The recommended transportation plan for the City of Georgetown was developed based upon future traffic volume forecasts, transportation network continuity, projected future development, environmental considerations/constraints, and other factors. This chapter identifies the recommended transportation plan, as well as other recommendations such as transportation systems management, corridor preservation and access management.

RECOMMENDED OVERALL TRANSPORTATION PLAN

The recommended Overall Transportation Plan for the City of Georgetown includes the implementation of new major and minor arterials, collectors, and local streets to guide the orderly development of the region's transportation system, as shown in **Figure 6-1**. The Transportation Plan includes a short term implementation plan (2003 to 2010), intermediate term implementation plan (2010 to 2020), and long range plan (2020 to 2030). Also included are some projects that may be implemented as development warrants, which might be beyond the 2030 time period, or could be sooner if development needs arise (these are listed in the Additional Long Range Plan Improvements section below). Year 2030 projected volumes and LOS for the recommended plan are contained in **Figures 6-2a and 6-2b**. The plan includes four primary types of improvements: roadway widenings, new roadway facilities, transit improvements, and bicycle/pedestrian improvements.

Roadway widenings provide for additional travel lanes to relieve congested roadway conditions. Roadway widenings were recommended in locations where future projected traffic volumes exceeded roadway capacities. In most cases, roadway widenings provided for more efficient travel and were recommended in locations where additional right-of-way could be acquired with minimal impact to adjacent land uses.

New roadway facilities included both new roadway alignments as well as extensions of existing facilities. New roadway facility alignments were developed by balancing the need to minimize negative impacts to adjacent land uses with the benefits of improved local travel conditions. New roadway facilities generally provide for additional local area traffic circulation as well as important new connections to improve the overall transportation system continuity.

RECOMMENDED SHORT TERM IMPROVEMENTS (2003 TO 2010)

The short term improvement program includes roadway extensions, new roadways and roadway widening projects programmed in the 2003-04 TIP by GTEC (note: this is subject to the new 4B sales tax legislation, which may change projects in which GTEC may participate). The recommended short term program is identified in **Table 6-1.** The GTEC projects for implementation through the year 2010 provide adequate capacity and level-of-service to most of the transportation system, as shown in Figure 5-3. A map showing the location of the below-referenced project numbers may be found in Figure 6-1.

Table 6-1
GTEC Short Term Improvement Program (2003 to 2010)
Georgetown Overall Transportation Plan
Georgetown, Texas

Proj. #	Description of Transportation Improvement	2003/04 Requested	2004/05 Program Request	2005/06 Program Request	2006/07 Program Request	2007/08 to 2010
	Simon/Wolf Ranch/TxDOT					
1	State Highway 29 (traffic signal)	$100,000				
2	State Highway 29 (paving, widening, second traffic signal)	$6,835,280				
3	IH-35 West Frontage Road and Bridge		$3,881,000**			
4	TxDOT Inspection and Project Management Fees (10%)	$693,528	$0			
	City Road Projects					
5	CR 265 W. South of SH 29	$350,000				
6	CR 265 E. North of SH 29	$287,500				
7	CR 265 W. North of SH 29	$462,500				
	2010 Transportation Improvements from Model Outputs					
	TxDOT Roadway Projects					
8	State Highway 29 East (widening to 5 lanes from Haven Lane to SH 130)					
8.1	*Preliminary Design and Schematics*		$590,400			
8.2	*ROW Acquisition*			$352,000		
8.3	*Construction (1.98 miles)**				$4,920,000	
8.4	*TxDOT Inspection and Project Management Fees (10%)*				$492,000	
9	IH-35/Williams Drive Access Improvements	$325,000				
	City Road Projects					
10	Northeast Inner Loop/Lakeway Bridge over IH 35, from CR 151 to Airport					
10.1	*Preliminary Design and Schematics*		$875,000			
10.2	*ROW Acquisition (ROW for 4 lane)*		$200,000			
10.3	*Construct 4 Lane Bridge and 2 Lane Inner Loop**			$6,500,000		
11	Inner Loop, County Road 110, Proposed Arterial SE1 Intersection (temporary)		$150,000			
12	Arterial SE1 from Inner Loop to SH 130					
12.1	*Preliminary Design and Schematics*	$264,000				
12.2	*ROW Acquisition (ROW for 4 lane)*		$181,565			
12.3	*Construct 2 Lane Segment (2.2 miles)*			$2,200,000		
13	CR 265/Hacia Los Lobos (from Rivery Boulevard to SH 29)					
13.1	*Preliminary Design and Schematics*	$120,000				
13.2	*ROW Acquisition (ROW for 4 lane)*		$150,000			
13.3	*Construct 2 Lane Road (0.75 miles)*			$800,000		
14	Southwest ByPass (from SH29 to IH 35)					
14.1	*Preliminary Design and Schematics (Current Year Project)*		$1,900,000			
14.2	*ROW Acquisition (ROW for 4 lane)*			$774,900		
14.3	*Construct**				$21,797,000	

Table 6-1 (Continued)
GTEC Short Term Improvement Program (2003 to 2010)

Proj. #	Description of Transportation Improvement	2003/04 Requested	2004/05 Program Request	2005/06 Program Request	2006/07 Program Request	2007/08 to 2010
15	South West Inner Loop (SH 29 to Southwest Bypass)					
15.1	*Preliminary Design and Schematics*		$112,500			
15.2	*ROW Acquisition (ROW for 4 lane)*			$50,000		
15.3	*Construct 2 Lane Road (0.75 miles)*			$750,000		
16	North West Inner Loop (Widening to 4 Lanes (SH 29 West to Williams Drive))					
16.1	*Preliminary Design and Schematics*			$480,000		
16.2	*Construct 2 Lane Road (3.8 miles)*				$4,000,000	
17	Inner Loop, County Road 110, Proposed Arterial SE1 Intersection final					
17.1	*Preliminary Design and Schematics*			$216,000		
17.2	*ROW Acquisition*			$28,750		
17.3	*Construction*				$1,800,000	
18	County Road 110 (From Inner Loop to Round Rock Arterial "A")					
18.1	*Preliminary Design and Schematics*			$240,000		
18.2	*ROW Acquisition*				$162,706	
18.3	*Construct 2 Lane Segment (2.1 miles)*				$2,000,000	
19	South East Inner Loop (Widening to 4 Lanes (IH 35 to SH 29 East))					
19.1	*Preliminary Design and Schematics*				$420,000	
19.2	*Construct 2 Lane Road (3.8 miles)*					$3,500,000
20*	Southeast Inner Loop/1460 Bridge					
20.1	*Preliminary Design and Schematics*			$600,000		
20.2	*ROW Acquisition (ROW for 4 lane)*			$75,000		
20.3	*Construct 4 Lane Bridge and 2 Lane Inner Loop**				$5,000,000	
21	North East Inner Loop (Widening to 4 Lanes Highway 29 to Business 35)					
21.1	*Preliminary Design and Schematics*				$480,000	
21.2	*Construct 2 Lane Road (3.8 miles)*					$4,000,000
22	Shell Road (Widening to 4 Lanes (Williams Drive to Shell Spur)					
22.1	*Preliminary Design and Schematics*				$324,000	
22.2	*Construct 2 Lane Road (3.8 miles)*					$2,700,000
23	County Road 188 Extension (Southwester University through College to FM 971)					
23.1	*Preliminary Design and Schematics (may include 2 bridges)*			$240,000		
23.2	*ROW Acquisition (ROW for 4 lane)*				$150,000	
23.3	*Construct 2 Lane Road (2.0 miles) (may increase with bridge cost)*				$2,000,000	
24	Construct IH-35 Frontage Roads					
24.1	*Construct Northbound Frontage Road and Bridge (FM 2243 to SH 29)*					$4,434,000
24.2	*Construct Northbound Frontage Road (Southwest Bypass to FM 2243)*					$3,965,000
24.3	*Construct Northbound Frontage Road (FM 2338 to Lakeway)*					$8,461,000
Total	**Total**	**$9,437,808**	$4,159,465	**$13,306,650**	**$43,545,706**	**$27,060,000**

* Potential for State and County cost participation, constuction time may extend beyond 1 year. Source: City of Georgetown, GTEC.

**Includes state participation on frontage roads (City $1,583,400)

In the short term, the City of Georgetown also should begin to implement access management controls and transportation systems management improvements throughout the City, but particularly along SH 29 West and East, Williams Drive, Leander Road, Austin Avenue and the Inner Loop. Traffic signal timing improvements, addition of turn bays at intersections, and driveway access restrictions will help to improve traffic flow and reduce congestion. Access management and transportation system management (TSM) improvements are discussed in more detail later in this chapter.

The City of Georgetown, through GTEC, has planned to construct some important missing system links in the short term, including completing the I-35 frontage roads and continuing development of the Inner Loop. These improvements will improve circulation for local residents, and reduce congestion on other major roadways and neighborhood local streets.

Short Term Intersection Improvements – As part of the OTP project, the City of Georgetown asked for an analysis of three intersections, with recommended short term improvements resulting from this analysis. The City chose three intersections that have not previously been studied as part of another Traffic Impact Analysis (TIA). The intersections examined included the following:

- North Austin Avenue at FM 971/Royal Drive
- Maple Street at University Avenue (SH 29)
- Northwest Boulevard at Lakeway Drive

Morning and evening peak period data was collected for these intersections, and signal timing information was obtained from TxDOT. An analysis of each intersection was conducted using the microcomputer program Synchro 5.0 by Trafficware, which is based on procedures contained in the Highway Capacity Model. A field survey instrument was designed with input from City of Georgetown staff and implemented to collect data and verify the trends established by data available from previous years. Traffic counts at these intersections were conducted in October 2003.

Level-of-service (LOS) is a qualitative measure of traffic operations, as defined in Chapter 2 of this report. The City of Georgetown currently defines LOS C conditions as the limit of acceptable traffic operations, which is usually considered the standard limit in rural areas. As Georgetown continues the transition from a rural community to an urban community, it is recommended that the limit of acceptable traffic operations be changed to LOS D conditions.

The following summary and recommendations resulted from the intersection improvements analysis:

1. Currently, the intersection of N. Austin Avenue and FM 971/Royal Drive operates at acceptable levels of service during the AM and PM peaks. Alignment of FM 971 with Royal Drive should be considered to reduce driver confusion and

improve intersection operation.

2. The intersection of Maple Street and University Avenue operates at acceptable LOS during the AM and PM peak periods. Consideration should be given to restriping the east side of Maple Street to provide additional clearance between parked vehicles and northbound traffic.

   If Maple Street is closed by the City of Georgetown at the northern property line of the campus, the intersection will still operate at acceptable LOS D or better condition during the AM and PM peak periods. However, the redistribution of university-related traffic would increase traffic on University Avenue and may negatively impact traffic operations in the future. Without the northern portion of Maple Street being opened, all traffic will be forced to use the signalized intersection at Maple and University, increasing congestion and delay at the intersection during special events.

   An alternative parallel route to Maple Street to the west should be considered to minimize conflicts between University operations and through traffic and keep the existing connectivity to/from northeast Georgetown to/from the east on SH 29.

3. The intersection of Northwest Boulevard and Lakeway Drive currently operates at acceptable LOS during both the AM and PM peaks. Lakeway Drive should be striped as a four-lane undivided roadway in the vicinity of the intersection. The eastbound and westbound approaches of Lakeway Drive should be striped to provide one left/through shared lane and one through/right shared lane. Northwest Boulevard should be striped as a four-lane undivided roadway in the vicinity of the intersection. The northbound and southbound approaches of Northwest Boulevard should be striped to provide one left/through lane and one through/right shared lane. Installation of a traffic signal should also be considered in the future when intersection operations become unacceptable and traffic signal warrants are met.

Transit Improvements – The City of Georgetown should continue to work with the Capital Area Rural Transportation System (CARTS) and other regional partnerships in the planning and development of transit infrastructure within the ETJ. This will ensure that adequate internal transit service is provided for the citizens of Georgetown, as well as provide options for those whose travel origins or destinations occur in other parts of Central Texas. A further discussion of Multi Modal Considerations is provided later in this chapter.

Bicycle/Pedestrian Improvements – Improved bicycle and pedestrian facilities in Georgetown should be provided to reduce automobile travel demand on local roadways, as well as provide improved recreational alternatives for local citizens. Improved bicycle facilities include bicycle lanes, bicycle paths, clear signage and pavement markings, and bicycle storage/parking facilities at major destinations. One significant opportunity

is to provide bicycle lanes as new arterials are constructed, or as existing arterials are reconstructed. Pedestrian facilities improvements include the installation or repair of sidewalks in both residential and commercial areas and ensure system continuity.

During the public participation process for the OTP, the public had recommendations about the potential location of future bicycle facilities. This input was combined with previous work conducted by the City of Georgetown and the recommended OTP projects to produce a Draft Bicycle Facility Map, shown in **Figure 6-3**. Future planning studies should be conducted to finalize facility locations and provide facility designs. This draft map is included as a beginning point in the development of an area-wide bicycle and pedestrian facilities network.

RECOMMENDED INTERMEDIATE TERM IMPROVEMENTS (2010 TO 2020)

As the population of the Georgetown area continues to grow at a rapid pace through the Year 2020, an aggressive expansion of the transportation infrastructure will be necessary to keep pace and maintain mobility. By utilizing the results from the build out network travel demand model, a list of projects that should be operational by the Year 2020 is provided in **Table 6-2**. This table provides a list of the projects with descriptions, order of magnitude construction costs, and responsible agencies. A map showing the location of the referenced project numbers may be found in Figure 6-1.

Roadway Improvements – The City of Georgetown, in cooperation with the Texas Department of Transportation (TxDOT), Williamson County and GTEC, should begin the long range planning process now and implement the roadway improvement projects identified in Table 6-2 between year 2010 and 2020.

The following high speed and high capacity roadways should be operational in the intermediate time period – SH 195 freeway, Inner Loop Freeway, and the SH 130 tollway. Major arterials that should be widened within this timeframe include Williams Drive, SH 29 West, Leander Road, I-35 South, FM 1460, SH 29 East, Southeast Inner Loop (arterial), FM 971 and Chandler Road. In addition, the following new construction, upgrades and completion of incomplete roadway segments are important: Westinghouse Road, CR 103, Project NE 1, the Airport Road Overpass of I-35, and the Sun City Boulevard eastern extension to I-35.

Table 6-2
Recommended Intermediate Term Improvement Program (2010 to 2020)
Georgetown Overall Transportation Plan
Georgetown, Texas

Project Number	Improvement	Order-of-Magnitude Construction Cost	Responsible Agency
A	Construct and upgrade (as necessary) Inner Loop to freeway between SH 29 East and IH 35, and then on the west side of IH 35 South northward to IH 35 North of SH 195	$ 128,810,000	TxDOT
I	Construct new arterial section/improve existing section of Chandler Road between FM 1460 and Williamson County Arterial 2	$ 11,310,000	Williamson Co.
K	Construct North-South collector between SH 29 and FM 971	$ 2,620,000	City of Georgetown
N	Connect collector connection from SH 29 South to DB Woods	$ 600,000	City of Georgetown
O	Construct Airport Road Overpass of IH 35 from Airport Road west of IH 35 to Old Airport Road east of IH 35	$ 1,500,000	City of Georgetown
Q	Extend Sun City Boulevard from eastern terminus eastward across SH 195 to IH 35 frontage road	$ 6,770,000	City of Georgetown
R*	Construct Parmer Lane in a north-south direction from Round Rock to north, and then east-west from northwest Georgetown to 195	$ 53,640,000	City of Georgetown/ Williamson Co.
U	Widen SH 29 from Inner Loop to SH 95	$ 37,510,000	TxDOT
V	Widen FM 971 from Austin Avenue to Williamson County Arterial 2	$ 12,980,000	TxDOT
X	Construct east-west roadway from Inner Loop to Project K (NE 1)	$ 2,200,000	City of Georgetown
Y*	Widen IH 35 Mainlanes to 4 lanes each direction and widen frontage roads to 3 lanes each direction from Round Rock northward to S. Inner Loop	$ 30,260,000	TxDOT
AA	Upgrade SH 195 to freeway facility from IH 35 to Bell County Line	$ 11,960,000	TxDOT
BB*	Widen Williams Drive from Inner Loop to Parmer Lane	$ 21,430,000	TxDOT
CC*	Widen SH 29 West from Inner Loop to Parmer Lane	$ 27,020,000	TxDOT
DD*	Widen Leander Road from Inner Loop to Parmer Lane	$ 14,910,000	TxDOT
EE	Widen FM 1460 from Inner Loop to Round Rock	$ 14,540,000	TxDOT
FF	Construct western extension of Westinghouse Road from IH 35 to Parmer Lane	$ 14,730,000	Williamson Co.
GG	Improve Chandler Road from IH 35 to FM 1460	$ 8,890,000	City of Round Rock
HH	Westinghouse arterial improvements between SH 130 and IH 35	$ 12,010,000	Williamson Co.
Z*	Old Inner Loop from New Freeway to SH29 (E)	$ 2,490,000	City of Georgetown
JJ	Widen FM 1460 from Inner Loop North	$ 2,500,000	TxDOT
	Total Estimated Order-of-Magnitude Cost for Intermediate Term Improvement Program	**$ 418,680,000**	

Note - Does not include right-of-way acquisition costs, if any.
* This represents one segment of total project

RECOMMENDED LONG TERM IMPROVEMENTS (2020 TO 2030)

Using roadway deficiencies identified by the travel demand model in Year 2030, recommended transportation improvements for the long term time horizon were developed. The recommended long term improvement program includes roadway extensions and roadway widening projects, as well as additional new roadways, as identified in **Table 6-3**. The recommended year 2030 transportation plan improvements provide adequate capacity and level-of-service to most of the transportation system, as shown in Figures 6-2a and 6-2b. Specific recommended improvement projects include the following:

Roadway Improvements – The City of Georgetown, in cooperation with other local agencies, should begin the long term planning process now and implement the roadway improvement projects identified in Table 6-3 between year 2020 and 2030. Major roadway widenings include: Williams Drive, SH 29, Northeast Inner Loop and I-35 northward to SH 195. In addition, the following new construction, upgrades and completion of incomplete roadway segments are important: the Maple Street extension to Round Rock Arterial A, Williamson County Arterial 2, NE 2, SW 1, SW 2, SW 3, Round Rock G (important, although not located within the Georgetown ETJ), NE 3, and NE 4. A map showing the location of the below-referenced project numbers may be found in Figure 6-1.

ADDITIONAL LONG RANGE PLAN IMPROVEMENTS

Additional roadway improvements will be needed in certain areas as land use development warrants. Some of these improvements may not need to occur until after Year 2030, while others may occur sooner if development occurs, necessitating the improvement to be expedited. Each of these corridors are identified in **Table 6-4** and should be preserved for future development. As development occurs in undeveloped parts of the study area, new roadway facilities will be needed. Tentative roadway alignments for these new facilities are identified in Figure 6-1 and the functional classification system (Figure 4-3), but are not intended to represent exact alignments. The alignments identified are only intended to be representative corridors (not exact alignments) in which new roadway facilities would likely be needed should future development occur.

The time schedule for implementing these new roadway facilities is dependent upon the pace of future development. Some of the facilities may be needed within the 10 to 20 year time frame, while others may not be needed for 30 to 40 years. However, it is very important to preserve the right-of-way in these corridors so that when the time for implementation arrives, the right-of-way will be available. Methods available to protect future needed right-of-way are discussed later in this chapter as part of Corridor Preservation.

Table 6-3
Recommended Long Term Improvement Program (2020 to 2030)
Georgetown Overall Transportation Plan
Georgetown, Texas

Project Number	Improvement	Order-of-Magnitude Construction Cost	Responsible Agency
B	Construct North-South Arterial west of Lake Georgetown (SW 1)	$ 28,800,000	Williamson Co.
C	Construct North-South Arterial between SH 29 and Chandler Road in Round Rock (SW 2)	$ 21,840,000	Williamson Co.
D	Construct Arterial from DB Woods Boulevard to west, then southward across SH 29 to Leander Road (SW 3)	$ 17,310,000	Williamson Co.
E	Construct East-West Arterial from Parmer Lane to SW 2 (Round Rock Arterial G)	$ 8,930,000	Williamson Co.
H	Construct North-South Arterial from Inner Loop to Chandler Road (CR 110 extension to Round Rock Arterial A)	$ 3,170,000	City of Georgetown/ Williamson Co.
J	Improvements to form North-South Arterial (Williamson County Arterial 2) between FM 972 and Round Rock	$ 27,680,000	Williamson Co.
L	Construct East-West roadway from IH 35 frontage road to CR 152 (NE 3)	$ 2,000,000	City of Georgetown
M	Construct North-South roadway from eastern terminus of Project L northward to FM 972 (NE 4)	$ 2,710,000	City of Georgetown
R*	Construct Parmer Lane in an east-west direction from 195 to IH 35	$ 14,150,000	Williamson Co.
W	Construct east-west roadway from CR 188 extension to Project K (NE 2)	$ 3,040,000	City of Georgetown
Y*	Widen IH 35 Mainlanes to 4 lanes each direction and widen frontage roads to 3 lanes each direction from S. Inner Loop to Parmer Lane	$ 80,750,000	TxDOT
BB*	Widen Williams Drive from IH 35 to Inner Loop	$ 9,940,000	TxDOT
CC*	Widen SH 29 West from IH 35 to Inner Loop	$ 6,060,000	TxDOT
Z*	Inner Loop Arterial from SH 29 (E) to IH 35	$ 8,390,000	City of Georgetown
	Total Estimated Order-of-Magnitude Cost for Long Term Improvement Program	**$ 234,770,000**	

Note - Does not include right-of-way acquisition costs, if any.
* This represents one segment of total project

Table 6-4
Additional Long Range Plan Improvements (As Development Warrants)
Georgetown Overall Transportation Plan
Georgetown, Texas

Project Number	Improvement	Order-of-Magnitude Construction Cost	Responsible Agency
F	Construct North-South Collector from Leander Road to Westinghouse Road (SW 4)	$ 2,890,000	City of Georgetown/ Williamson Co.
G	North-South collector on west side of IH 35 (Inner Loop Spur on Thoroughfare Plan) from Southwest Inner Loop to Chisholm Trail	$ 4,870,000	City of Georgetown/ Williamson Co.
P	Construct northern extension of Shell Spur from Shell Road to Sun City Boulevard extension (Collector W of SH 195/Major Arterial E of SH 195)	$ 2,380,000	City of Georgetown
S	Extend Sun City Boulevard from western terminus northward to Parmer Lane	$ 2,390,000	City of Georgetown
T	North-South Arterial from SE 1 south to Round Rock	$ 8,060,000	City of Georgetown/ Williamson Co.
DD*	Widen Leander Road from IH 35 to Inner Loop	$ 4,880,000	TxDOT
II	Western extension of Serenada Drive	$ 650,000	City of Georgetown
KK	Widen Airport Road to Minor Arterial from SH 195 to the Airport	$ 3,400,000	City of Georgetown
	Total Estimated Order-of-Magnitude Cost for Long Range Plan Improvements	**$ 30,170,000**	

EFFECTIVENESS OF RECOMMENDED TRANSPORTATION PLAN

The effectiveness of the recommended transportation plan can be evaluated by reviewing projected traffic volumes, level-of-service, and can be measured in terms of daily vehicle-hours traveled. A comparison of the existing year 2000 network, year 2010 E+C network, and the year 2030 recommended transportation plan networks is presented in **Table 6-5**.

As shown in Table 6-5, implementation of the recommended year 2030 transportation plan is estimated to save area motorists more than 310,360 hours of time each day spent traveling in their vehicles.

Table 6-5
Comparison of Daily Vehicle Hours of Travel
Georgetown Overall Transportation Plan
Georgetown, Texas

Year	Network	Total Trips	Vehicle Hours of Travel (hours per day)	Hours Saved Per Day Verses E+C
2000	Base Year	1,407,376	1,823,189	---
2010	Existing Plus Committed	2,340,017	2,988,473	---
	Recommended Transportation Plan			
2030	Existing Plus Committed	6,838,268	10,393,094	---
	Recommended Transportation Plan	6,890,397	10,082,727	310,367

MULTI MODAL CONSIDERATIONS

CARTS (Capital Area Rural Transportation System) currently provides transit service in the City of Georgetown. In addition, Capital Metro provides assistance to commuters in Georgetown in forming carpools and vanpools for commuters who have one trip end in their service area. Additionally, Hill Country Transit operates service in adjacent Bell and Milam counties, and coordination of their services with those in Georgetown has been examined as a potential need.

Recent studies commissioned by CARTS have focused on planning future transit and multimodal services to, from and within Williamson County and the City of Georgetown. Many challenges for transit service exist as the study area rapidly transforms from a small urban and rural area to a large suburban/urban component of a metropolitan region. One of the key challenges is that trips often cross multiple jurisdictional boundaries, bringing up issues of intergovernmental coordination and service area limitations for some providers.

KEY POTENTIAL SERVICES

The following is a list of key transit and Transportation Demand Management (TDM) activities that either currently are offered or may be offered in the future to the residents of Georgetown. It is important that the City work with other area agencies to ensure the maximum use of these alternative travel modes, as they help reduce traffic, improve air quality, and serve special needs populations.

- Traditional fixed-route transit service
- Local routes that operate on fixed routes and schedules

Commuter fixed-route service via High Occupancy Vehicle (HOV) Lanes or major interregional highways (also utilizes existing park and ride lot infrastructure)

- Service between Georgetown and Round Rock and Central Austin
- Services between outlying communities (Taylor or Cedar Park, for example) and Georgetown

Regional rail service

- Georgetown as the northern end of regional commuter rail service that would travel through Round Rock, Austin, San Marcos, New Braunfels and San Antonio

Carpools and Vanpools via High Occupancy Vehicle (HOV) Lanes or major interregional highways (also utilizes existing park and ride lot infrastructure)

- Formation and support of carpools and vanpools, generally traveling longer distances (from Georgetown to Austin or vice versa, or Georgetown to/from Killeen, for example)

Bicycling and Walking

- Providing infrastructure so that biking and walking serve purposes other than recreational ones. This would include the ability to bike or walk to a transit stop, and either take a bike on board transit to the final destination, or providing a place to store the bike before boarding transit.

Special needs transportation services (dial-a-ride type service)/Paratransit

- Service for the elderly, medical patients and special needs passengers that are unable to utilize traditional forms of transit, or who need additional assistance during transport.

The CARTS study identified the following primary destinations for trips originating in the Georgetown area: Downtown Georgetown; Rivery/Wolf Ranch/I-35 Shopping/Dining; Sun City Texas; Round Rock; and Central Austin. The major purposes for these transit trips included shopping, medical appointments, travel to/from work, recreation, and visiting friends and family.

EXISTING CARTS SERVICE

The emphasis of CARTS' services is on rural public transportation with services open to all, as well as medical (dialysis being a major portion of the service), human service, and educational needs. The majority of origins in the county come from the area between the triangle formed by Pflugerville, Georgetown, and Taylor. Destinations are typically in the I-35 Corridor from Georgetown to downtown Austin.

POTENTIAL CARTS SERVICE

The *CARTS Williamson County Transit Study* describes Georgetown as:

> *"a traditional city (for transit purposes) with a downtown that includes retail stores, city, and county government. Georgetown also has a college and most importantly, much of the city (east of the interstate) is transit friendly (through streets, sidewalks, and the downtown core), allowing for the potential of higher ridership."*

The study estimated that Georgetown could support a three bus transit system, with one route operating on an hourly headway that provides service to Sun City Texas, and two other routes operating on half-hour headways. Each of these routes would interconnect at the downtown transit hub every half to one hour. The routes are would serve many types of potential transit customers:

- Public school and university students
- Commuters
- Shoppers
- Medical trips
- Governmental and other personal business downtown

This report sites the potential for growth in transit ridership within Georgetown.

CONSTRUCTION COST ESTIMATES

Order-of-magnitude construction cost estimates were developed using an analysis of fiscal 1995-97 average road construction costs from the Texas Comptroller of Public Accounts and TxDOT for types of various roadway construction. All estimated costs are in terms of year 2003 cost values and are to be used only for the purposes of comparing the relative cost of a project against other projects. The construction cost estimates for recommended improvements are summarized in Tables 6-2 through 6-4 .

Above-referenced data from the Texas Comptroller of Public Accounts and TxDOT indicate that new location non-freeway facilities cost approximately $530,000 per lane-mile. It is presumed that this figure includes only the cost of construction and not the additional costs associated with engineering design, utility adjustments, right-of-way acquisition, or the contingency factor that is typically cited in the preliminary cost estimation of roadway projects. For the purposes of this study, the average cost was adjusted upward by 15 percent to account for inflation, which results in an estimated cost of $610,000 per lane-mile for constructing a new location non-freeway facility, or $2.44 million and $3.66 million per mile for 4-lane and 6-lane roadways, respectively.

The Texas Comptroller and TxDOT analyses mentioned above also indicate that the cost of widening a non-freeway facility is approximately $450,000 per lane-mile. With a 15 percent adjustment for inflation, the cost of widening a non-freeway facility is

estimated to be $520,000 per lane-mile, or $2.1 million per mile to widen such a roadway from two (2) lanes to six (6) lanes.

Utility adjustments include relocation or reconstruction of existing water, wastewater, telecommunications, and gas or power lines. The costs for these adjustments are unique for each individual roadway project and often vary widely, totaling as little as one or two percent or as much as 20 percent of a project's construction cost. New location projects typically do not require extensive utility adjustments, as there are not usually major utilities present along the new roadway alignment. For the purpose of this study, nominal figures of $50,000 and $150,000 per mile are used to estimate the costs of utility adjustments for new location roadway projects and roadway widening projects, respectively.

As mentioned above, this report presumes that the average costs available from TxDOT and the Texas Comptroller do not include the contingency factor that is usually associated with estimating the cost of roadway projects during the planning process. Therefore, the order-of-magnitude construction cost provided in this report does not include the combined construction and utility costs and a contingency of 20 percent of this combined figure.

The overall costs of roadway improvement projects include the costs of preliminary engineering and final design necessary to prepare the construction documents and bid packages and the administration, inspection and testing required to implement the construction contract. Engineering design costs are usually estimated to be approximately 12 percent of the construction costs, while other related engineering and construction administration services are usually estimated to be approximately five (5) percent of the construction costs. The cost estimates included in this report do not include these project costs.

Right-of-way cost estimates are subjective due to the speculative nature of land value. Like utility adjustments, the cost of right-of way (ROW) acquisition is unique and variable for each individual project. ROW costs are much more difficult to estimate, however, since they are usually more market-driven. Most new location roadways require the acquisition of ultimate width ROW, though this is not always the case; roadway extensions usually proceed along alignments for which the responsible authority has already acquired the necessary ROW. Roadway widening projects do not usually require ROW acquisition unless it has been determined that the existing ROW width is inadequate for the proposed roadway section.

The order-of-magnitude construction costs reflected in Table 6-2 through 6-4 represent only an application of the data from the Texas Comptroller of Public Accounts and TxDOT for average road construction costs in fiscal years 1995-97. These cost estimates do not include utility costs, contingencies, engineering, or ROW acquisition. These figures were typically generated on a per-lane-mile basis and applied to the estimated project length for the appropriate project type.

RIGHT-OF-WAY NEEDS

Many roadways in the recommended Georgetown Overall Transportation Plan will require additional right-of-way to achieve the desired roadway cross section. However, special cases and unique situations will occasionally arise where existing physical conditions and development constraints in certain areas conflict with the need for widening of designated thoroughfares to the planned right-of-way width and roadway cross section. The UDC Roadway Adequacy Standards (UDC Section 12.05) should be used to secure needed right-of-way through land dedication concurrent with new developments. Required right-of-way for arterial, collector, and local streets, as defined in the roadway design standards in Chapter 4, represent the minimum right-of-way the City of Georgetown should require during the development approval process. Additional right-of-way required by TxDOT or other agencies above and beyond the City's requirements, can be accommodate through right-of-way reservation, rather than dedication. The standard roadway cross sections should be used in all newly developing areas and, whenever possible, in existing developed areas.

Detailed plans that accurately define right-of-way requirements of specific improvement projects should be prepared well in advance of scheduled project implementation. Such plans should be sufficiently detailed to permit right-of-way acquisition for project construction. To accomplish this function, such plans would incorporate many of the engineering decisions affecting the design of the facility. Right-of-way plans should be prepared about five years in advance of scheduled implementation. Preservation of right-of-way in advance of the development of detailed plans can be accomplished through corridor preservation actions, which are identified later in this chapter. Future right-of-way needed is based upon the recommended roadway improvement projects listed earlier in this chapter, and each facility's functional classification, contained in Chapter 4. For instance, Williams Drive is classified as a major arterial, which means that required right-of-way is 135 feet. Additional proposed right-of-way information is contained in Appendix B – Roadway Network Inventory.

TRANSPORTATION SYSTEM MANAGEMENT IMPROVEMENTS

In addition to the recommended roadway improvements, it is recommended that traditional traffic operational practices and transportation system management (TSM) techniques be employed at critical locations to alleviate deficiencies that may remain with the Transportation Plan improvements. These types of improvements are typically cost effective methods that improve traffic flow by making better use of the existing transportation system. Examples of these improvements include provisions of intersection turn lanes and other geometric improvements, coordinated signal systems that efficiently accommodate travel demands and improve safety, effective utilization of traffic control devices, lane channelization, on-street parking prohibitions, and turn restrictions. Operational improvements are also important considerations in the interim when partial implementation of some thoroughfare improvements may cause capacity overloads on other system facilities. This discussion of TSM type improvements is general in nature as more detailed studies are required on a case by case basis to

identify the specific locations and what type of improvements and programs will be needed.

TRANSPORTATION/LAND USE CONSISTENCY

With the recent adoption of a Unified Development Code (UDC), Georgetown is in an enviable position relative to most other Texas cities with regard to the tools at its disposal for ensuring that ongoing land development activities do not undermine the City's long-range transportation planning objectives. Now that these tools are in place, it will up to the City's elected and appointed officials, staff and residents to ensure that they are applied effectively and consistently to ensure safe, efficient and appealing roadway corridors within the community. The UDC provides specific mechanisms to address each of the following planning priorities considered during the OTP process:

Adequate Roadway Network – As indicated by the travel demand modeling conducted for the OTP, Georgetown faces potentially significant traffic growth over the next several decades. Most cities use their Thoroughfare Plans and capital improvements programming to progress toward a future network of major and intermediate roads that will be sufficiently dense and interconnected to provide circulation alternatives and adequately disperse traffic to avoid congestion. In Georgetown's case, existing development, Lake Georgetown and other water courses, and terrain and environmental obstacles on the west side all pose constraints to providing more major north-south roadway connections between Leander Road, SH 29, Williams Drive and SH 195. This situation is reflected on the existing City Thoroughfare Plan, where there is only one major continuous north-south corridor west of I-35.

Roadway Adequacy Standards (UDC Section 12.05)

- Use this UDC section, as well as the traffic impact analysis provisions in Section 12.05.030, to ensure that the need for through, interconnecting streets is addressed during the development review process.

Street Connectivity Requirements (UDC Section 12.03)

- Use this UDC section to ensure high interconnectivity of the collector and local street networks (sections 12.03.040 and 12.03.030, respectively), where appropriate. Given the limited opportunities for developing more major north-south roadways on the west side, it will be important to give motorists multiple options for reaching their destinations without always having to access the busiest arterial roadways. The "connectivity ratio" in Section 12.03.030 provides a specific mechanism for evaluating proposed street layout during development review.

Additional UDC Tools

- Effective street layout is addressed in UDC Section 12.03.050, including required access points for new subdivisions.

- UDC Section 13.04, regarding Residential Rural Subdivisions, includes provisions for maintaining the continuity of principal streets consistent with the City's Comprehensive Plan.

Right-of-Way Preservation – One important aspect of ensuring an adequate roadway network over the longer term is the preservation of needed rights-of-way through the City's development review procedures and other means, as outlined in more detail in the Corridor Preservation section of this chapter. Corridor preservation should be a high priority in Georgetown given the potential scale of future transportation improvements that will be necessary to accommodate projected population and traffic growth. The intent is to avoid costly and disruptive impacts to neighborhoods and non-residential land uses that currently or eventually will abut major travel corridors.

Roadway Adequacy Standards (UDC Section 12.05)

- Use this UDC section to secure needed rights-of-way through land dedication, required construction of roadway improvements concurrent with new development, and through public/private cost-sharing arrangements to implement improvements. Given the limited opportunities for developing more major north-south roadways on the west side, it will be essential to preserve adequate rights-of-way for future "buildout" of the existing and anticipated arterials on the City's Thoroughfare Plan. If other potential north-south roadway linkages emerge in the future, particularly as specific development proposals come forward, then right-of-way preservation efforts should proceed immediately to avoid permanent foreclosure of such opportunities.

Character of Major Roadways – Existing standards in UDC Section 12.03.020 require that any roadway with Average Daily Traffic (ADT) of more than 12,000 vehicles be classified a Major Arterial. Currently, major arterials must have a minimum pavement width of 110 feet, six travel lanes and a design speed of 35-45 mph. The question for Georgetown leaders and residents to consider is how this scale of roadway will impact the "look and feel" of the community in the future? With travel demand modeling indicating that many principal roadways in Georgetown will easily exceed the 12,000-vehicle threshold in the future, what effects will much wider and busier transportation corridors have on the quality of established and newer residential neighborhoods and commercial areas nearby (road widenings, noise, air quality, etc.)? Opportunities for safe bicycle and pedestrian circulation must also be considered in light of such potentially significant roadway improvements.

Chapter 4 of this OTP includes recommendations that would adjust both the functional classification and future design of many major roadways in Georgetown. First, the traffic volume threshold for designating a roadway a major arterial would be doubled from 12,000 to 24,000 vehicles per day. Roadways carrying between 12,500 and 24,000 vehicles per day would be classified as minor arterials. The suggested rights-of-way and roadway cross section standards for major and minor arterials are also higher

than currently found in the UDC. However, in the case of major arterials, increasing the ultimate right-of-way from the current UDC standard of 110 feet to a new standard of 135 feet is intended not only to address traffic safety and efficiency but also to accommodate a wide raised median, bicycle lanes in both directions, and nearly 30 total feet of additional "border area" for sidewalks and utilities. Recognizing that Georgetown's future will include more substantial arterial corridors, this sizable border area can also be used to maintain additional open space and landscaping along heavily-traveled roadways, providing greater separation and buffering between traffic and adjacent land uses.

Design Standards (UDC Section 12.03.020)

- The City (and Williamson County and the Texas Department of Transportation) should be sensitive to the need to design and construct arterial improvements that do not overwhelm the surrounding environment, particularly residential neighborhoods. This UDC section allows for variations from standard thoroughfare alignments and design when there is a need to "increase the compatibility of the right-of-way with natural or manmade features such as steep slopes, waterways, wildlife habitats, neighborhoods, historic structures or existing roadways." Arterial design must also account for pedestrian and bicycle circulation and safety, such as through designated and well-marked crossing points, since both the current and recommended design standards imply that walking and cycling should be accommodated along arterial roadways.

Access Management – Much wider and busier roadways will also increase safety concerns, not only between through and turning vehicles but also between vehicles and pedestrians/bicyclists. Fortunately, the City of Georgetown built strong access management provisions into its new UDC. Therefore, effective arterial management will be a matter of consistent enforcement of these requirements through the development review and monitoring process.

Driveway Separation Standards (UDC Section 12.03.020)

- Use this UDC section, along with the requirements for driveway spacing from intersections and associated design standards in Section 12.04, to manage both traffic safety and efficiency on the City's existing and future major roadway network. The City should consider other potential enhancements to its standards based on the discussion and recommendations in the Access Management and Driveway Access Control section of this chapter. This section covers access management strategies in three areas: (1) signal coordination and signalized intersection spacing, (2) medial (center of street) access, and (3) marginal (side of street) access. As part of this discussion, it is noted that access management techniques can sometimes yield the same increase in roadway capacity as would result from widening to add more lanes.

This could be significant for Georgetown given the concerns raised above about the character of wider, higher-speed thoroughfares.

Corridor Quality – Given the projected evolution of Georgetown's principal roadways into major transportation corridors in the coming decades, it will be important to manage the aesthetic quality of these corridors as they are an essential element of community image, particularly for a suburban, auto-oriented city. The City should continue to extend the special zoning authorities provided within the new UDC to additional roadway corridors and key intersections/interchanges, when appropriate, to address traffic safety/efficiency as well as aesthetic priorities.

Various sections of the UDC include purpose statements that reinforce the "quality image" theme as one purpose of regulating urban development and redevelopment. Particular UDC elements that will promote long-term corridor quality—if routinely and consistently enforced—include:

Gateway Overlay Districts (UDC Section 4.08)

- These districts are specifically intended to "enhance the entry corridors at Georgetown's City limits," primarily through a higher and consistent level of landscaping provision in a 25-foot wide buffer area on properties that front along designated corridors (as detailed in UDC Section 8.06, Special Landscaping Requirements for Gateways).
- The following roadway segments, within the City limits, were designated as gateways through the new UDC: I.H. 35 frontage (north and south); FM 1460; state highways 81, 195 and 29; and, Leander Road and Williams Drive.
- In UDC Section 8.06, specific gateway locations are further classified as either Highway, Scenic/Natural or Downtown Gateways, with each designation carrying particular standards and requirements that are applied through site plan review.
- Highway Gateways (UDC Section 8.06.030) focus on well-designed site plans and landscaping for both safety and aesthetic reasons. Open space is to be used to "break up large masses of parking and pavement." View corridors from the highway must also receive special attention. Significant landscaping elements should be used to "frame desired views while screening parking areas." At least 80 percent of the 25-foot landscape buffer along site frontages must be in live vegetative coverage, with no fencing in this buffer. Additionally, no service areas or service drives are permitted to face toward certain major roadways.
- Scenic/Natural Gateways (UDC Section 8.06.040) involve the same numerical provisions as Highway Gateways but require site designers to incorporate features of the natural landscape into their projects (e.g., informal tree massings, native stones, native grasses and wildflowers).
- Downtown Gateways (UDC Section 8.06.050) focus on enhancing and unifying the appearance of major roadways adjacent to, and directly

leading into downtown Georgetown, where "higher activity zones" are found. A more formal, urban effect is sought by evenly spacing and setting back trees from the roadway (while preserving existing mature trees) and highlighting intersections and parking lot entrances with ornamental plantings and color. Once again, the landscaping provisions are similar to the other gateway designations, but the landscape buffer is reduced from 25 to 15 feet and a "Street Tree Palette for Downtown Gateways" is provided.

- Finally, UDC Section 8.06.060 provides additional gateway design standards addressing appropriate placement of buildings, sidewalks, parking, dumpsters and drainage improvements relative to the required landscape buffer. Parking areas and dumpsters must also be screened, and all new development-related utilities must be located underground.

Special Area Plan Overlay District (UDC Section 4.05)

- This UDC provision will enable the City to better manage the transition of former residential areas to mixed-use areas by focusing on permitted uses and development standards in accordance with a specially prepared plan for the district. This is significant to corridor quality because neighborhood edges along major roadways are where this type of gradual land use transition most often occurs.
- The new UDC, in Section 4.05.040, established an initial "SP" overlay for all properties fronting on Williams Drive (FM 2338) between Shannon Lane and Power Road. The district purpose statement calls for an orderly transition "from residential use to relatively small scale office use … while maintaining a predominantly residential property appearance and building scale."
- The standards for achieving this objective involve limited permitted and accessory uses; limited impervious cover (55 percent of lot area); building appearance and scale (single family detached look); driveway separation and spacing relative to intersections; placement of parking (preserving front lawns, screening of side-yard parking); tree preservation and replacement; visual screening and buffering along rear property lines; enhanced sign regulation; lighting limitations; special handling of increased storm water run-off; and, specific yard requirements, including conformance with the average front setback of adjacent structures.

Sign Standards (UDC Chapter 10)

- The inclusion of strong and comprehensive sign regulations in Georgetown's new UDC helps to address one of the traditional sources of visual clutter and unappealing views along major roadway corridors. The Purpose and Objectives statement for Chapter 10 notes the City's desire "to maintain and enhance the community's overall aesthetic environment." Improved pedestrian and traffic safety is another objective cited.

- Specific provisions in Chapter 10 govern the size, height, location, style, design, number per site, and maintenance of signs. Limits are also placed on signage within public rights of way.
- Georgetown has also taken advantage of its municipal authority, under the Texas Local Government Code, to extend its sign regulations into the extraterritorial jurisdiction (ETJ), which is clearly a preventive measure to avoid the gradual aesthetic decline of roadway corridors just outside of and leading into the existing developed community.

In addition to the UDC tools, the increased right-of-way and roadway cross section standards recommended in Chapter 4 of this OTP for both major and minor arterials call for 24-foot raised medians and significant "border area" (nearly 30 feet in all) along the edges of all arterials. A Boulevard classification and cross section, with a suggested 180-foot right-of-way, would allow for an even higher level of streetscape enhancement and amenities through a 35-foot median and 12-foot planter strips along both sides of the arterial. Besides accommodating street trees or other design features, the planter strips would also address pedestrian and bicycle safety by providing even greater separation of walkers and cyclists from high-speed travel lanes.

CORRIDOR MANAGEMENT

The recommended Overall Transportation Plan described in this report was developed based on traditional thoroughfare planning principles, community values, public involvement, and input by the Technical Advisory Committee and Stakeholder Focus Group. OTP development was completed giving consideration to the existing transportation system, network continuity, functional classification system relationships, land access, growth potential throughout the City of Georgetown and its Extraterritorial Jurisdiction (ETJ), and recognition of environment, engineering, and land use constraints.

In addition to proposed roadway improvements and roadway cross section standards, the OTP includes other transportation-related recommendations. These recommendations include modifications to transportation-related regulations, policies, and guidelines; corridor preservation measures; and, access management guidelines. These recommendations are intended to provide consistency between the Overall Transportation Plan and related regulations and to facilitate plan implementation.

Collectively, these recommendations are referred to as corridor management. Corridor management includes preserving needed right-of-way in advance, minimizing development within the proposed right-of-way of a planned transportation facility, and preserving the safety and efficiency of the existing facilities through access management. Corridor management promotes the orderly development of a transportation network and helps to assure that transportation facilities will be adequate to serve existing and planned development.

CORRIDOR PRESERVATION

Corridor preservation is the first action in the corridor management process. Corridor preservation techniques are important tools for local, state, and federal agencies to protect needed future right-of-way for proposed transportation facilities. AASHTO defines corridor preservation as a "concept utilizing the coordinated application of various measures to obtain control of or otherwise protect right-of-way for a planned transportation facility. Corridor preservation techniques should be applied as early as possible after the transportation corridor is identified either along a new alignment, or along an existing facility to:

- Prevent inconsistent development;
- Minimize or avoid environmental, social, and economic impacts;
- Reduce displacement;
- Prevent the foreclosure of desirable location options;
- Permit orderly project development; and,
- Reduce costs."

A prerequisite for selecting corridors for preservation is the presence of a transportation plan, such as the City of Georgetown's Overall Transportation Plan. These types of plans typically identify future transportation corridors based on analysis of transportation deficiencies, a needs study, a statewide planning process, and urban development plans. Potential transportation corridors not identified in a city transportation plan would require too much study, planning, and public participation to warrant early preservation action. Additionally, only a corridor where sufficient analysis has been accomplished to demonstrate a feasible alignment generally free of serious environmental constraints should even be considered a candidate for preservation priority. Corridor preservation candidates can be prioritized using the following five criteria:

- Importance of the Corridor;
- Immediacy of Development;
- Risk of Foreclosing Options;
- Opportunity to Prevent Loss of the Corridor; and,
- Strength of Local Government Support.

Successful corridor preservation actions require cooperation and a working relationship between numerous public agencies, private developers, and public interest groups. Agencies and groups that should be included in corridor preservation activities include the following:

- **Federal:** Federal Highway Administration (FHWA) and Resource Agencies (EPA, Corps of Engineers, etc.);
- **State:** TxDOT, State Legislature, and Resource Agencies;
- **Local:** City Council, Mayors and Executives, Planning Commissions, City Planning and Public Works Departments;

- **Private:** Land Owners, Developers, Chamber of Commerce, and Bankers; and,
- **Citizens:** Corridor, Neighborhood and Civic Groups, Umbrella Public Interest Groups, and Environmental Activists.

Establishing means of corridor preservation for the implementation of the Georgetown Overall Transportation Plan is important. Before a new facility is constructed, all sections throughout the route should have protected right-of-way to assure ultimate development of the entire facility. Means that can be employed to assist in the successful planning and implementation of roadway improvements are identified in **Table 6-6**. The table includes both techniques currently in use in the City of Georgetown and other techniques which could be considered for adoption. The techniques are divided into two basic categories, including interim protection techniques and preservation techniques. Interim protection techniques, such as official maps of reservation, and options to purchase at a later date, strive to hold land out of development until right-of-way purchases can be made or land titles transferred. Interim protection techniques provide temporary assurances that right-of-way will be available in the future, but they cannot guarantee right-of-way protection. Preservation techniques on the other hand definitely ensure that right-of-way is, or will be, available for a transportation facility when needed. Preservation techniques include such measures as fee simple acquisition, landowner donations, and development easement acquisitions.

ACCESS MANAGEMENT AND DRIVEWAY ACCESS CONTROL

Access Management is another important component of the corridor management process. Access management is defined as the protecting of the capacity of existing transportation routes and systems by controlling access rights from adjacent properties. Access management techniques serve to limit and separate vehicle (and pedestrian) conflict points, reduce locations requiring vehicle deceleration, remove vehicle turning movements from through lanes, create intersection spacings that facilitate signal progression, and provide adequate on-site capacity to accommodate ingress and egress traffic movements.

TxDOT recently adopted an Access Management Manual to establish the minimum access guidelines for state roadways. The City of Georgetown recently adopted an Access Management Policy which is based on the State guidelines, but that policy only applies to roadways on the State Highway System. It is recommended that the City of Georgetown adopt its own access management guidelines that apply to City arterials and collectors for maximum effectiveness.

Access management techniques are extremely important for managing congestion on existing transportation facilities. The implementation of applicable techniques, or a combination of techniques, can eliminate the need for expensive roadway widenings or

Table 6-6
Corridor Preservation Techniques
Georgetown Overall Transportation Plan
Georgetown, Texas

Corridor Preservation Technique	Interim Protection	Preservation
Techniques Currently Used in City		
Subdivision Regulations		ü
Building Setbacks	ü	
Access Management and Control	ü	ü
Fee Simple Acquisition		ü
Development Easement Acquisition		ü
Landowner Donations		ü
Developer Agreements	ü	
Tax Abatement	ü	
Voluntary Developer Reservations	ü	
Techniques to Consider for Future Use		
Public/Private Partnerships (toll facilities)		ü
Options to Purchase at a Later Date	ü	
Official Maps of Reservation	ü	
General Plan Corridor Designations	ü	
Transfer Development Rights to Other Properties or Land Swaps		ü
Density Transfer within a Single Property	ü	
Interim Uses on Right-of-Way	ü	
Irrevocable Offers to Dedicate	ü	
Highway Right-of-Way Platting	ü	
Special Assessment Districts Involving Right-of-Way Dedications		ü

SOURCE: Corridor Preservation: Case Studies and Analysis Factors in Decision-Making, Volume I, U.S. Department of Transportation, Federal Highway Administration, FHWA-PD-96-044, 1995.

potential right-of-way acquisitions. The widening of University Avenue through Georgetown is an improvement that is needed strictly from a transportation point of view, but was not recommended in this plan due to the unavailability of right-of-way. Studies have shown that increasing the signalized intersection spacing to uniform intervals of one-half mile and the use of a non-traversable median to restrict left-turns will increase the capacity of a four-lane urban arterial by about 50 percent as compared to quarter-mile signal spacing and unrestricted left-turns. This is the same increase in capacity that can be obtained by widening a four-lane divided arterial to six lanes. Also, safety will be increased and congestion reduced to a greater extent than by the roadway widening. Research has consistently shown that access management helps to reduce the rate and severity of traffic accidents and improves pedestrian and bicycle safety.

From a land development perspective, access management assists in the orderly layout and use of land and helps to discourage poor subdivision and site design. Poorly designed entrances and exits to major developments not only present a traffic hazard, but also cause increased congestion, which can create a negative image of the development. In addition, access management techniques, such as reducing the number and frequency of driveways and median openings, improve the appearance of major corridors. Scenic and environmental features can be increased, which improves the image of streetscapes and can attract additional economic development.

Access management relies on a variety of access control techniques to promote efficient vehicular movements. These include the following:

- Limit number of conflict points;
- Separate conflict points;
- Limit deceleration;
- Remove turning vehicles from through lanes;
- Space major intersections to facilitate progressive travel speeds along arterials; and,
- Provide adequate on-site storage to accommodate both ingress and egress traffic.

Several access management strategies implement more than one of the above techniques in a single measure. The access management techniques most applicable for Georgetown can be separated into three major categories: signalized intersection spacing and coordination, medial access treatments, and marginal access treatments.

Recommended strategies and their potential application areas are identified in **Table 6-7**, and should be considered for inclusion in the City of Georgetown's Access Management Policy as they relate to City roadways. Traffic signal coordination and actuated signal control are strategies recommended to improve progression and reduce delay on existing arterial streets. Traffic Light Synchronization (TLS) programs have been implemented throughout the State of Texas and have been shown to reduce delay, improve progression, reduce fuel consumption, and improve air quality. For new

Table 6-7
Access Management Guidelines
Georgetown Overall Transportation Plan
Georgetown, Texas

Strategy	Specifications	Application/Purpose
Signal Coordination and Signalized Intersection Spacing		
Signal Coordination	Traffic Signal Synchronization Programs and Actuated Signal Control	Improved progression on existing arterial streets.
Signal Spacing	Major Arterials - Consistent ½ mile Minor Arterials - Consistent ¼ to ½ mile	New signal installations and proposed arterial roadways.
Medial Access		
Median Type	Major Arterials - Raised Medians Minor Arterials - Raised Medians (future volume > 20,000 vpd) or CTWLTL (future volume < 20,000 vpd)	Develop designated major arterials with raised medians and minor arterials with appropriate median type.
Median Width	Major Arterials - Minimum 24 feet Minor Arterials - Minimum 24 feet	Median widths consistent with recommended roadway cross section standards.
Median Channelization (Left-Turn Bays)	Major Arterials - At cross streets and major mid-block median openings Minor Arterials - Primarily at cross streets	Left-turn channelization provided to remove turning vehicles from traffic stream to improve vehicle flow.
Spacing of Median Openings	Major Arterials -Minimum 600 feet Minor Arterials - Minimum 450 feet	Minimum median spacing needed to limit speed differential between vehicles and reduce accident rate.
Marginal Access		
Unsignalized Intersection Spacing	The number of unsignalized intersections should be limited to 12 to 15 per mile for Arterials (minimum of 325 feet between intersections).	Reduces speed differential between through and turning vehicles and reduces accident rate.
Right-Turn Bays	Provided at major intersections and major mid-block developments with high turning volumes (generally greater than 100 vph). Also, provided on stem of T-intersections with relatively high turning volumes.	Improved traffic operations and reduced delay at signalized and unsignalized intersections.

traffic signal installation and implementation of recommended new thoroughfares, traffic signals should be consistently spaced at one-half mile intervals on primary arterials and one-quarter or one-third mile spacings on secondary arterials. Consistent traffic signal spacing is an effective access management technique that has been shown to improve progression, reduce delay, and reduce travel time.

For median access techniques, Table 6-7 identifies recommendations for the City of Georgetown for median type, median width, median channelization, and median opening spacings. Raised medians should be utilized on all primary arterial facilities to provide for efficient traffic flow, improved safety, and reduced congestion. A before and after study recently conducted in Atlanta identified a 37 percent reduction in total accidents and a 48 percent reduction in injury accidents after replacing an existing continuous two-way left-turn lane (CTWLTL) on a six-lane divided arterial with a raised median. TxDOT's new access management guidelines recommend implementation of raised medians on roadways where volumes exceed 20,000 vehicles per day. As the ADT increases, gaps in the opposing traffic stream become shorter and more infrequent. This makes it increasingly difficult for vehicles to execute multiple left-turn maneuvers from CTWLTLs. A Florida study also reported lower accident rates for arterials with raised medians than for arterials with CTWLTLs. Accident rates on both four-lane and six-lane arterials were approximately 25 percent lower on facilities with raised medians when compared to facilities with CTWLTLs.

For the City of Georgetown, raised medians are recommended for all major arterials and for all minor arterials with projected future volumes greater than 20,000 vehicles per day. Major arterials should only be constructed with raised medians in order to ensure they serve their primary function of traffic movement. Minor arterials that are not expected to have traffic volumes exceed 20,000 vehicles per day (vpd) during the planning horizon (greater than 20 years) may be constructed with a CTWLTL provided the opportunity for converting the CTWLTL to a raised median in the future exists. Should a minor arterial exceed its projected future volume and exceed 20,000 vpd, the CTWLTL should be converted to a raised median to improve traffic flow and safety.

Other median recommendations include standard median widths (24 feet for major and minor arterials), median channelization (left-turn lanes provided at major cross streets and mid-block locations), and median opening spacings (600 ft. for primary arterials and 450 ft. for secondary arterials). A 24 ft. median width for primary arterials permits the inclusion of left-turn lanes at major intersections and mid-block locations. The wider median width also permits turning vehicles to be removed from through traffic at median openings.

Marginal access techniques include the location and spacing of driveways and control how access to adjacent land uses is provided along the roadway system. The recommended guidelines require a minimum unsignalized intersection spacing of 325 feet, or 12 to 15 unsignalized intersections per mile on arterials. This spacing of unsignalized intersections reduces the speed differential between through and turning

vehicles and improves safety by reducing the accident rate. In addition, right-turn bays are recommended to be provided at major intersections and major mid-block developments with high turning volumes (generally considered to be greater than 100 vehicles per hour during the peak hour). Right-turn bays help to improve traffic operations and reduce delay at signalized and unsignalized intersections by removing the turning movements from the through traffic stream. In addition, right-turn bays should also be provided on the stem of T-intersections with relatively high turning volumes to reduce delay to turning vehicles.

Driveway Access Control

Driveway access control should be considered by the City of Georgetown, including appropriate recommendations regarding the location, spacing, width, radius, and other design considerations for driveways on arterials, collectors, and local streets. The development of this type of policy or ordinance should include input from local officials, local residential developers, and local commercial developers and should be compatible with the Overall Transportation Plan.

COORDINATING TRANSPORTATION PLANNING ACTIVITIES AND CURRENT DEVELOPMENT ACTIVITIES

Improved coordination and cooperative efforts of local and state officials must be continued to fully realize the benefits of the Georgetown Overall Transportation Plan. The interaction between urban growth and traffic movement will require highway and planning agencies to have both direct and related roles in transportation. The extent to which future land uses follow the year 2030 development projections will determine, to a large degree, the actual implementation schedule of the OTP. Conversely, the extent to which major components of the future land use projections are realized will be dependent upon the adequacy of the transportation system.

Successful implementation of the Georgetown Overall Transportation Plan will also depend on the understanding and support of the plan by the citizens of the City of Georgetown. It is difficult for the governing officials to implement any plan unless the community is made aware of its advantages, and supports the plan. The local governments must have support of the citizens to make the plan a reality.

TRANSPORTATION IMPROVEMENT PROGRAM PROCESS

The purpose of the Transportation Improvement Program (TIP) for the City of Georgetown is to identify roadway, transit, bicycle, pedestrian and other transportation programs and projects that will be scheduled and implemented within the next three year period. These projects must meet certain criteria developed to ensure that the projects will be ready to be implemented within the programmed years; be consistent with local, state and regional transportation plans; and conform to local, state, regional and federal planning requirements. This process is designed for major capital

improvement projects, and not maintenance repairs and local street improvements. Eligible projects include the following:

- Collector, arterial, or freeway capacity improvements;
- Intersection and safety improvements along collector and arterial roadways;
- New location collectors, arterials, or freeways;
- Bicycle and pedestrian facilities; and,
- Transit improvements.

New projects in addition to those already in the OTP that are not selected for inclusion in the City of Georgetown TIP for funding may be included in the Georgetown Overall Transportation Plan (OTP) for consideration in future TIP cycles. It is important to note that projects currently not in the Georgetown OTP may be added through this process as an amendment to the OTP.

Regionally significant projects will be forwarded to the Capital Area Metropolitan Planning Organization (CAMPO) and the Texas Department of Transportation (TxDOT) for inclusion in their respective TIPs. Additionally, projects that are not funded under the City's TIP process may be eligible to compete for funding under one of those agencies funding programs.

Even though the TIP is a 3-year document, it can be amended on an as-needed basis to reflect changes in local priorities, or to allow for adjustments in project implementation plans or schedules. However, projects selected for inclusion in the TIP should always be consistent with the goals and objectives set forth in the OTP.

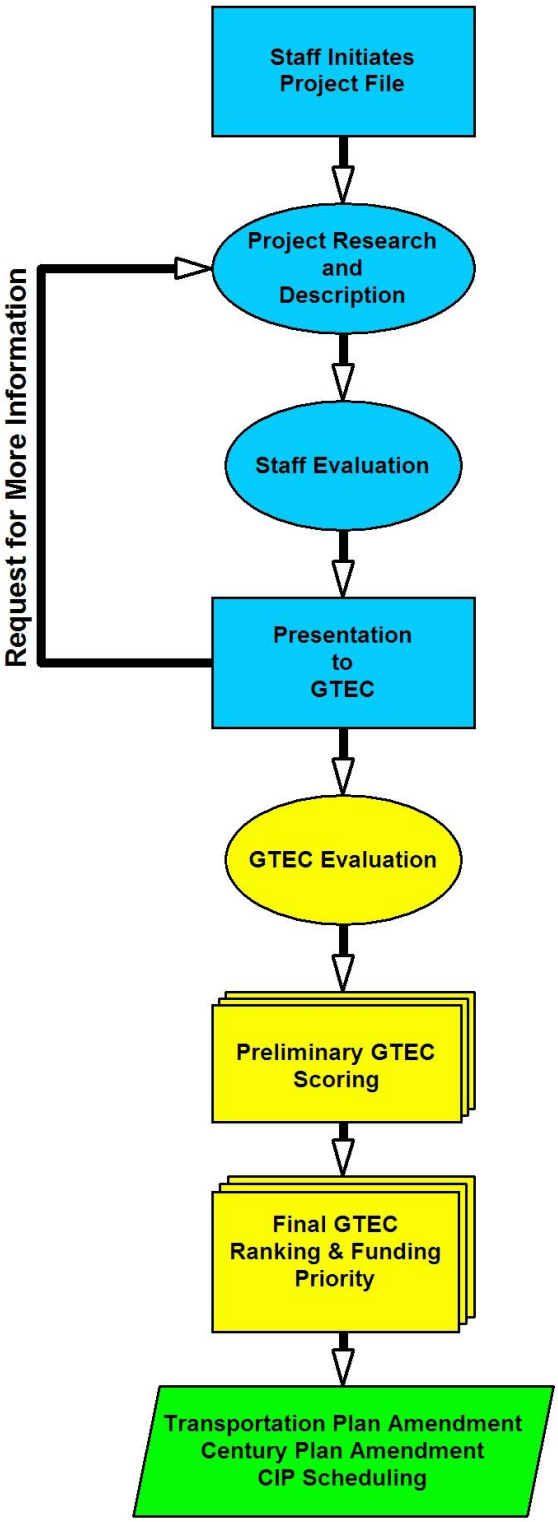
TIP Process

The GTEC/City of Georgetown TIP Project Selection Process is essentially a three step program of evaluating and ranking proposed transportation improvements, as shown in **Figure 6-4**, and detailed in **Appendix C**. The first step (shown in blue) involves project initiation, including the completion of the project description form by City of Georgetown staff, and project evaluation by City staff. Step two (shown in yellow) involves GTEC Board project evaluation and development of final ranking and funding priority. Step three (shown in green) begins the implementation process for the selected projects.

This process ensures that projects are consistent with all appropriate transportation and development plans, including the OTP. It also ensures that funding is programmed to move the selected projects forward in a timely manner. In addition to GTEC, projects may also be funded by the City through its Capital Improvements Program, by Williamson County, TxDOT, CAMPO, or any combination of these funding sources.

Figure 6-4

Project Selection Process



GTEC has become an important source of funding for projects within the City of Georgetown. However, State Legislature action in the 2003 Session may limit GTEC's ability to participate financially in some future transportation projects. State lawmakers have tightened restrictions on the use of 4B economic development sales tax money. The 4B sales tax can be used in a broad way, including for tourism, water projects, sports stadiums, parks, affordable housing and infrastructure projects, as long as they are attached to an economic development project.

Lawmakers have prohibited the use of 4B sales tax money for retail stores, although cities can build infrastructure projects such as roads and utility hookups for retail enterprises. Cities can no longer spend 4B sales tax money on libraries, municipal buildings or learning centers. The changes do not affect projects already under way.

The changes in the 4B sales tax law also mandated that every tax incentive package include a performance review so companies can prove they created jobs with the sales tax money. As well, board members and municipal executives, who manage the sales tax money, must have training every two years that covers a state-mandated curriculum that includes legal and accounting lessons. It is burden of proof that the investment of economic development sales tax revenue has resulted in the creation of jobs that may make it more difficult for GTEC to participate in some future transportation projects.

IMPORTANCE OF ADOPTING TRANSPORTATION PLAN

While it is recognized that unforeseen developments can and do call for periodic revisions to the Georgetown Overall Transportation Plan, this does not invalidate the need for the plan to be officially adopted and enforced. This transportation plan will be formally considered for adoption by the Georgetown City Council, in accordance with the policies and procedures of the Council. Adoption of the Overall Transportation Plan is necessary to officially recognize and confirm the status of the plan as a part of the policies of local and state transportation agencies.

PLAN AMENDMENTS

Formalized policies and procedures should be established whereby revisions are made only when new circumstances justify them and after careful consideration of the impacts that may be caused by such modifications. The City of Georgetown will enforce the thoroughfare plan (figure 4-3) and roadway cross section standards as development occurs through the development review and approval process. The thoroughfare plan itself identifies the specific type of facility needed in a particular area (arterial, collector, etc) and the general location in which it should be developed. Changes to the functional classification of a facility will require a plan amendment. However, slight modifications to facility locations, such as a shift of an alignment several hundred feet one way or another or changes in roadway curvature, do not require a plan amendment as long as the intent of the thoroughfare plan to provide system connectivity and appropriate types of facilities is not compromised.

In many instances, intersections of proposed facilities with other major roadways are the determining location factors, as proper intersection spacing (as defined by the access management guidelines discussed earlier in this chapter) is an important consideration in optimizing traffic flow. Criteria should be developed to allow staff, as part of the development review process, to determine whether or not a proposed alignment modification is consistent with the intent of the thoroughfare plan and can be approved without a plan amendment, or if a proposed modification contradicts the intent of the thoroughfare plan and requires a plan amendment.

CONCLUSIONS

The recommended Georgetown Overall Transportation Plan provides a framework for rational development of an efficient transportation system as the City of Georgetown continues to grow and develop in future years. Implementation of the Overall Transportation Plan will require the continued cooperation and coordination of local, state, and federal officials in making judicious decisions concerning the availability and use of roadway improvement funds. Implementation of the Georgetown Overall Transportation Plan is an important element in improving and fulfilling the future mobility needs of the City of Georgetown and its environs.