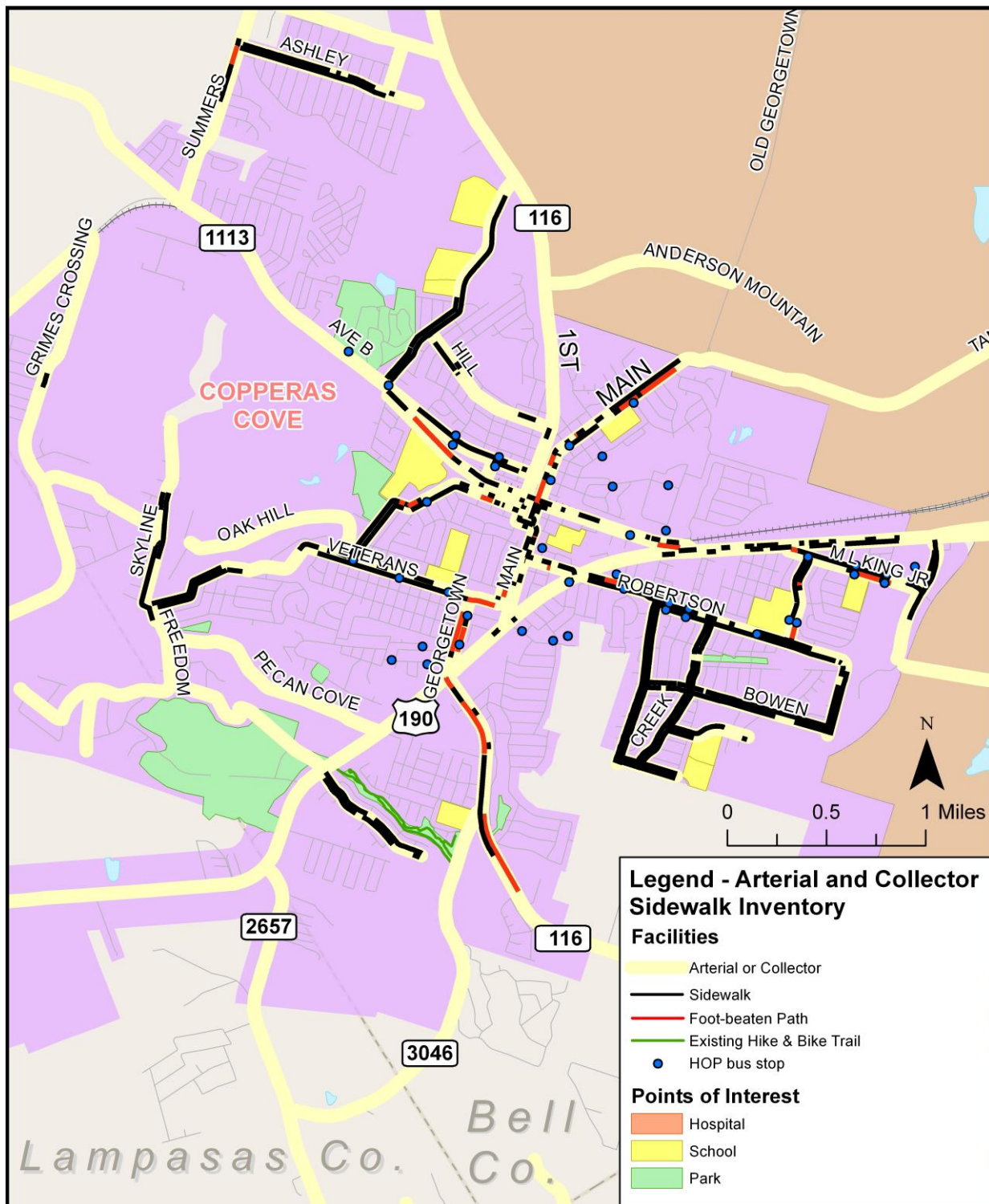
Jurisdiction	Sidewalks (mi.)	Arterial and Collector Roadways (mi.)	Sidewalk/Roadway Ratio
Killeen	103.97	280.76	37.0%
Copperas Cove	26.39	88.79	29.7%
Bartlett	0.52	2.36	22.0%
Fort Hood	28.31	156.55	18.1%
Harker Heights	13.82	77.64	17.8%
Belton	18.38	114.73	16.0%
Temple	49.00	317.05	15.5%
Kempner	0.60	5.38	11.2%
Holland	0.78	8.38	9.3%
Salado	0.81	11.17	7.3%
Rogers	0.44	10.83	4.1%
Nolanville	0.39	17.97	2.2%
Little River/Academy	0.06	12.71	0.5%
Troy	0.04	16.41	0.2%
Morgan's Point Resort	0.00	6.46	0.0%
REGIONAL TOTAL	243.51	1,127.19	21.6%



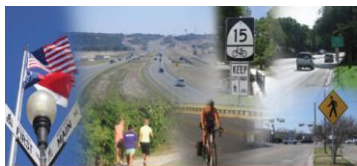
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Exhibit 22: Sidewalk Inventory along Arterials and Collectors (Copperas Cove)



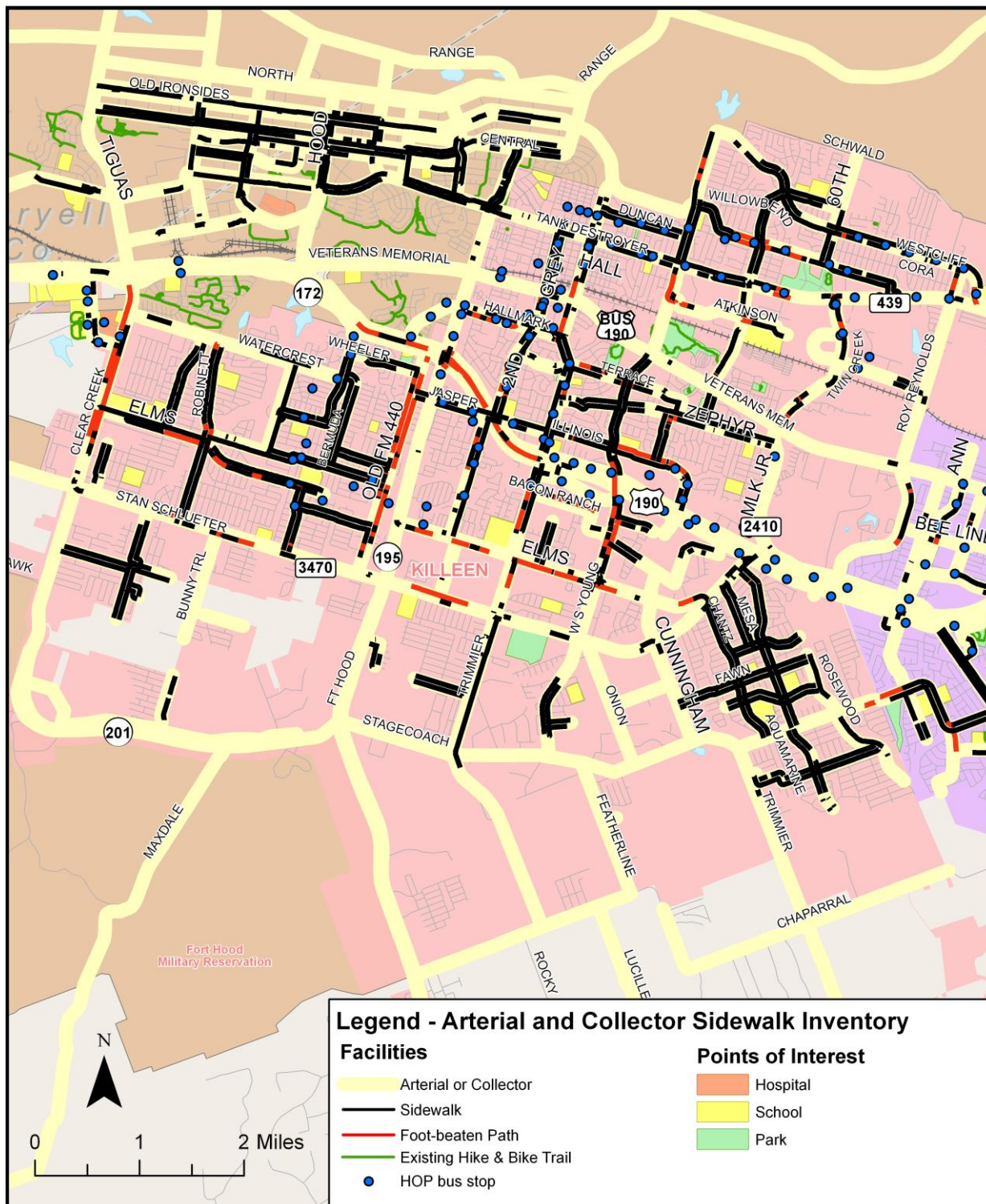
Source: Wilbur Smith Associates, 2011, based upon fall 2010 sidewalk inventory.



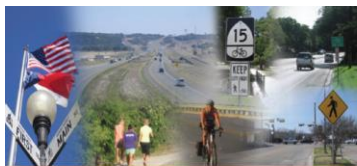
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Exhibit 23: Sidewalk Inventory along Arterials and Collectors (Fort Hood and Killeen)



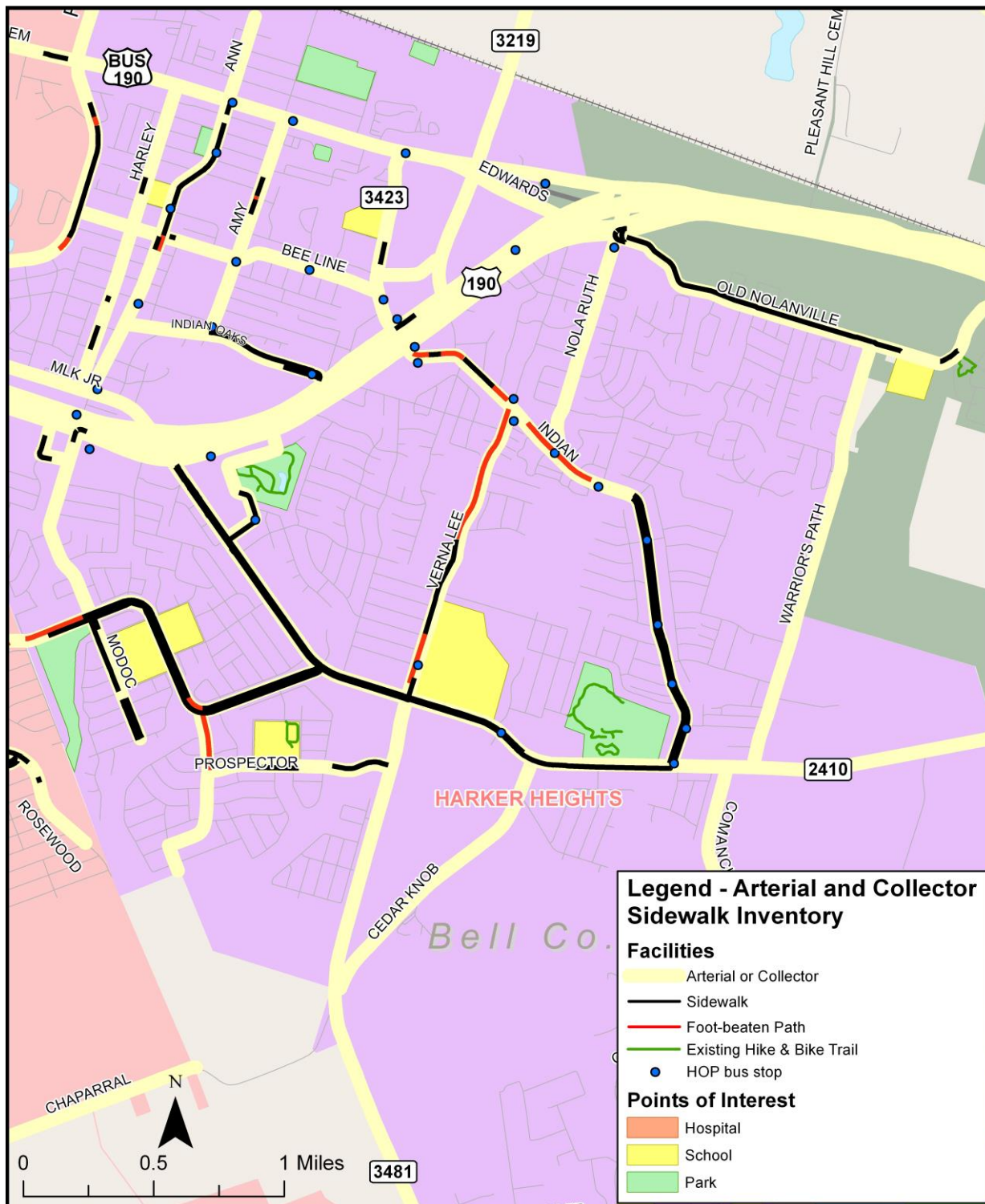
Source: Wilbur Smith Associates, 2011, based upon fall 2010 sidewalk inventory.



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Exhibit 24: Sidewalk Inventory along Arterials and Collectors (Harker Heights)



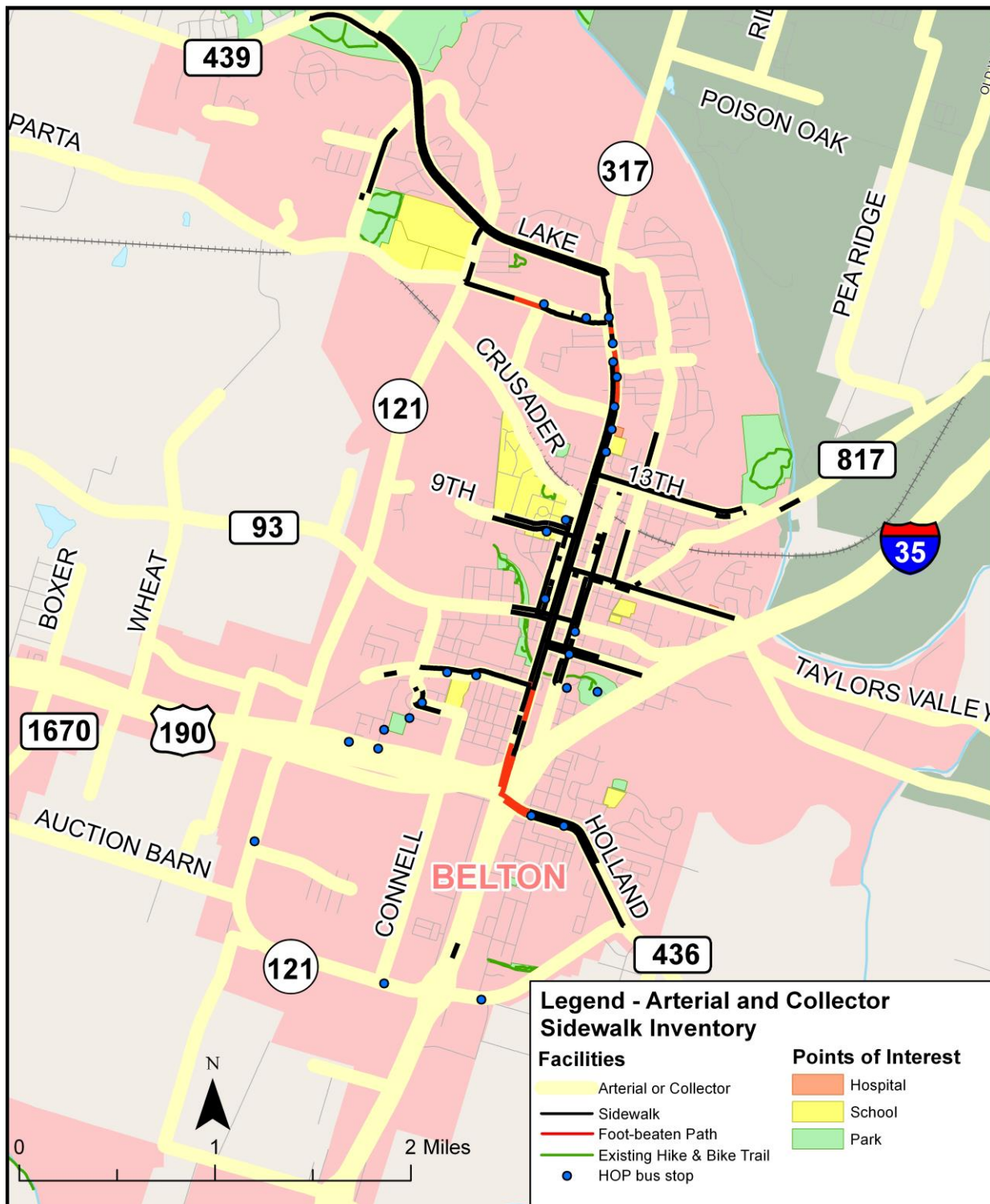
Source: Wilbur Smith Associates, 2011, based upon fall 2010 sidewalk inventory.



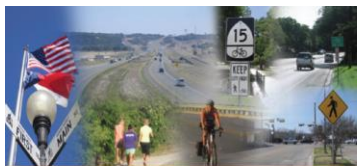
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Exhibit 25: Sidewalk Inventory along Arterials and Collectors (Belton)



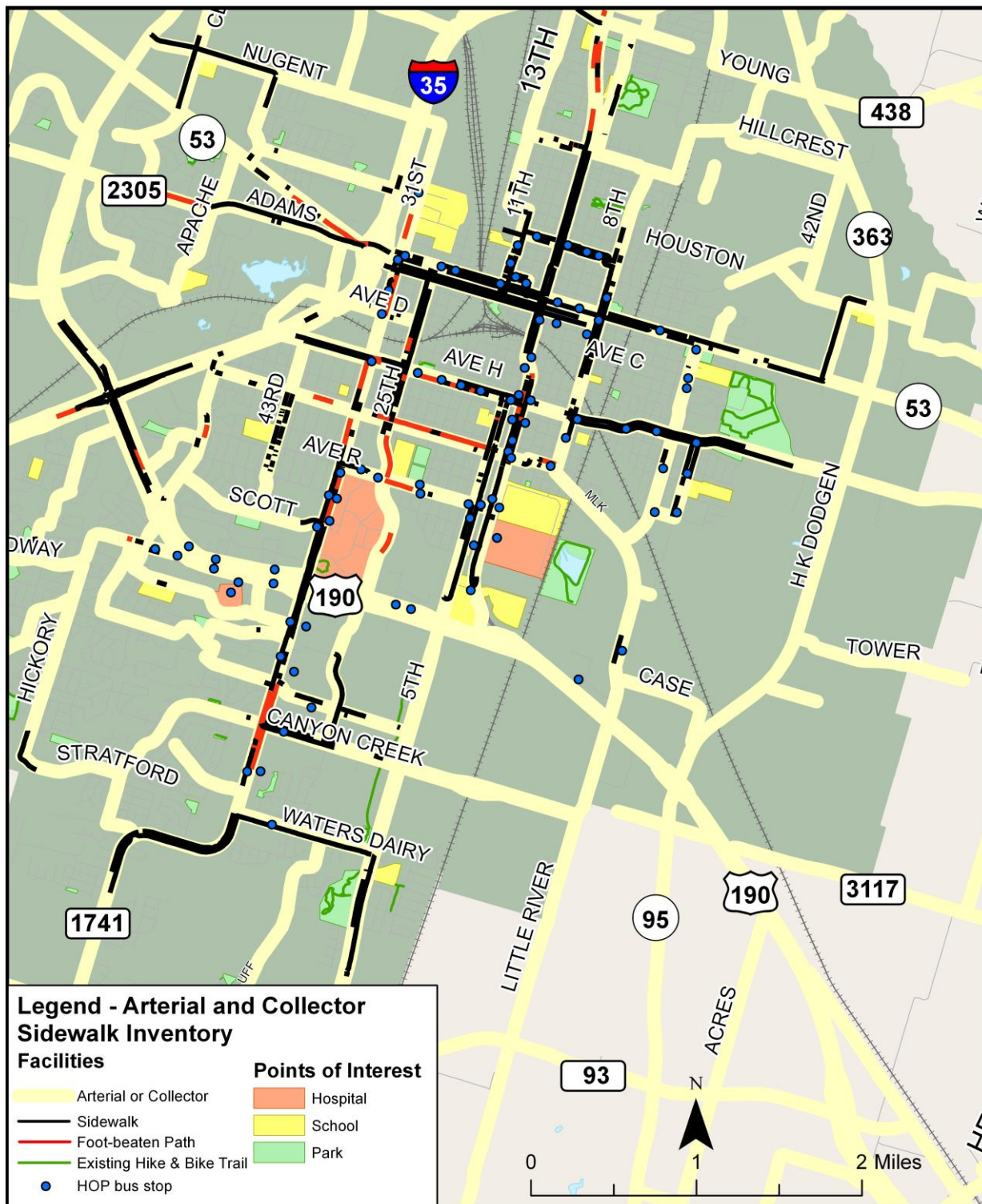
Source: Wilbur Smith Associates, 2011, based upon fall 2010 sidewalk inventory.



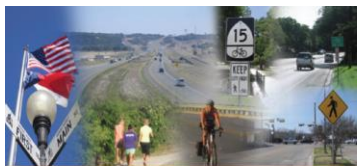
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Exhibit 26: Sidewalk Inventory along Arterials and Collectors (Temple)



Source: Wilbur Smith Associates, 2011, based upon fall 2010 sidewalk inventory.



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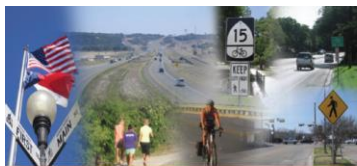
Bicycle-Pedestrian Network

5.2.4 Local Pedestrian-related Initiatives

While many cities in the KTMO planning area require sidewalks in new subdivisions and other development projects, most cities have yet to establish funding programs for significant sidewalk development. The following is a summary of local initiatives and policies related to the development of sidewalks:

- **Belton** – While the City of Belton does not require sidewalks with new development, it does require sidewalks to be included with new CIP roadway projects and has recently made upgrades to its downtown sidewalk network and is beginning efforts to fill in sidewalk gaps on key streets.
- **Copperas Cove** – While many residential neighborhoods within Copperas Cove have excellent sidewalk networks, pedestrian facilities along arterials and collectors are lacking. The city is making an effort to improve the network by requiring sidewalks in all new subdivisions on at least one side of the street, and on both sides if traffic volumes warrant.
- **Fort Hood** – While many areas of Fort Hood have excellent sidewalk networks, more pedestrian facilities are needed within the base's residential and functional areas. Moreover, there are hazardous pedestrian crossings that need to be addressed, particularly in the motor pool services section on the north part of the base. Bicycle and pedestrian improvement projects remain a challenge, and Fort Hood is committed to improving all multi-modal transportation needs on the installation.
- **Harker Heights** – The City of Harker Heights' effort to improve its pedestrian network includes a policy to require sidewalks on all new roadways and road rehab projects on collectors and arterials. Sidewalks are not required in new development, but efforts are being made to fill key sidewalk gaps and make repairs. One recent project is the construction of a sidewalk along the north side of FM2410 at Harker Heights Community Park.
- **Killeen** – The City of Killeen currently requires sidewalks in new residential subdivisions and negotiates with developers to include sidewalks in commercial projects. The city's complete sidewalk policy is expected to be more fully codified within its future Hike and Bike Plan. This new plan is expected to include a requirement for sidewalks on all roadway projects.
- **Temple** – The City of Temple requires sidewalks on arterials and collectors in new subdivisions, new commercial parcels, and newly constructed or reconstructed roadway projects. For arterials, sidewalks must be constructed on both sides of the street; for collectors only on one side. Sidewalks are not required on local residential streets.
- **The HOP** – With the recent receipt of federal stimulus funding, the Hill Country Transit District is currently in the process of installing over 100 new bus shelters along with





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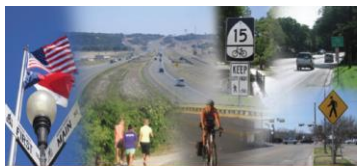
sidewalks the length of the bus boarding areas, and in some instances, is extending them to the nearest curb ramp.

5.3 Barriers in the Bicycle and Pedestrian Network

Barriers to mobility are one of the key challenges of a regional bicycle and pedestrian plan. Within the region, the following barriers all impose significant obstacles to safe non-motorized access and mobility:

- **Controlled Access Arterials** – Crossing of these high-speed facilities is typically only allowed at a grade separated crossing. The limited number of crossings provided concentrate traffic at few funnel points, increasing the hazards to bicyclists and pedestrians. In the KTMPO planning area, controlled access freeways include IH 35 and US 190.
- **Major Arterial Roadways** – Multi-lane, moderate to high-speed roadways can also be barriers to non-motorized mobility for conveyance as well as crossing. Traffic controls at intersections are minimized in favor of reduced delays to motorized traffic, focusing traffic at the few controlled intersections. Many of the State Highways and Farm to Market roads in the region provide shoulders of six or more feet in width and are useful to experienced cyclists, but many roadways with speeds over 45 miles per hour have shoulders that are less than 4 feet wide which is not desirable. A prevalent condition in the region is the off-set of local and collector roadways across major arterials, minimizing the potential for an interconnected system of lower-speed, lower volume roadways that would be conducive to creating a bicycle network. Prevalent highway design often “pinches” bicyclists off of an intersecting roadway where pillar spacing eliminates room for bicyclists. On overpasses, lanes are often not wide enough to accommodate bicyclists even when the roadway on either side of the structure is wide enough.
- **Creeks and Drainage Channels** – Waterways present a natural barrier that must be bridged to be traversed by land-based vehicles. The investment required to construct such a bridge and the private ownership of shoreline properties limit the number of crossing points and, again, focuses traffic at those points.
- **Railroads** – Railroad tracks often present a restrictive barrier to non-motorized transportation modes. The private ownership of the railroads and the significant safety and cost issues associated with at-grade crossings limit the number of crossing points and focuses traffic at those points. There remain numerous low volume roadway crossings of railroads in the older urban areas that are good candidates for bike routes, though closing of these at-grade crossings are considered each year.
- **Discontinuity** – Gaps in the bicycle and pedestrian network can serve to discourage bicycling and walking, leaving much of the benefit and use of the existing system unrealized.





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In addition to these high-level mobility barriers, many other conditions exist that make the pedestrian environment unattractive at a minimum, and at worst unsafe. These conditions are highlighted in Exhibit 27.

Exhibit 27: Existing Sidewalk Barriers

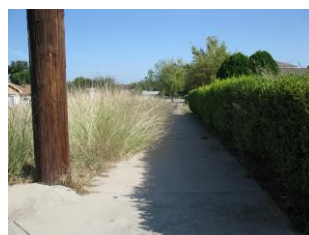
- Lack of Sidewalks**



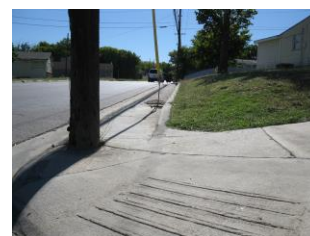
- Abrupt Gaps**



- Lack of Maintenance**



- Obstacles**



5.4 Bicycle and Pedestrian Safety

It can be hazardous for bicyclists and pedestrians to use the car-dominant transportation system when roadway designs do not adequately consider these modes. Even in locations where a sidewalk or space on the roadway for a bicyclist exists, certain conditions can make public infrastructure basically unusable. Lack of pedestrian crossing indicators or lack of traffic control at free right turns can expose a pedestrian to danger, particularly if that person has no safer



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alternative to crossing at that location. Extremely long block faces or distances between traffic signals can force pedestrians to make unprotected mid-block crossings.

An analysis of bicycle and pedestrian 2005 to 2009 crash data from TxDOT's Crash Information System (CRIS) was performed to identify where unsafe conditions exist and where improvements may be needed. Exhibit 28 displays the locations of crashes involving pedestrian or bicycles in the KTMPO planning region.

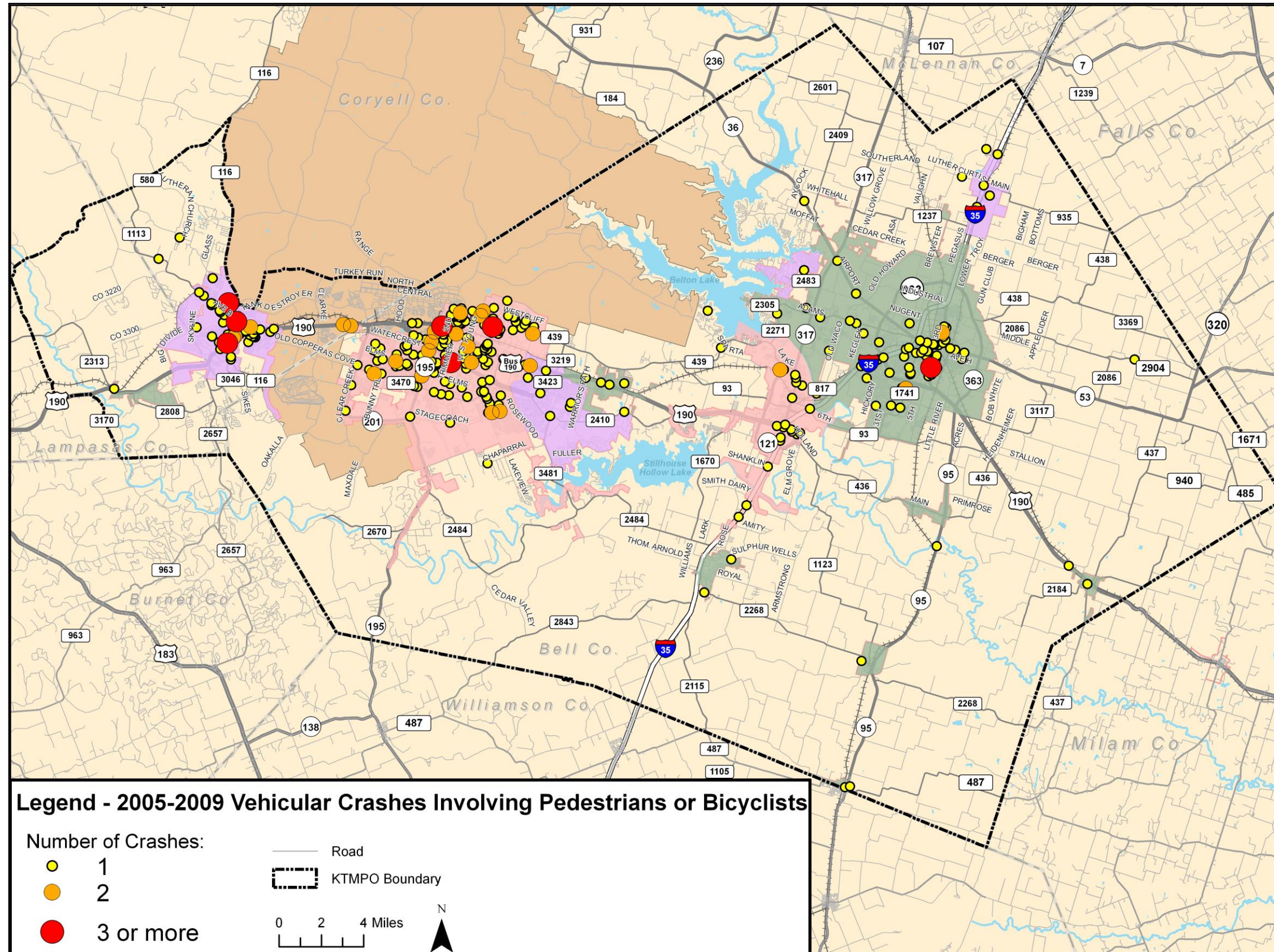


Exhibit 28: Crashes Involving Pedestrians or Bicyclists – 2005 to 2009

Source: Wilbur Smith Associates, 2011.

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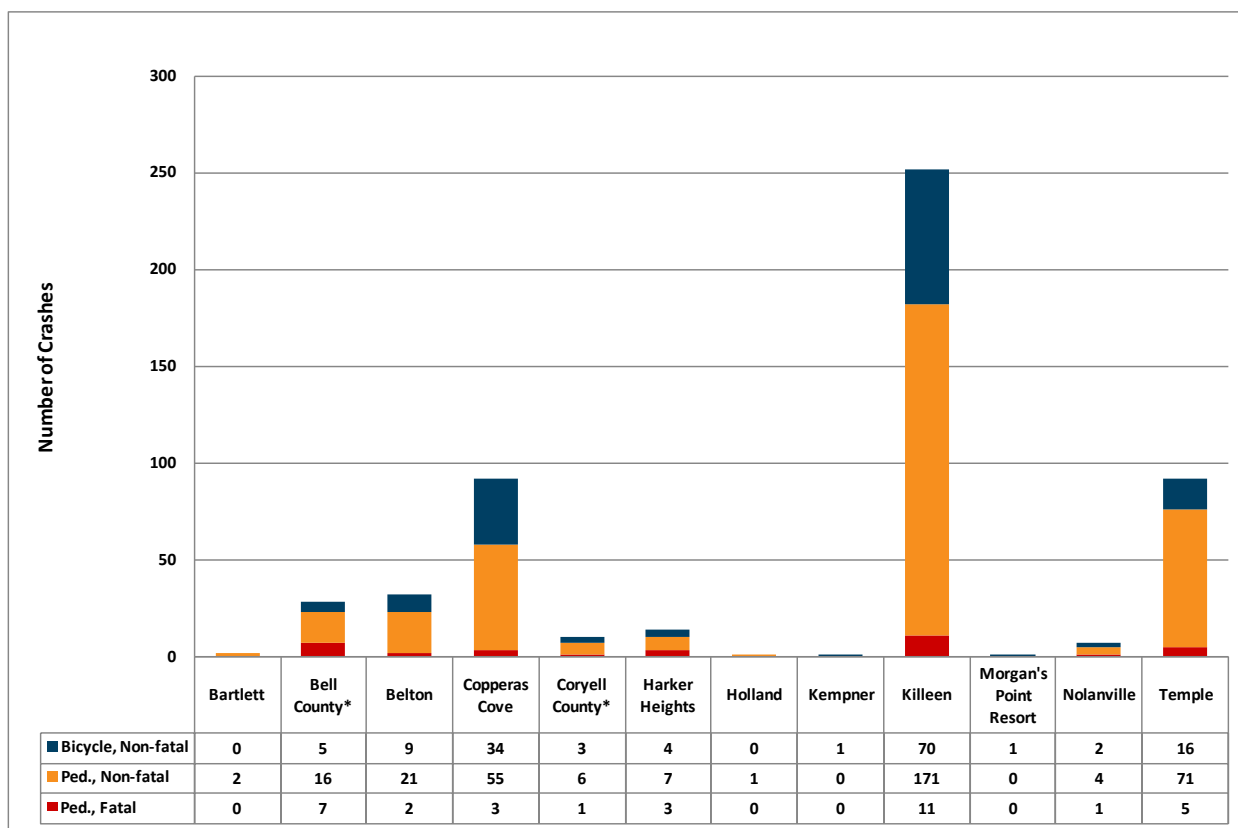


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Exhibit 29 presents a summary of the number of crashes, categorized by type and jurisdiction, for the years 2005 to 2009 in the KTMPO planning area. MPO member jurisdictions not listed in Exhibit 29 had no reported pedestrian/bicycle-related crashes over that timeframe. In addition, crashes within Fort Hood are not contained within TxDOT's CRIS database.

Exhibit 29: Pedestrian/Bicycle Crashes, 2005 to 2009



*Note: Crashes within Bell County are tallied only for the unincorporated area within the county. Crashes for Coryell County also are tallied only for the unincorporated area within the county, and only for the unincorporated area within the MPO planning area.

While a thorough analysis of each crash is necessary to determine its cause, it can be assumed that in locations with reoccurring incidences there is a strong possibility that lack of safe design is a factor. Exhibit 30 highlights the seven locations across the region that have been the site of three or more vehicular crashes involving pedestrians or bicyclists.

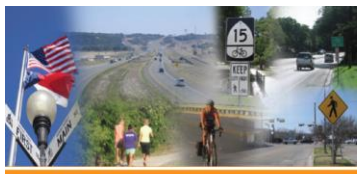


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Exhibit 30: High Pedestrian/Bicycle Crash Location Details

Intersection	Intersection Details		
Copperas Cove: FM116 (1st St) & FM1113 (Avenue B)	- No Pedestrian Signal - No Sidewalks - No Crosswalks - One of few railroad crossings opportunities		
Copperas Cove: Courtney Ln & Fairbanks St	- Poor sight lines at crest of hill - Main access from south to Williams Elementary and Ledger Intermediate Schools		
Copperas Cove: US190, FM116, & Georgetown Rd	- No Pedestrian Signals - No Sidewalks - Awkward angled intersection - High speed, high volume roadways		
Killeen: US190 & Trimmier Rd	- No Pedestrian Signals - No Sidewalks - High volume turning movements		
Killeen: BU190 (Veterans Memorial Blvd) & Dimple/Gilmer Sts	- No Pedestrian Signals - No Sidewalks - No Crosswalks - Speeding violations - Angled, roadside parking		
Killeen: FM439 (Rancier Ave) & 38th St	- Pedestrian Signals - Sidewalks - Crosswalks		
Temple: 5th St & Avenue O	- Sidewalks along southbound 5th St - No Crosswalks - Permanently installed basketball goal		



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5.5 Pedestrian and Bicycle Facility Needs

There are several compelling reasons for increasing pedestrian and bicycle accommodations: to provide transportation choices, to realize health benefits, to enhance environmental quality, and to improve the overall quality of life. Cities in KTMPO planning region have cited these same benefits as the impetus behind their efforts to improve bicycling conditions. Elected officials and staff in Belton, Killeen, Harker Heights, Temple, and Fort Hood have instigated new efforts and initiatives toward these goals.

5.5.1 Related Planning Documents

Several studies and reports have been previously prepared which pertain to bicycle and/or pedestrian needs in the KTMPO planning area. The following materials were reviewed and utilized in creating and updating this regional Pedestrian/Bicycle Plan:

- KTMPO 1994 and 2008 Pedestrian/Bicycle Plans
- City of Belton Bike & Trail Plan
- City of Killeen Comprehensive Plan, adopted November 2010
- City of Killeen draft Hike & Bike Trails map
- City of Temple Parks Master Plan, adopted May 2010
- Fort Hood Bicycle Trail Network, September 2008



In addition to these adopted and proposed planning documents, the bicycle and pedestrian plans and needs of key member cities were discussed in one-on-one meetings. Several cities are planning bicycle and pedestrian improvements outside of an official master planning process, but are intending to seek funding and implement projects through programs such as Safe Routes to School and/or the Statewide Transportation Enhancements Program or by inclusion in upcoming capital roadway projects.

5.5.2 Pedestrian Facility Needs

In considering transportation needs in an urban area, it should always be assumed that people will walk. People will want to walk to nearly any destination that motorists drive to, because there will always be citizens without access to a personal vehicle who need to access stores, services, employment centers and recreation.

The existing network of sidewalks located along arterial and collector roadways in the KTMPO region is depicted in Exhibits 22 through 26. These maps also show the presence of foot-beaten paths or “desire lines” that provide evidence of pedestrian traffic along the side of a roadway without a sidewalk. These worn paths are the strongest evidence of the need for sidewalks for citizens who either must walk, or who choose to walk regardless of roadway accommodations for pedestrians.





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Safe Routes to School

Safe walking and bicycling routes should be established for each elementary and middle school student living within reasonable distance of the school. Students should have a sidewalk to walk on, rather than be forced to walk in the road. They should have designated street crossing locations, preferably enhanced with crosswalks and crossing aids (e.g., signals, crossing guards, pedestrian refuge islands) to make their crossing safer. School speed zones on roadways around the school that must be crossed are typically established for school entry and exit time periods. Having safe walking and bicycling routes to elementary and middle schools is particularly important for low-income families that may not have a vehicle available to take kids to and from school.



Administered by the Texas Department of Transportation, the Safe Routes to School program is a federally funded effort to encourage elementary and middle school students to walk and bicycle to school, for their own physical fitness and health, to ease auto traffic congestion and increase student safety at and near schools, to improve neighborhood conditions and to provide transportation options for families without multiple car ownership. School districts and parent-teacher groups work with local city government to compile Safe Routes plans for their elementary and middle schools, after which they can apply for funding for both infrastructure improvements and educational campaigns.



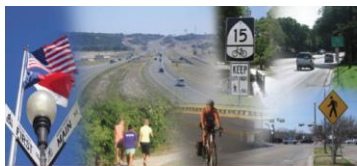
The following school districts and cities have received Safe Routes to School grants:

- **Belton** – The city and school district received a Safe Routes grant for improvements at Miller Heights Elementary.
- **Killeen** – A Safe Routes plan has been completed and submitted to TxDOT.
- **Temple** – Two projects have been funded in the latest grant cycle; at Lakewood and Bonham Elementary Schools.
- **Troy** – Mays Elementary and Mays Middle School received a Safe Routes grant.

Additional cities and towns in the region are aware of the Safe Routes program, but have not yet completed plans or applied for funding. This suggests an area in which the Killeen-Temple MPO could take a leadership role in educating the region's jurisdictions on the Safe Routes program, thus giving area school children more transportation options. ISDs with campuses within the KTMPO planning area that have yet to formulate a Safe Routes to School program include: Academy, Bartlett, Copperas Cove, Holland, Rogers, and Salado ISDs.

Safe Routes to Transit

One of the goals of this Thoroughfare and Pedestrian/Bicycle Plan is to strive toward “healthy” communities for all citizens. Pedestrian access to most areas of city life by all citizens is part of this goal, but this is ever more crucial for people who are dependent on public transportation for basic access. It is critical to provide a network of ADA compliant sidewalks to feed bus stops and transit transfer points so that people can safely access the transit system. Representatives



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of Hill Country Transit (the HOP) have stated that “more sidewalks are needed everywhere” in the region. When planning where to add sidewalks, special priority should be given to developing the network feeding key transit routes and bus stops. Exhibits 22 through 26 show that there are several HOP stops that do not have sidewalks leading to or from them. In addition to the general lack of sidewalks along many routes, hazardous roadway crossings present a significant access barrier and safety issue for citizens. Many multi-lane, high-volume arterials are too wide for some citizens, particularly the elderly, disabled, and children, to cross during a signal timing phase, or traffic control at these intersections favors auto traffic flow rather than pedestrian access and safety.

5.5.3 Bicycle Facility Needs

As mentioned earlier, additional bicycle facilities are being given more consideration throughout many of the large cities in the region. Moreover, socio-economic factors unique to the presence of Fort Hood, the U.S.'s largest military installation, call for additional transportation options such as bicycling. Due to the transient nature of military life, many families do not have access to a second or third automobile, thus limiting the mobility, freedom, and opportunities, especially for high school and college-age children. In addition, bicycling presents another option for low-income citizens who simply cannot afford to own or operate a car.

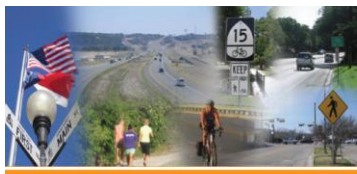
5.6 Facilities Plan

The envisioned future bicycle and pedestrian system within the KTMPO planning area is comprised of a mixture of both on-street and off-street facilities. These facilities reflect those from the original 2008 plan and were subsequently reviewed and modified as necessary based upon their current planning and implementation status, with particular emphasis on ensuring consistency with newly developed plans within the cities of Belton, Killeen, and Temple, as well as Fort Hood.

5.6.1 System Development Criteria

The factors that were considered in selecting the proper type and location of bicycle and pedestrian facilities are reflected in the goals and objectives developed for this plan. The system development criteria can be summarized into the following three categories:

1. Increase Accessibility:
 - a. Maximize potential use
 - b. Provide access points to and from key origins and destinations, such as elementary and middle schools, transit stops, grocery stores, government offices, medical complexes, parks and other recreational facilities, and employment centers
 - c. Optimize directness of route and minimize delay
 - d. Cross physical barriers safely and efficiently



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2. Design for Safe Walking and Bicycling:
 - a. Minimize conflicts through proper design
 - b. Minimize potential and severity of collisions
 - c. Provide good quality pavement surface
 - d. Maintain proper security facilities
3. Optimize Use of Bicycling and Walking for Transportation:
 - a. Connect residential areas with major activity centers and recreational areas
 - b. Provide adequate coverage with proper facilities
 - c. Provide continuity of designated facilities
 - d. Provide connections to major transit facilities to promote intermodal travel

5.6.2 Recommended Bicycle Facilities

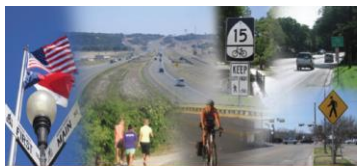
The recommended on-street and off-street facilities that have been conceived within the region are presented in Exhibit 31 through Exhibit 36. In addition, a listing of the recommended bicycle and multi-use trail facilities is included in Appendix C. The listing includes tables for each individual jurisdiction in the KTMPO planning area and includes “segments” of the bicycle network including the type of each bicycle facility, its location and limits, the existing conditions of the location, whether the facility is contained within a local plan, whether the facility is on or directly adjacent to a state highway, its length, and a generalized estimated cost. The IDs are shown on the maps in Exhibits 31 through 36 and were developed using a “route” and “route-section” numbering system. This system was derived to connect recommended facilities that form a logical path across a neighborhood, city, or in some cases, the entire KTMPO planning region.

As previously mentioned, these listings include both those facilities specifically identified as priorities by the region’s key cities, plus those that would be logical additions further into the future based on standard non-motorized transportation planning principles. As the region’s cities develop their long-term bicycle plans in the years to come, additional detailed analysis may be needed to determine whether to retain or omit some of the recommended projects.

On-Street Bicycle Facilities

The types of on-street facilities within the regional recommended network include the following:

- Bicycle routes that share the roadway as is, with designated signs
- Wide curb lanes that have autos and bicyclists sharing a lane 14 to 15 feet in width
- Dedicated striped bicycle lanes, typically on “urban” roadways with curb and gutter
- Shoulder lanes, typically on “rural” roadways without curb and gutter



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On-street facilities utilize roadways that have been established to accommodate existing or projected vehicular travel demand. As such, an on-road bikeway network will access the places people want to go, connecting neighborhoods to adjacent destinations and other neighborhoods. However, the needs of Advanced bicyclists and Basic bicyclists are targeted using different facility types and locations.

Bike Routes for Neighborhood Connectivity – To address the needs of Basic bicyclists, neighborhood connections by neighborhood bike routes can best be accomplished using local and collector streets, and by installing trail connectors and traffic control devices at strategic crossings of major arterial streets that bisect neighborhoods.



Bike Routes for Commuter and Long-Distance Bicyclists

– Some existing or soon to be improved collector or minor arterial roadways could serve the more advanced bicyclist to access destinations. Other roadways, such as freeway frontage roads, could serve as facilities to accommodate bicyclists as they have a wide outside lane or shoulder lane and extend uninterrupted for long distances. The presence of employment centers, key shopping destinations and other services along freeway frontage roads warrant providing bicycle accommodations on these routes. Many of these

facilities could be designated as bicycle routes as they are, or could be enhanced with bike lanes by restriping the existing roadway with narrower travel lanes and adding the bicycle lane in the residual space.

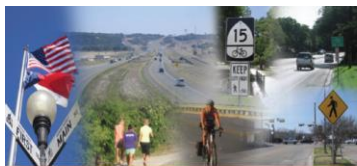
Bicycle improvements on urban streets can take the form of a wide curb lane, which is adequate for the more experienced cyclists under most conditions, or can consist of a dedicated, striped bicycle lane adjacent to the right edge of the roadway, which is preferred by less experienced cyclists. According to the manual, "Selecting Highway Design Treatments to Accommodate Bicycles," developed for FHWA in 1993, a bike lane should generally be provided to accommodate basic bicyclists on roadways with speed limits greater than 35 miles per hour or on roadways that experience traffic levels greater than 10,000 vehicles per day. Bike lanes become important for advanced bicyclists when vehicle speeds exceed 45 miles per hour.

Off-Street Bicycle Facilities

Off-street facilities provide a path of travel, separated from the roadway within street right of way or on separate right of way, which is generally for combined bicycle and pedestrian use. These types of facilities are commonly called "hike and bike trails" or "multi-use trails" when on separate rights of way, or may be called "side paths" when adjacent to a roadway.

Many of the paths that have been recommended along creeks can be expected to function as multiple-use trails used by cyclists, pedestrians, and in-line skaters. Often such trails can serve as key urban utilitarian or bicycle commuting routes, as they are sometimes the only accessible bike route in a given corridor. However, high speed cycling should be discouraged along the





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more heavily utilized sections during peak hours of recreational usage. Because efficient cycling can be impeded on these facilities, it should not be assumed by planners and designers that trails are the best type of bicycle facility. Cyclists will often prefer to use an adjacent roadway and should not be “forced” or expected to use a multi-use path that is populated by slower-moving traffic such as families walking with babies in strollers, people walking dogs, etc. Therefore, when planning and designing off-street paths it is important to make efficient and safe connections from the path to the sidewalks or bike accommodations of intersecting streets. Grade separations may be needed in locations where these paths cross major streets.

Paths along drainage ditches or utility easements present excellent low-cost opportunities for trail corridors or trail connectors between neighborhoods or commercial developments. In the majority of such locations right-of-way is already available and much of the necessary grading and clearing exists to accommodate maintenance vehicles.

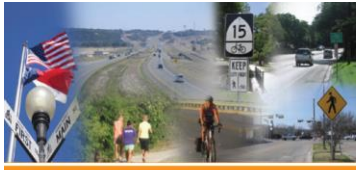
5.6.3 Recommended Sidewalk System



It would be ideal if sidewalks were as prevalent as roadways, with a ubiquitous network of sidewalks on both sides of every street. Unfortunately, a large portion of the current roadway infrastructure was not built with sidewalks. Therefore, a process of identifying locations at which sidewalks need to be retrofitted should yield a prioritized list of roadways with high pedestrian needs. As mentioned earlier within the Existing Pedestrian Facilities section, there exists clear visible evidence of where pedestrian needs are not being met with adequate

sidewalk infrastructure. These pedestrian-worn paths should be among the sidewalk improvement projects that cities pursue as they seek to fill the gaps within the existing sidewalk network. Within the KTMPO planning area, the locations that exhibit the highest concentration of long stretches of foot-beaten paths include the following:

- **Belton**
 - Main Street, between US190 and Avenue D
 - Main Street, between Industrial Park Rd and Sparta Rd
- **Copperas Cove**
 - FM116, between Atkinson Ave and US190
 - Georgetown Road, between Sunset Ln and Highway Ave
 - Main Street, between Jason Dr and January St
- **Harker Heights**
 - Indian Trail, between Boulder Run and US190
 - Verna Lee Boulevard, between FM2410 and Indian Trail
- **Killeen**
 - Clear Creek Road, between Vahrenkamp Dr and US190
 - Elms Road, between Hereford Ln and Lagrone Ct
 - Illinois Avenue, between WS Young Dr and Grey Fox Trail
 - Old FM440, between Stan Schlueter Loop and US190
 - US190 Frontage Roads, between Fort Hood St and Trimmier Rd
 - WS Young Drive, between Little Nolan Rd and Illinois Ave



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- **Temple**
 - 3rd Street, between Park Ave and Zenith Ave
 - 31st Street, between Paseo Del Oro and Marlandwood Rd
 - 31st Street, between Scott Blvd and Central Ave
 - Adams Avenue, between Olaf Dr and Apache Dr
 - Avenue M, between 27th St and 5th St
 - Illinois Avenue, between WS Young Dr and Grey Fox Trail

In addition to these roadways, other locations of foot-beaten path shown in Exhibits 22 to 26 should also be considered for new sidewalk construction. To further prioritize these potential project locations, proximity to the following areas should be used to determine where sidewalk investments need to be made:

- Elementary and middle schools
- Transit routes
- Grocery stores and other essential shopping areas
- Government offices and medical complexes
- Parks and other recreational facilities
- Employment centers

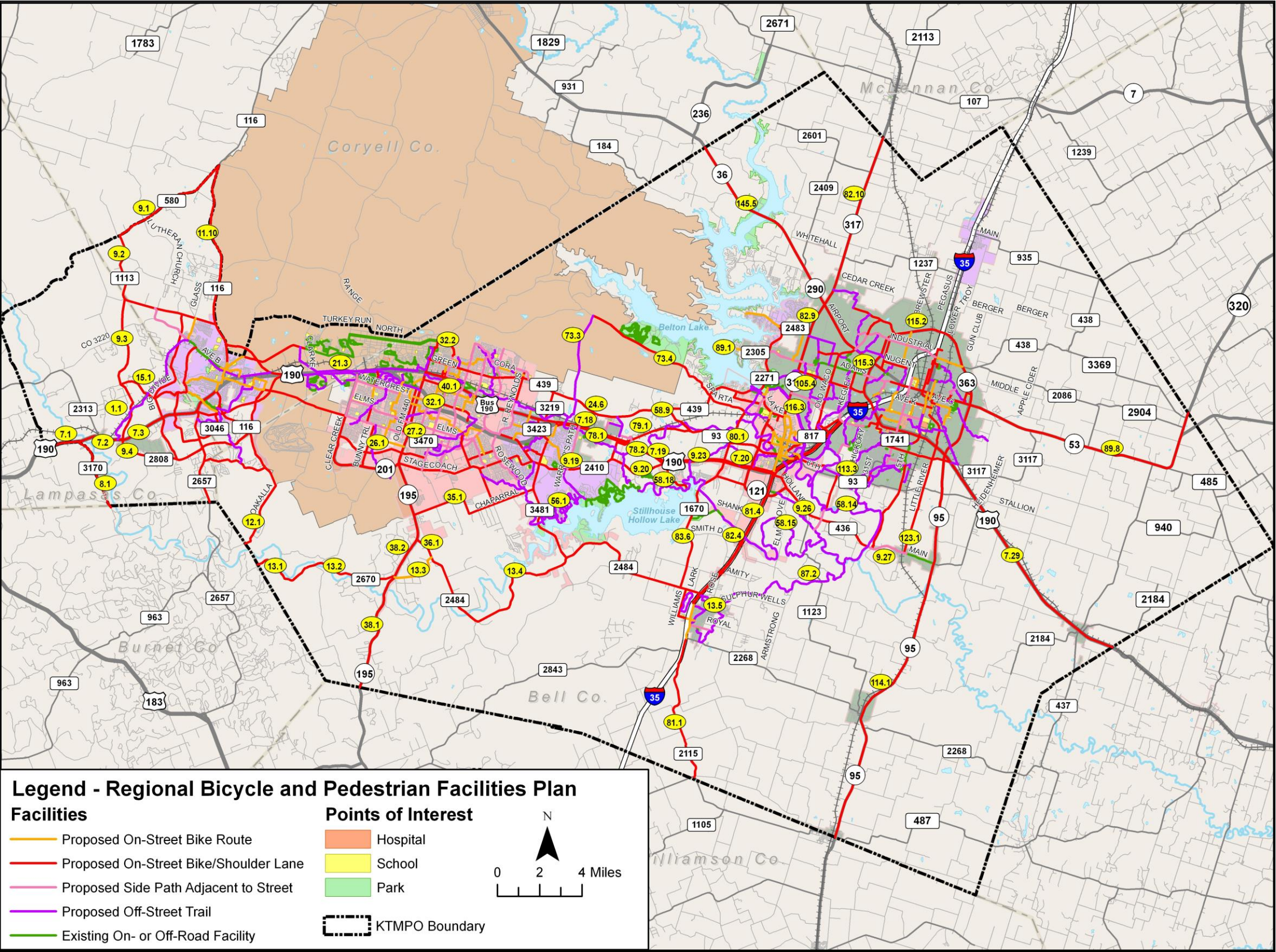


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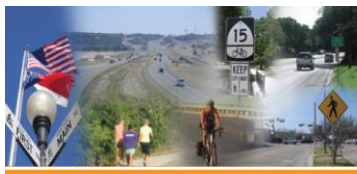
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Exhibit 31: KTMPO Future On- and Off-street Bicycle/Pedestrian System



Source: Wilbur Smith Associates, 2011.

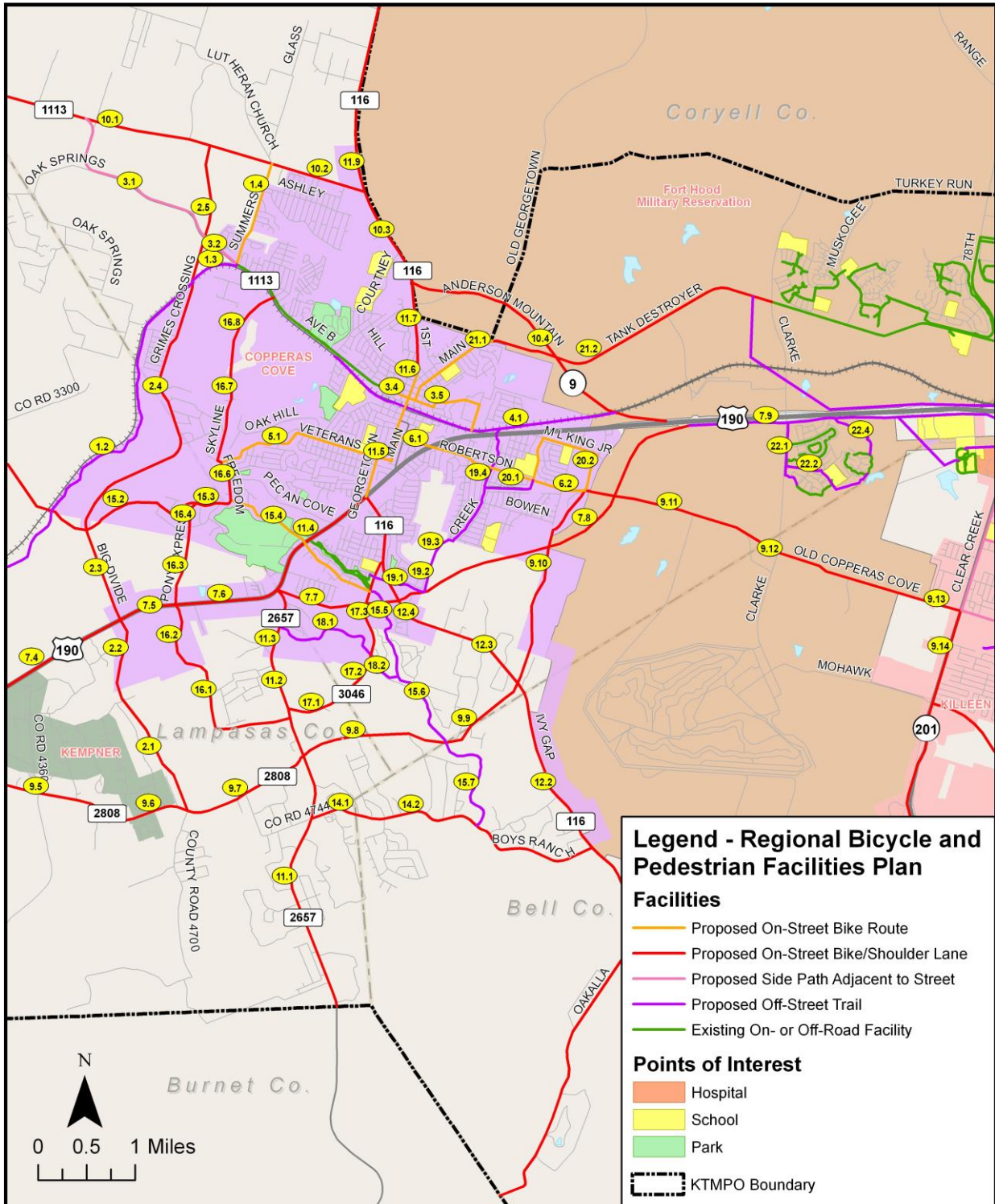
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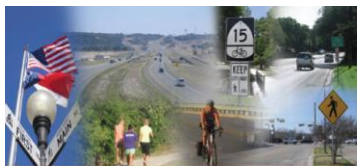
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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Exhibit 32: KTMO Future On- and Off-street Bicycle/Pedestrian System (Copperas Cove)



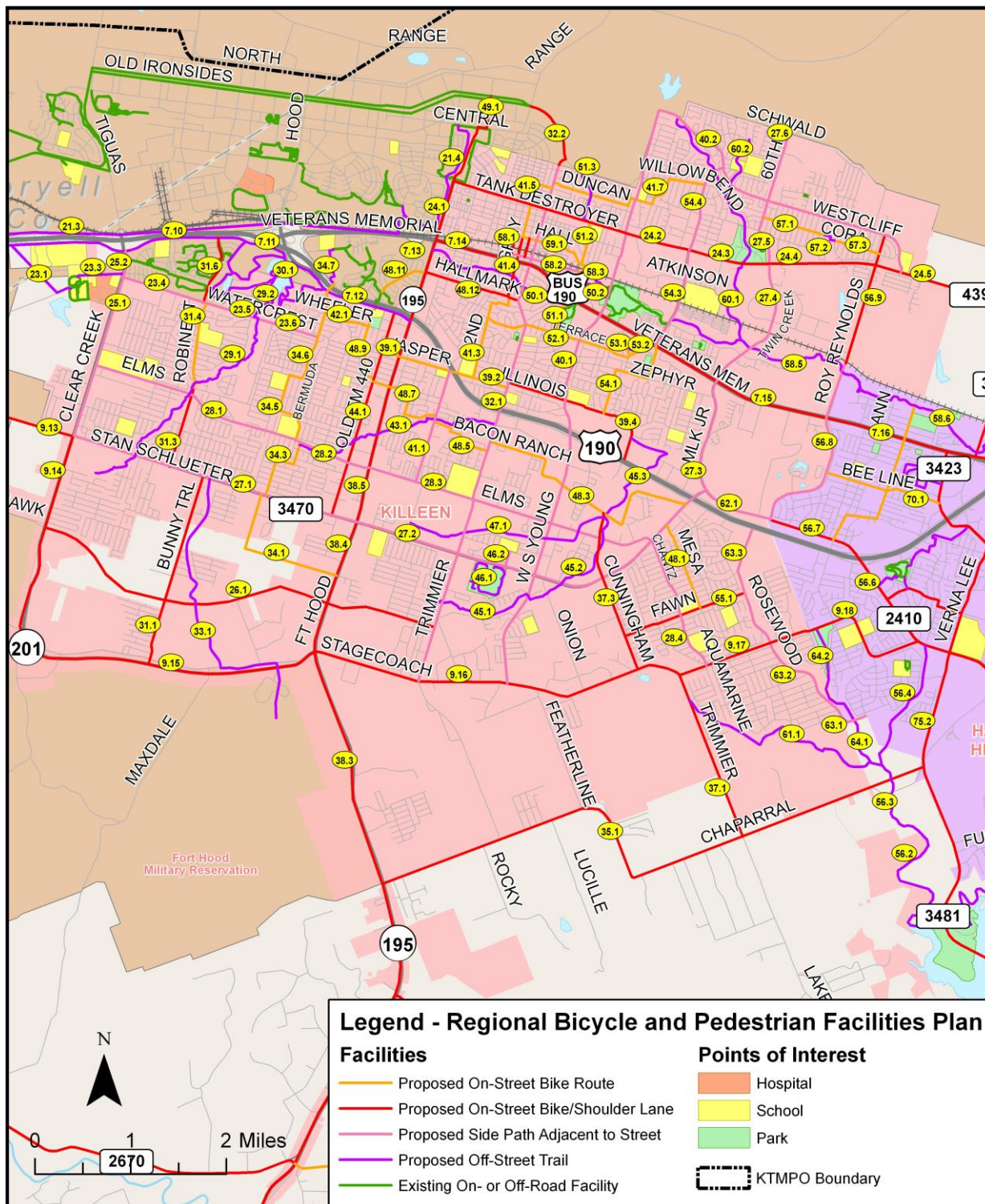
Source: Wilbur Smith Associates, 2011.



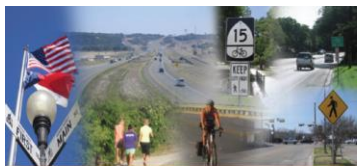
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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Exhibit 33: KTMO Future On- and Off-street Bicycle/Pedestrian System (Killeen)



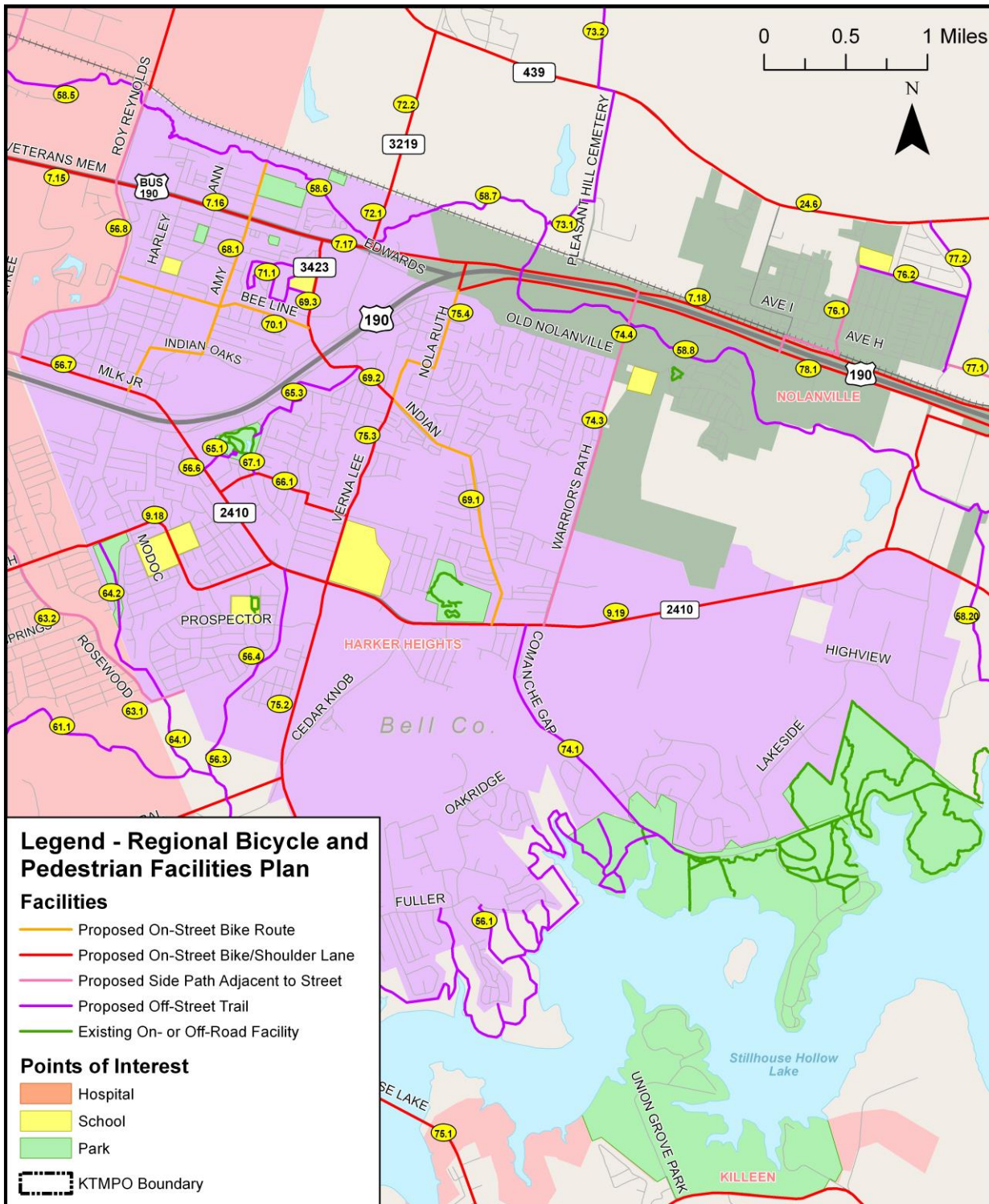
Source: Wilbur Smith Associates, 2011.



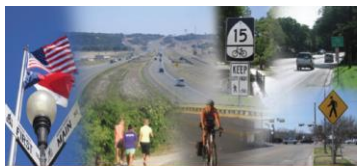
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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Exhibit 34: KTMO Future On- and Off-street Bicycle/Pedestrian System (Harker Heights)



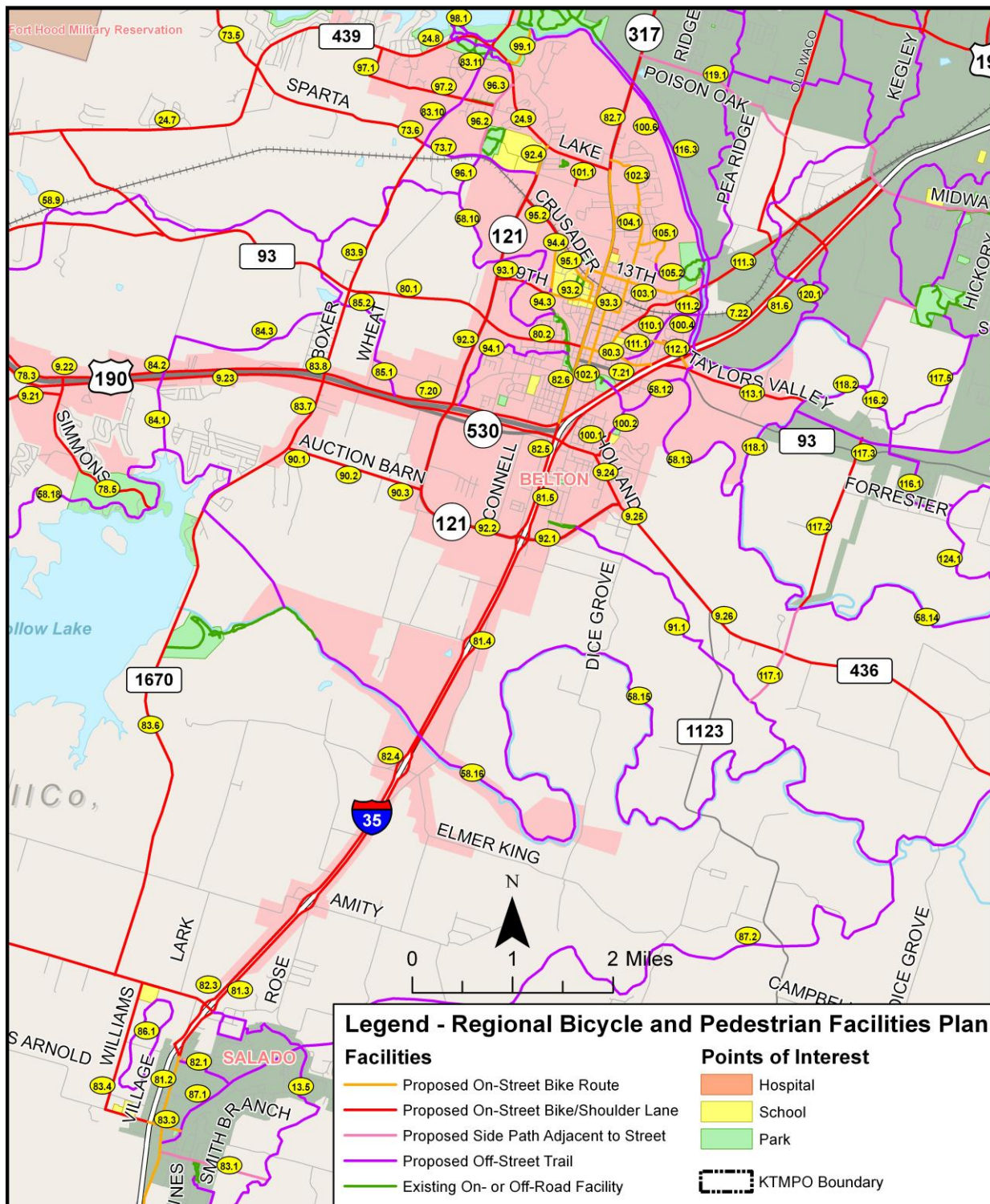
Source: Wilbur Smith Associates, 2011.



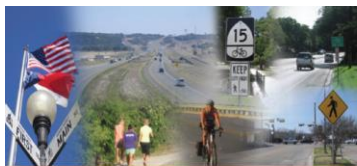
Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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Exhibit 35: KTMPO Future On- and Off-street Bicycle/Pedestrian System (Belton-Salado)



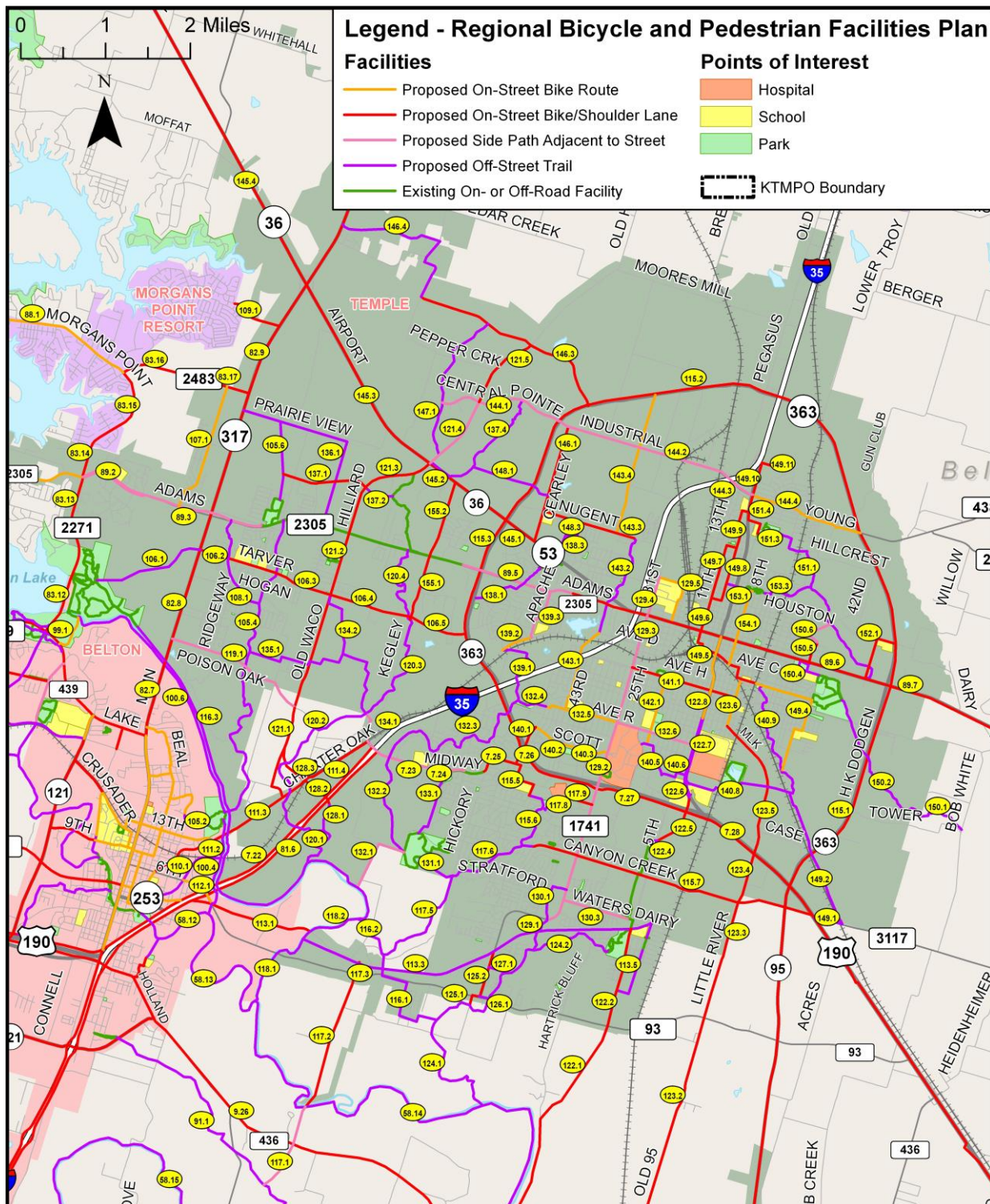
Source: Wilbur Smith Associates, 2011.



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Exhibit 36: KTMPO Future On- and Off-street Bicycle/Pedestrian System (Temple)



Source: Wilbur Smith Associates, 2011.



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5.6.4 Supporting Amenities

To realize the full potential of non-motorized transportation, a number of other supporting amenities and programs should be in place to support bicycling and walking in the region.

Bicycle Parking - Bicycle parking should be provided, by ordinance, at all public buildings that are potential cyclist destinations. Bicycle parking should be encouraged, potentially by ordinance, at privately owned facilities that are potential bicyclist destinations.

There are two basic types of bicycle parking equipment: bicycle racks and bicycle lockers. Bicycle racks may be provided where parking needs are short-term. At these locations, some provisions are made for security or surveillance. Lockers would be desirable for all-day parking at locations where the desired level of security is higher than that provided. Bicycle racks that are most useful for cyclists are those to which the bicycle frame and wheels can be secured. Many types of bicycle racks are currently available, ranging from the basic wheel-engaging school yard type, to the more functional U-shapes or ribbon rails, to the "bike traps" with moveable segments to lock the bike in place. Prices of bike racks can range from \$20 per space to over \$200 per space.

Bicycle lockers are a physical enclosure for the bicycle, typically with individual compartments. They require a paved structure for mounting as well as more physical space than a fully occupied bike rack of the same capacity. Costs of a locker installation can range from \$200 to over \$500 per space, depending on the quantities and type of facility.

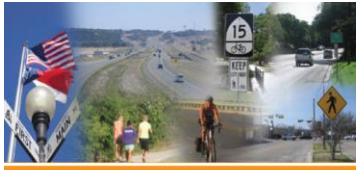
Bicycles and Transit - The ability to link bicycle trips with bus trips provides significant expansion of the service area for bus routes and also increases the utility of bicycles as a travel mode. The Hill Country Transit District has recently been considering the purchase of bike carrier racks for its buses to enable cyclists to combine trips by bus and bicycle, and is expecting to install them on their existing fleet over time and to order all new buses with bicycle racks pre-installed.

5.7 Prioritization of Implementation

The comprehensive network of bicycle and pedestrian facilities will need to be implemented in stages, due to fiscal, physical, and other constraints, and therefore, a scheme for prioritization of projects is needed. Because levels and resources of funding will change during the implementation period, the prioritization plan must be flexible. The prioritization program allows sidewalks, bike routes, bike lanes, and multi-use trails to be evaluated based on a set of criteria that is clearly understandable and open to review. A list of bicycle prioritization criteria to be used in a formal ranking system to most effectively prioritize projects is provided as a guide.

Criteria for determining implementation priorities include the following:

- **Connectivity of Demand** – Does the project provide a connection between significant activity centers (e.g. neighborhoods, schools, town centers, public facilities, transit facilities, parks, other trails, commercial developments)?
- **Public Support/Commitment** - Is there general public and political support for the individual project?



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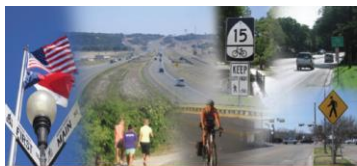
- **Cost Effectiveness** - Can the project be accomplished in conjunction with another planned roadway improvement project that is currently funded? Does the project improve overall road safety for the least cost?
- **Funding Commitments** - Has a commitment been made to fund the construction and ongoing maintenance of the facility?
- **Right-of-Way** - Is sufficient existing right of way available or unencumbered so that the project may proceed immediately?
- **Network Development** - Does this particular facility connect to other facilities and/or provide an important link to facilitate regional bicycle travel?
- **Barriers** - Does this particular project eliminate a potential barrier to bicycle travel or is there an existing barrier which would make completion of this bicycle facility difficult?
- **Reduce Accidents** - Will the project improve bicycle safety?



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6.1 How this Thoroughfare and Pedestrian/Bicycle Plan Should be Used

The thoroughfare element of this plan establishes a long-range vision of the regional roadway framework covering a planning horizon that extends far beyond that of typical planning activities. The plan provides a single, consolidated, and consistent source of information regarding major roadways, both existing and planned. The effects of this plan on the future regional development patterns will be far-reaching. By guiding the preservation of right of way required for future thoroughfares and the overall expansion of the regional roadway system, the plan will influence both the regional travel patterns and the attractiveness of various areas for development.

As constituted, the plan can help guide a variety of local and regional planning efforts, and should be maintained over time so as to be kept current with the latest planning assumptions. Entities throughout the region are encouraged to refer to this plan to assist them in their ongoing development, maintenance, and implementation of their own planning efforts, including programming of projects, land use and utility planning, and economic development initiatives. The regional plan can and should be used to support municipal thoroughfare plans and to strengthen the assurance that new developments provide for continuous roadways and connections between neighborhoods, thereby improving regional mobility and connectivity. For example, during the course of their review of preliminary and final plats for proposed subdivisions and other developments, all MPO-member jurisdictions are encouraged to promote compliance with this regional thoroughfare plan to ensure consistency and availability of sufficient rights of way for the general roadway alignments and classifications shown in the plan. In addition to public entities, it is also important that current landowners and prospective developers use the plan as a resource to inform their decisions. In short, the plan can and should be used as a guide for local planning to support and promote orderly and well-planned growth.

6.2 Thoroughfare Plan Implementation and Financing

Implementation of the roadway network presented in the Thoroughfare Plan will occur gradually, as the region grows and, over a long period of time, builds toward the ultimate thoroughfare system shown in the Thoroughfare Plan. As land development occurs, a balance between access to individual properties and the proper function of the thoroughfare network needs to be preserved.

Projects required for the implementation of the Thoroughfare Plan will be constructed by a variety of implementing agencies, including municipalities, counties, Fort Hood, the Texas Department of Transportation, private developers, and in some cases, public-private partnerships. However, it is important to remember that the fact that a proposed or improved thoroughfare is shown on the plan does not necessarily commit any entity to construct or



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improve a roadway facility. The plan is simply a high-level guide for future transportation facility needs. Both funding and land development uncertainties make it difficult to precisely schedule future thoroughfare development beyond a few years into the future.

Municipalities are encouraged to continue their own sound planning practices as they relate to zoning, subdivision regulations, building set backs, access control, and visibility standards so that land and roadway development occurs in such a fashion to be consistent with the Thoroughfare Plan. In addition, they are encouraged to understand that the network within their jurisdiction is part of a larger regional system.

As is the case with municipal-level thoroughfare plans, during the implementation of this plan, special situations are sure to arise where current development conditions and physical constraints conflict with the need for improving or constructing thoroughfares to the planned typical roadway cross section. When a unique design is warranted, the acceptable minimum roadway cross sections should be used to the extent that is practical. Otherwise, standard roadway cross sections should be used in all newly developing areas and, whenever possible, in existing developed areas.

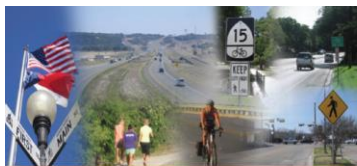
Traditionally, funding for the various types of roadway projects related to the development of the regional thoroughfare plan is provided via the local general obligation bond programs, the KTMO's Transportation Improvement Program, developer participation, and in some cases, toll revenue financing. The prioritization processes that are in-place for the development of these funding programs should continue to be followed to ensure that the most needed projects are the ones that are implemented first.



6.3 Thoroughfare Plan Maintenance

As with any long-range planning document, this Plan should be considered a “living” document that responds to changing visions, goals, priorities, and trends of each individual jurisdiction. Alterations to the plan should derive from sound planning practices and should be supportive of maintaining mobility of the transportation system in the KTMO region. As member jurisdictions make changes to their thoroughfare plan through either an incremental update process or through a complete restructuring as part of an updated Comprehensive Plan, notification should be provided to the MPO planning staff so that this regional plan can remain up-to-date. Any modifications to this plan should be such that they are harmonious with local plans and sensitive to the needs and constraints found within a local area. In turn, the local area plan must seriously consider the impact their changes have on the mobility needs of the entire region.

As time goes on, the MPO will have to periodically consider amendments to the Thoroughfare Plan to reflect changing conditions and new needs for thoroughfare system improvements. Therefore, it is recommended that a systematic procedure be developed and faithfully followed for making plan amendments. By keeping the thoroughfare fresh and based upon the latest planning assumptions, good planning can be achieved.



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One recommended amendment process is outlined as follows:

- The local entity presents the suggested revision to the MPO staff for initial review
- MPO staff reviews the suggested revision in terms of regional connectivity, impacts to future traffic patterns, and compatibility with the existing plan
- Once common understanding between MPO staff and the requesting entity is reached, MPO staff and the requesting entity present the suggested revision to the MPO Technical Committee
- The MPO Technical Committee formally considers the proposed change(s) and staff recommendations
- Should the change be considered to be “significant” (e.g., in response to a complete overall of a city Comprehensive Plan), the proposed amendments are presented at a public hearing
- The MPO Technical Committee recommends approval by the MPO Policy Board
- The revised Thoroughfare Plan network is adopted by the MPO Policy Board

This process is not intended to be overly burdensome, nor does it attempt to thwart thoroughfare modifications at the local level. Rather, it should be considered to be one element of the continuing, cooperative, and comprehensive transportation planning processes for the KTMPO planning area. At the very least, a comprehensive review and update process should be performed on a regular basis to coincide with the update cycle of KTMPO’s Metropolitan Transportation Plan. However, it is recommended that a more “routine” update process, like the one previously described, be followed in order to keep current with thoroughfare plan changes being made by local government agencies in the KTMPO region.

6.4 Pedestrian/Bicycle Implementation, Programs, and Policies

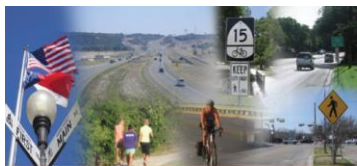
6.4.1 Bicycle Programs and Policies

Since the passage of the Intermodal Surface Transportation Efficiency Act in 1990, cities all over the country have greatly improved conditions for bicycling and walking. Based on *The National Bicycling and Walking Study*, developed by the Federal Highway Administration, and other proven strategies and best practices, the following action plan for increasing bicycle and pedestrian mode share and improving community livability has been developed.



Action Area 1: Organize a Bicycle/Pedestrian Program

Action Item 1.1 Establish a Bicycle and Pedestrian Advisory Committee – The Killeen-Temple MPO should formally establish a Bicycle and Pedestrian Advisory Committee that consists of representatives from each of the cities and counties within its planning area, the Hill Country Transit District, TxDOT, and interested citizens. The committee should meet regularly



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to discuss regional coordination and common issues and to follow-up on overseeing the implementation and further refinement of the plan.

Action Item 1.2 Institutionalize the Role of Bicycle/Pedestrian Program Coordination within Local Government

– Within all jurisdictions inside the KTMPO planning area, staff from planning, public works, traffic engineering, parks and recreation are all responsible for planning and implementing projects that impact walking and bicycling in communities. Within these departments, the role of pedestrian/bicycle program coordination should be assigned to one or more persons. Ideally, the role would eventually be "institutionalized," becoming part of the planning, design, construction, and maintenance concerns of all responsible agencies and would include, at a minimum, the following responsibilities:

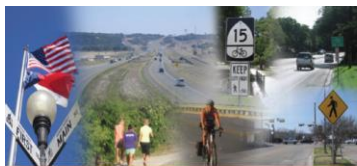
- Establish development codes to require accommodations of bicyclists and pedestrians in development projects that warrant such accommodations
- Administer bicycle parking equipment permits and requests
- Establish routine accommodation of pedestrian and bicycle travel in such traffic engineering matters such as signals, signs, pavement markings, curb ramps, and intersection design
- Research all potential funding sources
- Direct street and trail maintenance requests to proper departments
- Review hike and bike trail locations and designs
- Record and analyze bicycle traffic counts
- Record and analyze accidents involving pedestrians and bicyclists
- Develop public service announcements and distribute safety and promotional information
- Coordinate with the Hill Country Transit District to provide bicycle and pedestrian connections to bus stops and establish a bicycle-on-bus program
- Review the design and location of extensive utility projects for the potential to incorporate multi-use paths

Action Item 1.3 Promote Land Use Patterns and Zoning that Encourage Walking and Bicycling to Destinations

- Local land use patterns are fundamental to the number of trips that can easily be made by walking or bicycling. Sprawling land use patterns produce lengthy trips, and thus increase dependence on motorized transportation. Conversely, clustered patterns tend to promote shorter trip lengths that more readily enable walking and bicycling. Mixed land uses allow for the creation of self-sufficient neighborhood communities and shorter trip lengths to access needed goods and services.

City planning officials and staff should review the assumptions of land use plans and zoning ordinances and compare them to non-motorized travel needs identified in user surveys and other relevant data sources.

Action Item 1.4 Accommodate Walking and Bicycling in Urban Design - Street layout is important in the encouragement of safe bicycling and walking. Subdivision development guidelines that call for sidewalks, green space, local trail networks, and collectors that connect across arterial streets are essential for safe and efficient bicycling and walking. Traditional neighborhood design based on a grid pattern is a proven strategy for reducing automobile dependence and increasing a community's livability. Street alignments shown in new



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subdivision plats should be reviewed to ensure they will accommodate cyclists and pedestrians as well as motor vehicles.

Action Item 1.5 – Adopt Street Design Standards that Accommodate Bicycling and Walking – Proper design is critical for making the bicycle and pedestrian environment safe and usable. At a minimum, the planning for public streets and facilities should follow the *Guide for the Development of Bicycle Facilities* by the American Association of State and Highway and Transportation Officials (AASHTO), 1999, and the *Guide for the Planning, Design, and Operation of Pedestrian Facilities* (AASHTO), 2004. Pedestrian-oriented design of all sidewalks, trails, and public places should comply with requirements of the Americans with Disabilities Act of 1990. Non-compliance with these standards and guidelines should be by exception, just as with any other established design standard. New trends in design such as Complete Streets and Context Sensitive Solutions should be encouraged.

Action Item 1.6 – Provide Information and Training to Planners, Local Enforcement Officers, Designers, and Other Officials - An important element in the institutionalization of non-motorized transportation is a growing infrastructure of supportive professionals within government agencies, including the engineers and planners who conceive and implement much of the city's infrastructure. More effort is needed to expose these people to best practices from Texas and around the country and to offer training in bicycle/pedestrian design through webinars, workshops, and conferences.

Action Area 2: Plan and Construct Needed Facilities

Action Item 2.1 – Continue Ongoing Maintenance of Regional Planning Document - The Killeen-Temple MPO's long-range Metropolitan Transportation Plan incorporates a bicycle and pedestrian element, and this Pedestrian/Bicycle Plan is a further refinement of that element. Just as the city planning and engineering staff and local elected officials look to the long-range plan for guidance on the development of the roadway network, so too should the Pedestrian/Bicycle Plan be referenced and assessed for needed facilities. In addition, the MPO can support the development of local pedestrian/bicycle plans, which can use this regional plan as a guide and develop a more detailed, prioritized list of bicycle and pedestrian accommodation projects. Regionally important bicycle/pedestrian facilities taking advantage of federal funding should be included in the MPO's Transportation Improvement Program.

Action Item 2.2 - Identify/Coordinate Funding Sources - The Killeen-Temple Metropolitan Planning Organization should work in conjunction with Texas Department of Transportation and the Texas Parks and Wildlife Department to plan and program funding opportunities, especially those available under SAFETEA-LU and its successors. Bicycle and pedestrian facility projects and non-construction programs may be funded under a variety of multiple of funding sources, at federal, state, and local levels. Bicycle and pedestrian projects are eligible to compete with other roadway projects under the Surface Transportation Program. It is imperative that the selection criteria and timelines of each of these funding sources be fully understood in order to make advantageous use of their availability.

Cities and counties should work in coordination with TxDOT and through the MPO planning process to implement bicycle and pedestrian facilities along State Highways, Farm-to-Market Roads, and other state maintained roadways.



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Pedestrian and bicycle funding programs should be established at both the regional and local levels. At the Killeen-Temple MPO, a baseline allotment of federal transportation dollars should be set aside for pedestrian and bicycle infrastructure, similar to the way the Austin area MPO allocates 15% of its Surface Transportation Program-Metropolitan Mobility to non-motorized transportation modes. Locally, dedicated sources of local funding should be identified and be supplemented as needed to take advantage of matching fund opportunities.

In addition, volunteer programs and public-private partnerships may substantially reduce the cost of implementing some of the recommended trails and pathways. Local schools or community groups may use the bikeway or pedestrian project as a “project of the year,” possibly working with a local designer or engineer. Work parties may be formed to help clear the right of way where needed. A local construction company may donate or discount services. A challenge grant program with local businesses may be a good source of local funding, where corporations ‘adopt’ a bikeway and help construct and maintain the facility.

Action Item 2.3 – Construct, Improve, and Maintain Facilities - Usable facilities must be in place in order for bicycling and walking to be promoted as a viable transportation option. On-road bicycle facilities, multi-use paths, and sidewalks form the bulk of the circulation system for bicyclists and pedestrians.

Future roadways projects, including widening, reconstruction, and regular maintenance projects such as restriping provide timely opportunities to implement bicycle and pedestrian infrastructure. It is important that an effective review process is in place so that new roads meet the standards and guidelines presented in this and any subsequent pedestrian/bicycle plans.

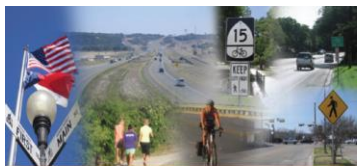


At the initial phase of facility development, it is most prudent to focus local resources on lower cost measures to accommodate bicyclists and pedestrians. Such measures for bicyclists include bike route signing, designating shoulder lanes, and striping bike lanes, with specific attention to intersection treatments. Lower-cost pedestrian measures include sidewalk repairs, completion of missing segments of sidewalks, and removal of sidewalk obstructions.

Matching funds should be sought to aid in the development of higher cost improvements, such as hike and bike trails, extensive sidewalk construction or reconstruction, and traffic signal modifications to accommodate bicyclists and pedestrians.

In addition to safety concerns, lack of adequate bicycle parking is often cited as a common reason why people do not bicycle. Any bicycle trip requires some sort of parking at its destination. Secure parking is particularly important for commuters leaving their bicycles for long periods of time and for those destinations which lie in high-crime areas. An increasing number of cities now require bicycle parking facilities in new developments. Apartment complexes, college dormitories, or other high density settings need to address the issue of where to store bicycles while at home.

Action Item 2.4 – Accommodate Bicycle/Transit Joint Use – The Hill Country Transit District is interested in enhancing the bicycle-transit mode connection and should continue planning for



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improvements. Bicycle racks at selected transit stops and transfer points will provide secure parking for cyclists who ride their bikes to and from bus routes. Bike racks on buses will enable cyclists to use bicycles at both ends of their transit trips.

Action Area 3: Enforce Laws and Regulations

Both local and state traffic laws and ordinances that govern motorist, cyclist and behavior are meant to provide as safe as environment as possible for all users. Because bicyclists and pedestrians are often the most vulnerable users of the transportation system, enforcement of traffic laws is crucial.

Action Item 3.1 – Target Areas for Enforcement and Encouragement of Proper Behaviors

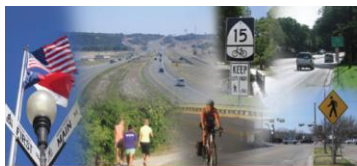
Areas with a high likelihood of infractions and motor vehicle crashes involving bicyclists and pedestrians - such as central business districts and schools - should be targeted for high enforcement, perhaps by using police patrol on bicycles. In many cases, either revisions of local traffic rules or consideration of new laws is needed to promote and encourage safer bicycling and walking. Proper education of law enforcement officers is also necessary to assure that safe riding and walking practices are enforced in a consistent manner. A key part of law enforcement training is how officers interpret and report on bicyclist and pedestrian collisions; determining which party is at fault plus the collection of that data can help traffic engineers design mitigating measures for high crash locations.

Action Area 4: Educate Bicyclists, Pedestrians, and the Public

The education of all road users helps ensure safe travel habits. Bicyclist/pedestrian programs typically employ a variety of media such as web sites, public service announcements, videos, brochures, and school materials promoting safe practices for individuals or groups.

Action Item 4.1 - Dissemination of Available Safety and Educational Materials – Targeted safety and educational material should be distributed in many forms and venues and can be drawn from a wealth of available resources. Examples of such resources are listed below.

- The Texas Department of Transportation maintains a full-time Bicycle and Pedestrian Coordinator position, with similar part-time positions in each of its districts. Information, materials, and technical assistance are available through TxDOT.
- Working through various Parks and Recreation or Police departments, bicycle rodeos may be conducted at which educational materials can be distributed to participants.
- Safe Routes to School programs or Parent-Teacher Associations may serve as avenues for disseminating information on pedestrian and bicycle safety to parents of school-age children.
- Working with the several area Independent School Districts and State Department of Education, materials can be distributed through the area schools to ensure that children receive age-appropriate instruction in bicycle and pedestrian safety. One excellent program, called *SuperCyclist*, has been developed by the Texas Bicycle Coalition, information about which can be found at www.biketexas.org.



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Action Area 5: Promote Bicycling and Walking

A coordinated approach to public information and awareness programs that promote bicycling and walking yields the best results. Such an approach may include events like bicycle-or walk-to-work days to encourage bicycling or walking trips which may lead to more frequent use of these modes. In addition to promoting alternative transportation, the public health community sees a benefit to promoting bicycling and walking to help cut down on the alarming growth in obesity, diabetes, heart disease and other “lifestyle” illnesses.

Action Item 5.1 - Prepare and Disseminate Public Information on Bicycle and Pedestrian Routes and Programs - As implementation of the bicycle route network proceeds, a Central Texas Bicycle and Pedestrian Guide showing bike routes and facilities should be prepared. Wide distribution of the guide to both residents and visitors will help promote non-motorized travel in the region.

Action Item 5.2 - Participate in National Programs – Events such as bike-to-work days, bike weeks, walk-to-school days, and cycling Sundays or “ciclovias” not only raise the awareness of bicycle and pedestrian safety and mobility issues, but also promote healthy lifestyles. Events and conferences relating to walking and bicycling include National Trails Day, the annual Trailbuilders Conference, the National Trails Symposium, ProWalk/ProBike, Trails and Greenways conferences, and National Scenic and Historic Trails, as well as numerous equestrian and non-motorized vehicle conferences. Participation in these events can offer valuable exposure to other successful programs from around the country from which lessons can be learned.



Action Item 5.3 - Foster the Development of Local Bicycling and Walking Events and Programs – From fund raising walks and runs to higher-end races and tours through the Hill Country, local events should be held to promote the advancement of pedestrian and bicycling activities in the region. An excellent example of this is the Copperas Cove Chamber of Commerce’s decade-long effort to attract bicycling tourism to the region. Its recent partnership with Fort Hood and a bicycle racing promoter helped bring the Texas state road racing championships to Fort Hood.

Action Item 5.4 – Adopt Public Policies - To formalize the establishment of a bicycle and pedestrian program within each of large cities and three counties in the KTMPO planning area, city councils and county commissions should adopt certain policies that will guide the development of regional bicycle and pedestrian facilities and programs.

6.4.2 Bicycle Implementation Strategy

The following set of short-range priorities for implementation of the action items within the five previously discussed Action Areas is presented below. These tasks should be advanced simultaneously on numerous levels and fronts.

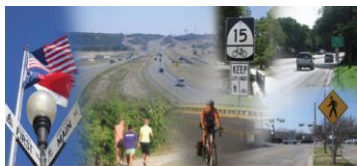


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1. The MPO Policy Board should adopt the Regional Pedestrian/Bicycle Plan and adopt the AASHTO Guides for bicycle and pedestrian facilities as a regional standard.
2. Cities should adopt their portion of the Regional Pedestrian/Bicycle Plan after review and refinement for local conditions.
3. Cities should adopt the regional public right of way design standards for roadway development that accommodate bicycling and walking after review and refinement for local conditions.
4. TxDOT should consider this KTMPO Pedestrian/Bicycle Plan and locally adopted plans in its planning, design, operations and maintenance of transportation corridors.
5. Independent School Districts should prepare or update their Safe Routes to Schools plans. Each ISD should identify the safe access needs of each of its elementary and middle schools and develop a transition plan to improve non-motorized access to each school. Moreover, it may be necessary to include area high schools in Safe Routes to Schools programs - one particular need is for students of Fort Hood families who may not have their own cars due to the transient nature of military living.
6. The MPO and the Hill Country Transit District should develop a regional standard for the provision of sidewalks for access to and from bus stops, and initiate a Safe Routes to Transit inventory of existing needs and a transition plan to improve access to existing transit stops.
7. Each city should formally designate areas within their central core and other appropriate locations as Pedestrian Districts to receive focused attention for the provision of sidewalks, improvements for ADA accessibility, and creation of a pedestrian- and bicycle-friendly community. Annually, each city should re-evaluate the boundaries of the Pedestrian Districts and seek to expand the accommodations and activities within them.
8. Cities should establish a line item in their annual budgets for non-motorized transportation enhancements to their public rights of way. Basic line item categories could include the following: ADA Transition Plan, Bicycle and Pedestrian Crash Reduction, Safe Routes to School, Safe Routes to Transit, Bicycle and Pedestrian Mobility and Safety, Disadvantaged Citizens Mobility Initiative, and Pedestrian District Infrastructure.
9. Local police departments and the Texas Department of Public Safety should analyze high-incidence crash locations involving pedestrians and bicyclists and implement necessary. Mitigation measures to reduce such incidents should be developed and implemented.
10. The MPO should create a Bicycle and Pedestrian Advisory Committee that regularly meets to review the bicycle and pedestrian mobility and safety needs of the region and advises the MPO regarding such issues.

Funding for these implementation items can be sought from various federal, state, regional and local sources. Some of these sources are described in Exhibit 37 and Exhibit 38. Further discussion of potential funding sources as well as other bicycle and pedestrian program resources can be found at the Pedestrian and Bicycle Information web site at www.bicyclinginfo.org.



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Exhibit 37: Federal Funding Sources for Bicycle and Pedestrian Projects

Surface Transportation Program (STP) Funds may be used for either the construction of bicycle transportation facilities and pedestrian walkways, or non-construction projects (such as brochures, public service announcements, and route maps) related to safe bicycle use. In the future should the Killeen-Temple region grow to become designated as a Transportation Management Area (TMA), it may be eligible to pass STP-Metropolitan Mobility funds along to cities for bicycle/pedestrian improvements. The Capital Area Metropolitan Planning Organization (CAMPO) sets aside 15% of its STP-MM funds for non-motorized projects for which all jurisdictions in the Austin region compete.

Surface Transportation Enhancements Program (STEP) can fund bicycle and pedestrian projects, and they often comprise the largest percentage of this category. In many medium to small sized communities, STEP is the only source of funding for bicycle and pedestrian infrastructure. The cities of Belton, Copperas Cove, and Killeen have received significant STEP grants for trails projects.

National Recreational Trails Funds may be used for a variety of recreational trails programs to benefit bicyclists, pedestrians, and other non-motorized and motorized users. In Texas, this category of funding is administered by the Texas Parks and Wildlife Department.

Safe Routes to Schools Program provides funds and resources to the states to develop and improve pedestrian and bicycle infrastructure and safety programs near elementary and middle schools.

National Highway System (NHS) Funds may be used to construct bicycle transportation facilities and pedestrian walkways on land adjacent to any highway on the National Highway System (other than the Interstate System). Roadways in the KTMPO planning area that are on the NHS are US190, Business US190, and SH195.

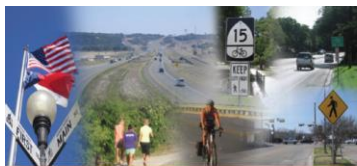
FHWA's Pedestrian and Bicycle Safety Program develops and provides safety programs in cooperation with the National Highway Traffic Safety Administration. FHWA's Pedestrian and Bicycle Safety Research provides information and research on issues related to improving pedestrian and bicyclist safety.

Federal Transit Funding in SAFETEA-LU allows transit funds to be used for bicycle and pedestrian access to transit facilities, to provide shelters and parking facilities for bicycles in or around transit facilities, and to install racks or other equipment for transporting bicycles on transit vehicles.

The FHWA's Federal Lands Highway Program Funds may be used to construct pedestrian walkways and bicycle transportation facilities in conjunction with roads, highways, and parkways at the discretion of the department charged with the administration of such funds.

Scenic Byways Program Funds may be used to construct facilities along scenic highways for the use by pedestrians and bicyclists. The National Scenic Byways Program provides for the designation by the Secretary of Transportation of roads that have outstanding scenic, historic, cultural, natural, recreational, and archaeological qualities as All-American Roads or National Scenic Byways. The program also provides discretionary grants for scenic byway projects on All-American Roads, National Scenic Byways, or state-designated scenic byways, and for planning, designing, and developing state scenic byway programs.

Source: adapted from National Bicycling and Walking Study, FHWA.



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Exhibit 38: Example Sources of Local Funds

1. Transportation Department funds - Many municipalities include bicycle and pedestrian construction and maintenance in their transportation general funds, viewing these two modes as established functions of the transportation system. Striping for bike lanes during routine street maintenance is one common method for implementing bike accommodations at a relatively low cost.
2. Local Bonds - Regularly since the late 1990's, the City of Austin, Texas has funded bicycle and pedestrian improvements through general obligation bonds. Through the most recent bond election in 2010, approximately \$50 million has been designated for bicycle and pedestrian improvements. These funds are used in two ways: 1) as direct funding for improvements, 2) as "leveraged" funding to use as the local match portion of federally-funded grants.
3. Developer dedications - These require the developer to construct bicycling and walking facilities as a condition for enabling the project to proceed. Many Texas municipalities such as Copperas Cove and Austin require such "routine accommodation" in new subdivision projects.
4. Restorations - Some local agencies require that developers restore rights of way for non-motorized users.
5. Public agency land and funds - The US Army Corp of Engineers controls a significant amount of green space surrounding the major lakes in the region. Fort Hood controls a significant amount of land in and around roadways and creeks that could be utilized with proper security controls.
6. Parks and Recreation Department funds - In many cities, the Parks and Recreation Department not only funds trails that can be used for non-motorized transportation, but also is responsible for trail maintenance.
7. Donations (from the public and corporate sectors) - Down the road in Austin, the Austin Parks Foundation has committed private funding to key trail connectors, as has the Town Lake Trail Foundation.
8. Fund-raising rides and events - Recreational bike rides have become a vastly popular way to raise money for charities, particularly those associated with eradicating disease. Such bicycling events are held in Temple and Copperas Cove. It may now be time to dedicate bicycle rides to *bicycling* and raise money for facility planning and implementation.

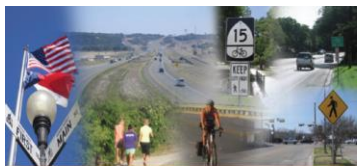
Source: adapted from National Bicycling and Walking Study, FHWA.



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Appendix A *Municipal* *Thoroughfare* *Plans*

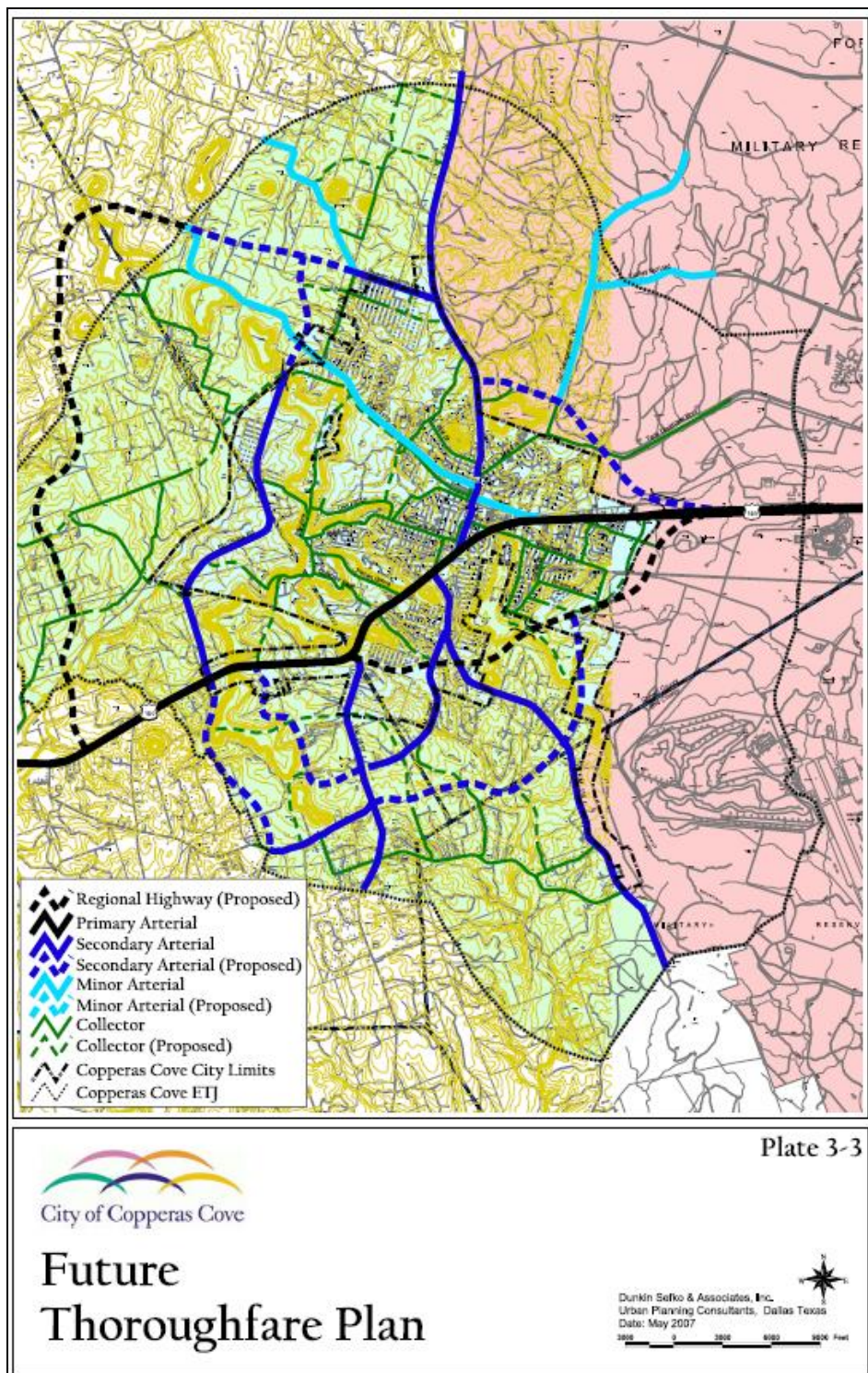




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Appendix A

Appendix Exhibit 2: City of Copperas Cove Municipal Thoroughfare Plan



Source: City of Copperas Cove Comprehensive Plan, Dunkin, Sefko & Associates, Inc., May 2007.



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Appendix A

Appendix Exhibit 3: Fort Hood Existing Roadway Classification and 25-Year Master Plan Improvements Maps



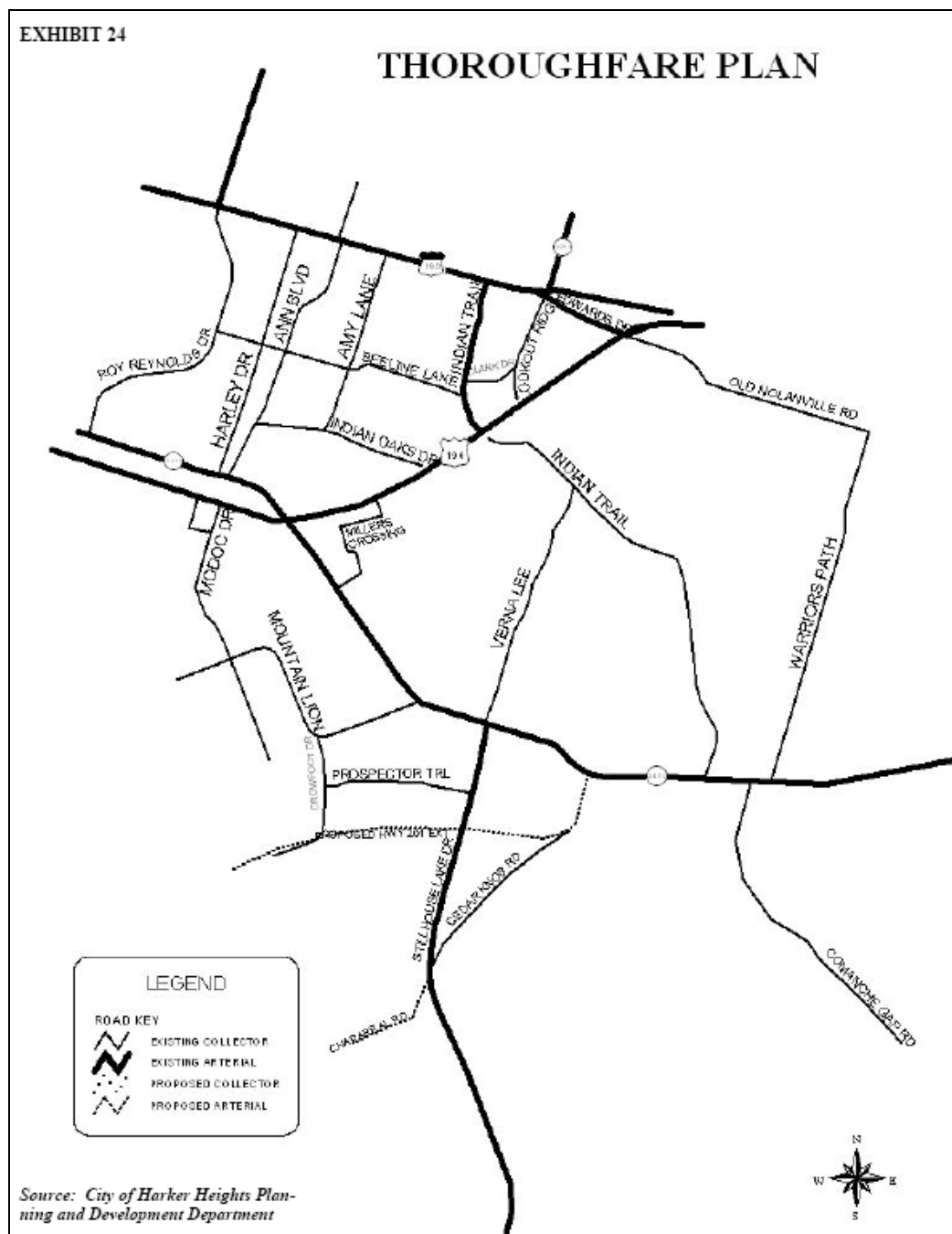
Source: Fort Hood Postwide Traffic Engineering and Safety Study, Gannett Fleming, 2008.
Fort Real Property Master Plan - Long Range Component, July 2010.



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Appendix A

Appendix Exhibit 4: City of Harker Heights Municipal Thoroughfare Plan



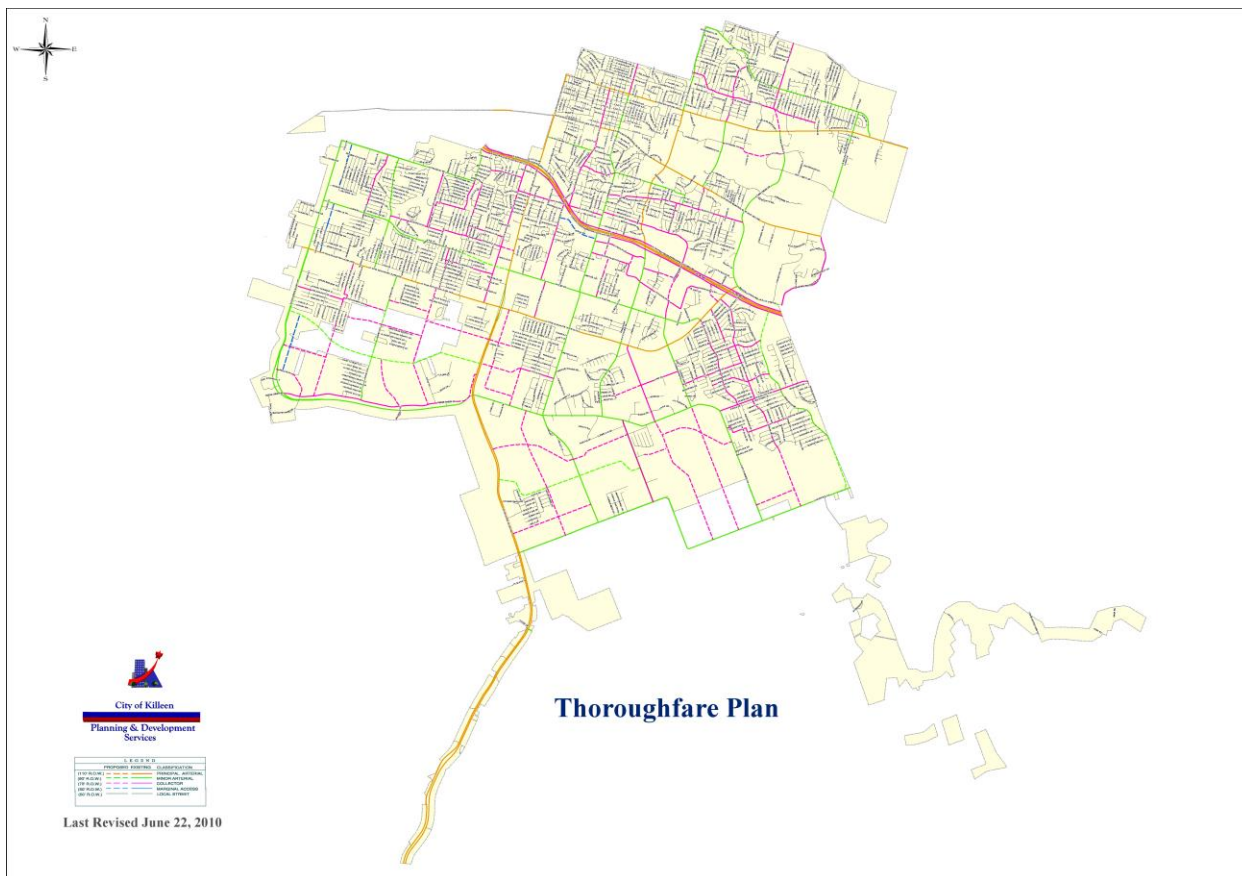
Source: City of Harker Heights Comprehensive Plan, City Planning and Development Department, January 2007.



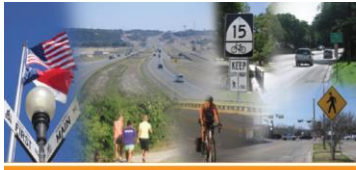
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Appendix A

Appendix Exhibit 5: City of Killeen Municipal Thoroughfare Plan



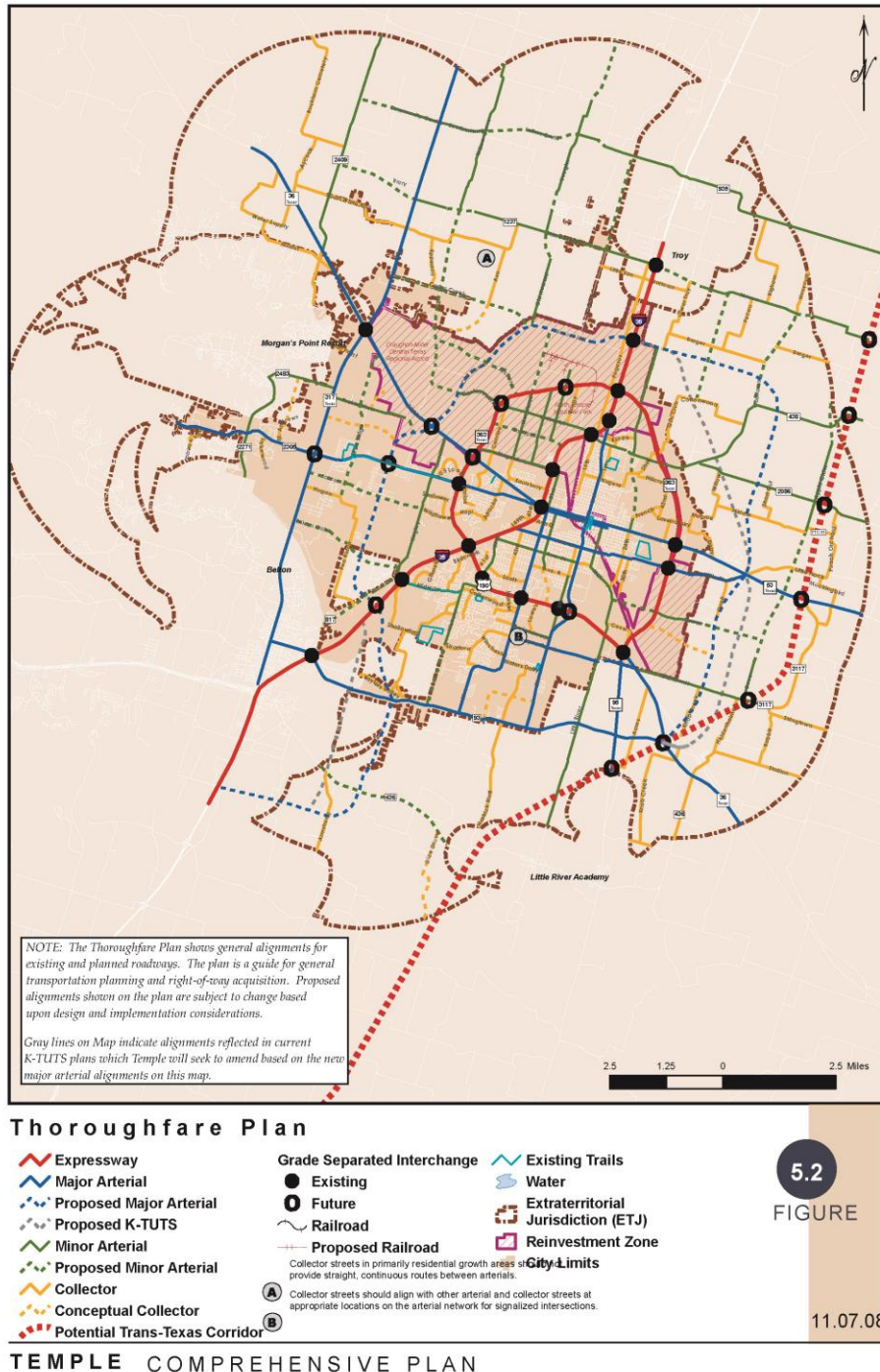
Source: City of Killeen Thoroughfare Plan, City Planning Department, June 2010.



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Appendix A

Appendix Exhibit 6: City of Temple Municipal Thoroughfare Plan



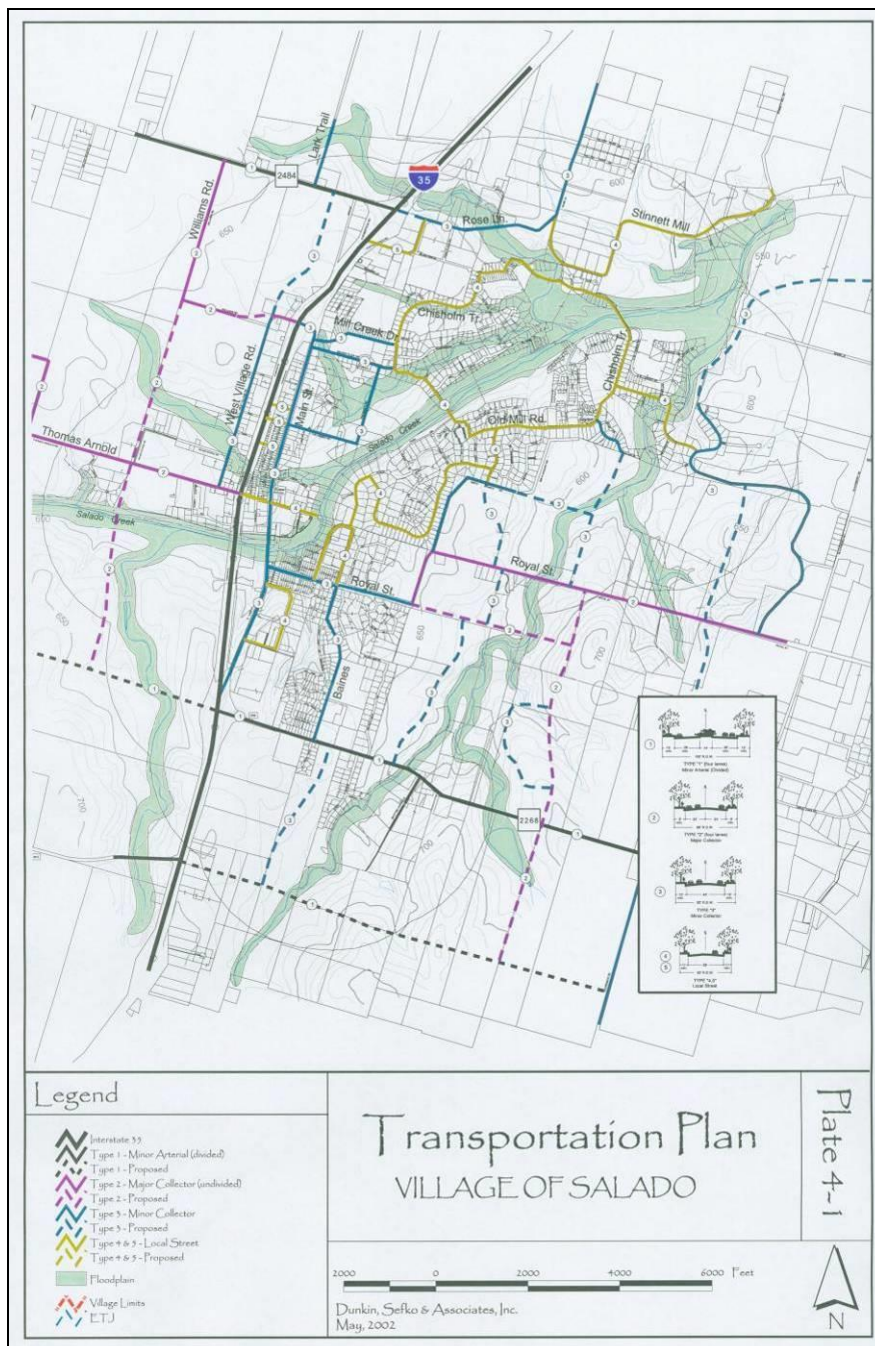
Source: City of Temple Comprehensive Plan, Kendig Keast Collaborative, November 2008.



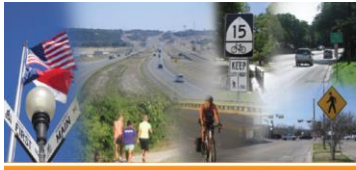
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Appendix Exhibit 7: Village of Salado Municipal Thoroughfare Plan



Source: Village of Salado, Comprehensive Plan, Dunkin, Sefko & Associates, Inc., May 2002.



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Appendix B Bicycle and Pedestrian Design Guidelines



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Appendix B

Bicycle Facility Types

The types of facilities that may be provided for bicycle mobility include shared roadways, bicycle routes, wide curb lanes as a special class of bicycle routes, shoulder bikeways, bicycle lanes, and bike paths. These facilities are described in detail in the AASHTO Guide for the Development of Bicycle Facilities and are briefly described in the following paragraphs.

Shared Roadway - Because a bicycle is a vehicle, any roadway (except controlled access highways, freeways, and others specifically prohibiting bicycle traffic) may be considered part of the on-road bicycle network. Because existing roads typically offer the most direct route to many destinations, they tend to be favored by advanced (Group A) cyclists. Local streets that carry low volume, low speed traffic are generally suitable for all cyclists.

On-street parking along local streets in residential areas is compatible with bicycle use, although parking may be a conflict along streets in commercial areas.



Older roadways may still have drainage grates with longitudinal bars or slit openings parallel to the path of the bicycle that could trap the narrow wheel of a bicycle. Drainage grates should have openings that are perpendicular to the flow of traffic to ensure that bicycle tires do not become lodged in the grate.

Bicycle Route - Shared roadways designated as Bike Routes should be signed using standard MUTCD signage. Such designations are used to denote streets that have significant bicycle usage or are a link in the bikeway network. Designation and improvement as a bike route may warrant a higher level of street maintenance than a shared roadway.

Wide Curb Lane - The standard width considered desirable for an outside traffic lane to safely accommodate bicycle and motor vehicle traffic is 14 feet, with an optimum width of 15 feet. This distance is typically measured from the curb face to the lane stripe, but the lane should be wide enough to allow safe passage for cyclists around obstacles such as drainage grates, parked cars, and longitudinal ridges between the pavement and curb and gutter. Lanes wider than 15 feet may encourage use by two motor vehicles traveling side by side and are not conducive to safe cycling.

To create on-road conditions amenable to bicycling, a wide right-hand lane of 14 to 15 feet width should be adopted as a standard design section for non-residential streets. A good guideline for determining when a wide curb lane is necessary is contained in the manual Selecting Highway Design Treatments to Accommodate Bicycles, developed for FHWA in 1994 by the Bicycle Federation of America and the Center for Applied Research, Inc., which was funded in part by the State of Texas.



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Shoulder Bikeway - Advanced (Group A) and recreational (Group B) bicycle riders who commute long distances or ride for sport or recreation can safely make use of smooth, paved roadway shoulders, where available. Shoulders should be six to eight feet wide as a standard, but may be a minimum of four feet wide in constrained situations. Shoulders should be paved, all-weather surfaces with no ridges, seams, or other obstructions, and should be generally smooth in surface texture. Rumble strips, if provided on the shoulder, should occur within the first two feet from the edge line and should be either cut-in or ground-in grooves that are not disruptive to bicyclists.



Bicycle Lane - Bike lanes are recommended for streets with motor vehicle speeds greater than 35 mph or with average daily traffic volumes greater than 10,000 vehicles per day. Bike lanes are marked portions of the roadway that are designated for exclusive use by bicycles. Typically, bike lanes may be established on arterials and other major streets where bicycle use exceeds 50 bikes a day.

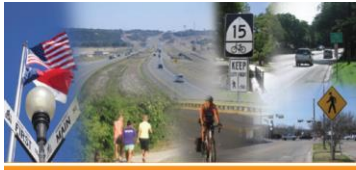
The standard width for a bike lane is five feet and the minimum is four feet, exclusive of any monolithic curb and gutter at roadway edge, in accordance with AASHTO. A bike lane between on-street parking and a motor vehicle travel lane should be a minimum of five feet wide. Lanes wider than six feet may encourage parking or other inappropriate uses.



Bike lanes should be signed and marked with an 8-inch wide stripe and appropriate BIKE LANE and arrow markings in accordance with the Texas MUTCD and AASHTO standards. As vehicles, bicycles must ride with the flow of traffic. Bike lanes, therefore, are always one-way and should be clearly marked as such. Curbs, raised pavement, or raised buttons are generally not recommended for use as bike lane markings, since they are a safety hazard to cyclists and interfere with the natural and mechanical sweeping of the bike lane.

A bike lane may be established adjacent to a parking lane, with bicyclists positioned between the travel lane and the parking lane. However, cars entering and leaving the parking lane will need to be mindful of the bike lane operation. The opening of car doors into the bike lane is also of concern to bicyclists, as the "dooring" of a bicyclist can happen very quickly and without advance indication.

Bike Path - A bike path is an off-road bikeway that is physically separated from roadways by open space or a barrier. It may be within the roadway right of way, a utility right of way, or an independent right of way. These facilities are sometimes referred to as bike trails or hike and bike trails. As a desirable standard, bike paths should be 10 to 12 feet wide depending upon



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Appendix B

activity levels, and have a minimum width of eight feet. Maintenance vehicles driving on 8-foot wide paths tend to damage the edges. Therefore, 8-foot wide paths should be avoided unless physical limitations cannot accommodate a greater width. Bike paths with high traffic should be 12 feet wide or more, but should narrow to ten feet in the vicinity of an intersection. One-way bike paths are difficult to police and should be avoided, if possible. Where they are used, they should be clearly signed as one-way, with a standard width of six feet and a minimum width of five feet. Bike paths should have an additional two feet of smoothly graded area on either side of the pavement. In addition, there should be three feet of horizontal and ten feet (eight feet minimum) of overhead clearance on either side of the pavement.

Bike paths should be constructed of smooth, hard, all-weather paving such as concrete or asphalt. Although more expensive, concrete paths require less maintenance than asphalt paths, which can buckle, crack, and erode quickly. Good maintenance is essential for bike paths to eliminate and prevent hazardous conditions.

It should be noted that bike paths that pass in close proximity to neighborhoods or provide high levels of recreational activity can be expected to be multiple use trails. Conflicts between cyclists and skaters, joggers, pedestrians, animals, and less experienced cyclists should be anticipated and appropriately considered in the design of these facilities.

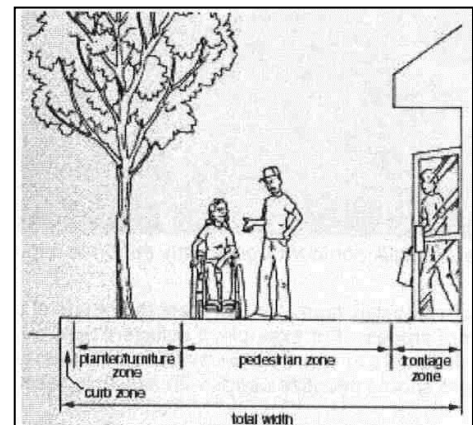
Curb cuts and ramps for access to bike paths should be provided at all street intersections with the bike path. Slopes should comply with current requirements of the Americans with Disabilities Act (ADA). Curb cuts should be a minimum of eight feet wide.

Sidewalks

A sidewalk is physically separated from an adjacent roadway by open space, a curb, or a barrier. It can be paved or unpaved, though a majority of sidewalks are paved with concrete. Public sidewalks generally are placed parallel to a roadway within the public right of way. The space between the edge of the roadway and the edge of the right of way is typically shared by sidewalk pavement, sign posts, utility lines and fixtures, landscaping, and any street furniture such as benches and mailboxes. Sufficient space should be allocated beyond the edge of pavement for all planned improvements.

The total width of the sidewalk corridor beyond the face of curb or edge of pavement should be thought of in terms of three separate zones:

1. The landscape/furniture zone – This area needs to be wide enough to contain all street signs, landscaping, benches, bus stop shelters, and street lighting. The width of this zone should be at least two feet, not including the width of the curb, to buffer the pedestrian zone from the travel lanes. When parking is provided between the travel lane and the pedestrian zone, the 2-foot minimum width is needed for a buffer against opening car doors. This zone can be completely paved if so desired. When landscaping is planned for this zone, a minimum of four feet should be provided.





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2. The pedestrian zone - This zone should be a minimum of five feet in width. For very active pedestrian areas, such as in the downtown area and adjacent to school campuses, this zone width should be increased to a minimum of eight feet. Should an obstacle in the pedestrian zone be unavoidable, there must be a minimum of 36 inches of passable space throughout this zone. Any utility access covers in the zone should be set flush with the pavement and maintained as such, with slip-resistant cover plates. Any openings should be limited to one-half inch in diameter.
3. The frontage zone – This zone provides the needed buffer between the pedestrian zone and obstacles at the property edge. For sidewalks adjacent to parks, property setbacks, and other permanent open space, this zone can be eliminated. For fence lines and building edges placed on the property line, a minimum of 1 foot should be provided for this zone. Vegetation along the property edge should be required to be trimmed back off the public right of way by the adjacent property owner. For sidewalks along storefronts with doors opening into the sidewalk corridor, two feet of width should be provided.



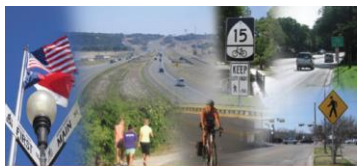
Utility requirements should be considered regarding how they will be placed within each of these three zones. Any specific space requirements should be added to the overall width of the sidewalk corridor.

Slope requirements are more critical to the sidewalk environment. Ramps at intersections should direct the pedestrian toward the receiving sidewalk corridor on the opposite side of the street, regardless of whether a sidewalk has been paved.

Design Standards

When constructing new facilities or when retrofitting roads to provide bicycle facilities, the latest versions of the following documents should be consulted:

- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities, 1999
- FHWA Design Bicyclist Facility Recommendation Methodology, 1994
- Americans with Disabilities Act Accessibility Guidelines
- Manual on Uniform Traffic Control Devices , 2003
- Texas Manual on Uniform Traffic Control Devices , 2006
- Operational and Safety Impacts When Retrofitting Bicycle Lanes, 2007



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- Texas Transportation Institute
- Texas Accessibility Standards
- Institute of Transportation Engineers

The Texas Department of Licensing and Regulation (TDLR) sets forth regulations for accommodating disabled persons in the right-of-way through accessible sidewalk designs such as minimum widths, elimination of obstacles to passage, curb ramps, slope restrictions and efficient routing. All municipalities are required to comply with the 1990 Americans with Disability Acts and should contact TDLR for the latest design requirements.

The "Design Bicyclist"

Nearly 100 million people in the United States own bicycles, but fewer than five percent would likely qualify as experienced or highly skilled cyclists. Since the federal policy goal is to accommodate existing cyclists and encourage increased bicycle use, there would be more novice riders than advanced cyclists using the roadway system. Therefore, any roadway treatments intended to accommodate bicycle use must address the needs of both experienced and less experienced riders. In the FHWA manual, "Selecting Roadway Design Treatments to Accommodate Bicycles," the concept of a "design cyclist" was developed, and a classification system was adopted for bicycle users, which is described below.

It is important to note, however, that the descriptions of the Design Bicyclists are subject to interpretation, as are such terms as "under most traffic conditions". Before a bicycle accommodation is chosen for an existing or new roadway, planners and design engineers should educate themselves on the latest best practices in bicycle facility design. It is also key to utilize a bicycle advisory committee of local bicyclists for direction on what accommodation would best serve current and future bicycle use of the roadways, both in conveyance and crossings. This is particularly crucial where local bicycle routes intersect major freeways and interchanges. Even the most advanced, intrepid "Group A" cyclist would have difficulty navigating a high-speed, high-capacity, multi-lane expressway or freeway underpass when, for example, there is no traffic control of free right-turning traffic. If such a situation was deemed reasonable within the guideline "under most traffic conditions", a roadway designer would either not be accommodating bicyclists, or would be creating an extremely hazardous crossing condition for them.

Group A: Advanced Bicyclists - These are experienced riders who can operate under most traffic conditions. They comprise the majority of the current users of collector and arterial streets, and are best served by the following:

- Direct access to destinations usually via the existing roadway system
- The opportunity to operate at maximum speed with minimum delays
- Sufficient operating space on the roadway or shoulder to reduce the need for either the bicyclist or the motor vehicle operator to change position when passing



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Group B: Basic Bicyclists - These are casual or new adult and teenage riders who are less confident of their ability to operate in traffic without special provisions for bicycles. Some will develop greater skills and progress to the advanced level, but there will always be many millions of basic bicyclists. This group of cyclists prefers:

- Comfortable access to destinations, preferably by a direct route, using either low-speed, low traffic-volume streets or designated bicycle facilities
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets (bike lanes or shoulders) or separate bike paths

Group C: Children - These are pre-teen riders whose roadway use is initially monitored by parents. Eventually they are accorded independent access to the system. They and their parents prefer the following:

- Access to key destinations surrounding residential areas, including schools, recreation facilities, shopping, or other residential areas
- Residential streets with low motor vehicle speed limits and volumes
- Well-defined separation of bicycles and motor vehicles on arterial and collector streets using sidewalks or separate bike paths

The "Design Pedestrian"

Most people are pedestrians to some extent during their travel each day, whether at either end of their trip or at points along the way. In addition, many persons walk or jog for personal fitness and recreation. Moreover, pedestrian activity along the city streets is a sign of a thriving community.

A large percentage of the pedestrian population consists of children and elderly persons. In addition, the Americans with Disabilities Act requires that accommodations for people with disabilities must be incorporated into the design of pedestrian facilities. Ample consideration must be given to the needs of these groups of pedestrians when determining such parameters as pedestrian crossing time at intersections; placement of street furniture and signs; curb cuts at street crossings; pathway width and slopes; and maintenance of the pathway.

Roadway Intersection Design

Statistical studies of bicycle-motor vehicle and pedestrian-motor vehicle accidents have indicated that a majority of these accidents occur at or near roadway intersections. Proper design of intersections to better accommodate cyclists and pedestrians must be introduced along with education of cyclists regarding how to properly position themselves and behave to proceed safely through the intersection. The primary need is to get the roadway designer to include consideration of the bicyclist and pedestrian in the design of the roadway; whether a designated bikeway is planned or not. An individual trained in the planning and design of bicycle and pedestrian facilities should be designated to review all roadway and intersection designs for street and highway improvements planned by developers, municipalities, and TxDOT.



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Intersection Design for Pedestrians

The design of safe roadway crossings for pedestrians is contained in many technical publications including *A Policy of Geometric Design of Highways and Streets*, last published in 2001 by AASHTO, and *Design and Safety of Pedestrian Facilities*, published in 1998 by the Institute of Transportation Engineers. Another important reference to ensure ADA compliance for access and mobility by physical, visual, or hearing impairments is *Designing Sidewalks and Trails for Access*, prepared by the Public Rights-of-Way Access Advisory Committee and published by the U.S. Architectural and Transportation Barriers Compliance Board in 2001. Current crosswalk design practices call for sidewalk ramps directed across the street to the opposing sidewalk ramp and no longer allow the corner ramp that directs visually impaired pedestrians into the middle of the intersection. Crosswalks exist by definition wherever sidewalks point at each other from opposing sides of the roadway. The striping of crosswalks, whether at corners or mid-block, should be provided where relatively high volumes of pedestrian traffic are anticipated and where visibility of the crossing needs to be enhanced to improve crossing safety. Minimum green time for side streets needs to be set to allow adequate time for pedestrians to cross the major roadway. Pedestrian actuations by push button can be used to extend green times only when pedestrians are present so that delays to motor vehicles on the major roadway are minimized.

Intersection Design for Bicyclists

Three issues regarding traffic signals are recommended to be addressed by the jurisdictional traffic engineering staff: minimum green time, amber clearance time, and signal detectors.

Minimum Green Time - Due to the slower start-up and acceleration characteristics of bicycles, traffic signals at some minor street crossings of major arterials, especially when operating as an actuated phase, need to have a minimum green indication of approximately 7 to 10 seconds to accommodate bicyclists, depending on the approach conditions. Pedestrian crossing of arterials

may require more green time for a side street than would normally be provided for the side street traffic alone.



Amber Clearance - The amount of time the yellow or amber signal indication is displayed as part of a signal sequence typically varies from three to five seconds depending on the approach speed of vehicular traffic and the width of the intersection. For wider street sections, bicyclists crossing with the signal may need to be allowed a longer clearance interval (including all red) to keep from being hit by motorists illegally leaving the stop line on the far side.

Signal Detectors - To bring up an actuated signal phase, a detector mechanism needs to be tripped by an approaching vehicle. The older trip-bars could not be actuated by a bicycle and are fortunately being phased out and remaining installations are rare. Due to the scarcity of metals in and the configuration of the bicycle, in-pavement detector loops often do not sense



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their arrival. The straight slender bicycle passes across the end wires of the typical detector loop parallel to the field created and often does not sufficiently interrupt the electro-magnetic field of the loop detector to actuate the signal phase. Riding longitudinally over the wires that form the long side of the detector loop positions the bicyclist to cross perpendicular across the electromagnetic field over the wire, and thus be better detected. The Texas Transportation Institute (TTI) has investigated this issue for the Texas Department of Transportation and has proposed some solutions. As reported in TTI Research Report 1163-3F, the researchers found that simply cutting into the pavement a parallelogram with the end wires at a 45-degree angle, rather than the basic rectangular shape, will detect bicyclists crossing the end wires at an angle, thus better interrupting the electro-magnetic field and actuating the traffic signal. Other loop designs that incorporate this same concept are the quadripole and the circular loop. Pavement markings that highlight the proper crossing of the detector loop can also serve to inform cyclists of how to position themselves to actuate the signal. Video and other remote sensing detectors can provide more reliable detection of bicyclists.

Signage and Striping

Signs and pavement markings for bicycles encourage use and advertise the bicycle as a vehicle on the road. They help legitimize the presence of bicycles in the eyes of motorist and potential bicyclists. All signage and lane striping should be in general accordance with the current edition of the Texas Manual of Uniform Traffic Control Devices Part IX (MUTCD).



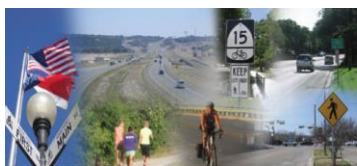
Signage - The basic bike route sign should be used on all local designated bike routes. For the longer regional routes, the numbered bikeway sign should be utilized. One scheme used in some cities is to number bike routes sequentially east to west and north to south, with north-south routes having odd numbers and east-west routes having even numbers.

Other communities have developed special signs. Most notable is the "Share the Road" warning sign for on-street facilities, which has been adopted within the 2003 National Manual on Uniform Traffic Control Devices (NMUTCD).

Some communities, such as Dallas, have even placed a special logo or shape on their route designation signage. Austin has developed a "share the road" sign using a State of Texas color scheme and capital building silhouette.

Striping - Striping of bike lanes should be in conformance to the MUTCD, Part IX. According to that document, all multi-use paths which are ten feet in width or greater should receive a yellow center line stripe.

Speed Humps – Speed humps are used on local streets and some collector streets to decrease vehicular traffic speeds or reduce cut-through traffic. Speed humps are not a problem for bicyclists. In fact the calmer street operation that the speed humps provide is beneficial to bicyclists.



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Typical Facility Development Costs

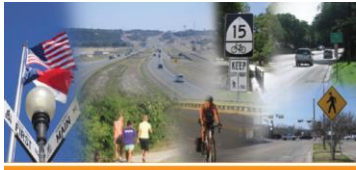
The costs in the table below are provided for use in preparing an order of magnitude estimate of the construction cost for bicycle and pedestrian facility improvements. This data will help to facilitate initial planning decisions. A cost range is provided on a per mile basis, recognizing that there are many variables which affect final cost (e.g., site conditions, utilities, availability of right of way, fluctuations in construction market, etc.). For this reason, the costs presented here reflect only those costs related to materials and labor for construction based on minimum facility widths. Costs for facility improvements associated with larger roadway projects will usually attain lower unit construction prices than separate improvement projects.

Each facility project will typically require an engineering study to determine all of the design issues and total cost. Factors such as right of way acquisition, bridges and other grade separated crossings, utility relocation, clearing and grubbing of existing conditions, landscape plantings, lighting, benches, retaining walls, property fencing, and other amenities need to be included in each project's individual cost estimate.

Engineering design costs can be expected to be 8 to 15 percent of the total project cost. Each construction project should also include a minimum 10 percent contingency. The following cost estimates for bicycle facilities were developed using average unit costs for specific improvement types and represent basic unit costs for various facility types. A useful bicycle facility benefit/cost calculator can be found at www.bicyclinginfo.org/bikecost.

Typical Unit Costs of Construction for Bicycle and Pedestrian Facilities

Improvements	Typical Unit Costs
Roadway restriping (wide curb lanes or designated bike lanes)	\$15,000 to \$40,000 per mile
6' wide paving of existing gravel shoulder in both directions	\$220,000 to \$350,000 per mile
10' wide paving of separated trail facility	\$150,000 to \$300,000 per mile
8' side path adjacent to roadway	\$100,000 to \$200,000 per mile
5' wide sidewalk	\$75,000 to \$100,000 per mile
Signing of bicycle facilities (5 signs per mile each way)	\$3,000 to \$5,000 per mile
Traffic signal installation	\$80,000 to \$180,000 per location



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Appendix C Recommended Bicycle and Pedestrian Facilities

Recommended Bicycle and Pedestrian Facilities

City of Belton									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.20	Shoulder Lane	Add signs and markings for shoulder lanes	On US190 WB FR	From western city limit easterly to Main Street	2 lane one-way roadway with shoulders	No	Yes	5.63	\$225,200
7.21	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 SB FR	From US190 WB/Main St northerly to northern city limits	2 lane one-way roadway	No	Yes	1.52	\$0
9.21	Shoulder Lane	Add shoulders, signs, and markings	On FM 2410	From western city limit easterly to Simmons Rd	2 lane roadway with narrow shoulders	No	Yes	0.51	\$127,500
9.22	Shoulder Lane	Add shoulders, signs, and markings	On FM2410/Simmons Rd	From FM2410 northerly to US 190 WB FR	2 lane roadway	No	Yes	0.17	\$42,500
9.23	Shoulder Lane	Add shoulders, signs, and markings	On US190 EB FR	From Simmons Rd easterly to IH 35 NB FR	2 lane one-way roadway	No	Yes	4.97	\$1,242,500
9.24	Shoulder Lane	Add shoulders, signs, and markings	On FM 436	From IH 35 SB Service Rd easterly and southerly to Loop 121 at Shady Ln	4 lane roadway	Yes	Yes	0.99	\$247,500
9.25	Shoulder Lane	Add shoulders, signs, and markings	On FM 436	From Loop 121 at Shady Ln easterly to eastern city limit	4 lane roadway	No	Yes	0.21	\$52,500
24.8	Shoulder Lane	Add shoulders, signs, and markings	On FM 439	From Wild Wood Dr easterly to FM2271	4 lane roadway	No	Yes	1.15	\$287,500
24.9	Shoulder Lane	Add shoulders, signs, and markings	On FM439/Lake Rd	From FM2271 easterly to Main St	5 lane roadway	Yes	Yes	1.86	\$465,000
58.10	Trail	Add 10ft wide multi-use trail	Along Nolan Creek	From proposed trail at Belton western city limit southerly to existing trail in Lions/Harris Park	Creekside land	Yes	No	2.82	\$846,000
58.12	Trail	Add 10ft wide multi-use trail	Along Nolan Creek	From existing trail in Confederate Park easterly to proposed trail south of FM93	Creekside land	Yes	No	1.10	\$330,000
58.13	Trail	Add 10ft wide multi-use trail	Along Nolan Creek	From proposed trail south of FM93 easterly to proposed trail along Leon River	Creekside land	No	No	2.33	\$699,000
58.16	Trail	Add 10ft wide multi-use trail	Along Lampasas River	From city limit west of Elm Grove Rd westerly to existing trail east of Chalk Ridge Falls Park	Riverside land	No	No	3.81	\$1,143,000
73.6	Shoulder Lane	Add shoulders, signs, and markings	On Sparta Rd	From western city limit to proposed trail along proposed road west of Wheat Rd	2 lane roadway	No	No	0.28	\$70,000
73.7	Trail	Add 10ft wide multi-use trail	Along Sparta Rd	From proposed trail west of Wheat Rd easterly to Loop 121	2 lane roadway	Yes	No	1.20	\$360,000

City of Belton									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
78.3	Shoulder Lane	Add shoulders, signs, and markings	On US 190 EB FR	From western city limit west of FM2410 easterly to FM2410	2 lane one-way roadway with shoulders	No	Yes	0.60	\$150,000
78.5	Shoulder Lane	Add shoulders, signs, and markings	On Simmons Rd	From FM2410 southerly to proposed trail in Stillhouse Park	2 lane roadway	No	No	1.72	\$430,000
80.2	Bike Lane	Add signs and markings for bicycle lanes	On FM93/2nd Ave	From western city limit easterly to Main St	2 lane roadway with shoulders	Yes	Yes	1.17	\$46,800
80.3	Bike Route	Add bike route signs	On 2nd Ave	From Main St easterly to IH35 SB FR	3 lanes roadway to the west of Penelope, 2 lanes to the east	Yes	No	0.73	\$5,000
81.4	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 NB FR	From southern city limit north of FM2484 northerly to Loop 121	2 lane roadway	No	Yes	5.26	\$0
81.5	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 NB FR	From Loop 121 northerly to northern city limit at Leon River	2 lane roadway	Yes	Yes	2.66	\$0
82.4	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 SB FR	From southern city limit north of FM2484 northerly to Loop 121	2 lane roadway	No	Yes	5.29	\$0
82.5	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 SB FR	From Loop 121 northerly to US 190 WB FR	2 lane roadway	Yes	Yes	1.21	\$0
82.6	Bike Route	Add bike route signs	On SH317/Main St	From US 190 WB FR northerly to FM439	3-5 lane roadway	Yes	Yes	2.60	\$15,000
82.7	Bike Lane	Add signs and markings for bicycle lanes	On SH 317/Main St	From FM439 northerly to northern city limit at Leon River	2 lane roadway with shoulders	Yes	Yes	0.90	\$36,000
83.7	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 1670	From southern city limit at Sunflower Ln northerly to US 190 EB FR	2 lane roadway with shoulders	No	Yes	1.03	\$41,200
83.8	Shoulder Lane	Add shoulders, signs, and markings	On FM 1670	From US 190 EB FR northerly to northern city limits south of Springer St	2 lane roadway	No	Yes	0.16	\$40,000
83.10	Trail	Add 10ft wide multi-use trail	Along proposed southern extension of FM 2271	From Sparta Rd northerly to Red Rock Dr	Future roadway	Yes	No	0.96	\$288,000
83.11	Trail	Add 10ft wide multi-use trail	Along proposed southern extension of FM 2271	From Red Rock Dr northerly to FM439	Future roadway	No	No	0.23	\$69,000

City of Belton									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
83.12	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 2271 in Miller Spring Park	From FM439 northerly to north city limits east of Belton Lake	2 lane roadway with shoulders	Yes	Yes	0.98	\$39,200
84.2	Trail	Add 10ft wide multi-use trail	Along George Wilson Rd	From city limit at Dogridge Rd northerly to city limit north of US190 WB FR	2 lane roadway	No	No	0.35	\$105,000
85.1	Trail	Add 10ft wide multi-use trail	North of US190 and east of Wheat Rd	From US 190 WB FR northerly to northern city limit north of Digby Dr	Open land	No	No	0.52	\$156,000
90.1	Shoulder Lane	Add shoulders, signs, and markings	On Auction Barn Rd	From FM 1670 easterly to city limit at Village Hill Rd	2 lane roadway	No	No	0.18	\$45,000
90.3	Shoulder Lane	Add shoulders, signs, and markings	On Auction Barn Rd	From city limit west of Loop 121 easterly to Loop 121	2 lane roadway	No	No	0.15	\$37,500
92.1	Shoulder Lane	Add shoulders, signs, and markings	On Loop 121	From FM436 westerly to IH35 NB FR	2 lane roadway	No	Yes	1.01	\$252,500
92.2	Shoulder Lane	Add shoulders, signs, and markings	On Loop 121	From IH35 NB FR westerly to Auction Barn Rd	2 lane roadway with shoulders	Yes	Yes	1.26	\$315,000
92.3	Bike Lane	Add signs and markings for bicycle lanes	On Loop 121	From Auction Barn Rd northerly to Sparta Rd	2-4 lane roadway with shoulders	Yes	Yes	3.38	\$135,200
92.4	Bike Route	Add bike route signs	On Loop 121	From Sparta Rd northerly to FM439	4 lane roadway	Yes	Yes	0.29	\$5,000
93.1	Bike Lane	Include bike lane in future roadway and pedestrian lanes along roadway	On proposed western extension of and existing 9 th Avenue Along 9 th Avenue	From Loop 121 easterly to University Drive SH 317 (Main Street)	Future roadway and 2 lane roadway Some existing, some proposed roadway	Yes	No	0.56 1.01	\$0 \$350,000
93.2	Bike Route	Add bike route signs	On 9th Avenue	From University Drive easterly to Main Street From Loop 121 easterly to SH 317 (Main Street)	2 lane roadway Some existing, some proposed roadway	Yes	No	1.01	\$5,000
93.3	Bike Route	Add bike route signs	On 9th Avenue	From SH317 Main Street easterly to Beal Street	2 lanes local residential roadway	No	No	0.25	\$5,000
93.4	Bike Route	Add bike route signs	On University Dr.	From 9 th Avenue northerly to Crusader Way	2 lanes roadway	Yes	No	0.50	\$5,000
94.1	Trail	Add 10ft wide multi-use trail	East of Loop 121 and south of 1st Ave	From US190 WB FR northerly to existing trail along Nolan Creek near Central and Davis	Wooded area	No	No	1.59	\$477,000
94.3	Trail	Add 10ft wide multi-use trail	Northern extension of existing trail, east of Sparks St	From northern end of existing trail in Lions/Harris Park northerly to 10th Ave on UMHB campus	Wooded area	Yes	No	0.25	\$75,000
94.4	Bike Route	Add bike route signs	On University Dr	From 49 th 9th St W northerly to Crusader Way	2 lane roadway	Yes	No	0.50	\$5,000

City of Belton									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
95.1	Bike Route	Add bike route signs	On Pearl St and Crusader Way	From 9th Ave northerly to University Dr	2 lane roadways	No	No	0.76	\$5,000
95.2	Bike Lane	Add signs and markings for bicycle lanes	On Crusader Way	From University Dr northerly to Loop 121	2 lane roadway	Yes	No	0.50	\$20,000
96.1	Trail	Add 10ft wide multi-use trail	Southwest of Chisholm Trail Park and Belton Intermediate School	From proposed trail along Nolan Creek northerly to Sparta Rd	Open land	Yes	No	0.44	\$132,000
96.2	Side Path	Add 8ft wide multi-use side path	Along Dunns Canyon Rd	From Sparta Rd northerly to Chisholm Trail Rd	3 lane roadway	Yes	No	0.51	\$102,000
96.3	Side Path	Add 8ft wide multi-use side path	Along Dunns Canyon Rd	From Chisholm Trail Rd northerly to FM439	3 lane roadway	No	No	0.28	\$56,000
97.1	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed western extension of Chisholm Trail Pkwy and other proposed road	From FM439 southerly and easterly to southern end of Spring Canyon Rd	Future roadways	No	No	0.69	\$0
97.2	Shoulder Lane	Add shoulders, signs, and markings	On existing and proposed extension of Chisholm Trail Pkwy	From Spring Canyon Rd easterly to Dunns Canyon Rd	2 lane roadway and future roadway	Yes	No	0.88	\$220,000
98.1	Trail	Add 10ft wide multi-use trail	In Miller Springs Park	Interconnected segments in Miller Spring Park southerly to Red Rock Dr	Park land	No	No	1.67	\$501,000
99.1	Bike Route	Add bike route signs	On unnamed road in Miller Springs Park	From FM439 northerly to existing trail in Miller Springs Park	2 lane roadway	No	No	0.45	\$5,000
100.1	Bike Lane	Add signs and markings for bicycle lanes	On Ave O, Ray St, Ave M, and Fairway Dr	From FM436 northerly to Avenue J at Miller Heights Elementary School	2 lane roadways	Yes	No	0.34	\$13,600
100.2	Trail	Add 10ft wide multi-use trail	North of Griggs Park and Miller Heights Elementary School	From Miller Heights Elem northerly to proposed trail along Nolan Creek	Open land and wooded area	Yes	No	0.27	\$81,000
100.4	Trail	Add 10ft wide multi-use trail	Along west side of Leon River	From proposed trail south of FM93 northerly to existing trail in Heritage Park	Open land and riverside land	Yes	No	1.20	\$360,000
100.6	Trail	Add 10ft wide multi-use trail	Along west side of Leon River	From existing trail in Heritage Park northerly to existing trail in Miller Spring Park	Riverside land	Yes	No	3.28	\$984,000
101.1	Bike Lane	Include bike lane in future roadway	On proposed northern extension of Commerce St	From Sparta Rd northerly to FM439	Future roadway	No	No	0.25	\$0
102.1	Bike Route	Add bike route signs	On Beal St, Water St, and Penelope St	From existing trail in Confederate Park northerly to 9th Ave	2 lane roadways	Yes	No	0.78	\$5,000

City of Belton									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
102.3	Bike Route	Add bike route signs	On Beal St	From 9th Ave southern jct w/ Beal northerly to Main St	2 lane roadway	No	No	1.75	\$10,000
103.1	Bike Route	Add bike route signs	On College St and 13th Ave	From Crusader Way northerly and easterly to Waco Rd	2 lane roadways	Yes	No	1.16	\$10,000
104.1	Bike Route	Add bike route signs	On 22nd Ave	From Main St easterly to Beal St	2 lane roadway	No	No	0.26	\$5,000
105.1	Bike Route	Add bike route signs	On Hastings Rd and Landmark Dr	From Beal St easterly and southerly to southern end of Landmark Dr	2 lane roadways	No	No	0.53	\$5,000
105.2	Trail	Add 10ft wide multi-use trail	West of Heritage Park	From southern end of Landmark Dr southerly and easterly to existing trail in Heritage Park	Wooded area	No	No	0.36	\$108,000
110.1	Trail	Add 10ft wide multi-use trail	East of Birdwell St and west of Palmetto Dr	From 2nd Ave easterly to proposed trail along Leon River	Open land	No	No	0.95	\$285,000
111.1	Bike Route	Add bike route signs	On Blair St	From 2nd Ave northerly to 6th Ave	2 lane roadway	No	No	0.25	\$5,000
111.2	Shoulder Lane	Add shoulders, signs, and markings	On FM817/Old Waco Rd	From 6th St northerly to proposed trail at eastern city limit along Leon River at eastern city limit	2 lane roadway	No	Yes	0.94	\$235,000
112.1	Bike Route	Add bike route signs	On FM93/6th Ave	From proposed trail west of Cori Dr easterly and southerly to Taylors Valley Rd	4-5 lane roadway	No	Yes	0.47	\$5,000
113.1	Shoulder Lane	Add shoulders, signs, and markings	On Taylors Valley Rd	IH35 NB FR easterly to proposed trail along Leon River	2 lane roadway	Yes	No	1.46	\$365,000
118.1	Trail	Add 10ft wide multi-use trail	Along Leon River	From proposed trail south of FM93 northerly to Taylors Valley Rd	Creekside land	No	No	1.18	\$354,000
TOTAL								86.41	\$12.79m

* Cost estimates provided by project sponsoring entity.

Recommended Bicycle and Pedestrian Facilities

City of Copperas Cove									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
1.2	Trail	Add 10ft wide multi-use trail	Along west side of Taylor Creek	From southern city limit northerly to Grimes Crossing Rd	Land between Taylor Creek and Railroad	No	No	3.07	\$921,000
1.3	Trail	Add 10ft wide multi-use trail	Along north side of railroad	From Grimes Crossing Rd easterly to Avenue B	Land between Grimes Crossing Road and Railroad	No	No	0.52	\$156,000
1.4	Bike Route	Add bike route signs	On Summers Rd	From Avenue B northerly to Lutheran Church Rd	2 lane roadway	No	No	1.11	\$10,000
2.2	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed Big Divide Rd southern extension	From southern city limit northerly to US190	Future roadway	No	No	0.76	\$0
2.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On Big Divide Rd	From US190 northerly to proposed minor arterial	Narrow 2 lane roadway	No	No	0.98	\$0
2.4	Shoulder Lane	Add shoulders, signs, and markings	On Big Divide Rd and Grimes Crossing Rd	From proposed minor arterial northerly to northern city limits	2 lane roadway	No	No	3.21	\$802,500
3.2	Side Path	Add 8ft wide multi-use side path	Along FM 1113	From western city limit easterly to Summers Rd (west end of existing side path)	2 lane roadway	No	Yes	0.41	\$82,000
3.4	Bike Route	Add bike route signs	On FM1113/Avenue B	From 7th St (east end of existing side path) easterly to FM116/1st St	2 lanes, 4 lanes between Main and 3rd St	No	Yes	0.21	\$5,000
3.5	Bike Route	Add bike route signs	On Avenue B, North Dr, and Wolfe Rd	FM116/1st St easterly to Avenue D/Wolfe Rd	2 lanes, 4 lanes between Main and 3rd St	No	No	1.06	\$10,000
4.1	Trail	Add 10ft wide multi-use trail	Along south side of railroad tracks	From proposed road just west of Myra Lou Ave easterly to proposed north bypass	Land between railroad and Avenue D	No	No	3.13	\$939,000
5.1	Bike Route	Add bike route signs	On Veterans Ave	From Freedom Ln easterly to Georgetown Rd	Wide unmarked 2 lane road through neighborhoods	No	No	1.77	\$10,000
6.1	Bike Route	Add bike route signs	On Robertson Ave	From Lee Rd/Veterans Dr easterly to proposed extension of Constitution just north of Virginia Ave	2 lanes, side walks along most of the road	No	No	1.77	\$10,000
6.2	Bike Route	Add bike route signs	On future Constitution southern extension	From Robertson Rd easterly to southern end of existing Constitution Dr	Future roadway	No	No	0.24	\$5,000

City of Copperas Cove									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.5	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190	From western city limit easterly to proposed road west of Suja Ln	5 lanes with shoulders	No	Yes	0.70	\$28,000
7.6	Bike Lane	Add signs and markings for bicycle lanes	On US 190	From proposed road west of Suja Ln easterly to proposed southern bypass	5 lanes with shoulders	No	Yes	1.07	\$42,800
7.7	Shoulder Lane	Include shoulder lane in future roadway	On future southern bypass	From US190 easterly to FM116	Future roadway	No	Yes	1.29	\$0
7.9	Trail	Add 10ft wide multi-use trail	Along US 190 EB FR	From proposed southern bypass easterly to Central Texas College at Bell Tower Dr	2 lane one-way road	No	Yes	2.87	\$861,000
9.10	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed FM 2808 future eastern extension	From southern city limit near Abbott Ln northerly to Constitution Dr	Future roadway	No	No	1.84	\$0
10.2	Shoulder Lane	Add signs and markings for shoulder lanes	On Lutheran Church Rd	From city limit east of Woodland Dr easterly to FM 116	Narrow 2 lane roadway	No	No	0.81	\$32,400
10.3	Shoulder Lane	Add signs and markings for shoulder lanes	On FM116/1st St	From Lutheran Church Rd southerly to proposed north bypass	2 lane roadway with shoulders	No	Yes	1.06	\$42,400
11.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On FM 2657	From southern city limit northerly to US190	2 lane roadway	No	Yes	0.74	\$0
11.4	Bike Lane	Add signs and markings for bicycle lanes	On US 190	From proposed southern bypass easterly to FM 116	5 lane roadway with shoulders	No	Yes	1.37	\$54,800
11.5	Bike Route	Add bike route signs	On Georgetown Rd, Veterans Ave, Lee St, Meggs St, and 1st St	From US 190 northerly to Avenue F	2 lane roadway	No	No	1.04	\$10,000
11.6	Bike Route	Add bike route signs	On FM116/1st St	From Avenue F northerly to Sherman Ave	2 lane roadway	No	Yes	0.56	\$5,000
11.7	Bike Lane	Add signs and markings for bicycle lanes	On FM116/1st St	From Sherman Ave northerly to proposed northern bypass	2 lane roadway with shoulders	No	Yes	0.89	\$35,600
11.9	Shoulder Lane	Add signs and markings for shoulder lanes	On FM116/1st St	From Lutheran Church Rd northerly to northern city limit	2 lane roadway with shoulders	No	Yes	0.49	\$19,600
12.4	Shoulder Lane	Add shoulders, signs, and markings	On FM 116	From eastern city limit northerly to US 190	2 lane roadway south of Tyler Dr, 5 lanes to the north	No	Yes	1.68	\$420,000

City of Copperas Cove									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
15.2	Bike Lane	Include bike lane with future roadway improvement	On future roadway and Winchester Dr, and Freedom Ln	From proposed road near CR 3340 easterly to Pony Express Ln	Future roadway and wide 2 lane roadway	No	No	1.93	\$0
15.3	Bike Lane	Include bike lane with future roadway improvement	On Freedom Ln	From Pony Express Ln easterly to Ogletree Pass	2 lane roadway	No	No	0.38	\$0
15.4	Bike Route	Add bike route signs	On Ogletree Pass and Walker Place	From Freedom Ln easterly to FM3046	2 lane roadway	No	No	1.85	\$10,000
15.5	Trail	Add 10ft wide multi-use trail	Along Clark Creek	From FM3046 southerly to southern city limit	Creekside land	No	No	0.54	\$162,000
16.2	Bike Lane	Include bike lane in future roadway	On future Pony Express southern extension	From southern city limit northerly to city limit north of US190	Future roadway	No	No	0.98	\$0
16.4	Bike Lane	Include bike lane with future roadway improvement	On Pony Express Ln	From city limit south of Buckboard Trail northerly to Freedom Ln	Narrow 2 lane roadway	No	No	0.40	\$0
16.6	Bike Lane	Add signs and restripe for bicycle lanes	On Freedom Ln	From Ogletree Pass northerly to Veterans Ave	Wide unmarked 2 lane roadway	No	No	0.42	\$21,000
16.7	Bike Lane	Add signs and restripe for bicycle lanes	On Skyline Dr	From Veterans Ave northerly to northern end of Skyline Dr	Wide unmarked 2 lane roadway	No	No	0.97	\$48,500
16.8	Bike Lane	Include bike lane in future roadway	On Skyline Dr proposed northern extension	From northern end of Skyline Dr northerly to Avenue B	Future roadway	No	No	0.95	\$0
17.3	Bike Lane	Include bike lane with future roadway improvement	On FM 3046	From southern city limit northerly to FM116	2 lane roadway	No	Yes	1.20	\$0
18.1	Trail	Add 10ft wide multi-use trail	Along Clark Creek	From FM 2657 easterly to FM 3046	Creekside land	No	No	1.20	\$360,000
19.1	Trail	Add 10ft wide multi-use trail	South of Phyllis Dr	From existing trail in City Park South easterly to proposed southern bypass	Wooded area and open land south of subdivision	No	No	0.59	\$177,000
19.2	Trail	Add 10ft wide multi-use trail	East of Phyllis Dr	From proposed southern bypass northerly to eastern city limit east of Phyllis Dr	Wooded area east of subdivision	No	No	0.29	\$87,000
19.4	Trail	Add 10ft wide multi-use trail	Between Judy Ln and Creek St	From southern city limit south of Northern Dancer Dr northerly to US190	Partly concrete-lined channel through residential neighborhood	No	No	1.31	\$393,000
20.1	Trail	Add 10ft wide multi-use trail	Between Virginia Ave and Amthor Ave	From proposed trail along Clear Creek easterly to Robertson Ave	Along power line corridor	No	No	0.56	\$168,000

City of Copperas Cove									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
20.2	Bike Route	Add bike route signs	On Williams St, MLK Dr, and Constitution Dr	From Robertson Ave at Williams St clockwise to existing end of Constitution Dr	2 lane roadways (Williams and MLK) and 4 lane roadway (Constitution)	No	No	1.44	\$10,000
21.1	Bike Route	Add bike route signs	On Main St	From Avenue B northerly to Old Georgetown Rd	2 lane roadway	No	No	1.04	\$10,000
TOTAL								50.70	\$5.95m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Harker Heights									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.16	Shoulder Lane	Add shoulders, signs, and markings	On BU190/Veterans Memorial Blvd	From Roy Reynolds Dr easterly to Indian Trail	5 lane roadway with 1-2 ft shoulders	No	Yes	1.28	\$320,000
7.17	Shoulder Lane	Add signs and markings for shoulder lanes	On BU190/Veterans Memorial Blvd	From Indian Trail easterly to eastern city limits	5 lane roadway with shoulders	No	Yes	0.72	\$28,800
9.18	Bike Lane	Add signs and restripe for bicycle lanes	On Mountain Lion Rd	From western city limit at Sun Dance Dr easterly to FM 2410	3-4 lane roadway	No	No	1.44	\$72,000
9.19	Shoulder Lane	Add shoulders, signs, and markings	On FM 2410	From Mountain Lion Rd easterly to eastern city limit east of High Oak Dr	5 lane roadway west of Cedar Knob Rd, 2 lanes to the east	No	Yes	4.43	\$1,107,500
56.4	Trail	Add 10ft wide multi-use trail	Between Mustang Trl and Snowbird Ave	From southern city limit northerly to FM2410	Creekside land	No	No	1.22	\$366,000
56.6	Shoulder Lane	Add shoulders, signs, and markings	On FM 2410	From Mountain Lion Rd northerly to US190 EB FR	5 lane roadway	No	Yes	0.98	\$245,000
56.7	Bike Lane	Include bike lane with future roadway improvement	On FM 2410	From US 190 EB FR westerly to Roy Reynolds Rd	2 lane roadway	No	Yes	1.11	\$0
58.6	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek north of Summit Soccer Complex	From Roy Reynolds Dr easterly to easterly city limits near railroad	Creekside land	No	No	2.41	\$723,000

City of Harker Heights									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
63.1	Side Path	Add 8ft wide multi-use side path	Along proposed southern extension of Rosewood Dr and proposed connection to Deer Trail	From Deer Trail westerly and northerly to Siltstone Loop	Future roadway	No	No	0.45	\$90,000
64.1	Trail	Add 10ft wide multi-use trail	Along creek east of Rosewood Dr	From proposed trail west of FM3481 northerly to proposed trail west of southern end of Iowa Dr	Creekside land	No	No	1.01	\$303,000
64.2	Trail	Add 10ft wide multi-use trail	Through park east of Nickleback/Rosewood Dr	From proposed trail west of southern end of Iowa Dr northerly to Mountain Lion Rd	Creekside land	No	No	0.75	\$225,000
65.1	Trail	Add 10ft wide multi-use trail	Southwest of Carl Levin Park near City Hall	From FM2410 easterly to existing trail in Carl Levin Park	Open land	No	No	0.27	\$81,000
65.3	Trail	Add 10ft wide multi-use trail	Northeast of Carl Levin Park	From existing trail in Carl Levin Park easterly to Indian Trail	Around residential development	No	No	1.00	\$300,000
66.1	Bike Lane	Add signs and restripe for bicycle lanes	On Pioneer Trl, Wildewood Dr, and Ramblewood Dr	From FM2410 easterly to Verna Lee Blvd	2 lane roadways	No	No	0.92	\$46,000
67.1	Trail	Add 10ft wide multi-use trail	Between Grizzly Trl and Caribou Trl	From Pioneer Trail northerly to existing trail in Carl Levin Park	Drainage channel	No	No	0.12	\$36,000
68.1	Bike Route	Add bike route signs	On Ann Blvd, Indian Oaks Dr, and Amy Ln	From FM 2410 northerly to proposed trail along South Nolan Creek	2 lane roadways	No	No	1.86	\$10,000
69.1	Bike Route	Add bike route signs	On Indian Trail	From FM 2410 northerly to Verna Lee Blvd	2 lane roadway	No	No	1.67	\$10,000
69.2	Bike Lane	Add signs and markings for bicycle lanes	On Indian Trail	From Verna Lee Blvd northerly to US190 EB FR	2-4 lane roadway	No	No	0.50	\$20,000
69.3	Bike Lane	Add signs and markings for bicycle lanes	On FM3423/Indian Trail	From US190 EB FR northerly to Veterans Memorial Blvd	2-4 lane roadway	No	Yes	0.78	\$31,200
70.1	Bike Route	Add bike route signs	On Bee Line Ln	From Roy Reynolds Dr easterly to Indian Trail	2 lane roadway	No	No	1.20	\$10,000
71.1	Trail	Add 10ft wide multi-use trail	West of Eastern Hills Middle School	From Indian Trail westerly to from loop trail west of Eastern Hills Middle School	Open land	No	No	1.49	\$447,000
72.1	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 3219	From Veterans Memorial Blvd northerly to northern city limits	2 lane roadway with shoulders	No	Yes	0.36	\$14,400

City of Harker Heights									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
74.1	Trail	Add 10ft wide multi-use trail	Along Comanche Gap Rd	From existing trail in Dana Peak Park northerly to FM2410	2 lane roadway	Yes	No	1.85	\$555,000
74.3	Side Path	Add 8ft wide multi-use side path	Along Warrior's Path	From FM 2410 northerly to Old Nolanville Rd	2 lane roadway	No	No	1.69	\$338,000
75.2	Shoulder Lane	Add shoulders, signs, and markings	On FM3481/Stillhouse Lake Rd	From southern city limit south of Del Rey Dr northerly to FM2410	2 lane and 4 lane roadways	No	Yes	2.51	\$627,500
75.3	Shoulder Lane	Add shoulders, signs, and markings	On Verna Lee Blvd	From FM2410 northerly to Indian Trail	2 lane and 4 lane roadways	No	No	1.19	\$297,500
75.4	Bike Route	Add bike route signs	On Verna Lee Blvd, Shine Ln, and Nola Ruth Blvd	From Indian Trail northerly to Old Nolanville Rd	2 lane roadways	No	No	0.92	\$5,000
TOTAL								34.13	\$6.31m

* Cost estimates provided by project sponsoring entity

City of Kempner									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.2	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190	From western city limits easterly to FM2808	5 lanes with shoulders	No	Yes	1.21	\$48,400
7.3	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190	From FM2808 easterly to eastern city limit	5 lanes with shoulders	No	Yes	1.13	\$45,200
9.4	Shoulder Lane	Add shoulders, signs, and markings	On FM 2808	From US190 southerly to southern city limit	2 lane roadway	No	Yes	0.57	\$142,500
TOTAL								2.91	\$236.1k

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.11	Trail	Add 10ft wide multi-use trail	Along US 190 EB FR, south of interchange at Fort Hood main gate	From proposed trail on south side of US190 easterly to proposed trail just west of Willow Springs Rd	2 lane one-way road	Yes	Yes	1.02	\$306,000
7.12	Trail	Add 10ft wide multi-use trail	Along US 190 EB FR	From proposed trail west of Willow Springs Rd easterly to Fort Hood St	2 lane one-way road	No	Yes	0.98	\$294,000
7.13	Shoulder Lane	Add signs and markings for shoulder lanes	On SH195/Fort Hood St	From US190 EB FR northerly to Veterans Memorial Blvd	7 lane roadway	Yes	Yes	0.89	\$35,600
7.14	Bike Lane	Add signs and markings for bicycle lanes	On Veterans Memorial Blvd	From Fort Hood St easterly to 28th St	5 lane roadway	Yes	Yes	1.57	\$62,800
7.15	Bike Lane	Add signs and markings for bicycle lanes	On BU190/Veterans Memorial Blvd	From 28th St easterly to Roy Reynolds Dr	5 lane roadway with shoulders	No	Yes	3.00	\$120,000
9.13	Shoulder Lane	Add shoulders, signs, and markings	On Old Copperas Cove Rd	From western city limit easterly to Clear Creek Rd	2 lane roadway	Yes	No	0.36	\$90,000
9.14	Shoulder Lane	Add shoulders, signs, and markings	On SH201/Clear Creek Rd	From Stan Schlueter Loop southerly and easterly to Bunny Trail	4 lane divided roadway	Yes	Yes	3.61	\$902,500
9.15	Shoulder Lane	Add shoulders, signs, and markings	On SH201	From Bunny Trail easterly to SH195	2 lane roadway	Yes	Yes	1.80	\$450,000
9.16	Shoulder Lane	Add shoulders, signs, and markings	On Stagecoach Rd	From SH195 easterly to Stagecoach/Trimmier	2 lane roadway	Yes	No	3.95	\$987,500
9.17	Bike Lane	Add signs and markings for bicycle lanes	On Stagecoach Rd	From Trimmier Rd easterly to eastern city limit at Nickelback Rd	2 lane roadway west of Rosewood, 3 lanes to the east	Yes	No	1.43	\$57,200
23.4	Side Path	Add 8ft wide multi-use side path	Along Water Crest Rd	From Clear Creek Rd easterly to Robinett Rd	Roadway under construction	Yes	No	0.92	\$184,000
23.5	Side Path	Add 8ft wide multi-use side path	Along Water Crest Rd	From Robinett Rd easterly to Cody Poe Rd	2 lane roadway	No	No	0.72	\$144,000
23.6	Side Path	Add 8ft wide multi-use side path	Along Water Crest Rd	From Cody Poe Rd easterly to Willow Springs Rd	Along north side of 2 lane road	Yes	No	0.49	\$98,000
24.1	Shoulder Lane	Add signs and markings for shoulder lanes	On SH195	From Veterans Memorial Blvd northerly to FM439	4 lane roadway	Yes	Yes	0.64	\$25,600
24.2	Bike Lane	Add signs and markings for bicycle lanes	On Rancier Ave	From Fort Hood St easterly to 38th St/FM439	4-5 lane roadway	Yes	No	2.56	\$102,400

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
24.3	Bike Lane	Add signs and markings for bicycle lanes	On FM439/Rancier Ave	From 38th St easterly to Twin Creek Dr	4-5 lane roadway	Yes	Yes	0.86	\$34,400
24.4	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 439/Rancier Ave	From Twin Creek Dr easterly to Roy Reynolds Dr	5 lane roadway	Yes	Yes	1.12	\$44,800
24.5	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 439/Rancier Ave	From Roy Reynolds Dr easterly to eastern city limit	4 lane roadway to the west of Glover, 2 lanes to the east	Yes	Yes	0.89	\$35,600
25.1	Side Path	Add 8ft wide multi-use side path	Along SH201/Clear Creek Rd	From Stan Schlueter Loop northerly to Watercrest Rd	5 lane roadway	Yes	Yes	1.73	\$346,000
26.1	Shoulder Lane	Include shoulder lane with future roadway improvement	On Atlas Rd western extension	From SH 201/Clear Creek Rd easterly to Trimmier Rd	Future roadway and existing 2 lane roadway	No	No	4.44	\$0
27.1	Side Path	Add 8ft wide multi-use side path	Along Stan Schlueter Loop	From SH201/Clear Creek Rd easterly to SH195/Fort Hood St	5 lane roadway	Yes	Yes	3.09	\$618,000
27.2	Side Path	Add 8ft wide multi-use side path	Along Stan Schlueter Loop	From SH195/Fort Hood St easterly to FM2410/MLK Blvd	5 lane roadway	Yes	Yes	4.12	\$824,000
27.3	Side Path	Add 8ft wide multi-use side path	Along FM2410/MLK Blvd	From FM2410/MLK Blvd northerly to BU190	5 lane roadway	Yes	Yes	1.18	\$236,000
27.4	Side Path	Add 8ft wide multi-use side path	Along Twin Creek Dr	From BU190 northerly to FM439	5 lane roadway	Yes	No	1.50	\$300,000
27.5	Side Path	Add 8ft wide multi-use side path	Along proposed Twin Creek northerly extension	From FM439 northerly to Lake Rd	Future roadway	Yes	No	0.38	\$76,000
27.6	Side Path	Add 8ft wide multi-use side path	Along 60th St	From Lake Rd northerly to northern city limits at Schwald Rd	2 lane roadway	Yes	No	1.05	\$210,000
28.1	Side Path	Add 8ft wide multi-use side path	Along Elms Rd	From SH201/Clear Creek Rd easterly to Carpet Ln	3-5 lane roadway	Yes	No	2.31	\$462,000
28.2	Side Path	Add 8ft wide multi-use side path	Along proposed Elms Rd extension	From Carpet Ln easterly to SH195/Fort Hood St	Future roadway	No	No	0.77	\$154,000
28.3	Side Path	Add 8ft wide multi-use side path	Along Elms Rd	From SH195/Fort Hood St easterly to Stan Schlueter Loop	3-5 lane roadway	Yes	No	3.09	\$618,000
28.4	Side Path	Add 8ft wide multi-use side path	Along Chantz Dr	From Stan Schlueter Loop southerly to Stagecoach Rd	2 lane roadway	Yes	No	1.45	\$290,000
29.1	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek	From eastern end of Rimes Ranch Rd northerly to Watercrest Rd	Creekside land between subdivisions	Yes	No	2.74	\$822,000
29.2	Trail	Add 10ft wide multi-use trail	Southwest of US190 interchange at Ft Hood main gate	From Watercrest Rd northerly to proposed trail along US190 EB FR	Open land near ponds	Yes	No	2.43	\$729,000

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
30.1	Trail	Add 10ft wide multi-use trail	Southeast of US190 interchange at Ft Hood main gate	From proposed trail east of Roberts Rd easterly to proposed trail west of Willow Springs Rd	Open land near ponds	Yes	No	2.06	\$618,000
31.1	Bike Lane	Include bike lane in future roadway	On Bunny Trail	From SH201 northerly to Stan Schlueter Loop	Narrow 2 lane roadway and future roadway	Yes	No	2.04	\$0
31.3	Bike Lane	Include bike lane with future roadway improvement	On Robinett Rd	From Stan Schlueter Loop northerly to Edgefield Rd	2 lane roadway	Yes	No	0.86	\$0
31.4	Bike Route	Add bike route signs	On Robinett Rd	From Edgefield Rd northerly to Watercrest Rd	3 lane roadway	Yes	No	0.90	\$5,000
32.1	Side Path	Add 8ft wide multi-use side path	Along Trimmier Rd and 10th St	From Stagecoach Rd northerly to northern city limit south of Warrior Way	2-5 lane roadway	Yes	No	5.65	\$1,130,000
33.1	Trail	Add 10ft wide multi-use trail	East of Bunny Trail and south of Reese Creek Rd	From proposed Texas A&M campus south of SH201 northerly to Stan Schlueter Loop	Open land	Yes	No	3.38	\$1,014,000
34.1	Bike Route	Add bike route signs	On Omar Dr western extension and Littlerock Dr southern extension	From SH195 westerly and northerly to Stan Schlueter Loop	Future roadway	No	No	1.58	\$10,000
34.3	Bike Route	Add bike route signs	On Littlerock Dr, Ledgestone Dr, and Carpet Ln	From Stan Schlueter Loop northerly to Elms Rd	2 lane roadways	No	No	0.84	\$5,000
34.5	Bike Route	Add bike route signs	On Tallwood Dr, Edgefield St, South Hill Dr, and Westwood Dr	From Elms Rd northerly to Willow Spring Rd	2 lane roadways	No	No	1.03	\$10,000
34.6	Bike Route	Add bike route signs	On Willow Springs Rd	From Westwood Dr northerly to US190 WB FR	2 lane roadway	Yes	No	1.07	\$10,000
37.1	Shoulder Lane	Add shoulders, signs, and markings	On East Trimmier Rd	From Chaparral Rd northerly to Stagecoach Rd	2 lane roadway	No	No	1.81	\$452,500
37.3	Bike Lane	Include bike lane with future roadway improvement	On Cunningham Road	From Stagecoach Rd northerly to Little Nolan Rd	2 lane roadway	Yes	No	1.71	\$0
38.2	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 195	From FM 2670 northerly to Chaparral Rd	4 lane divided highway with shoulders	No	Yes	3.25	\$130,000
38.3	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 195	From Chaparral Rd northerly to SH201	4 lane divided highway with shoulders	No	Yes	2.54	\$101,600

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
38.4	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 195	From SH201 northerly to Stan Schlueter Loop	4 lane divided highway with shoulders	Yes	Yes	1.43	\$57,200
38.5	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 195	From Stan Schlueter Loop northerly to US190 EB FR	5 lane roadway	Yes	Yes	2.17	\$86,800
39.1	Bike Route	Add bike route signs	On Jasper Dr	From Old FM 440 easterly to Fort Hood St	2 lane roadway	No	No	0.18	\$5,000
39.2	Bike Route	Add bike route signs	On Jasper Dr	From Fort Hood St easterly to Trimmier Rd	4 lane roadway	Yes	No	1.16	\$10,000
39.4	Bike Lane	Add signs and markings for bicycle lanes	On Illinois Avenue	From Trimmier Rd easterly to US 190 WB FR	2-3 lane roadway	Yes	No	1.72	\$68,800
40.1	Side Path	Add 8ft wide multi-use side path	Along WS Young Dr	From Stagecoach Rd northerly to Westcliff Rd	2-5 lane roadway	Yes	No	6.38	\$1,276,000
40.2	Side Path	Add 8ft wide multi-use side path	Along Westcliff Rd	From WS Young Dr easterly to FM439	2 land roadway	Yes	No	3.34	\$668,000
41.1	Side Path	Add 8ft wide multi-use side path	Along Florence Rd	From Elms Rd northerly to Jasper Dr	2 lane roadway	Yes	No	1.21	\$242,000
41.3	Bike Route	Add bike route signs	On 2nd St, Bryce Ave, and Gray St	From Jasper Dr northerly to Hallmark Ave	2 lane roadways	No	No	1.09	\$10,000
41.4	Bike Lane	Add signs and markings for bicycle lanes	On Gray St	From Hallmark Ave northerly to Avenue C	2 lane roadway with angled parking	No	No	0.64	\$25,600
41.5	Bike Route	Add bike route signs	On Gray St and Dean Ave	From Avenue C at Gray northerly to 10th St at Dean	2 lane roadways	No	No	0.74	\$5,000
41.7	Bike Route	Add bike route signs	On Duncan Ave, Massey St, Poage Ave, Ruiz Dr, and Willowbend Dr	From 10th St easterly to 38th St	2 lane roadways	No	No	1.86	\$10,000
42.1	Bike Route	Add bike route signs	On Wheeler Ave	From Willow Springs Rd easterly to Alta Vista Dr	2 lane roadway with on-street parking	No	No	0.48	\$5,000
43.1	Trail	Add 10ft wide multi-use trail	Along creek between residential subdivisions	From Carpet Ln easterly to Trimmier Rd	Creekside land	Yes	No	2.31	\$693,000
44.1	Bike Lane	Add signs and markings for bicycle lanes	On Old FM 440	From Stan Schlueter Loop northerly to US190 EB FR	2 lane roadway	No	No	2.22	\$88,800
45.1	Trail	Add 10ft wide multi-use trail	North of Saegert Ranch Rd and Schorn Dr	From Constellation Dr easterly to Onion Rd	Creekside land	Yes	No	1.42	\$426,000

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
45.2	Trail	Add 10ft wide multi-use trail	East of Sunflower Dr and east of Cunningham Rd	From Onion Rd northerly to Cunningham Rd	Creekside land	No	No	1.18	\$354,000
45.3	Trail	Add 10ft wide multi-use trail	East of proposed Cunningham Rd extension and on east and north side of shopping plaza	From Cunningham Rd northerly to Illinois Ave	Creekside land and drainage channel	No	No	1.44	\$432,000
46.1	Trail	Add 10ft wide multi-use trail	In Lions Club Park	Series of trails inside Lions Club Park	Park land	Yes	No	1.58	\$474,000
46.2	Side Path	Add 8ft wide multi-use side path	Along Dartmouth Dr	From proposed trails in Lions Club Park northerly to Granex Dr (Trimmier Elementary)	2 lane roadway	No	No	0.21	\$42,000
47.1	Trail	Add 10ft wide multi-use trail	Between Stan Schlueter Loop and Elms Rd	From Old Florence Rd easterly to Cunningham Rd	Creekside land	Yes	No	2.20	\$660,000
48.1	Bike Route	Add bike route signs	On Mesa Dr	From Fawn Dr northerly to Stan Schlueter Loop	2 lane roadway	No	No	0.93	\$5,000
48.3	Bike Route	Add bike route signs	On Bacon Ranch, Little Nolan, and Bacon Ranch	From Stan Schlueter Loop westerly to Trimmier Rd	2 lane road	No	No	2.67	\$15,000
48.5	Bike Route	Add bike route signs	On Turtle Bend Dr, Tortoise Ln, Pondview Dr, Minthorn Dr, Cobblestone Dr, and Turtle Creek Dr	From Trimmier Rd westerly to Florence Rd	2 lane roadways	No	No	0.86	\$5,000
48.7	Bike Route	Add bike route signs	On Daffodil Dr, Andover Dr, and Kathey Dr	From Florence Rd westerly to Old FM440	2 lane roadways	No	No	1.01	\$10,000
48.9	Bike Route	Add bike route signs	On Leader Dr, Meadow Dr, and Alta Vista Dr	From Old FM440 westerly and northerly to US 190 EB FR	2 lane roadways	No	No	0.84	\$5,000
48.12	Bike Lane	Add signs and markings for bicycle lanes	On Hallmark Ave	From Fort Hood St easterly to 10th St/Trimmier Rd	2 lane roadway	Yes	No	1.01	\$40,400
50.1	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek	From Fort Hood St easterly to 28th St	Creekside land	Yes	No	1.68	\$504,000
50.2	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek, west of Community Center park	From 28th St easterly to existing trail in Community Center Park west of WS Young Dr	Creekside land	Yes	No	0.32	\$96,000

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
51.1	Bike Route	Add bike route signs	On Conder St, 28th St, and Greenwood Ave	From Terrace Dr northerly to Alexander St	2 lane roadways	No	No	0.87	\$5,000
51.2	Bike Route	Add bike route signs	On Alexander St	From Greenwood Ave northerly to Rancier Ave	2 lane roadway	No	No	0.47	\$5,000
51.3	Trail	Add 10ft wide multi-use trail	West of Stewart St and east of 24th St	From Alexander St northerly to northern city limits south of Warrior Way	4 lane roadway and drainage channel	Yes	No	0.61	\$183,000
52.1	Bike Route	Add bike route signs	On Fowler Ave, Terrace Dr, and Rev Abercrombie Dr	From 2nd St easterly to Veterans Memorial Blvd	2 lane roadways	No	No	1.83	\$10,000
53.1	Bike Route	Add bike route signs	On Highland Ave	From Rev Abercrombie Dr northerly to Marlboro Park	2 lane roadway	No	No	0.06	\$5,000
53.2	Trail	Add 10ft wide multi-use trail	Within Marlboro Park	Within Marlboro Park	Park land	Yes	No	0.39	\$117,000
54.1	Bike Route	Add bike route signs	On Becker Dr, Zephyr Rd, and Jeffries Ave	From Illinois Ave northerly to Veterans Memorial Blvd	2 lane roadways	No	No	1.18	\$10,000
54.3	Side Path	Add 8ft wide multi-use side path	Along FM439/38th St	From Veterans Memorial Blvd northerly to Rancier Ave	4-5 lane roadway with shoulders	Yes	Yes	1.07	\$214,000
54.4	Side Path	Add 8ft wide multi-use side path	Along 38th St	From Rancier Ave northerly to Westcliff Rd	4-5 lane roadway with shoulders	Yes	No	0.98	\$196,000
55.1	Bike Lane	Add signs and markings for bicycle lanes	On Fawn Dr	From Cunningham Rd easterly to Rosewood Dr	Wide unmarked 2 lane road with on-street parking and sidewalks	No	No	1.33	\$53,200
56.2	Trail	Add 10ft wide multi-use trail	Along Trimmier Creek	From FM3481 west of Stillhouse Lake northerly to city limit east of FM3481	Creekside land	No	No	1.96	\$588,000
56.8	Side Path	Add 8ft wide multi-use side path	Along Roy Reynolds Dr	From MLK Dr northerly to city limits at railroad	2 lane roadway	No	No	2.06	\$412,000
56.9	Bike Lane	Add signs and markings for bicycle lanes	On Roy Reynolds Dr	From city limits at railroad northerly to Westcliff Rd	4 lane roadway	No	No	1.39	\$55,600
57.1	Bike Route	Add bike route signs	On Cora Ave	From 60th St easterly to Windward Dr	2 lane roadway	No	No	0.67	\$5,000
57.2	Trail	Add 10ft wide multi-use trail	Connecting Cora Ave to Greengate Dr	From Windward Dr easterly to Cedarhill Dr	Open land between neighborhoods	No	No	0.13	\$39,000
57.3	Bike Route	Add bike route signs	On Greengate Dr	From Cedarhill Dr easterly to Roy Reynolds Dr	2 lane roadway	No	No	0.48	\$5,000

City of Killeen									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
58.1	Bike Lane	Add signs and markings for bicycle lanes	On 4th and 8th Sts	From Ave C southerly to Ave G	2 lane roadways	Yes	No	0.40	\$16,000
58.2	Side Path	Add 8ft wide multi-use side path	Along Ave G	From 4th St easterly to 28th St	2 lane roadway	Yes	No	0.76	\$152,000
58.3	Trail	Add 10ft wide multi-use trail	Northwest of Community Center Park	From 28th St easterly to existing trail in Community Center Park	Wooded area	Yes	No	0.31	\$93,000
58.5	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek	From 38th St easterly to Roy Reynolds Dr	Creekside land	Yes	No	2.12	\$636,000
59.1	Bike Route	Add bike route signs	On Ave C, Hall Ave, and Greenwood Ave	From Gray St easterly to Alexander St	2 lane roadway	No	No	0.71	\$5,000
60.1	Trail	Add 10ft wide multi-use trail	Along creek east of Killeen High School, west of Wright Way	From proposed trail along South Nolan Creek west of Twin Creek Dr northerly to Westcliff Rd	Creekside land	Yes	No	2.87	\$861,000
60.2	Trail	Add 10ft wide multi-use trail	Between Beretta Dr and Kilgore Dr and through Brookhaven Elementary campus	From proposed trail east of Brookbend Dr eastern end northerly to Traverse Dr	Creekside land	Yes	No	0.73	\$219,000
61.1	Trail	Add 10ft wide multi-use trail	Along Trimmier Creek	From Trimmier Rd easterly to proposed trail east of Rosewood Dr proposed extension	Creekside land	Yes	No	2.34	\$702,000
62.1	Side Path	Add 8ft wide multi-use side path	Along FM2410/MLK Blvd	From Stan Schlueter Loop easterly to Roy Reynolds Rd	2 lane roadway	No	Yes	0.75	\$150,000
63.2	Side Path	Add 8ft wide multi-use side path	Along Rosewood Dr	From Siltstone Loop northerly to Fawn Dr	Wide unmarked roadway	Yes	No	1.58	\$316,000
63.3	Side Path	Add 8ft wide multi-use side path	Along proposed northern extension of Rosewood Dr	From Fawn Dr northerly to US190 EB FR	Future roadway	Yes	No	0.70	\$140,000
TOTAL								158.84	\$24.66m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Little River/Academy									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
9.27	Side Path	Add 8ft wide multi-use side path	Along FM436	From proposed trail along Leon River easterly to Lamar St (west end of existing side path)	Along 2 lane road	No	Yes	1.96	\$392,000
123.1	Shoulder Lane	Add shoulders, signs, and markings	On Kings Trl	From Main St northerly to northern city limit	2 lane roadway	No	No	0.33	\$82,500
TOTAL								2.29	\$474.5k

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Morgan's Point Resort									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
83.15	Shoulder Lane	Add signs and markings for shoulder lanes	On Morgan's Point Rd	From southern city limit at Bonnie Ln northerly to FM2483	2 lane roadway	No	No	1.16	\$46,400
88.1	Bike Route	Add bike route signs	On Morgan's Point Rd	From FM 2483 westerly to Camp Kachina Rd near west city limit	2 lane roadway	No	No	1.77	\$10,000
TOTAL								2.93	\$56.4k

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Nolanville									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.18	Shoulder Lane	Add signs and markings for shoulder lanes	On US190 WB FR	From western city limit easterly to eastern city limit	2 lane one-way roadway	No	Yes	4.03	\$161,200
58.8	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek	From northern city limits west of Pleasant Hill Cemetery Rd easterly to eastern city limit	Creekside land	No	No	3.15	\$945,000
74.4	Side Path	Add 8ft wide multi-use side path	Along proposed northern extension of Warrior's Path	From Old Nolanville Rd northerly to US190 WB FR	Future roadway	No	No	0.43	\$86,000
76.1	Side Path	Add 8ft wide multi-use side path	Along Main St, railroad, and 10th St	From US190 EB FR northerly to proposed trail north of Nolan Ridge Dr	2 lane roadways and open land	No	No	1.01	\$202,000
76.2	Trail	Add 10ft wide multi-use trail	Between Nolan Ridge Dr and Wyatt Earp Ln	From 10th St easterly to proposed trail along private road	Open land	No	No	0.69	\$207,000
78.1	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190 EB FR	From US190 WB FR easterly to eastern city limits	2 lane one-way roadway	No	Yes	4.07	\$162,800
TOTAL								13.38	\$1.76m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.22	Shoulder Lane	Add signs and markings for shoulder lanes	On IH 35 SB FR	From southern city limit northerly to Kegley Rd	2 lanes one-way roadway with shoulders	No	Yes	2.49	\$99,600
7.23	Side Path	Add 8ft wide multi-use side path	Along Kegley Rd and Midway Dr	From IH35 SB FR easterly to Camelot Ln	4 lane roadway	Yes	No	0.62	\$124,000
7.24	Side Path	Add 8ft wide multi-use side path	Along Midway Dr	From Camelot Ln easterly to Las Moras Dr	4 lane roadway	Yes	No	0.51	\$102,000
7.25	Bike Lane	Add signs and markings for bicycle lanes	On Hickory Rd and Thornton Lane	From Midway Dr at Hickory Rd easterly to Oakdale Dr	4 lane roadway	Yes	No	0.48	\$19,200
7.26	Bike Lane	Add signs and restripe for bicycle lanes	On Oakdale Dr	From Thorton Ln northerly to Dodgen Loop	4 lane roadway	No	No	0.18	\$9,000
7.27	Shoulder Lane	Include shoulder lane with future roadway improvement	On H K Dodgen Loop EB FR	From Oakdale Dr easterly to 1st St	2 lane one-way roadway	No	Yes	2.25	\$0
7.28	Shoulder Lane	Include shoulder lane with future roadway improvement	On SH36/US190	From 1st St southerly to southern city limit at Barnhardt Rd	4 lane divided roadway	No	Yes	1.81	\$0
81.6	Shoulder Lane	Add signs and markings for shoulder lanes	On IH 35 NB FR	From southern city limit at Leon River northerly to Midway Dr	2 lane roadway with shoulders	No	Yes	2.50	\$100,000
82.8	Shoulder Lane Trail	Add signs and markings for shoulder lanes Add 10ft wide multi-use trail	On SH 317/Main St	From southern city limit at Leon River northerly to Adams Ave	2 lane roadway with shoulders	Yes	Yes	1.84	\$73,600 *\$600,000
82.9	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 317/Main St	From Adams Ave northerly to northern city limit north of Triple Heart Ln	2 lane roadway with shoulders	Yes	Yes	4.88	\$195,200
83.13	Shoulder Lane Trail	Add signs and markings for shoulder lanes Add 10ft wide multi-use trail	On FM 2271	From southern city limit east of Belton Lake northerly to FM2305/Adams Ave	3 lanes with shoulders	Yes	Yes	0.96	\$38,400 *\$300,000
83.14	Shoulder Lane	Add signs and markings for shoulder lanes	On Morgan's Point Rd	From FM2305/Adams Ave northerly to northern city limit at Bonnie Ln	3 lanes with shoulders	Yes	No	0.37	\$14,800
83.17	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 2483	From western city limit easterly to SH 317	2 lane roadway	Yes	Yes	0.61	\$24,400

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
89.1	Bike Route Trail	Add bike route signs Add 10ft wide multi-use trail	On FM 2305	From Temple Lake Park easterly to FM 2271	2 lane roadway with shoulders	Yes	Yes	1.55	\$10,000 *\$500,000
89.2	Side Path	Add 8ft wide multi-use side path	Along FM2305/Adams Ave (both sides)	From FM 2271 easterly to St. Andrews Place	2 lane roadway	Yes	Yes	1.59	\$318,000
89.3	Side Path Trail	Add 8ft wide multi-use side path Add 10ft wide multi-use trail	Along FM2305/Adams Ave	From St. Andrews Place easterly to western end of existing side path at Montpark Rd	4 lane roadway 5 lane roadway	Yes	Yes	1.46	\$292,000
89.5	Side Path Trail	Add 8ft wide multi-use side path Add 10ft wide multi-use trail	Along FM2305/Adams Ave	From eastern end of existing trail west of Dodgen Loop easterly to West Gate Dr From Montpark Rd easterly to HK Dodgen Loop West	5 lane roadway	Yes	Yes	1.35 2.7	\$270,000 *\$1,150,000
89.6	Bike Lane Trail	Add signs and markings for bicycle lanes Add 10ft wide multi-use trail	On FM2305 and SH53/Adams Ave	From West Gate Dr easterly to Dodgen Loop east From HK Dodgen Loop East	4 lane roadway	Yes	Yes	3.90 4.90	\$156,000 *\$9,800,000
89.7	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 53	From Dodgen Loop east easterly to eastern city limit	2 lane roadway with shoulders	Yes	Yes	0.42	\$16,800
105.4	Trail	Add 10ft wide multi-use trail	Along creek and west of Pea Ridge Rd	From existing trail in Heritage Park northerly to existing side path along Adams Ave	Creekside and open land	Yes	No	4.17	\$1,251,000
105.6	Trail	Add 10ft wide multi-use trail	East of SH317	From existing trail in West Temple Community Park northerly and westerly to SH317	Open land	Yes	No	1.38	\$414,000
106.1	Trail	Add 10ft wide multi-use trail	East of Miller Spring Park	From existing trail in Miller Springs Park easterly to SH 317 at Tarver Dr	Wooded area and open land	Yes	No	1.34	\$402,000
106.2	Bike Lane	Add signs and restripe for bicycle lanes	On Tarver Dr	From SH 317 easterly to Pirtle Elementary	4 lane roadway	Yes	No	0.72	\$36,000
106.3	Bike Lane	Add signs and restripe for bicycle lanes	On existing and proposed eastern extension of Tarver Dr	From Pirtle Elementary easterly to Old Waco Rd	2 lane roadway and future roadway	No	No	0.90	\$45,000
106.4	Bike Lane	Add signs and restripe for bicycle lanes	On existing and proposed eastern extension of Jupiter Dr	From Old Waco Rd easterly to Kegley Rd at Wildflower Ln	2 lane roadway and future roadway	Yes	No	0.98	\$49,000
106.5	Bike Lane	Add signs and restripe for bicycle lanes	On Wildflower Ln	From Kegley Rd easterly to Dodgen Loop	2 lane roadway	No	No	0.68	\$34,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
107.1	Bike Route	Add bike route signs	On existing and proposed northern extension of Starlight Dr	From Adams Ave northerly to FM2483	2 lane roadway and future roadway	Yes	No	1.57	\$10,000
108.1	Trail	Add 10ft wide multi-use trail	Along creek west of Tarver Intermediate School	From proposed trail south of Pea Ridge/Hogan northerly to Adams Ave	Creekside land	Yes	No	1.20	\$360,000
109.1	Shoulder Lane	Add shoulders, signs, and markings	On North Point Rd	From Armadillo Circle easterly to SH317	2 lane roadway	Yes	No	0.62	\$155,000
111.3	Shoulder Lane	Add shoulders, signs, and markings	On FM817/Charter Oak Dr	From proposed trail at western city limit along Leon River northerly to Pea Ridge Rd	2 lane roadway	Yes	Yes	0.83	\$207,500
111.4	Shoulder Lane	Add shoulders, signs, and markings	On FM817/Charter Oak Dr	From Pea Ridge Rd northerly to Kegley Rd	2 lane roadway	No	Yes	1.20	\$300,000
113.3	Trail	Add 10ft wide multi-use trail	Along Abandoned RR and east of Ray Allen Elementary	From proposed trail along Leon River easterly to existing trail at Ray Allen Elementary	Abandoned railroad	Yes	No	4.50	\$1,350,000
113.5	Trail	Add 10ft wide multi-use trail	East of Southern Crossing Dr	From southern end of existing trail at Pullman Place Blvd southerly to 5th St	Open land	Yes	No	0.68	\$204,000
115.1	Shoulder Lane	Include shoulder lane with future roadway improvement	On H K Dodgen Loop	From Barnhardt Rd northerly to Adams Ave (east)	2 lane roadway	No	Yes	2.98	\$0
115.2	Shoulder Lane	Include shoulder lane with future roadway improvement	On H K Dodgen Loop and proposed FRs	From Adams Ave (east) northerly to McLane Pkwy	2 lane roadway	Yes	Yes	6.18	\$0
115.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On H K Dodgen Loop proposed FRs	From McLane Pkwy southerly to Oakdale Dr	2 lane undivided, 4 lane divided roadway	No	Yes	4.76	\$0
115.5	Bike Lane	Add signs and markings for bicycle lanes	On Thorton Ln, Oaklawn Dr, Cottonwood Ln, and Oakview Dr	From Oakdale Dr southerly to Pin Oak Dr	2 lane roadways	Yes	No	0.60	\$24,000
115.6	Trail	Add 10ft wide multi-use trail	West and south of Oak Creek Park	From Oakview Dr southerly to proposed trail south of Canyon Creek Dr	Wooden area	Yes	No	1.00	\$300,000
115.7	Bike Lane	Add signs and markings for bicycle lanes	On Canyon Creek Dr, Blackland Rd, and Barnhardt Rd	From Canyon Creek Dr easterly to US190 just north of FM3117	2 lane roadways	Yes	No	3.40	\$136,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
116.1	Trail	Add 10ft wide multi-use trail	Along Dubose Rd and FM 93	From prop. trail along creek north of Forrester northerly to prop. trail along Bird Creek	Open land	Yes	No	1.46	\$438,000
116.3	Trail	Add 10ft wide multi-use trail	Along Leon River	From Shallow Ford Rd westerly and northerly to existing trail in Miller Springs Park	Riverside land	Yes	No	5.49	\$1,647,000
117.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On Witter Ln	From southern city limit northerly to Taylor's Valley Rd	2 lane roadway	No	No	0.26	\$0
117.6	Trail	Add 10ft wide multi-use trail	East of Ramblewood Park	From proposed Hickory Rd extension easterly to proposed trail south of Canyon Cliff Dr	Wooded area	Yes	No	0.96	\$288,000
117.8	Trail	Add 10ft wide multi-use trail	East of Oak Creek Park and south of King's Daughters Hospital	From proposed trail north of Forest Trail easterly to Market Loop	Park and open land	Yes	No	0.55	\$165,000
117.9	Bike Lane	Add signs and restripe for bicycle lanes	On Market Loop	From proposed trail on south side of Cottonwood Dr easterly to 31st St	2 lane roadway	Yes	No	0.19	\$9,500
119.1	Side Path	Add 8ft wide multi-use side path	Along existing and proposed easterly extension of Poison Oak Rd	From SH 317 easterly to Old Waco Rd	2 lane roadway and future roadway	No	No	1.71	\$342,000
120.1	Trail	Add 10ft wide multi-use trail	Along Pepper Creek	From proposed trail along Leon River northerly to city limit at Charter Oak Dr	Creekside land	Yes	No	1.64	\$492,000
120.3	Trail	Add 10ft wide multi-use trail	Along Pepper Creek	From proposed trail west of Kegley Rd northerly to proposed trail just south of Wildflower Ln	Creekside land	Yes	No	1.46	\$438,000
120.4	Trail	Add 10ft wide multi-use trail	Along Pepper Creek	From proposed trail west of Kegley Rd northerly to Adams Ave	Creekside land	Yes	No	1.18	\$354,000
121.2	Shoulder Lane	Add shoulders, signs, and markings	On Old Waco Rd	From Riverside Trail at Old Waco Rd northerly to Adams Ave	2 lane roadway	Yes	No	2.16	\$540,000
121.3	Bike Lane	Add signs and restripe for bicycle lanes	On Hilliard Rd and Research Pkwy	From Adams Ave northerly to SH36/Airport Rd	4 lane divided roadway	Yes	No	1.42	\$71,000
121.4	Side Path	Add 8ft wide multi-use side path	Along Old Howard Rd	From SH36/Airport Rd northerly to Central Pointe Pkwy	4 lane divided roadway	Yes	No	0.94	\$188,000
121.5	Bike Lane	Add signs and restripe for bicycle lanes	On Old Howard Rd	From Central Pointe Pkwy northerly to McLane Pkwy	2 lane roadway	Yes	No	0.94	\$47,000
122.2	Bike Lane	Add signs and restripe for bicycle lanes	On 5th Street	From FM 93 northerly to proposed trail along abandoned railroad	4 lane divided roadway	No	No	1.18	\$59,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
122.4	Trail	Add 10ft wide multi-use trail	At northern end of existing trail west of 5th St Along creek West of 5th street	From north end of existing trail west of 5th St to 5th St From existing trail at Raye Allen Ele/South Temple Park northerly along creek to proposed 5th st/1st st connection	Wooded area	Yes	No	0.10 1.5	-\$30,000 *\$900,000
122.5	Shoulder Lane Trail	Include shoulder lane in future roadway Add 10ft wide multi-use trail	On proposed southern extension of 1st St	From proposed trail at 5th St northerly to Temple College Pedestrian overpass	Future roadway	Yes	No	0.67	\$0 *\$200,000
122.6	Trail	Add 10ft wide multi-use trail	Along SS290/1st St (both sides)	From Temple College Pedestrian overpass northerly to proposed trail north of Felder Dr (both sides)	5 lane roadway	Yes	Yes	0.52	\$156,000
122.7	Trail	Add 10ft wide multi-use trail	Along SS290/1st St (both sides)	From proposed trail north of Felder Dr northerly to Avenue M	4 lane roadway	Yes	Yes	1.40	\$420,000 *\$1,380,000
122.8	Bike Route Trail	Add bike route signs Add 10ft wide multi-use trail	On SS290/1st St and 3rd St	From Avenue M northerly to Adams Ave	4 lane roadway	Yes	Yes	1.00	\$10,000 *\$2,420,000
122.9	Trail	Add 10ft wide multi-use trail	Along existing Santa Fe Railroad downtown	From 11 th st/Whistle Stop Park to MLK, along Ave D, and North along 14 th St to Katy Depot	Railroad/vacant land, 2 lane roadways	Yes	No	1.4	*\$2,500,000
123.3	Shoulder Lane	Add shoulders, signs, and markings	On Little River Rd	From southern city limit northerly to Blackland Rd	2 lane roadway	No	No	0.65	\$162,500
123.4	Shoulder Lane	Add shoulders, signs, and markings	On Little River Rd	From Blackland Rd northerly to Dodgen Loop	2 lane roadway	Yes	No	0.60	\$150,000
123.5	Bike Lane	Add signs and markings for bicycle lanes	On Martin Luther King Jr Dr	From Dodgen Loop northerly to 8th St	4 lane roadway	Yes	No	1.71	\$68,400
123.6	Bike Route	Add bike route signs	On Martin Luther King Jr Dr	From Avenue M northerly to Avenue E	4 lane roadway	Yes	No	0.58	\$5,000
124.2	Trail	Add 10ft wide multi-use trail	Along Creek	From FM 93 northerly to existing trail in South Temple Community Park	Creekside land	Yes	No	1.90	\$570,000
125.1	Shoulder Lane	Add signs and markings for shoulder lanes	On Boutwell Rd	From proposed trail south of FM93 at Boutwell Rd northerly to FM93	2 lane and 5 lane roadways	Yes	No	0.10	\$4,000
125.2	Shoulder Lane	Add signs and markings for shoulder lanes	On FM93, and FM1741/31st St	From FM93 northerly to proposed trail along abandoned railroad	2 lane and 5 lane roadways	Yes	Yes	0.65	\$26,000
126.1	Trail	Add 10ft wide multi-use trail	Along FM93	From FM1741/31st easterly to proposed trail along creek	4 lane roadway	Yes	Yes	0.11	\$33,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
127.1	Trail	Add 10ft wide multi-use trail	South of Fox Glen Ln	From FM1741/31st easterly to proposed trail along creek	Open land	Yes	No	0.21	\$63,000
128.1	Trail	Add 10ft wide multi-use trail	East of IH35	From proposed trail along Pepper Creek northerly to proposed road just east of IH35	Wooded area	Yes	No	0.31	\$93,000
128.2	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed road connecting Old Waco Rd and Taylors Valley Rd	From proposed road just east of IH35 northerly to city limit west of Charter Oak Dr	Future roadway	Yes	No	0.46	\$0
129.1	Trail	Add 10ft wide multi-use trail	South of bend in 31st St	From proposed trail south of abandoned railroad northerly to 31st	Open land	Yes	No	0.43	\$129,000
129.2	Side Path	Add 8ft wide multi-use side path	Along FM1741/31st Street	From proposed trail east of Warwicke Dr northerly to Avenue D	5 lane roadway	Yes	Yes	3.47	\$694,000
129.3	Side Path	Add 8ft wide multi-use side path	Along 31st Street	Avenue D northerly to SH53/Adams Ave	5 lane roadway	Yes	Yes	0.36	\$72,000
129.4	Side Path	Add 8ft wide multi-use side path	Along 31st Street	SH53/Adams Ave northerly to just north of Bray St	5 lane roadway	Yes	No	0.47	\$94,000
129.5	Bike Route	Add bike route signs	On north side of Temple High School and 23rd St	From 31st St easterly and southerly to Adams Dr	2 lane roadway	Yes	No	0.75	\$5,000
130.1	Trail	Add 10ft wide multi-use trail	Along drainage channel and Winchester Dr	From 31st east of Warwicke to 31st at Winchester Dr	Drainage channel and 2 lane roadway	Yes	No	0.57	\$171,000
130.3	Side Path	Add 8ft wide multi-use side path	Along Waters Dairy Rd	From 31st St easterly to existing trail just west of 5th St	3 lane roadway	Yes	No	0.78	\$156,000
131.1	Trail	Add 10ft wide multi-use trail	North of Bird Creek	From existing trail in Temple Lions Park easterly to proposed Hickory Rd	Open land	Yes	No	0.39	\$117,000
132.1	Side Path	Add 8ft wide multi-use side path	Along Shallow Ford Rd	From proposed trail along Leon River northerly to existing trail in Temple Lions Park	Narrow 2 lane roadway	No	No	0.88	\$176,000
132.2	Trail	Add 10ft wide multi-use trail	Along Bird Creek	From existing trail in Temple Lions Park northerly to Battle Dr	Creekside land	Yes	No	1.92	\$576,000
132.3	Trail	Add 10ft wide multi-use trail	Along Bird Creek and into Hodge Park	From Battle Drive easterly to proposed trail between Avenues R and T	Creekside land	No	No	1.72	\$516,000
132.4	Trail	Add 10ft wide multi-use trail	Through Hodge Park and between Ave R and Ave S	From proposed trail along Bird Creek easterly to 57th St	Wooded area between houses	Yes	No	0.34	\$102,000
132.5	Bike Route	Add bike route signs	On Ave R	From 57th St easterly to 31st St	2 lane roadway	Yes	No	0.88	\$5,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
132.6	Side Path	Add 8ft wide multi-use side path	Along Avenue R	From 31st St easterly to 1st St	4 lane roadway	Yes	No	0.95	\$190,000
133.1	Trail	Add 10ft wide multi-use trail	North of Temple Lions Park west of Valley View Dr	From existing trail in Temple Lions Park northerly to Midway Dr	Wooded area	Yes	No	0.86	\$258,000
134.1	Side Path	Add 8ft wide multi-use side path	Along Midway Dr and Kegley Rd	From IH35 SB FR northerly to proposed trail along Pepper Creek	2 lane roadway	Yes	No	0.44	\$88,000
134.2	Trail	Add 10ft wide multi-use trail	West of Kegley Rd and east of Old Waco Rd	From proposed trail along Pepper Creek northerly to Jupiter Dr	Open land	Yes	No	1.77	\$531,000
135.1	Trail	Add 10ft wide multi-use trail	North of Wind Chime Rd	From proposed trail north of Poison Oak Rd easterly to proposed trail east of Old Waco Rd	Open land	Yes	No	1.30	\$390,000
136.1	Trail	Add 10ft wide multi-use trail	Along Prairie View Rd and west of Hilliard Rd	From Dewberry Ln easterly-southerly to existing side path along Adams Ave	2 lane roadway and open land	Yes	No	1.84	\$552,000
137.1	Bike Lane	Add signs and markings for bicycle lanes	On existing and proposed easterly extension of Stonehollow Dr	From proposed trail west of Pea Ridge Rd to Hilliard Rd at Research Loop	2 lane roadway and future roadway	Yes	No	1.02	\$40,800
137.2	Trail	Add 10ft wide multi-use trail	Along Research Loop	From Hilliard Rd easterly to existing Pepper Creek Trail	2 lane roadway and open land	Yes	No	0.34	\$102,000
137.4	Trail	Add 10ft wide multi-use trail	Along SH36/Airport Rd and Pepper Creek	From Old Howard Rd easterly and northerly to Central Pointe Pkwy	5 lane roadway and creekside land	Yes	No	1.69	\$507,000
138.1	Trail	Add 10ft wide multi-use trail	Southwest of Woodbridge Park and north of Antelope Trl	From Dodgen Loop NB FR easterly to existing trail in Woodbridge Park	Greenbelt	Yes	No	0.92	\$276,000
138.3	Trail	Add 10ft wide multi-use trail	West of John Paul Jones Dr	From existing trail in Woodbridge Park northerly to Nugent Ave	Open land	Yes	No	0.62	\$186,000
139.1	Trail	Add 10ft wide multi-use trail	North of Hodge Park and between shopping center and Sammons Golf Course	From proposed trail between Avenues R and T northerly to western end of Keller Rd	Wooded area east and 2 lane roadway	Yes	No	0.98	\$294,000
139.2	Bike Route	Add bike route signs	On Keller Rd	From western end of Keller easterly to Apache Dr	2 lane roadway	Yes	No	0.38	\$5,000
139.3	Side Path	Add 8ft wide multi-use side path	Along Apache Dr	From Keller Rd northerly to Adams Ave	2 roadway	Yes	No	0.61	\$122,000
140.1	Bike Lane	Add signs and restripe for bicycle lanes	On 57th St	From Dodgen Loop SB FR northerly to Scott Blvd	4 lane roadway	No	No	0.31	\$15,500
140.2	Bike Route	Add bike route signs	On Scott Boulevard	From 57th St easterly to 43rd St	2 lane roadway	No	No	0.50	\$5,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
140.3	Bike Route	Add bike route signs	On Scott Boulevard	From 43rd St easterly St to 31st St	2 lane roadway	Yes	No	0.42	\$5,000
140.5	Trail	Add 10ft wide multi-use trail	East of Scott and White Hospital and west and south of Avenue V	From Scott and White Blvd easterly and southerly to 5th St	Drainage channel	Yes	No	0.67	\$201,000
140.6	Trail	Add 10ft wide multi-use trail	North of Felder Dr	From proposed trail connecting to Scott & White Hospital northerly and easterly to 1st St	4 lane roadway and to-be-redeveloped land	Yes	No	0.16	\$48,000
140.8	Trail	Add 10ft wide multi-use trail	Through Temple College, south of Tarrant Park, and along Knob Creek	From 1st St easterly to current southern end of 30th St (crossing railroad)	2 lane roadway, open land, future roadway, and creekside land	Yes	No	1.75	\$525,000
140.9	Trail	Add 10ft wide multi-use trail	Along Knob Creek and east of railroad	From southern end of 30th St northerly to Avenue E at Jeff Hamilton Park	Creekside land and drainage channel	Yes	No	1.24	\$372,000
141.1	Bike Lane	Add signs and restripe for bicycle lanes	On Avenue H	From 31st St easterly to MLK Blvd	4 lane roadway	Yes	No	1.26	\$63,000
142.1	Bike Route	Add bike route signs	On 19th Street	From proposed trail along Avenue T northerly to Avenue H	2 lane roadway	Yes	No	0.81	\$5,000
143.1	Bike Route	Add bike route signs	On 49th St	From Avenue R northerly to Avenue D	2 lane roadway	Yes	No	1.05	\$10,000
143.2	Trail	Add 10ft wide multi-use trail	Along Bird Creek and east of Sammons Golf Course	From Avenue D/49th St northerly to Nugent Ave	Creekside land	Yes	No	1.31	\$393,000
143.3	Bike Lane	Add signs and markings for bicycle lanes	On Nugent Ave	From Allegiance Dr westerly to Eberhardt Rd	2 lane roadway	Yes	No	0.21	\$8,400
143.4	Bike Route	Add bike route signs	On Eberhardt Road	From Nugent Ave northerly to Dodgen Loop	4 lane roadway	Yes	No	1.70	\$10,000
144.1	Side Path	Add 8ft wide multi-use side path	Along Central Pointe Rd	From proposed trail west of Entrepreneur Way easterly to Dodgen Loop	4 lane roadway	Yes	No	1.49	\$298,000
144.2	Side Path	Add 8ft wide multi-use side path	Along Industrial Blvd	From Dodgen Loop easterly to just west of IH35 ramps at FM1143	4 lane roadway	Yes	No	1.99	\$398,000
144.3	Side Path	Add 8ft wide multi-use side path	Along FM1143/Industrial Blvd	From just west of IH35 ramps at FM1143 easterly to 3rd St	4 lane roadway	Yes	Yes	0.46	\$92,000
144.4	Bike Route	Add bike route signs	On Zenith St and Young Ave	From 3rd Ave easterly to Dodgen Loop	2 lane roadway	No	No	1.36	\$10,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
145.1	Shoulder Lane	Add signs and markings for shoulder lanes	On SH53/SH36/Airport Rd	From existing trail in Woodbridge Park northerly to Kegley Rd	5 lane roadway with shoulders	No	Yes	1.42	\$56,800
145.2	Shoulder Lane	Add signs and markings for shoulder lanes	On SH36/Airport Rd	From Kegley Rd northerly to Old Howard Rd	5 lane roadway with shoulders	Yes	Yes	0.37	\$14,800
145.3	Shoulder Lane	Add signs and markings for shoulder lanes	On SH36/Airport Rd	From Old Howard Rd northerly to SH317	5 lane roadway with shoulders	No	Yes	2.60	\$104,000
145.4	Shoulder Lane	Add signs and markings for shoulder lanes	On SH36/Airport Rd	From SH317 northerly to northern city limits at Clear Ridge Park Dr	2 lane roadway with shoulders	No	Yes	2.00	\$80,000
146.1	Shoulder Lane	Add shoulders, signs, and markings	On Cearley Rd	From SH36/Airport Rd northerly to Industrial Blvd	2 lane roadway	Yes	No	1.40	\$350,000
146.3	Shoulder Lane	Add shoulders, signs, and markings	On Mouser Rd and McLane Parkway	From Dodgen Loop westerly to Airport Trail	2 lane roadway	Yes	No	2.51	\$627,500
146.4	Trail	Add 10ft wide multi-use trail	Along Airport Trail and creek	From Mouser Rd northerly and westerly to SH317	2 lane roadway, and creekside land	Yes	No	2.05	\$615,000
147.1	Trail	Add 10ft wide multi-use trail	West of Old Howard Rd and east of Central Texas Regional Airport	From Old Howard Rd northerly to Mouser Rd	Open land	Yes	No	1.84	\$552,000
148.1	Trail	Add 10ft wide multi-use trail	North of SH36/Airport Rd	From proposed trail east of Old Howard Rd easterly to Cearley Rd	Open land	Yes	No	0.96	\$288,000
148.3	Bike Lane	Add signs and markings for bicycle lanes	On Nugent Ave	From Cearley Rd easterly to Eberhardt Rd	2 lane roadway	Yes	No	0.89	\$35,600
149.1	Trail	Add 10ft wide multi-use trail	Along FM3117	From US190 at FM 3117 easterly to railroad	2 lane roadway and railroadsides land	Yes	Yes	0.33	\$99,000
149.2	Trail	Add 10ft wide multi-use trail	Along railroad	From FM 3117 northerly to proposed trail along proposed western extension of Tower Rd	2 lane roadway and railroadsides land	Yes	No	1.69	\$507,000
149.4	Bike Route	Add bike route signs	On 30th St, Avenue J, 34th St, and Avenue E	From southern end of 30th St south of Ave N northerly and westerly to 14th St	2 lane roadways	Yes	No	1.70	\$10,000
149.5	Bike Lane	Add signs and markings for bicycle lanes	On Avenue E, 6th St, Avenue C, Avenue B, and Avenue A	From 14th St westerly to 11th St	2 lane roadway	Yes	No	0.95	\$38,000
149.6	Bike Lane	Add signs and markings for bicycle lanes	On 11th St	From Avenue A northerly to Garfield Ave	2 lane roadway	Yes	No	0.56	\$22,400

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
149.7	Bike Lane	Add signs and markings for bicycle lanes	On 11th St and Park Ave	From Garfield Ave northerly to 7th St at Park Ave	2 lane roadways	Yes	No	0.77	\$30,800
149.8	Bike Lane	Add signs and markings for bicycle lanes	On Garfield Ave and 7th St	From 11th St easterly and northerly to Park Ave	2 lane roadways	Yes	No	0.77	\$30,800
149.9	Bike Lane	Add signs and markings for bicycle lanes	On 7th St, Mayborn Dr, 8th St, and Walker Ave	From Park Ave northerly to 3rd St	2 lane roadways	Yes	No	0.55	\$22,000
149.10	Bike Lane	Add signs and markings for bicycle lanes	On SS290/3rd St	From Walker Ave northerly to Bellaire North	2 lane roadways	Yes	Yes	0.60	\$24,000
149.11	Bike Lane	Add signs and markings for bicycle lanes	On Bellaire North	From 3rd St easterly to eastern end of Bellaire North at Visitors Center	2 lane roadways	Yes	No	0.20	\$8,000
150.2	Trail	Add 10ft wide multi-use trail	Along creek, southeast of James Wilson Park	From eastern city limit northerly to existing trail in James Wilson Park	Creekside land and open land	Yes	No	1.85	\$555,000
150.4	Trail	Add 10ft wide multi-use trail	North of Emerson Elementary and in Ferguson Park	From existing trail in James Wilson Park westerly to Ferguson Park	Park land	Yes	No	0.53	\$159,000
150.5	Bike Lane	Add signs and markings for bicycle lanes	On Fowler Rd	From proposed trail in Ferguson Park northerly to proposed trail north of Downs Ave	2 lane roadway	Yes	No	0.29	\$11,600
150.6	Side Path	Add 8ft wide multi-use side path	Along proposed northern extension of Fowler Rd and French Ave	From current northern end of Fowler Rd northerly-easterly to proposed trail along Williamson Branch	Future roadway and 2 lane roadway	Yes	No	0.44	\$88,000
151.1	Trail	Add 10ft wide multi-use trail	Along Williamson Branch Creek and Shell Ave	From Adams Ave northerly to existing trail in Miller Park	Creekside land and 2 lane roadway	Yes	No	2.49	\$747,000
151.3	Bike Lane	Add signs and markings for bicycle lanes	On 1st St and Virginia Ave	From existing trail in Miller Park northerly and westerly to 3rd St	2 lane and 4 lane divided roadways	Yes	No	0.26	\$10,400
151.4	Bike Lane	Add signs and markings for bicycle lanes	On SS290/3rd St	From Virginia Ave northerly to Walker Ave	2 lane and 4 lane divided roadways	Yes	Yes	0.09	\$3,600
152.1	Bike Lane	Add signs and markings for bicycle lanes	On 50th St and Lavendusky Dr	From Adams Ave northerly and easterly to Dodgen Loop	2 lane roadways	Yes	No	0.72	\$28,800
153.1	Trail	Add 10ft wide multi-use trail	West of Jackson Park	From 7th St easterly to existing trail in Jackson Park	Drainage channel	Yes	No	0.24	\$72,000

City of Temple									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
153.3	Trail	Add 10ft wide multi-use trail	South of King Cir and through King Circle Park	From existing trail in Jackson Park easterly to proposed trail west of Dodgen Loop	Wooded area	Yes	No	0.62	\$186,000
154.1	Bike Route	Add bike route signs	On 2nd St	From Avenue C northerly to existing trail in Jackson Park	2 lane roadway	No	No	0.93	\$5,000
155.1	Bike Lane	Include bike lane with future roadway improvement	On South Kegley Rd	From proposed trail just south of Wildflower Ln northerly to Adams Ave	2 lane roadway	Yes	No	0.81	\$0
155.2	Bike Lane	Add signs and restripe for bicycle lanes	On Kegley Road	From Adams Ave northerly to SH36/Airport Rd	4 lane roadway	Yes	No	0.93	\$46,500
TOTAL								179.70	\$28.25m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

City of Troy									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
156.1	Pedestrian Sidewalk, Bike Signage	Modify existing sidewalk for ADA compliance, add bike signage	South side of East Main St	From proposed IH35 improvements Eastward to Front St.	2 lane roadway	No	Yes	.1	\$1000
156.2	Pedestrian Sidewalk, Bike Signage	Modify existing sidewalk for ADA compliance, add bike signage	Front St	From East Main St South to Alley	2 lane City Street	No	No	.05	\$1000
156.3	Pedestrian Sidewalk, Bike Signage	Modify existing sidewalk for ADA compliance, add bike signage	North side of East Main St	From proposed IH35 improvements Eastward to Front St, then crosswalk South	2 lane roadway	No	Yes	.1	\$1000

TOTAL

* Cost estimates provided by project sponsoring entity

\$ 3000

Recommended Bicycle and Pedestrian Facilities

Village of Salado									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
13.5	Trail	Add 10ft wide multi-use trail	Along Mill Creek Golf Course, Smith Branch Creek, and Salado Cemetery	From IH35 NB FR easterly-southerly northerly existing trail in Tablerock Amphitheatre From IH35 Northbound FR easterly around Salado Park southerly along Green Ridge Sub. along Chisholm Trail to Highland Dr. to Smith Branch Creek southerly to FM 2268 north-westerly through Tablerock Amphitheater to Royal Lane	Parkland, wooded area, and creekside land	No	No	5.36 5.58	\$1,608,000 \$1,674,000
13.6	Trail	Add 10ft wide multi-use trail	Salado Park	From Rose Lane along Salado Park Dr. easterly to Park Place Rd. Northerly proposed 13.5 trail	Open Field	No	No	2 0.17	\$51,000
81.2	Bike Route	Add bike route signs	On FM2268 Main Street	From FM2268 northerly to Mill Creek Dr	2 lane roadway	No	Yes	1.62	\$10,000 \$8,100
81.7	Hike and Bike Trail	Add 10ft wide multi-use lighted trail	Main Street	From Salado Plaza to College Hill Drive	Parkland, wooded area, creekside land, historical area	Yes	Yes	1.18	\$354,000
82.1	Trail	Add 10ft wide multi-use trail	South of Southridge Rd and along Salado Plaza	From proposed trail along Salado Creek westerly to Main St From Main Street easterly along southside of Salado Plaza dr. and Southerly along Mill Creek Sub. to Salado Creek	Open land and 2 lane roadway	No	No	0.59	\$208,860
83.1	Side Path Hike and Bike Trail	Add 8ft wide multi-use side path Add 10ft multi-use trail	Along proposed eastern extension of and existing Royal St	From proposed Trail along Smith Branch Creek westerly to Main St	Future roadway and 2 lane roadway	No	No	1.11	\$333,000
83.3	Bike Route Hike and Bike Trail	Add bike route signs Add 10ft wide multi-use lighted trail with signage	On Pace Park Rd and Thomas Arnold Rd	From proposed trail along Salado Creek westerly to IH 35 SB FR From IH35 SB FR easterly to Salado Creek	2 lane roadway and overpass walkway	Yes	Yes	0.33 2	\$5,000 \$600,000
86.1	Trail	Add 10ft wide multi-use trail	South of Salado High School	Loop within area bounded by FM2484, Village Rd, Salado School Rd and Williams Rd; with connectors to Trails at FM 2484 to Pocket Garden at Salado School to Thomas Arnold Rd.	Open land	No	No	2.57 2.75	\$600,000

Village of Salado									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
87.1	Trail	Add 10ft wide multi-use trail	Along Salado Creek	From Main St easterly to northern city limit at Chisholm Trail	Creekside land	No	No	1.79	\$537,000
87.3	Hike and Bike Trail	Add 10ft wide multi-use Trail	Blackberry Rd. /Royal Street	From Salado Creek at Amity Rd. southerly along Blackberry Rd. westerly along Royal Street to Smith Branch Creek	Open Land and 2 lane roadway			3.21	\$963,000
TOTAL								20	\$3,765,960

* Cost estimates provided by project sponsoring entity.

Recommended Bicycle and Pedestrian Facilities

Bell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.19	Shoulder Lane	Add signs and markings for shoulder lanes	On US190 WB FR	From Nolanville eastern city limit easterly to Belton western city limit	2 lane one-way roadway with shoulders	No	Yes	1.20	\$48,000
7.29	Shoulder Lane	Add signs and markings for shoulder lanes	On US190 and Old US190	From Temple southern city limit at Barnhardt Rd southerly to Milam County Line	2 lane road with shoulders	No	Yes	11.92	\$476,800
9.20	Shoulder Lane	Add shoulders, signs, and markings	On FM 2410	From Harker Heights city limit easterly to Belton eastern city limit	2 lane roadway with narrow shoulders	No	Yes	2.00	\$500,000
9.26	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 436	From Belton eastern city limit easterly to proposed trail along Leon River	2 lane roadway with shoulders	No	Yes	4.71	\$188,400
12.1	Shoulder Lane	Add shoulders, signs, and markings	On Oakalla Rd	From Burnet County Line northerly to FM 116	2 lane roadway	No	No	3.24	\$810,000
12.2	Shoulder Lane	Add shoulders, signs, and markings	On FM 116	From Oakalla Rd northerly to Coryell County Line	2 lane roadway	No	Yes	2.80	\$700,000
13.1	Shoulder Lane	Add shoulders, signs, and markings	On Maxdale Rd	From Burnet County Line easterly to Wolfridge Rd	2 lane roadway	No	No	3.44	\$860,000
13.2	Shoulder Lane	Add shoulders, signs, and markings	On FM 2670	From Wolfridge Rd easterly to SH 195	2 lane roadway	No	Yes	4.03	\$1,007,500
13.3	Bike Route	Add bike route signs	On Triple 7 Dr, Fire Ln, and Tally Ho Rd	From SH 195 easterly to FM 2484	2 lane roadways	No	No	2.51	\$15,000
13.4	Shoulder Lane	Add shoulders, signs, and markings	On FM 2484	From Tally Ho Rd easterly to IH35 NB FR	2 lane roadway	No	Yes	17.80	\$4,450,000
14.2	Shoulder Lane	Add shoulders, signs, and markings	On Boys Ranch Rd	From Lampasas County Line easterly to FM 116	2 lane roadway	No	No	2.69	\$672,500
15.7	Trail	Add 10ft wide multi-use trail	Along Clark Creek	From Coryell County Line southerly to Boys Ranch Rd	Creekside land	No	No	1.25	\$375,000
24.6	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 439	From Killeen eastern city limit easterly to FM93	2 lane roadway with shoulders	No	Yes	6.56	\$262,400
24.7	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 439	From FM93 easterly to western Belton city limit	2 lane roadway with shoulders	No	Yes	3.80	\$152,000
35.1	Shoulder Lane	Add shoulders, signs, and markings	On Chaparral Rd	From SH 195 easterly to FM 3481	2 lane roadway and future roadway east of future Rosewood southern extension	No	No	6.47	\$1,617,500

Bell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
36.1	Shoulder Lane	Add shoulders, signs, and markings	On FM 2484	From Tally Ho Rd northerly to SH195	2 lane roadway	No	Yes	1.13	\$282,500
38.1	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 195	From Williamson County Line northerly to FM2670	2 lane roadway with shoulders	No	Yes	5.69	\$227,600
56.3	Trail	Add 10ft wide multi-use trail	Along Trimmier Creek	From Killeen city limit east of FM3481 northerly to Harker Heights southern city limit	Creekside land	No	No	1.15	\$345,000
58.7	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek	From Nolanville city limit east of FM3219 easterly to city limit west of Pleasant Hill Cemetery Rd	Creekside land	No	No	0.93	\$279,000
58.9	Trail	Add 10ft wide multi-use trail	Along South Nolan Creek and Nolan Creek	From Nolanville eastern city limit easterly to proposed trail at Belton western city limit	Creekside land	No	No	9.67	\$2,901,000
58.14	Trail	Add 10ft wide multi-use trail	Along Leon River and Lampasas River	From proposed trail along Leon River clockwise to Mitchell Branch Creek- SE of Belton	Riverside land	No	No	10.82	\$3,246,000
58.15	Trail	Add 10ft wide multi-use trail	Along Lampasas River	From Mitchell Branch Creek- SE of Belton westerly to Belton city limit west of Elm Grove Rd	Riverside land	No	No	7.98	\$2,394,000
58.20	Trail	Add 10ft wide multi-use trail	East of High Oak Dr	From existing trail at Stillhouse Hollow Lake northerly to proposed trail north of FM2410	Wooded area and open land	No	No	1.75	\$525,000
72.2	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 3219	From Harker Heights northern city limit northerly to FM439	2 lane roadway with shoulders	No	Yes	1.02	\$40,800
73.1	Trail	Add 10ft wide multi-use trail	Along creek and west Pleasant Hill Cemetery	From proposed trail along South Nolan Creek north of railroad easterly to Pleasant Hill Cemetery Rd	Creekside land and wooded area	No	No	0.38	\$114,000
73.2	Trail	Add 10ft wide multi-use trail	Along Pleasant Hill Cemetery Rd and Quarry Rd	From proposed trail east of South Nolan Creek northerly to Fort Hood boundary	2 lane roadway and gravel roadway	No	No	2.10	\$630,000
73.5	Shoulder Lane	Add shoulders, signs, and markings	On Sparta Rd	From Fort Hood east boundary easterly to Belton western city limits	2 lane roadway	No	No	3.66	\$915,000
75.1	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 3481	From FM 2484 northerly to southern Harker Heights city limit south of Del Rey Dr	2 lane roadway with shoulders, except on bridge	No	Yes	2.66	\$106,400
77.1	Side Path	Add 8ft wide multi-use side path	West of Shaw Branch Creek and along Jackrabbit Rd	From proposed trail along South Nolan Creek westerly to proposed trail along private road	Open land and 2 lane roadway	No	No	0.99	\$198,000

Bell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
77.2	Trail	Add 10ft wide multi-use trail	Along private road between Wyatt Earp Ln and Shaw Branch Creek	From Jackrabbit Rd northerly to FM439	Open land	No	No	1.02	\$306,000
78.2	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190 EB FR	From Nolanville eastern city limit to Belton western city limit	2 lane one-way roadway with shoulders	No	Yes	1.23	\$49,200
79.1	Shoulder Lane	Add shoulders, signs, and markings	On Levy Crossing Rd and Paddy Hamilton Rd	From FM 2410 northerly and easterly to FM93	2 lane roadways	No	No	4.62	\$1,155,000
80.1	Bike Lane	Add signs and markings for bicycle lanes	On FM 93	From FM 439 easterly to Belton western city limit	2 lane roadway with shoulders	No	Yes	4.86	\$194,400
81.1	Shoulder Lane	Add signs and markings for shoulder lanes	On FM2115 and IH35 NB FR	From Williamson County line northerly to FM2268	2 lane roadway with shoulder	No	Yes	7.19	\$287,600
81.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On IH 35 NB FR	From Mill Creek Dr northerly to Belton south city limit	2 lane roadway	No	Yes	1.06	\$0
82.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On FM2268 and IH 35 SB FR	From Main St at Mill Creek Dr northerly to Belton southern city limit	2 lane roadway	No	Yes	1.07	\$0
82.10	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 317	From northern city limit northerly to McLennan County Line	2 lane roadway with shoulders	No	Yes	6.45	\$258,000
83.4	Shoulder Lane	Add shoulders, signs, and markings	On Thomas Arnold Rd, Williams St, and proposed extension of Williams St	From IH 35 SB FR westerly and northerly to FM 2484	2 lane roadway and future roadway	No	No	1.76	\$440,000
83.6	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 1670	From FM 2484 northerly to southern Belton city limit at Sunflower Ln	2 lane roadway with shoulders	No	Yes	5.70	\$228,000
83.9	Bike Lane	Include bike lane in future roadway	On Boxer Rd and proposed southern extension of FM2271	From Belton northern city limit near US 190 northerly to Sparta Rd	Future roadway	No	No	2.43	\$0
83.16	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 2483	From Morgan's Point Rd easterly to Temple western city limit west of SH317	2 lane roadway	No	Yes	0.92	\$36,800
84.1	Trail	Add 10ft wide multi-use trail	North of Stillhouse Hollow Lake and east of Vista Trl	From proposed trail along Stillhouse Lake northerly to Belton city limit at Dogridge Rd	Wooded area	No	No	0.60	\$180,000

Bell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
84.3	Trail	Add 10ft wide multi-use trail	North of US190 and west of Boxer Rd	From Belton city limit north of US190 WB FR easterly-northerly to proposed trail along Nolan Creek	Wooded area	No	No	2.74	\$822,000
85.2	Trail	Add 10ft wide multi-use trail	South of FM93	From Belton northern city limit north of Digby Dr northerly to proposed trail north of Airdale Dr	Open land	No	No	0.83	\$249,000
87.2	Trail	Add 10ft wide multi-use trail	Along Salado Creek	From Salado northern city limit at Chisholm Trail easterly to proposed trail along Lampasas River	Creekside land	No	No	8.19	\$2,457,000
89.8	Shoulder Lane	Add signs and markings for shoulder lanes	On SH 53 and SH320	From eastern Temple city limit easterly to Falls County Line	2 lane roadway with shoulders	No	Yes	12.26	\$490,400
90.2	Shoulder Lane	Add shoulders, signs, and markings	On Auction Barn Rd	From Belton city limit at Village Hill Rd easterly to Belton city limit west of Loop 121	2 lane roadway	No	No	1.05	\$262,500
91.1	Trail	Add 10ft wide multi-use trail	Along Mitchell Branch Creek	From proposed trail along Lampasas River northerly to Loop 121	Creekside land	No	No	3.50	\$1,050,000
114.1	Shoulder Lane	Add signs and markings for shoulder lanes	On SH95	From Williamson County line northerly to southern Temple city limit	2 lane roadway with shoulders	No	Yes	19.19	\$767,600
116.2	Trail	Add 10ft wide multi-use trail	Along Bird Creek and Leon River	From proposed trail along Leon River N of Burton northerly to Shallow Ford Rd	Creekside and riverside land	Yes	No	1.15	\$345,000
117.1	Side Path	Add 8ft wide multi-use side path	Along proposed southern extension of Witter Ln	From proposed trail along Mitchell Branch Creek northerly to proposed trail along Leon River	Future roadway	No	No	1.07	\$214,000
117.2	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed southern extension and existing Witter Ln	From proposed trail along Leon River northerly to Temple south city limit	Future and 2 lane roadway	No	No	1.57	\$0
117.5	Trail	Add 10ft wide multi-use trail	Along Bird Creek	From proposed trail north of Burton Ln northerly to proposed Hickory Rd extension	Creekside land	Yes	No	1.36	\$408,000
118.2	Trail	Add 10ft wide multi-use trail	Along Leon River	From Taylors Valley Rd easterly to proposed trail west of Shallow Ford Rd	Riverside land	Yes	No	0.60	\$180,000
120.2	Trail	Add 10ft wide multi-use trail	Along Pepper Creek	From Temple city limit at Charter Oak Dr northerly to proposed trail west of Kegley Rd	Creekside land	Yes	No	1.68	\$504,000

Bell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
121.1	Bike Lane	Include bike lane with future roadway improvement	On Pea Ridge Rd and Old Waco Rd	From Charter Oak Dr northerly to Riverside Trail at Old Waco Rd	2 lane roadway	Yes	No	1.17	\$0
122.1	Shoulder Lane	Include shoulder lane with future roadway improvement	On Hartrick Bluff Rd and proposed southern extension of 5th St	From FM436 northerly to FM93	2 lane roadway and future roadway	No	No	3.19	\$0
123.2	Shoulder Lane	Add shoulders, signs, and markings	On Old TX-95	From northerly Little River City Limit northerly to southern Temple city limit	2 lane roadway	No	No	3.65	\$912,500
124.1	Trail	Add 10ft wide multi-use trail	Along Creek	From proposed trail along Leon River northerly to FM 93	Creekside land	Yes	No	2.42	\$726,000
128.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed road connecting Old Waco Rd and Taylors Valley Rd	From Temple city limit west of Charter Oak Dr northerly to Old Waco Rd	Future roadway	Yes	No	0.44	\$0
145.5	Shoulder Lane	Add signs and markings for shoulder lanes	On SH36	From northern Temple city limits at Clear Ridge Park Dr northerly to Coryell County line	2 lane roadway with shoulders	No	Yes	7.57	\$302,800
150.1	Trail	Add 10ft wide multi-use trail	Along creek, north of Tower Road	From Bob White Rd westerly to eastern Temple city limit	Creekside land	Yes	No	0.60	\$180,000
TOTAL								237.49	\$37.35m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

Coryell County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
2.5	Shoulder Lane	Include shoulder lane with future roadway improvement	On future Grimes Crossing Rd northern extension	From northern Copperas Cove city limit northerly to proposed road east of Lawson Ln	Future roadway	No	No	1.43	\$0
3.1	Side Path	Add 8ft wide multi-use side path	Along FM 1113	From proposed minor arterial easterly to Copperas Cove west limit	2 lane roadway	No	Yes	2.02	\$404,000
7.8	Shoulder Lane	Include shoulder lane in future roadway	On future southern bypass	From FM116 easterly to US190	Future roadway	No	Yes	3.70	\$0
9.1	Shoulder Lane	Add shoulders, signs, and markings	On FM 580	From FM 1113 easterly to FM 116	2 lane roadway	No	Yes	5.88	\$1,470,000
9.2	Shoulder Lane	Add shoulders, signs, and markings	On FM1113	From FM580 southerly to CR3295	2 lane roadway	No	Yes	3.27	\$817,500
9.9	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed FM 2808 future eastern extension	From Lampasas County line easterly and northerly to Copperas Cove city limit near Abbott Ln	Future roadway	No	No	2.14	\$0
10.1	Shoulder Lane	Add shoulders, signs, and markings	On FM 1113 and future roadway	From proposed major arterial at CR3295 easterly to Copperas Cove city limit east of Woodland Dr	Narrow 2 lane roadway, future roadway	No	Yes	3.65	\$912,500
11.10	Shoulder Lane	Add signs and markings for shoulder lanes	On FM 116	From Copperas Cove northern city limit northerly to FM 580	2 lane roadway with shoulders	No	Yes	7.26	\$290,400
12.3	Shoulder Lane	Add shoulders, signs, and markings	On FM 116	From Bell County Line northerly to Copperas Cove eastern city limit	2 lane roadway	No	Yes	1.16	\$290,000
15.6	Trail	Add 10ft wide multi-use trail	Along Clark Creek	From Copperas Cove southern city limits southerly to Bell County Line	Creekside land	No	No	1.41	\$423,000
17.2	Bike Lane	Include bike lane with future roadway improvement	On FM 3046	From Lampasas County line northerly to Copperas Cove southern city limit	2 lane roadway	No	Yes	0.33	\$0
18.2	Trail	Add 10ft wide multi-use trail	Along Clark Creek	From FM 3046 easterly to proposed trail along Clear Creek	Creekside land	No	No	0.44	\$132,000
19.3	Trail	Add 10ft wide multi-use trail	Southwest of Northern Dancer Dr	From Copperas Cove eastern city limit northerly to city limit south of Northern Dancer Dr	Wooded area	No	No	0.38	\$114,000
TOTAL								33.07	\$4.85m

Recommended Bicycle and Pedestrian Facilities

Lampasas County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
1.1	Trail	Add 10ft wide multi-use trail	Along west side of Taylor Creek	From US190 northerly to Copperas Cove City limit	Land between Taylor Creek and Railroad	No	No	3.02	\$906,000
2.1	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed Big Divide Rd southern extension	From FM 2808 northerly to Copperas Cove southern city limit	Future roadway	No	No	1.44	\$0
7.1	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190	From CR4450 (western MPO boundary) easterly to western Kempner city limit	5 lanes with shoulders	No	Yes	2.55	\$102,000
7.4	Shoulder Lane	Add signs and markings for shoulder lanes	On US 190	From Kempner east city limit easterly to Copperas Cove western city limit	5 lanes with shoulders	No	Yes	0.91	\$36,400
8.1	Shoulder Lane	Add shoulders, signs, and markings	On FM3170	From Burnet County Line northerly to US190	2 lane roadway	No	Yes	3.59	\$897,500
9.3	Shoulder Lane	Include shoulder lane with future roadway improvement	On Proposed Major Arterial	From FM1113 southerly to US 190	Future roadway	No	No	7.22	\$0
9.5	Shoulder Lane	Add shoulders, signs, and markings	On FM 2808	From Kempner city limit at Cherokee easterly to Kempner city limit near Eagle Ln	2 lane roadway	No	Yes	1.88	\$470,000
9.6	Shoulder Lane	Add shoulders, signs, and markings	On FM 2808	From city limit near Eagle Ln to city limit near CR4818	2 lane roadway	No	Yes	0.39	\$97,500
9.7	Shoulder Lane	Add shoulders, signs, and markings	On FM 2808	From Kempner city limit near CR4818 to FM 2657	2 lane roadway	No	Yes	1.60	\$400,000
9.8	Shoulder Lane	Include shoulder lane with future roadway improvement	On proposed FM 2808 future eastern extension	From FM 2657 easterly to Coryell County Line	Future roadway	No	No	0.71	\$0
11.1	Shoulder Lane	Add shoulders, signs, and markings	On FM 2657	From Burnet County Line northerly to FM2808	2 lane roadway	No	Yes	2.74	\$685,000
11.2	Shoulder Lane	Add shoulders, signs, and markings	On FM 2657	From FM 2808 northerly to Copperas Cove southern city limit	2 lane roadway	No	Yes	1.07	\$267,500
14.1	Shoulder Lane	Add shoulders, signs, and markings	On CR 4931	From FM 2657 easterly to Bell County Line	2 lane roadway	No	No	0.48	\$120,000
15.1	Shoulder Lane	Include shoulder lane in future roadway	On CR 3300 and Future roadway	From proposed road near CR 3300 easterly and southerly to proposed road near CR 3340	Narrow 2 lane roadway and future roadway	No	No	1.38	\$0

Lampasas County									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
16.1	Bike Lane	Include bike lane in future roadway	On future Pony Express southern extension	From FM2657 westerly and northerly to Copperas Cove southern city limit	Future roadway	No	No	1.46	\$0
16.3	Bike Lane	Include bike lane with future roadway improvement	On future Pony Express southern extension	From Copperas Cove city limit north of US190 northerly to south of Buckboard Trail	Future roadway	No	No	0.51	\$0
17.1	Bike Lane	Include bike lane with future roadway improvement	On FM 3046	From FM2657 easterly to Coryell County Line	2 lane roadway	No	Yes	0.61	\$0
TOTAL								31.56	\$3.98m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

Fort Hood									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
7.10	Trail	Add 10ft wide multi-use trail	Along US 190 EB FR	From Central Texas College at Bell Tower Dr easterly to proposed trail on south side of US190	2 lane one-way road	No	Yes	1.78	\$534,000
9.11	Shoulder Lane	Add shoulders, signs, and markings	On Old Copperas Cove Rd	From Constitution Dr easterly to Coryell-Bell County Line	2 lane roadway with unpaved shoulders	No	No	1.94	\$485,000
9.12	Shoulder Lane	Add shoulders, signs, and markings	On Old Copperas Cove Rd	From Coryell-Bell County Line easterly to Killeen west city limit	2 lane roadway	No	No	1.78	\$445,000
10.4	Shoulder Lane	Include shoulder lane in future roadway	On proposed northern bypass	From FM116 easterly to US190	Future roadway	No	Yes	3.15	\$0
21.2	Shoulder Lane	Include shoulder lane with future roadway improvement	On Tank Destroyer Blvd	From Old Georgetown Rd easterly to Clarke Rd	2 lane roadway	No	No	3.14	\$0
21.3	Trail	Add 10ft wide multi-use trail	Along US190 WB FR and open land	From Tank Destroyer Blvd easterly to proposed trail near Coleman Rd	Open land and 2 lane one-way roadway	No	Yes	6.60	\$1,980,000
21.4	Trail	Add 10ft wide multi-use trail	Along west side of Fort Hood St around New Patton Park and New Wainwright Housing Division	From existing trail near Coleman Rd easterly and northerly to existing trail along Central Dr	Through open land along back side of housing divisions	No	No	1.72	\$516,000

Fort Hood									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
22.1	Trail	Add 10ft wide multi-use trail	Along Clarke Rd	From US 190 EB FR southerly to existing trail at south end of Red Oak	2 lane roadway	No	No	0.71	\$213,000
22.2	Trail	Add 10ft wide multi-use trail	Along Clement Rd, Live Oak, and south of Montague Village Elementary School	From Clarke Rd easterly to existing trail south of Main Ct	2 lane roadways and Open land	No	No	1.00	\$300,000
22.4	Trail	Add 10ft wide multi-use trail	East of Rusk Circle and west of creek	From existing trail north of Fuentes Ct northerly to US 190 EB FR	Open land	No	No	0.62	\$186,000
23.1	Trail	Add 10ft wide multi-use trail	Southwest of Central Texas College	From proposed trail along US 190 EB FR easterly to existing trails in Central Texas College	Open land	No	No	0.84	\$252,000
23.3	Trail	Add 10ft wide multi-use trail	Along north side of University Dr	From existing trails in Central Texas College easterly to Clear Creek Rd	Open land	No	No	0.50	\$150,000
25.2	Side Path	Add 8ft wide multi-use side path	Along SH201/Clear Creek Rd	From Watercrest Rd northerly to US 190 EB FR	5 lane roadway	No	Yes	0.28	\$56,000
32.2	Bike Lane	Add signs and markings for bicycle lanes	On 10th St and Warrior Way	From Killeen city limit at gate northwesterly to Martin Dr	2 lane roadway	Yes	No	0.81	\$32,400
31.6	Bike Lane	Add signs and markings for bicycle lanes	On Roberts Rd	From Watercrest Rd northerly to proposed trail along US 190 EB FR	2 lane roadway	No	No	0.73	\$29,200
34.7	Trail	Add 10ft wide multi-use trail	South of Venable Village Elementary	From US190 WB FR northerly to existing trail near Venable Village Elementary	Open land	No	No	0.44	\$132,000
48.11	Bike Route	Add bike route signs	On Hoover Hill Rd	From existing trail along Hoover Hill St northerly to Fort Hood St	2 lane roadway	No	No	0.52	\$5,000
49.1	Bike Lane	Add signs and restripe for bicycle lanes	On Fort Hood St, Central Dr, and 16th St	From Tank Destroyer Rd northerly to Hell on Wheels Ave	2-4 lane roadway	No	No	1.06	\$53,000
73.3	Trail	Add 10ft wide multi-use trail	Along Quarry Rd	From Fort Hood boundary northerly to Nolan Rd	Gravel roadway	No	No	2.85	\$855,000
73.4	Shoulder Lane	Add shoulders, signs, and markings	On Nolan Rd	From Quarry Rd easterly to Fort Hood boundary	2 lane roadway	No	No	4.92	\$1,230,000
TOTAL								34.58	\$7.45m

* Cost estimates provided by project sponsoring entity

Recommended Bicycle and Pedestrian Facilities

U.S. Army Corps of Engineers									
ID	Type	Action	Location	Limits	Existing Condition	In Local Plan	State Highway	Length (mi.)	Cost (\$)
56.1	Trail	Add 10ft wide multi-use trail	Along north shore of Stillhouse Hollow Lake	From Comanche Gap Rd westerly to FM3481 (with several spurs and loops)	Through wooded area around lake	No	No	8.82	\$2,646,000
58.18	Trail	Add 10ft wide multi-use trail	Along north of Stillhouse Lake	From existing trail east of Chalk Ridge Falls westerly to existing trail near Elf Trail	Wooded area	No	No	7.54	\$2,262,000
TOTAL								16.36	\$4.91m

* Cost estimates provided by project sponsoring entity



Killeen-Temple MPO REGIONAL THOROUGHFARE AND PEDESTRIAN/BICYCLE PLAN

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