

15. Pedestrian/Bicycle System

INTRODUCTION

With the region's growing concerns over mobility and air quality, and its desire to advance sustainable development objectives, pedestrian and bicycle opportunities will offer an alternative to traditional travel. While it is recognized that pedestrian and bicycle programs and facilities may not solve the congestion problems in any particular corridor, they will offer an attractive option to those whose travel is conducive to walking and biking.

This chapter of Mobility 2030 presents plans and guidance for improving bicycle and pedestrian mobility and safety through the year 2030. These programs and facilities will assist with meeting the region's specific air quality control measure commitments in the State Implementation Plan, as well as the requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) and related Federal Highway Administration (FHWA) guidance for relying on bicycling and walking as part of the overall transportation system. Finally, this chapter of the plan represents the continuing effort of the North Central Texas Council of Governments' (NCTCOG's) Regional Transportation Council (RTC) to move bicycle and pedestrian awareness into the mainstream of transportation planning in the Dallas-Fort Worth (DFW) Metropolitan Area. This chapter also provides information on the Statewide Transportation Enhancement Program, which is intended to fund projects not traditionally undertaken by federal transportation efforts.

Background

According to NCTCOG's 1996 Household Travel Survey, about five percent of the region's total trips occur by pedestrians or bicyclists. Additionally, the survey shows that almost 78 percent of transit riders start their journey by bike or as a pedestrian. **Exhibit 15-1** summarizes travel patterns reported in NCTCOG's 1996 Household Travel Survey. **Exhibit 15-2** reviews the 2000 Census mode share findings, and **Exhibit 15-3** summarizes walking trends in the DFW area.

Exhibit 15-1. 1996 Household Survey/Mode Share

Mode	Home Based Work Trips	Home Based Non-Work Trips	Non Home Based Trips	Total Trips
Bicycle	0.07%	0.51%	0.11%	0.32%
Pedestrian	2.03%	6.59%	4.89%	5.18%
Total Non-Motorized	2.10%	7.10%	5.00%	5.50%

The prime objects of this portion of Mobility 2030 are:

1. Improving safety and mobility for current trips made solely by non-motorized alternative means or which access transit by non-motorized means;

2. Increasing the service area of bicycle and pedestrian facilities in order to increase the share of trips taken solely by non-motorized means; and
3. Making further progress toward the regional commuting goal of an eight percent combined alternative transportation mode share.

Exhibit 15-2. 2000 Census Data

Usual Means of Transportation to Work	2000 Journey to Work Mode Share
Single Occupancy Vehicle	78.8%
Car Pool	14.0%
Work at Home	3.0%
Public Transit	1.8%
Walk	1.5%
Other Means	1.0%

Exhibit 15-3. 2000-2002 Traffic Count Data

Location	Facility Status	Peak Weekday Pedestrian and Bicycle Trips
Park Lane Station	Existing light rail; incomplete sidewalk system	7,420*
Katy Trail	2.3 miles of 7.8 total miles; completed	2,467**
Jefferson Boulevard	Full, aging sidewalk system	2,423**
Cotton Belt Trail	2.8 miles of 6.1 total miles; completed	120**

* Represents a two-way trip.

** A recent DART survey on bicycle and pedestrian travel patterns used a larger count window and measured users not included in NCTCOG surveys. Count outcomes were adjusted by 1.48 in response to the DART survey to provide a more accurate view of bicycle/pedestrian travel.

Obstacles to reaching the region’s alternative transportation goals include:

1. Current infrastructure available to bicyclists and pedestrians in the DFW Metropolitan Area;
2. Current level of knowledge among bicyclists, motorists, and law enforcement about how to make bicycling safe and effective; and
3. Lack of end-of-trip facilities including parking, showers, and changing facilities.

This region must systematically address these barriers and establish project funding priorities, planning programs, and policies which address each of these barriers. Many cities have sought to improve opportunities for bicycle and pedestrian transportation. Those that have been successful share one trait: they provide a variety of bicycling facility types that accommodate a wide range of experienced, intermediate, and novice-level bicyclists. **Exhibit 15-4** shows summary data on selected areas which have followed this technique.

The New York City Bicycle Master Plan notes that, “Following significant investment in bicycle facilities, cities in industrialized countries have experienced dramatic increases in the level of cycling. For example, Copenhagen experienced a cycling increase of 50 percent in five years; Eugene, Oregon experienced an increase of 75 percent; and Toronto experienced an increase of 270 percent.”¹ The key to moving from current levels of bicycle and pedestrian travel to the eight percent target will be to put into place the most appropriate facilities, policies, and programs for this region. Several analytical techniques have been employed to evaluate these options and each, in turn, provides insight on the efficient means of programming funds for bicycle and pedestrian facilities. Overall, cities have shown that it is possible to impact the number of individuals bicycling or walking to work.

Exhibit 15-4. Bicycle Programs in Selected Cities

City	Current Mode Share	Program Highlights/Major Goals
Davis, CA	5% commute trips	<ul style="list-style-type: none"> • Veloways with grade separated crossings at major roads (24 miles) • On-street bikeways (33 miles), including dedicated bicycle lanes
Portland, OR	<ul style="list-style-type: none"> • 6.1% bicycle/pedestrian trip share in 1990 • 3.3% inner city bicycling in 1996 (city survey) • 2% city-wide bicycling in 1996 (city survey) • 13% pedestrian share in 1998 (city survey) 	<ul style="list-style-type: none"> • On-street bikeways (260 miles), including dedicated bicycle lanes • Multiuse trails (86 miles)
Seattle, WA	<ul style="list-style-type: none"> • 10-11% bicycle/pedestrian commute to work in 1998 (city survey) • 1.6% bike to work (1990 census) • 6.7 walk to work (1990 census) 	<ul style="list-style-type: none"> • Bicycle parking • On-street system, including dedicated bicycle lanes • Extensive traffic calming • Multiuse trails
Denver, CO	3% (core)	<ul style="list-style-type: none"> • On-street bikeways (561 miles), including dedicated bicycle lanes • Multiuse trails
Boulder, CO	12% commute rate	<ul style="list-style-type: none"> • Extensive commuter outreach • On-street bikeways, including dedicated bicycle lanes

Mainstreaming Bicycle and Pedestrian Modes

One of the primary objectives for bicycle and pedestrian transportation is to mainstream these modes into the standard transportation planning, programming, and construction process. On a regional level, this requires NCTCOG to:

- Incorporate bicycle and pedestrian modes in the regional plan;
- Incorporate bicycle and pedestrian modes in major transportation corridor studies;
- Incorporate bicycle and pedestrian modes in regional evaluation and programming of funds; and
- Incorporate bicycle and pedestrian modes in planning for other facility types.

Exhibit 15-5 shows the basic checklist of local governments’ actions to mainstream bicycle and pedestrian considerations.

Exhibit 15-5. Mainstreaming Alternative Transportation in the DFW Region

Item	Function
Bicycle and pedestrian mobility and safety goals in the Comprehensive Plan.	Provides legal basis for including bicycle and pedestrian requirements elsewhere.
On- and off-street bicycle routes in the Comprehensive Plan.	Provides legal basis for including bicycle requirements elsewhere.
Master Transportation Plan street standards require sidewalks for all road types.	Ensures right-of-way for sidewalk construction; provides official standing when working with the Texas Department of Transportation on road reconstruction.
Master Transportation Plan street standards include dedicated bicycle lanes, wide outside lanes, or shoulders as appropriate.	Ensures pavement width and right-of-way availability for basic bicycle access; provides official standing when working with the Texas Department of Transportation on road reconstruction.
Master Transportation Plan road types include the Regional Veloweb as a non-motorized classification with appropriate cross-section and right-of-way requirements.	Ensures right-of-way availability and sets minimum construction standards.

Exhibit 15-5 continues on next page



Exhibit 15-5. Mainstreaming Alternative Transportation in the DFW Region

Item	Function
Master Transportation Plan includes signed on-street bicycle route map.	Guides development of signed on-street bicycle route system; calls attention to roads that are up for reconstruction; provides official standing when working with TxDOT on road reconstruction.
Development codes treat bicycle and pedestrian facilities with same standing as other Master Transportation Plan elements.	Ensures platting and site planning process to include bicycle and pedestrian elements of the Master Transportation Plan.
Development codes require the provision of bicycle parking at a percentage of the required automobile parking.	Ensures end-of-trip facilities for bicyclists.
Development codes require major employers or employment sites to provide showers and locker rooms for employees.	Ensures end-of-trip facilities for bicyclists and pedestrians.
Park Plan includes off-street bicycle and pedestrian routes.	Secures right-of-way, plans for long-term facility maintenance.
Transportation staff identifies priority needs and funding opportunities.	Actual facility construction.

In order to fully explore the potential for increased bicycle and pedestrian travel, facility planning for future improvements has been divided into four basic areas: 1) On-Street Bicycle Access Initiative, 2) Regional Veloweb Project, 3) Bicycle and Pedestrian Transportation Districts Project, and 4) Spot Improvement Program. These are described in the sections which follow.

THE ON-STREET BICYCLE ACCESS INITIATIVE

Purpose

The purpose of this initiative is to ensure the long-term development of streets which are bicycle accessible. According to the Texas Department of Transportation (TxDOT), “Every road, with a few exceptions, is a potential bicycle way. Accommodation for both bicycle and pedestrian traffic shall be considered on all projects, including those under construction where reasonably possible.”² This section focuses on maintaining and developing roadways which provide a basic level of accommodation for bicycle traffic. Facilities and roadways providing greater accommodation for bicycle transportation are discussed in later sections. Facilities on which bicycling is prohibited by law are excluded.

Description

Bicyclists and motorists share common trip destinations. In many cases, the optimal bicycle route to a destination will, because of land use patterns, lie along collector or arterial streets. This often discourages individuals from choosing the bicycle. To overcome this, collector and arterial roads should be designed at a minimum to allow bicyclists and motorists to share a travel lane. These facilities are termed shared lanes because they are intended to allow motorists to pass bicyclists without changing lanes. Fully paved roadway shoulders are also beneficial for bicyclists who ride on unmarked bicycle routes in more rural areas or along frontage roads.

Exhibit 15-6 shows the types of facilities and corresponding costs appropriate to improve safety and accessibility for bicyclists along unmarked bicycle routes.

Exhibit 15-6. On-Street Bicycle Facilities

Category/Type of Facility	Description/Application	Cost
Bicycle Accessible Streets Roads not designated or signed as bicycle routes; applicable to all other roadways to increase safety and mobility. A policy to accommodate bicyclists and sample cross-sections should be included in a city's Master Transportation Plan.		
Wide Outside Lanes (arterials)	14- or 15-foot wide outside lanes, measure width from left side lane marking to first seam at the gutter, continue width through intersections, across bridges, and under underpasses.	For re-striping projects, estimate at \$10,900 per mile. For roadway construction or reconstruction projects, calculate cost as a percentage of increased road width. For projects requiring additional right-of-way or utility work, include in cost estimate.
Shoulders (rural roads, frontage roads)	Standard travel lane paving surface required, minimum width five feet.	Varies by site-specific right-of-way, utility, drainage, and other site-specific requirements.

Analysis

How can bicycle access to the overall roadway network be maintained or even expanded? Three basic issues impact the answer to this question: 1) the inventory of existing and planned on-street facilities, 2) a bicycle accessibility index analysis of regional roadways, and 3) the inventory of planned roadway improvements.

Inventory

The largest bicycle facility in the region is the 712-mile system of signed on-street bicycle routes in the City of Dallas. The system was designed to provide bicyclists assistance in finding routes around Dallas which minimize interaction with high-speed, high-volume traffic and maximize opportunities for increased bicycle usage on the existing roadway system. Over the past few years, several other cities have initiated work on developing on-street bicycle route systems. These include Allen, Arlington, Coppell, Denton, Flower Mound, Fort Worth, Garland, Grand Prairie, Keller, Lewisville, McKinney, North Richland Hills, Plano, and Southlake.

Bicycle Accessibility Index

A variety of techniques are available for evaluating the potential for a roadway to accommodate bicycle traffic. NCTCOG's Bicycle and Pedestrian Facilities Planning and Design Guidelines describes the Bicycle Level of Service (BLOS) analysis. BLOS combines six factors: 1) traffic volume, 2) right-hand lane width, 3) traffic speed, 4) truck traffic, 5) on-street parking, and 6) commercial driveways to identify the 'stress level' placed on bicyclists who utilize the roadways. A roadway ranked as BLOS A is most favorable to bicycle traffic while a roadway ranked as BLOS F has traffic conditions which overwhelmingly discourage bicycle use.

When lacking information on each of the six factors necessary for a complete BLOS analysis, the procedure may be adapted using available computer model data on traffic speeds and volumes to classify roadways in the Bicycle Accessibility Index. Roads that rank as fully bicycle accessible in the index have relatively low speeds or medium speeds and volumes with wider curb lanes or dedicated bicycle lanes. The range of

roads that are moderately bicycle accessible include medium speed and volume routes without wide curb lanes or dedicated bicycle lanes and somewhat higher volume routes with wide curb lanes or bike lanes. However, high speeds and volumes make some roadways inaccessible to bicycle traffic altogether. This index is available from NCTCOG and is a useful tool in corridor studies and on-street bicycle planning.

Roads classified as fully bicycle accessible under this index are considered prime candidates for signing as on-street bicycle routes. A minimum safety/mobility goal for all arterials and collectors is to reach the moderately bicycle accessible classification. Site specific analysis of this type is available through NCTCOG's Transportation Department.

Roadway Improvements

The Transportation Improvement Program (TIP) shows planned and programmed roadway improvements throughout the region. Each one of these roadways may be classified into one of the six accessibility groups listed above. A comprehensive strategy to identify roadways which warrant on-street bicycling facilities is needed to ensure that roadways are rebuilt to meet the appropriate design criteria. Many of the facilities in the TIP overlap with routes identified as bicycle routes. These represent opportunities to maintain and improve bicycle accessibility on our region's roadway system.

Costs

After determining the appropriate design criteria through a BLOS analysis, the most important concern is the cost of developing facilities which meet those design criteria. In general, a wide outside lane or a dedicated bicycle lane represents a marginal increase in the cost of building a facility. Adding width to achieve a 14- or 15-foot wide outside lane or a dedicated bicycle lane with narrowed vehicular lanes on a six-lane roadway adds about four to six percent per road mile.

Of course, facility costs will vary, but there is a clear cost differential between an independent project to add dedicated bicycle lanes or wide outside lanes to a roadway and "piggy-backing" a project with on-going roadway construction. The cost of adding the pavement to a lane during construction has a marginal impact on the total roadway construction costs. However, given the substantial investment in arterial and collector street improvements planned in Mobility 2030, the implementation of a policy requiring wide outside lane construction on certain roadways would have substantial financial impact.

Project Staging

For on-street projects, appropriate staging of improvements should follow these steps:

1. Sign and map currently accessible roadways;
2. Restripe roads requiring no pavement modification;
3. Construct new roads with wide outside lanes or dedicated bicycle lanes; and
4. Rebuild existing streets with wide outside lanes or dedicated bicycle lanes during scheduled reconstruction.

Action Items

The following recommended policies establish a systematic method of recognizing the potential for improving bicycle mobility. The key to this goal is adopting street and right-of-way standards in the local Master Thoroughfare Plan that accommodate the extra widths or lanes needed for bicycle traffic. In order to provide the minimum level of safety to bicyclists, arterials should provide a 15-foot wide outside lane and collectors should provide a 14-foot wide outside lane for bicyclists and motorists to share the road more safely. In some cities, dedicated bicycle lanes are preferred to safely accommodate bicyclists on some collector and arterial roadways in urban areas. Bicycle lanes must be designed in conformance with the American Association of State Highway and Transportation Officials’ guidelines.

Recommended On-Street Bicycle Access Policies

To ensure the long-term development of streets which are bicycle accessible and to minimize costs, it is important to adequately research the bicycling environment around roadway projects. In many cases, roadways should be widened to accommodate bicycle traffic. In other cases, the most effective action may be making a bicycle facility improvement nearby. **Exhibit 15-7** shows the policies established to facilitate orderly decision-making in the process of addressing bicycle accessibility.

Exhibit 15-7. On-Street Bicycle Access Policies

Reference	Policy
BP3001	For all new construction or reconstruction of arterials or collectors, provide at least a wide outside lane or, if warranted, build dedicated bicycle lanes as part of the project. Exceptions can be made if right-of-way is not available or the cost of providing the bicycling facilities is exceptionally high (greater than 20 percent of total project cost).
BP3002	Conduct a substantive study of bicycle mobility in the corridor as part of the Congestion Mitigation Strategy portion of each major transportation corridor study.
BP3003	Local governments should modify local transportation plans and standards to provide for on-street bicycle access.
BP3004	Transit authorities should modify station plans and standards to provide for access to on-street bicycle facilities and should consider the feasibility of including parallel bicycle/pedestrian facilities within planned fixed-route transit corridors.

A substantial portion of road miles along arterials and collectors may require wide outside lane or dedicated bicycle lane construction to provide bicycle accessibility. By identifying roadways through the transportation corridor study process, as well as through the application of Policy BP3001, new or reconstructed roads will provide at least a basic level of accommodation for bicyclists, unless bicycles are prohibited from travel on the facility. Special attention should be given during the transportation corridor study process to providing bicycling and walking facilities along streets that cross major transportation corridors.

THE REGIONAL VELOWEB PROJECT

Purpose

The purpose of this project is to provide regional and interregional routes that will increase the use of the bicycle for utilitarian trip purposes.

Description

The Regional Veloweb is essentially a series of small off-road trails designed for use primarily by fast-moving bicyclists. The Veloweb is also designed to encourage concurrent pedestrian transportation use. The primary design considerations of the Veloweb include:

- Minimum 12-foot width for heavily traveled multiuse trails.
- 16- to 24-foot Veloweb sections or separated facilities for pedestrians and bicyclists may be warranted along portions of the Veloweb experiencing high peak pedestrian volumes due to the proximity to transit stations, sporting events, and/or other major venues. Veloweb sections should be sized with a pedestrian level of service analysis to meet those demands.
- Markings and travel speed to meet minimum safety standards for bicycle traffic.
- Long-lasting impervious surface.
- Grade-separated crossing of roadways with significant traffic flows.
- A design speed of 25 miles per hour.
- Traffic circle intersections with minor roadways where conflicts are a concern.
- Few, if any, signalized or stop sign intersections.
- Easy access from roadways, particularly on-street bicycle routes.
- Easy access to common trip destinations.

Every section of the Regional Veloweb may not achieve all these elements, but each is an important consideration in providing a favorable bicycle route for utilitarian trips.

NCTCOG recommends that local governments plan to ensure connectivity between the Veloweb and roads and other trails in their jurisdictions. **Exhibit 15-8** lists two policies to increase accessibility to the Veloweb through intensive planning efforts by localities.

Exhibit 15-8. Veloweb Access Policies

Reference	Policy
BP3005	All local governments should include the Veloweb and connections to the Veloweb in the municipal Thoroughfare Plan, Park Plan, and Comprehensive Plan.
BP3006	New development, redevelopments, and transit-oriented developments are encouraged to be responsible to the Veloweb plan and implement new points of access to continuity with the Veloweb.

Strategies

More experienced bicyclists are generally well served by adopting roadway design standards that include wide curb lanes and paved shoulders on higher volume roadways. This design practice will be of benefit to both motor vehicle and bicycle users, allowing adequate space for street sharing with minimum need for changing lanes or lane position. Less experienced bicyclists will be best served through the development of a bicycle route system that serves key travel corridors (typically arterial streets) and by providing designated bicycle facilities on these routes. Key travel corridors should be identified through the local government’s planning process and should include treatments like bicycle lanes and unmarked bicycle lanes on arterial streets. In situations where the arterial streets are still intimidating, an option is to also create routes using

side streets or nearby shared-use paths. When side streets or paths are considered, directness and minimizing delays is still of major importance to bicyclists. The FHWA has made it clear that bicycle use should be encouraged and made a legitimate transportation choice. Surveys have indicated there is a large number of occasional bicycle riders who have indicated an interest in bicycle commuting if provided an improved bicycling environment. Planning of bicycle facilities to encourage more use among this group of adult casual users – for all trip purposes – appears to have the best opportunity for increasing overall bicycle usage.

Where local governments determine that conditions warrant them, dedicated bicycle lanes may be constructed on arterial and collector roadways in urban areas in order to provide a higher level of accommodation for bicyclists. A bicycle lane is a portion of the roadway designated for exclusive or preferential use by bicyclists. Bicycle lanes are always one-way facilities and are identified with pavement markings and signing.³ On two-way streets, a one-way bicycle lane should be provided on each side. Bicycle lanes are the preferred bicycle facility on higher volume urban and suburban roadways (i.e., collector and arterial streets) but are seldom justified on residential streets.

To determine if wide outside lanes are warranted, the following steps should be taken:

- Determine whether or not the roadway is, or may become, a designated bicycle route.
- Evaluate the need to facilitate smooth traffic flow and avoid traffic delays when bicycles are present.
- Determine if right-of-way is available.
- Determine the availability of an off-street route in a separate right-of-way, a parallel roadway, or paved shoulder that provides bicycle access to the same destinations along the entire length of the roadway section (a sidewalk or greenwalk does not serve to accommodate bicycle traffic).
- If there is a parallel route, consider using it or improving it to accommodate bicycle traffic.
- If there is not a parallel route, or if safe bicycle access along the roadway is desired, build all new construction with wide outside lanes as warranted by the guidelines.
- For reconstruction, consider potential cost factors such as the need for utility relocation, the potential of making inside lanes thinner to accommodate wider outside lanes, and right-of-way constraints.

Among the benefits of bicycle lanes are:

- Defining a space for bicyclists to ride;
- Helping less experienced bicyclists feel more confident and willing to ride on busier streets;
- Reducing motorist lane changing when passing bicyclists;
- Guiding bicyclists through intersections; and
- Increasing bikeway visibility in the transportation system.

Secondary benefits include:

- Reducing the number of bicyclists using the sidewalk or gutter pan;
- Increasing the space between pedestrians and motorists (on streets without parking);

- Improving sight distances;
- Increasing effective turn radii at driveways and intersections;
- Providing temporary space for disabled motor vehicles or snow; and
- Possibly reducing motor vehicle speeds.

Bicycle lanes should have a minimum width of four feet from gutter seam to lane stripe, with five feet preferred – or six feet when adjacent to on-street parking. (Reference: Pedestrian and Bicycling Information Center) To avoid increased right-of-way needs and costs, narrowed vehicular lanes or median widths may be considered.

Inventory

Exhibit 15-9 shows the inventory of the region's existing hard-surface bicycle and pedestrian facilities. The region has approximately 620 miles of existing hard-surface multiuse trails. However, many of these are not transportation related and provide primarily recreational use. Some facilities, like the Fort Worth Trinity Trails and White Rock Lake Trail, are already used for both utilitarian and recreational purposes. **Exhibit 15-10** shows the inventory of the region's programmed bicycle and pedestrian facilities, including 37 miles of programmed off-street facilities. **Exhibit 15-11** lists bicycle and pedestrian projects selected under the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), the Transportation Equity Act for the 21st Century (TEA-21), SAFETEA-LU, and Local Air Quality (LAQ).

The primary challenges in implementation of the Regional Veloweb have been underestimated construction costs in the original estimates and administrative problems inherent with beginning a new program of this magnitude. Additionally, some project sponsors have dropped their support for their projects. This plan recognizes the need to provide support to the implementation of these programmed transportation projects. Strategies for expediting the completion of these projects include:

- Reducing the project scope to match funding levels.
- Allowing greater local control of consultant selection, project design, and construction management.
- Providing additional funding support through local action or future Calls for Projects.
- Funding projects with RTC local funds to reduce costs and expedite implementation.

Exhibit 15-9. Existing Bicycle and Pedestrian Facilities

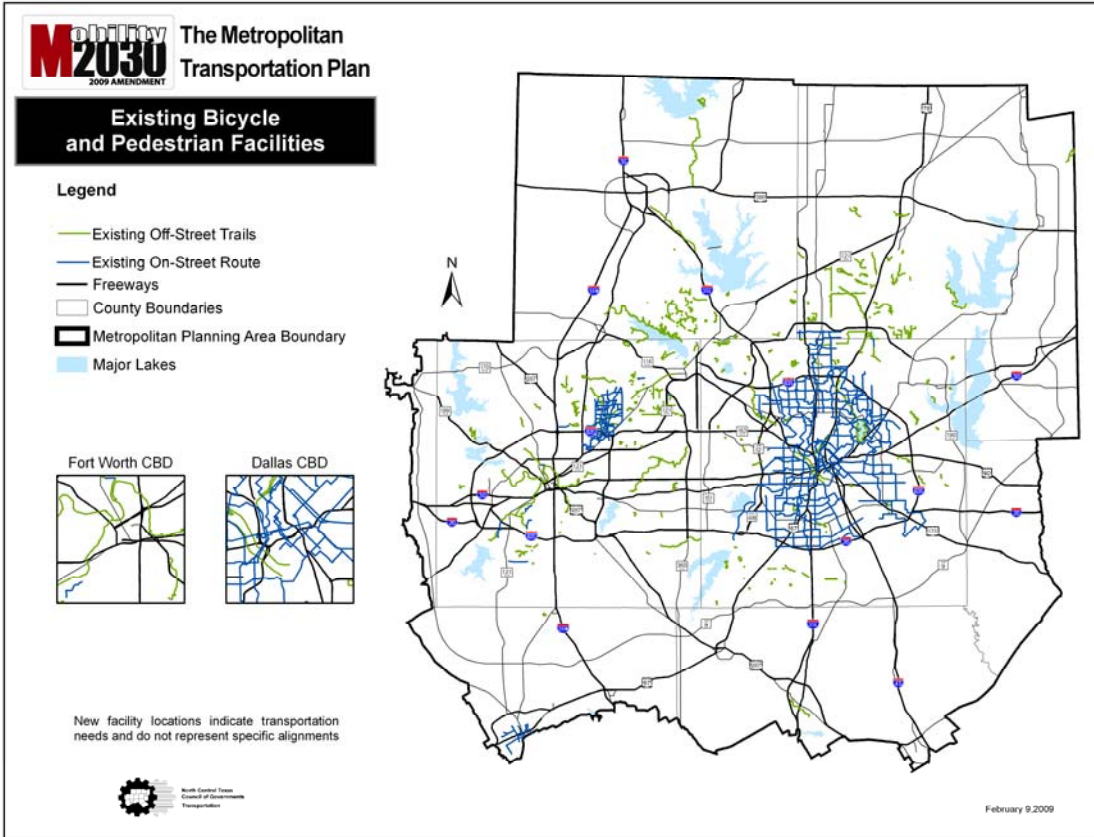


Exhibit 15-10. Planned Bicycle and Pedestrian Facilities

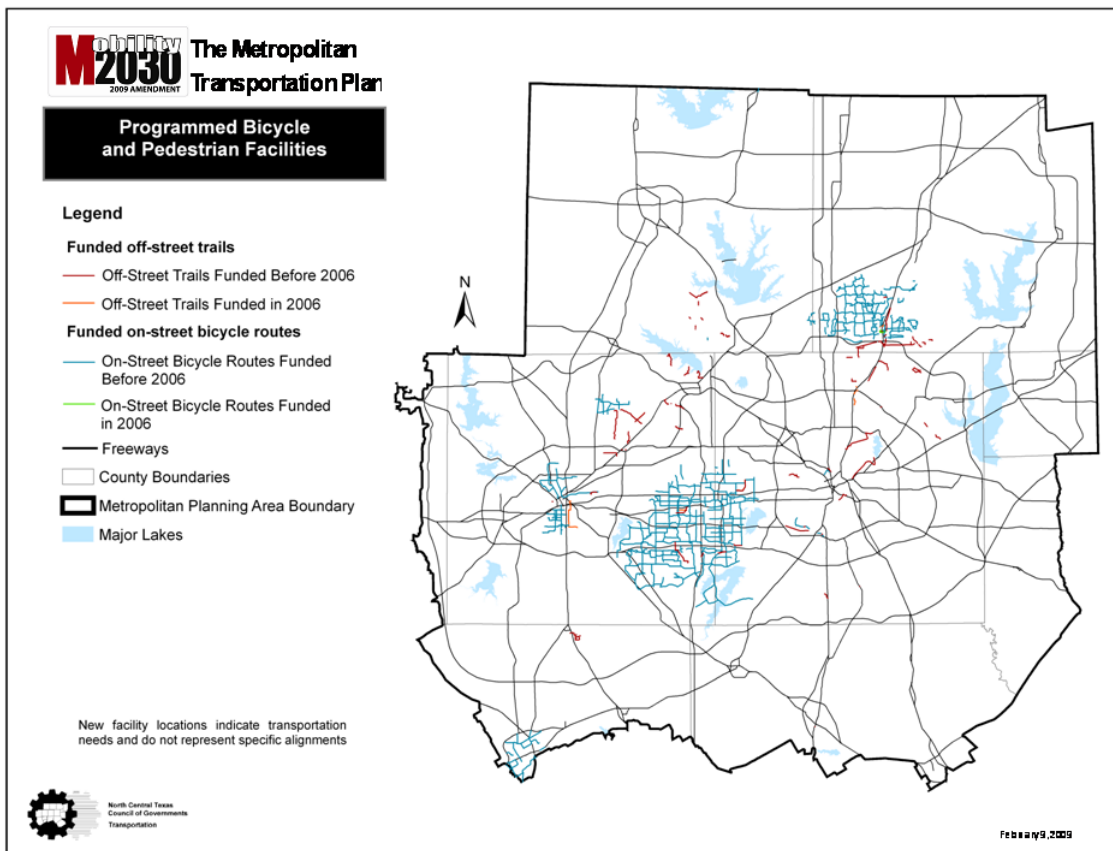


Exhibit 15-11. ISTE, TEA-21, SAFETEA-LU, and LAQ Bicycle and Pedestrian Selected Projects

Funding Program/Project Name	Trail Miles (approximate)	Funding (\$)
1993 Congestion Mitigation and Air Quality Program		
Benbrook Bike Trail	2.8	520,000
Southlake Trail	3.7	362,000
Five Mile Creek Trail	3.4	228,000
1993 Transportation Enhancement Program		
Preston Ridge Trail Project	2.2	237,000
Rowlett Creek Trail	1.9	284,400
U.S. 75 Trail and Landscaping	1.9	975,650
Bernal/Canada Trail	1.6	216,000
Trinity Park Trail	7.0	1,400,000
The Fair Park/CBD Trail	2.5	400,000
The Katy Trail	3.5	600,000
Denton Branch Rail/Trail	9.3	348,000
Bicycle Transit Network	NA	33,630
Fish Creek Linear Park	0.8	355,500
Fort Worth Trinity Trail	15.0	2,760,260
North Electric Trail	2.8	585,000
Tarrant County Bike Lanes	2.0	45,629
State Highway 26 Trail	3.8	530,000
Little Bear Creek Trail	1.6	708,985
River Legacy Parks	4.7	825,550
1994 Congestion Mitigation and Air Quality Program		
CBD Bike Parking	NA	10,600
TI Bike Storage	NA	20,000
Route Signs	NA	13,500
FW Bike Parking	NA	173,640
Northwest Highway Trail	1.9	125,000
Forest Hill Greenway Connector	1.04	81,960
Cotton Belt Trail	4.78	1,362,750
South Electric Trail	1.7	592,500
Little Bear Creek Trail	4.1	1,896,000
Beltline Trail	3.3	52,000
1994 Transportation Enhancement Program		
Fish Creek Trail	3.2	674,344
Johnson Creek Trail	2.4	957,954
Calloway Branch Trail	4.4	733,120
1996 Transportation Enhancement Program		
Garland Transit Connector	1.3	400,000
Fair Park Connector	3.9	1,200,000
Cotton Belt Colleyville	3.4	848,064
Cotton Belt Southlake	0.2	192,000
North Hills Trail	0.6	475,315
1999 Congestion Mitigation and Air Quality Program		
Galatyn Station/Central Link	3.3	1,649,700
Plano Rail to Trail Conversion	2.0	756,000
Plano Bicycle Route Improvements	162.0	787,500
Grand Prairie Bikeways	161.0	852,395
Fort Worth Bicycle Transportation District	60.0	379,500
NRH Bicycle District	NA	1,343,000
Arlington Bikeways	179.0	180,000
Tenth Street Historic District	NA	640,000

Exhibit 15-11 continues on next page

Exhibit 15-11. ISTEA, TEA-21, SAFETEA-LU, and LAQ Bicycle and Pedestrian Selected Projects

Funding Program/Project Name	Trail Miles (approximate)	Funding (\$)
1999 Congestion Mitigation and Air Quality Program		
Bishop Area Improvements	NA	560,000
Katy Trail	2.0	2,120,000
Cotton Belt Trail	2.6	1,251,648
Fish Creek/Fish-Johnson Creek Linkage	5.3	5,043,752
Flower Mound Strategic Linkages	0.9	87,270
Winters Park/Spring Creek Trail	2.1	683,216
Lancaster Link	0.7	286,740
UTD Trail	0.9	611,000
2000 Congestion Mitigation and Air Quality Program		
Cotton Belt Trail Phase II	0.4	1,053,728
Katy Trail Phase III	2.7	2,480,100
2000 Transportation Enhancement Program		
Lancaster Pedestrian Bridge	NA	1,604,527
Royse City Sidewalk Restoration	NA	170,704
Dublin Pedestrian Parkway	NA	874,877
Downtown Decatur Enhancements	NA	241,232
Highland Village Inland Trail	2.8	1,452,570
Mockingbird Pedestrian/Bicycle Linkage	NA	638,400
Austin Street Rail Corridor Preservation	0.8	800,362
Stephenville Bosque River Trail	2.0	1,773,134
Big Bear Creek Trail Extension – Grapevine	1.5	1,568,648
F.M. 1938/Big Bear Creek Phase II – Keller	1.0	547,200
Walker's Creek Trail and Bicycle Transit Station	NA	1,684,000
2001 Transportation Enhancement Program		
Moments in Time Trail II	0.64	723,360
Weatherford Main Street Revitalization	NA	2,019,917
Town Creek Hike and Bike Trail	NA	3,225,932
Ninth Street Pedestrian and Streetscape Enhancements	0.32	1,125,000
West Berry Pedestrian Improvements	0.8	1,187,760
Arlington Veloweb Improvements	NA	107,040
Burleson Pedestrian and Bicycle Trail	4.8	1,609,662
Oak Grove Trail	1.6	1,171,485
Downtown Decatur Pedestrian Improvements II	NA	602,301
Melissa Pedestrian Walkways	13.8	963,581
White Rock/DART Connector Trail	3.0	3,849,600
LBJ/Skillman DART Pedestrian Bridge	0.1	1,324,690
Santa Fe Trestle Trail	0.8	2,875,114
Spring Valley/Coit Pedestrian Connector	0.2	582,240
East Dallas Veloway	2.0	2,257,920
Lone Star Hike and Bike Trail	2.0	3,000,000
Rowlett Main Street Sidewalk Improvements	0.4	1,149,408
Timber Creek Trail	1.5	1,404,480
Rogers Pedestrian Bridge Rehabilitation	NA	1,418,250
2006 Local Air Quality Program		
Abram Street Hike and Bike Trail	1.0	1,715,280
Cottonwood Trail Segments C, D, D-Ext, & E	1.52	3,375,234
Sierra Vista Bicycle and Pedestrian Connection	2.65	390,400
Park Blvd. Pedestrian Bridge/Trail	0.91	1,018,325
Richardson Sidewalks to DART Rail Stations	15.5	800,000
Richland Hills TRE Sidewalk Connections	1.3	357,600

Some additional bicycle and pedestrian facilities are under development using local, Texas Parks and Wildlife, and U.S. Army Corps of Engineers funding. Some projects have been developed through the regional Trinity Trails Initiative. The Trinity Trails Program calls for an extensive network on trail facilities linking the region together along the Elm Fork, West Fork, and Main Stem of the Trinity River. The U.S. Army Corps of Engineers and others continue to explore trail development possibilities along the Trinity River in cooperation with the Trinity Trails effort and regional flood damage reduction studies.

The cities of Fort Worth and Dallas have adopted plans which address trail construction along the Trinity River. The Trinity River Vision Master Plan, adopted by the Fort Worth City Council in 2003, addresses the linking of other transportation facilities to the greenways. The City of Dallas has created a Master Trail Plan for the Old Trinity River in order to improve recreational opportunities.

Analysis

Individual routes within the Regional Veloweb were established based on an extensive study conducted beginning in early 1997 by NCTCOG's Bicycle and Pedestrian Transportation Task Force (BPTTF) of the following items:

- The inventory of existing and programmed trails;
- Facilities planned by local governments or through the Trinity Trails Program;
- Routes providing air quality benefits;
- Routes linking transit stations;
- The potential to link these routes together and provide access to important trip origins and destinations; and
- The potential for securing free or low cost right-of-way.

Each potential route was evaluated on these factors. The proposed Veloweb takes advantage of routes along the planned Trinity Trails and the Cotton Belt railroad and then branches out to include connectors to the north, south, east, and west. Each route established as part of the basic Veloweb was included in the Geographic Information Systems analysis to determine their potential exposure to users. An exposure index, based on the number of residents and employees within one mile of each Veloweb section, was used to evaluate routes. Summary information on each section of the Veloweb is shown in **Exhibit 15-12**. The map numbers in **Exhibit 15-12** reference the Mobility 2030 Veloweb recommendations map shown in **Exhibit 15-13**. All routes are subject to refinement due to right-of-way limitations/opportunities and other alignment concerns. All routes are recommended for right-of-way preservation.

Exhibit 15-12. Veloweb Summary Statistics

Reference	Map Number	Project Name	Total Segment	Miles Existing	Miles Programmed	Miles Needed	Estimated Cost (\$)
Recommended							
BP1001	34	Bear Creek	5.9	0.0	0.0	5.9	8,260,000
BP1002	17	Big/Little Bear Creek	11.4	4.5	2.8	4.1	5,740,000
BP1003	68	Bluebonnet East	5.3	4.2	0.0	1.1	1,540,000
BP1004	37	Calumet Connector	8.1	1.6	0.0	6.5	9,100,000
BP1005	41	Cedar Veloway	2.5	0.0	0.0	2.5	3,500,000
BP1006	24	Central Denton	3.3	0.0	0.0	3.3	4,620,000
BP1007	31	Chalk Line Trail	6.5	0.0	0.0	6.5	9,100,000
BP1008	3	Clear Fork	8.5	5.6	0.0	2.9	4,060,000
BP1009	70	Cotton Belt Central	4.6	0.0	3.4	1.2	1,680,000
BP1010	56	Cotton Belt Dallas Co.	13.6	0.0	0.0	13.6	19,040,000
BP1011	13	Cotton Belt Fort Worth Connector	3.9	0.0	0.0	3.9	5,460,000
BP1012	69	Cotton Belt Lavon	4.2	0.0	0.0	4.2	5,880,000
BP1013	55	Cotton Belt NE Dallas County	2.5	0.0	0.0	2.5	3,500,000
BP1014	14	Cotton Belt NE Tarrant County	10.0	5.0	1.3	3.7	5,180,000
BP1015	20	Cotton Belt North Hills	7.2	4.1	0.3	2.8	3,920,000
BP1016	60	DalRich Connector	4.5	1.1	1.8	1.6	2,240,000
BP1017	2	Defensive Line	9.8	0.0	0.0	9.8	13,720,000
BP1018	29	Delaware Creek	3.2	0.9	0.0	2.3	3,220,000
BP1019	27	Denton-Lewisville Trail	17.5	4.1	0.0	13.4	18,760,000
BP1020	48	Duck-Rowlett Connector	4.2	0.0	0.0	4.2	5,800,000
BP1021	61	East Dallas Veloway Connector	1.8	0.0	0.0	1.8	2,520,000
BP1022	51	East Dallas Veloway N.	4.1	0.6	0.0	3.5	4,900,000
BP1023	45	East Dallas Veloway S.	6.4	0.6	4.3	1.5	2,100,000
BP1024	53	El Camino Real	11.4	0.0	0.0	11.4	15,960,000
BP1025	58	Elm Fork	5.9	0.0	0.0	5.9	8,260,000
BP1026	22	Far West Fork	8.2	6.7	0.0	1.5	2,100,000
BP1027	9	Fish Creek	9.9	3.7	1.3	4.9	6,860,000
BP1028	11	Johnson Creek	14.3	1.8	4.3	8.2	11,480,000
BP1029	46	Katy Trail	7.5	2.7	4.8	0.0	0
BP1030	18	Little Bear Creek	15.8	4.3	1.7	9.8	13,720,000
BP1031	33	Main Stem Trinity	12.0	1.2	0.0	10.8	15,120,000
BP1032	12	Marine Creek	5.3	3.1	0.0	2.2	3,080,000
BP1033	64	McKinney Link South	4.8	0.0	0.0	4.8	6,720,000
BP1034	42	Mesquite Connector	6.5	0.0	0.0	6.5	9,100,000
BP1035	43	Mesquite Creek	5.0	1.4	0.0	3.6	5,040,000
BP1036	50	North Duck Creek	12.0	4.2	3.2	4.6	6,440,000
BP1037	59	North Elm Fork	14.7	0.0	0.0	14.7	20,580,000
BP1038	8	North Sycamore Creek	7.5	2.5	0.0	5.0	7,000,000
BP1039	72	Plano Central Link	4.4	0.1	2.7	1.6	2,240,000
BP1040	74	Preston Ridge	6.0	2.9	0.8	2.3	3,220,000
BP1041	67	Preston Ridge North	6.6	2.9	0.0	3.7	5,180,000
BP1042	54	Preston Ridge South	7.4	4.8	0.8	1.8	2,520,000
BP1043	36	Red Bird Way	16.7	0.7	2.6	13.4	18,760,000
BP1044	44	Rodeo Link	5.2	0.0	0.0	5.2	7,280,000
BP1045	73	Rowlett Creek Central	7.3	1.4	0.0	5.9	8,260,000
BP1046	49	Rowlett Creek South	9.9	1.9	0.0	8.0	11,200,000

Exhibit 15-12 continues on next page

Exhibit 15-12. Veloweb Summary Statistics

Reference	Map Number	Project Name	Total Segment	Miles Existing	Miles Programmed	Miles Needed	Estimated Cost (\$)
Recommended							
BP1047	47	South Duck Creek	5.7	1.6	0.0	4.1	5,740,000
BP1048	57	South Elm Fork	8.9	4.3	0.0	4.6	6,440,000
BP1049	35	Texas Electric Trail	4.7	0.0	0.0	4.7	6,580,000
BP1050	46	Trinity Meanders	4.2	0.0	0.0	4.2	5,880,000
BP1051	10	Village/Rush Creek	16.6	6.3	0.0	10.3	14,420,000
BP1052	21	West Fork Fort Worth	22.1	13.2	0.9	8.0	11,200,000
BP1053	19	West Fork Rock Island	8.7	5.4	0.0	3.3	4,620,000
BP1054	52	White Rock-Duck Creek Connector	10.6	2.1	0.0	8.5	11,900,000
Recommended Totals			434.8	111.5	37.0	286.3	400,820,000
Reference	Map Number	Project Name	Total Segment	Miles Existing	Miles Programmed	Miles Needed	Estimated Cost (\$)
Candidate							
BP1055	16	Alliance Connector	28.9	1.7	0.0	27.2	38,080,000
BP1056	1	Benbrook Connector	16.8	1.9	0.0	14.9	20,860,000
BP1057	63	Bluebonnet West	9.7	0.0	0.0	9.7	13,580,000
BP1058	38	Cedar Valley	11.4	0.0	0.0	11.4	15,960,000
BP1059	6	Deer/Village Creek	10.8	0.0	0.0	10.8	15,120,000
BP1060	26	Hickory Hills Connector	9.4	0.0	0.0	9.4	13,160,000
BP1061	28	Hickory Valley Connector	4.9	0.0	0.0	4.9	6,860,000
BP1062	5	Highland Hills	5.4	0.0	0.0	5.4	7,560,000
BP1063	71	Lavon Link	7.9	0.0	0.0	7.9	11,060,000
BP1064	65	McKinney Link North	6.0	0.0	0.0	6.0	8,400,000
BP1065	23	Mingo Link	5.7	0.0	0.0	5.7	7,980,000
BP1066	32	Mountain Creek	6.3	0.0	0.0	6.3	8,820,000
BP1067	66	Rowlett Creek North	8.8	0.3	0.0	8.5	11,900,000
BP1068	4	S. Sycamore Creek	8.1	0.0	0.0	8.1	11,340,000
BP1069	39	Southeast Dallas Loop	10.1	0.0	0.0	10.1	14,140,000
BP1070	62	SE Dallas Veloway	4.3	0.9	0.0	3.4	4,760,000
BP1071	7	Southern Tarrant	10.7	0.0	0.0	10.7	14,980,000
BP1072	30	SW Dallas Co. Loop	16.7	0.0	0.0	16.7	23,380,000
BP1073	40	Trinity Bottoms	6.4	0.0	0.0	6.4	8,960,000
BP1074	25	West Loop	9.7	0.0	0.0	9.7	13,580,000
BP1075	15	White's Branch	10.5	2.2	0.0	8.3	11,620,000
Candidate Totals			208.5	7.0	0.0	201.5	282,100,000

All projects that provide service to bicycle transportation districts, or that have high exposure levels or linkages to transit, and that provide service to bicycle transportation districts are expected to achieve bicycle and pedestrian traffic volumes justifying priority investment in transportation funds. These recommended projects form the basic bicycle and pedestrian system plan for this region. Candidate projects are also included in the bicycle and pedestrian system plan for this region and are recommended for right-of-way preservation. *Exhibit 15-14* shows the complete Bicycle Facilities Plan for the region. Regional Veloweb updates are underway and will be completed in 2009, at which point they will go through the RTC adoption process.

Exhibit 15-13. Veloweb Recommendations

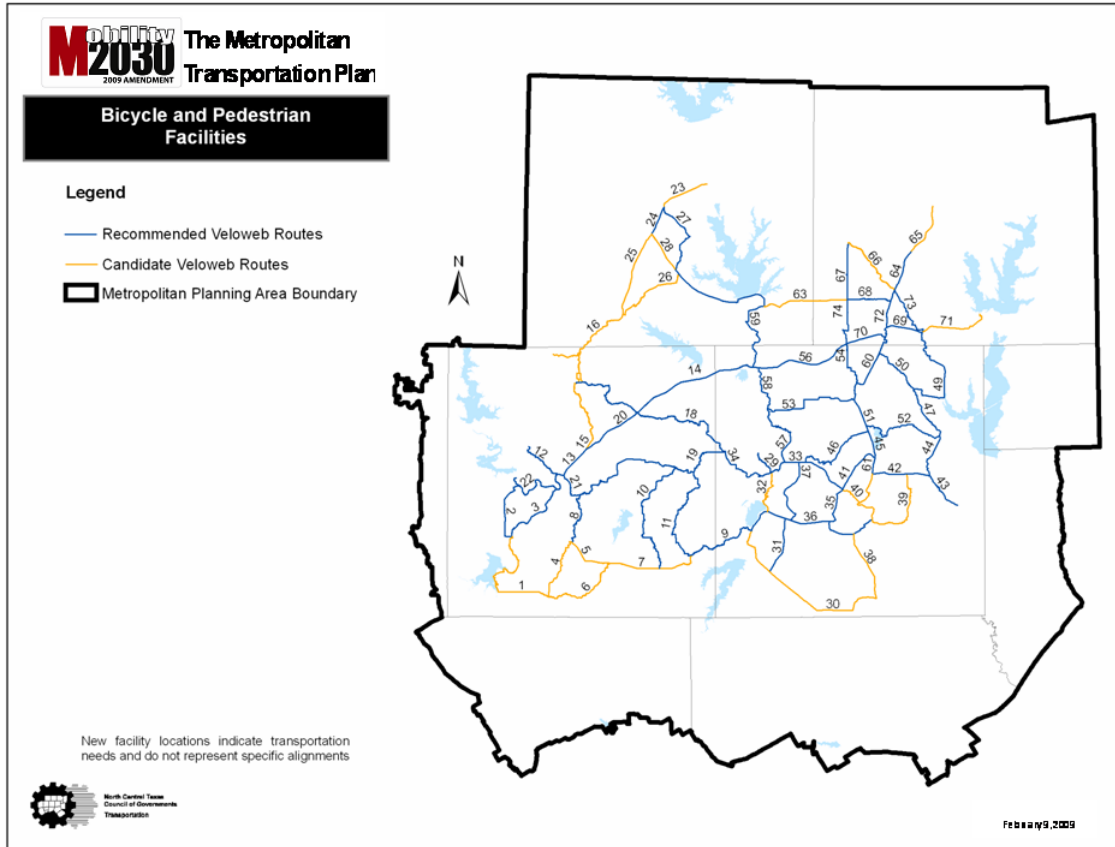
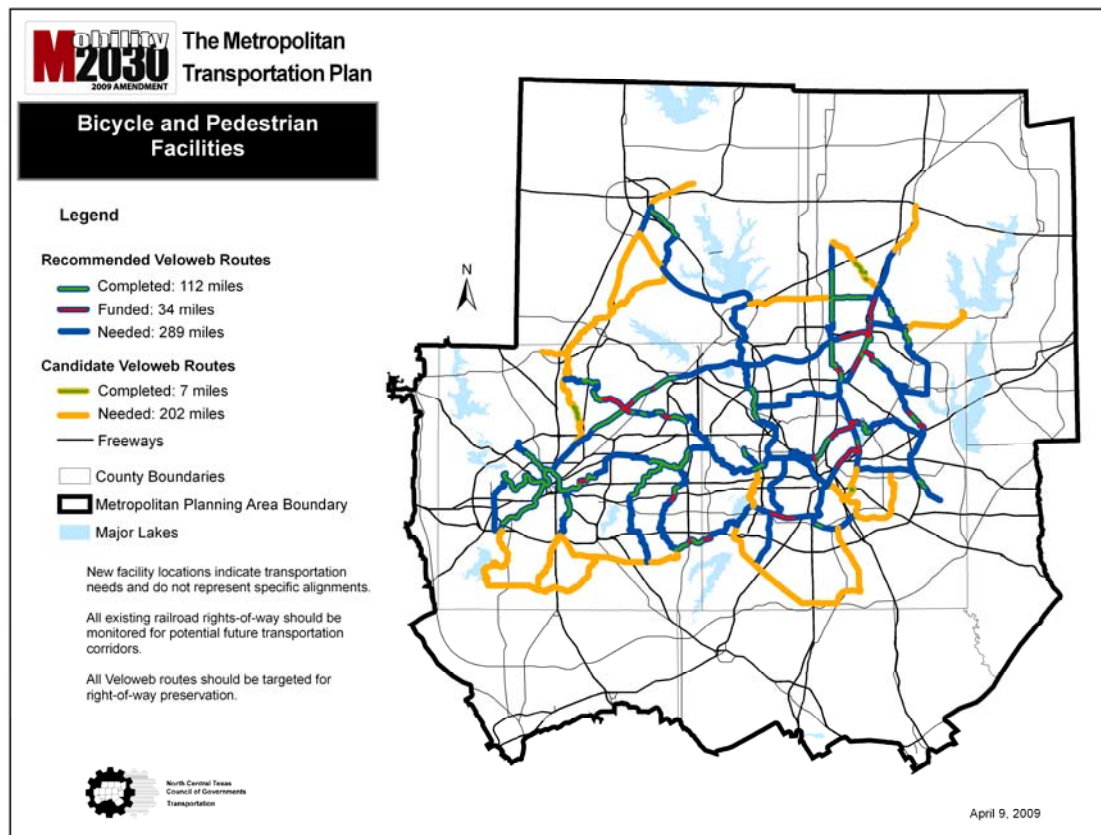


Exhibit 15-14. Bicycle and Pedestrian Facilities



Costs

The two primary costs for the development of an off-street bicycle route are right-of-way and construction. To reduce overall development costs, the Regional Veloweb primarily follows existing rights-of-way. Most of the Trinity River link of the Veloweb falls within land owned by the U.S. Army Corps of Engineers, the Trinity River Authority, Tarrant County Water Control and Improvement District #1, and other public entities. For example, Dallas Area Rapid Transit (DART) owns the Cotton Belt rail route and has signed agreements with cities working on trail development to allow use of the corridor in exchange for maintenance costs. Other routes follow electrical easements, other railroad lines, and greenways. **Exhibit 15-15** summarizes construction-related costs.

Exhibit 15-15. Veloweb Construction Costs

Facility	Estimated Costs
12-foot wide concrete trail along publicly owned right-of-way	\$817,500 per mile
Bridges, overpasses, underpasses, other major structures	\$577,700 per mile
Total Veloweb Cost	\$1,400,000 per mile plus right of way

Costs will vary along different sections of the Veloweb. Many sections of the Veloweb are already constructed, programmed, or expected to be funded through other funding sources. Some sections may require extensive bridgework, others may not. Additional costs might include interchanges at major roadway crossings, landscaping, and barrier elimination. Overall, costs are estimated at \$1,400,000 per mile.

There are approximately 644 total candidate and recommended miles of Veloweb identified. Because some facilities already exist or are programmed, 488 candidate and recommended miles of Veloweb are needed to complete the system. Of this, 286 miles are recommended projects and 202 miles are candidate projects. Total funding required to complete all Veloweb projects is estimated at over \$683 million with approximately \$400 million in updates required for recommended projects and \$282 million in updates required for candidate projects.

Project Staging

For both candidate and recommended Veloweb projects, appropriate staging of improvements should follow the steps shown below:

1. Secure long-term right-of-way access.
2. Work with community volunteers, park officials, and others to establish a soft surface trail for interim use, if necessary.
3. Bridge streams or rivers and develop at-grade crossings to major roadways.
4. Construct full, standard concrete trail facilities.
5. Build overpasses/underpasses to major roadways.

Action Items

The Veloweb serves as the regional expressway for bicycle transportation. Facilities of this type have a proven track record of attracting users and provide recreational, air quality, health, economic development, and mobility benefits to communities across the nation. Linking high quality facilities together to provide intraregional routes which favor bicycle travel will encourage increased use of the bicycle for utilitarian trip purposes.

Recommended Veloweb Projects

Completion of the Veloweb depends, in large part, on the availability of transportation enhancement funds. Projects represented in the Metropolitan Transportation Plan are eligible to compete for funding under the Transportation Enhancement Program. This includes bicycle and pedestrian facilities already programmed, recommended Veloweb projects, and candidate Veloweb projects. Project selection is up to the Texas Transportation Commission (TTC). NCTCOG estimates that between 2005 and 2030, Veloweb routes will compete for \$146 million in funding through the enhancement program. Finally, Veloweb projects are estimated to compete for \$50 million under the Congestion Mitigation and Air Quality Improvement Program (CMAQ). Thus, a total of \$391 million is estimated to be available for Veloweb routes. This would fund completion of recommended Veloweb projects shown previously in **Exhibit 15-14**.

Recommended Veloweb Policy

To ensure the adequate attention to the funding needs of the Veloweb, it may be necessary to ensure local project selection under the Statewide Transportation Enhancement Program (STEP). Many states already allow Metropolitan Planning Organizations (MPOs) to select projects. Thus, this plan supports a change in state policy to ensure MPO selection of transportation enhancement funds and the concept of limiting these funds to projects with air quality benefits. This is discussed further in the Transportation Enhancements section of this chapter.

THE BICYCLE-PEDESTRIAN TRANSPORTATION DISTRICT PROJECT

Purpose

The purpose of this project is to encourage large increases in the number of bicycle/pedestrian trips by creating a series of relatively small systems which provide for high quality bicycle/pedestrian mobility over a complete local system of on-street, off-street, and end-of-trip facilities.

Bicycle and Pedestrian Transportation

The bicycle transportation elements are designed to mimic existing, working bicycle systems already in place across the country. The key to encouraging high levels of bicycle trips is to create systems which take bicyclists to all points in an area without forcing them onto high-volume, high-speed roadways. Basic elements of a bicycle transportation district include:

- Signed on-street bicycle routes;
- Off-street multiuse trails;

- Wide outside lanes and/or dedicated bicycle lanes;
- Bicycle parking; and
- Changing facilities at businesses.

Pedestrian travel is the basic mode of transportation for everyone. At some point, everyone functions as a pedestrian in the transportation system. Two key groups of interest are those who walk for their primary mode of transportation and those who walk to transit. Each of these groups requires improved pedestrian facilities such as crosswalks, sidewalks, and pedestrian traffic signals.

Each of these facilities provides a critical link to the walking and bicycling public. A potential walking/cycling commuter with a quick route to work may not walk/ride due to the lack of sidewalks, unsafe riding conditions, or changing facilities at his or her place of work. Likewise, potential customers arriving by bicycle are dissuaded by the lack of parking facilities. When combined within a concentrated system of bicycle/pedestrian transportation facilities, these elements create the “critical density” of bicycle/pedestrian facilities needed to make walking and cycling a viable and popular transportation mode.

BICYCLE/PEDESTRIAN TRANSPORTATION DISTRICT ANALYSIS

Four basic factors were used to identify and evaluate bicycle/pedestrian transportation districts: 1) the Bicycle Needs Index, 2) the Pedestrian Needs Index, 3) on-street bicycling opportunities, and 4) land use characteristics and street design.

Bicycle Needs Index

The Bicycle Needs Index (BNI) was developed to identify areas of the region with land use and demographic conditions favorable to bicycle transportation. This is accomplished by examining the following four factors for each Transportation Analysis Process (TAP) Zone.

The percentage of total trips which are five miles or less:

1. Employment density;
2. Population density; and
3. Medium income.

Each of the 919 TAP Zones in the DFW Metropolitan Area was ranked based on its position relative to the regional value for that characteristic. For each characteristic, the individual TAP Zone values are scaled against the regional value to determine an “index-to-region” score for each TAP Zone. Index-to-region scores greater than 1.00 indicate higher than average levels for each characteristic, while index-to-region scores lower than 1.00 indicate lower than average levels. The process is repeated for each ranking characteristic for each TAP Zone. Because median income has an inverse relationship with rates of pedestrian transportation, a higher score is assigned to TAP Zones with lower median income. These

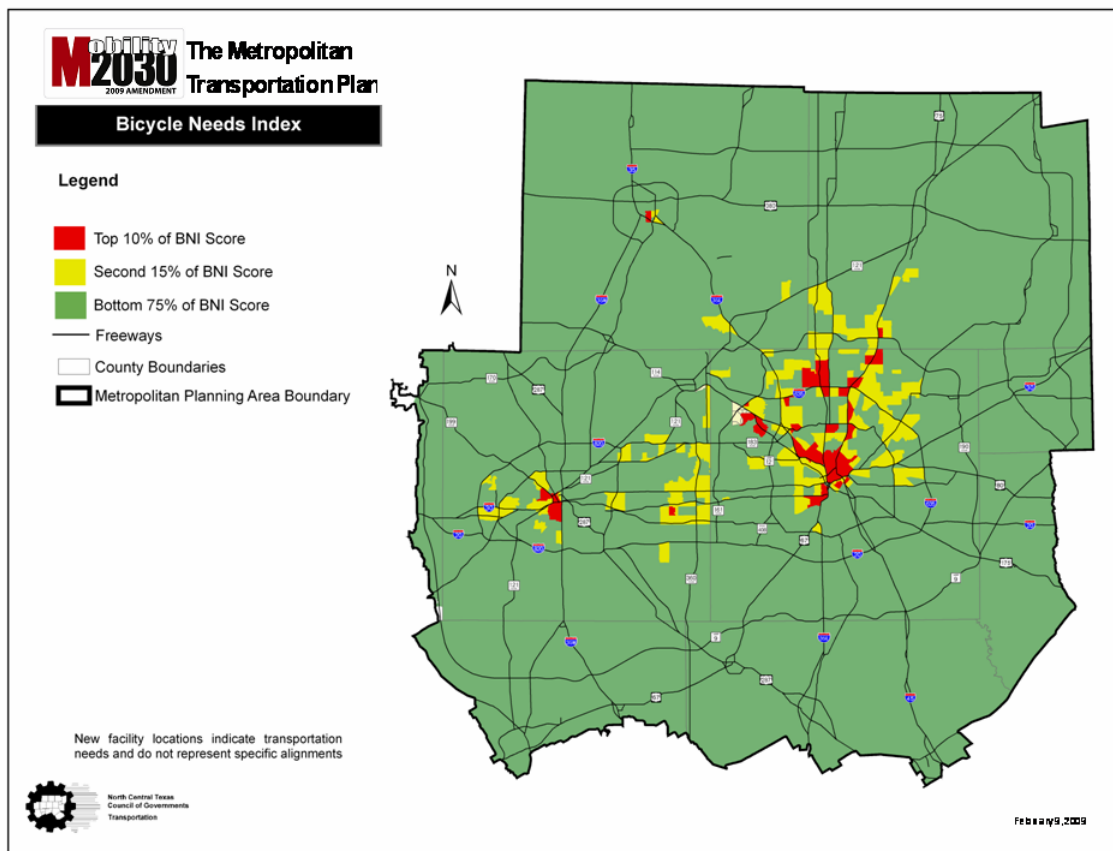
index-to-region scores for each characteristic are then weighted by the relative value of each characteristic. **Exhibit 15-16** shows weights assigned to each characteristic.

The weighted index for all characteristics is summed together for each TAP Zone to determine the final BNI score. **Exhibit 15-17** shows BNI results for the year 2030. The red areas on the map represent TAP Zones with BNI scores that fall within the top 10 percent of all BNI scores. The yellow areas on the map represent TAP Zones with BNI scores that fall within the second 15 percent of all BNI scores. The green areas on the map represent TAP Zones with BNI scores that fall within the bottom 75 percent of BNI scores.

Exhibit 15-16. Bicycle Needs Index Ranking Weights

Characteristic	Ranking Weight
Percent of Total Trips Five Miles or Less	3.5
Employment Density	2.5
Population Density	2.5
Medium Household Income	1.5

Exhibit 15-17. Bicycle Needs Index



Pedestrian Needs Index

The Pedestrian Needs Index (PNI) was developed to identify areas of the region with land use and demographic conditions favorable to pedestrian transportation. This is accomplished by examining the following four factors for each TAP Zone:

1. Access to transit;
2. Employment density;

- 3. Population density; and
- 4. Medium income.

Each of the 919 TAP Zones in the DFW Metropolitan Area was ranked based on its position relative to the regional value for that characteristic. For each characteristic, the individual TAP Zone values are scaled against the regional value to determine an “index-to-region” score for each TAP Zone. Index-to-region scores greater than 1.00 indicate higher than average levels for each characteristic, while index-to-region scores lower than 1.00 indicate lower than average levels. The process is repeated for each ranking characteristic for each TAP Zone. Because median income has an inverse relationship with rates of pedestrian transportation, a higher score is assigned to TAP Zones with lower median income. These index-to-region scores for each characteristic are then weighted by the relative value of each characteristic.

Exhibit 15-18 shows weights assigned to each characteristic.

The weighted index for all characteristics is summed together for each TAP Zone to determine the final PNI score. **Exhibit 15-19** shows PNI results for the year 2030. The red areas on the map represent TAP Zones with PNI scores that fall within the top 10 percent of all PNI scores. The yellow areas on the map represent TAP Zones with PNI scores that fall within the second 15 percent of all PNI scores. The green areas on the map represent TAP Zones with PNI scores that fall within the bottom 75 percent of PNI scores.

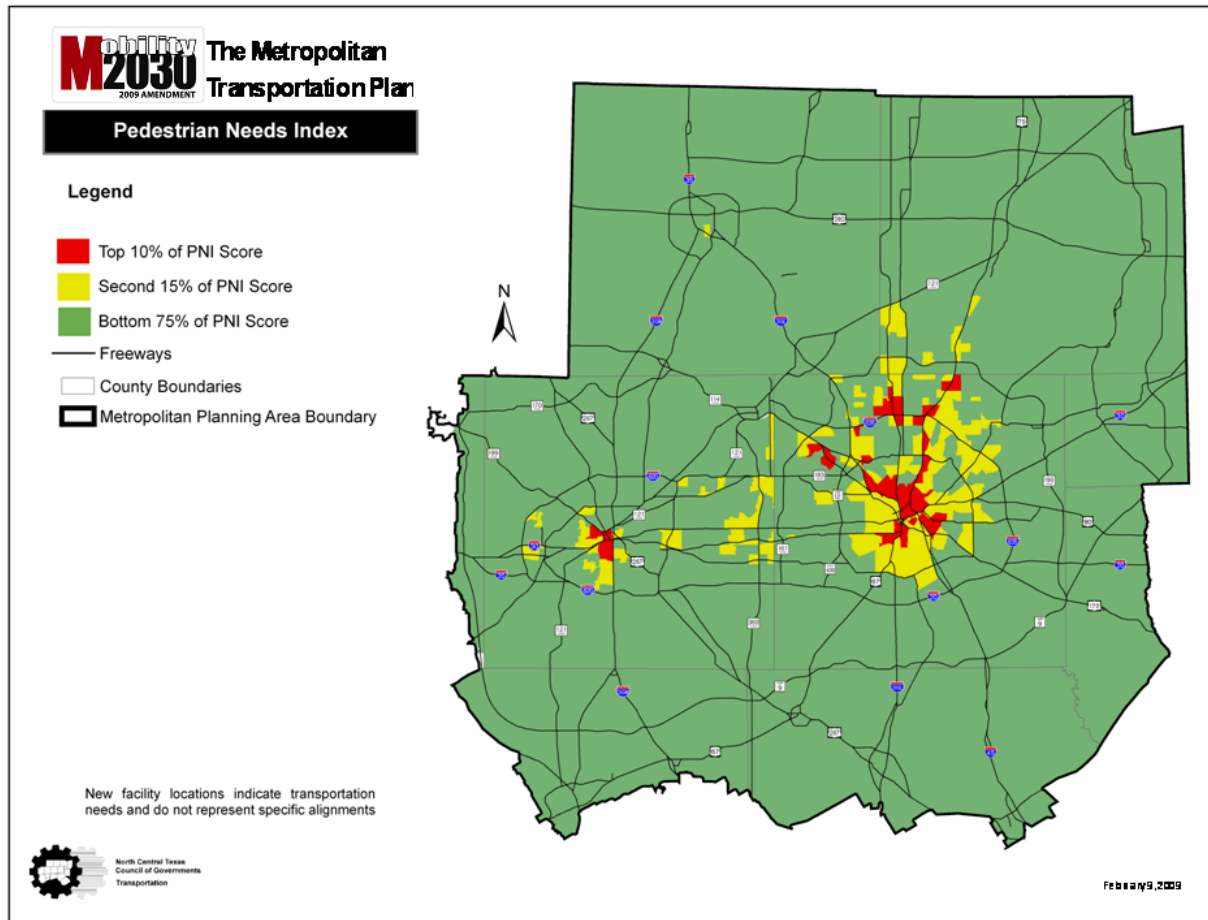
Exhibit 15-18. Pedestrian Needs Index Ranking Weights

Characteristic	Ranking Weight
Transit Access	3.5
Employment Density	2.5
Population Density	2.5
Medium Household Income	1.5

On-Street Bicycling Opportunities

Bicyclists ride to destinations identical to those chosen by automobile drivers and are required to utilize the same street network to access their destinations. The viability of a bicycle transportation district will be highly dependent upon the nature of the on-street bicycling opportunities available. Two basic factors impacting this are the street layout and the presence of a signed, on-street bicycle route system. The old-fashioned grid network provides excellent bicycle transportation opportunities because there are many different routes to the same destination and because residential roads allow for through traffic. This often provides bicyclists with a low-stress, high-quality bicycle system. In contrast, the more modern curvilinear approach to road building tends to funnel traffic toward limited number arterials, forcing bicyclists onto roadways with high concentrations of fast moving traffic. The curvilinear approach also limits the continuity of residential streets, preventing bicycle transportation between adjacent neighborhoods. Of course, many areas in the region exhibit a mixture of these two extremes. Overall, the grid pattern is favorable to bicycle transportation.

Exhibit 15-19. Pedestrian Needs Index



Signed, on-street bicycle routes are designed to guide bicyclists through cities on the most favorable routes for bicycle traffic. Because they serve to greatly facilitate and encourage bicycle transportation, the presence of an on-street system is considered essential for selecting the bicycle as the mode of choice. *Exhibit 15-20* describes the preferred types of on-street bicycle facilities designed to attract bicyclists.

Land Use Characteristics and Street Design

The Bicycle/Pedestrian Transportation Districts (B/PTDs) were partially developed by examining existing land uses and street designs across the region. Areas of the Metroplex with more integrated land uses, as opposed to segregated land uses, were identified as potential B/PTDs. Developments and districts with more integrated land uses provide the opportunity to walk or bike to destinations because of their vertical and horizontal mixing of land uses. Vertical mixing has multiple uses on a single parcel of land. An example may include a building that has office or retail uses on the ground floor with residential uses on the upper floors. Areas in the region exhibiting these uses include Addison Circle, Mockingbird Station, and the Central Business Districts (CBDs) of Dallas and Fort Worth. Horizontal mixing has multiple land uses across an area with direct connections to surrounding uses. Areas of the Metroplex showing this type of land use include the original trolley car neighborhoods of Dallas, Denton, Fort Worth, and McKinney, as well as developing transit stations in Dallas, Garland, Plano, and Richardson. Conversely, segregated land uses dominate the development style in this region. This type of land use is predominantly auto-oriented

Exhibit 15-20. Preferred On-Street Bicycle Facilities

Category/Type of Facility	Description/Application	Estimated Cost
Signs Only (universal)	Ten signs per mile, placed at major intersections, route turns, and as necessary for clarity. Plus, pole stickers indicating direction and route number.	\$1,090 per mile.
Pavement Markings (universal)	Eight markings per mile minimum, indicating lane placement and direction of travel. Use high quality, non-slip applications only.	\$8,720 per mile.
Bicycle Lanes	Four to six-foot wide portion of the roadway designated by striping, signing, and pavement marking for the preferential or exclusive use by bicyclists; measure width from the inside of stripe to first seam at the gutter; continue width through intersections, across bridges, and below underpasses.	For re-striping projects, estimate at \$11,900 per mile. For roadway construction or reconstruction projects, calculate cost as a percentage of increased road width. For projects requiring additional right-of-way or utility work, include in cost estimate.
Wide Outside Lanes (minor arterials, collectors)	14- or 15-foot wide outside lanes; measure width from left side lane marking to first seam at the gutter; continue width through intersections, across bridges, and below underpasses.	For re-striping projects, estimate at \$10,900 per mile. For roadway construction or reconstruction projects, calculate cost as a percentage of increased road width. For projects requiring additional right-of-way or utility work, include in cost estimate.
Traffic Calming (neighborhood streets)	Speed humps, traffic diverters, traffic circles, skinny streets, and other traffic calming measures.	\$1,900 per speed hump (up to four per mile in residential areas). Up to \$5,000 for other devices.
Shoulders (rural roads)	Rural application only, standard travel lane paving surface required, minimum width of five feet.	Varies by site specific right-of-way, utility, drainage, and other site-specific requirements.

a vehicle to make even basic trips. Street design in conjunction with land use can dictate transportation mode. Areas of the Metroplex developed with a grid street pattern reduce driving by shortening distances and by providing an environment where walking and cycling are feasible. Other areas developed with a curvilinear road network are auto-oriented and inhibit bicycle, pedestrian, and transit trips due to the poor connectivity and great distances between destinations.

Project Staging

For Bicycle/Pedestrian Transportation District projects, appropriate staging of improvements should walk through the steps shown below:

1. Sign and map currently accessible roadways.
2. Secure long-term right-of-way access for trail/Veloweb projects.
3. Install pedestrian signals and stripe crosswalks at all major intersections.
4. Install bicycle racks and lockers at retail destinations, schools, transit stations, and major employment centers.
5. Implement city-wide sidewalk regulations ending developer waivers on sidewalk construction and mandating the construction of complete sidewalk systems.

6. Construct showers and locker rooms at major employment centers.
7. Construct short trail/Veloweb connections to eliminate barriers and link on-street routes, bridge streams or rivers, and develop at-grade crossings to major roadways for trail segments.
8. Construct sidewalks connecting residential areas to commercial and employment centers.
9. Re-stripe roads requiring no pavement modification.
10. Construct full, standard concrete trail/Veloweb facilities.
11. Implement subdivision regulations to promote connectivity through a grid street pattern.
12. Construct new roads with wide outside lanes or dedicated bicycle lanes.
13. Build trail/Veloweb overpasses/underpasses to major roadways.
14. Rebuild existing streets with wide outside lanes or dedicated bicycle lanes during scheduled reconstruction.

Action Items

The implementation of complete B/PTDs will provide pedestrians and cyclists with centralized areas within the region in which all the elements required for effective bicycle and pedestrian transportation are available. The presence of a range of facilities allows large numbers of individuals to select walking and cycling as the mode of choice.

Recommended Bicycle/Pedestrian Transportation District Projects

One key to implementing workable B/PTDs is local commitment to the project. For this reason, Local Initiative Bicycle/Pedestrian Transportation Districts and Transit Station Bicycle/Pedestrian Districts are recommended for adoption in this region. Both of these are developed and proposed at the local level. **Exhibit 15-21** lists the 50 B/PTDs recommended for implementation in this region. **Exhibit 15-22** illustrates these districts. The B/PTDs were established by evaluating urban form and the BNI and PNI for each area. They are generally centered around large employment centers, major educational institutions, rail stations, or a specific district of a city. To function properly, a B/PTD must provide a range of services including on-street transportation, off-street transportation, sidewalks, street furniture, bicycle parking, and end-of-trip facilities such as showers and lockers. Some individual B/PTDs received funding through NCTCOG’s Sustainable Development Program in 2001 and 2006. Additional funding for B/PTDs is anticipated through the CMAQ Improvement Program and the STEP.

Some facilities that function as part of a B/PTD already exist or are programmed. Notably, both Dallas and Fort Worth have implemented CMAQ-funded bicycle parking projects in their respective downtown areas, as well as localized pedestrian districts. All B/PTDs should be incorporated in local Master Transportation Plans and transportation corridor studies to begin the process of establishing needed rights-of-way and lane widths. The plan also recommends an aggressive effort through the BPTTF to assist local sponsors in developing Local Initiative Bicycle/Pedestrian Transportation Districts and Transit Station Bicycle/Pedestrian Districts.

Exhibit 15-21. Bicycle/Pedestrian Transportation Districts

Reference	Project Name	Total Square Miles	Estimated Cost (\$)	Combined 2030 Population and Employment	Street Layout	On-Street Bicycle Routes
BP2003	Bicycle/Pedestrian Transportation District Program					
BP2001.1	Downtown Garland	.92	267,301	7,559	Mixed	None
BP2001.2	Trinity Mills Station	.46	133,989	3,433	Curvilinear	None
BP2001.3	Frankford Station	.43	124,958	1,286	Curvilinear	None
BP2001.4	Craig Ranch McKinney	1.17	340,576	7,205	Grid	None
BP2001.5	Old Town Frisco	.71	205,223	3,338	Grid	None
BP2001.6	White Rock Station	.44	127,879	2,624	Curvilinear	Existing
BP2001.7	Lake June Station	.31	90,684	2,961	Curvilinear	None
BP2001.8	Austin Ranch	.47	137,278	9,383	Grid	None
BP2001.9	Handley	.85	247,618	3,474	Grid	None
BP2001.10	Lawnview Station	.22	62,684	1,002	Mixed	Existing
BP2001.11	Uptown-Oaklawn	5.63	1,633,222	211,668	Grid	Existing
BP2001.12	Central Denton	4.16	1,206,689	41,929	Grid	None
BP2001.13	East Dallas	7.62	2,210,622	150,189	Grid	Existing
BP2001.14	Dallas CBD	1.63	473,259	177,680	Grid	Existing
BP2001.15	Cedars	1.39	402,561	21,745	Grid	Existing
BP2001.16	Fair Park	4.43	1,283,279	32,111	Grid	Existing
BP2001.17	Fort Worth Stockyards	3.17	919,306	38,769	Grid	Planned
BP2001.18	Fort Worth CBD	1.25	362,842	71,231	Grid	Planned
BP2001.19	South Side Fort Worth	2.79	808,163	66,972	Grid	Planned
BP2001.20	South East Fort Worth	2.56	741,055	16,815	Grid	None
BP2001.21	South Fort Worth	5.52	1,600,366	52,940	Grid	Varies
BP2001.22	Love Field	3.56	1,033,026	57,222	Mixed	Existing
BP2001.23	Downtown Carrollton	.42	120,867	2,980	Mixed	None
BP2001.24	Royal-Walnut Stations	2.03	590,046	27,543	Mixed	Existing
BP2001.25	Downtown Farmers Branch	.50	143,556	5,804	Mixed	None
BP2001.26	Design District	2.17	628,211	22,275	Mixed	Existing
BP2001.27	North Central Expressway Corridor	5.32	1,541,964	57,222	Mixed	Existing
BP2001.28	LBJ-Central Corridor	3.23	935,402	74,778	Curvilinear	Existing
BP2001.29	LBJ-DNT Corridor	4.28	1,241,326	9,296	Curvilinear	Varies
BP2001.30	Historic Plano	1.56	453,769	18,665	Mixed	Planned
BP2001.31	LBJ-Skillman Station	.71	205,023	9,296	Curvilinear	Varies
BP2001.32	Forest-Jupiter Station	1.08	313,145	18,779	Curvilinear	None
BP2001.33	Richardson DART Corridor	2.41	698,107	69,403	Curvilinear	None
BP2001.34	Las Colinas	1.78	516,926	50,496	Curvilinear	None
BP2001.35	West Irving Station	.16	45,279	1,084	Curvilinear	None
BP2001.36	Downtown Irving	2.21	640,913	17,089	Mixed	None
BP2001.37	West Dallas	2.21	640,175	23,303	Grid	Existing
BP2001.38	West Oak Cliff	5.61	1,626,652	72,159	Grid	Existing
BP2001.39	South Oak Cliff	7.48	2,168,160	53,553	Mixed	Existing
BP2001.40	Downtown Arlington	1.83	530,826	26,470	Grid	Planned
BP2001.41	Central Grand Prairie	4.50	1,306,053	32,135	Mixed	Planned
BP2001.42	Richland Hills Station	.33	96,781	3,572	Curvilinear	None
BP2001.43	Hurst-Bell Station	.37	107,876	5,085	Curvilinear	None
BP2001.44	CentrePort Station	.30	87,321	3,257	Curvilinear	None

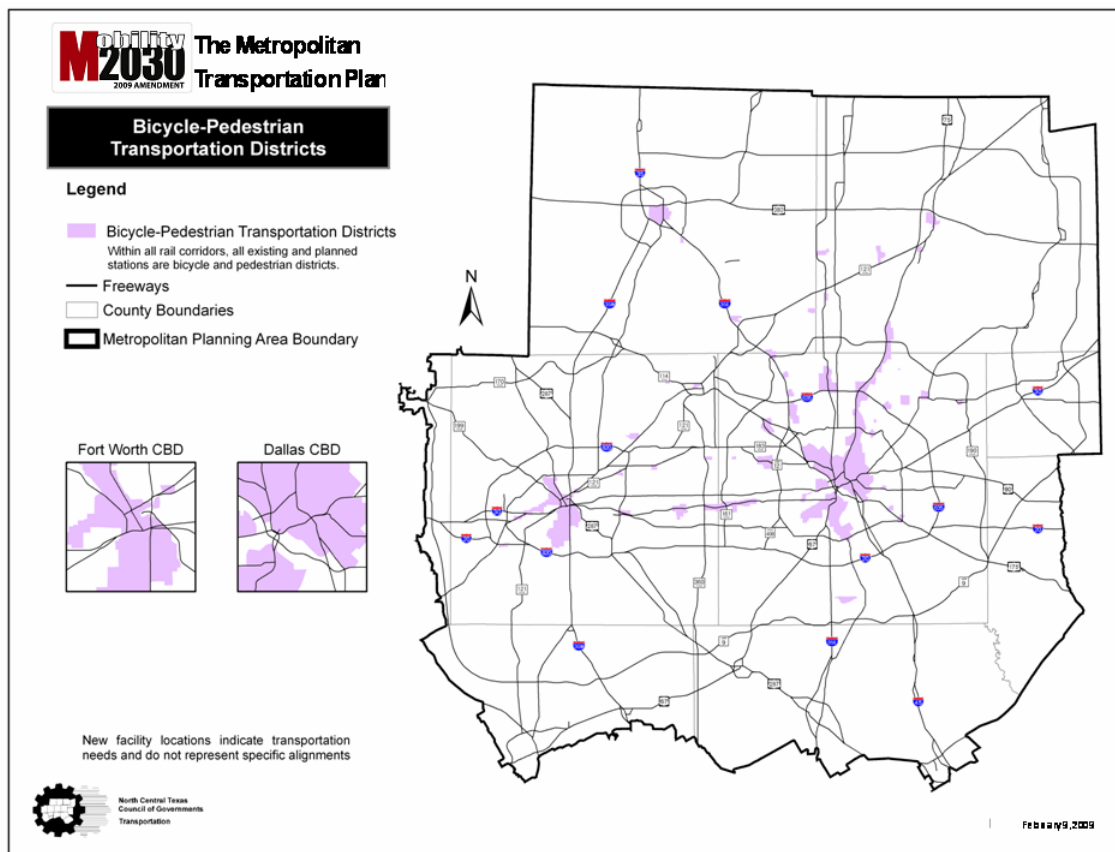
Exhibit 15-21 continues on next page

Exhibit 15-21. Bicycle/Pedestrian Transportation Districts

Reference	Project Name	Total Square Miles	Estimated Cost (\$)	Combined 2030 Population and Employment	Street Layout	On-Street Bicycle Routes
BP2001.45	Elam-Buckner Station	.45	129,262	4,303	Curvilinear	Existing
BP2001.46	Camp Bowie Corridor	3.53	1,023,898	49,150	Grid	None
BP2001.47	Old Town McKinney	1.60	465,081	15,541	Grid	None
BP2001.48	Downtown Grapevine	.37	108,078	2,802	Grid	None
BP2001.49	Home Town North Richland Hills	.77	223,976	6,299	Grid	Varies
BP2001.50	Old Town Lewisville	.69	199,818	3,782	Grid	None
	Totals	107.59	31,201,070	1,852,934		

This accounts for over \$31 million of investments in B/PTDs, reaching a combined 2030 population and employment of 1.9 million persons.

Exhibit 15-22. Bicycle/Pedestrian Transportation Districts



Recommended Bicycle/Pedestrian Programs

The Bicycle and Pedestrian Access to Rail Study identifies bicycle accessibility enhancements to the 60 stations scheduled to be operational by 2010. To promote safe, convenient bicycle/pedestrian accessibility to and from existing and future rail stations, a variety of on- and off-site improvements are being studied for possible implementation. Following is a list of the potential improvements being studied.

Off-site improvements:

- Sign system
- New bicycle routes
- New trail connections
- Sidewalk connections

On-site improvements:

- Bicycle lockers
- Covered bicycle racks
- Sidewalk placement
- Sign system

Recommended Bicycle/Pedestrian Policies

To ensure the adequate attention to the funding needs of the bicycle projects, it may be necessary to ensure local project selection under the Transportation Enhancement Program. Many states already allow MPOs to select projects. Again, this plan supports a change in state policy to ensure MPO selection of Transportation Enhancement Program funds.

The lack of a complete inventory of regional pedestrian facilities, and the difficulty in planning for very localized transportation at the regional level, make it difficult to recommend specific projects to improve pedestrian mobility. However, the PNI provides the basis for future analysis of pedestrian transportation issues. There are projects, programs, and policies aimed at successfully implementing B/PTDs in this region. **Exhibit 15-23** outlines the recommended steps to increase the service area of pedestrian facilities.

A possible source of funding for improvements identified in the Bicycle and Pedestrian Access to Rail Study will be the Transit Enhancement Program. The Urbanized Area Formula Grants Program established under TEA-21 provides transit capital and operating assistance to urbanized areas with populations greater than 50,000. Those areas with population exceeding 200,000 are required to set aside a one percent minimum of the apportionment for transit enhancements.

Exhibit 15-23. Recommended Steps to Increase Service Area

Reference	Policy
BP3007	End or strongly curtail the use of waivers to sidewalk construction requirements during the development process.
BP3008	Construct sidewalks as a route part of roadway construction and reconstruction, with the funding of the sidewalk coming from 1) the roadway funds or 2) an assessment on the adjacent landowner.
BP3009	Build sidewalks within one-fourth mile of existing or future transit facilities concurrent with rail and bus capital improvements.
BP3010	Incorporate Pedestrian Transportation Districts in local planning documents to provide for 1) increased densities, 2) mixed land uses, 3) pedestrian-oriented building design, and 4) complete pedestrian infrastructure.

Transit enhancement projects or project elements must enhance mass transportation service or use and be physically or functionally related to transit facilities. Categories of projects or project elements eligible for transit enhancement funding include:

- Historic preservation, rehabilitation, and operation of historic mass transportation buildings, structures, and facilities (including historic bus and railroad facilities);
- Bus shelters;

- Landscaping and other scenic beautification, including tables, benches, trash receptacles, and street lights;
- Public art;
- Pedestrian access and walkways;
- Bicycle access, including bicycle storage facilities and installing equipment for transporting bicycles on mass transportation vehicles;
- Transit connections to parks within the recipient’s transit service area;
- Signage; and
- Enhanced access for persons with disabilities to mass transportation.

In the region, transit enhancement funding is allocated to the Fort Worth Transportation Authority (the T) and DART and may be used annually or accrued over several years. To date, funds have been committed for enhancements at the Pleasant Grove and Fair Park Transit Centers in Dallas and for general enhancements at the T sites in Fort Worth. Elements of these projects and associated costs are listed in **Exhibit 15-24**. The Fair Park Transit Center is still in design, but DART intends to use transit enhancement funds for eligible categories.

Exhibit 15-24. Project Enhancements and Associated Costs

the T – Area-Wide Enhancements	
Element	Cost (\$)
Interactive Kiosks	180,000
Bicycle Access, Facilities, and Equipment	30,000
Purchase Landscaping/Scenic Beautification	25,000
Purchase/Rebuild Bus Shelters	49,619
Total	284,619
DART – Pleasant Grove Transit Center Enhancements	
Element	Cost (\$)
Landscaping	466,595
Tables, Benches, etc.	38,400
Public Art	50,000 (awarded under separate contract)
Lighting	138,172
Pedestrian Access	1,119
Walkways	80,973
Signage	79,350
ADA Enhancements	1,710
Total	856,319

To ensure that bicycle/pedestrian facilities are fully funded, this plan recommends aggressive use of several sources of funds to improve bicycle/pedestrian access to transit facilities and other destinations in this region. Local Initiative B/PTDs are estimated to compete for \$73 million in STEP projects, \$141 million in CMAQ projects, \$74 million in local funds, and \$162 million in other federal, state, and local funds. Thus, a total of \$457 million is forecasted for bicycle and pedestrian transportation district improvements.

SPOT IMPROVEMENT INITIATIVE

Mobility 2030 also recognizes the need to make spot improvements to meet regional bicycle and pedestrian goals and objectives. Project types under this category will be identified through the transportation corridor study process, public input, and local capital planning. Project types include, but are not limited to, those shown in **Exhibit 15-25**. Funding estimated under this program totals \$213 million.

TRANSPORTATION ENHANCEMENTS

The purpose of this section is to review the status of the Statewide Transportation Enhancement Program and to explore the potential for improving projects under the program. In 1991, the ISTEA first established the enhancement program as a set-aside allocation of ten percent of Surface Transportation Program (STP) funds. The program continued under TEA-21 and SAFETEA-LU. Under SAFETEA-LU, transportation enhancement activities continue to be funded through a set-aside of ten percent, or the amount set aside in Fiscal Year 2005, whichever is greater, from STP funds. The program is intended to fund projects not traditionally undertaken by federal transportation efforts. These projects are selected by the Texas Transportation Commission through the Transportation Enhancement Project Evaluation Committee, an interagency group with representatives from several departments of the state government. Prior to being considered for selection by TxDOT, projects are recommended by the Metropolitan Planning Organization; in this case the Regional Transportation Council. In January 2001, the RTC established an updated policy on preferred and additional projects. **Exhibit 15-26** shows this policy. Local sponsors provide a 20 percent local funding match.

Exhibit 15-25. Spot Improvement Program

Reference	Spot Improvement Program Project Types
BP2002	Sidewalks Bicycle and Pedestrian Bridges Veloweb Rehabilitation Route Marking and Mapping Bicycle Parking Showers and Locker Rooms

Exhibit 15-26. Statewide Transportation Enhancement Program – RTC Policy Position*

	Preferred Project Types	Additional Project Types
Project Type	<ul style="list-style-type: none"> • Bicycle and pedestrian projects, including landscaping, education, and land acquisition. • Restoration/operation of historic trolley or interurban rail lines and related structures, including landscaping and land acquisition. • Restoration and operation of historic transit stations as new transit stations, including landscaping and land acquisition. • Acquisition of historic railroad rights-of-way for future rail and/or bicycle trails. • Landscaping transportation facilities. • Visitors' centers. • Control or removal of outdoor advertising. 	<ul style="list-style-type: none"> • Projects for private sector benefit.** • Non-surface transportation museums.** • Surface transportation museums. • Stand-alone environmental clean up.** • Acquisition of scenic easements and scenic or historic properties. • General historic preservation. • Archeology. • Rehabilitation of historic transportation buildings for non-transportation uses. • Water pollution. • Reducing wildlife mortality.
MPO Action	Staff provides a letter stating that, if selected by the Texas Transportation Commission, the project will be placed in the TIP.	Staff will not provide an initial letter of TIP placement. Project sponsors may request RTC review of their project for TIP placement.

* Adopted by the Regional Transportation Council, January 11, 2001.

** Texas Transportation Commission supports to make ineligible.

TRANSPORTATION ENHANCEMENTS 1991-2000

Under ISTEA, three Calls for Projects yielded a variety of projects for the region. For the fourth Call, authorized under TEA-21, projects were selected by the TTC and announced in January 2000. **Exhibit 15-27** shows all projects selected for this region.

Exhibit 15-27. State-Selected Enhancement Projects

Project Name	Federal Funds (\$)	Project Name	Federal Funds (\$)
1993 Call for Projects		1996 Call for Projects	
Preston Ridge Trail Project	237,000	Garland Transit Connector	400,000
Rowlett Creek Trail	284,400	Fair Park Connector	1,200,000
U.S. 75 Trail and Landscaping	975,650	Cotton Belt Colleyville	848,064
Rockwall County Courthouse	500,000	Cotton Belt Southlake	192,000
Bernal/Canada Trail	216,000	North Hills Trail	475,315
Trinity Park Trail	1,400,000	State Fair Renovations	3,842,487
McKinney Avenue Trolley	1,000,000	Freedman's Memorial	128,237
Houston Street Viaduct	2,000,000	Ennis Stagecoach	247,319
Monroe Shops Rehabilitation	2,126,200	Thurbur Archeological Site	260,000
The Fair Park/CBD Trail	400,000	Trolley Restoration	176,000
The Katy Trail	600,000	1999 Call for Projects	
Denton Branch Rail/Trail	348,000	Katy Trail	1,992,000
Cleburne P.O. Renovation	200,000	Mockingbird Lane	638,400
Alvarado Heritage Center	16,000	Lancaster Pedestrian Bridge	1,604,527
Restoration of T&P Building	971,500	Dallas Bicycle Safety Program	498,432
Grapevine Foreman's House	70,000	Lancaster Visitor's Center	1,279,330
Six Flags Drive Landscaping	72,680	Historic District – Lancaster	470,932
Bicycle Transit Network	33,630	Frontiers of Flight Museum	7,205,680
Fish Creek Linear Park	355,500	DeSoto Gateway Enhancements	63,360
Fort Worth Trinity Trail	2,760,260	Streetcar Renovation	709,800
North Richland Hills Trail	585,000	Austin Street Rail Corridor	800,362
Tarrant County Bike Lanes	45,629	Morriss Road/F.M. 1171 Landscaping	65,078
State Highway 26 Trail	530,000	Highland Village Inland Trail	1,452,570
Trails of Euless	708,985	F.M. 2499 Landscaping	52,464
River Legacy Parks	825,550	Morriss Road/F.M. 3040 Landscaping	23,664
1994 Call for Projects		Morriss Road/F.M. 407 Landscaping	65,616
Fish Creek Trail	674,344	Royse City Sidewalk Restoration	170,704
Johnson Creek Trail	957,954	Stephenville Bosque River Trail	1,773,134
Calloway Branch Trail	733,120	Dublin Pedestrian Parkway	874,877
Restoration of Trolley Service	4,590,000	Thurber Visitors Center	1,200,000
Ellis County Courthouse	1,230,000	Grist Mill and Visitor Center – Dublin	165,542
Lancaster MKT Rehab	17,902	Big Bear Creek Trail Extension	1,568,648
Navarro County Courthouse	655,600	F.M. 1938/Big Bear Creek Greenbelt	547,200
Carnegie Library Windows	23,050	NRH Bicycle Transit Station	1,684,000
Mineral Wells/Weatherford Trail	1,647,119	Richland Hills Entryways	93,731
Wise County Heritage Museum	34,695	287/North Main Street Beautification	2,232,960
		S.H. 183/U.S. Hwy 377 Landscaping	341,111
		FW Union Passenger Station	2,041,920
		Downtown Decatur Enhancements	241,232

Exhibit 15-27 continues on next page

Exhibit 15-27. State-Selected Enhancement Projects

Project Name	Federal Funds (\$)	Project Name	Federal Funds (\$)
2000 Call for Projects		2001 Call for Projects	
Lancaster Pedestrian Bridge	1,604,527	Moments in Time Trail II	723,360
Royse City Sidewalk Restoration	170,704	Weatherford Main Street Revitalization	2,019,917
Dublin Pedestrian Parkway	874,877	Town Creek Hike and Bike Trail	3,225,932
Downtown Decatur Enhancements	241,232	Ninth Street Pedestrian and Streetscape Enhancements	1,125,000
Highland Village Inland Trail	1,452,570	West Berry Pedestrian Improvements	1,187,760
Mockingbird Pedestrian/Bicycle Linkage	638,400	Arlington Veloweb Improvements	107,040
Austin Street Rail Corridor Preservation	800,362	Burleson Pedestrian and Bicycle Trail	1,609,662
Stephenville Bosque River Trail	1,773,134	Oak Grove Trail	1,171,485
Big Bear Creek Trail Extension – Grapevine	1,568,648	Downtown Decatur Pedestrian Improvements II	602,301
F.M. 1938/Big Bear Creek Phase II – Keller	547,200	Melissa Pedestrian Walkways	963,581
Walker’s Creek Trail and Bicycle Transit Station	1,684,000	White Rock/DART Connector Trail	3,849,600
		LBJ/Skillman DART Pedestrian Bridge	1,324,690
		Santa Fe Trestle Trail	2,875,114
		Spring Valley/Coit Pedestrian Connector	582,240
		East Dallas Veloway I	2,257,920
		Lone Star Hike and Bike Trail	3,000,000
		Rowlett Main Street Sidewalk Improvements	1,149,408
		Timber Creek Trail	1,404,480
		Rogers Pedestrian Bridge Rehabilitation	1,418,250

This accounts for approximately \$100 million in federal funding. Bicycle and pedestrian projects are mapped in this chapter. The remaining funds went to a combination of historic, scenic, and landscaping projects.

2006 CALL FOR PROJECTS

TxDOT issued a Call for Projects under the Statewide Transportation Enhancement Program in 2005. At the request of TxDOT, the North Central Texas Council of Governments ranked all STEP applications submitted from within the Metropolitan Planning Area. After reviewing the projects for eligibility, and ranking projects, NCTCOG provided each sponsor with the state-required Letter of Transportation Improvement Program Placement. Due to FHWA rescissions of unobligated federal-aid highway funds apportioned to the states, TxDOT was required to provide a list of funding categories to be cut. When faced with a decision to cut funding from congestion-relief projects or enhancement projects, TxDOT chose to maintain funding for congestion-relief projects since they had a stronger connection to TxDOT’s goals of reducing congestion, enhancing safety, expanding economic opportunity, improving air quality, and increasing the value of our transportation assets. As a result, TxDOT’s 2005-2006 STEP Call for Projects was cancelled. Over the long term for the plan horizon year, the return of and full funding of the Statewide Transportation Enhancement Program is anticipated.

2002 CALL FOR PROJECTS

In 2002, TxDOT issued a Program Call under the Safe Routes to School Program, as created by House Bill 2204 of the 77th Texas Legislature. Funding for Safe Routes to School was from a set-aside of STEP, and additional funding will be created from TxDOT’s new specialty license plate program. The purpose of this program was to improve children’s safety in and around school areas. Among 27 projects selected for funding by the TTC in February 2003, three projects were in the DFW region. They are the cities of DeSoto, Mesquite, and Weatherford, as shown in **Exhibit 15-28**.

Exhibit 15-28. Safe Routes to School Program – 2002 Program Call Approved Project List in the DFW Metropolitan Area

Project Number	District	County	Applicant	Total Project Amount	Local Match	State Match	Federal Amount Requested	Work Type
0218020	DAL	Dallas	City of DeSoto	\$134,395	\$26,879		\$107,516	Sidewalks, Crosswalk
0218024	DAL	Dallas	City of Mesquite	\$ 85,000	\$17,000		\$ 68,000	Sidewalks, Crosswalk, School Zone Flashers
0202011	FTW	Parker	City of Weatherford	\$252,850	\$50,570		\$202,280	Sidewalks, Crosswalk

2007 CALL FOR PROJECTS

The Safe Routes to School Program was issued a second Program Call by TxDOT in 2007. The Call for Project proposals ended in May 2007, with awards being disbursed September 27, 2007. The TTC approved approximately \$24.7 million in projects. Region wide, 50 projects in over 15 communities were approved. **Exhibit 15-29** shows all infrastructure projects selected for the region. The timing for the next Call will be determined after this cycle is completed.

Exhibit 15-29. Safe Routes to School Program – 2007 Program Call Approved Infrastructure Project List in the DFW Metropolitan Area

Project Number	District	County	Applicant	Total Project Amount	Local Match	State Match	Federal Amount Requested	Work Type
918-45-831	DAL	Dallas	City of Dallas	\$276,738	N/A	N/A	\$399,557	Sidewalks, Crosswalks
918-45-832	DAL	Dallas	City of Dallas	\$112,770	N/A	N/A	\$162,818	Sidewalks, Crosswalks
918-45-833	DAL	Dallas	City of Dallas	\$30,009	N/A	N/A	\$43,327	Sidewalks, Crosswalks
918-45-834	DAL	Dallas	City of Dallas	\$312,837	N/A	N/A	\$451,677	Sidewalks, Crosswalks
918-45-835	DAL	Dallas	City of Dallas	\$217,623	N/A	N/A	\$314,206	Sidewalks, Crosswalks
918-45-836	DAL	Dallas	City of Dallas	\$120,729	N/A	N/A	\$174,310	Sidewalks, Crosswalks
918-45-837	DAL	Dallas	City of Dallas	\$215,938	N/A	N/A	\$329,525	Sidewalks, Crosswalks
918-45-838	DAL	Dallas	City of Dallas	\$221,354	N/A	N/A	\$322,327	Sidewalks, Crosswalks
918-45-839	DAL	Dallas	City of Dallas	\$221,354	N/A	N/A	\$425,071	Sidewalks, Crosswalks

Exhibit 15-29 continues on next page

Exhibit 15-29. Safe Routes to School Program – 2007 Program Call Approved Infrastructure Project List in the DFW Metropolitan Area

Project Number	District	County	Applicant	Total Project Amount	Local Match	State Match	Federal Amount Requested	Work Type
918-45-840	DAL	Dallas	City of Dallas	\$294,410	N/A	N/A	\$126,738	Sidewalks, Crosswalks
918-45-841	DAL	Dallas	City of Dallas	\$87,780	N/A	N/A	\$147,204	Sidewalks, Crosswalks
918-45-842	DAL	Dallas	City of Dallas	\$101,955	N/A	N/A	\$322,327	Sidewalks, Crosswalks
918-46-223	DAL	Denton	Town of Trophy Club	\$407,302	N/A	N/A	\$527,943	Sidewalks, Crosswalks
918-18-111	DAL	Navarro	City of Corsicana	\$475,203	N/A	N/A	\$587,203	Sidewalks, Crosswalks, School Zone Signs/Flashers
918-18-112	DAL	Navarro	City of Rice	\$536,000	N/A	N/A	\$745,000	Sidewalks, Crosswalks, Signs
0902-48-724	FTW	Tarrant	City of Grapevine	\$88,713	N/A	N/A	\$88,713	Sidewalks
0902-48-725	FTW	Tarrant	City of Hurst	\$570,507	N/A	N/A	\$570,507	Sidewalks, Pedestrian Signals, School Zone Signs/Flashers
0902-48-726	FTW	Tarrant	City of Southlake	\$36,136	N/A	N/A	\$36,136	Sidewalks, Crosswalks
0902-48-727	FTW	Tarrant	City of Southlake	\$19,000	N/A	N/A	\$19,000	Sidewalks, Crosswalks

THE FUTURE OF TRANSPORTATION ENHANCEMENTS

In order to reach regional air quality goals, funds available under STEP should be generally deployed to develop facilities and programs which provide air quality benefits. It is for this reason the eligibility criteria for project selection shown in **Exhibit 15-26** was adopted. The primary recommendation for the use of these funds is to encourage applications from the region for projects which reduce traditional automobile travel.

Bicycle and pedestrian projects are assumed to compete for 80 percent of funds, while historic trolley and rail projects are assumed to compete for 20 percent of funds. Actual selection is on a competitive basis. **Exhibit 15-30** summarizes these items.

Exhibit 15-30. Allocation of STEP Funds

	Dallas District	Fort Worth District	Total (\$)
Bicycle and Pedestrian Projects			
Federal Share	234	131	365
Local Share	58	33	91
Historic Trolley and Rail Projects			
Federal Share	58	33	91
Local Share	15	8	23
Total	365	205	570

In order to more fully develop projects under the enhancement program, Mobility 2030 recommends a change in state policy to allow MPO selection of STEP projects. This will enable local governments to participate in crafting long-term strategies for the use of these funds to impact this region.

PEDESTRIAN AND BICYCLE PROJECTS

The Pedestrian/Bicycle System chapter of this document describes projects eligible under the facilities category. Projects are also eligible under the safety/education category.

HISTORIC TRANSPORTATION PROJECTS

The primary goal of this section is to identify interurban and streetcar routes and facilities within Collin, Dallas, Denton, and Tarrant Counties. In previous times, the streetcar and interurban systems served as a primary mode of travel for work and non-work purposes alike. The restoration of these historic facilities, where feasible, will provide options for today's travelers.

The following cities were identified as having streetcar systems in the past:

- Dallas
- Denton
- Fort Worth
- McKinney

Data are based upon several historic city maps and other documentation, contemporary texts, and interviews with local electric rail experts. Where information was available, the inventory includes the name of the streets and blocks over which electric rail lines were operated, the name of the service and its owner or operator, and the dates of service, along with reference citations.

Similarly, routes and cities served by interurban rail lines were researched, and an inventory has been developed. The following interurban routes between cities within Collin, Dallas, Denton, and Tarrant Counties have been documented:

- Denton – Dallas
- Denison – Sherman – Dallas
- Dallas – Terrell
- Dallas – Corsicana
- Dallas – Waco
- Dallas – Fort Worth
- Fort Worth – Cleburne

Data for the interurban routes were derived from a 1982 book by Johnnie J. Myers, Texas Electric Railway, Bulletin 121 of Central Electric Railfans' Association, which also provided a set of detailed maps. Only those cities within the four-county area have been directly referenced in the inventory.

Exhibit 15-31 through **Exhibit 15-35** summarize the findings of this research and form a starting place for local project sponsors to pursue implementation.

Exhibit 15-31. Historic Interurban Lines

Current Right of Way	Towns	Cities Passed Through	Dates of Operation	Notes ⁴
AT&SFRR/UPRR	Denton-Dallas	Denton, Lewisville, Carrollton, Dallas	July 1924 – March 13, 1932	Interurban Operator: Texas Interurban Railway
SPRR/DART RR	Collin County border near Anna-Dallas	Anna, Melissa, McKinney, Allen, Plano, Richardson, Dallas	July 1, 1908 – Dec. 31, 1948 ⁵	Interurban Operator: Texas Electric Railway
UPRR	Dallas-Forney	Dallas, Mesquite, Forney	Jan. 14, 1923 – March 13, 1932 ⁶	Interurban Operator: Texas Interurban Railway
SPRR	Dallas-Ferris	Dallas, Hutchins, Ferris	1913 – 1941	Interurban Operator: Texas Electric Railway
AT&SFRR	Dallas-Red Oak	Dallas, Lancaster, Red Oak	1913 – 1948 ⁷	Interurban Operator: Texas Electric Railway
UPRR	Dallas-Fort Worth	Dallas, Grand Prairie, Arlington, Handley, Fort Worth	1902 – 1934 ⁸	Interurban Operator: Northern Texas Traction Company
AT&SFRR	Fort Worth-Burleson	Burleson	1912 – 1931	Interurban Operator: Tarrant County Traction Company as part of the Northern Texas Traction Company

Exhibit 15-32. Historic Dallas Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
Abbott	Knox Street-Hillcrest	Highland Park	Dallas Railway and Terminal Company ⁹	1940 ¹⁰
Abrams	Junius-La Vista Drive	Junius Heights	Dallas Railway and Terminal Company	1940
Austin	North on Austin-Commerce Commerce-Lamar Commerce-Main	State Myrtle Parkview Mt. Auburn	Dallas Railway and Terminal Company	1940
Beacon	Columbia-Tremont Street	Junius Heights	Dallas Railway and Terminal Company	1940
Bishop Ave.	Colorado Blvd.-Seventh	Seventh	Dallas Railway and Terminal Company	1940
Bowen	McKinney-Cook McKinney-Cedar Springs	Highland Park Oak Lawn	Dallas Railway and Terminal Company	1940
Brandon	Tate Street-Pierce Street	Hampton	Dallas Railway and Terminal Company	1940
Brooklyn Avenue	Marlborough-Pierce	Sunset	Dallas Railway and Terminal Company	1940
Bryan Street	Cantegral-Matilda	Belmont	Dallas Railway and Terminal Company	1940
Burlington Avenue	Tyler-Waverly Drive	Hampton	Dallas Railway and Terminal Company	1940
Cantegral	Live Oak-Bryan Street	Belmont	Dallas Railway and Terminal Company	1940
Carroll Avenue	Main-Columbia	Junius Heights	Dallas Railway and Terminal Company	1940
Cedar Springs	Bowen-Throckmorton	Oak Lawn	Dallas Railway and Terminal Company	1940
Cole	Bowen-Knox Street	Highland Park	Dallas Railway and Terminal Company	1940
Colonial	Forest-Emery	Ervay	Dallas Railway and Terminal Company	1940

Exhibit 15-32 continues on next page

Exhibit 15-32. Historic Dallas Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
Colorado Blvd.	Jefferson-Bishop Avenue	Seventh	Dallas Railway and Terminal Company	1940
Columbia	Carroll Avenue-Beacon	Junius Heights	Dallas Railway and Terminal Company	1940
Commerce	West on Commerce-Jefferson Blvd. Market-Jefferson Austin-Lamar Jefferson-First Lamar-Austin Market-Harwood Jefferson-Austin St. Paul-Lamar	Sunset Hampton Trinity Heights Seventh State Forest Second Forney Myrtle Harwood Parkview Mt. Auburn Oak Lawn	Dallas Railway and Terminal Company	1940
Edgefield Avenue	Seventh-King's Highway	Seventh	Dallas Railway and Terminal Company	1940
Elm	Lamar-St. Paul St. Paul-Lamar	State Belmont Oak Lawn Trinity Heights Ervey	Dallas Railway and Terminal Company	1940
Ervey	Main-Forest North on Ervey-Main	Ervey Belmont	Dallas Railway and Terminal Company	1940
Exline	Myrtle-Myrtle	Myrtle	Dallas Railway and Terminal Company	1940
Fairmount	Trinidad Street (Woodall-Rogers)-State Street McKinney Avenue ¹¹ Cotton Belt RR	State Forney-Fairmount	Dallas Railway and Terminal Company	1925 ¹²
Fairview Avenue	Lindsley-Beeman	Parkview	Dallas Railway and Terminal Company	1940
First Avenue	Commerce-Parry Main-Parry	Forest Second Forney Parkview Mt. Auburn	Dallas Railway and Terminal Company	1940
Forest Avenue	Second-Myrtle Ervey-Colonial	Forest Ervey	Dallas Railway and Terminal Company	1940
Harwood	Commerce-Grand Avenue	Harwood	Dallas Railway and Terminal Company	1940
Haskell	Munger-McKinney Parry-Barry Avenue South	Crosstown Forney	Dallas Railway and Terminal Company	1940
Hawthorne	Throckmorton-Douglas	Oak Lawn	Dallas Railway and Terminal Company	1940
Hillcrest	Abbott-University	Highland Park	Dallas Railway and Terminal Company	1940
Hutchins	Jefferson-Moore	Trinity Heights	Dallas Railway and Terminal Company	1940
Jefferson Blvd.	Commerce-Marlborough Commerce-Tyler Commerce-Colorado Blvd. North on Jefferson-Commerce Commerce-Hutchins	Sunset Hampton Seventh Forest Second Forney Mt. Auburn Parkview Trinity Heights	Dallas Railway and Terminal Company	1940

Exhibit 15-32 continues on next page



Exhibit 15-32. Historic Dallas Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
Junius	Paulus-Abrams	Junius Heights	Dallas Railway and Terminal Company	1940
Knox Street	Cole-Abbott	Highland Park	Dallas Railway and Terminal Company	1940
Lamar	Commerce-Elm Elm-Commerce Austin-Forest Elm-Main South on Lamar-Main Main-Elm Main-McKinney	State Oak Lawn Myrtle Myrtle Ervay Junius Heights Belmont Highland Park	Dallas Railway and Terminal Company	1940
Lindsley	Parry-Fairview Parry-Monte Vista	Parkview Mt. Auburn	Dallas Railway and Terminal Company	1940
Live Oak	St. Paul-Cantegral	Belmont	Dallas Railway and Terminal Company	1940
Main	West on Main-Market Lamar-Ervay Austin-First Lamar-Carroll Ervay-Lamar West on Main-Market	Seventh Ervay Parkview Mt. Auburn Junius Heights Belmont Highland Park	Dallas Railway and Terminal Company	1940
Market	Main-Commerce	Seventh	Dallas Railway and Terminal Company	1940
Marlborough	Jefferson-Brooklyn	Sunset	Dallas Railway and Terminal Company	1940
Matilda	Bryan-Mockingbird	Belmont	Dallas Railway and Terminal Company	1940
McKinney	Lamar-Bowen St. Paul-Bowen	Highland Park Oak Lawn	Dallas Railway and Terminal Company	1940
Moore	Hutchins-Waco	Trinity Heights	Dallas Railway and Terminal Company	1940
Munger	Peak-Haskell	Crosstown	Dallas Railway and Terminal Company	1940
Myrtle	Forest-Exline Exline-Council	Myrtle Myrtle	Dallas Railway and Terminal Company	1940
Parry	First-Second First-Haskell Avenue First-Lindsley	Forest Second Forney Parkview Mt. Auburn	Dallas Railway and Terminal Company	1940
Paulus	Tremont-Junius	Junius Heights	Dallas Railway and Terminal Company	1940
Peak Street	Main-Munger	Crosstown	Dallas Railway and Terminal Company	1940
St. Paul	Elm-Woodall Rogers South on St. Paul-Elm Elm-Live Oak Elm-McKinney South on St. Paul-Commerce	State Myrtle Ervay Belmont Oak Lawn Oak Lawn	Dallas Railway and Terminal Company	1940
Second Avenue	Parry-Forest Parry-Carpenter Avenue	Forest Second	Dallas Railway and Terminal Company	1940
Seventh	Bishop-Edgefield Avenue	Seventh	Dallas Railway and Terminal Company	1940
State Street	Fairmount-Haskell Avenue	State	Dallas Railway and Terminal Company	1940

Exhibit 15-32 continues on next page



Exhibit 15-32. Historic Dallas Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
Tate Street	Waverly Drive-Brandon	Hampton	Dallas Railway and Terminal Company	1940
Throckmorton	Cedar Springs-Hawthorne	Oak Lawn	Dallas Railway and Terminal Company	1940
Tremont Street	Beacon-Paulus	Junius Heights	Dallas Railway and Terminal Company	1940
Tyler	Jefferson-Burlington Avenue	Hampton	Dallas Railway and Terminal Company	1940
Waverly Drive	Burlington Avenue-Tate Street	Hampton	Dallas Railway and Terminal Company	1940
Woodall Rogers	St. Paul-Fairmount	State	Dallas Railway and Terminal Company	1940

Exhibit 15-33. Historic Denton Trolley Lines¹³

Street	Blocks	Reference Operational Dates
East Hickory Street	RR Depot-The Square	1900
North on east side of The Square	The Square-Oak Street	1900
Oak Street	NE corner of The Square-Fry Street	1900
Fry Street	Oak Street-West Hickory Street	1900
West Hickory Street	Fry Street-Avenue C	1900
Avenue C	West Hickory-Mill Street	1900
Mill Street	Avenue C-Highland Park	1900

Exhibit 15-34. Historic McKinney Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
College Street	Virginia Street-Heard Street	College	Texas Electric Railway ¹⁴	1907 – 1926 ¹⁵
Kentucky Street	White Street-Standifer Street	Unknown	Texas Electric Railway	1907 – 1926
Morris Street	Virginia Street-Midway Street	Morris Street	Texas Electric Railway	1907 – 1926
Virginia Street	Kentucky Street-College Street College Street-Morris Street	College Morris Street	Texas Electric Railway	1907 – 1926

Exhibit 15-35. Historic Fort Worth Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
3rd	Main-4th	Riverside	Sylvania Street Railway Company North Texas Traction Company (NTTC) ¹⁶	1890-1892 ¹⁷ 1930 ¹⁸
4th	3rd-Chandler	Riverside	Sylvania Street Railway Company NTTC	1890-1892 1930
7th	Houston-Camp Bowie	Arlington Heights	NTTC	1930
8th	Pennsylvania-Rosedale Magnolia-Allen	TCU South Summit	NTTC NTTC	1930 1930
10th	Jennings-Summit Jennings-Henderson	TCU Henderson	NTTC NTTC	1930 1930
16th	Homan-Park	Central Avenue	NTTC	1930
23rd	Main-Packers Avenue	Packers Avenue	NTTC	1919 ¹⁹

Exhibit 15-35 continues on next page

Exhibit 15-35. Historic Fort Worth Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates
25th	Main-Azle	Rosen Heights	Rosen Heights Railway Company NTTC	1903 ²⁰ 1930
29th	Main-Elm	Fostepco	Fostepco Heights Street Railway NTTC	1910 ²¹ 1930
Adams	Jessamine-Cantey Cantey-Shaw	College South Adams	NTTC NTTC	1930 1930
Allen	8th-Fairmount	South Summit	NTTC	1930
Azle	25th-one mile short of 820	Rosen Heights	Rosen Heights Railway Company NTTC	1903 1930
Belknap	Houston-Hampton	Belknap	NTTC	1930
Biddison North	Townsend-McCart	South Summit	NTTC	1930
Bishop	Rosedale-Crenshaw	Polytechnic	NTTC	1930
Boaz	Lancaster-Broadway	Polytechnic Lakeview Evans Avenue	NTTC NTTC NTTC	1930 1930 1930
Boyce	Hemphill-Warren	SW Baptist Seminary	NTTC	unavailable
Broadway	Boaz-Vickery Boaz-Evans Avenue Boaz-Mansfield	Polytechnic Evans Avenue Lakeview	NTTC NTTC NTTC	1930 1930 1930
Byers	Camp Bowie-Eldridge	Arlington Heights	NTTC	1930
Camp Bowie	7th-Byers	Arlington Heights	NTTC	1930
Cantey	Hemphill-Adams	South Adams	NTTC	1930
Central	Main-Homan	Central Avenue	NTTC	1930
Chandler	4th-Belknap	Riverside	NTTC	1930
College	Vickery-Pennsylvania Pennsylvania-Jessamine	College College	NTTC NTTC	1930 1930
Crumb	East Front-Morgan	Third Ward	NTTC	1930
Dallas Pike	East Front-Wilkinson Avenue	East Front	NTTC	1930
Devitt	Willing-Townsend	South Summit	NTTC	1930
East Front	Houston-Crumb Houston-Dallas Pike	Third Ward East Front	NTTC NTTC	1930 1930
Eldridge	Byers-Camp Bowie	Arlington Heights	NTTC	1930
Elm	29th-38th	Fostepco	Fostepco Heights Street Railway NTTC	1910 1930
Evans Avenue	Broadway-Terrell Terrell-Morningside	Evans Avenue Evans Avenue	NTTC NTTC	1930 1930
Fairmount	Allen-Willing	South Summit	NTTC	1930
Forest Park	Mistletoe-Park Hill	TCU	NTTC	1930
Hampton	Belknap-Peach	Belknap	NTTC	1930
Harding	Morgan-10th	Third Ward	NTTC	1930
Hemphill	Magnolia-Boyce Vickery-Magnolia	SW Baptist Seminary South Summit	NTTC NTTC	unavailable 1930
Henderson	10th-Windsor	Henderson	NTTC	1930

Exhibit 15-35 continues on next page

Exhibit 15-35. Historic Fort Worth Trolley Lines

Street	Blocks	Name of Service Line	Line Owner/Provider	Reference Operational Dates	
Houston	Weatherford-Jennings	College	NTTC	1930	
		TCU	NTTC	1930	
	Weatherford-East Front 5th-Weatherford	Henderson	NTTC	1930	
		St. Louis	NTTC	1930	
		South Summit	NTTC	1930	
		Third Ward	NTTC	1930	
		West Weatherford	NTTC	1930	
		East Front	NTTC	1930	
			NTTC	1930	
Jennings	Houston-Vickery	College	NTTC	1930	
	Houston-10th	South Summit	NTTC	1930	
		Henderson	NTTC	1930	
	Houston-Rosedale	TCU	NTTC	1930	
	St. Louis	NTTC	1930		
Jessamine	College-Adams	College	NTTC	1930	
Lancaster	Main-Boaz	Polytechnic	NTTC	1930	
		Lakeview	NTTC	1930	
		Evans Ave.	NTTC	1930	
	Main-Purinton	Sycamore Heights	NTTC	1930	
Magnolia	Hemphill-8th	South Summit	NTTC	1930	
Main	Weatherford-Lancaster	Polytechnic	NTTC	1930	
		Lakeview	NTTC	1930	
		Evans Avenue	NTTC	1930	
		Sycamore Heights	NTTC	1930	
	Bluff-25th	Rosen Heights	Rosen Heights Railway Company	1903	
			NTTC	1930	
	Bluff-29th		Fostepco	Fostepco Heights Street Railway	1910
			Packers Avenue	NTTC	1930
Bluff-23rd Bluff-Central	Central	NTTC	1919		
		NTTC	1930		
Mansfield	Broadway-Murphy	Lakeview	NTTC	1930	
Meadowbrook	Toronto-Ayers Avenue	East Front	NTTC	1930	
Mistletoe	Beckham-Forest Park	TCU	NTTC	1930	
Morgan	Crumb-Harding	Third Ward	NTTC	1930	
Nashville	Vickery-Rosedale	Polytechnic	NTTC	1930	
Off-Street	Rosedale-Mistletoe	TCU	NTTC	1930	
Packers Avenue	23rd-Exchange	Packers Avenue	NTTC	1919	
Park Hill	Forest Park-University	TCU	NTTC	1930	
Pennsylvania	College-College Summit-8th	College	NTTC	1930	
		Summit	NTTC	1930	
Purinton	Lancaster-Meadowbrook	Sycamore Heights	NTTC	1930	
Richmond	Yuma-Sycamore Creek	Lakeview	NTTC	1930	
Rosedale	Nashville-Bishop Jennings-St. Louis	Polytechnic	NTTC	1930	
		St. Louis	NTTC	1930	
St. Louis	Rosedale-Hawthorne	St. Louis	NTTC	1930	
Summit	10th-Pennsylvania	TCU	NTTC	1930	
Terrell	Evans Avenue-Evans Avenue	Evans Avenue	NTTC	1930	
Toronto	Wilkinson-Meadowbrook	East Front	NTTC	1930	
Townsend	Devitt-Biddison North	South Summit	NTTC	1930	
University	Park Hill-Berry	TCU	NTTC	1930	
Weatherford	Houston-West Fifth	West Weatherford	NTTC	1930	
Wilkinson Avenue	Dallas Pike-Toronto	East Front	NTTC	1930	
Willing	Fairmount-Devitt	South Summit	NTTC	1930	
Yuma	Mansfield-Richmond	Lakeview	NTTC	1930	

Data on historic routes is provided as a first step in evaluating the transportation potential of restoring the routes and facilities. The McKinney Avenue Trolley is an existing example of the potential mobility benefits of trolley service. Further exploration of these routes is encouraged.

FINANCIAL SUMMARY

In order to have a cost-constrained plan for improving bicycle and pedestrian mobility in the region, it is necessary to evaluate both the revenue and cost impacts of recommendations in this section of the plan. Overall, there is adequate revenue to meet the recommendations of this portion of the plan. **Exhibit 15-36** summarizes bicycle and pedestrian funding policies for all bicycle and pedestrian facilities. **Exhibit 15-37** details expected revenue sources and summarizes cost impacts of the bicycle and pedestrian plan recommendations. Total costs are projected at \$1.12 million and projected revenues are \$1.12 million.

Exhibit 15-36. Bicycle and Pedestrian Funding Policies

Reference	Policy
BP3014	Improving safety and mobility for current trips made solely by non-motorized alternative means or which access transit by non-motorized means.
BP3015	Increasing the service area of bicycle and pedestrian facilities in order to increase the share of trips taken solely by non-motorized means.
BP3016	Making further progress toward the regional commuting goal of and eight percent combined alternative transportation mode share.
BP3017	Incorporate bicycle and pedestrian modes in corridor studies; support the funding and construction of bicycle and pedestrian elements of final corridor studies.
BP3018	<p>Bicycle and Pedestrian Project Funding Criteria:</p> <ol style="list-style-type: none"> 1. Stand-alone bicycle and pedestrian construction projects will be limited to those projects that: <ul style="list-style-type: none"> • Include cost estimates based on site-specific conditions, a review of potential right-of-way and regional design standards. • Provide direct access to existing or programmed transit centers or provide mobility for an existing or zoned area with a mix of uses accessible by walking. • Improve an existing network of pedestrian facilities or implements a city council approved plan for a future network of pedestrian facilities. • Can demonstrate a potential impact on peak-period mode choice for developments adjacent to the proposed facility. 2. The standards established in Item 1 for stand-alone bicycle and pedestrian construction projects shall apply to: <ul style="list-style-type: none"> • Funds programmed directly by the RTC; • Funds programmed or earmarked by other entities for which a letter of support by the RTC is required; and • Funding projections reflected in the regional long-range transportation plan. 3. Funds from selected roadway or transit projects may be utilized in accordance with federal bicycle and pedestrian policy to accommodate these modes on federally funded projects. 4. Planning, design, signage, public outreach, and education activities are not subject to the standards of Item 1. <p>Projects funded in the 1994 and 1999 RTC Calls for Projects and identified as significantly delayed are also subject to Item 1. Opportunities may be explored to de-federalize such projects.</p>

Exhibit 15-37. Bicycle and Pedestrian Program

Funding Areas	Notes	Eastern	Western	Total
Bicycle/Pedestrian Projects (BP3019)				
STEP – Federal	Pedestrian/bicycle projects compete for 80%	100,800,000	45,600,000	146,400,000
STEP – Federal	Non-bicycle/pedestrian projects complete for 20%	25,200,000	11,400,000	36,600,000
STEP – Local Match	Local match = 20%	32,000,000	14,000,000	46,000,000
CMAQ – Federal	Bikes compete for 6.5% of CFP funds	218,000,000	110,000,000	328,000,000
Other TxDOT/Federal Funds		242,000,000	123,000,000	365,000,000
Local Match		115,000,000	58,000,000	173,250,000
Other Federal/State/Local		11,000,000	0	11,000,000
DART Local (sales tax)		16,000,000	0	16,000,000
Bicycle/Pedestrian Project Total		760,000,000	362,000,000	1,122,000,000

Exhibit 15-38 shows the recommended funding for each type of bicycle and pedestrian initiative.

Exhibit 15-38. Bicycle and Pedestrian Recommendations Summary

	Design Elements	Projects	Funding Source	Cost
On-Street Bicycle Access Initiative	Wide outside lanes and/or dedicated bicycle lanes on collectors and arterials.	N/A	N/A	N/A
Regional Veloweb Project	<ul style="list-style-type: none"> • Interconnected off-street routes. • Designed with markings and travel speeds to meet safety standards for mixed traffic. • Long-lasting impervious surface. • Grade separated crossing of roadways with significant traffic flows. • Easy access from roadways and to common trip destinations. 	286 miles of Regional Veloweb	TxPWD/STEP/CMAQ/ Local	\$400,820,000
Bicycle-Pedestrian Transportation District Project	<ul style="list-style-type: none"> • Concentrated system of bicycle/pedestrian facilities. • Bicycle commuting centers. • Easy access to transit services. • Signed on-street bicycle routes. • Off-street multi-use trails. • Wide outside lanes or dedicated bicycle lanes. • Bicycle parking at storefronts and businesses. • Bicycle lockers and changing facilities. • Pedestrian-oriented design. • Sidewalk improvements. • Crosswalk improvements. • Commuter changing facilities. 	50 B/PTDs	STEP/CMAQ/TEP/ Local	\$462,500,000
Spot Improvement Program	As necessary to meet site-specific bicycle and pedestrian safety and mobility requirements.	Local Initiative	STEP/CMAQ/ Local	\$212,680,000
STEP – Non-Bicycle/Pedestrian Projects			STEP	\$46,000,000
Total				\$1,122,000,000

Exhibit 15-39 lists the policies, programs, and projects related to the Pedestrian/Bicycle System that will be placed into the Transportation Improvement Program.

Exhibit 15-39. TIP Reference Table – Pedestrian/Bicycle System

Reference	Description of Projects, Programs, and Policies
BP2003	Bicycle and Pedestrian Program
BP2004	Historic Trolley Line Program
BP3011	Give preference to STEP projects with air quality benefits
BP3012	Program projects locally
BP3013	Support STEP projects selected by the Texas Transportation Commission

¹ New York City (NYC) Bicycle Master Plan (1997). Available: <http://www.nyc.gov/html/dcp/html/bike/mp.shtml>

² 1994 Internal Memo, Wm. G. Burnett, *Bicycle and Pedestrian Accommodation*.

³ *Wisconsin Bicycle Facility Design Handbook (2004)*. Available at: <http://www.dot.wisconsin.gov/projects/state/docs/bike-facility.pdf>

⁴ Myers, Johnnie J., 1982, Texas Electric Railway, Bulletin 121, Central Electric Railfans' Association, Chicago, Illinois, <http://donross.railspot.com/dr119.htm>

⁵ Ahrens, Bill, June 27, 1977, "Interurbans Ahead of Their Time", Dallas Times Herald.

⁶ <http://www.iglobal.net/Mayhouse/InterurbanMC.html>

⁷ <http://www.blueridgetexas.com/News%20Van%10Alstyne.htm>

⁸ <http://www.rypn.org/stories/980703Ft.Worth/>

⁹ The Dallas Railway and Terminal Company was the final owner of the operating trolley lines in Dallas. There was a series of owners from the late 1800's until the lines shut down in the late 1940's. Transit Companies of Dallas – 1871-1971.

¹⁰ Map of Dallas, 1940, Dallas Railway and Terminal Company.

¹¹ Woodall Rogers Freeway replaced the street this line used to run on. The name of this street was Trinidad.

¹² Map of Dallas, 1925.

¹³ The name of the service line and the line owner/provider were not available. All information was found on page 269 of the reference document. Bridges, C.A., 1978, History of Denton, Texas: From its Beginning to 1960.

¹⁴ The Texas Electric Railway was in operation from July 1, 1908 to December 31, 1948. It operated the interurban lines as well as the local lines in McKinney. Texas Electric Railway, May 1, 1938.

¹⁵ In 1907, the streetcar came to McKinney. Only two lines were built to serve the entire city, which had a population of 10,500. In 1926, streetcar service was replaced by buses that traveled along the same streets. Myers, Johnnie J., 1982, Texas Electric Railway, Bulletin 121, Central Electric Railfans' Association.

¹⁶ The North Texas Traction Company was in operation from 1902 to 1940. It operated the Dallas-Fort Worth interurban line, as well as the local lines within Fort Worth. Service in Fort Worth was discontinued in 1940 due to pressure from the automobile. <http://donross.railspot.com/dr119.htm>

¹⁷ The original operator of this line was the Sylvania Street Railway Company, which began its operation in 1892. In 1890, the company changed its name to The Riverside Street Railway Company and was eventually acquired by the North Texas Traction Company. <http://www.startext.net/homes/railscene/nttco/riversid/htm>

¹⁸ The last available known date of operation for this line is 1930. Service would have terminated between 1930 and 1940 when NTTC ceased all operation of its lines.

¹⁹ The last available date of operation for this line is 1919. It does not appear on the 1930 map of Fort Worth. Rogers, C.H., 1919, Greater Fort Worth city map.

²⁰ The Rosen Heights line was originally owned by Sam Rosen and his Rosen Heights Railway Company. It was built in 1904 and the NTTC later acquired it from Sam Rosen. <http://www.star-telegra.com/comm/virtual/fairley/july30.htm>

²¹ The Fostepco heights line was originally owned by the Fostepco heights Street Railway. It was built in 1910 and was still on the 1930 map of Fort Worth. Service would have been terminated shortly before the NTTC ceased all operation of its lines in 1940. <http://www.startext.net/homes/railscene/nttco/fostepco.htm>