
SECTION 5

Alternatives Analysis

The purpose of this section is to describe the alternatives evaluation process and recommendations for the Dallas TSP. This evaluation process consisted of four steps. First, a universe of roadway, bicycle, and pedestrian transportation system improvements were identified to address future (2025) transportation deficiencies in the City of Dallas. These are described at the end of section four. Second, improvements were packaged into complementary groups of projects, labeled “alternatives.” Third, these alternatives were evaluated against a set of evaluation criteria, developed by the Project Management Team, that reflect the project’s goals and objectives. Fourth, a preferred alternative for roadway, bicycle, and pedestrian improvements was identified.

Development of Alternatives

Roadway and bicycle improvements were organized into alternatives for evaluation purposes. This grouping allowed the project team to compare different types of improvements (e.g., expanded capacity, street connectivity) in relation to each other.

Roadway Alternatives

Three future build alternatives were developed from the list of possible roadway options presented at the end of Section four. For one of the alternatives, a substantial modification was also tested. Each of the alternatives provided a suite of improvements for how to improve traffic conditions in Dallas. These alternatives include a capacity alternative, a connectivity alternative, a hybrid alternative that includes both capacity and connectivity improvements, and a modification of the connectivity alternative that included through capacity improvements at certain intersections along Dallas-Rickreall highway. All alternatives included a mixture of roadway segment and intersection improvements.

Alternative 1: Additional Highway/Arterial Capacity

The first alternative added capacity to the Dallas-Rickreall Highway by increasing the number of through lanes to two in each direction from Fir Villa Road to the North Dallas Intersection. Figure 5-1 highlights the major elements of this alternative. By itself Alternative 1 did not alleviate operational deficiencies on the network. However, improvements at 16 study intersections brought this alternative into compliance with state highway mobility standards. These specific improvements are listed in Table 5-1.

This alternative addressed capacity concerns to accommodate expected through movement along the Dallas Rickreall Highway, but as a stand-alone consideration presented a possible conflict with the 1999 OHP’s major improvement policy, which states that, for state facilities, ODOT should “maintain highway performance and improve safety by improving system efficiency and management before adding capacity” (OHP, pg. 82). This alternative also does not address connectivity improvements already identified by the City of Dallas.

Alternative 2: Increased Local Connectivity and Capacity

Alternative 2 looked at constructing a series of 19 connector streets to link forecasted future development with existing facilities (see Figure 5-2). The intention of this alternative is to provide transportation facilities that would reduce local traffic from the state highway, and thereby improve conditions along Dallas Rickreall and at the North Dallas Interchange. These streets are intended to provide connections to expected areas of residential, commercial, and industrial growth in the City of Dallas.

The additional circulation provided by Alternative 2 made it attractive for some travelers to use these connectors in lieu of the E Ellendale and Kings Valley Highways. In particular, the construction of the Webb Lane extension would be attractive for travel between points east of Dallas (e.g., Salem) and NW Dallas to use Kings Valley Highway and the Webb Lane extension as opposed to the Dallas Rickreall Highway. Approximately 40 percent of travelers between these two areas were assumed to make this switch.

Another assumed change in travel behavior resulting from Alternative 2 was a reroute from Godsey Road to the Fir Villa Avenue extension. Approximately 65 percent of vehicles traveling between the Monmouth Cutoff Road and the Dallas Rickreall Highway that, under the future no-build, were assumed to use Godsey Road and Miller Avenue were assumed to use the new Fir Villa extension when complete. Fir Villa is more attractive because its classification as an arterial will allow higher travel speeds. The through movement at the Fir Villa/Miller intersection is assumed to have lower wait times than the left-turn from Miller to Fir Villa.

Alternative 2 did not alleviate operational deficiencies on the network. Even when intersection improvements were considered with this alternative, congestion problems were not eliminated. By the year 2025, six Dallas intersections would experience operational deficiencies under Alternative 2, with fully improved intersections. Five of these six intersections are along the Dallas Rickreall Highway. Further analysis shows that the through movement is creating congestion along the highway. Connectivity improvements without capacity improvements were therefore insufficient to address traffic operations issues.

Table 5-1: Dallas TSP V/C Ratio Alternatives Comparison

Intersection (Organized by existing condition signalized or unsignalized)	Design Mobility Standard		Future No- Build Model V/C Ratio		Alt. 1 Capacity Model V/C Ratio		Alternative 1 - Added Capacity Model Local Intersection Improvements	Alt. 2 Connectivity Model V/C Ratio		Alternative 2 - Added Connectivity Model Local Intersection Improvements	Alt. 2A Modified Alt. 2 Model V/C Ratio		Alternative 2A -Added Connectivity Model with Through Capacity Intersection Improvements	Alt. 3 Hybrid Model V/C Ratio		Alternative 3 - Capacity - Connectivity Hybrid Local Intersection Improvements
	Major	Minor	Major	Minor	Major	Minor		Major	Minor		Major	Minor		Major	Minor	
Signalized																
Kings Valley Hwy and Levens Street	0.80		0.87		0.78		Added exclusive WBR and made all westbound lanes 12 feet	0.75			0.75			0.75		
Dallas-Rickreall Hwy and Kings Valley Hwy (N. Dallas intersection)	0.80		1.43		0.82		Added exclusive EBR, WBR, and SBR; second EBT, WBT, and SBL	1.02		Added exclusive EBR, WBR, and SBR	0.85		Added exclusive EBR, WBR, and SBR; second EBT and WBT	0.85		Added exclusive EBR, WBR, and SBR; second EBT and WBT
Dallas-Rickreall Hwy and LaCreole Drive	0.75		1.38		0.78		Added second EBT and WBT; exclusive NBL, SBL, and SBR; and made NBL lagging Prot/Perm	0.88		Added exclusive EBR, WBR, NBL, SBL, SBR, and Permitted Protected NBL	0.71		Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm	0.71		Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm
Washington Street and Main Street	0.95		0.76		0.76			0.66			0.66			0.66		
Miller Avenue and Uglow Street	0.80		0.66		0.71			0.75			0.75			0.75		
Kings Valley Hwy and Walnut Ave	0.80		0.62		0.62			0.67			0.67			0.67		
Unsignalized																
Kings Valley Hwy and Bridlewood Dr	0.75	0.80	0.34	0.21	0.34	0.21		0.01	0.55		0.01	0.55		0.01	0.55	
Kings Valley Hwy and Oakdale Ave	0.80	0.80	0.03	0.34	0.03	0.34		0.02	0.19		0.02	0.19		0.02	0.19	
Kings Valley Hwy and Orchard Drive	0.80	0.80	0.59	> 2.0	0.75		Added signal and second EBL	0.57		Added signal and second EBL	0.57		Added signal and second EBL	0.57		Added signal and second EBL
Kings Valley Hwy and Polk Station Rd	0.80	0.80	0.22	0.77	0.22	0.77		0.11	0.26		0.11	0.26		0.11	0.26	
Dallas-Rickreall Hwy and Fir Villa Road	0.75	0.80	0.79	> 2.0	0.77		Added signal and second EBT and WBT	0.92		Added signal; exclusive EBR, WBR, SBR; and Permitted/Protected EB/WB LTs	0.49		Added signal and second EBT and WBT	0.49		Added signal and second EBT and WBT
Dallas-Rickreall Hwy and Oak Villa Road	0.75	0.80	0.90	0.40	0.60	0.18	Added second EBT and WBT	0.75		Added signal	0.51	0.13	Added second EBT and WBT	0.51	0.13	Added second EBT and WBT
Dallas-Rickreall Hwy and Polk Station Rd	0.80	0.80	0.79	> 2.0	0.76		Added signal; exclusive WBR; and second EBT and WBT	0.96		Added signal; exclusive WBR, SBR; and Permitted/Protected EBL	0.72		Added signal and second EBT and WBT	0.72		Added signal and second EBT and WBT
Monmouth Cutoff and Uglow Street	0.80	0.80	0.23	0.41	0.23	0.41		0.23	0.41		0.23	0.41		0.23	0.41	
Monmouth Cutoff and Godsey Road	0.75	0.80	0.10	0.87	0.10	0.72	Added exclusive SBL	0.04	0.31		0.04	0.31		0.04	0.31	
W Ellendale Ave and James Howe Rd	0.80	0.80	0.06	1.10	0.32	0.84	Added exclusive SBL, EBL, and WBR	0.12	0.67	Only added exclusive SBL	0.12	0.67	Only added exclusive SBL	0.12	0.67	Only added exclusive SBL
W Ellendale Ave and River Drive	0.80	0.80	0.41	0.24	0.41	0.24		0.33	0.43		0.33	0.43		0.33	0.43	
W Ellendale Ave and Levens Street	0.80	0.80	0.19	> 2.0	0.69		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL	0.55		Added signal and Protected/Permitted WBL

Washington Street and Jefferson Street	0.95	0.95	0.51	> 2.0	0.69		Added signal; Protected EBL; and exclusive WBR	0.79	Added signal; Protected EBL		0.79	Added signal; Protected EBL		0.79	Added signal; Protected EBL				
Mill Street and Main Street	0.95	0.95	0.43	> 2.0	0.64		Added signal and Permitted left-turns	0.63	Added signal and Permitted left-turns		0.63	Added signal and Permitted left-turns		0.63	Added signal and Permitted left-turns				
Mill Street and Jefferson Street	0.95	0.95	0.19	1.96	0.64		Added signal and Permitted left-turns	0.64	Added signal and Permitted left-turns		0.64	Added signal and Permitted left-turns		0.64	Added signal and Permitted left-turns				
Main Street and Maple Street	0.80	0.80	0.04	0.15	0.04	0.15		0.04	0.15		0.04	0.15		0.04	0.15				
Miller Avenue and LaCreole Drive	0.80	0.80	0.32	1.81	0.32	1.81	Recommend monitoring	0.31	1.12	Recommend monitoring	0.31	1.12	Recommend monitoring	0.31	1.12	Recommend monitoring			
Miller Avenue and Godsey Road	0.80	0.80	0.24	1.10	0.24	0.80	Added exclusive NBR	0.21	0.41		0.21	0.41		0.21	0.41				
Miller Avenue and Fir Villa Road	0.75	0.80	0.29	0.55	0.29	0.55		0.67	0.66	Changed to 4-Way Stop from TWSC	0.67	0.66	Changed to 4-Way Stop from TWSC	0.67	0.66	Changed to 4-Way Stop from TWSC			
James Howe Road and Denton Avenue	0.80	0.80	Intersections not a part of the future no-build model or the capacity model.					0.07	0.07		0.07	0.07		0.07	0.07				
Kings Valley Hwy and Fern Avenue	0.75	0.80						0.17	0.77		0.17	0.77		0.17	0.77		0.17	0.77	
Kings Valley Hwy and Webb Lane	0.75	0.80						0.35	0.39		0.35	0.39		0.35	0.39		0.35	0.39	
Clow Corner Road and Fir Villa Rd Ext.	0.80	0.80						0.30	0.43		0.30	0.43		0.30	0.43		0.30	0.43	
Weyerhauser Way and Uglow Street	0.80	0.80						0.16	0.26		0.16	0.26		0.16	0.26		0.16	0.26	
Webb Lane and Orchard Drive	0.80	0.80						0.07	0.12		0.07	0.12		0.07	0.12		0.07	0.12	
Dallas-Rickreall Hwy and Barberry Avenue	0.75	0.80						0.92		Added signal; exclusive EBR, WBR, NBR; and Permitted/Protected WBL		0.70		Added signal		0.70		Added signal	

Modification to Alternative 2 (Alternative 2A): Connectivity Improvements with Additional Intersection Capacity Along Dallas-Rickreall

Alternative 2A focuses on through and turning capacity improvements at the North Dallas Intersection, La Creole Drive, Polk Station Road, Fir Villa Road, and Barberry Avenue, while avoiding the widening of this entire section of the Dallas Rickreall Highway except as necessary in the vicinity of each intersection. The addition of one through lane in each direction at these intersections will be dependent on the length of the 95th percentile queues and ODOT Highway Design criteria.

This alternative also includes the connectivity improvements as were included in alternative 2. This alternative is considered to be in compliance with the 1999 OHP Major Investments Policy and brings the roadway network into compliance with OHP mobility standards.

Alternative 3: Capacity-Connectivity Hybrid

Alternative 3 combines the street connectivity improvements from Alternative 2 with the increased capacity along the Dallas Rickreall Highway from Alternative 1. See Figure 5-3. By itself this alternative did not fully alleviate congestion at all study intersections, but with the addition of improvements at 13 intersections the entire network was brought into compliance with OHP mobility standards.

Alternative 3 is also considered in compliance with the 1999 OHP Major Investments Policy because it is composed of a mixture of smaller improvements and because it is an attempt to address operational deficiencies with the existing system before recommending major capacity improvements. The widening of Dallas Rickreall Highway between the North Dallas Intersection and Fir Villa Road is a controversial subject that is likely to require the acquisition of several parcels and may change the character of the highway.

Travel Time

Table 5-2 displays estimated travel time along the Dallas Rickreall Highway between Fir Villa Road and the north Dallas intersection, and along the highway between Fir Villa and Mill Street in downtown. Estimated travel times are reported for the 30th highest hour in 2025 under the no build and each of the three build alternatives.

TABLE 5-2
Estimated 2025 30th Highest Hour Travel Times for Build Alternatives

From	To	No Build	Alt. 1	Alt. 2	Alt. 2A	Alt. 3
Fir Villa Road	North Dallas Intersection	11:34	4:50	6:20	5:05	5:05
Fir Villa Road	Mill Street	11:57	5:56	7:30	5:57	5:57
North Dallas Intersection	Fir Villa Road	6:52	4:20	7:10	4:30	4:30
Mill Street	Fir Villa Road	8:27	5:30	8:10	5:25	5:25

Travel times are much higher under the no build alternative than they are under each of the three build alternatives. Travel times under Alternatives 1, 2A, and 3 are similar between downtown and Fir Villa Road. The slightly higher travel times along Dallas Rickreall under

Alternatives 2A and 3 (15 seconds in the westbound direction, 10 seconds in the eastbound direction) can be attributed to the additional intersection with Barberry Avenue under Alternatives 2A and 3.

Bicycle Alternatives

Three scenarios, or alternatives, were developed for evaluating future bicycle and pedestrian facility implementation. The first scenario sustained the city's current method of bicycle facility implementation through the use of signed bicycle routes and the development of a multi-use trail along Rickreall Creek. The second scenario was one of maximum implementation, based on nationally recognized best practices for bicycle facilities. This scenario would implement bicycle lanes on all arterials and collectors in the city to provide full, city-wide access. The third scenario, a hybrid of the two previous scenarios, consisted of implementing bicycle lanes on the busiest, highest volume roadways, enhancing the existing bicycle route system, and extending the Rickreall Creek multi-use path. See Figure 5-4.

- *Scenario 1 - Bicycle Routes and Trail Development:* This scenario of bicycle facility implementation is the least expensive and simplest to implement. However, since these bicycle facilities are shared roadways, the scenario scored less favorably for user safety, mobility, and contributing to a truly multi-modal transportation system. Safety is the primary concern, particularly on roadways with high volumes and speeds of traffic.
- *Scenario 2 - Bicycle Lanes on All Collectors and Arterials:* This scenario best benefits the bicyclist by improving safety, comfort, and connectivity throughout the community. The scenario is also the most consistent with the guidelines established by the Oregon Bicycle and Pedestrian Plan and other federal and state best practice guides. However, this scenario would be the most costly to implement, could be politically challenging, and is not consistent with previous bicycle facility planning efforts of the city for existing roadways.
- *Scenario 3 - Bicycle Lanes on Major Roads, Enhanced Bicycle Routes:* Scenario 3 attempts to take the best parts of Scenarios 1 and 2 and combine them to construct a scenario that best meets the needs of local bicyclists and the goals and objectives of the city. This scenario scored well because it enhances safety for both bicyclists and pedestrians, provides excellent mobility and connectivity, and balances the needs and goals of the community. The recommendations for implementation of this scenario follow.

Pedestrian Alternatives

Pedestrian improvements were evaluated individually, and not grouped into scenarios or alternatives. (See Figure 5-5.)

Alternatives Evaluation

Evaluation Criteria

The state TPR provides standards for evaluating transportation system alternatives. According to the TPR, system alternatives should:

- Provide types and levels of transportation facilities and services appropriate to serve land uses identified in the acknowledged comprehensive plan;
- Be consistent with state and federal air quality, land use, and water quality standards;
- Minimize adverse economic, social, environmental, and energy consequences;
- Facilitate connections (minimize conflicts) between modes of transportation; and
- Avoid principal reliance on any one mode of transportation / reduce principal reliance on the automobile.

A set of evaluation criteria was developed, consistent with the TSP goals and objectives listed in Section 1. These criteria, listed in Table 5-3, are intended to address the various elements deemed important to the PMT, the CAC, and the public.

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
Multi-Modal Transportation System: Develop a balanced transportation system that will meet the needs of all users, including youth, elderly, and those with physical disabilities.	++	Project will clearly benefit all users of the transportation system, including the youth, the elderly, and those with disabilities, as well as local retail and manufacturing business owners.
	+	Project directly benefits a subset of transportation system users, and is likely to indirectly benefit all other groups of users of the transportation system.
	0	Project benefits a subset of transportation system users, with no direct or indirect positive or negative impacts to other groups of users.
	-	Project directly benefits only one group of users, with no direct but possible indirect negative impacts to other groups of users.
	--	Project benefits are focused on one group of transportation system users, at the direct expense of other groups of users.
Mobility: provide a viable transportation system that meets state and local mobility standards.	Y	Meets specified OHP mobility standards for each study intersection.
	N	Does not meet specified OHP mobility standards for one or more study intersection.
Connectivity: provides transportation options that minimize out-of-direction travel and minimize travel times.	++	Provides new transportation options or connectivity to serve different types of users
	+	Improves on the current transportation options or connectivity to serve different types of users
	0	Does not significantly change transportation options or connectivity
	-	Limits the transportation options or connectivity of the system
	--	Significantly reduces or limits key transportation options or connectivity
Economic Development and	++	Project will directly and positively contribute to economic

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
Viability: Provide a transportation system that balances transportation system needs with the City's desire for economic development and viability.		development within the City of Dallas, consistent with the City of Dallas Comprehensive Plan.
	+	Project's benefits are focused on improving an element of the transportation system, but is likely to indirectly contribute to the City's economic development goals, as outlined in the City of Dallas Comprehensive Plan.
	0	Project will neither benefit nor deter the City's economic development goals.
	-	Project's benefits are focused on improving an element of the transportation system, and are likely to indirectly detract from the City's economic development goals.
	--	Project will directly and negatively impact economic development within the City of Dallas, in a way that is inconsistent with the City of Dallas Comprehensive Plan.
Coordination: Maintain a TSP that is consistent with the goals and objectives of the TPR and relevant state, regional, and local plans and policies.	++	Included as part of other local, county, regional or state policies or plans
	+	Mentioned by the city staff, CAC, or other relevant agencies
	0	Not specifically mentioned in other policies or plans, but not out of compliance with such plans
	-	Indirectly not in compliance with other plans and policies
	--	Specifically identified as being not in compliance with other plans and policies
Pedestrian and Bicycle Facilities: Provide for an interconnected system of pedestrian and bicycle facilities in Dallas to serve commuter and recreational users.	++	Creates or completes a bicycle and/or pedestrian link to serve commuters, transit users, and/or recreational users
	+	Improves on the current bicycle and/or pedestrian facilities to serve commuters, transit users, and/or recreational users
	0	Does not significantly change existing non-motorized facilities
	-	Reduces some of the connectivity, safety, or aesthetics of existing non-motorized facilities
	--	Removes key connectivity, safety, or aesthetics of existing non-motorized facilities
System Preservation and Improvements: Develop a strategy to preserve and extend the life of the existing transportation network.	++	Project preserves the functionality of the existing system through improving transportation efficiency without changes to the physical infrastructure (for example, access management, traffic signal operations, transportation demand management, and alternative modes of transportation).
	+	Project improves efficiency and capacity of the existing roadway network through minor improvements to existing roadway facilities (for example, provision of bicycle lanes or sidewalks, left-turn lanes, and widening shoulders).
	0	Project makes substantial improvements to the existing roadway network to improve connectivity for local and regional users (for example, connecting existing dead-end streets to

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
		provide new travel connections).
	-	Project makes major roadway improvements to add capacity to the existing system (for example, adding a general-purpose travel lane).
	--	Project adds an entirely new roadway facility to the transportation network.
Access Management: Address state access management standards as outlined in OAR 734-051 for OR 223 Kings Valley Highway and Dallas-Rickreall Highway, and identify access management strategies for city collectors and arterials.	++	Project adds no new access locations, and specifically develops access control measures consistent with the road functional classification and which limit development on rural land to rural uses and densities.
	+	Project adds no new access locations, and includes general strategies for consolidating access points along the state highway.
	0	Project adds no new access locations, and is not expected to have any influence on future access at its location.
	-	Project adds new access locations, but does so in a way so that future access points near the new location would be difficult to permit.
	--	Project adds new access locations, and/or is expected to create additional conflicts between the state highway and private driveways.
	Transportation Funding: Identify reasonable potential funding sources and a funding strategy for transportation improvements included in this TSP.	++
+		A funding source is identified that may be applicable
0		Has no identified funding, but potential funding is considered reasonable
-		Has no identified funding, project would be considered a moderate risk funding option
--		Does not have identified funding, project would be considered low priority for funding agencies
Safety: Provide a transportation system that maintains adequate levels of safety for all users.		++
	+	Improves the safety for users at locations not considered deficient
	0	Does not significantly change roadway/facility safety
	-	Safety is diminished slightly for users
	--	The project adds conflict points, or otherwise creates an additional safety problem for users
Environment: Provide a transportation system that balances transportation services with the need to protect the environment and significant natural features.	++	Greatly enhances environmentally significant areas or natural or historic features
	+	Enhances environmentally significant areas or natural or historic features

TABLE 5-3
TSP Evaluation Criteria

Goal	Rating	Description
Cost:	0	No impacts to environmentally significant areas or natural or historic features
	-	Some impacts to environmentally significant areas or natural or historic features
	--	Significantly affects environmentally significant areas or natural or historic features
	++	Project cost is in the lowest fifth (\$)
	+	Project cost is in the middle-bottom fifth (\$\$)
	0	Project cost is in the middle (\$\$\$)
	-	Project cost is in the upper middle fifth (\$\$\$\$)
	--	Project cost is in the highest fifth (\$\$\$\$\$)

Scoring of Improvements

Each potential improvement was given a qualitative score ranging from “++” to “--.” The five scales of the scoring process are provided in Table 5-4.

TABLE 5-4
Definition of scores

Score	Definition
++	Project directly addresses the goal, and easily meets the goal's objectives
+	Project addresses the goal at a moderate level, meeting some but not all of the goal's objectives
0	Neither Good nor Bad, or N/A
-	Project does not address the goal, or may have a slight adverse impact on the goal's objectives
--	Project has a substantial negative relation with the goal's objectives

Projects receiving several “--” scores were likely to be excluded because they were deemed infeasible, or because they conflicted with one or more of the project's identified Goals. Some projects with several scores of “--” may, however, be recommended as TSP projects because they have a sufficiently high value to counter the negative ratings in other areas.

Roadway Improvements Evaluation

The evaluation process for roadway improvements was comprised of two steps. The first step was to identify the suite of roadway improvements for each alternative that would best comply with OHP mobility standards. This step is relatively straightforward and is based on traffic analysis. Low-impact options such as signal timing optimization and creating channelization changes through restriping were analyzed first. This was followed by moderate-impact or moderately-priced options such as the addition of a signal or channelization changes that affected existing shoulders, parking, or sidewalk. Improvements associated with greater impacts or costs, such as the acquisition of right-of-way, were included only when lower impact improvements were not sufficient.

The second step was a qualitative, group assessment of how each alternative supported the goals and objectives of the TSP, as translated into evaluation criteria (see previous section). Table 5-5 displays the results of the evaluation process for the roadway alternatives.

TABLE 5-5
Roadway Improvement Alternatives Evaluation

	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Alternative 1: Capacity Improvements	++	N	+	-	-	++	-	++	0	++	0
Alternative 2: Connectivity Improvements	+	N	++	++	++	++	--	-	++	+	0
Modified Alternative 2 (Alternative 2A): Connectivity with Selected Capacity	++	Y	++	++	++	+	-	+	++	++	0
Alternative 3: Capacity-Connectivity Hybrid	++	Y	++	++	++	++	--	-/ ++	0/ ++	++	0

N = No
Y = Yes

A brief description of how well the alternatives met the criteria follows.

- *Multi-Modal Transportation System* – Capacity improvements along Dallas-Rickreall were considered to assist all users of the transportation system – drivers benefit from reduced intersection delay, bicyclists and pedestrians from the sidewalk and bicycle lanes, and

because buses travel along the highway transit users (including the youth, elderly, and disabled) also benefit. The connectivity alternative also fared well but was felt to directly assist the subset of users that would use the new facilities, and only indirectly help the rest of users (e.g., transit users).

- *Mobility* – This criterion asks whether the improvements result in the network meeting OHP mobility standards. Alternatives 2A and 3 are the only ones that fully meets OHP mobility standards.
- *Connectivity* – Because both Alternatives 2 and 3 provide new connections to the transportation system, they ranked highly for this criterion. Alternative 1 makes an improvement to current facilities.
- *Economic Development and Viability* – Alternative 1 did not rank highly against this criterion. This is because capacity improvements would require acquisition of right-of-way along the highway to accommodate two additional through lanes. It was felt that this change in land use may trigger more intense development out of character with current zoning and comprehensive plan designations (suburban residential and single-family residential). The alternatives containing new connectors were considered necessary to facilitate planned commercial and mixed-use development in the City’s three mixed-use nodes.
- *Coordination* – Alternative 1 did not rank highly for this alternative. Capacity improvements are mentioned in a traffic impact study conducted for the city in 1999 but are not included in the City’s Comprehensive Plan. Furthermore it was felt that the capacity improvements may indirectly conflict with the OHP Major Improvements Policy by considering general capacity improvements before smaller, lower impact options. Alternatives 2, 2A, and 3 contain many connector streets called out in the Comprehensive Plan. Furthermore, by looking first at connectivity and smaller-impact projects before capacity, Alternatives 2A and 3 are considered compliant with the OHP Major Improvements Policy.
- *Pedestrian and Bicycle Facilities* – All alternatives rated highly with this criterion. This is because to meet City and State design standards all new roadways or roadway improvements will include pedestrian and bicycle facilities.
- *System Preservation and Improvements* – None of the three alternatives rated well against this criterion, which looks at making small changes to lengthen the life of existing facilities before constructing new ones. Alternative 1 adds capacity to the existing system by adding general-purpose lanes. Alternatives 2, 2A, and 3 build new facilities. It was felt, however, that the new connectors are needed to reduce local travel along the state facility and therefore contribute substantially to network effectiveness.
- *Access Management* – If Alternative 1 were constructed, an access management plan would be implemented along the length of this highway segment, developing access control measures consistent with ODOT Access Management Guidelines. Alternative 2 adds new access points to the system. Alternatives 2A and 3 are a mixture of the previous alternatives.

- *Transportation Funding* – Alternative 1 does not have an identified funding source, though funding was considered reasonable. Many of the connector streets associated with Alternative 2 could be funded through system development charges (SDCs). Alternatives 2A and 3 are a mixture of the previous alternatives.
- *Safety* – The segment of Dallas Rickreall between Fir Villa and the north Dallas intersection has a higher segment crash rate than the statewide average for similar facilities. Improvements associated with Alternative 1 and Alternative 3 are expected to improve safety along this segment of roadway. Locations associated with Alternative 2 and 2A were not identified with safety deficiencies. Improvements associated with Alternative 2 and 2A are still expected to improve safety at these locations.
- *Environment* – None of the alternatives were expected to significantly impact environmentally significant areas or natural or historic features.

Alternative 2A was rated most favorably by the PMT because it contained connectivity improvements to serve expected development and reduce local traffic from state highway facilities. Furthermore, this alternative contained capacity improvements needed to fully comply with state highway mobility standards. Table 5-6 provides evaluation of all individual projects comprising Alternative 2A.

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Dallas Rickreall Highway	Add capacity to Dallas Rickreall Highway from NDI to LaCreole	++	N	+	-	-	++	-	++	0	++	0
Webb Lane	Webb Lane extension to Kings Valley Highway	+	Y	++	+	++	++	-	-	+	+	
Fir Villa Road	Extend Fir Villa Road to Monmouth Cut-Off	++	N	+	++	++	++	0	-	0	+	0
Cross Rickreall	Extend River Drive across Creek and	+	Y	++	0	++	+	0	0	0	0	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
Creek	connect to Mill Street											
Hawthorne Avenue	Extend Hawthorne Ave to Barberry Ave	+	N/A	++	+	++	++	0	0	++	+	0
Hankel Street	Extend Hankel Street east to city limits	+	N/A	++	+	++	++	0	0	++	+	0
Academy Street	Extend Academy Street east to Hankel just west of Fir Villa	+	N/A	++	+	++	++	0	0	++	+	0
Barberry Avenue	Extension of Barberry Ave east to Fir Villa Rd	+	N/A	++	+	++	++	0	0	++	+	0
LaCreole Drive	Extend LaCreole north to Kings Valley Hwy	+	N	++	+	++	++	0	0	++	+	0
Hawthorne Avenue	Extend Hawthorne north to connect with new circulation road	+	N/A	++	+	++	++	0	0	++	+	0
Polk Station / Hawthorne	New E-W circulation road connecting Polk Station and Hawthorne	+	N/A	++	+	++	++	--	-	++	+	0
Wyatt Street	Extend Wyatt Street north to City boundary (or Webb Road)	+	N/A	++	+	++	++	0	0	++	+	0
James Howe to Denton and Fairhaven	Create connector road from James Howe to Denton and Fairhaven	+	N/A	++	+	++	++	--	-	0	+	0
Bovard Avenue	Extend Bovard Avenue east to Oak Villa Road	+	N/A	++	+	++	++	0	0	++	+	0
Jasper Street	Extend Jasper Street north to city limits	+	N/A	++	+	++	++	0	0	++	+	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
River Drive	Extend River Drive north to city limits	+	N/A	++	+	++	++	0	0	++	+	0
SW Quadrant Residential	New collector west from Fairview to serve SW Quadrant	+	N/A	++	+	++	++	--	-	0	+	0
Connection to Mill	New collector east from Fairview to provide access to Mill	+	N/A	++	++	++	++	-	-	-	+	0
Connection from Mill	New collector from behind Mill east to Uglow	+	N/A	++	++	+	++	--	-	-	+	0
Fern Avenue	Extend Fern Avenue east to Kings Valley Highway	+	N/A	++	+	+	++	0	0	0	+	0
E Ellendale / Fir Villa Road	Added signal and second EBT and WBT	0	Y	0	++	++	0	+	0	++	+	0
E Ellendale / Oak Villa Rd	Added second EBT and WBT	0	Y	0	+	0	0	+	0	0	+	0
E Ellendale / LaCreole Drive	Added second EBT and WBT; exclusive NBL and made NBL lagging Prot/Perm	0	Y	0	+	++	0	+	0	++	++	0
E Ellendale / Polk Station Road	Added signal and second EBT and WBT	0	Y	0	+	++	0	+	0	++	+	0
Kings Valley Highway and Orchard Drive	Added signal and second EBL	0	Y	0	+	0	0	+	0	+	+	0
North Dallas Intersection	Added exclusive EBR, WBR, and SBR;	+	Y	0	+	0	0	+	0	+	+	0

TABLE 5-6
Evaluation of Individual Projects Comprising Preferred Alternative (Alternative 2A)

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment
	second EBT and WBT											
W Ellendale Avenue and Levens Street	Added signal and Protected/Permitted WBL	0	Y	0	0	0	0	+	0	0	+	0
W Ellendale Avenue / James Howe Road	Added exclusive SBL	0	Y	0	0	0	0	+	0	++	+	0
Mill Street / Main Street	Added signal and Permitted left-turns	0	Y	0	+	0	0	++	0	0	+	0
Mill Street / Jefferson Street	Added signal and Permitted left-turns	0	Y	0	+	0	0	++	0	0	+	0
Washington Street and Jefferson Street	Added signal; Protected EBL	+	Y	0	+	++	0	++	0	+	++	0
Miller Avenue and LaCreole Drive	Recommend monitoring	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Bicycle Improvements Evaluation

A list of possible bicycle facilities was developed considering the factors outlined below and then evaluated using the goals and evaluation criteria established as part of the TSP. The following factors were considered in developing the bicycle network:

- Connectivity – System connectivity, providing access from one bikeway corridor to the next, is important.

- Traffic volumes and travel speeds – Lower volume and lower speed roads are typically preferred by all cyclists; experienced cyclists may find higher volume and higher speed roads acceptable with dedicated facilities.
- Pavement condition – Bicyclists prefer smooth roadways for comfort and safety.
- Access to and from residential areas – Corridors that provide access from residential areas are preferred.
- Destinations served – Corridors that maximize the number of destinations served, such as schools, parks, employment centers, are preferred.
- Integration into the regional system – Connectivity to the regional bikeway system is preferred.
- Adjacent land use – Compatibility with adjacent land uses is important.
- On-street parking – Bicyclists prefer roads that minimize potential conflicts with parked vehicles.
- Existing opportunities such as planned roadway improvements – Integrating recommended bike facility improvements into planned roadway improvements is preferred.
- Routes with intersection protection and minimal delay – Bicyclists prefer corridors that minimize stopping requirements for the bicyclists while maximizing stopping requirements for conflicting vehicle traffic.

A bikeway network is a system of bicycle facilities that for a variety of reasons – safety, convenience, destinations served, attractiveness – provides a superior level of service for bicyclists. It is important to recognize that, by law, bicyclists are allowed on all streets and roads regardless of whether they are a part of the designated bikeway network. The bikeway network serves as a tool that allows the City to focus and prioritize bicycle facility implementation efforts where they will provide the greatest benefit to bicyclists and the community at large.

In general, local streets with fewer than 3,000 motor vehicles per day require no special bicycle improvements, although traffic calming may be recommended if volumes or speeds substantially increase. If local streets are designated as bicycle routes, they should be comprehensively signed so that the route is clear to the bicyclist without use of a map.

For streets with greater than 3,000 vehicles per day, the preferred treatment is bicycle lanes. In addition to providing dedicated facilities for bicyclists, bicycle lanes can also provide a traffic calming effect by visually narrowing the roadway width, providing education for motorists, and serving as a predictable line of travel for the bicyclist. Bicycle lanes also provide additional separation and safety for pedestrians. Where bicycle lanes cannot be included, the alternative treatments are traffic calming (chicanes, raised medians, raised intersections, etc.) or wider than normal outside lanes (14' or greater). A wide outside lane should only be considered after other options have been pursued, such as narrowing or removing travel lanes or parking, as a wide outside encourages motor vehicles to speed and may ultimately reduce the safety of other roadway users. Where the appropriate bikeway

and acceptable alternatives cannot be included in a project, bikeway facilities may be constructed on a nearby (within a quarter mile) parallel street.

There are numerous ways to implement the bikeways in this plan. Shared use paths typically involve developing an off-street corridor, while a bicycle boulevard involves development of a local street through traffic calming elements. For bicycle lanes, the City or State may widen a street, pave soft shoulders, reduce travel or parking lane widths, or removing travel or parking lanes in order to reallocate space. It is the city's discretion as to whether such projects' potential impacts, such as on-street parking removal or traffic congestion, are more harmful than the benefits gained from the bikeway. These circumstances will be carefully evaluated before a decision is made to implement an alternative treatment such as traffic calming improvements, a wider outside lane, or alternative parallel bikeway route. Guidelines for bikeway development are laid out in AASHTO's Guide to the Development of Bicycle Facilities (1999) and the ODOT Bicycle and Pedestrian Plan.

Table 5-7 displays the results of the evaluation process for bicycle facility projects.

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Ellendale Avenue	Stripe bicycle lanes from western city limits to North Dallas Intersection	+	++	0	0	++	++	n/a	+	+	0	++	N
Dallas-Rickreall (223)	Stripe bicycle lanes from eastern city limits to North Dallas Intersection	+	++	0	0	++	+	n/a	0	++	0	-	N
Levens Street	Bicycle route from Ellendale to Academy Street	0	0	0	+	0	++	n/a	0	0	0	++	N
King's Valley Highway	Stripe bicycle lanes on both sides of roadway from Ellendale to	+	++	0	0	++	++	n/a	++	+	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
	Orchard; on north side of roadway from Orchard to city limits												
LaCreole Drive	Stripe bicycle lanes from Ellendale to Miller Avenue	+	++	0	0	++	+	n/a	++	+	0	++	N
Fir Villa Road	Stripe bicycle lanes or bikeway shoulder from Ellendale to Miller Avenue	+	++	0	0	++	+	n/a	0	++	0	-	Y
Miller Avenue	Stripe bicycle lanes on both sides of roadway from LaCreole to Fir Villa	+	++	0	0	++/+	+	n/a	+	+	0	+	N
Monmouth Cutoff Road / Uglow	Stripe bicycle lanes from Mill Street to city limits	++	++	0	0	++	+	n/a	0	+ / ++	0	-	Y
Washington Street	Bicycle route from Uglow Avenue to Main Street	0	0	0	+	0	++	n/a	0	0	0	++	N
Main Street	Stripe bicycle lanes from Ellendale to north of couplet	+	++	0	0	++	+	n/a	+	+	0	++	N
Main Street	Stripe bicycle lanes from Ellendale to Washington Street	+	++	0	0	++	++	n/a	++	+	0	++	N
Jefferson Street	Stripe bicycle lanes from Main Street to Washington Street	+	++	0	0	++	++	n/a	++	+	0	++	N
River Drive	Bicycle route from Ellendale to Mill Street	0	0	0	0	0	++	n/a	0	0	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Orchard Drive	Bicycle route from King's Valley Highway to city limits	0	0	0	0	0	++	n/a	0	0	0	++	N
Polk Station Road	Stripe bicycle lanes from King's Valley Highway to Dallas-Rickreall	+	++	0	0	++	+	n/a	+	+	0	+	N
Hawthorne Avenue	Bicycle route from Dallas-Rickreall to Barberry Avenue	0	0	0	0	0	++	n/a	0	0	0	++	Y
Hankel Street	Stripe bicycle lanes from Hawthorne to Main Street	+	++	0	0	++	+	n/a	++	+	0	+	Y
Godsey Road	Stripe bicycle lanes from Miller Avenue to Monmouth Cut-Off	+	++	0	0	++	+	n/a	++	+	0	+	Y
Mill Street	Bicycle route from Uglow to River Drive	0	0	0	+	0	++	n/a	0	0	0	++	N
Washington Street and Fairview Avenue	Stripe bicycle lanes from Main Street to city limits	+	++	0	0	++	+	n/a	+	+	0	-	Y
Walnut Avenue	Comprehensively sign from Levens to LaCreole	0	0	0	++	0	++	n/a	0	0	0	++	N
Main Street	Sign from Washington to Ash	0	0	0	0	0	++	n/a	0	0	0	++	N
Jefferson Street	Sign from Washington to Ash	0	0	0	0	0	++	n/a	0	0	0	++	N

TABLE 5-7
Evaluation of Bicycle Facility Projects

Street or Intersection	Potential Transportation System Improvement	Multi-Modal Transportation System	Mobility	Connectivity	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Part of a future roadway or development project?
Hayter Street	Sign from Maple to Oakdale	0	0	0	++	0	++	n/a	0	0	0	++	N
Oakdale Avenue	Sign from Hayter to Fairview	0	0	0	0	0	++	n/a	0	0	0	++	N
Maple Street	Sign from Fairview to terminus of Maple	0	0	0	++	0	++	n/a	0	0	0	++	N

The recommended improvements for the City of Dallas TSP consist of a bikeway network that includes multi-use path segments, bicycle lanes, and bicycle routes that link residential neighborhoods, schools, parks, community centers, employment centers, commercial and retail areas, and provide regional connections. Section 7 contains a detailed description of the recommended bicycle network.

Pedestrian Improvements Evaluation

Sidewalks and safe crossing treatments are necessary for all streets in Dallas. Compliance with the American with Disabilities Act (ADA) is mandatory by Federal law. The City currently requires all public streets to have sidewalks and generally connectivity is good.

Pedestrian improvements by nature are highly localized and have been generalized into three types of improvements: new sidewalk construction, in-fill sidewalk construction and upgrades, and intersection improvements. The key necessary improvements are the provision of sidewalks and safe crossings, as well a system that is accessible by all pedestrians, including those with disabilities. Sidewalks preferably should be located on both sides of the street. Intersection treatments may include the following elements:

- Reducing crossing distance;
- Reducing automobile speeds at crossings;

- Providing as straightforward and obvious a crossing path as possible;
- Ensuring disabled access at curb cuts and medians;
- Providing well marked crosswalks and accessible push buttons; and
- Ensuring sight distance and safety.

Other treatments that enhance pedestrian travel include sidewalk amenities like street trees and other landscaping, benches, bus shelters, guide signing, and street lighting. These sidewalk amenities can contribute to the character of the community as well as provide safe and inviting places for people to walk. Multi-use paths also complement a comprehensive sidewalk system, allowing people to travel through the community in a traffic-free environment.

Table 5-8 displays the results of the evaluation process for bicycle facility projects.

TABLE 5-8
Evaluation of Pedestrian Facility Projects

		Multi-Modal Transportation System	Mobility	Economic Development and Viability	Coordination	Pedestrian and Bicycle Facilities	System Preservation and Improvements	Access Management	Transportation Funding	Safety	Environment	Cost	Accessibility	Part of a future roadway or development project?
Ellendale Avenue	Construct new sidewalk on south side from Wyatt to River Drive	+	+	0	0	++	+	n/a	+	+	0	+	+	Y
King's Valley Highway	Construct new sidewalk on south side of roadway from Walmart to Polk Station Road; on north side of roadway from 100' east of Dallas Drive to Polk Station Road	+	++	0	0	++	+	n/a	+	+	0	0	+	N
North Dallas - King's Valley	Construct new sidewalk on south side of roadway from North Dallas intersection to Wal-Mart	++	++	0	0	++	+	n/a	+	+	0	+	++	N

TABLE 5-8
Evaluation of Pedestrian Facility Projects

Miller Road	Construct new sidewalk from just east of LaCreole to just west of Fir Villa	+	++	0	0	+	+	n/a	+	+	0	+	++	N
Godsey Road	Construct new sidewalks from Monmouth Cut-Off to Miller Avenue	+	++	0	0	++	+	n/a	+	+	0	-	+	Y
Maple Street	Construct new sidewalk from Lyle to Uglow on south side of roadway	+	++	0	0	+	+	n/a	0	0	0	++	0	N
Levens Street	Widen and improve sidewalk condition, particularly in front of school from Ellendale to Rickreall Creek	++	+	0	0	+	+	n/a	++	+	+	+	++	N
Mill Street	Improve sidewalk condition between Jefferson and Uglow, make curb ramps ADA accessible, fill in missing segments	+	+	+	0	+	+	n/a	+	+	0	+	++	Y
Uglow Avenue	In-fill sidewalk segments between Ash Street and railroad tracks													
New Collectors and Arterials	Construct new sidewalk on future collectors and arterials													
Fairview Avenue	In-fill sidewalk segment between Clay and Maple Street, upgrade curb ramps	+	+	0	0	++	+	n/a	++	+	0	++	+	N
River Drive	Construct new sidewalk over Rickreall Creek from River Dr to Mill St	+	++	0	0	++	+	n/a	+	+	+	-	++	Y
Dallas-Rickreall Highway (223)	Construct new sidewalks from LaCreole to Fir Villa	+	+	0	0	++	+	n/a	+	+	0	--	+	Y
Fir Villa Road	Construct new sidewalks from Dallas-Rickreall to existing sidewalk	+	++	+	0	++	+	n/a	+	+	0	-	+	Y
Fairview Avenue	Construct new sidewalks from Oakdale Road to Bridlewood Drive	+	+	0	0	++	+	n/a	--	+	0	-	+	N
Ellendale Avenue	Construct new sidewalk on north side of roadway from Wyatt to city limits	+	++	+	0	++	+	n/a	+	0	0	0	+	Y
Ellendale Avenue	Widen sidewalk between LaCreole and Levens, possible buffering with	++	+	+	0	+	+	n/a	++	+	0	-	+	N

TABLE 5-8
Evaluation of Pedestrian Facility Projects

	landscaping													
LaCreole Drive	In-fill sidewalk segment on east side of roadway between Walnut and Barberry	+	++	0	0	+	+	n/a	0	0	0	++	+	N
Monmouth Cutoff Road / Uglow Avenue	Construct new sidewalks on Monmouth Cut-Off from Maple Street to Godsey Road	+	++	0	0	++	+	n/a	+	+	0	+	+	Y
River Drive	Construct sidewalks on both side of road if roadway is connected to Mill	+	+	0	0	+	+	n/a	+	+	0	-	+	Y
Levens and Ellendale	Improve pedestrian safety with various treatments, including raised medians (pork chops), marked crosswalks, illumination	+	+	0	0	+	+	n/a	++	+	0	++	++	N
Levens and Walnut	Improve pedestrian safety with various treatments, including marked crosswalk, warning signage, illumination, curb extensions	+	+	0	0	+	+	n/a	++	+	0	++	++	N
North Dallas Intersection	Improve pedestrian safety with various treatments, including raised medians (pork chops) and upgraded curb ramps													
Dallas Drive and King's Valley Highway	Improve pedestrian safety with raised median, marked crosswalk, illumination, and warning signs	+	+	0	0	+	+	n/a	+	+	0	++	+	N
LaCreole and Miller	Improve pedestrian safety by signaling intersection, marking crosswalks, and installing pedestrian signal heads	+	+	0	0	+	+	n/a	++	+	0	-	++	Y
Ash and Uglow	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions, and warning signage	+	+	0	0	+	+	n/a	++	+	0	++	++	?

TABLE 5-8
 Evaluation of Pedestrian Facility Projects

Maple and Fairview	Improve pedestrian and bicyclist safety with marked crosswalks, curb extensions and warning signage	+	+	0	0	+	+	n/a	++	+	0	++	++	N
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The recommended pedestrian network is composed of a mixture of sidewalk in-fill, intersection improvements and new sidewalk construction projects. These are described in Section 7, Modal Plans.

Insert Figures 5-1 through 5-4.