A detailed understanding of the study area's characteristics and its growth potential is important in the preparation of the Overall Transportation Plan. Development of the City of Georgetown OTP involved an extensive evaluation of alternative transportation systems to determine their ability to meet future transportation needs and community objectives. An important factor in determining future transportation needs of the study area was the use of the transportation models to develop future travel demand forecasts based on projected land use and development patterns in the area. In addition to traffic service, factors such as maximum utilization of the existing transportation system, community acceptance, impact on land development, and conformance with growth policies and community goals and objectives were considered in developing and evaluating transportation plan alternatives.

TRAFFIC CAPACITY CRITERIA

The principal determinants of roadway capacity are the number and width of travel lanes. Other factors, such as the spacing and efficiency of signalized intersections, type and intensity of adjacent development, traffic composition, and traffic controls and regulations also influence the ability of a roadway to accommodate traffic. Additionally, the size of the city and motorists' driving habits influence the level of service that is experienced on the transportation system.

The level of service provided by any facility is a function of prevailing conditions along that facility as related to the demands exerted by traffic. A desirable level of service is attained when a stable flow of traffic is maintained at the desired travel speed. Increasing traffic densities beyond this level result in greater delays and lower travel speeds, which describe service levels below those accepted as desirable. Estimated daily roadway capacities for the various facilities in the City of Georgetown that were used in the travel demand model analysis are presented in **Table 5-1**. These roadway capacities are derived from and are consistent with CAMPO's Regional Travel Demand Model, which also considers travel speed and number of lanes as major elements in calculating trip distribution (this is more thoroughly discussed in Chapter 3). The identified roadway capacities are equivalent to the maximum daily traffic volume to maintain level-of-service E conditions, with roadways exceeding the identified capacities operating at LOS F conditions. For analysis purposes, a "line" was drawn to divide the study area into two classifications – the line follows the route of SH 130 from the southern study area boundary to I-35, I-35 north to SH 195, and SH 195 north to the northern study area boundary. Land and transportation facilities south and west of that line were classified as "suburban" and everything north and east of that line were classified as "rural."

For the purposes of analyzing alternative transportation networks, roadway facilities were evaluated based on the level-of-service definitions and procedures identified in Chapter 2, Existing Transportation Conditions. Facilities with higher volume-to-capacity

(v/c) ratios were considered to experience higher delays and congestion during peak periods than roadway facilities with lower v/c ratios.

FUTURE TRAFFIC ON NO BUILD PLUS UNDER CONSTRUCTION NETWORK

The first step of the traffic model analysis looked at future year demographics (trips) on the existing roadway network (called No Build), including projects that are presently under construction. This analysis assumes that no further roadway capacity is added in the future. Although it is not likely that no further construction activity will occur, this is a planning analysis tool upon which future improvements are based.

Table 5-1
Estimated Roadway Capacities
City of Georgetown Transportation Plan
Georgetown, Texas

Facility Type	Number of Lanes	Daily Capacity (Vehicles per Day)
Interstate - Suburban	4 per direction	212,000
	3 per direction	159,500
Interstate - Rural	2 per direction	64,000
Freeway - Suburban	4 per direction	192,000
	3 per direction	144,000
Freeway - Rural	2 per direction	58,000
Major Arterial – Suburban	6	55,500
	5	41,250
	4 (Divided w/median)	37,000
	4 (Undivided)	33,000
	3	24,750
	2	16,500
Major Arterial – Rural	6	39,000
	5	28,750
	4 (Divided w/median)	26,000
	4 (Undivided)	23,000
	2	11,500
Minor Arterial – Suburban	5	25,000
	4 (Undivided)	20,000
	3	15,000
	2	10,000
Minor Arterial – Rural	6	24,000
	5	17,500
	4 (Divided w/median)	16,000
	4 (Undivided)	14,000
	2	7,000
Collector – Suburban	4	18,000
	2	9,000
Collector – Rural	2	4,000
Local – Suburban	2	9,000

Sources: CAMPO Regional Travel Demand Model; Wilbur Smith Associates

The model results for this network in 2010 show that traffic volumes are predicted to exceed roadway capacity on the following major roadways (shown in **Figures 5-1a and 5-1b**):

- SH 195
- Del Webb Boulevard
- Williams Drive
- SH 29 West and East
- I-35
- FM 1460
- FM 971
- Austin Avenue

After assigning year 2030 trips to this network, almost every major roadway in the Georgetown ETJ is projected to far exceed capacity, as shown in **Figures 5-2a and 5-2b**. From this base, future improvements were modeled in the process of developing a recommended plan to address future traffic needs.

FUTURE TRAFFIC ON GTEC EXISTING PLUS COMMITTED NETWORK

The second step in this process involved looking at the projects selected by GTEC for implementation between now and the Year 2010. These projects are expected to be operational by the 2010, and form the short range element for the OTP. As such, the projects also form the basis for the Existing Plus Committed (E+C) Network.

The improvements programmed by the GTEC have positive impacts on Levels of Service (LOS) in 2010 for most facilities, as shown in **Figures 5-3a and 5-3b**. However, the following roadways in this network are projected to have volumes that exceed roadway capacity:

- DB Woods Boulevard
- I-35
- FM 1460
- CR 110
- FM 971
- SH 29 West

However, if no further projects are implemented beyond those programmed through the year 2010, by 2030, the travel model predicts that again, almost every major roadway within the Georgetown ETJ will exceed design capacity, as shown in **Figures 5-4a and 5-4b**.

DEVELOPMENT AND EVALUATION OF ALTERNATIVES

With the Existing Plus Under Construction and Existing Plus Committed networks as the basis, the consultant team, with significant input from City Staff, the Technical Advisory Committee, Stakeholder Focus Group, and the general public, developed potential projects to address the projected system shortfalls, and to provide for a more fully developed, integrated and continuous system.

Figure 5-5 shows the Universe of Alternative Transportation Improvements that were modeled in the development of the ultimate recommended build out plan. In developing the Universe of Alternatives, the previous model runs indicated the need for another high capacity, high speed facility in Georgetown. **Tables 5-2** and **5-3** show two lists of alternatives that were considered for analysis (project numbers and letters correspond to the map in Figure 5-5). Also, deficiencies were noted in the development of a complete arterial roadway system to serve the future build out population of the Georgetown ETJ.

Table 5-2
Universe of Alternative Transportation Improvements
GTEC Funded Improvements (2003-04 TIP)
City of Georgetown Transportation Plan
Georgetown, Texas

Map Project Reference	Project Description	Number of Lanes	Proposed Functional Classification
1	State Highway 29 (traffic signal)	N/A	Major Arterial
2	State Highway 29 (paving, widening, second traffic signal)	6	Major Arterial
3	IH-35 West Frontage Road and Bridge	2	Collector
4	TxDOT Inspection and Project Management Fees (10%)	N/A	N/A
5	CR 265 W. South of SH 29	2	Collector
6	CR 265 E. North of SH 29	2	Collector
7	CR 265 W. North of SH 29	2	Collector
9	IH-35/Williams Drive Access Improvements	5-6	Major Arterial
10	Northeast Inner Loop/Lakeway Bridge over IH 35, from CR 151 to Airport	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition (ROW for 4 lane)	N/A	Major Arterial
	Construct 4 Lane Bridge and 2 Lane Inner Loop*	2	Major Arterial
11	Inner Loop, County Road 110, Proposed Arterial SE1 Intersection (temporary) Major Arterial ROW	2	Major Arterial
12	Arterial SE1 from Inner Loop to SH 130	2	Minor Arterial
	Preliminary Design and Schematics	N/A	Minor Arterial
	ROW Acquisition (ROW for 4 lane)	N/A	Minor Arterial
	Construct 2 Lane Segment (2.2 miles)	2	Minor Arterial

Table 5-3
Universe of Alternative Transportation Improvements
Projects Not Funded by GTEC

Map Project Reference	Project Description	Number of Lanes	Proposed Functional Classification
8	State Highway 29 East (widening to 5 lanes from Haven Lane to SH 130)	5	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition	N/A	Major Arterial
	Construction (1.98 miles)*	5	Major Arterial
	TxDOT Inspection and Project Management Fees (10%)	N/A	N/A
13	CR 265/Hacia Los Lobos (from Rivery Boulevard to SH 29)	2	Collector
	Preliminary Design and Schematics	N/A	Collector
	ROW Acquisition (ROW for 4 lane)	N/A	Collector
	Construct 2 Lane Road (0.75 miles)	2	Collector
14	Southwest By-Pass (from SH29 to IH 35)	2-4	Major Arterial
	Preliminary Design and Schematics (Current Year Project)	N/A	Major Arterial
	ROW Acquisition (ROW for 4 lane)	N/A	Major Arterial
	Construct*	2-4	Major Arterial
15	South West Inner Loop (SH 29 to Southwest Bypass)	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition (ROW for 4 lane)	N/A	Major Arterial
	Construct 2 Lane Road (0.75 miles)	2	Major Arterial
16	North West Inner Loop (Widening to 4 Lanes (SH 29 West to Williams Drive))	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	Construct 2 Lane Road (3.8 miles)	2	Major Arterial
17	Inner Loop, County Road 110, Proposed Arterial SE1 Intersection final - Flyover Ramp	1	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition	N/A	Major Arterial
	Construction	1	Major Arterial
18	County Road 110 (From Inner Loop to Round Rock Art."A")	2	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition	N/A	Major Arterial
	Construct 2 Lane Segment (2.1 miles)	2	Major Arterial
19	SE Inner Loop (Widening to 4 Lanes (IH 35 to CR 110))	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	Construct 2 Lane Road (3.8 miles)	2	Major Arterial

Table 5-3
Universe of Alternative Transportation Improvements
Projects Not Funded by GTEC

Map Project Reference	Project Description	Number of Lanes	Proposed Functional Classification
20	Southeast Inner Loop/1460 Bridge	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	ROW Acquisition (ROW for 4 lane)	N/A	Major Arterial
	Construct 4 Lane Bridge and 2 Lane Inner Loop*	4	Major Arterial
21	NE Inner Loop (Widening to 4 Lanes CR 110 to Bus. 35)	4	Major Arterial
	Preliminary Design and Schematics	N/A	Major Arterial
	Construct 2 Lane Road (3.8 miles)	2	Major Arterial
22	Shell Road (Widen to 4 Lanes (Williams Dr. to Shell Spur)	4	Collector
	Preliminary Design and Schematics	N/A	Collector
	Construct 2 Lane Road (3.8 miles)	2	Collector
23	County Road 188 Extension (Southwester University through College to FM 971)	2	Collector
	Preliminary Design and Schematics (may include 2 bridges)	N/A	Collector
	ROW Acquisition (ROW for 4 lane)	N/A	Collector
	Construct 2 Lane Road (2.0 miles) (may increase with bridge cost)	2	Collector
24	Construct IH-35 Frontage Roads	2	Collector
	Build NB Frontage Road and Bridge (FM 2243 to SH 29)	2	Collector
	Construct NB Frontage Road (SW Bypass to FM 2243)	2	Collector
	Construct NB Frontage Road (FM 2338 to Lakeway)	2	Collector
A	Construct and upgrade (as necessary) Inner Loop to freeway between SH 29 East and I-35, and then on the west side of I-35 South northward to I-35 North of SH 195	4-6	Freeway
B	Construct North-South Arterial west of Lake Georgetown (SW 1)	4	Major Arterial
C	Construct North-South Arterial between SH 29 and Chandler Road in Round Rock (SW 2)	4-6	Major Arterial
D	Construct Arterial from DB Woods Boulevard to west, then southward across SH 29 to Leander Road (SW 3)	2-4	Collector
E	Construct East-West Arterial from Parmer Lane to SW 2 (Round Rock Arterial G)	4	Major Arterial
F	Construct North-South Collector from Leander Road to Westinghouse Road (SW 4)	2	Collector
G	North-South collector on west side of I-35 (Inner Loop Spur on Thoroughfare Plan) from Southwest Inner Loop to proposed RR Arterial H	2	Collector
H	Construct North-South Arterial from Inner Loop to Chandler Road (Maple Street extension to Round Rock Arterial A)	2	Minor Arterial
I	Construct new arterial section/improve existing section of Chandler Road between FM 1460 and Williamson County Arterial 2 (If not selected for freeway classification)	4	Major Arterial
J	Improvements to form North-South Arterial (Williamson County Arterial 2) between FM 972 and Round Rock	2-4	Major Arterial

Table 5-3
Universe of Alternative Transportation Improvements
Projects Not Funded by GTEC

Map Project Reference	Project Description	Number of Lanes	Proposed Functional Classification
K	Construct North-South collector between SH 29 and FM 971	2	Collector
L	Construct East-West roadway from I-35 frontage road to CR 152 (NE 3)	2	Collector
M	Construct North-South roadway from eastern terminus of Project L northward to FM 972 (NE 4)	2	Collector
N	Connection from South of SH 29 to DB Woods	2	Collector
O	Construct Airport Road Overpass of I-35 from Airport Road west of I-35 to Old Airport Road east of I-35	2	Minor Arterial
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	Collector
Q	Extend Sun City Boulevard from eastern terminus eastward across SH 195 to I-35 frontage road	2	Collector / Major Arterial
R	Construct Parmer Lane in a north-south direction from Round Rock to north, and then east-west from northwest Georgetown to I-35	4	Major Arterial
S	Extend Sun City Boulevard from western terminus northward to Parmer Lane	2	Collector
T	North-South Arterial from SE 1 south to Round Rock	2	Minor Arterial
U	Widen SH 29 from Inner Loop to SH 95	4-6	Major Arterial
V	Widen FM 971 from Austin Avenue to Williamson County Arterial 2	4-6	Major Arterial
W	Construct east-west roadway from CR 188 extension to Project K (NE 2)	2	Collector
X	Construct east-west roadway from Inner Loop to Project K (NE 1)	2	Collector
Y	Widen I-35 Mainlanes to 4 lanes in each direction from Round Rock northward to SH 195; widen frontage roads to 3 lanes each direction from Round Rock to Parmer Lane	8 M/L & 6 Frtg.	Freeway
Z	As alternative to Project A (Inner Loop Freeway), construct freeway facility along Westinghouse Road alignment (east-west) from SH 29 East to I-35, then in a northward direction from I-35 South to I-35 North	4-6	Freeway
AA	Upgrade SH 195 to freeway facility from I-35 to Bell County Line	4	Freeway
BB	Widen Williams Drive from I-35 to Parmer Lane	6	Major Arterial
CC	Widen SH 29 West from I-35 to Parmer Lane	6	Major Arterial
DD	Widen Leander Road from I-35 to Parmer Lane	4-6	Major Arterial
EE	Widen FM 1460 from Inner Loop to Round Rock	6	Major Arterial
FF	Construct western extension of Westinghouse Road from I-35 to Parmer Lane	4	Major Arterial
GG	Improve Chandler Road from IH 35 to FM 1460	6	Major Arterial
HH	If Westinghouse is not selected as freeway route, then improve as arterial between Project J and I-35	2-4	Major Arterial
II	Western extension of Serenada Drive	2	Collector
JJ	Widen FM 1460 from Inner Loop North	6	Major Arterial

N/A = Not Applicable

For the final model assignments, 36 total improvements were modeled for their effectiveness in improving the distribution of trips across the 2030 build-out network. This included the analysis of two different freeway alignments, and provided connectivity to roadways in adjacent municipalities, especially Round Rock to the south. The resulting list of proposed improvements, along with projected costs, implementation schedules and lead agencies, is contained in Chapter 6. The final model assignments are shown in **Figures 5-6a and 5-6b** for Alternative 1 – Inner Loop Freeway; and in **Figures 5-7a and 5-7b** for Alternative 2 – Westinghouse Freeway.

Key roadway improvements included in the test model networks included the following:

- An east-west freeway east of I-35 to serve as a by-pass to SH 29 East;
- A north-south freeway west of and parallel to I-35 to provide another alternative to I-35 on the west side;
- Widening of major arterials throughout the City; and,
- The inclusion of new arterials and collectors for system continuity and completion.

FUTURE TRAFFIC IMPACTS OF MODEL NETWORKS

Both alternative test networks provided improved traffic operations in most areas of Georgetown as compared to the No Build and E+C networks. Certain roadway improvements performed better in one or the other alternative model runs. LOS improved on many roadways with both test networks; however, certain major facilities still were projected to exceed capacity in both alternatives, including Leander Road, SH 29 West and East, Williams Drive, Austin Avenue, and I-35.

Alternative A overall provided more positive future outcomes than Alternative B. The freeway facility following much of the existing and proposed Inner Loop carries higher traffic volumes than a freeway farther south along Westinghouse Road, thus maximizing the investment. The Inner Loop alignment also provides significant relief to SH 29 East, maintaining Year 2000 traffic volumes despite extensive population growth. The farther south the freeway is placed, the fewer trips that it diverts from downtown Georgetown and other roadways east of I-35. Generally, the by-pass “loop” formed by SH 130 on the east and the proposed Inner Loop Freeway on the south and west are projected to reduce future traffic to manageable levels “inside the loop.”

However, traffic volumes are still forecasted to be higher than capacity “outside the loop” even with increased capacity. Williams Drive, SH 29 West and Leander Road west of Inner Loop are still projected to exceed the capacities for a six-lane arterial. Inter-jurisdictional coordination will be important in addressing these deficiencies. The remainder of the proposed build-out network performs adequately in the future 2030 model.