Chisholm Trail Parkway Investment Grade Traffic and Toll Revenue Study

September 2011

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

WilburSmith
ASSOCIATES

Investment Grade
Traffic and Toll Revenue Study

Chisholm Trail Parkway

IH 30 to US 67

Prepared For:

NORTH TEXAS TOLLWAY AUTHORITY

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September 2011

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September 20, 2011

Mr. Allen Clemson
Executive Director
North Texas Tollway Authority
5900 West Plano Parkway, Suite 100
Plano, TX 75093

Re: Chisholm Trail Parkway Investment Grade Traffic and Toll Revenue Study

Dear Mr. Clemson:

Wilbur Smith Associates (WSA) is pleased to submit this report of our traffic and toll revenue study for the Chisholm Trail Parkway (CTP). The report summarizes the results of the study, which included development of traffic and toll revenue estimates for a fifty-two year period. The purpose of this study was to conduct an Investment Grade Traffic and Toll Revenue evaluation for the CTP.

Our project team, including Michael Copeland, Phani Jammalamadaka, Justin Winn, Naveen Mokkapati, Yagnesh Jarmarwala, Worapong Hirunyanitiwattana, Gustavo Baez (Baez Consulting), Maneesh Mahlawat (Baez Consulting) and others, gratefully acknowledge the assistance and cooperation received from NTTA as well as others contacted during the course of the study. WSA sincerely appreciates the opportunity to have participated in this important project.

Respectfully submitted,

WILBUR SMITH ASSOCIATES

Kamran A. Khan
Senior Vice President

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DISCLAIMER

Current accepted professional practices and procedures were used in the development of these traffic and revenue forecasts. However, as with any forecast of the future, it should be understood that there may be differences between forecasted and actual results caused by events and circumstances beyond the control of the forecasters. In formulating its forecasts, WSA has reasonably relied upon the accuracy and completeness of all of the information provided (both written and oral) by NTTA and several local and state agencies. Publicly available and obtained material has neither been independently verified, nor does WSA assume responsibility for verifying such information. WSA has relied upon the reasonable assurances of the independent parties that they are not aware of any facts that would make such information misleading.

WSA has made qualitative judgments related to several key variables within the analysis used to develop the traffic and revenue forecasts that must be considered as a whole; therefore selecting portions of any individual results without consideration of the intent of the whole may create a misleading or incomplete view of the results and the underling methodologies used to obtain the results. WSA gives no opinion as to the value or merit to partial information extracted from the report.

All estimates and projections reported herein are based on WSA's experience and judgment and on a review of independent third party projections and information obtained from multiple state and local agencies including NTTA. These estimates and projections may not be indicative of actual or future values, and are therefore subject to substantial uncertainty. Future developments cannot be predicted with certainty, and may affect the estimates or projections expressed in the report, such that WSA does not specifically guarantee or warrant any estimate or projections contained within this report.

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EXECUTIVE SUMMARY

This Investment Grade Traffic and Toll Revenue report reflects all current efforts requested of Wilbur Smith Associates (WSA) by the North Texas Tollway Authority (NTTA) to estimate traffic and toll revenue for the proposed Chisholm Trail Parkway (CTP) in Tarrant County and Johnson County. The study evaluated the traffic and revenue potential of proposed CTP corridor between IH 30 and US 67. The facility is assumed to be opened to traffic on April 30, 2014.

The study was conducted at an investment grade level and is considered suitable for use in project financing. The study utilized the latest North Central Texas Council of Governments (NCTCOG) 2035 Mobility Plan, which includes the most recently approved future transportation improvement assumptions. The demographics datasets from the NCTCOG Mobility 2035 Plan were updated based on an independent economic review performed along the CTP corridor by Research and Demographic Solutions. The traffic and revenue estimates on the CTP were calculated by using the trip tables that were generated by using these updated demographics datasets.

The traffic and revenue forecasts assume an all-electronic toll collection system with continuing toll increases on CTP throughout the life of the project. The toll rate on the CTP in 2009 for TollTag users has been established at $0.185 per mile north of Altamesa and $0.145 per mile south of Altamesa. Beyond 2009, toll rates will be incremented at 2.75 percent annually and adjusted every two years.

The study effort involved the following key elements:

- **Extensive Data Collection Program** – The data collected for this study included traffic counts at specific locations around the CTP corridor and travel time runs on the potential competing routes to CTP, motorist travel patterns through origin/destination survey and value of time estimates from a stated preference survey, as detailed in Chapter 2. With this data, WSA evaluated the traffic trends and the travel time characteristics along the CTP corridor. Results from the stated preference survey were used to estimate the value of time for Tarrant and Johnson Counties and were subsequently used in the traffic and revenue estimates of the CTP

corridor. A detailed report explaining the survey methodology and findings is included in Appendix B of this report.

- **Corridor Growth Analysis** – Using the most recently approved demographics included by NCTCOG in their Mobility 2035 Plan, WSA evaluated the socioeconomic conditions along the CTP corridor as described in Chapter 4. This included a review of the historical population and employment growth trends, as well as the future growth projections of these two major socioeconomic characteristics along the CTP corridor. A summary of the independent economic reviews performed by Research and Demographic Solutions along the CTP corridor is presented in Chapter 4. Reports detailing the results of the independent economic review are presented in Appendix A.
- **Traffic and Toll Revenue Forecasts** – WSA developed the traffic and revenue forecasts between 2014 and 2065 for the CTP, as detailed in Chapter 6. The traffic and toll revenue forecasts were made based on the revised demographics trip tables, which were developed based on the independent economic reviews that were done along the CTP and the NTTA system corridors.

The toll sensitivity analyses for the CTP, as described in Chapter 6, show that the current and planned toll charges on the CTP are below the theoretical revenue maximization points. This demonstrates that, if needed, there is some potential for revenue enhancement through toll increases above those assumed for traffic and revenue forecasting purposes. However, the potential for toll increases is much greater in the northern section of the facility, as the tolls in the southern section are fairly close to the maximums.

Estimates of annual toll revenue for the proposed CTP are presented in Table ES-1. The annual transactions and annual revenue have been adjusted to reflect "ramp-up" during the first several years of operation. The annual transactions are expected to increase from 14.2 million in 2014 to 84.5 million in 2035 and 128.0 million in 2065. Annual toll revenue is expected to be approximately $11.8 million in year 2014 and is expected to reach $183.0 million by 2035 and $631.0 million by 2065. CTP is expected to generate a total of $13.8 billion in revenue over the forecast period.

Table ES-1
Estimated CTP Transactions and Revenue

Calendar Year	Annual Transactions	Annual Revenue
2014	14,238,400	$11,793,200
2015	26,699,600	$29,679,400
2016	33,319,200	$39,809,200
2017	40,375,800	$50,326,600
2018	48,267,000	$62,341,400
2019	54,582,900	$73,013,800
2020	58,428,400	$81,136,400
2021	59,905,700	$85,755,900
2022	61,424,400	$90,779,900
2023	62,985,600	$95,774,900
2024	64,590,700	$101,465,400
2025	66,241,100	$107,036,800
2026	67,938,300	$113,333,800
2027	69,683,500	$119,523,100
2028	71,478,600	$126,465,800
2029	73,325,100	$133,410,600
2030	75,224,700	$141,233,200
2031	76,983,700	$148,561,400
2032	78,788,200	$156,680,900
2033	80,639,500	$164,878,500
2034	82,538,800	$173,980,900
2035	84,487,400	$183,012,800
2036	86,487,000	$193,044,700
2037	88,538,800	$203,112,600
2038	90,644,500	$214,289,800
2039	92,805,500	$225,594,400
2040	95,023,500	$238,024,200
2041	96,448,800	$247,927,200
2042	97,895,600	$258,739,300
2043	99,364,000	$269,715,000
2044	100,854,500	$281,846,400
2045	102,367,200	$293,504,500
2046	103,902,800	$306,432,600
2047	105,461,300	$319,270,400
2048	107,043,300	$333,376,400
2049	108,648,900	$347,090,600
2050	110,278,600	$362,269,200
2051	111,381,400	$375,463,800
2052	112,495,200	$389,973,900
2053	113,620,200	$404,291,500
2054	114,756,400	$420,131,100
2055	115,904,000	$435,545,800
2056	117,063,000	$452,577,100
2057	118,233,600	$469,119,500
2058	119,416,000	$487,567,600
2059	120,610,200	$505,266,300
2060	121,816,200	$524,782,200
2061	123,034,400	$544,138,800
2062	124,264,700	$565,504,400
2063	125,507,400	$586,017,400
2064	126,762,400	$608,766,300
2065	128,030,000	$630,983,900
TOTAL	**4,630,806,000**	**$13,784,360,800**

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CHAPTER 1

INTRODUCTION

This comprehensive traffic and toll revenue report is a summary of all current efforts requested of Wilbur Smith Associates (WSA) by the North Texas Tollway Authority (NTTA) to estimate traffic and toll revenue for the proposed Chisholm Trail Parkway (CTP), the northern portion of which was formerly known as Southwest Parkway, project in Tarrant and Johnson Counties. The study evaluated the traffic and revenue potential of the proposed corridor between IH 30 and US 67. The facility is assumed to open to traffic in April 2014.

BACKGROUND AND AUTHORITY FOR STUDY

Due to increasing congestion and the greater demand for new capacity, the NTTA has begun pursuing the possible construction of CTP between IH 30 in Fort Worth and US 67 in Cleburne. An initial study was conducted by WSA in December 1997 to estimate potential traffic and toll revenues for SWP between IH 30 and Altamesa Boulevard. Additionally, a preliminary traffic and toll revenue study was conducted in 2005 to evaluate the entire corridor between IH 30 in Fort Worth and US 67 in Cleburne. Multiple comprehensive traffic and revenue studies were performed for CTP between 2006 and 2010, and this analysis builds upon that previous work.

Building on the previous work, the current study incorporates the following:

- In March 2011, the Regional Transportation Council (RTC) approved the Mobility 2035 Plan. This investment grade study incorporates the plan for the existing and future transportation facilities. In addition, the Mobility 2035 Plan used the latest official demographic forecasts for the Dallas-Fort Worth region which were developed and adopted by the North Central Texas Council of Governments (NCTCOG) in February 2011.
- For this study, a new independent economic review was completed by Research and Demographic Solutions (RDS) in June 2011. A previous economic review was completed in 2009, but given the rapidly changing economic climate and the adoption of new demographics by NCTCOG, an updated review was performed.

OBJECTIVE AND SCOPE OF STUDY

The purpose of this study was to develop traffic and toll revenue forecasts for the proposed CTP extending from IH 30 to US 67 (see Figure 1-1). The following outlines the general structure of the report:

Chapter 2 – Data Collection

This chapter describes the traffic count data and travel time runs collected as part of this study. The data collected includes traffic counts at specific locations around the corridor and speed and delay runs on the potential competing routes to the proposed CTP. This chapter also includes a summary of the origin/destination (O/D) survey and stated preference survey conducted in 2006 that were used in this analysis.

Chapter 3 – Dallas-Fort Worth Area Transportation Characteristics

This section contains a broad overview of the transportation system in the Dallas-Fort Worth region and outlines the region-wide characteristics that may impact the CTP. The Mobility 2035 Plan transportation commitments are described in this chapter.

Chapter 4 – Demographic Growth near the CTP Corridor

This chapter provides a description of the NCTCOG forecast process used to generate the base demographics and details the historical and expected future growth in the DFW region. The historical and expected future growth of the individual municipalities within the study corridor is also investigated followed by the description of the demographic characteristics along the CTP corridor. The demographic datasets which include the findings of the independent economic reviews along the corridor were incorporated into the NCTCOG travel demand model to develop an alternate set of trip tables, which were used for the traffic and revenue estimation. This alternative set of trip tables is referred to as the "revised trip tables".

Chapter 5 – Travel Demand Model Development

This chapter describes the databases utilized as part of the analysis and highlights the methodologies implemented to calibrate and validate the travel demand model. The model is used to estimate future traffic on toll facilities, and it is calibrated to the current traffic conditions to ensure that future projections are consistent with observed traffic characteristics along the corridor.

Chapter 6 – Estimated Weekday Transactions and Toll Revenue

This chapter provides the results of the traffic and revenue forecasts. The toll sensitivity analyses performed as part of the study are described in detail in this chapter, including analyses of corridor share and travel time savings. Also presented are the average weekday transactions and annual toll revenues anticipated on the CTP and a description of the various assumptions used in the forecasting process.

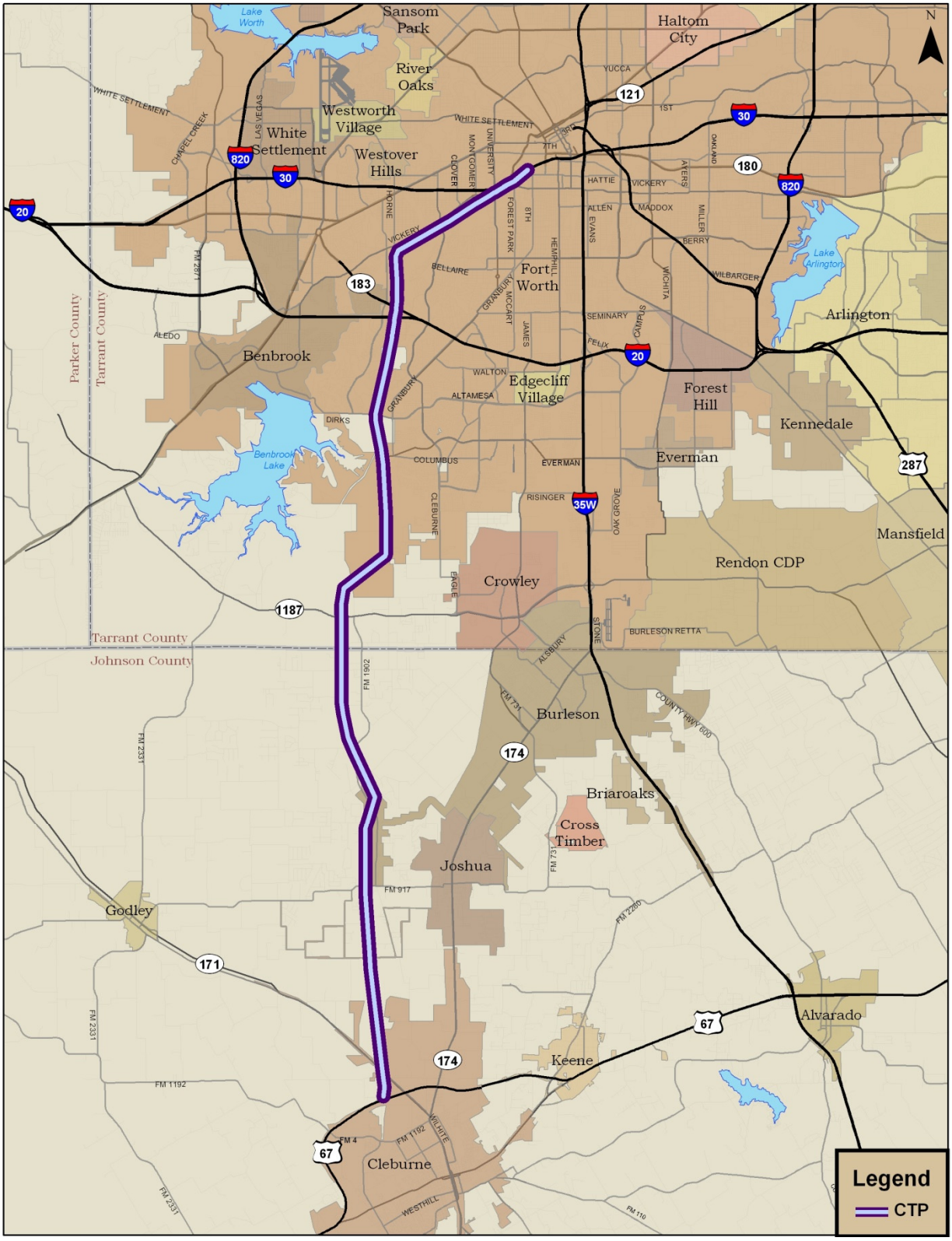

Figure 1-1. CTP Study Corridor

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CHAPTER 2

DATA COLLECTION

This chapter provides background information about the existing traffic conditions for the highway infrastructure in and around the proposed Chisholm Trail Parkway (CTP) corridor in Tarrant County and Johnson County. The information in this chapter provides a historical overview of traffic in the vicinity of the proposed CTP corridor and was used as input to the traffic and revenue forecasting process.

DESCRIPTION OF EXISTING CORRIDOR FACILITIES

The proposed CTP corridor will run roughly in a north-south direction and the corridor is crossed by several arterial streets that run east-west and north-south. There are also competing north-south routes near to the CTP corridor. The study corridor is shown in Figure 2-1.

The CTP from IH 30 to US 67 is approximately 27.6 miles long. The corridor is crossed by IH 20, SH 183 and FM 1187 as well as several east-west arterial routes including Vickery Boulevard, Berry Street, Seminary Drive, Altamesa Boulevard, and Sycamore School Road. Additionally, US 377, Vickery Boulevard, Bryant Irvin Road, Hulen Street, Granbury Road, SH 174 and IH 35W are potential north-south competing routes.

TRAFFIC COUNT PROGRAM

WSA conducted a comprehensive traffic count program that included seven screenlines across the corridor as well as counts on potential competing routes as shown in Figure 2-2. WSA engaged GRAM North Texas Inc., to perform a series of 48-hour and 168-hour traffic counts in April 2011. The 48-hour counts were collected only on interior weekdays (Tuesday, Wednesday, and Thursday). Table 2-1 lists the traffic count locations.

From the traffic counts, WSA was able to determine average weekday traffic volumes near the proposed CTP corridor, as well as the AM-peak, PM-peak and off-peak period traffic profiles. The daily traffic was then used to calibrate the travel demand model. Figure 2-3 shows the count locations and the corresponding daily traffic for the 2011 traffic counts.

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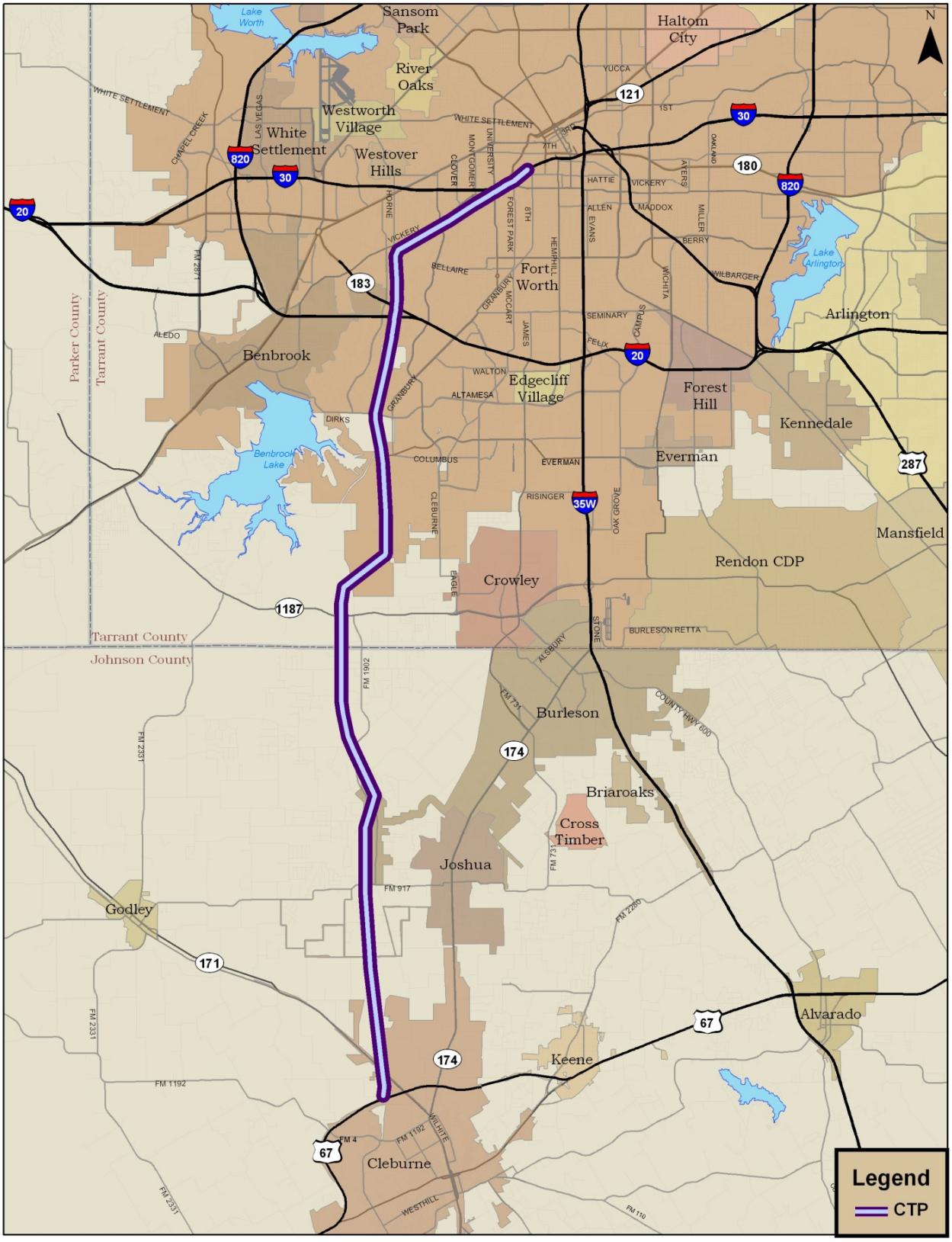


Figure 2-1. CTP - Proposed Corridor Alignment

WilburSmith ASSOCIATES

The traffic count screenline locations are shown in Figure 2-2. Figures 2-4 through 2-9 show the daily traffic volume profiles for the screenlines. The traffic counts illustrate AM peak and PM peak periods in the vicinity of the proposed CTP corridor. It is observed that northbound routes reach maximum hourly volumes during the AM peak period and southbound routes in the PM peak period. Figures 2-4 through 2-9 show that the AM peak and PM peak periods represent about 35 to 40 percent of the daily traffic.

Table 2-1
CTP Traffic Count Locations

Screenline 1: east of IH 30 and IH 20	**Screenline 5: South of IH 35W/SH 174 JCT**
Vickery Blvd west of Bryant Irvin Rd	FM 2331 south of Sky Rd
Bryant Irvin Rd south of Vickery Blvd	Old Granbury (FM 1902) south of CR 1019
South Hulen St north of Bellaire Drive	SH 174 south of FM 731
University Drive south of Park Hill Drive	FM 731 south of SH 174
8th Ave south of Elizabeth Blvd	IH 35W south of Renfro St
Hemphill St south of Elizabeth Blvd	**Screenline 6: North of US 67**
IH 35W north of Morningside	FM 2331 North of FM 4 and south of CR 1127
Screenline 2: South of IH 20	SH 171 east of CR 1018
Winscott Rd north of Mercedes	SH 174 north of Vaughn Rd
Bryant Irvin Rd north of Oakbend Trail	FM 2280 south of FM 3048
South Hulen St north of Oakbend Trail	**Screenline 7: East of SH 183/Hulen St**
Granbury Rd north of Walton	Vickery Blvd East of Hulen St
Woodway Drive north of Walton	Bellaire Blvd east of Hulen St
McCart Ave north of Walton	Altamesa Blvd east of Hulen St
Crowley Rd north of Edgecliff	Sycamore School Rd east of Hulen St
Screenline 3: North of Sycamore School Rd	Columbus Trail east of Hulen St
US 377 north of FM 1187	FM 1187 east of Hulen St
Granbury Rd south of Altamesa Blvd	FM 917 east of FM 1902
Hulen St south of French Lake	US 67 east of SH 171
McCart Ave north of Sycamore School Rd	**Additional Counts**
Crowley Rd north of Sycamore School Rd	
IH 35W north of Sycamore School Rd	US 377 South of Kelly Rd
Screenline 4: South of FM 1187	US 67 West of FM 2331
Winscott Plover Rd south of FM 1187	SH 174/SH 171 south of FM 4/ W Kilpatrick St
FM 1902 south of FM 1187	NB IH 35W South of 35W Business (Exit 24)
FM 731 south of FM 1187	SB IH 35W South of 35W Business (Exit 24)

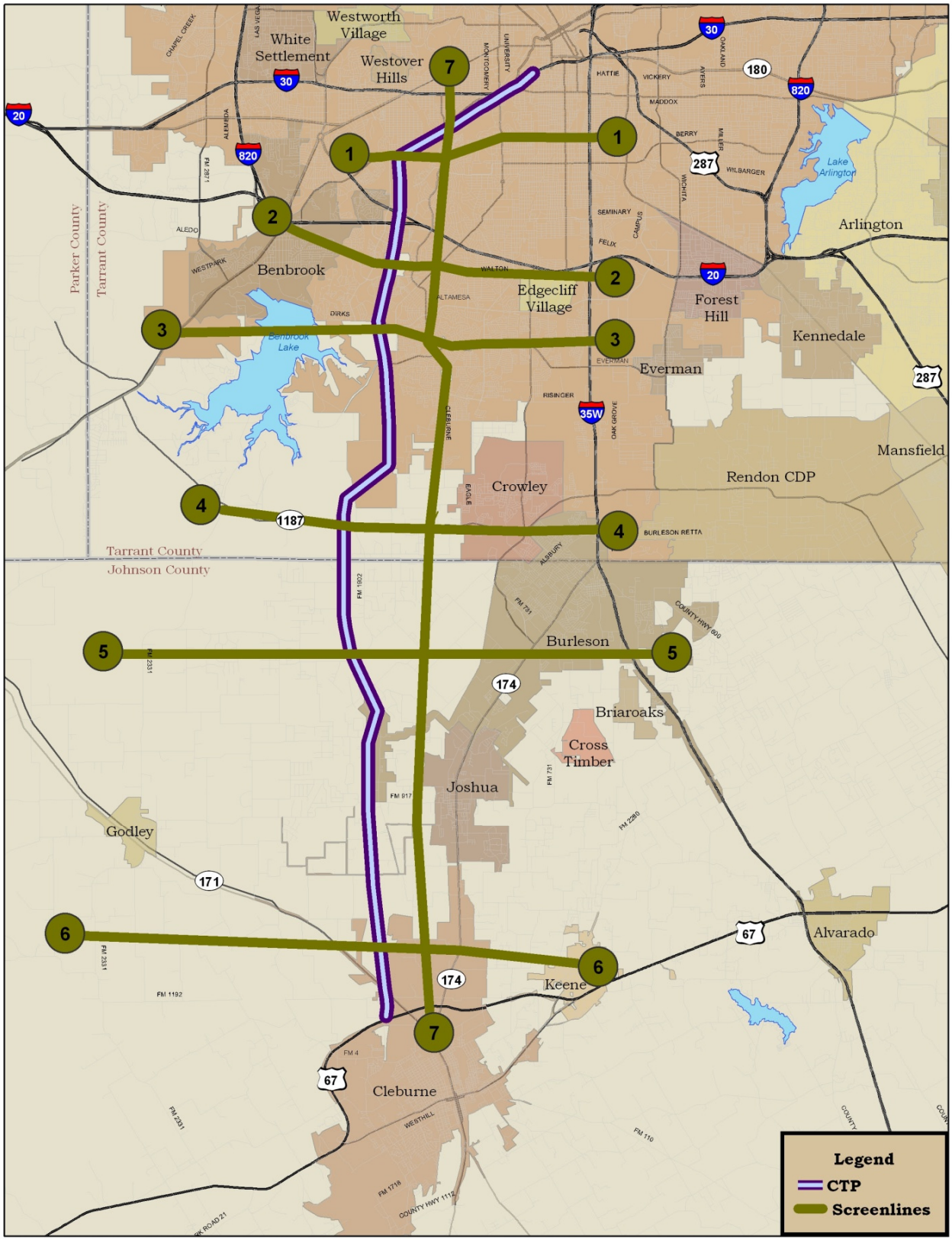


Figure 2-2. CTP - Screenlines

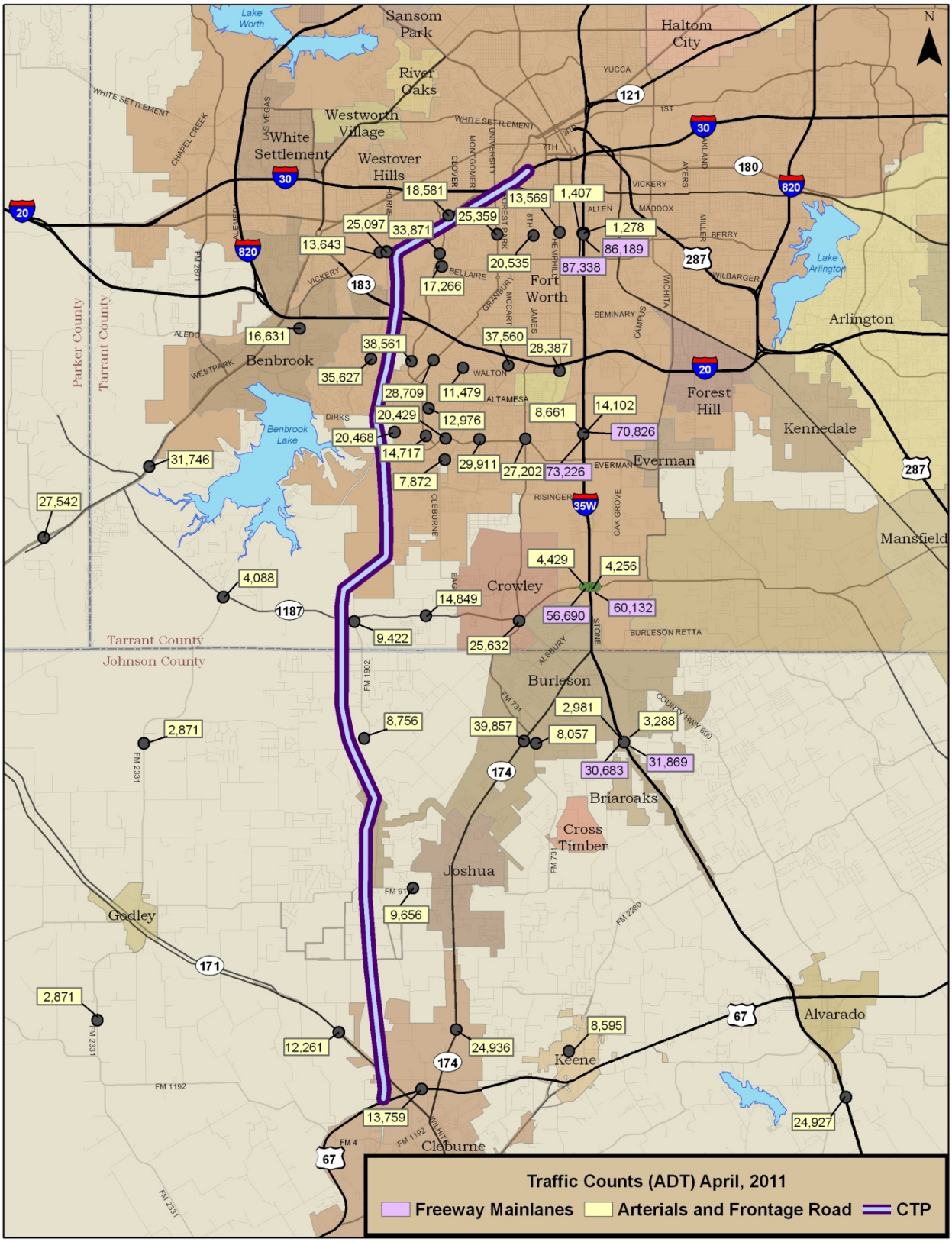


Figure 2-3. CTP – April 2011 Average Weekday Traffic

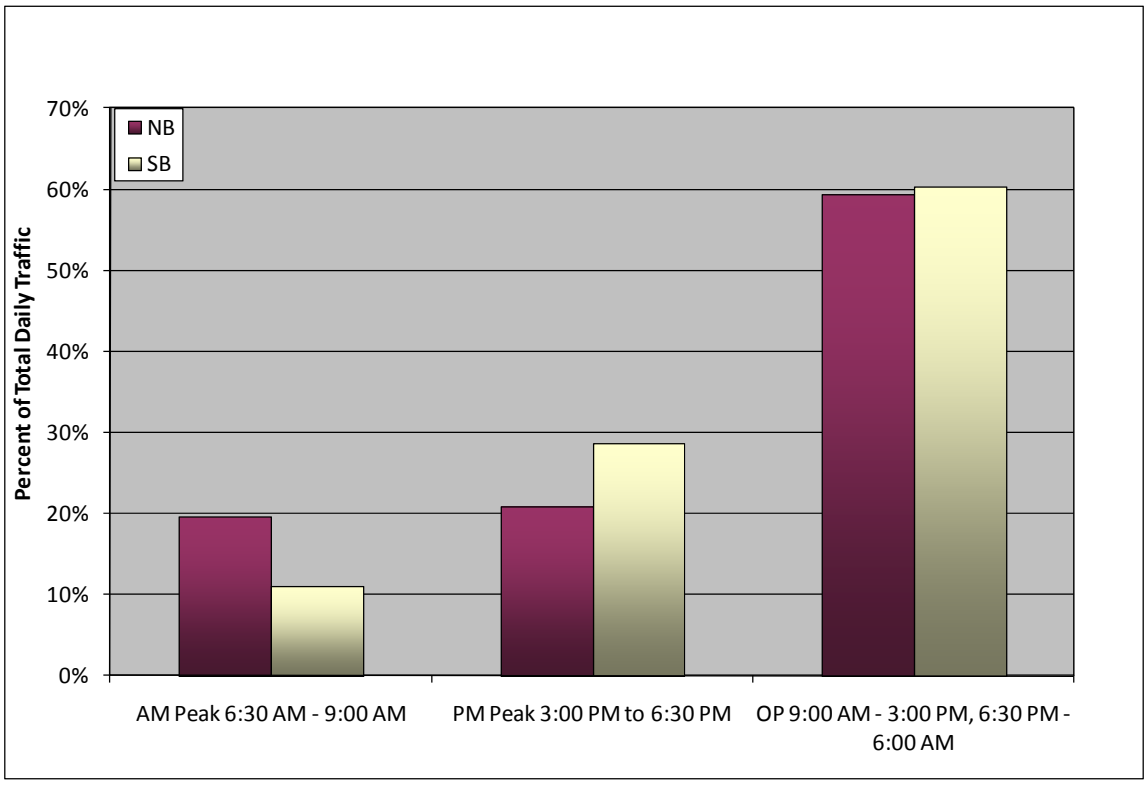


Figure 2-4. Screenline Traffic Profile: Screenline 1

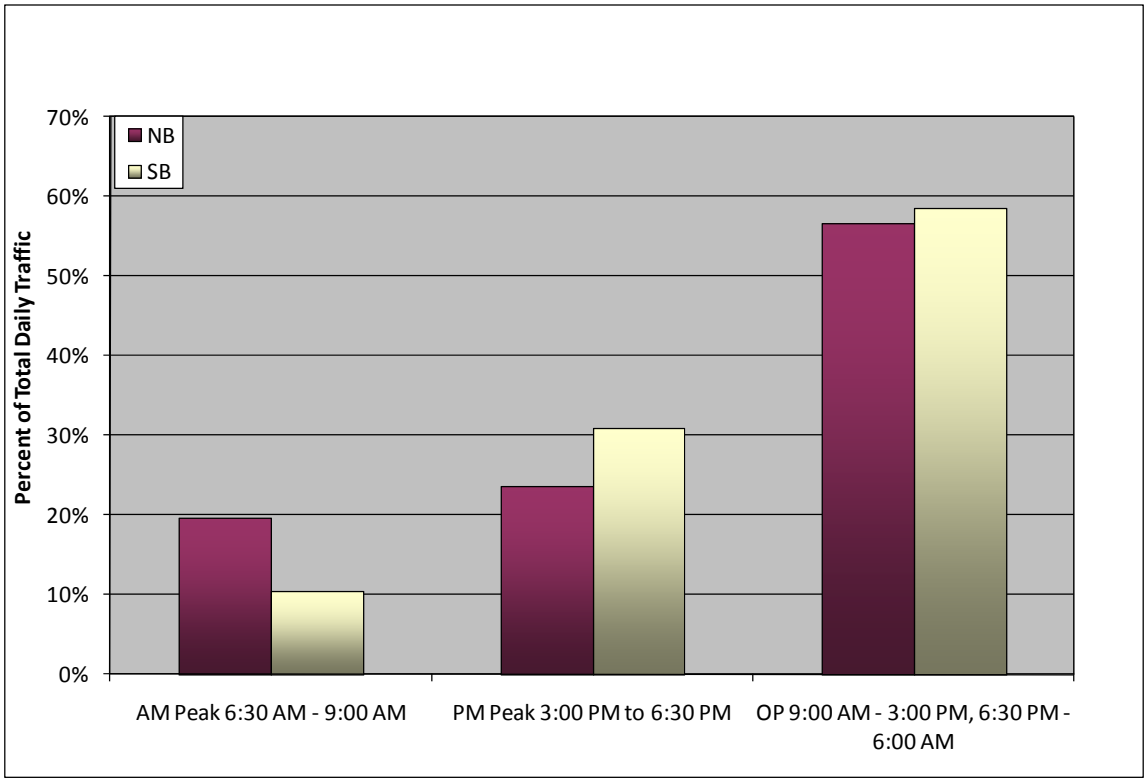


Figure 2-5. Screenline Traffic Profile: Screenline 2

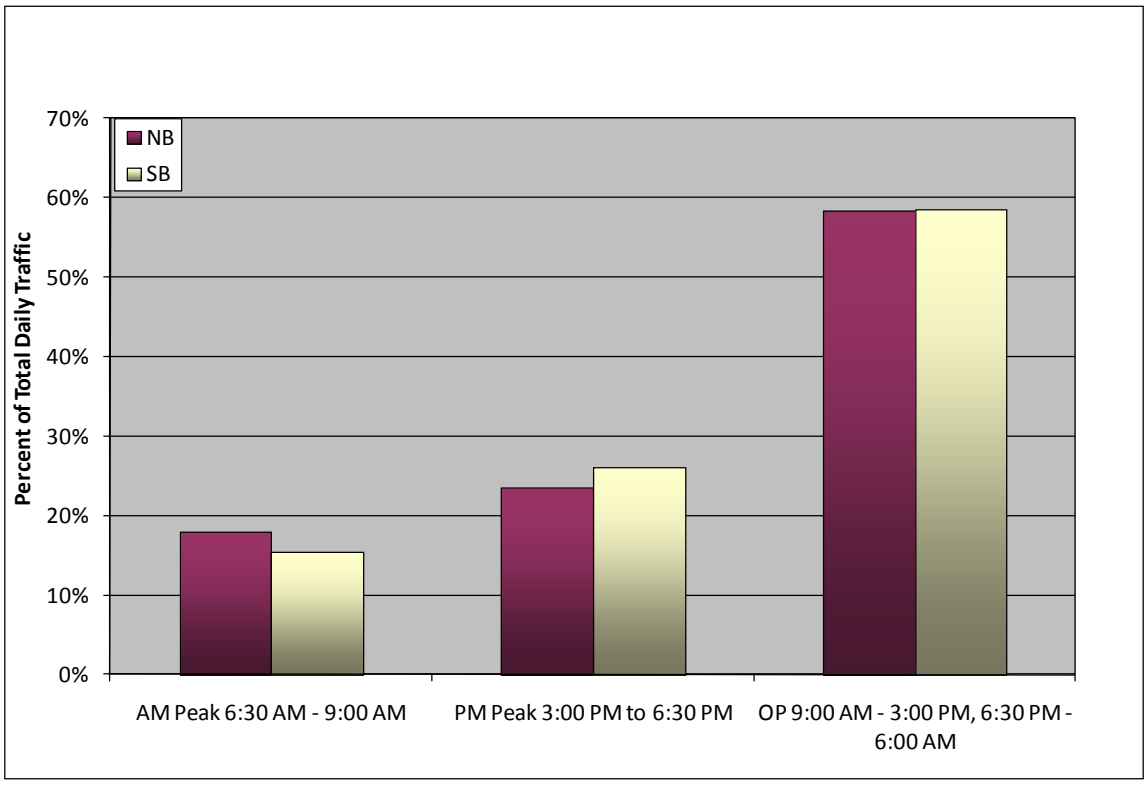


Figure 2-6. Screenline Traffic Profile: Screenline 3

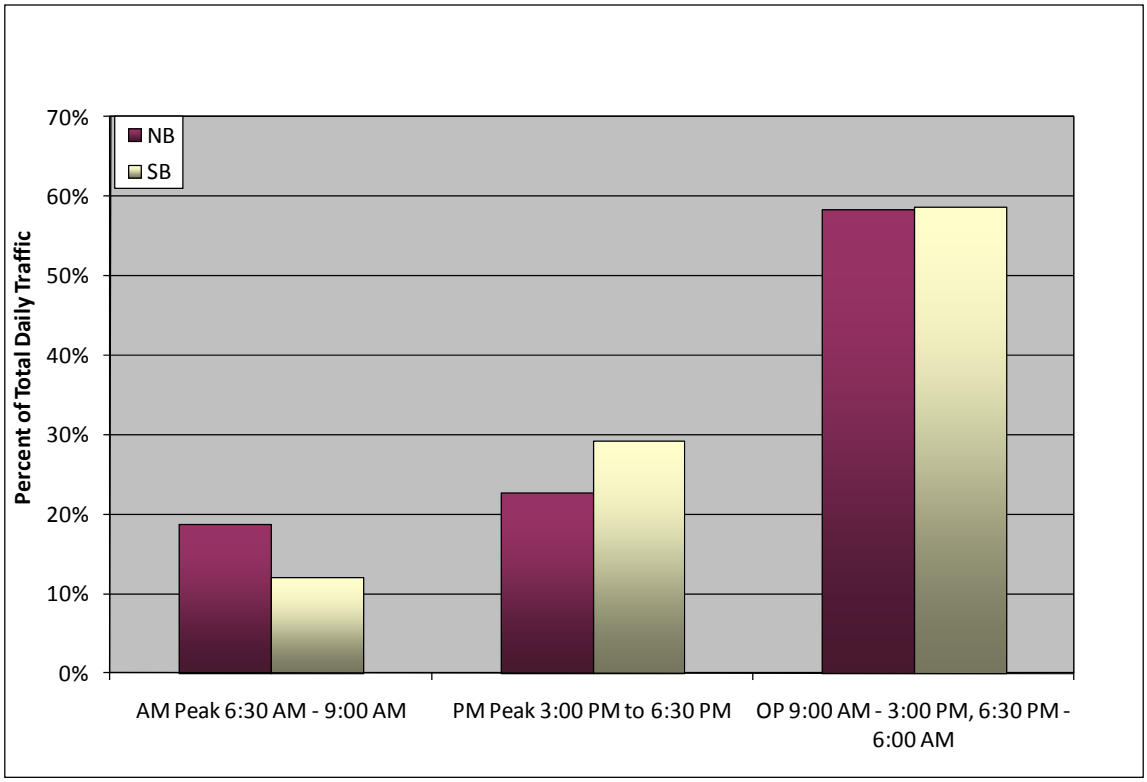


Figure 2-7. Screenline Traffic Profile: Screenline 4

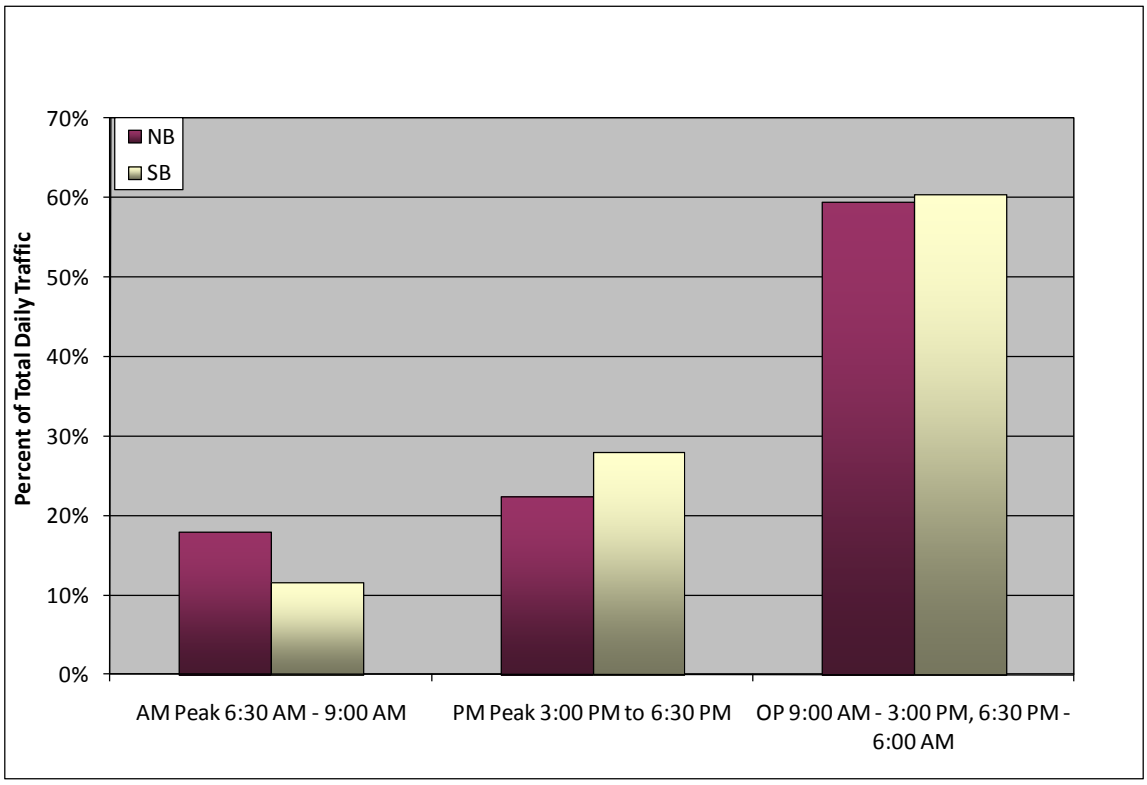


Figure 2-8. Screenline Traffic Profile: Screenline 5

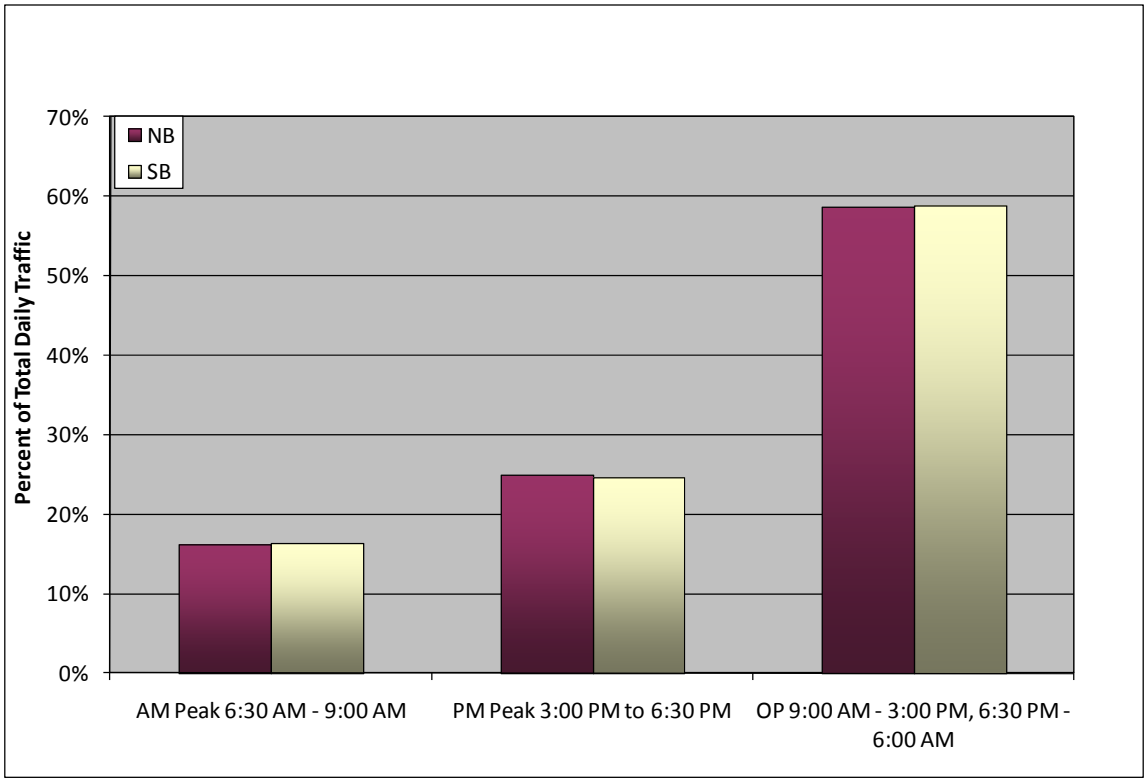


Figure 2-9. Screenline Traffic Profile: Screenline 6

HISTORICAL TRAFFIC VOLUMES

The Texas Department of Transportation (TxDOT) records the Average Annual Daily Traffic (AADT) volumes at several locations on all state roadways. WSA obtained AADT for several locations along the proposed CTP corridor for a seventeen year period between 1993 and 2009. The historical counts are shown in Table 2-2, and Figure 2-10 shows the count locations in the CTP corridor. As shown in the table, over the sixteen years from 1993 to 2009, nearly all of the locations in the CTP corridor had a positive traffic growth in AADT.

Table 2-2
Historical Traffic Counts

Location Number	Location	1993 Volume	2009 Volume	Annual Growth
1	IH 35W South of IH 30	111,000	168,000	2.6%
2	IH 35W South of IH20	109,000	150,000	2.0%
3	IH 35W North of FM 1187	76,000	118,000	2.8%
4	IH 35W South of FM 1187	N/A*	115,000	1.5%
5	IH 30 East of US 377	118,000	137,000	0.9%
6	US 377 South of IH 30	20,000	17,200	-0.9%
7	SH 183 North of IH 20	32,000	41,000	1.6%
8	IH 20 West of SH 183	40,000	84,000	4.7%
9	FM 1187 East of FM 1902	4,500	10,000	5.1%
10	FM 1902 South of FM 1187	4,500	7,600	3.3%
11	IH 35W South of SH 174	37,000	71,000	4.2%
12	SH 174 South of IH 35W	30,000	35,000	1.0%
13	SH 174 South of Spur 50	31,000	31,000	0.0%
14	SH 174 South of FM 731	21,000	30,000	2.3%
15	SH 171 North of US 67	3,000	8,300	6.6%
16	US 67 East of SH 171	N/A**	16,000	9.3%
17	SH 174 North of US 67	21,000	27,000	1.6%
18	FM 1902 South of Tarrant County Line	3,300	6,100	3.9%
19	FM 1902 North of FM 917	3,200	5,700	3.7%
20	FM 917 West of FM 1902	3,300	5,800	3.6%

*Data does not exist for 1993, annual growth rate calculated beginning in 2001, the first year of available data

**Data does not exist for 1993, annual growth rate calculated beginning in 1998, the first year of available data

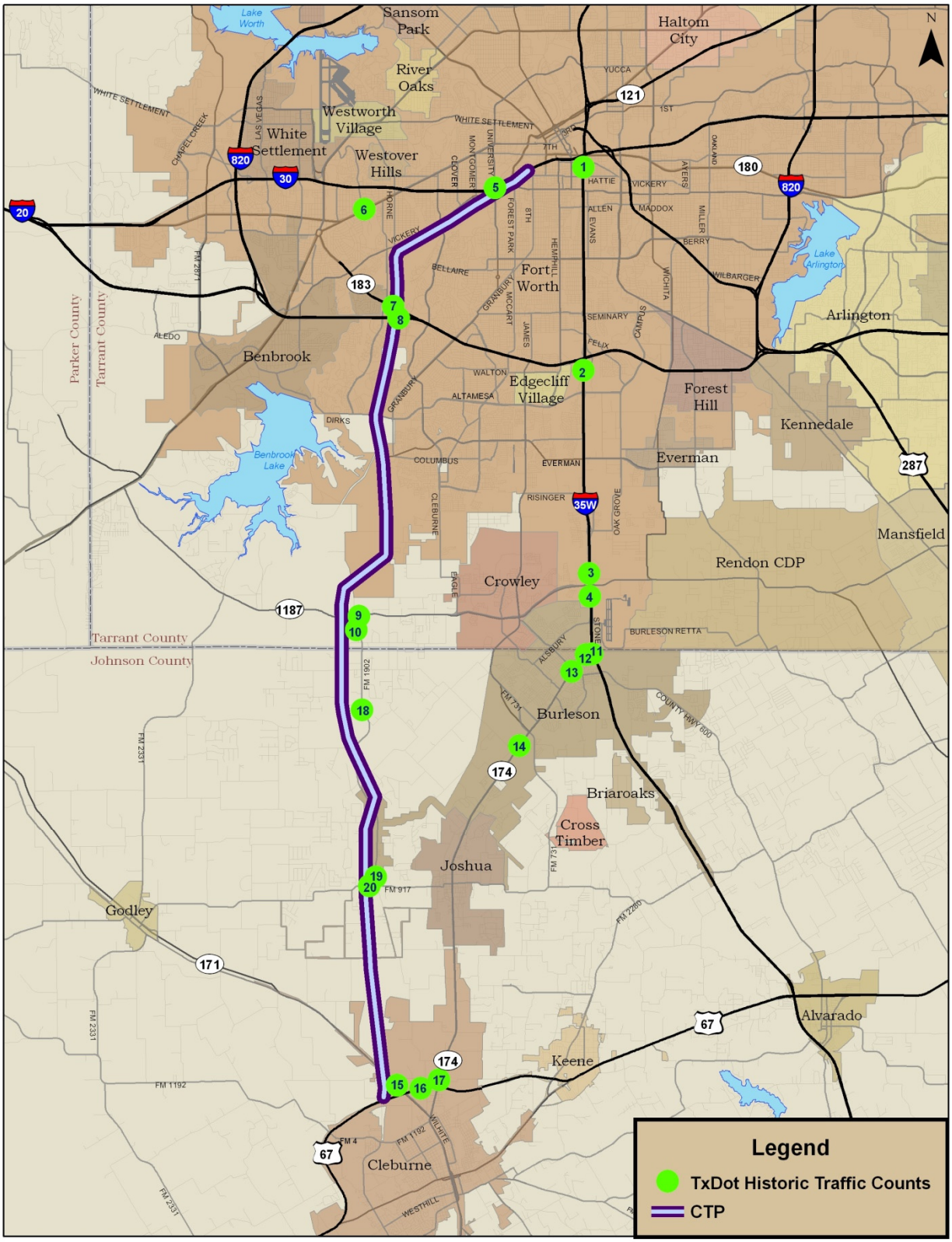


Figure 2-10. Historical Traffic Count Locations

TRAVEL TIME CHARACTERISTICS

WSA conducted a series of travel time runs for potential competing routes along the CTP corridor between IH 30 and US 67 in April 2011. The travel time runs were conducted between 6:30 AM and 9:00 AM, and 3:00 PM and 6:30 PM on interior weekdays. Travel speeds were recorded every tenth of a mile, thus providing detailed information regarding peak period average travel speeds in the study area. In the process of collecting speed data, WSA staff gathered information regarding the number of lanes, speed limits, school zone locations, facility type (divided or undivided) traffic signal locations, and other geometric characteristics of the facilities surveyed. This information was used in the calibration process to ensure that the output speeds from the travel demand model match the existing conditions on those highway facilities.

Figure 2-11 illustrates the facilities driven for the travel time studies. The average speeds recorded during the AM and PM peak periods are shown in Table 2-3. Figures 2-12 through 2-15 illustrate the speed profile along the routes traveled during the peak periods. These figures highlight the observed congestion during both AM and PM peak periods.

Table 2-3
Summary of Average Speeds by Peak Period (mph)

Facility	Northbound		Southbound	
	AM	PM	AM	PM
Hulen Street	20.7	26.4	31.5	22.2
University and Granbury Road	30.2	25.8	28.3	34.6
Summit Ave/8th Ave/McCart Ave	21.1	19.3	23.1	21.9
Old Granbury Road/FM 1902	40.2	41.0	34.7	31.3
FM 917/FM 2280	37.1	33.4	43.4	42.1
IH 35W (FM 1187 to IH 30)	51.6	63.0	63.0	54.8
SH 174 (FM 171 to FM 1187)	38.9	45.2	33.4	32.5

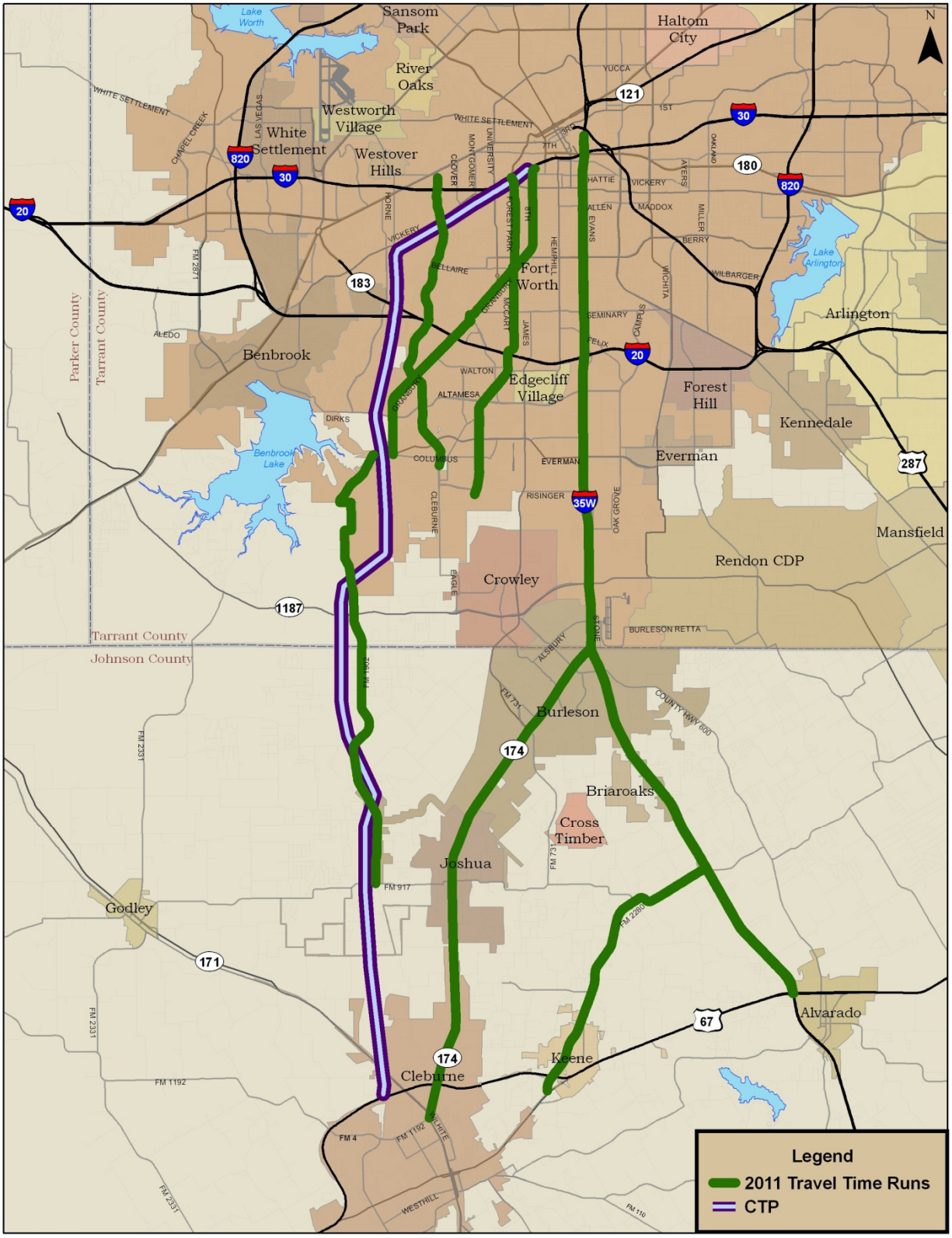


Figure 2-11. CTP - Travel Time Run Locations

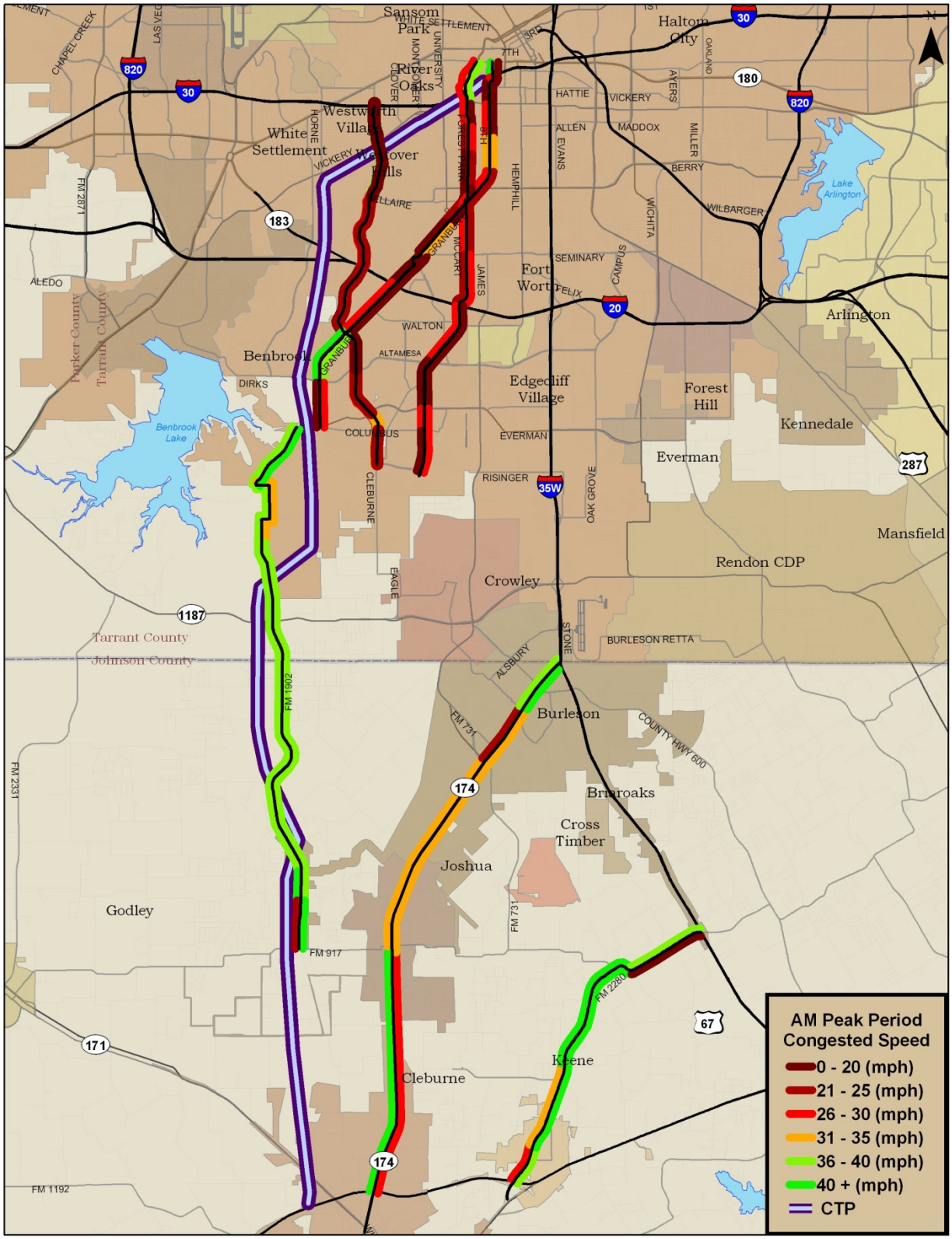


Figure 2-12. CTP - Travel Time Arterial Routes: AM Peak Period

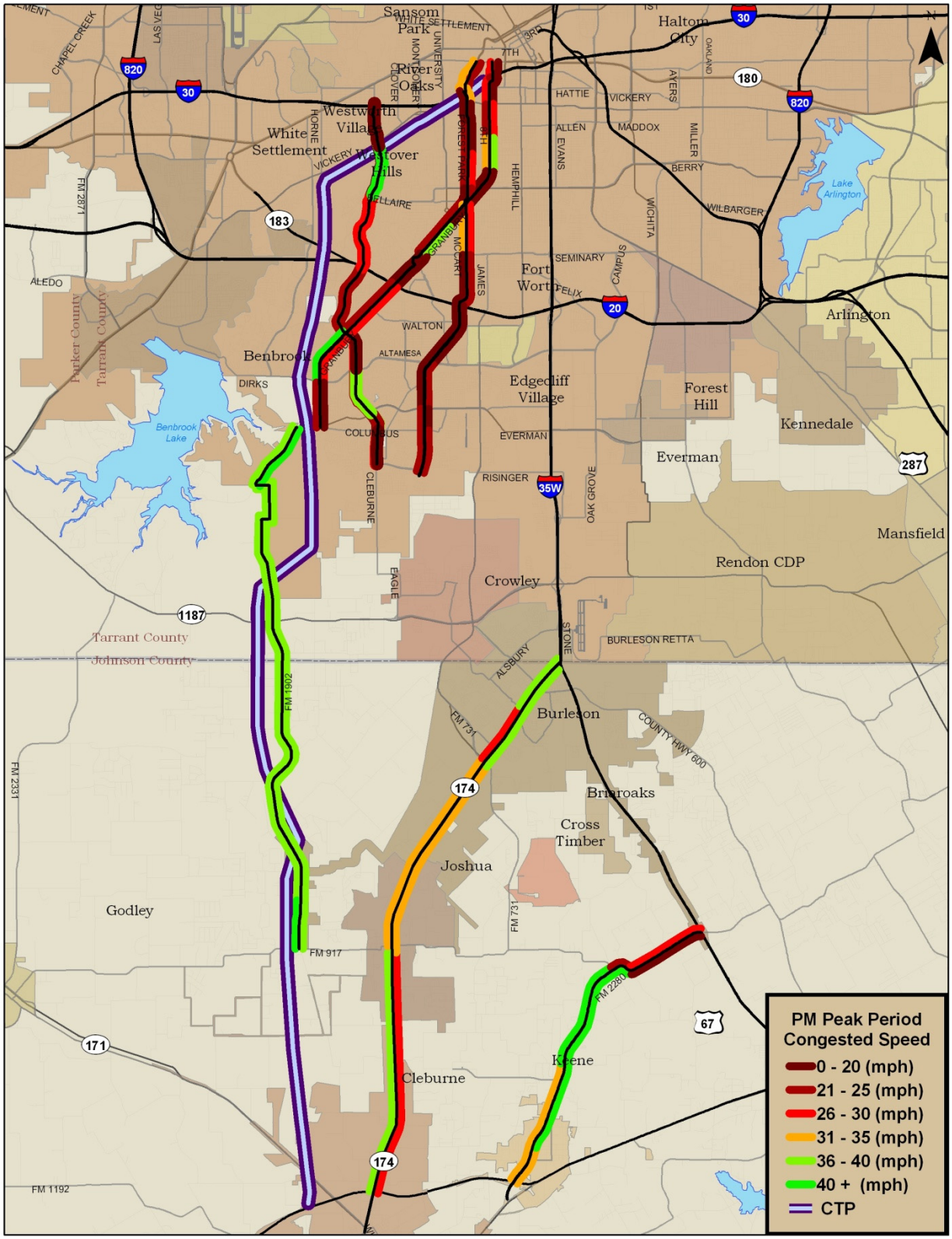


Figure 2-13. CTP - Travel Time Arterial Routes: PM Peak Period

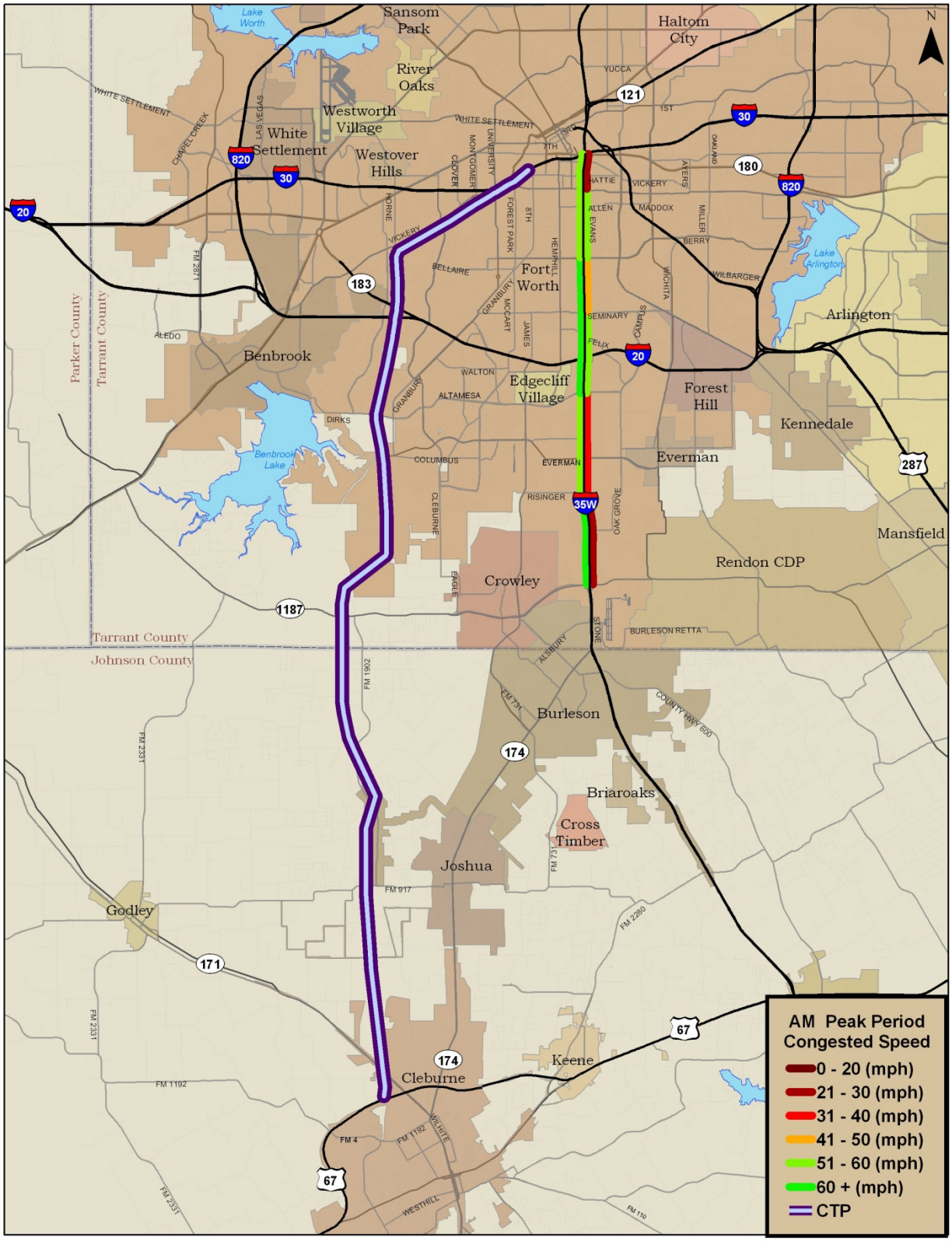


Figure 2-14. CTP - Travel Time Freeway Route: AM Peak Period

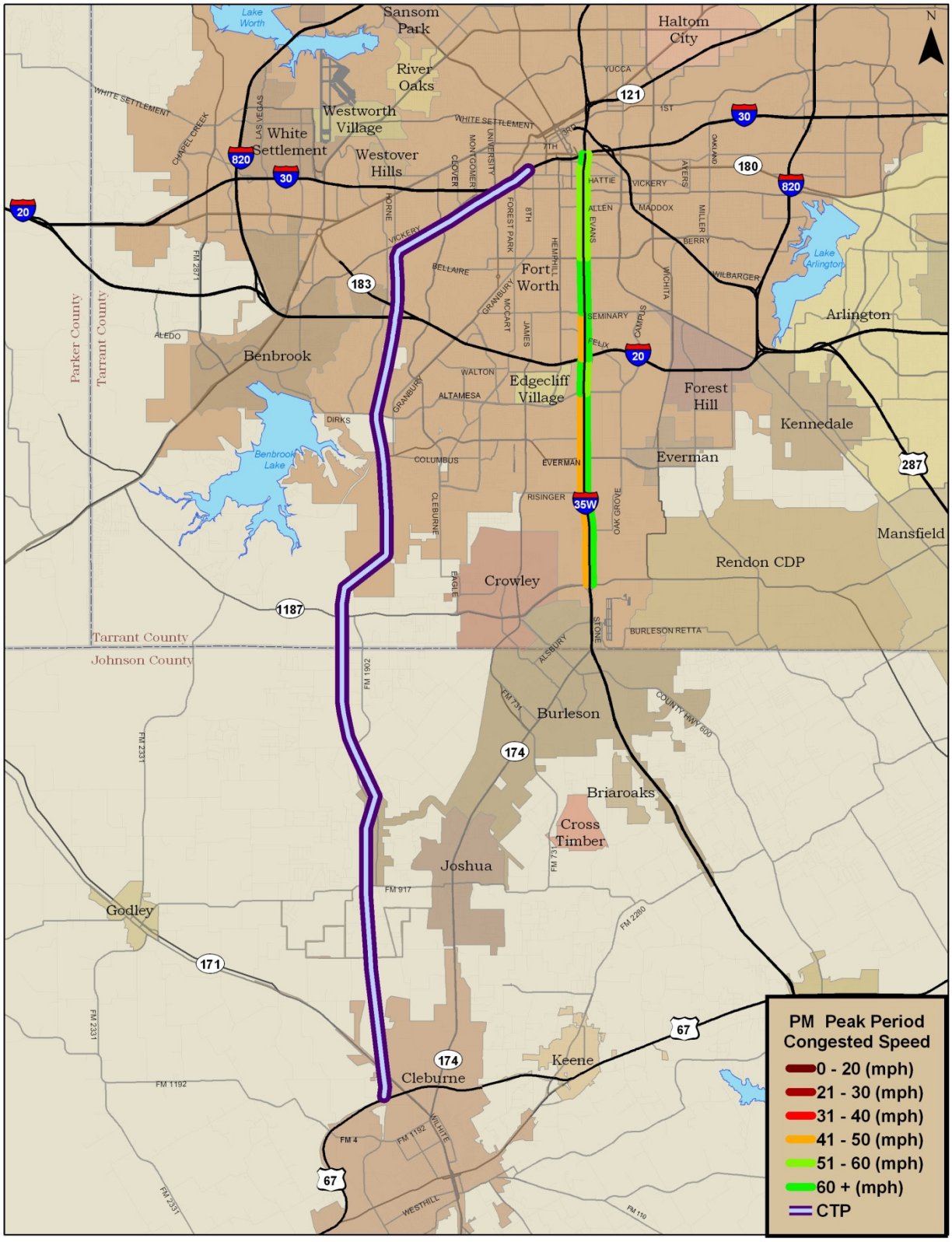


Figure 2-15. CTP - Travel Time Freeway Route: PM Peak Period

STATED PREFERENCE SURVEY

A stated preference survey was conducted by Resource Systems Group (RSG), a subconsultant to WSA, to capture the potential willingness-to-pay characteristics of travelers currently making trips within the corridor. Full details of the survey, including questions asked, methodology and findings are provided in the RSG report in Appendix B of this report. A letter update to the study that RSG provided in April 2011 is also included in Appendix B.

An important element of this survey includes the estimation of the potential willingness-to-pay characteristics that the markets serviced by the CTP corridor would likely exhibit as a result of imposing a toll along the route. This behavioral characteristic provides a gauge to help determine likely market shares that would be captured by the CTP corridor. The primary tool used to make these estimates is a stated preference survey. Survey results facilitate the development of toll sensitivity curves and value of time parameters estimated through trade-off variable testing. This survey focusing on the CTP corridor was conducted in early 2006 by RSG.

The stated preference survey was conducted at different locations in the CTP corridor between January and March of 2006, based on a computer assisted self-interview (CASI) technique. The locations were selected specifically to capture a representative sample of all key population classifications in the study area. Direct field intercept surveys at the activity sites, combined with internet invitation surveys by employees of local business and TollTag holders residing in the study area, were used to capture a random sample of the traveling population. The internet invitees were provided with a unique anonymous password to access the web-based survey to prevent multiple responses.

Based on the data collected by the survey, RSG was able to estimate values of time (VOTs) for travelers in the CTP corridor. Values of time were estimated using a utility function that included household income and travel time savings as variables. Table 2-4 illustrates the mean values of time in 2006 for respondents from Tarrant County and Johnson County who did not have a TollTag transponder. This value is more representative of travelers in the CTP corridor as there are very few TollTag patrons currently living in the study corridor. These values are estimated at the mean household income levels of Tarrant County from the 2006 American Community Survey. The values of time were updated to 2011 values based on the recommendations provided by RSG in their April 2011 update letter.

Table 2-4

CTP Mean Values of Time in 2006 ($ per Hour)

Time Period	Tarrant	Johnson
Weekday Peak	$12.89	$11.89
Weekday Off-Peak	$9.62	$8.30
Weekend Off-Peak	$8.74	$9.36

ORIGIN/DESTINATION SURVEY

For the CTP corridor, an origin-destination (O/D) survey was undertaken by WSA in 2006 to investigate the travel patterns of residents in the southern Fort Worth and Johnson County areas. The O/D survey was conducted to supplement a prior survey conducted by NTTA in 2002. Mail-back surveys were distributed to motorists intercepted at signalized intersections on arterial routes parallel to the corridor which provided an insight into the existing travel patterns of the motorists currently using the corridor.

The survey conducted as part of this study focused on locations south of Altamesa Boulevard, as it was intended to supplement a previous comprehensive O/D survey conducted by NTTA in 2002. A detailed summary of the previous survey can be found in the document titled "Technical Memorandum, Summary of Survey Results, NTTA Origin and Destination Survey Work Program," dated September 2002.

Survey Distribution

Intercept surveys were conducted at six intersections on the north-south arterials along the CTP corridor. The six survey locations are shown in Table 2-5 and Figure 2-16. The intercept surveys were distributed when the cars stopped at a traffic light in one direction at each intersection. Local police officers were hired to provide an official presence and security at each intersection. Surveys were handed out to queued motorists during the daylight hours between 7:00 AM and 6:00 PM. Each queued motorist was handed a postage-paid, pre-addressed mail-back survey card as they passed through the survey station and were requested to complete the form and return it via U.S. mail. The survey instrument, as shown in Figure 2-17, requested specific information regarding the O/D of the specific trip as well as information related to trip purpose, frequency, occupancy and other characteristics.

Table 2-5

CTP Intercept Survey Locations

Location Description	City	Collection Date	Surveys Distributed	Percent Returned
NB Hulen Street at Sycamore School Road	Fort Worth	2/8/2006	2,615	17.0%
NB McCart Avenue at Sycamore School Road	Fort Worth	2/8/2006	2,935	15.8%
NB Crowley Road. at FM 1187	Crowley	2/7/2006	2,410	22.0%
SB SH 174 at FM 731	Burleson	2/6/2006	2,916	18.1%
NB SH 174 at Kilpatrick Street	Keene	2/6/2006	2,240	12.3%
NB FM 2280 at Hillcrest Street	Cleburne	2/7/2006	765	14.9%
TOTAL			**13,881**	**17.0%**

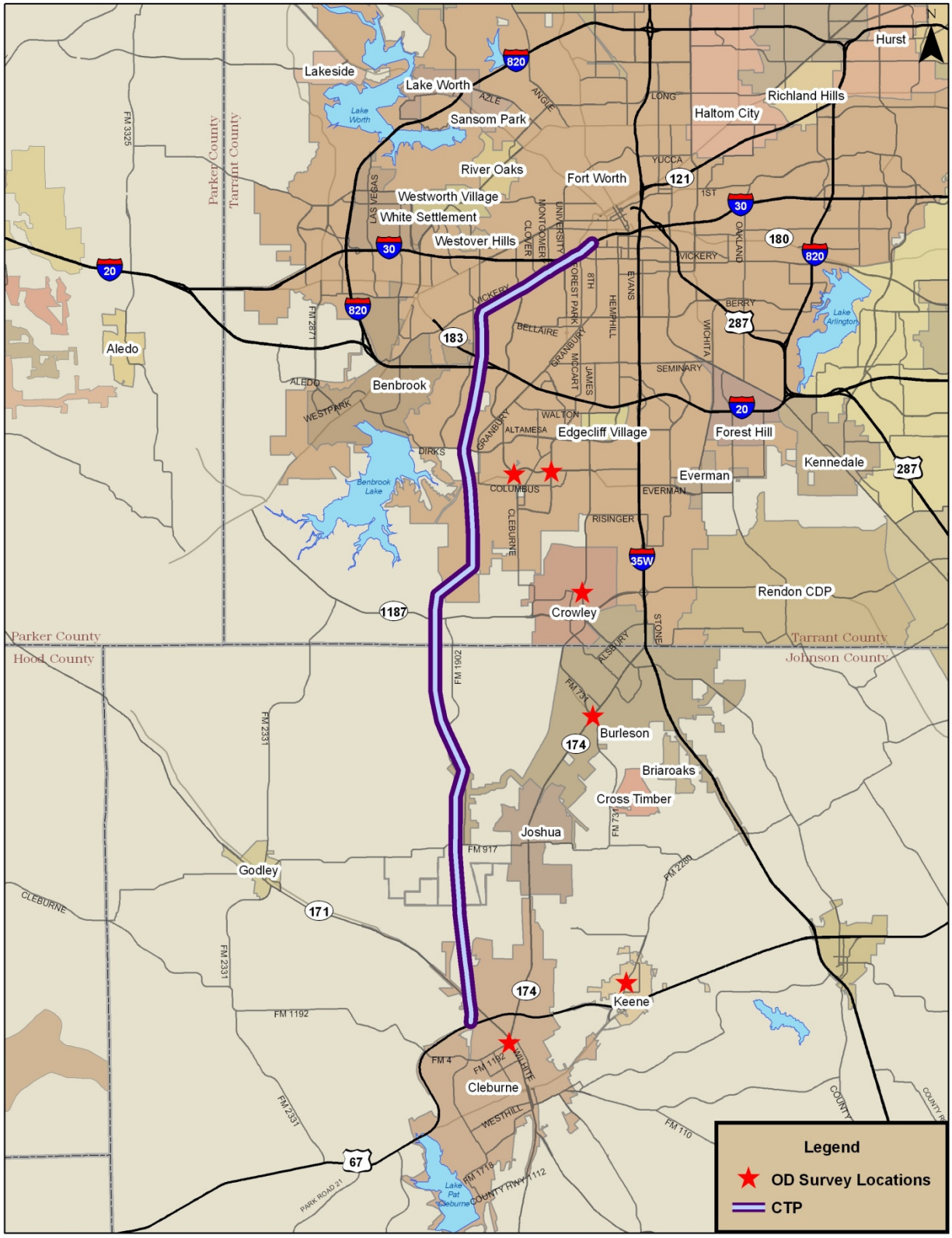


Figure 2-16. CTP - Origin/Destination Survey Locations

	NORTH TEXAS TOLLWAY AUTHORITY	S	W	2	1		N	
		Station				Day	Dir.	Hour

7

DEAR MOTORIST:

This survey is being undertaken by Wilbur Smith Associates on behalf of the North Texas Tollway Authority (NTTA) to obtain important information about travel patterns needed for planning local highway improvements. You are asked to complete and mail this postage-paid questionnaire at your earliest convenience. Your cooperation will help the NTTA serve you better and will lead to improved travel in the future.

8

9

1. Where did you begin this particular trip in this direction? Include nearest intersection, street address, or other explanation, e.g., airport, shopping malls, etc. Please be as specific as possible.

Major Intersection or Street Address

City County State Zip Code

10

11

2. Where did this particular trip (in this direction) end? Include nearest intersection, street address, or other explanation, e.g., airport, shopping malls, etc. (Should not be the same as answer to Question 1)

Major Intersection or Street Address

City County State Zip Code

12

3. Please identify the type of vehicle you were driving. (Circle one)

1. Passenger car or any other 2-axle, 4-tire vehicle
2. Motorcycle
3. Two-axle truck or bus
4. Three-axle truck or bus
5. Four-axle truck
6. Five-axle truck
7. Six-axle or more truck

13

4. What was the purpose of this trip when given this card? (Circle one)

1. Journey To or From Work
2. Company Business
3. Personal Business
4. School
5. Shopping
6. Recreation
7. Social

14

5. How often each week do you use this roadway to make this trip in <u>this direction</u> for the above purpose? (Circle one)

Less than 1 1 2 3 4 5 More than 5

15

6. How many people were in your vehicle, including the driver? (Circle one)

1 2 3 4 5 6 or more

16

7. Please indicate the range of your annual household income. (Circle one)

1. Less than $25,000
2. $25,000 - $49,999
3. $50,000 - $74,999
4. $75,000 - $99,999
5. $100,000 - $149,999
6. $150,000 - $199,999
7. $200,000 or more

17

8. Do you currently participate in the NTTA's TollTag Program? (Circle one)

1. Yes 2. No

18

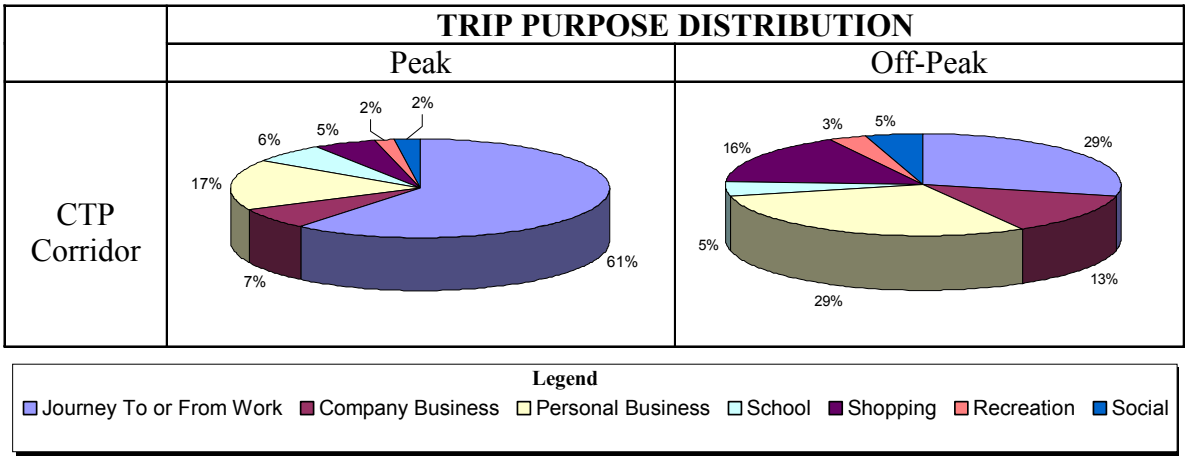
9. To participate in a follow-up internet survey, please provide an e-mail address:

The North Texas Tollway Authority would like to express its appreciation for your participation in this survey. **February 2006**

Figure 2-17. CTP - O/D Survey Instrument

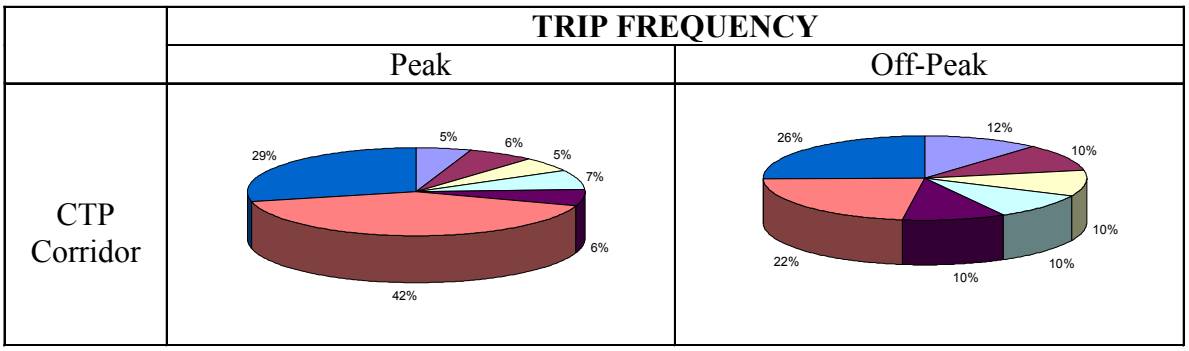
A profile of trip characteristics was developed from survey responses captured along the CTP corridor. Trip characteristics such as trip purpose, trip frequency and vehicle occupancy results are detailed in Figure 2-18. During the peak periods more than half (61 percent) of all motorists traveling along the corridor had work based trips. During the off-peak period the purpose distribution was more evenly distributed. Personal business trips had an increased share from the peak period and accounted for more than a quarter of the total off-peak traffic.

As shown in Figure 2-18, during the peak periods, 71 percent of captured trips traveled five or more times per week. During the off-peak period this category reduced to 48 percent of the total traffic. The occupancy rates for various types of users along the CTP corridor facilities showed that approximately 72 percent of all travelers drive alone during the peak periods and close to 68 percent during the off-peak period. At the six survey locations, the average vehicle occupancy rate during peak periods was 1.41 and 1.47 during the off-peak period, which is slightly higher than average occupancies observed on the NTTA System.



Legend

Journey To or From Work | Company Business | Personal Business | School | Shopping | Recreation | Social



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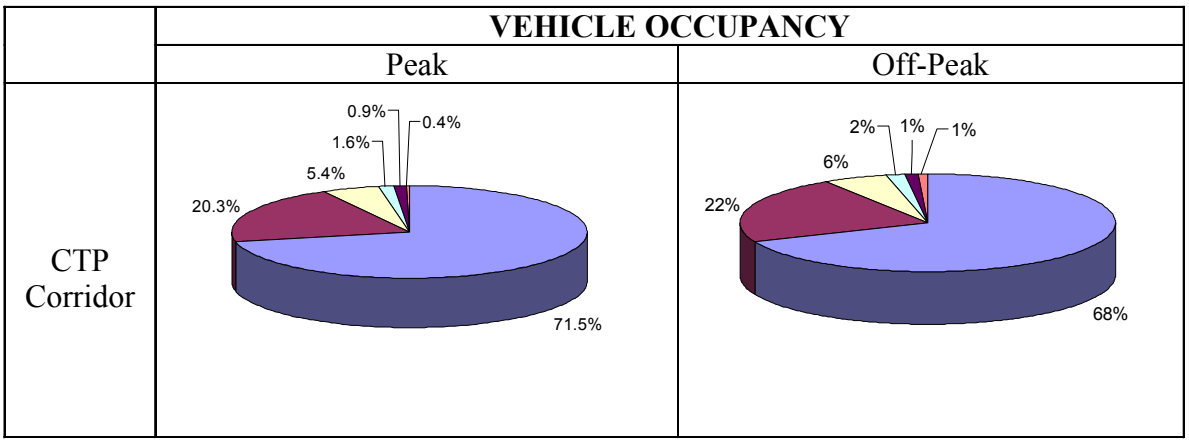
Less than 1 | 1 | 2 | 3 | 4 | 5 | More than 5



Legend

1 | 2 | 3 | 4 | 5 | 6 or more

Figure 2-18. CTP - O/D Survey Results

CHAPTER 3

DALLAS-FORT WORTH AREA TRANSPORTATION CHARACTERISTICS

The purpose of this chapter is to provide a background of the existing and future transportation characteristics surrounding the Chisholm Trail Parkway (CTP) corridor in the Dallas-Fort Worth Metropolitan Area (DFWMA). The information described in this section draws from the Metropolitan Transportation Plan (MTP) Mobility 2035 developed by the North Central Texas Council of Governments (NCTCOG), the metropolitan planning organization (MPO) for the DFWMA. As the MPO, NCTCOG is primarily responsible for conducting the multimodal long-range regional planning process for transportation in the region.

The MTP for the DFWMA serves as a guideline for the region's planned investment in the transportation infrastructure and services over the next twenty-five years. The MTP developed by NCTCOG is required to be financially constrained and balanced to the region's anticipated revenue streams over a minimum time horizon of twenty years. The 2035 MTP was approved by the Regional Transportation Council (RTC, the MPO policy body for DFWMA) in March 2011. The Mobility 2035 plan includes $101.1 billion in investment in projects and programs over the next twenty-five years, a $44 billion reduction from the previous MTP. The recommendations detailed in the MTP for the roadway system in North Texas amounts to $46.2 billion investment in improvements, expansion and new capacity. Of that amount, $36.75 billion is designated for the construction of controlled access transportation infrastructure such as freeways, tollways and managed lanes.

As the fourth largest metropolitan area in the nation, the DFWMA had a population of 6.5 million in 2010 and is expected to have an estimated 9.8 million by 2035. This growth represents a 53 percent increase in the population of North Texas over the next 25 years. Total employment is also expected to increase from 4.04 million in 2010 to 6.17 million by 2035. The DFWMA has one of the largest regional economies in Texas and is larger in population than thirty-four states. Chapter 4 provides detailed information regarding the demographic growth characteristics of the region.

TRAFFIC CONGESTION TRENDS

Figure 3-1 provides an illustration of the areas that are expected to experience peak period traffic congestion in 2012 according to the Mobility 2035 report. Figure 3-2 provides an estimate of the 2035 congestion levels with both the currently planned transportation infrastructure and under a no-build scenario without any transportation improvements. Figure 3-2 illustrates that by 2035 moderate congestion will affect the area where the CTP will be located.

The Mobility 2035 report estimates that the region-wide annual cost of congestion during 2012 will be close to $4.5 billion and could possibly reach $10.1 billion with planned infrastructure improvements in place by 2035 and $12.1 billion by 2035 with no transportation improvements. The region currently experiences peak period travel times that are 31.3 percent higher than free flow conditions due to congestion and expects to see this increase to 45.1 percent in 2035 even after implementation of all planned improvements.

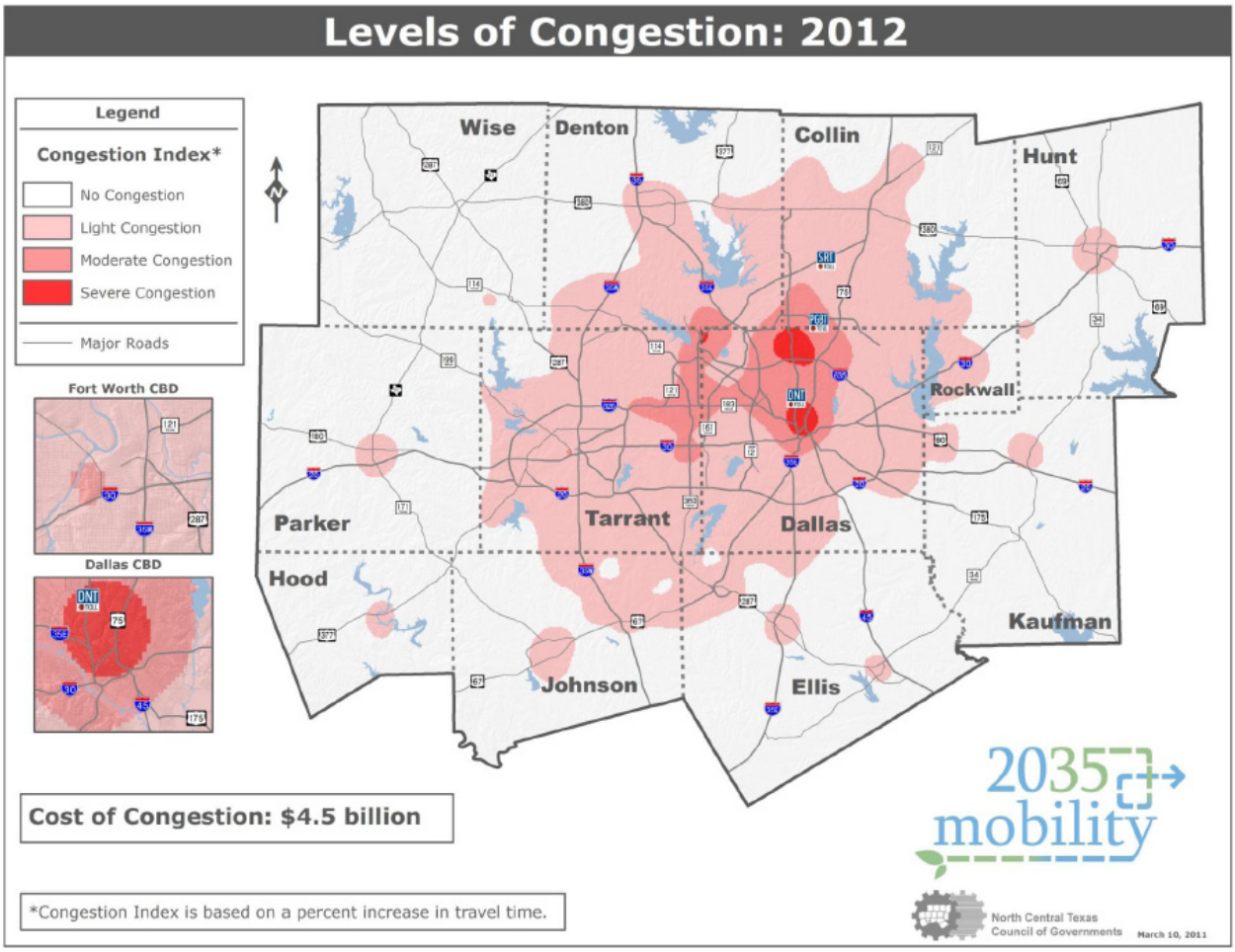
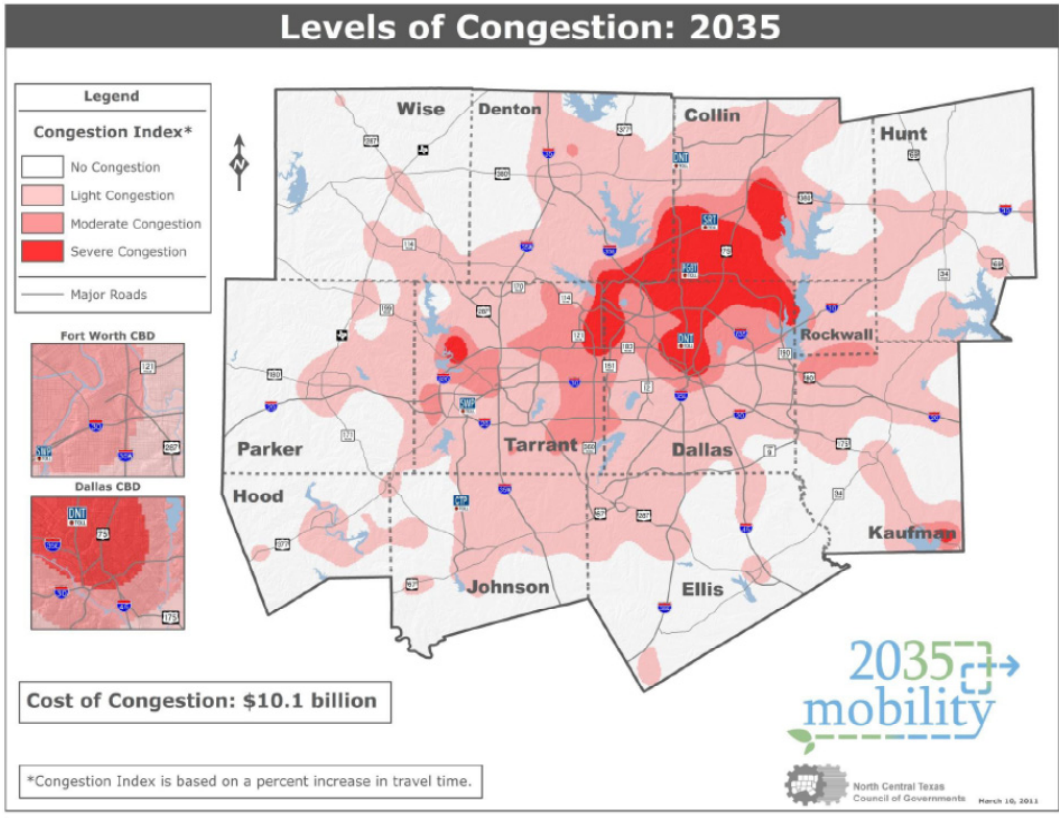


Figure 3-1. 2012 Congestion Levels
Source: North Central Texas Council of Governments,
Mobility 2035 Metropolitan Transportation Plan: Mobility Options Appendix



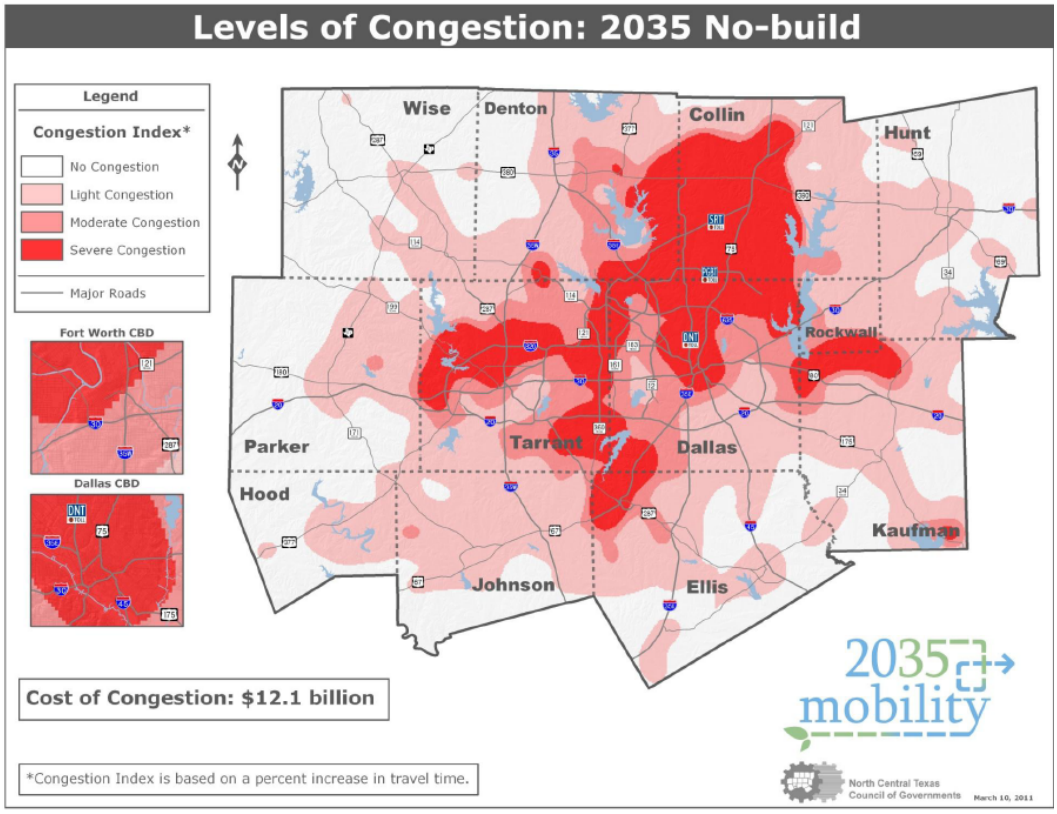


Figure 3-2. 2035 Congestion Levels

Source: North Central Texas Council of Governments

Mobility 2035 Metropolitan Transportation Plan: Mobility Options Appendix

FREEWAY AND TOLLWAY SYSTEM

Figure 3-3 provides an illustration of the funded roadway recommendations included in the Mobility 2035 plan, focusing on freeways, tollways, HOV/managed lanes, frontage roads and selected regionally significant arterials. The identification of these facilities is very important to this study because additional freeway and arterial improvements could materially impact the traffic and toll revenue on the proposed CTP. Facilities providing improved accessibility to the corridor could provide positive impacts to CTP while competing/alternative routes could dampen its traffic and revenue potential. However, the major improvements to the existing highway system near the CTP corridor that were included in the previous MTP are among those improvements that were removed in the Mobility 2035 plan due to financial constraints. These include previously planned expansions of IH 35W and the construction of the Regional Outer Loop between US 287 and SH 199.

Additional toll roads programmed for the region during the next 20 years shown in green in Figure 3-3 are listed below:

- President George Bush Turnpike Eastern Extension between SH 78 and IH 30
- SH 190 East Branch, from IH 30 to IH 20
- Trinity Parkway, from IH 35E to SH 310
- SH 360, from Green Oaks to US 67
- SH 170, from the US 287 to SH 114
- Dallas North Tollway Northern Extension
- Collin County Outer Loop, from the DNT to SH 121

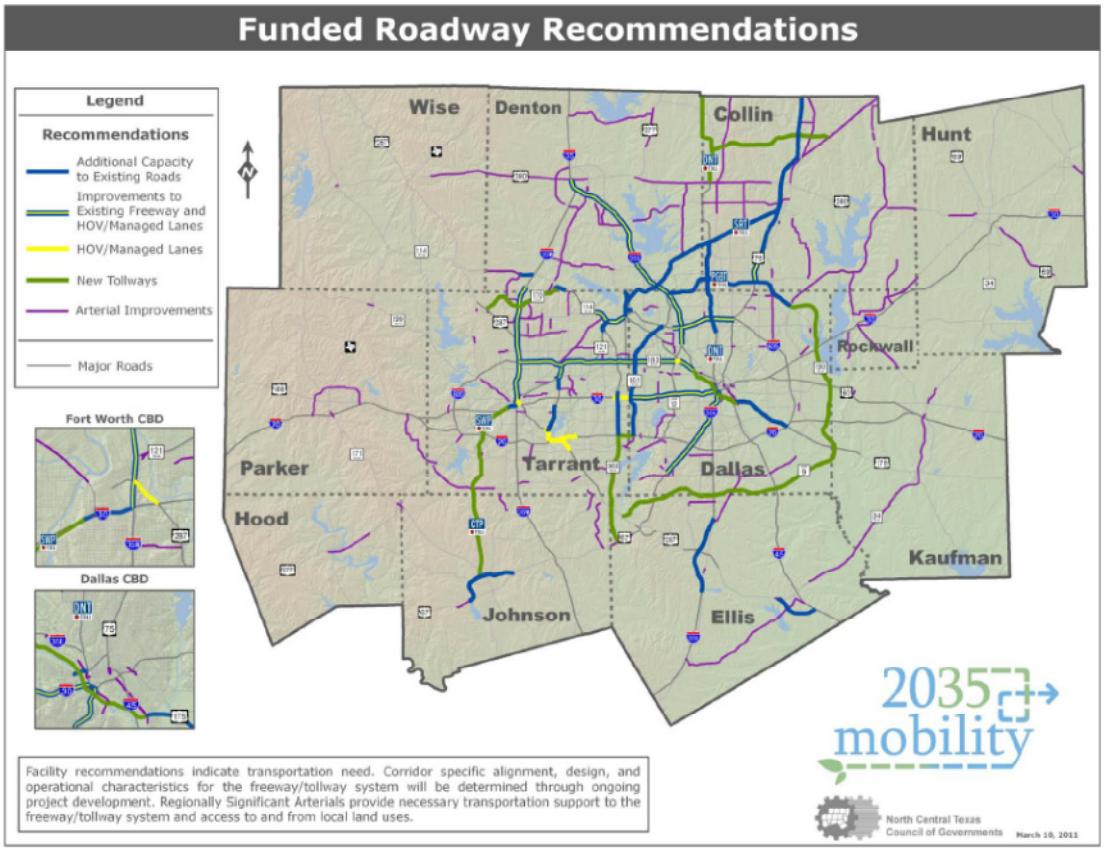


Figure 3-3. Future Funded Roadway Recommendations from Mobility 2035

Source: North Central Texas Council of Governments

Mobility 2035 Metropolitan Transportation Plan: Mobility Options Appendix

RAIL TRANSIT SYSTEM

Transit service in the DFWMA is provided primarily by Dallas Area Rapid Transit (DART), the Fort Worth Transportation Authority (The T) and the Denton County Transportation Authority (DCTA). The existing DART light-rail system consists of four lines operational and one line under construction. The Red Line begins in South Dallas near Westmoreland Avenue and ends at the Parker Road station in Plano; the Blue Line extends from Ledbetter Drive in South Dallas to Downtown Garland; and the Green Line runs from southeast Dallas to north Carrollton. Additionally, for selected weekday trips the Orange Line runs parallel to the Red Line and a portion of the Green Line. A map of the current DART rail system is shown in Figure 3-4.

The Fort Worth Transportation Authority is the operator of the bus system of the city of Fort Worth, popularly known as The T. The T also partners with DART on the Trinity Railway Express (TRE), which offers commuter rail service between downtown Fort Worth and downtown Dallas with "rubber tire" connections to DFW Airport.

The Denton County Transportation Authority (DCTA) is the transit authority that operates in Denton County, which is located northwest of Dallas County. Along with operating bus service in three cities within Denton County, DCTA runs the A-Train commuter rail, a regional rail line parallel to IH 35E that connects with the DART system at Trinity Mills Station in Carrollton.

Figure 3-5 illustrates the proposed rail system as developed by NCTCOG in cooperation with the transit agencies. The transportation system defined in the Mobility 2035 and described above is reflected in the trip tables used to estimate the traffic and toll revenue for the CTP. The trip tables and networks were obtained from NCTCOG to reflect all the planned transportation infrastructure development included in Mobility 2035. As can be observed in Figure 3-5, there is a proposed transit alignment included in Mobility 2035 which could potentially compete directly with the proposed CTP corridor.

Figure 3-4. Current DART Rail System

Source: Dallas Area Rapid Transit (http://www.dart.org)

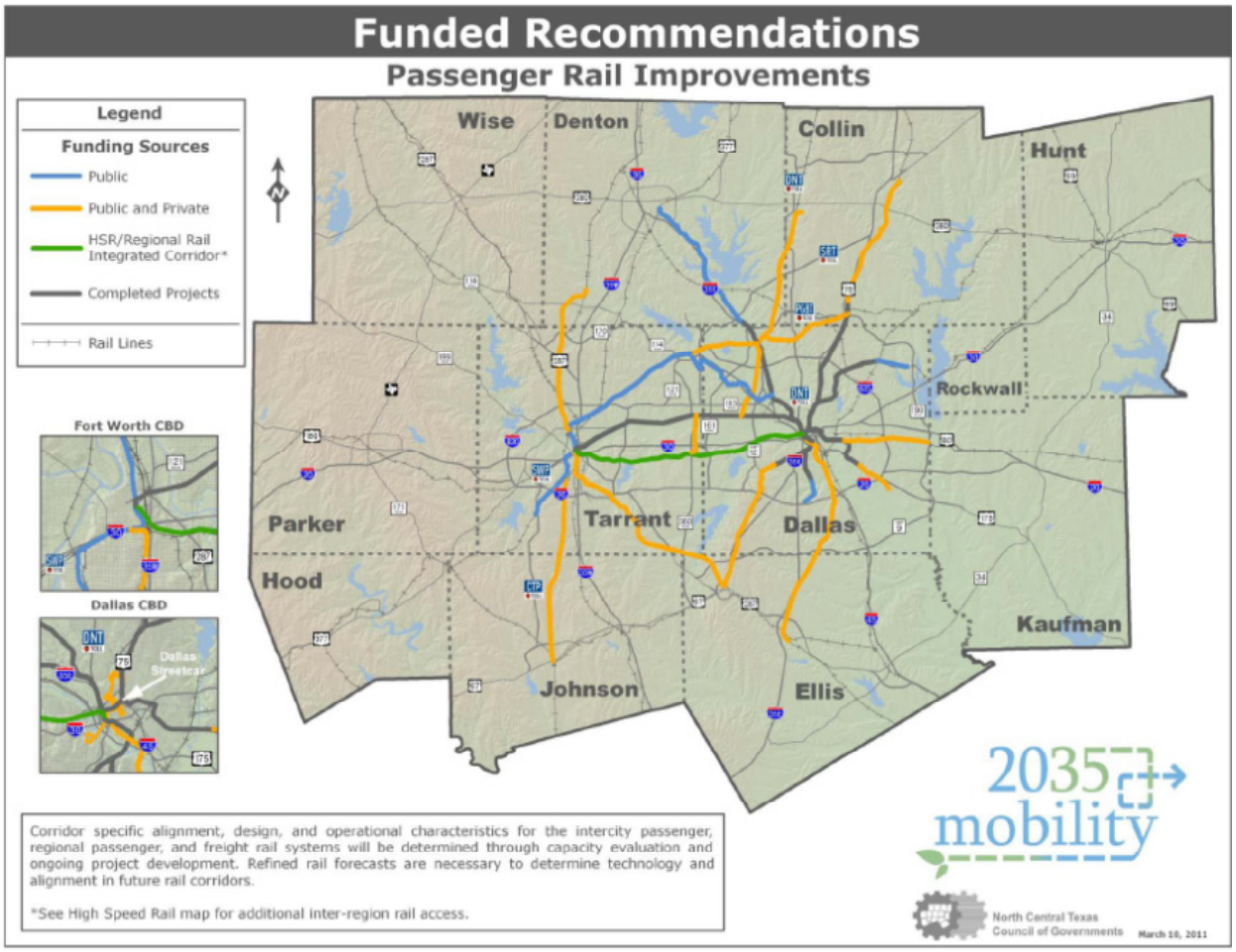


Figure 3-5. 2035 Future Rail System

Source: North Central Texas Council of Governments

Mobility 2035 Metropolitan Transportation Plan: Mobility Options Appendix

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CHAPTER 4

DEMOGRAPHIC GROWTH

As part of the Chisholm Trail Parkway (CTP) Investment Grade Study, historic and projected demographic characteristics used by the North Central Texas Council of Governments (NCTCOG) were reviewed to develop traffic modeling trip tables. This chapter describes the major socioeconomic characteristics of the Dallas-Fort Worth Metropolitan Planning Area (DFWMPA) including both regional and specific trends within the CTP corridor.

NCTCOG's Executive Board on February 24, 2011 approved the 2035 and 2040 market level demographic forecasts. Between March and September 2011, NCTCOG staff will be working with local jurisdictions to finalize an allocation at the sub market level. The forecast was conducted for the twelve counties that comprise the DFWMPA: Collin, Dallas, Denton, Tarrant, Johnson, Hood, Hunt, Ellis, Kaufman, Rockwall, Parker and Wise. On March 10, 2011, the Regional Transportation Council (RTC) adopted Mobility 2035: The Metropolitan Transportation Plan for North Central Texas. The demographic datasets from Mobility 2035 were used as the baseline to generate future trip patterns in the DFWMPA.

This chapter first provides a description of the NCTCOG forecast process used to generate the base demographics followed by a discussion of the regional historical and future growth in the twelve-county area. This chapter also discusses the independent economic review, which was conducted by Research and Demographic Solutions (RDS).

The demographic descriptions included in this chapter range from the macro level (the region) to the corridor level which captures the origins and destinations of about 85 percent of trips using CTP. This information is the foundation to develop the potential demand for the proposed CTP toll facility. The demographic information is used by the trip generation model to estimate total trips for the travel demand model.

NCTCOG DEMOGRAPHIC FORECAST PROCESS

As required by federal legislation, NCTCOG periodically develops future demographics based on county and region control totals created by the Texas State Data Center (TSDC) and other independent

consultants. The TSDC is part of the State Data Center System, a national network of 52 centers (all 50 states, Puerto Rico and the Virgin Islands) in charge of disseminating demographic information. The demographics adopted by NCTCOG are considered official demographics to support the metropolitan planning process and travel demand modeling within the DFW region.

The demographic forecast process and development of trip tables implemented by NCTCOG is divided into six steps as illustrated in Figure 4-1. In the first step, regional control totals of population and employment were developed in five-year increments from a base year (2005) through the forecast horizon year (2035). These regional totals were obtained from the TSDC and were combined with forecasts developed by independent economists at the Perryman Group. The forecasts were developed with a coordinated effort between NCTCOG's Research and Information Services and Transportation departments.

The TSDC population forecast process is a cohort-component forecast method for which the key element is the rate of migration. Three scenarios with different rates of migration are usually developed. The 0.0 scenario assumes that there is no migration and population change is only the result of births and deaths. The 0.5 scenario assumes a migration rate that is fifty percent of the migration seen from 1990-2000. The 1.0 scenario assumes migration equal to that experienced from 1990-2000.

Table 4-1 shows the control totals that were considered during the forecasting process. The 2035 population forecast ranges from 6.4 million for the zero percent migration scenario, to 14.8 million under the 1.0 percent migration scenario. The population control totals adopted by NCTCOG for the region are shown in bold in Table 4-1.

Employment control totals were generated by NCTCOG with input from their Employment Estimates program, which monitors non-construction job counts by place of work for municipalities in the North Central Texas Metropolitan Planning Area. The employment control totals seen in Table 4-1 show that the total employment in the twelve-county area is anticipated to increase from 4.0 million in 2010 to 6.2 million by 2035.

Table 4-1
Population and Employment Forecast Totals

	2010	2020	2030	2035
TSDC Population Scenario 0.0	5,719,295	6,087,323	6,343,126	6,408,843
TSDC Population Scenario 0.5	6,240,694	7,391,773	8,708,912	9,425,077
TSDC Population Scenario 1.0	6,859,576	9,231,317	12,619,315	14,805,158
Mobility 2035 Population Forecast	**6,399,514**	**7,701,248**	**9,113,004**	**9,833,378***
Mobility 2035 Employment Forecast	**4,045,726**	**4,880,200**	**5,743,427**	**6,177,016***

* NCTCOG Adopted forecast
Source: North Central Texas Council of Governments, Texas State Data Center

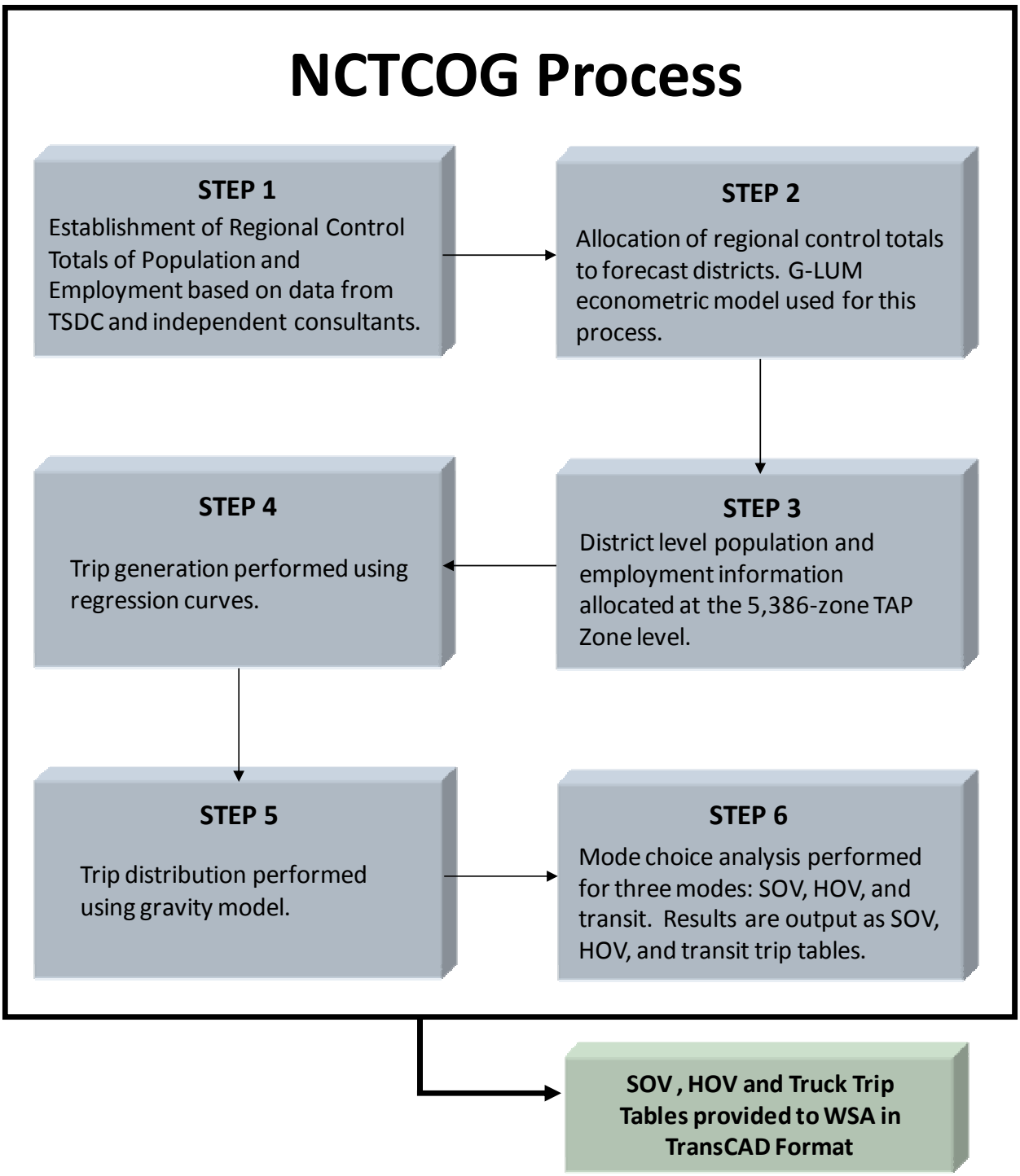

Figure 4-1. NCTCOG Forecast Process

The second step in the forecasting process involves allocating the regional control totals to forecast districts for each five-year interval. The Gravity Land Use Model (G-LUM) was used for this process. In the third step, the district level information was disaggregated to the TAP zone level using a disaggregation model developed by NCTCOG. There are 5,386 TAP zones in the twelve-county area.

The critical variables used in this process were: district level household change, acres of vacant land, density of future residential development, and proximity to transportation infrastructure. Output from this process was closely reviewed by the member cities and approved by the Regional Demographic Task Force before being presented and approved by the NCTCOG Executive Board.

The fourth step involves performing trip generation by using regression curves. This process estimates the total number of trips generated and attracted for each TSZ. In the fifth step trip distribution is performed using the gravity model. In the sixth and final step, mode choice analysis is performed and trip tables are created for the single occupant vehicle (SOV), high occupancy vehicles (HOV), truck and transit modes. These final official tables were provided to WSA by NCTCOG.

HISTORICAL AND FUTURE REGIONAL GROWTH

The sixteen counties served by NCTCOG include Collin, Dallas, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, Tarrant and Wise. Figure 4-2 illustrates the spatial relationship of these counties and highlights the twelve counties which cover the DFWMPA travel demand model area. The analysis of historical and future demographic growth from a regional perspective is based on county-level information pertaining to population, employment, and income.

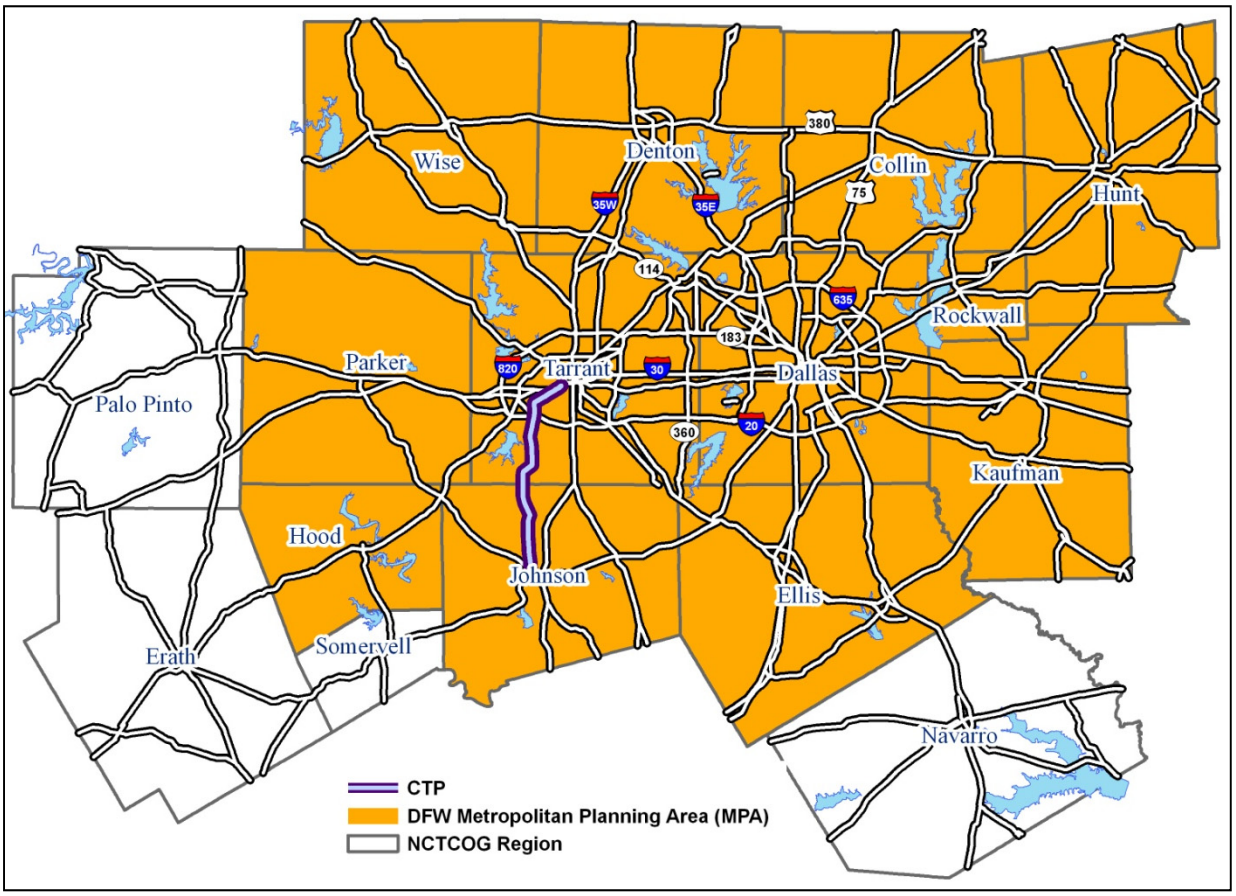

Figure 4-2. DFW Metropolitan Planning Area

HISTORICAL REGIONAL POPULATION TRENDS

Table 4-2 shows the historical population trends for Collin, Dallas, Denton, Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant and Wise Counties, Texas and the United States. The total population in the twelve-county area has increased at an average annual rate of 2.5 percent from 1980 to 2010, equivalent to 3.4 million additional residents. This regional population growth trend exceeded the state and national growth trends between 1980 and 2010 which were 1.9 percent and 1.0 percent per year, respectively.

Tarrant County is the second largest county in the region in terms of population with approximately 1.4 million people in 2010. Its population increased at an average annual rate of 2.5 percent between 1980 and 2010, adding a total of 948,154 people during the same period.

Johnson County's population increased approximately from 67,649 in 1980 to 150,934 in 2010 by an annual growth rate of 2.7 percent.

Dallas County, the most heavily populated county in the region, grew by 811,720 people between 1980 and 2010 at an average annual growth rate of 1.4 percent. This annual growth rate was slightly lower than the rate of growth experienced by the state during the same period, which was 1.9 percent. Dallas County's population in 2010 represented approximately 36.9 percent of the total population of the twelve-county area.

The majority of the population in the DFWMA is concentrated within four counties. In 2010, Collin, Dallas, Denton and Tarrant Counties contained over 87 percent of the total population of the twelve-county area, as shown in Table 4-2. Tarrant County comprises approximately 28.2 percent of the total population in the twelve-county area. Tarrant and Johnson Counties make up 30.6 percent of the total population in the twelve-county area.

FUTURE REGIONAL POPULATION GROWTH

Included in Table 4-2 is NCTCOG's population forecast from MTP 2035. Population in the twelve-county area is expected to increase from 6.4 million in 2010 to 9.8 million by 2035, corresponding to an average annual growth rate of 1.7 percent. This annual growth rate for the twelve-county area is anticipated to be higher than the annual growth rate for both the state and the nation, which are expected to be 1.2 percent and 0.7 percent, respectively.

Tarrant County's population is expected to grow by an average annual rate of 1.8 percent between 2010 and 2035, from 1.8 million in 2010 to 2.8 million by 2035. The additional 1.0 million residents expected in Tarrant County by 2035 would represent the highest number of additional residents for any county in the twelve-county area during that period. Johnson County is expected to add 121,127 more residents between 2010 and 2035 at an average annual growth rate of 2.4 percent.

The year 2035 population distributions for each of the counties in the twelve-county area are also presented in Table 4-2. As in 2010, Tarrant and Dallas Counties would continue to comprise the largest population centers in the twelve-county area. With limited transportation infrastructure included into the MTP 2035, most of the growth is expected to be in core counties of Dallas, Tarrant, Collin and Denton.

Table 4-2
Countywide Population Trends and Projections

County	U.S. Census Bureau				NCTCOG Demographic Forecast
	Year 1980	Year 1990	Year 2000	Year 2010	Year 2035
Collin	144,576	264,036	491,675	782,341	1,404,149
Dallas	1,556,419	1,852,810	2,218,899	2,368,139	3,125,282
Denton	143,126	273,525	432,976	662,614	1,053,903
Ellis	59,743	85,167	111,360	149,610	252,768
Hood	17,714	28,981	41,100	51,182	97,805
Hunt	55,248	64,343	76,596	86,129	148,451
Johnson	**67,649**	**97,165**	**126,811**	**150,934**	**272,061**
Kaufman	39,015	52,220	71,313	103,350	193,509
Parker	44,609	64,785	88,495	116,927	193,730
Rockwall	14,528	25,604	43,080	78,337	172,568
Tarrant	**860,880**	**1,170,103**	**1,446,219**	**1,809,034**	**2,823,535**
Wise	26,575	34,679	48,793	59,127	95,617
Twelve-County Area	3,030,082	4,013,418	5,197,317	6,417,724	9,833,378
State of Texas	14,337,820	16,986,510	20,851,818	25,145,561	33,789,697
United States	227,225,620	248,709,873	281,424,602	308,745,538	369,339,000

County	Annual Growth (1980-2010)	Annual Growth (2010-2035)	Percent Population Distribution		Percentage of New Residents (2010-2035)
			2010	2035	
Collin	5.8%	2.4%	12.2%	14.3%	18.2%
Dallas	1.4%	1.1%	36.9%	31.8%	22.2%
Denton	5.2%	1.9%	10.3%	10.7%	11.5%
Ellis	3.1%	2.1%	2.3%	2.6%	3.0%
Hood	3.6%	2.6%	0.8%	1.0%	1.4%
Hunt	1.5%	2.2%	1.3%	1.5%	1.8%
Johnson	**2.7%**	**2.4%**	**2.4%**	**2.8%**	**3.5%**
Kaufman	3.3%	2.5%	1.6%	2.0%	2.6%
Parker	3.3%	2.0%	1.8%	2.0%	2.2%
Rockwall	5.8%	3.2%	1.2%	1.8%	2.8%
Tarrant	**2.5%**	**1.8%**	**28.2%**	**28.7%**	**29.7%**
Wise	2.7%	1.9%	0.9%	1.0%	1.1%
Twelve-County Area	2.5%	1.7%	100.0%	100.0%	100.0%
State of Texas	1.9%	1.2%	N/A	N/A	N/A
United States	1.0%	0.7%	N/A	N/A	N/A

Source: NCTCOG, U.S. Census Bureau, Texas State Data Center

HISTORICAL REGIONAL EMPLOYMENT TRENDS

Employment statistics are used as relative indicators of trip attractions to an area. Intense employment growth in an area indicates the potential for an increase in the demand for transportation infrastructure. The countywide historical employment trends in the DFWMPA are shown in Table 4-3. Between 1990 and 2000, employment in the twelve-county area increased at an annual rate of 3.3 percent, which was higher than the employment growth rate of both the state and nation.

Tarrant County is one of the prominent employment centers in the twelve-county area and is home to many industrial and medical institutions such as RadioShack Corporation, AmeriCredit Corporation, Harris Methodist Hospital, John Peter Smith Hospital, and Cook Children's Health Care Center. According to figures presented by NCTCOG, Tarrant County added 278,302 new jobs between 1990 and 2000 at an average annual growth rate of 4.0 percent. During 2000, the total employment in Tarrant County represented the largest share of total employment in the twelve-county area after Dallas County. Johnson County added 18,857 new jobs between 1990 and 2000 at an average annual growth rate of 5.6 percent.

Dallas County continues to be the major employment center in the region. Its employment in 2000 comprised over half of the twelve-county area's total employment, and increased from 1.3 million in 1990 to 1.7 million in 2000.

Employment distributions by county are also shown in Table 4-3. Dallas and Tarrant Counties incorporate the bulk of the employment centers in the ten-county area, encompassing 82.6 percent of the region's total employment in 2000. Employment in Johnson County accounted for only 1.4 percent of the twelve-county area total in 2000.

Figures 4-3 and 4-4 show historical unemployment and employment growth rates. In June, 2011 the unemployment rate for DFW was 8.7 percent whereas unemployment rate for US was at 9.3 percent. As can be seen, the DFW area has been performing better than the rest of the nation in terms of unemployment rates and employment growth since 2008.

Table 4-3
Countywide Employment Trends and Projections

County	Historical Employment		NCTCOG Forecast	
	Year 1990	Year 2000	Year 2010	Year 2035
Collin	93,729	204,057	361,297	628,349
Dallas	1,254,974	1,745,109	2,080,700	2,854,287
Denton	75,817	152,818	220,263	406,105
Ellis	27,789	49,071	59,294	116,145
Hood	N/A	N/A	19,682	37,036
Hunt	N/A	N/A	45,881	78,163
Johnson	**26,214**	**45,071**	**65,624**	**132,917**
Kaufman	17,174	31,027	39,989	81,646
Parker	16,173	29,816	46,265	91,660
Rockwall	7,492	17,025	24,009	53,934
Tarrant	**586,058**	**864,360**	**1,053,933**	**1,644,463**
Wise	N/A	19,848	28,789	52,311
Twelve-County Area	2,105,420	3,158,202	4,045,726	6,177,016
State of Texas	9,242,902	12,151,379	14,508,221	21,097,186
United States	138,331,022	165,370,978	174,062,641	233,781,003

County	Annual Growth (1990-2010)	Annual Growth (2010-2035)	Employment Distribution		Percentage New Employment (2010-2035)
			2010	2035	
Collin	7.0%	2.2%	8.9%	10.2%	12.5%
Dallas	2.6%	1.3%	51.4%	46.2%	36.3%
Denton	5.5%	2.5%	5.4%	6.6%	8.7%
Ellis	3.9%	2.7%	1.5%	1.9%	2.7%
Hood	N/A	2.6%	0.5%	0.6%	0.8%
Hunt	N/A	2.2%	1.1%	1.3%	1.5%
Johnson	**4.7%**	**2.9%**	**1.6%**	**2.2%**	**3.2%**
Kaufman	4.3%	2.9%	1.0%	1.3%	2.0%
Parker	5.4%	2.8%	1.1%	1.5%	2.1%
Rockwall	6.0%	3.3%	0.6%	0.9%	1.4%
Tarrant	**3.0%**	**1.8%**	**26.1%**	**26.6%**	**27.7%**
Wise	N/A	2.4%	0.7%	0.8%	1.1%
Twelve-County Area	3.3%	1.7%	100.0%	100.0%	100.0%
State of Texas	2.3%	1.5%	N/A	N/A	N/A
United States	1.2%	1.2%	N/A	N/A	N/A

Source: NCTCOG, U.S. Census Bureau, Texas State Data Center

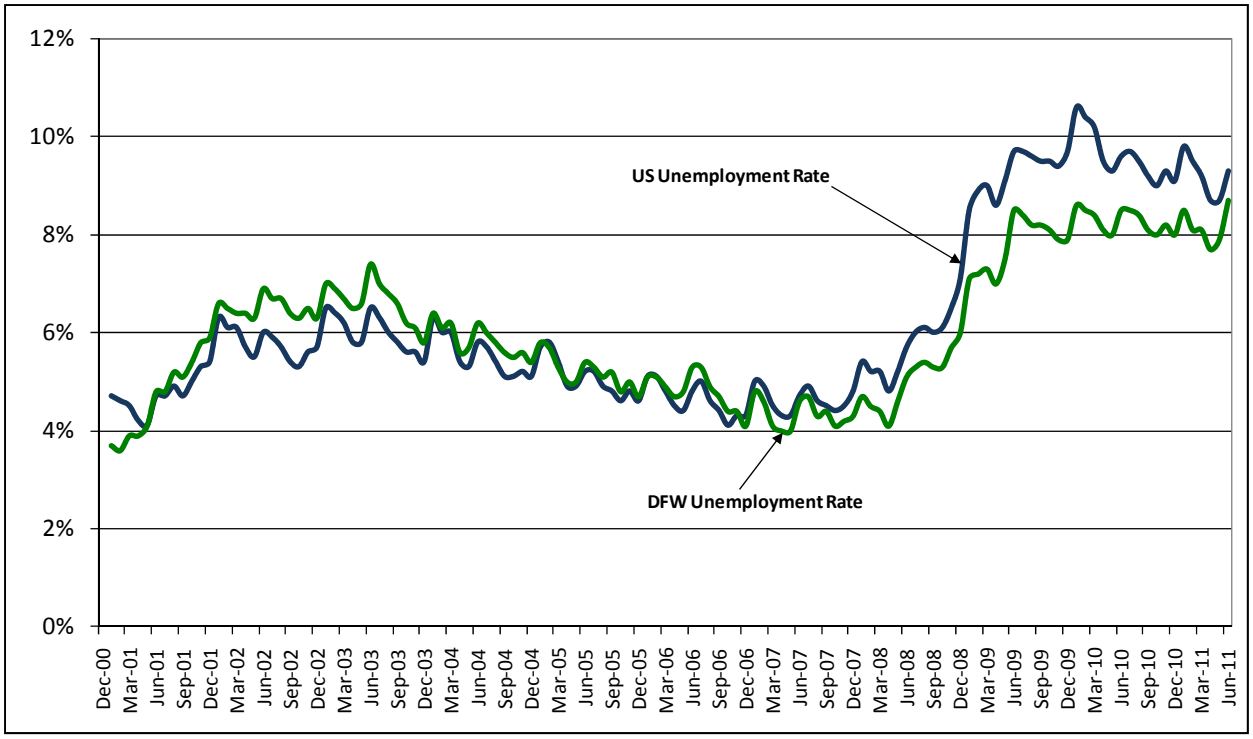

Figure 4-3. Historical Unemployment Rates
Source: Texas Workforce Commission, August 2011

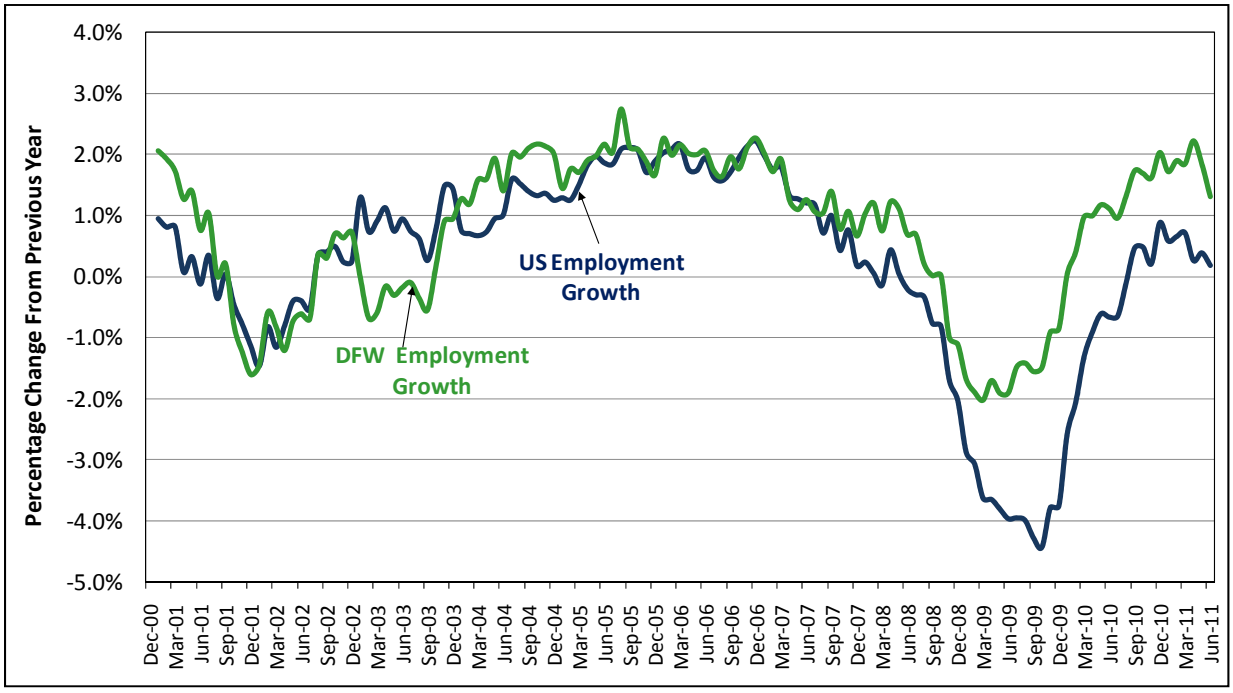

Figure 4-4. Historical Employment Growth
Source: Texas Workforce Commission, August 2011

FUTURE REGIONAL EMPLOYMENT GROWTH

Table 4-3 also shows the NCTCOG employment forecast for the year 2010 and 2035. Tarrant County's employment is expected to increase from 1.0 million in 2010 to 1.6 million by 2035 at an average annual growth rate of 1.8 percent. Tarrant County employment establishments are expected to contain 26.6 percent of the total additional jobs in the twelve-county area by 2035.

Dallas County employment is expected to increase from 2.0 million in 2010 to 2.9 million in 2035 at an annual growth rate of 1.3 percent. Dallas County is expected to house 36.3 percent of the total additional jobs in the twelve-county area.

Johnson County's employment is expected to increase from 65,624 to 132,917 by an annual average growth of 2.9 percent by 2035. Ellis, Hood, Hunt, Johnson, Kaufman, Parker, Rockwall, and Wise Counties together are expected to add 314,279 new jobs between 2010 and 2035 which accounts for 14.7 percent of the additional regional employment growth. Their combined employment in 2035 is projected to be 10.4 percent of total regional employment.

Between 2010 and 2035, 2.1 million additional jobs are expected to be added in the twelve-county area, at an annual average growth rate of 1.7 percent. Expected annual growth rates for employment in Texas and nation between 2010 and 2035 is 1.5 and 1.2 percent respectively.

Table 4-3 also presents year 2035 employment distributions for the twelve-county area. The major employment concentrations are expected to continue to be located in Tarrant and Dallas Counties. However, the projections anticipate the migration of jobs from the major city centers to the suburban areas throughout the DFWMPA.

REGIONAL MEDIAN HOUSEHOLD INCOME TRENDS

Travel demand, and specifically demand for toll roads, is sensitive to the amount of disposable income available within a household. A reliable indicator of a household's propensity for trip-making, and specifically a motorist's willingness to pay a toll, is median household income. Generally, households with higher incomes have a propensity to make more automobile trips than those with lower incomes due to their greater levels of disposable income. Value of time, a key factor in motorists' willingness to pay tolls, also tends to be higher in households with higher incomes.

A comparison of median household income for the twelve-county area is provided in Table 4-4. The most recent median household income data estimated by the U.S. Census Bureau for 2009 are provided for the twelve-county area, the state, and the nation. The median household income data presented in Table 4-4 indicates that when reported in real 2009 dollars, income in the region, the state and the nation grew considerably between 1989 and 1999, but had declined somewhat by 2009. The 1999 median household incomes in Tarrant and Johnson Counties were higher than those of the state and nation.

Table 4-4
Median Household Income (In Real 2009 Dollars)

County	Year 1989 [1]	Year 1999 [1]	Year 2009 Estimate [2]	Average Annual Growth Rate (1989-1999)	(1989-2009)	(1999-2009)
Collin	$77,213	$89,891	$77,585	1.5%	0.0%	-1.5%
Dallas	$53,027	$54,979	$45,986	0.4%	-0.7%	-1.8%
Denton	$61,935	$73,877	$70,510	1.8%	0.7%	-0.5%
Ellis	$51,262	$63,895	$57,777	2.2%	0.6%	-1.0%
Johnson	**$51,361**	**$56,625**	**$56,579**	**1.0%**	**0.5%**	**0.0%**
Kaufman	$45,771	$56,831	$55,474	2.2%	1.0%	-0.2%
Parker	$51,328	$57,737	$63,772	1.2%	1.1%	1.0%
Rockwall	$71,168	$82,695	$75,340	1.5%	0.3%	-0.9%
Tarrant	**$54,252**	**$58,602**	**$53,720**	**0.8%**	**0.0%**	**-0.9%**
Hood	N/A	$55,416	$52,870	N/A	N/A	-0.5%
Hunt	N/A	$46,639	$42,894	N/A	N/A	-0.8%
Wise	$43,430	$53,214	$55,703	2.1%	1.3%	0.5%
State of Texas	$45,328	$50,668	$48,259	1.1%	0.3%	-0.5%
United States	$50,428	$53,291	$50,221	0.6%	0.0%	-0.6%

[1] Adjusted to 2009 dollars using the Consumer Price Index (CPI).
[2] Estimate calculated by U.S. Census Bureau, presented in 2009 American Community Survey.
Sources: 1990 and 2000 Decennial Census, 2009 American Community Survey, U.S. Census Bureau.

The 2009 median household income estimates for Tarrant and Johnson County were higher than the state and national median household income figure. The median household incomes for the counties in the twelve-county area have historically been higher than the state and national averages.

In 1999, median household incomes ranged from 1.77 times that of the state for Collin County to 0.92 times that of the entire state for Hunt County. Similarly, the entire twelve-county area median household incomes ranged from 1.69 times the national median household income for Collin County to 1.0 times the national median household income for Wise County.

Between 1989 and 2009, the annual rate of growth of median household income in the region's counties compared favorably to the state and nation, although some counties showed a smaller rate of increase.

Figure 4-5 represent the median household income from the 2000 Census at the TAP zone level for the CTP corridor presented in constant 1999 dollars. The zones with the highest median household incomes are located near the central and southern sections of the corridor. Many of the zones in the corridor have median household incomes less than $50,000 in 1999 dollars.

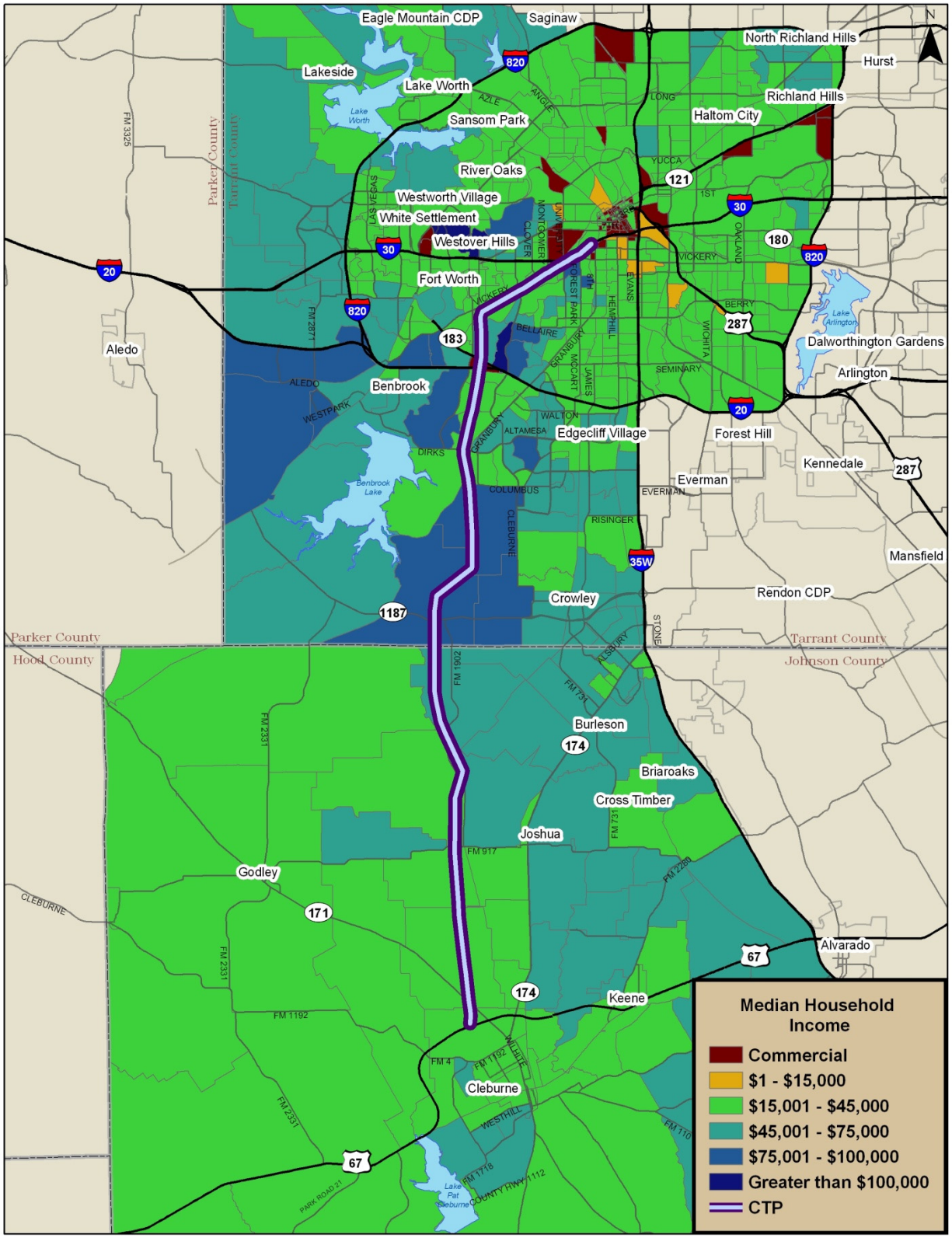

Figure 4-5. CTP - 2000 Median Household Income

CTP CORRIDOR CURRENT AND FUTURE DEVELOPMENT GROWTH

In this section, the current and future economic development potential along the CTP corridor is described. The future development potential is based on the identification of major employment establishments in the study corridor and potential new developments in the study area. This includes an examination of the demographic forecasts for the area immediately adjacent to and within the proposed CTP corridor, which is defined as the area within a five-mile distance of the CTP alignment.

MAJOR EMPLOYMENT ESTABLISHMENTS

NCTCOG maintains a list of major employment establishments with 250 or more full-time employees. Table 4-5 shows the thirty-six establishments that are located within the CTP corridor. Many of these employment establishments are medical institutions including Harris Methodist Fort Worth, John Peter Smith Hospital, Cook Children's Health Care Center and Baylor-All Saints Medical Center. These facilities and others might be important traffic generators/attractors to the proposed CTP corridor. The locations of the existing major employment establishments in the study corridor are shown in Figure 4-6.

Table 4-5
Major Employment Establishments with 500 or more Full-Time Employees
Chisholm Trail Parkway Corridor

Name	City	Address	Number of Employees	Type of Business
Lockheed Martin Corp	Fort Worth	Lockheed Blvd	15,000	Manufacturing
NAS Fort Worth Joint Reserve Base	Fort Worth	1215 Depot Ave	5,000	Institutional
Texas Health Harris Methodist Fort Worth Hospital	Fort Worth	1301 Pennsylvania Ave	4,000	Medical
John Peter Smith Hospital	Fort Worth	1500 S Main St	3,473	Medical
Cooks Children's Medical Center	Fort Worth	801 7Th Ave	3,320	Medical
Tarrant County DRO/Family Court Services	Fort Worth	200 E Weatherford	3,000	Public Administration
Alcon Laboratories INC	Fort Worth	6201 South Fwy	3,000	Manufacturing
Radio Shack	Fort Worth	100-300 Throckmorton St	2,450	Office
Fort Worth Star-Telegram	Fort Worth	685 John B. Sias Pkwy	1,690	Industrial
Baylor-All Saints Medical Center	Fort Worth	1400 8Th Ave	1,680	Medical
Fort Worth Police Dept	Fort Worth	350 W. Belknap	1,550	Institutional
Smith Temporaries Inc	Fort Worth	1200 & 1300 Summit Ave	1,500	Office
Texas Christian University	Fort Worth	2800 S University Dr	1,350	Educational
UNT Health Science Center	Fort Worth	3500 Camp Bowie Blvd	1,229	Educational
Plaza Medical Center	Fort Worth	900 8Th Avenue	1,020	Medical
Ben E Keith Corporate Office	Fort Worth	601 E 7th St	1,000	Wholesale Trade
Baylor Medical Center at Southwest Fort Worth	Fort Worth	7100 Oakmont Blvd	1,000	Medical
General Services Admin	Fort Worth	819 Taylor St Rm 9A00	960	Office
City Of Fort Worth	Fort Worth	1000 Throckmorton St	920	Office
Union Pacific Railroad	Fort Worth	777 Main Street	900	Office
United Parcel Service Inc	Fort Worth	1300 E Northside Dr	900	Industrial
Southwestern Baptist	Fort Worth	2001 W Seminary Dr	840	Educational
APAC Customer Services Incorporated	Fort Worth	4100 International Plaza	811	Administrative
Pier 1 Imports Inc	Fort Worth	301 Commerce St Ste 600	750	Office
Fort Worth Star-Telegram	Fort Worth	400 W. 7Th St.	650	Office
US Army Corps Of Engineers	Fort Worth	819 Taylor St Rm 3A24	630	Office
AT&T	Fort Worth	1116 Houston St	620	Office
Harris Methodist Southwest	Fort Worth	6100 Harris Pkwy	600	Medical
Fort Worth Transportation Authority	Fort Worth	1600 E. Lancaster	587	Institutional
Banc One Capital Markets Incorporated	Fort Worth	420 Throckmorton st	550	Finance
Remedy Staffing	Fort Worth	1200 Summit Ave	550	Administrative
Ft. Worth ISD	Fort Worth	100 N University Dr	550	Educational
First Command Financial Planning	Fort Worth	1 Firstcomm Plaza	540	Office
JACOBS ENGINEERING GROUP INC	Fort Worth	777 Main Street	540	Office
Wal-Mart	Burleson	951 Sw Wilshire Blvd	530	Retail
Federal Express Ground	Fort Worth	4901 Martin St	500	Industrial
Texas Wesleyan University	Fort Worth	1201 Wesleyan st	500	Educational
Albertson Distribution Center	Fort Worth	7550 Oak Grove Rd	500	Warehousing
Texas Department of Transportation	Fort Worth	2501 SW Loop 820	500	Public Administration
Crothall Services Group Incorporated	Fort Worth	1500 Main St	500	Administrative

Source: North Central Texas Council of Governments

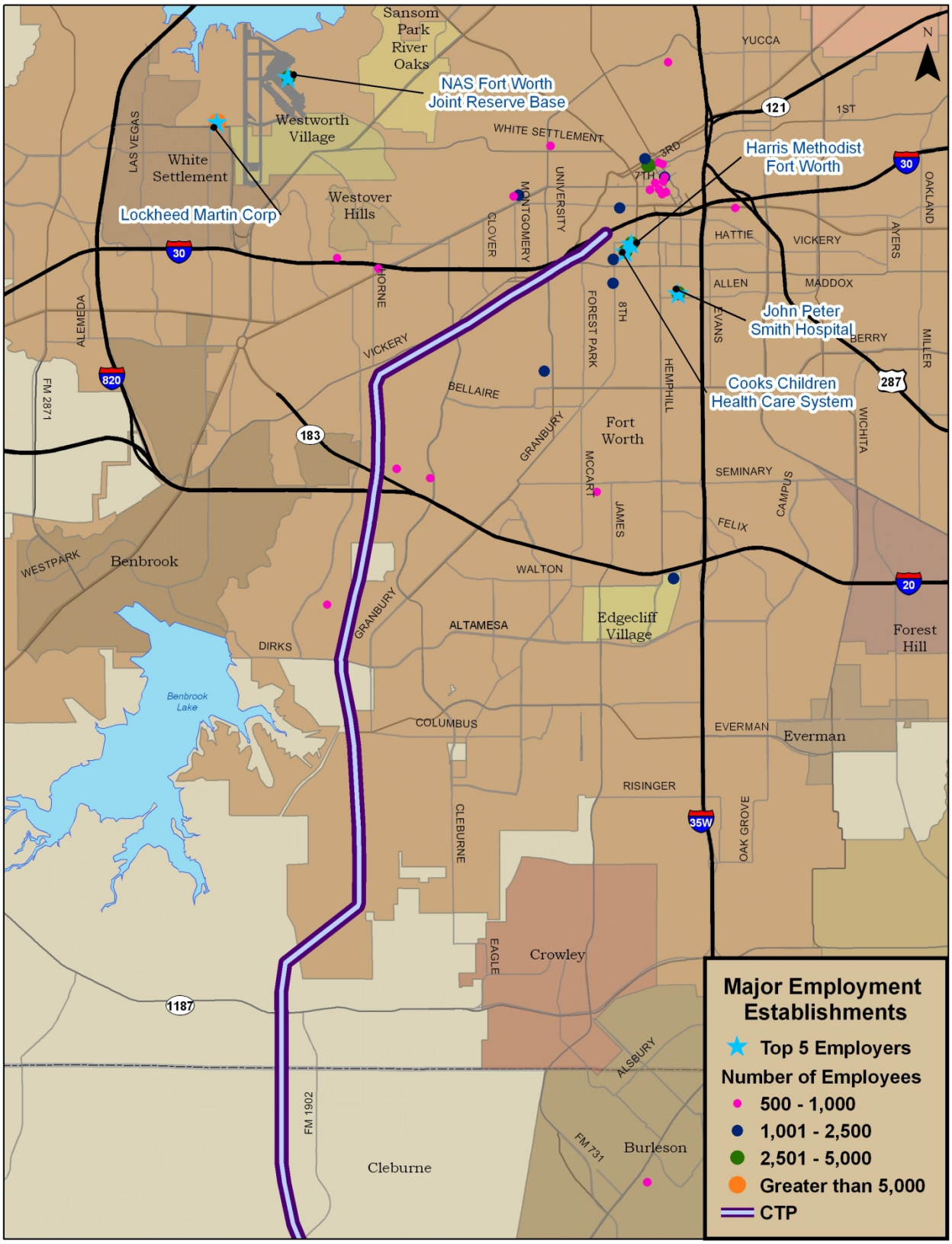

Figure 4-6. Major Employment Establishments – CTP Corridor

IMPACT OF BARNETT SHALE DEVELOPMENT

Barnett Shale is the one of the largest natural gas fields in North America. The core areas of production are located in Tarrant, Johnson and Wise Counties. A study, "An Enduring Resource: A Perspective on the Past, Present, and Future Contribution of the Barnett Shale to the Economy of Fort Worth and the Surrounding Area" was done by the Perryman group in March 2009. According to this study, "Over the past several years, activity in the Barnett Shale has generated thousands of jobs and tens of billions of dollars in investment". The addition of jobs and monetary investments led to royalty bonus payments to local residents, cities, school districts, increased property tax receipts to counties, schools and other agencies, all of which contributed to the prosperity of the entire region. According to the report, the pace of activity has slowed in recent months due to the global economic situation and falling energy demand and prices. The current impact is large and the result of Barnett Shale activity includes $11.0 billion in annual output and some 111,131 permanent jobs (www.perrymangroup.com).

FUTURE POPULATION AND EMPLOYMENT ALONG THE PROPOSED CTP CORRIDOR

The population and employment growth between 2012 and 2035 for the area of influence of the proposed CTP alignment disaggregated at the TAP zone level is highlighted in Figure 4-7 and Figure 4-8.

Population Growth Estimates

Figure 4-7 identifies the annual compounded growth rates for population, as provided by NCTCOG. Many of the zones within the corridor, primarily comprising southern Fort Worth, the area between Benbrook and Edgecliff Village show anticipated annual population growth rates of less than five percent between 2012 and 2035. As seen from Figure 4-7, the areas of largest population growth are located in western Tarrant County, central Fort Worth, Crowley and Burleson.

Employment Growth Estimates

Figure 4-8 identifies the annual compounded growth rates for employment within the TSZs in the area of influence of the proposed CTP corridor, as provided by NCTCOG. Many of the zones within the corridor show anticipated annual employment growth rates of less than five percent between 2012 and 2035. Zones with higher employment growth are generally located around the Benbrook Reservoir, along IH 35W corridor south of SH 174 and parts of Johnson County.

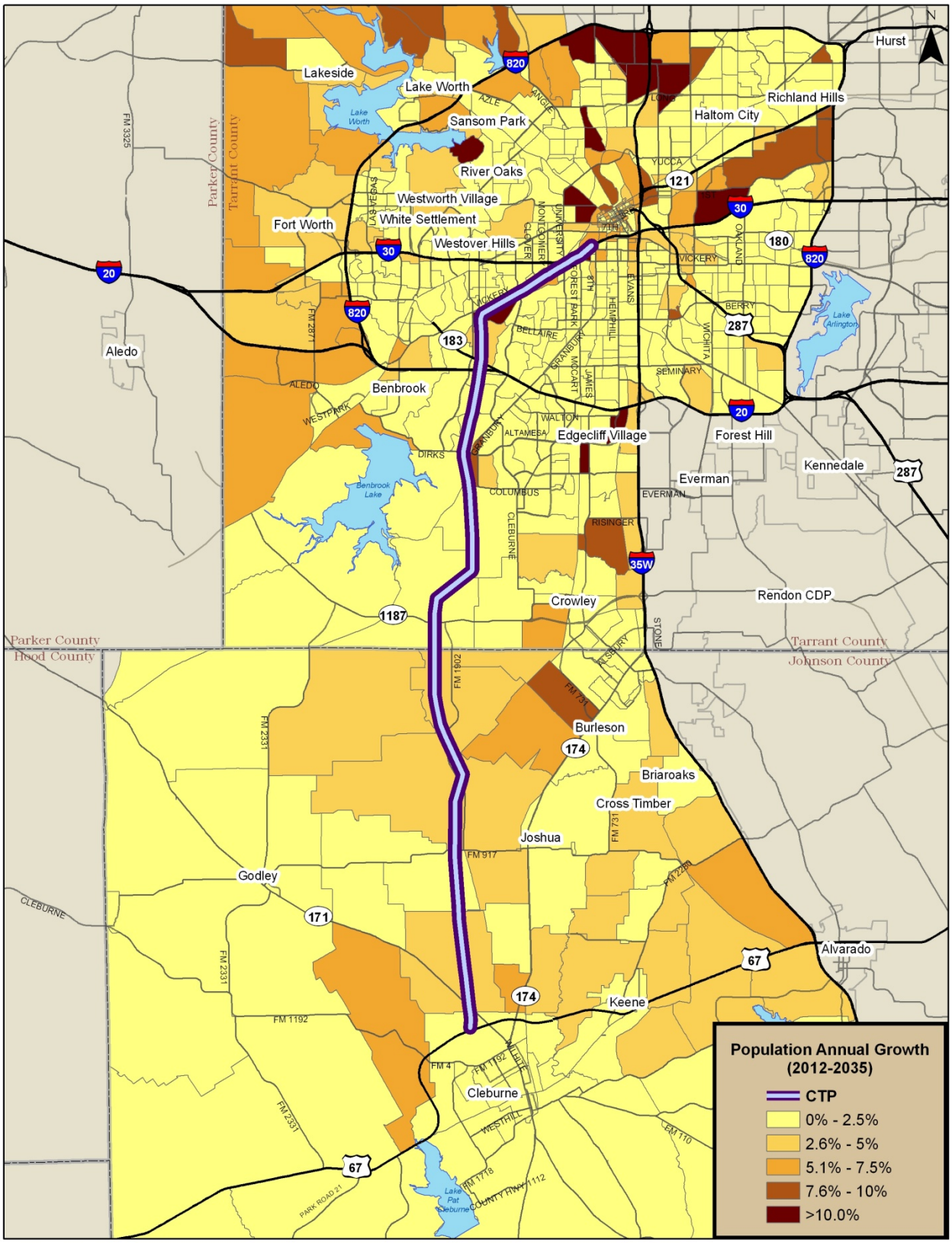

Figure 4-7. Population Annual Growth (2012-2035) – CTP Corridor

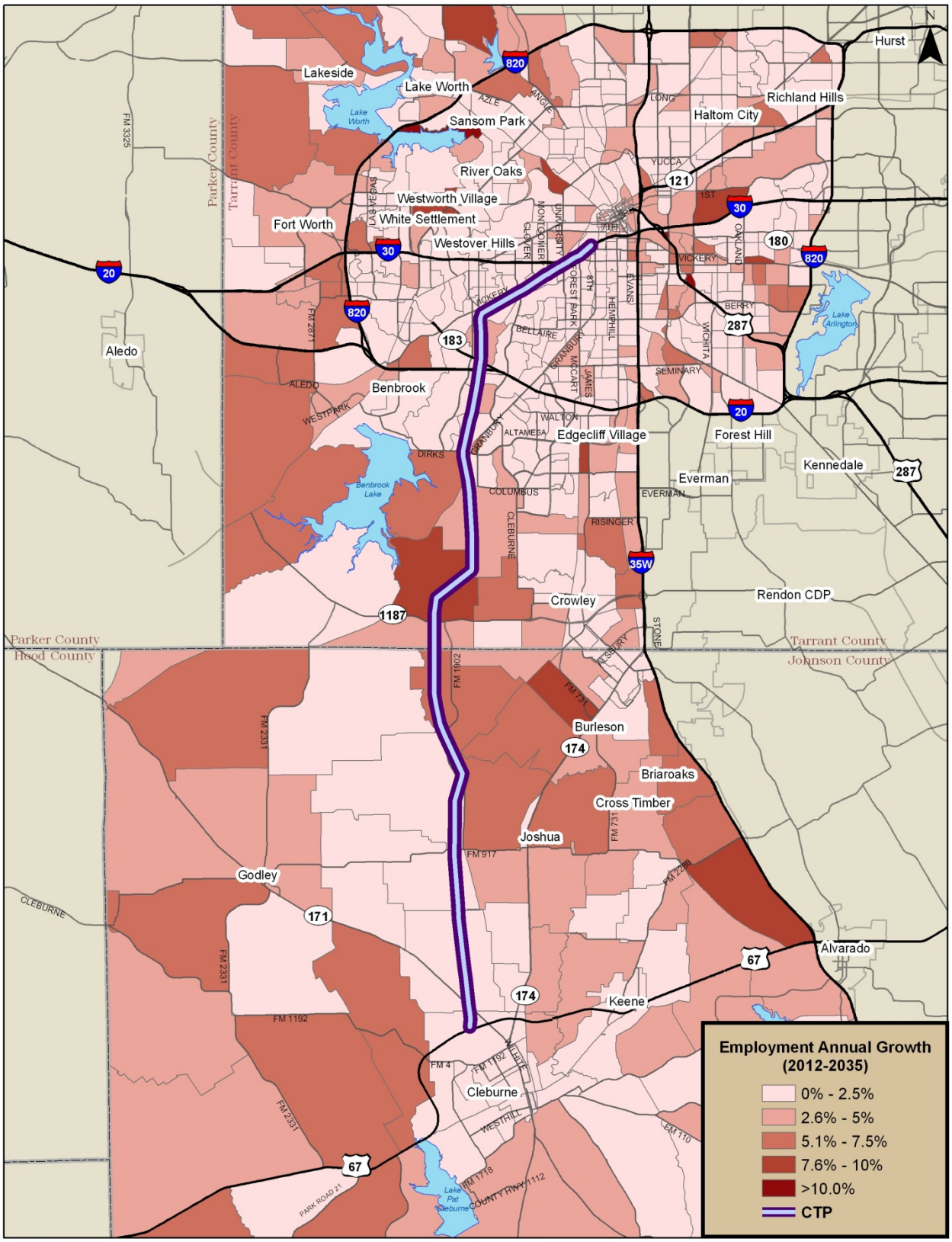

Figure 4-8. Employment Annual Growth (2012-2035) – CTP Corridor

SOCIOECONOMIC INDICATORS

CONSUMER PRICE INDEX

The consumer price index for all urban consumers (CPI-U) is the most widely used measure of inflation and serves as an economic indicator. The CPI-U determines the aggregate price level of a specific market basket of goods and services that are consumed by typical urban households. This is done by calculating the average going price of each item in the market basket. Food, clothing, housing, transportation (including tolls) and entertainment are all included in the basket. Income taxes and investment items such as stocks and bonds are not included. The Bureau of Labor and Statistics of the U.S. Department of Labor calculates the CPI-U every month.

The consumer price index for the base time frame (1982-1984) is 100. Inflation is determined by finding the percentage change in the CPI-U from one year to the next. Table 4-6 gives the historical trends for CPI-U from 1967-2011 for Dallas-Fort Worth, the Southern Region (Alabama, Arkansas, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, Washington D.C., and West Virginia), and the United States. As indicated in Table 4-6, the CPI-U in Dallas-Fort Worth has continually increased at a similar rate to the CPI-Us for both the Southern Region and the United States. This indicates that the inflation rate in Dallas-Fort Worth is consistent with the rate of inflation seen nationwide. In Dallas-Fort Worth, the CPI-U has grown at an average annual rate of 4.3 percent per year since 1970, which is a similar rate of growth experienced by the Southern Region during that time. It also appears as though CPI growth has slowed in recent years. Between 2000 and 2010, CPI-U grew at an average annual rate of 2.0 percent for Dallas-Fort Worth and at an average annual rate of 2.4 percent for the Southern Region, and the United States.

CPI-U data is available for months of January through May in the year 2011. The average CPI-U in Dallas-Fort Worth for the first five months in 2011 represents an average annual growth rate in CPI of 4.3 percent per year since 1971. Between 2001 and 2011 (average until May 2011), CPI-U grew at an average annual rate of 1.9 percent for Dallas-Fort Worth and at an average annual rate of 2.4 percent for the Southern Region.

Table 4-6
Consumer Price Index for All Urban Consumers
(1982-84 = 100.0)

Year	Dallas - Fort Worth	Growth	Southern Region	Growth	United States	Growth
1967	31.9	-----	32.6	-----	33.4	-----
1968	33.3	4.4%	34.0	4.3%	34.8	4.2%
1969	35.5	6.6%	36.0	5.9%	36.7	5.5%
1970	37.6	5.9%	37.9	5.3%	38.8	5.7%
1971	38.7	2.9%	39.5	4.2%	40.5	4.4%
1972	39.8	2.8%	40.7	3.0%	41.8	3.2%
1973	42.1	5.8%	43.3	6.4%	44.4	6.2%
1974	46.3	10.0%	48.6	12.2%	49.3	11.0%
1975	50.4	8.9%	53.3	9.7%	53.8	9.1%
1976	53.5	6.2%	56.3	5.6%	56.9	5.8%
1977	57.4	7.3%	60.0	6.6%	60.6	6.5%
1978	61.8	7.7%	65.0	8.3%	65.2	7.6%
1979	69.7	12.8%	72.4	11.4%	72.6	11.3%
1980	81.5	16.9%	81.9	13.1%	82.4	13.5%
1981	90.8	11.4%	90.7	10.7%	90.9	10.3%
1982	96.0	5.7%	96.5	6.4%	96.5	6.2%
1983	99.7	3.9%	99.7	3.3%	99.6	3.2%
1984	104.3	4.6%	103.8	4.1%	103.9	4.3%
1985	108.2	3.7%	107.1	3.2%	107.6	3.6%
1986	109.9	1.6%	108.9	1.7%	109.6	1.9%
1987	112.9	2.7%	112.4	3.2%	113.6	3.6%
1988	116.1	2.8%	116.4	3.6%	118.3	4.1%
1989	119.5	2.9%	121.5	4.4%	124.0	4.8%
1990	125.1	4.7%	127.9	5.3%	130.7	5.4%
1991	130.8	4.6%	132.9	3.9%	136.2	4.2%
1992	133.9	2.4%	136.5	2.7%	140.3	3.0%
1993	137.3	2.5%	140.8	3.2%	144.5	3.0%
1994	141.2	2.8%	144.7	2.8%	148.2	2.6%
1995	144.9	2.6%	149.0	3.0%	152.4	2.8%
1996	148.8	2.7%	153.6	3.1%	156.9	3.0%
1997	151.4	1.7%	156.9	2.1%	160.5	2.3%
1998	153.6	1.5%	158.9	1.3%	163.0	1.6%
1999	158.0	2.9%	162.0	2.0%	166.6	2.2%
2000	164.7	4.2%	167.2	3.2%	172.2	3.4%
2001	170.4	3.5%	171.1	2.3%	177.1	2.8%
2002	172.7	1.3%	173.3	1.3%	179.9	1.6%
2003	176.2	2.0%	177.3	2.3%	184.0	2.3%
2004	178.7	1.4%	181.8	2.5%	188.9	2.7%
2005	184.7	3.4%	188.3	3.6%	195.3	3.4%
2006	190.1	2.9%	194.7	3.4%	201.6	3.2%
2007	193.2	1.7%	200.4	2.9%	207.3	2.8%
2008	201.8	4.4%	208.7	4.2%	215.3	3.8%
2009	200.5	-0.6%	207.8	-0.4%	214.5	-0.4%
2010	201.6	0.5%	211.3	1.7%	218.1	1.6%
2010 (Jan - May)	202.1	-----	210.8	-----	217.4	-----
2011 (Jan - May)	206.3	2.1%	216.8	2.8%	223.2	2.6%
Compounded Annual Growth Rate	**(1970-2010)**	**4.3%**	**(1970-2010)**	**4.4%**	**(1970-2010)**	**4.4%**
	(2000-2010)	**2.0%**	**(2000-2010)**	**2.4%**	**(2000-2010)**	**2.4%**
	(1971-2011*)	**4.3%**	**(1971-2011*)**	**4.3%**	**(1971-2011*)**	**4.4%**
	(2001-2011*)	**1.9%**	**(2001-2011*)**	**2.4%**	**(2001-2011*)**	**2.3%**

* 2011 CPI is Average until May 2011
Source: Bureau of Labor Statistics (BLS)

TRENDS IN BUILDING PERMITS

The housing industry accounts for a large percentage of investment spending. Building permits are leading economic indicators as they help predict what the economy will be like in the future. Sustained declines in building permits slow the economy and can be indicative of a potential recession. Likewise, increases in this leading indicator can potentially indicate or trigger economic growth. Building permit activity provides insight into housing and overall economic activity in upcoming months.

Building permits are also useful for updating previous demographics to recent and near-term future levels. New homes being built indicate population growth in the area. The trends in total residential building permits for Tarrant County and Johnson County are presented in Figure 4-9. In all cases, single-family building permits and housing starts have generally continued to grow from year to year with some exceptions. The issuance of multi-family building permits has exhibited the greatest degree of variability from year to year.

Between 2000 and 2010, the total number of residential building permits changed at average annual rate of -8.0 percent for Tarrant County. During that same period, the total number of residential building permits changed at average annual rates of -4.5 percent in Texas and -9.3 percent in the United States. There has been decrease in the total number of residential permits in the whole of United States, Tarrant County and Texas State due to the recent economic downturn. Due to the recent economic downturn, the number of building permits issued since year 2006 has dropped significantly in Tarrant County and Johnson County.

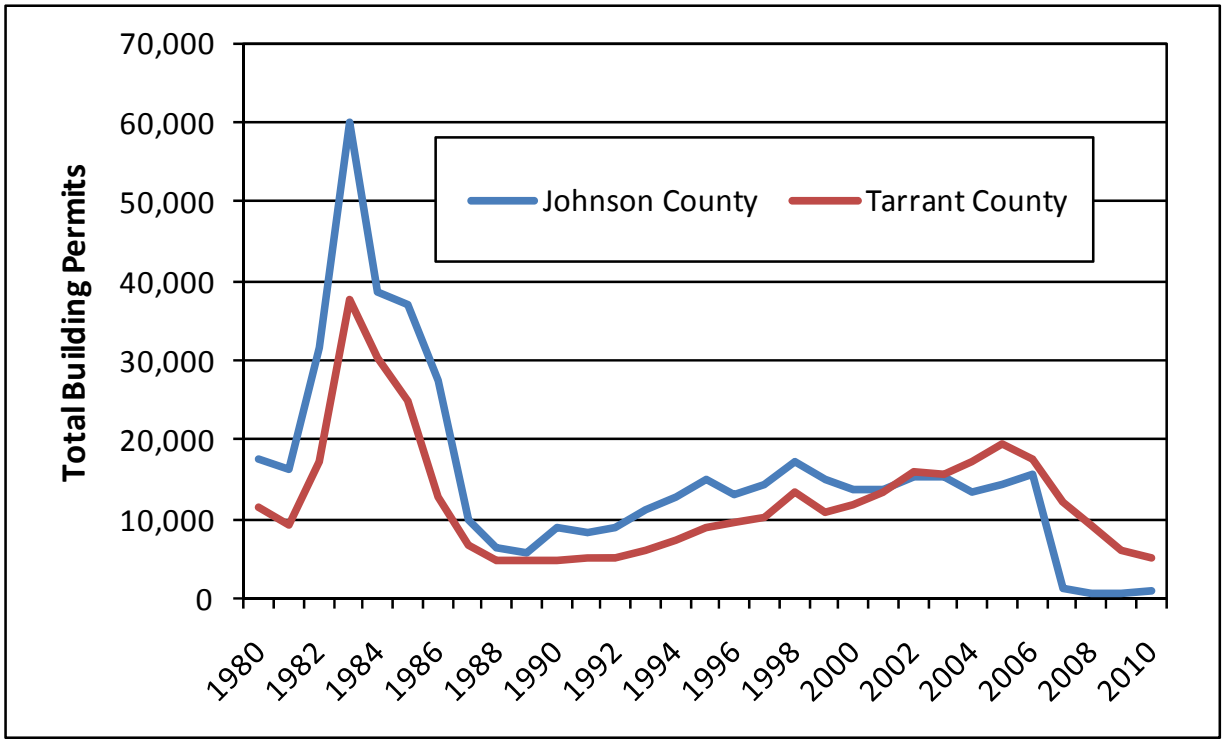

Figure 4-9. Trends in Building Permits

HOME SALE PRICE CHANGES

Trends in the median sale price are presented for the city of Fort Worth and the state of Texas are shown in Figure 4-10. The median price of homes sold has been steadily increasing in Fort Worth and in Texas since 1990. There was a small decrease in 2008 due to the economic downturn, but prices have begun to rise again in the Fort Worth MLS since that time.

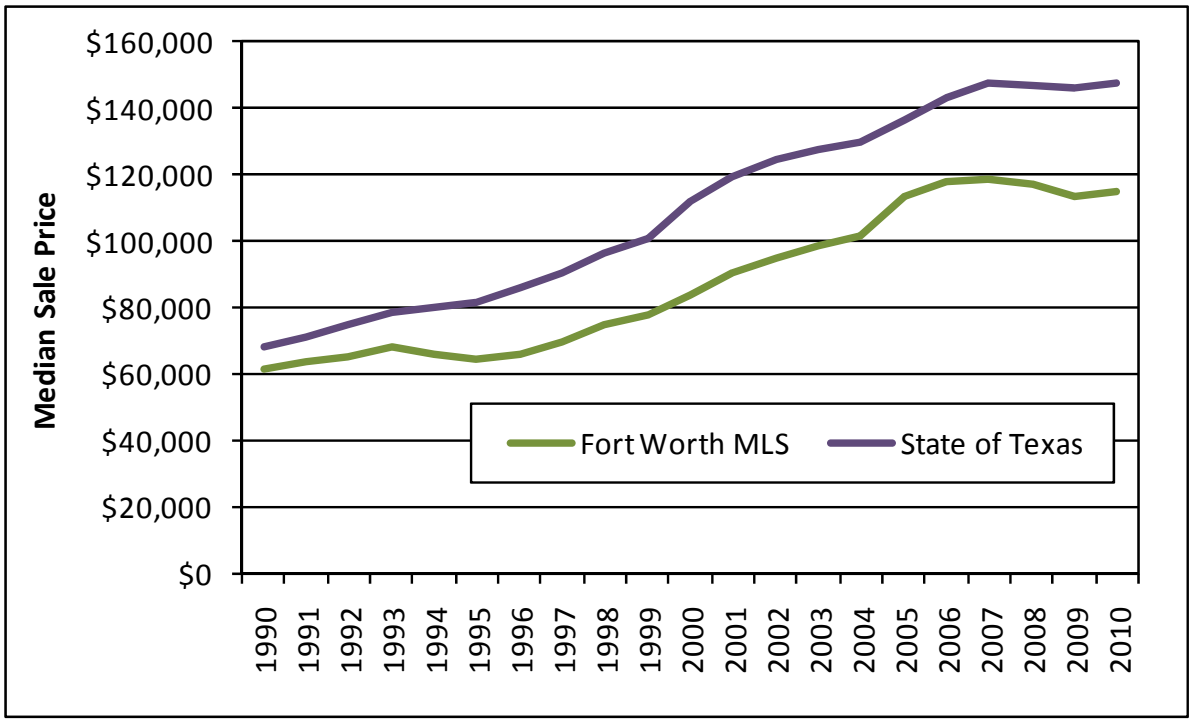

Figure 4-10. Median Home Sale Prices

INDEPENDENT ECONOMIC REVIEW

The Dallas/Fort Worth combined metropolitan statistical area (CMSA) is a dynamic, rapidly growing economic region of Texas that is experiencing strong growth in both population and employment. Given the high demographic growth in the DFW region and because NCTCOG has only officially adopted demographics at a market area level for years 2035 and 2040, an independent economic review was necessary for more micro level review of the demographics.

To get a better estimate of the future employment and population along the project corridor, Wilbur Smith Associates (WSA) engaged Research and Demographic Solutions (RDS) in April 2011 to perform an independent economic review and development updates along the CTP corridor. The findings of the economic review are included in Appendix A.

The qualifier "official" refers to the NCTCOG demographics datasets, which were prepared by NCTCOG as part of Mobility 2035. The "probable" population and employment forecasts made by RDS to update the NCTCOG official demographics datasets along the CTP corridor are referred to as the "revised" demographic datasets. The revised demographics datasets reflect changes to the socioeconomics trends that RDS suggests based on a detailed review along the CTP corridor.

Tables 4-7 and 4-8 show a comparison of the official and revised demographics (population and total employment) projections for CTP area of influence (AOI), Tarrant County, Johnson County and DFWMPA

for years 2012, 2020, 2030 and 2035 respectively. The revised population estimates are higher than NCTCOG official demographics for all forecast years. The revised employment for all the forecast years is slightly lower than the official projections. The annual compounded growth rates from 2012 to 2020 and 2012 to 2035 are similar for the official and revised demographics.

Table 4-7
Comparison of Official and Revised Population Projections

Year	CTP AOI		Tarrant County		Johnson County		DFW MPA	
	Official	Revised	Official	Revised	Official	Revised	Official	Revised
2012	810,867	812,883	1,848,779	1,848,284	173,741	176,252	6,651,889	6,653,904
2020	925,755	939,507	2,151,716	2,159,764	209,292	214,996	7,701,248	7,715,000
2030	1,103,662	1,112,195	2,604,124	2,601,391	247,967	259,233	9,113,004	9,121,537
2035	1,193,372	1,202,332	2,823,535	2,820,168	272,061	284,388	9,833,378	9,842,338
ACGR [1]	1.7%	1.8%	1.9%	2.0%	2.4%	2.5%	1.8%	1.9%
ACGR [2]	1.7%	1.7%	1.9%	1.9%	2.0%	2.1%	1.7%	1.7%

[1] Annual Compounded Growth Rate (2012-2020)
[2] Annual Compounded Growth Rate (2012-2035)
Source: NCTCOG, CTP Independent Economic Review, RDS

Table 4-8
Comparison of Official and Revised Employment Projections

Year	CTP AOI		Tarrant County		Johnson County		DFW MPA	
	Official	Revised	Official	Revised	Official	Revised	Official	Revised
2012	507,733	478,364	1,098,965	1,074,522	70,283	65,357	4,210,178	4,180,809
2020	593,018	549,668	1,282,220	1,243,083	89,982	84,769	4,880,200	4,835,850
2030	707,561	641,476	1,522,315	1,460,753	117,923	113,400	5,743,427	5,677,342
2035	766,152	690,272	1,644,463	1,571,984	132,917	129,516	6,177,016	6,101,136
ACGR [1]	2.0%	1.8%	1.9%	1.8%	3.1%	3.3%	1.9%	1.8%
ACGR [2]	1.8%	1.6%	1.8%	1.7%	2.8%	3.0%	1.7%	1.7%

[1] Annual Compounded Growth Rate (2012-2020)
[2] Annual Compounded Growth Rate (2012-2035)
Source: NCTCOG, CTP Independent Economic Review, RDS

CHAPTER 5

TRAVEL DEMAND MODEL DEVELOPMENT

This chapter describes the travel demand model calibration and validation process, including database modifications and updates to the TransCAD network and socio-economic characteristics in the Chisholm Trail Parkway (CTP) area. Figure 5-1 illustrates the travel demand process used by WSA for developing the traffic and toll revenue forecasts for the CTP. This methodology ensures that results are consistent with previous analyses done for NTTA by WSA for toll facilities in the Dallas/Fort Worth area.

NCTCOG INFORMATION

For this study, the latest travel demand model information was obtained from the NCTCOG. This included the latest approved demographics used in the Mobility 2035 Plan. The data included:

- NCTCOG 5,386-zone TransCAD network structure
- Highway network characteristics for the years 2012, 2020, 2030 and 2035 in TransCAD format
- Socioeconomic information at the 5,386-zone Traffic Analysis Process (TAP) level for the years 2010, 2012, 2015, 2020, 2030 and 2035
- Trip tables for single occupant vehicles, high-occupancy vehicles, and trucks for years 2012, 2020, 2030 and 2035. These trip tables were provided for the AM peak (6:30 to 9:00 AM), PM peak (3:00 to 6:30 PM), and off-peak (9:00 AM to 3:00 PM and 6:30 PM to 6:30 AM) periods

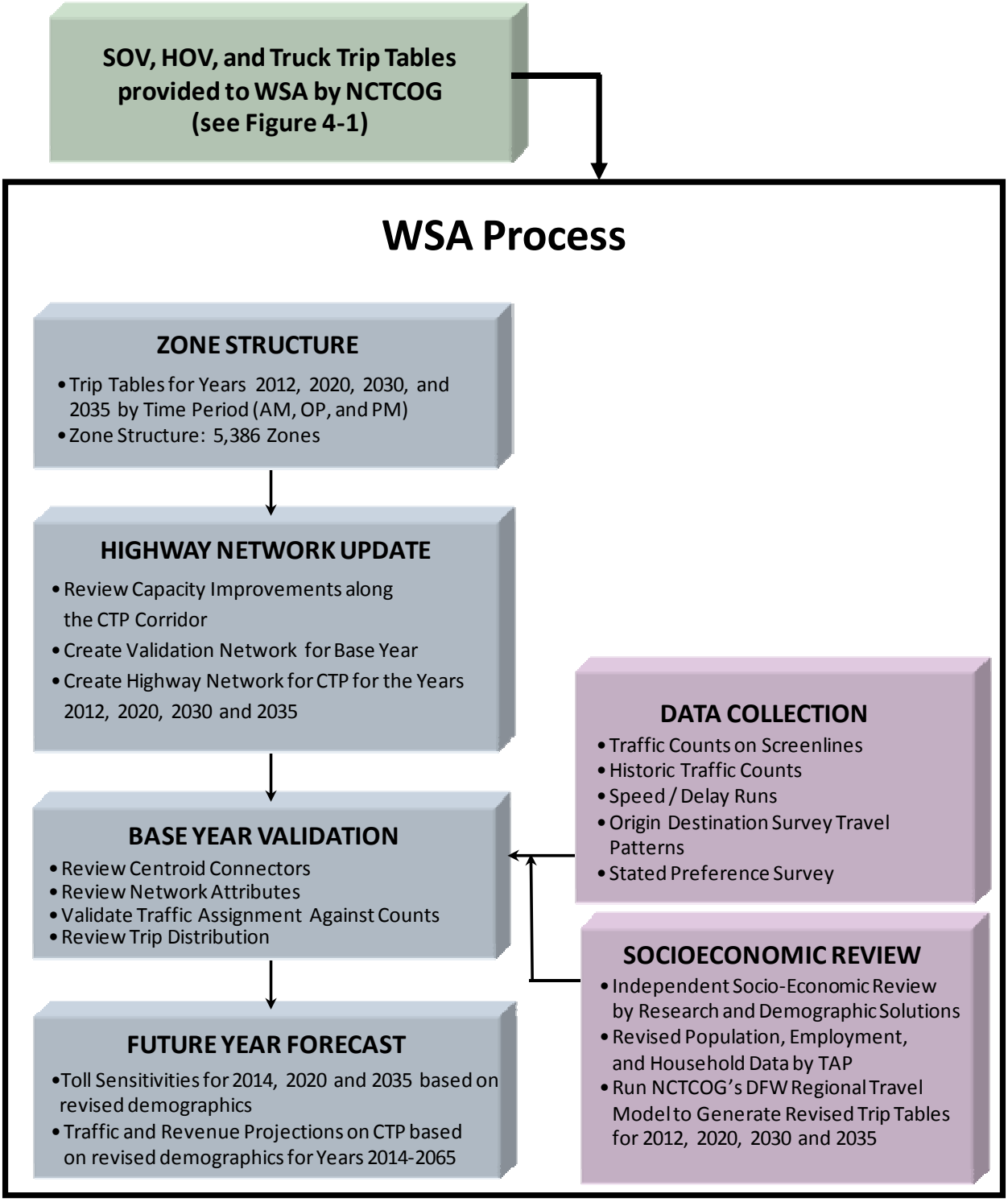

Figure 5-1. CTP - Travel Demand Process

HIGHWAY NETWORK UPDATE

NCTCOG's modeled Dallas/Fort Worth highway networks reflect the latest regional transportation improvements recommended in the Mobility 2035 Plan. These networks were provided to WSA in TransCAD format. The networks incorporate all existing NTTA and TxDOT toll facilities and numerous other planned facilities in the Dallas/Fort Worth Metropolitan Area (DFWMA). Existing toll facilities were coded to reflect all current ramp and main lane toll charges.

The 2012, 2020, 2030 and 2035 networks provided by NCTCOG were reviewed for consistency and calibrated based on the travel time characteristics and traffic counts collected within the corridor as described in Chapter 2. The calibrated networks were used to develop the forecasted CTP traffic and toll revenue streams. A 2011 network was created to represent the current year for model validation purposes, and a 2014 network was created to model the opening year of CTP.

The travel time runs performed were used to adjust the free flow speeds along facilities in the CTP corridor. These adjustments accounted for geometric and operational characteristics of the major facilities that are typically not captured or reflected as part of a regional NCTCOG calibration process of travel time attributes. Some typical factors that can influence traffic flow in the corridor are intersection design constraints, traffic signal and stop sign impedances, narrow median design, and multiple entry point characteristics.

MODEL VALIDATION

The model validation process involved comparing the 2011 traffic assignment output volumes based on the revised demographics against traffic counts obtained for this study. Output travel time and speeds from the travel demand model were also compared to the actual travel time information. This process was performed for each of the time periods (AM peak, PM peak, and off-peak). The validation area contained highway facilities like IH 35W and US 377.

WSA used traffic counts collected between 2009 and 2011 to validate the model and adjust the network characteristics where needed. Seven screenlines were developed along the corridor to analyze the total corridor traffic trends and to ensure that the base model outputs reflected current traffic characteristics within the CTP corridor. Screenlines 1 through 6 analyzed traffic in the northbound and southbound directions, and Screenline 7 analyzed traffic in the eastbound and westbound directions. The locations of the seven screenlines are shown in Figure 5-2.

Table 5-1 shows a comparison of the model output volumes based on revised demographics and the daily traffic count volumes for each of the seven screenlines. The model output daily volumes matched closely to the traffic count volumes.

Travel demand modeling practitioners in the United States use "NCHRP 255: Highway Traffic Data for Urbanized Area Project Planning and Design," published by the Transportation Research Board to check the reasonableness of model validation. As shown in Figure 5-3, the percentage difference between the model volumes and traffic is within the acceptable range for each of the seven screenlines.

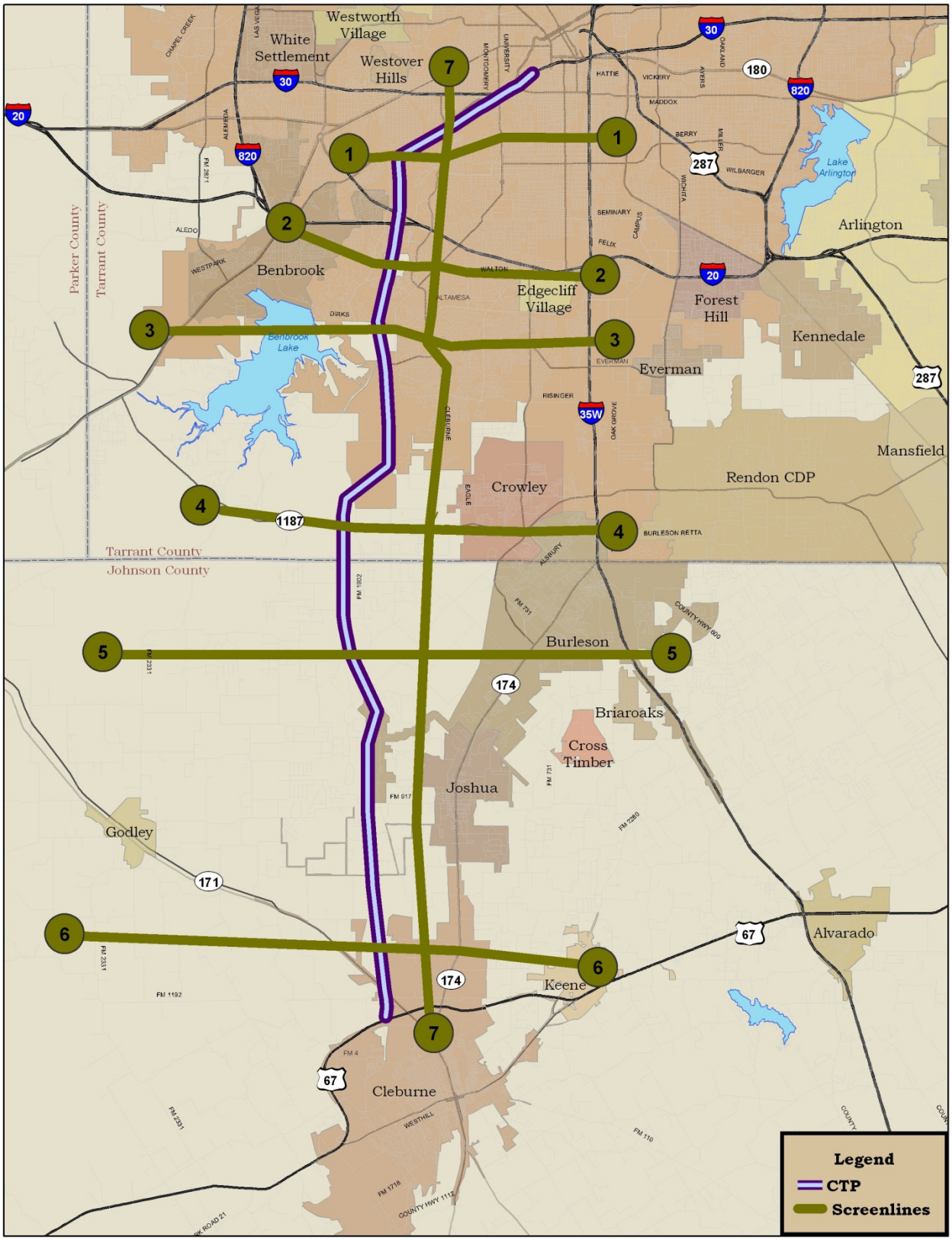

Figure 5-2. Calibration Screenline Locations

Table 5-1
Comparison of Traffic Counts and Model Output: Daily Total

Screenline	Screenline Total		
	Traffic Counts	Model Output	Difference (percent)
1. Between IH 30 and IH 20	309,058	298,059	-3.6
2. South of IH 20	342,826	364,293	6.3
3. North of Sycamore School Road	280,951	280,645	-0.1
4. South of FM 1187	162,794	175,121	7.6
5. South of IH 35W/SH 174 Junction	121,887	124,507	2.1
6. North of US 67	46,337	43,164	-6.8
7. East of Hulen Street	383,925	386,325	0.6

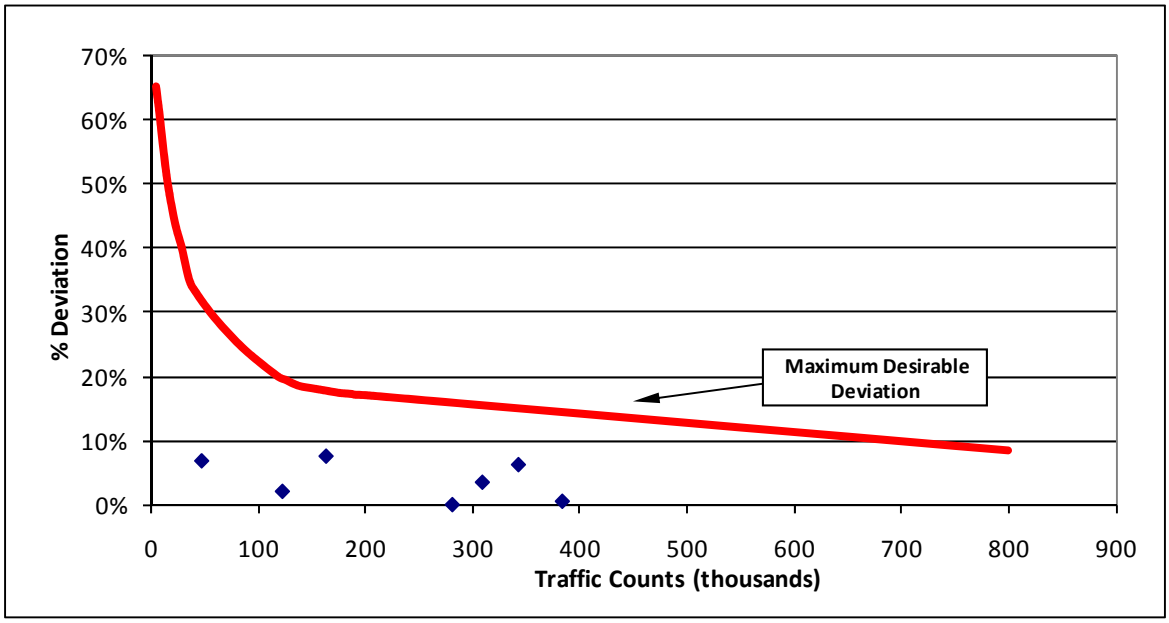

Figure 5-3. CTP - Screenline Traffic Validation

MODELING METHODOLOGY

Professional practices and procedures were used in the development of the traffic and revenue forecasts for the CTP. The WSA market share diversion routines designed specifically to emulate motorists' willingness to pay tolls at different toll levels and congestion conditions were used to test the toll sensitivities within the corridor for the years 2012, 2020 and 2035.

The toll diversion traffic assignments were run using an equilibrium diversion technique to evaluate the toll feasibility of the corridor. In the process, the travel model builds two paths between each pair of

zones, one including the project mainlane links, and the other path excluding the project mainlane links. The travel cost associated with using both travel paths is computed, and the amount of trips using the toll facility is then estimated based on travel time savings between the two paths. This technique simulates the driver's decision to use a toll or toll free route, which depends to a large extent on marginal differences in time and cost between the routes.

Time Cost and Vehicle Operating Costs

In addition to tolls, two other end-user costs are considered when calculating the total cost of a trip on the CTP: time cost and vehicle operating costs. The motorists' time cost is calculated using value of time estimates that are integrated into the modeling process. How travelers value their time helps them determine which route to use for a particular trip. The value of time parameter provides a measure to convert travel time into an equivalent monetary cost for inclusion in the toll diversion process. Vehicle operating costs include a multitude of additional costs to travelers such as wear and tear, maintenance, tires, oil, fuel and other variable costs.

Value of Time – The values of time used for this study were derived from the stated preference (SP) survey conducted by Resource Systems Group (RSG). The results of the survey allowed WSA to calculate values of time in the CTP in Tarrant County and Johnson County. For the current study, values of time were assumed to inflate at an average annual rate of 2.75 percent and different values were used in the peak and off-peak periods. The average peak period and off-peak period values of time for the thirteen counties in the model area are shown in Table 5-2. The values for Tarrant and Johnson Counties are consistent with average values of time observed elsewhere in the Dallas Forth-Worth region.

Table 5-2
Value of Time by Counties (2011$/Hour)

County	Peak	Off-Peak
Collin	$13.02	$13.02
Dallas	$12.24	$12.24
Denton	$12.84	$12.84
Ellis	$12.60	$12.60
Hood	$13.74	$9.12
Hunt	$12.06	$12.06
Johnson	**$12.30**	**$8.59**
Kaufman	$12.54	$12.54
Parker	$14.04	$9.30
Rockwall	$12.96	$12.96
Tarrant	**$13.10**	**$9.78**
Wise	$13.92	$9.24

Vehicle Operating Costs – A vehicle operating cost of $0.20 per mile for passenger vehicles in 2011 was assumed and inflated at the rate of 2.75 percent per year. This includes motor fuel and limited other perceived out-of-pocket costs that are well below the full cost of operation. These are generally not perceived by the drivers as variable costs that affect their route decision choices.

REVISED DEMOGRAPHICS AND TRIP TABLES

Traffic and revenue estimates along the CTP corridor that are presented in Chapter 6 of this report are based on the revised demographics datasets developed by Research and Demographic Solutions (RDS), as described in Chapter 4. The updated demographic datasets were used as an input to the NCTCOG DFW Regional Travel Model (DFWRTM) to generate an alternate set of trip tables and are referred to as the "revised" trip tables. These revised trip tables were used for the estimation of the traffic and revenue along the project corridor.

GENERAL ASSUMPTIONS

The forecasted traffic volumes and estimated toll revenues from this study are based on the following general assumptions, which WSA believes are reasonable for the purposes of this study (project specific assumptions can be found in Chapter 6):

1. CTP is expected to open to traffic on April 30, 2014
2. Alignment of CTP is to be as described in Chapter 6 of this report
3. No expansion of IH 35W is assumed during the forecast period
4. Regional Outer Loop between US 287 and SH 199 is not assumed to open during the forecast period
5. Improvements to the present highway system in the CTP corridor are limited to those currently included in the Mobility 2035 Plan. No additional competing limited-access highways will be constructed in the CTP corridor at any time during the forecast period.
6. Fully electronic toll collection system, and toll collection policies and rates for the CTP will be adopted as shown in Chapter 6 of this report
7. In accordance with the existing practice of the NTTA, the CTP will be well-maintained, efficiently operated, and effectively signed to encourage maximum usage
8. Economic growth in the CTP corridor will follow the assumptions described in Chapter 4
9. Toll rates on the NTTA System are consistent with NTTA's current toll rate policy
10. Toll rates on other regional toll roads are consistent with RTC's current toll policy
11. Growth in vehicle operating costs (which include fuel, maintenance, and tires) will not significantly deviate from the assumed inflation rate
12. No local, regional, or national emergency will arise which would abnormally restrict the use of motor vehicles

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CHAPTER 6

ESTIMATED TRAFFIC AND REVENUE

This chapter presents the traffic and annual toll revenue estimates for the proposed Chisholm Trail Parkway (CTP). These estimates were based on the configuration described in Chapter 1 and modeling methodologies defined in Chapter 5.

In addition, this chapter includes an outline of toll sensitivity analyses that were performed to estimate the maximum toll rates supported by the CTP corridor. This chapter also provides estimated average weekday traffic for the 2014, 2020, 2030 and 2035 model years along the CTP corridor and the resulting estimate of weekday transactions and toll revenue for the projection period.

PROPOSED TOLL COLLECTION CONCEPTS AND TOLL RATES

The NTTA will employ an all-electronic system of toll collection on the CTP. Toll gantries will be strategically located on the mainlanes and/or interchange ramps to assure no toll-free passage in the system. It is possible for a motorist to use only one toll gantry under this system, although the frequency of toll payments increases as trip movements lengthen. The proposed toll collection configuration for the CTP is presented in Figure 6-1.

As shown in Figure 6-1 the proposed CTP would include three mainlane toll gantries and twelve pairs of ramp gantries. The mainlane gantries will be located north of Hulen Street, north of FM 1187, and north of Sparks Road. The ramp gantries will be located at Edwards Ranch Road, Arborlawn, Oakmont, Altamesa, Sycamore School, McPherson, FM 1187, CR 920, CR 913, FM 917, CR 904, and Sparks.

The toll collection on CTP will be a combination of TollTag and ZipCash tolling. Under this type of toll collection system, TollTag patrons pay the TollTag rate, while ZipCash patrons pay an additional surcharge which is the greater of 50 percent of the TollTag toll or $0.20 (in 2009 dollars) inflated at 2.75 percent annually. The toll rate on the CTP in 2009 has been established at $0.185 per mile for two-axle vehicles using transponders in the northern segment (IH 30 to Altamesa) and $0.145 per mile in the southern segment (Altamesa to US 67). After 2009, the toll rates are increased every two years at a 2.75 percent annual rate with toll adjustments made July 1 of every odd year. Both the TollTag and ZipCash

toll rates will be rounded to the highest penny. Table 6-1 shows the TollTag per mile toll rate for two-axle vehicles on CTP. The toll rates for mainlane gantries and ramp gantries are calculated based on the per mile toll rate and influence distance of each gantry. For toll influence distance calculation purposes, a total distance of 28.6 miles was considered on the CTP corridor.

Figures 6-1 through 6-4 show the toll rates for two-axle vehicles at each toll gantry for 2014, 2020, 2030 and 2035.

Table 6-1. CTP TollTag Toll Rates

Gantry	2014	2020	2030	2035 (July 1 onward)
Mainlane Gantry 1	**$1.28**	**$1.51**	**$1.98**	**$2.32**
Edwards Ranch Ramps	$0.54	$0.64	$0.83	$0.98
Arborlawn Ramps	$0.31	$0.37	$0.48	$0.57
Oakmont Ramps	$0.45	$0.53	$0.70	$0.82
Altamesa Ramps	$0.71	$0.83	$1.09	$1.28
Sycamore School Ramps	$0.74	$0.87	$1.13	$1.33
McPherson Ramps	$0.99	$1.17	$1.53	$1.80
Mainlane Gantry 2	**$2.08**	**$2.45**	**$3.21**	**$3.78**
FM 1187 Ramps	$0.57	$0.67	$0.88	$1.03
Hampton/CR 920	$0.34	$0.40	$0.52	$0.61
CR 913 Ramps	$0.35	$0.41	$0.53	$0.62
FM 917 Ramps	$0.63	$0.74	$0.97	$1.14
CR 904 Ramps	$0.94	$1.11	$1.46	$1.71
Mainlane Gantry 3	**$1.55**	**$1.83**	**$2.39**	**$2.82**
Sparks Ramps	$0.28	$0.32	$0.42	$0.50
Per mile Toll Rate (IH 30 to Altamesa)	**$0.206**	**$0.243**	**$0.318**	**$0.375**
Per mile Toll Rate (Altamesa to US 67)	**$0.162**	**$0.190**	**$0.250**	**$0.294**

Note: Toll rates are escalated at 2.75% per year with the increases applied on July 1 of odd-numbered years.

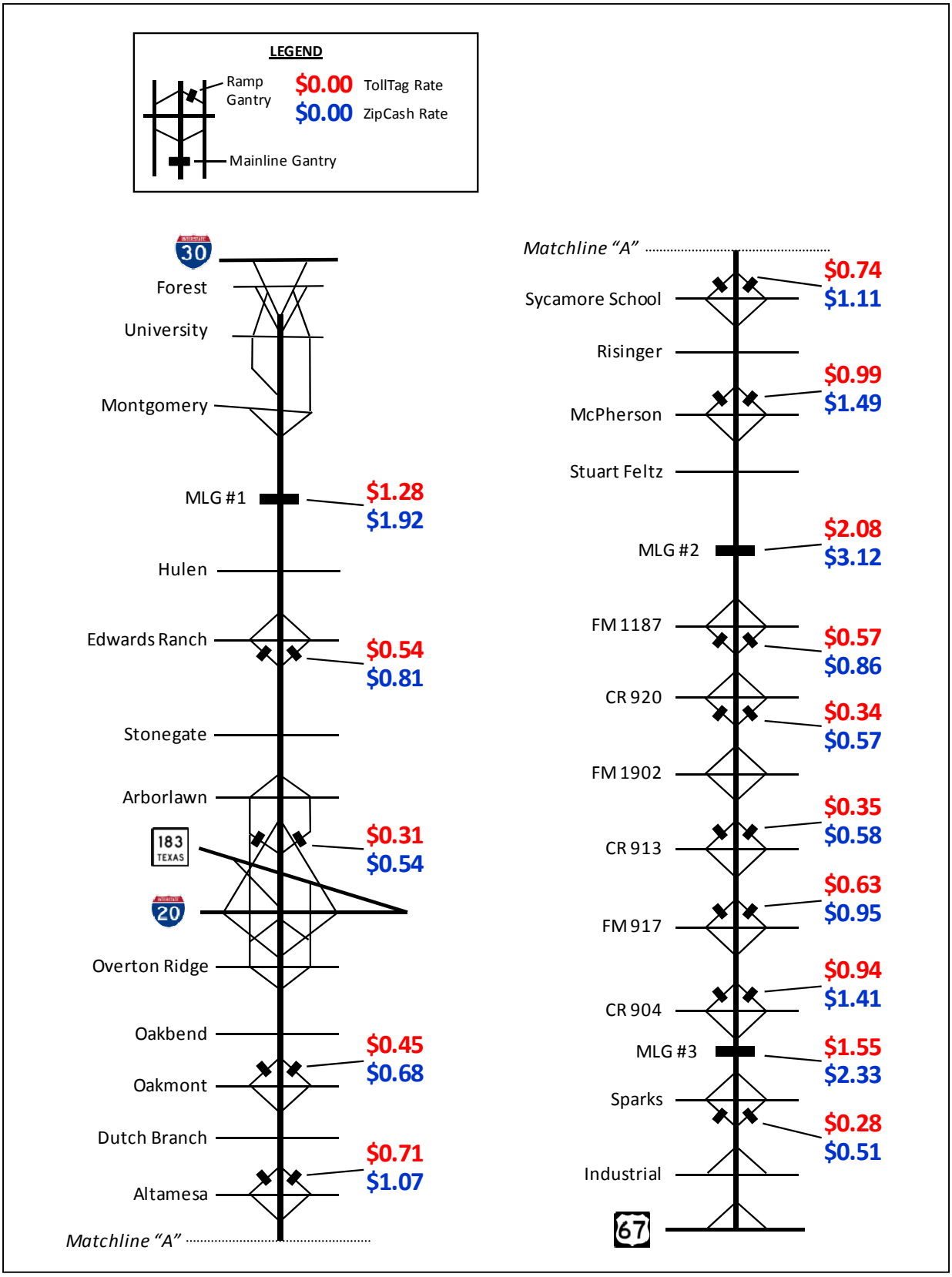

Figure 6-1. 2014 Toll Configuration and Toll Rates (TollTag & ZipCash)

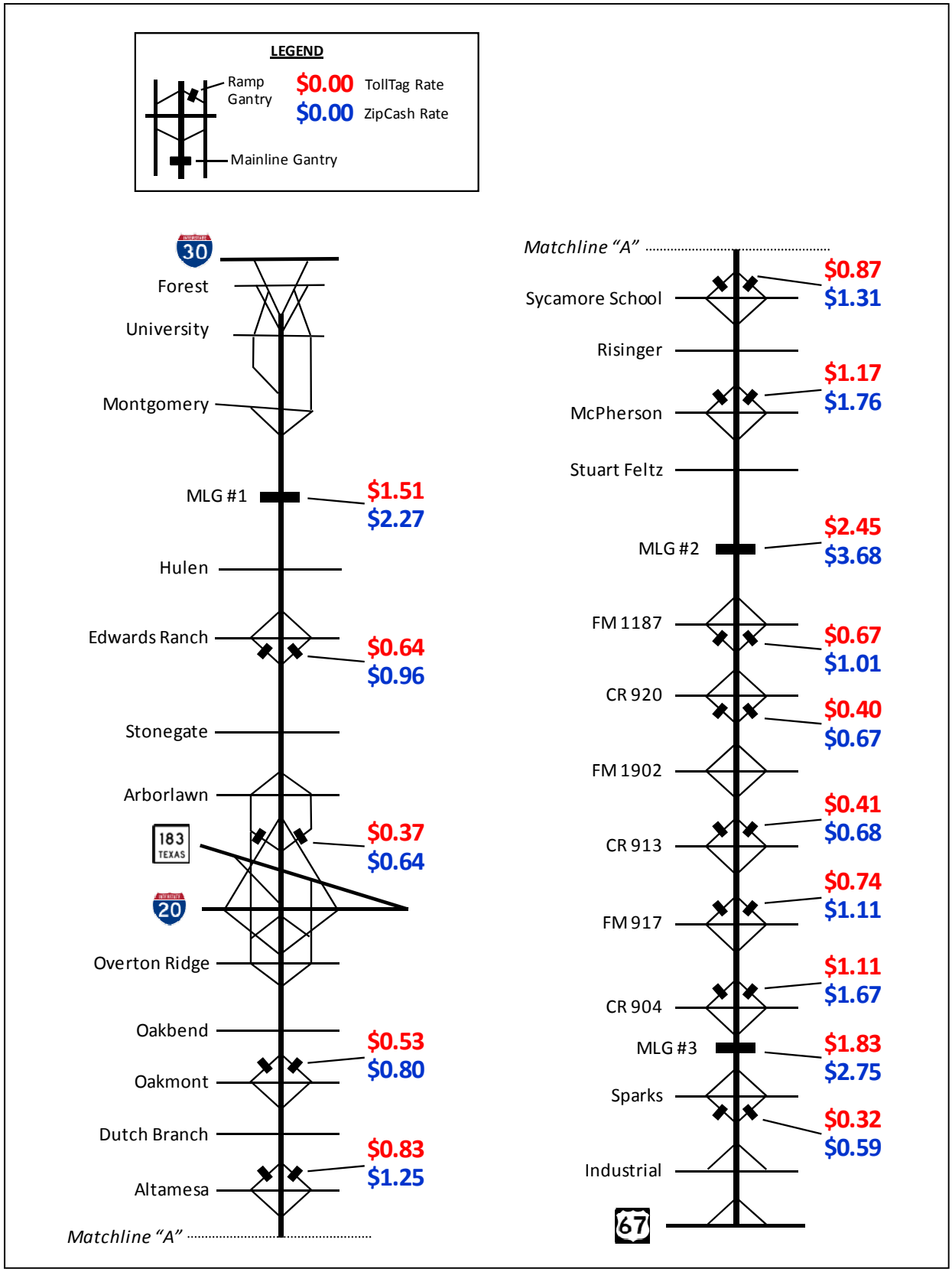

Figure 6-2. 2020 Toll Configuration and Toll Rates (TollTag & ZipCash)

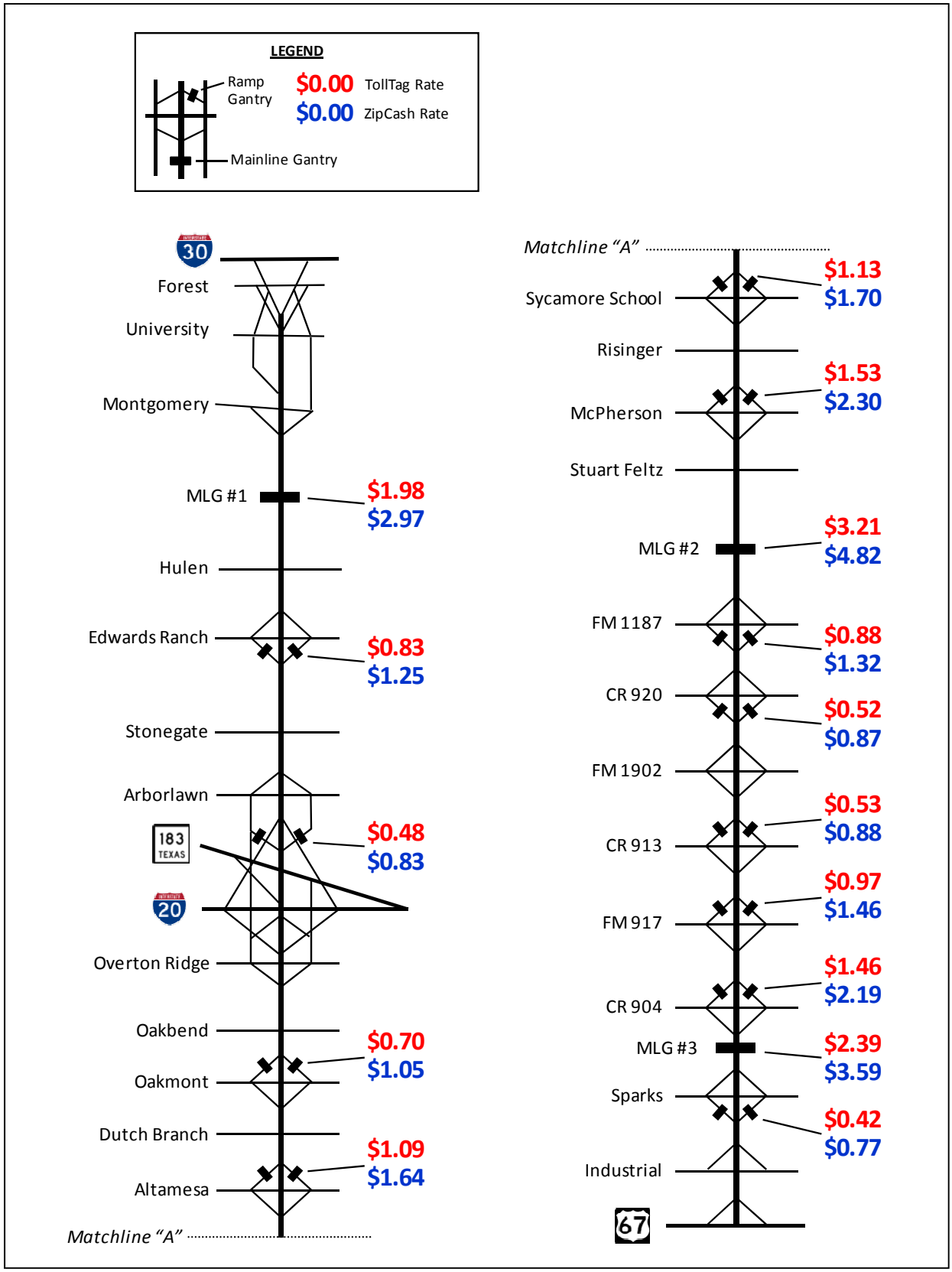

Figure 6-3. 2030 Toll Configuration and Toll Rates (TollTag & ZipCash)

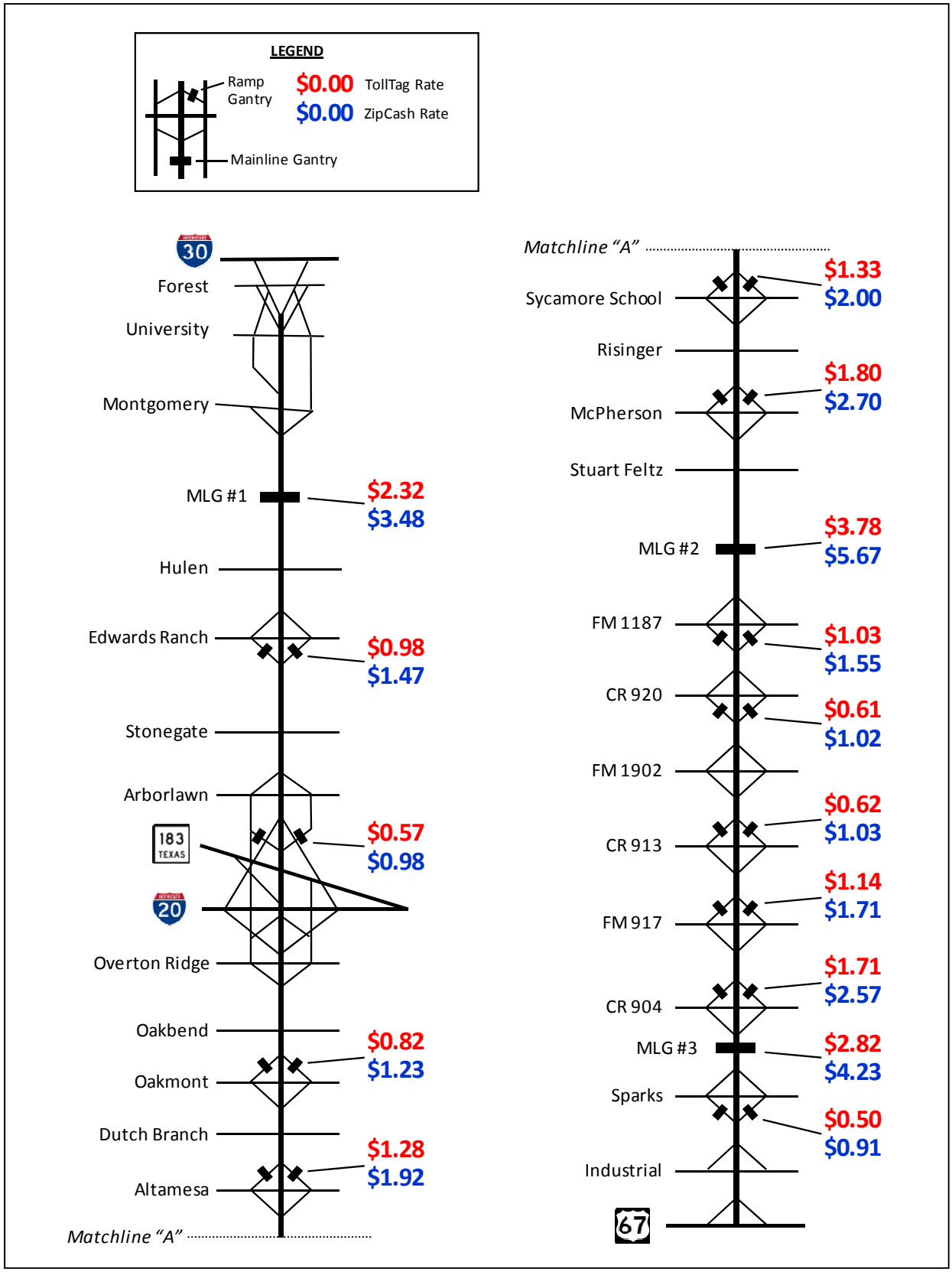

Figure 6-4. 2035 Toll Configuration and Toll Rates (TollTag & ZipCash)

TOLL SENSITIVITY ANALYSIS

The toll sensitivity analysis tests a series of toll rates to aid in the selection of a reasonable toll rate for the study corridor. Typically it is recommended that a toll rate less than the maximum be selected to achieve optimization of usage and revenue. This also provides an opportunity to enhance revenue with future toll increases if traffic demand proves to be less than anticipated. Future year toll sensitivity curves are based on changes in traffic characteristics in the corridor including increasing congestion, value of time, competing facilities, and inflationary trends. These curves are essential in estimating the viability of future toll rate increases.

In general, the toll sensitivity curve suggests that when the toll rate increases, a portion of travelers will leave the toll facility and choose other routes. Therefore, as toll rate increases transactions would decrease. However, as the toll rate increases, the toll revenue increases until it reaches the highest revenue point where an additional toll rate increment would generate a decrease in toll revenue.

The trip tables provided by North Central Texas Council of Governments (NCTCOG) were created based on the approved Dallas-Fort Worth Metropolitan Area (DFWMA) demographic information and are referred to as the "official" trip tables in this report. The trip tables developed using the demographics adjusted by the independent economic reviews, which were described in Chapter 4, are referred to as the "revised" trip tables.

Toll sensitivity analyses were conducted for the CTP corridor for the years 2014, 2020 and 2035. Toll rates, in actual year dollars, ranging between $0.10 per mile and $0.50 per mile were analyzed for each year. Figures 6-5 and 6-6 illustrate toll sensitivity curves for years 2014, 2020 and 2035. The revenues and transactions shown in these figures do not account for TollTag penetration factors, ramp-up, truck shares or violation rates. These toll sensitivity curves were developed by using the "revised" trip tables as described in Chapter 5.

The curves shown in Figures 6-5 and 6-6 indicate that the planned rates are below the theoretical revenue maximization point. This demonstrates that there would be potential for revenue enhancement through toll increases above those assumed for forecasting purposes, if needed. However, the potential for toll increases is much greater in the northern section of the facility, as the tolls in the southern section are fairly close to the maximums shown in Figure 6-6.

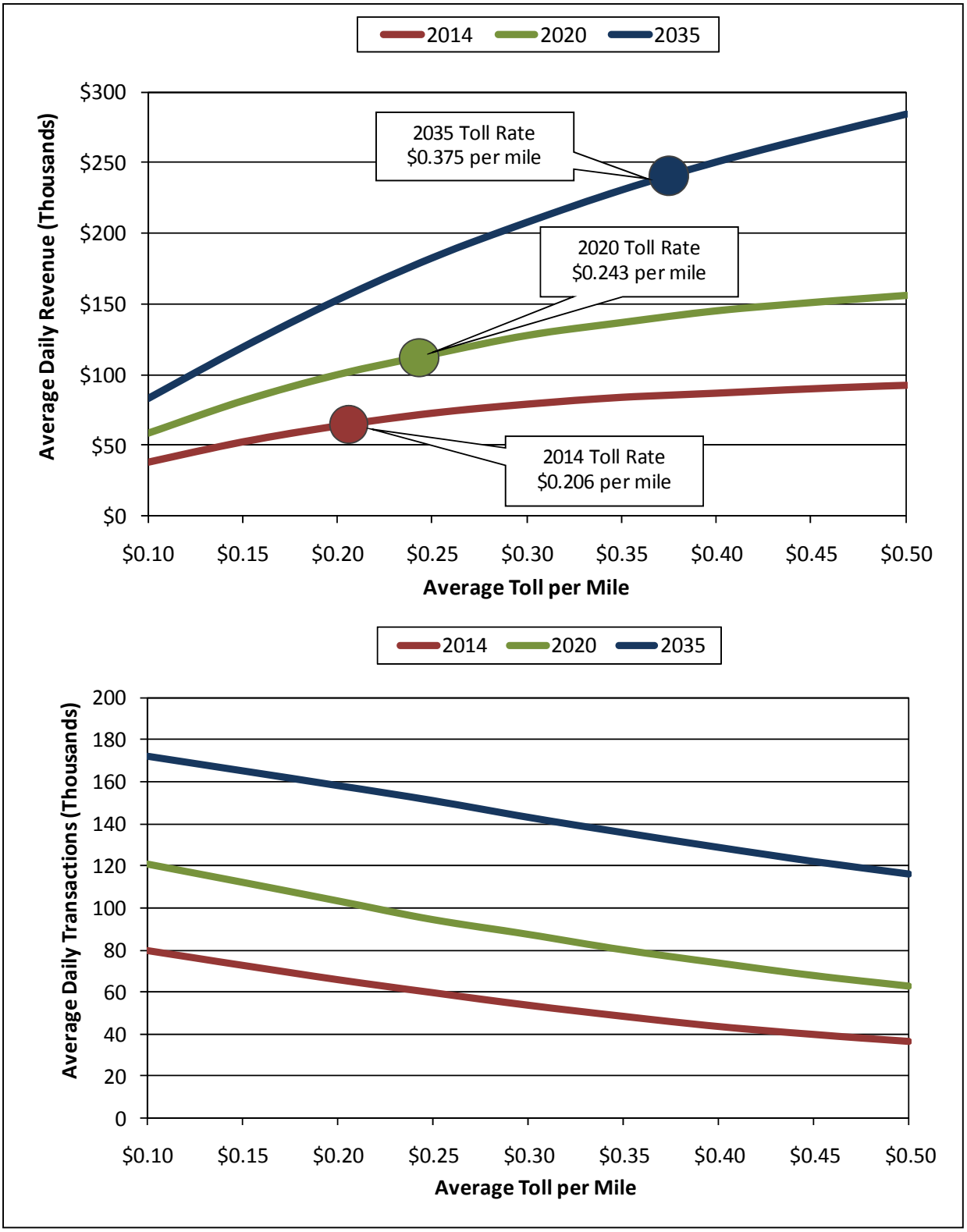

Figure 6-5. Toll Sensitivity – Chisholm Trail Parkway (IH 30 – Altamesa)

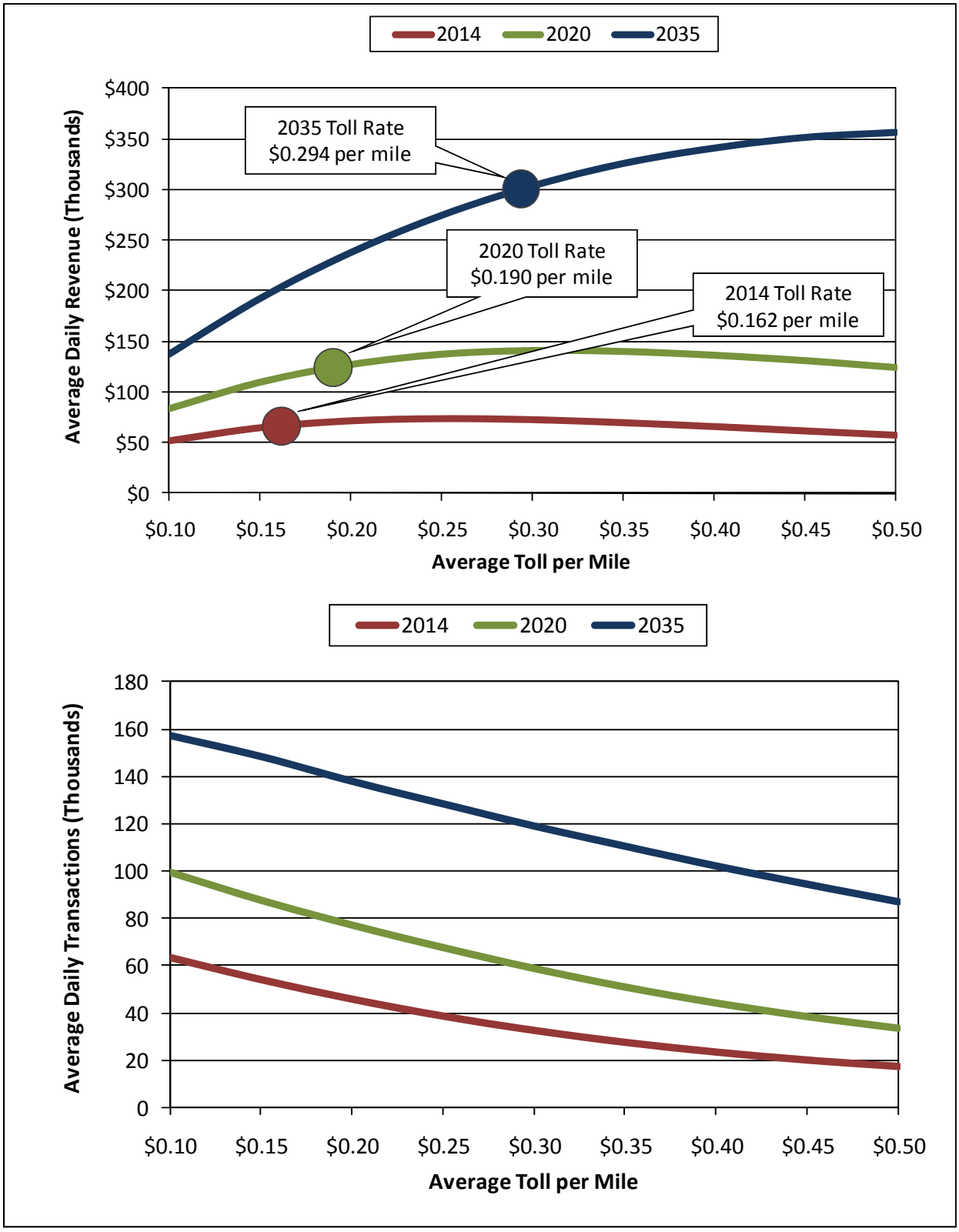

Figure 6-6. Toll Sensitivity – Chisholm Trail Parkway (Altamesa – US 67)

ESTIMATED AVERAGE WEEKDAY TRAFFIC

An equilibrium diversion technique was used to carry out traffic assignment runs for three periods: AM peak, PM peak, and off-peak. The model runs were conducted for the years 2014, 2020, 2030 and 2035. The assignment results were also reviewed for reasonableness using both select link and screenline analyses. In the screenline review, special attention was paid to the overall level of growth in traffic throughout the projection period, and the relative share of total screenline traffic demand expected to be accommodated by the proposed CTP corridor.

As CTP will employ TollTag and ZipCash toll collection procedures, two separate traffic assignment runs, one with the TollTag toll rate and the other with the ZipCash toll rate were conducted for the representative years. The traffic volume obtained from the TollTag toll rates run were factored by the assumed TollTag percentage to obtain the volume of traffic using TollTags. The traffic volume obtained from the ZipCash toll rates run were factored by the assumed ZipCash percentage to get the volume of traffic using ZipCash tolling on the CTP. The sum of the TollTag and ZipCash tolling volumes provided the total traffic using the CTP. In this manner, total volumes on the CTP were estimated for the years 2014, 2020, 2030 and 2035. All other years were interpolated between or extrapolated beyond the modeled years to obtain the yearly traffic and revenue estimates. Traffic volumes were estimated using the "revised" trip tables as described in Chapter 4.

The estimated average weekday transactions on CTP are presented in Table 6-2 for years 2014, 2020, 2030 and 2035. The transactions shown in Table 6-2 do not account for the "ramp-up" effect in the first several years after the project opens to traffic. As shown in Table 6-2, an estimated 117,000 average weekday toll transactions are expected in 2014. Of this total, Mainlane Gantries 1, 2 and 3 would generate 40,400 vehicles per day (vpd), 16,900 vpd and 9,700 vpd respectively, which in total translate to about 57 percent of all average weekday toll transactions. The total weekday transactions increase to 174,400 in 2020, which represents about a 49 percent increase from 2014. The three mainlane gantries are expected to have 102,400 transactions in 2020, which is approximately a 53 percent increase compared to 2014. Total weekday transactions on CTP are estimated to be 224,600 and 252,200 in 2030 and 2035, respectively. The three mainlane gantries will generate 134,200 and 151,900 transactions in 2030 and 2035, respectively.

Table 6-2
Estimated Transactions (in thousands)

Gantries	2014(1)	2020	2030	2035
Mainlane Gantry 1	**40.4**	**59.3**	**75.2**	**83.5**
Edwards Ranch Ramps	1.7	5.5	8.3	10.1
Arborlawn Ramps	2.8	4.1	5.1	5.6
Oakmont Ramps	10.0	13.3	15.5	16.7
Altamesa Ramps	10.0	13.3	15.5	16.7
Sycamore School Ramps	5.1	7.1	8.3	9.0
McPherson Ramps	7.0	11.0	14.2	15.4
Mainlane Gantry 2	**16.9**	**27.9**	**38.8**	**45.5**
FM 1187 Ramps	1.5	2.1	3.2	3.9
CR 920	1.0	1.4	2.1	2.6
CR 913 Ramps	2.4	3.6	4.6	5.2
FM 917 Ramps	3.7	5.1	6.1	6.6
CR 904 Ramps	0.7	1.3	2.5	3.1
Mainlane Gantry 3	**9.7**	**15.2**	**20.2**	**22.9**
Sparks Ramps	4.0	4.4	5.1	5.5
Total	**117.0**	**174.4**	**224.6**	**252.2**

(1) 2014 transactions shown above represent average traffic after CTP is open and do not account for ramp up.

Figures 6-7 and 6-8 show the traffic forecast on all toll gantries and mainlanes at various locations for years 2014 and 2035. In 2014, the tolled ramps serving traffic to and from the north at Altamesa Boulevard and Oakmont Boulevard would produce the highest weekday ramp toll transactions at 10,000 vpd each. The next highest are the ramp plazas at McPherson Road, with an estimated 7,000 toll transactions on an average weekday.

The transaction and revenue share between the mainlane gantries and the ramp gantries are shown in Figures 6-9 and 6-10 for 2014 and 2035, respectively. As shown in Figure 6-9, mainlane gantries in 2014 will generate about 57 percent of the total transactions of the CTP and 77 percent of the total revenue. The mainlane gantry share in 2035 is slightly higher than the share in 2014.

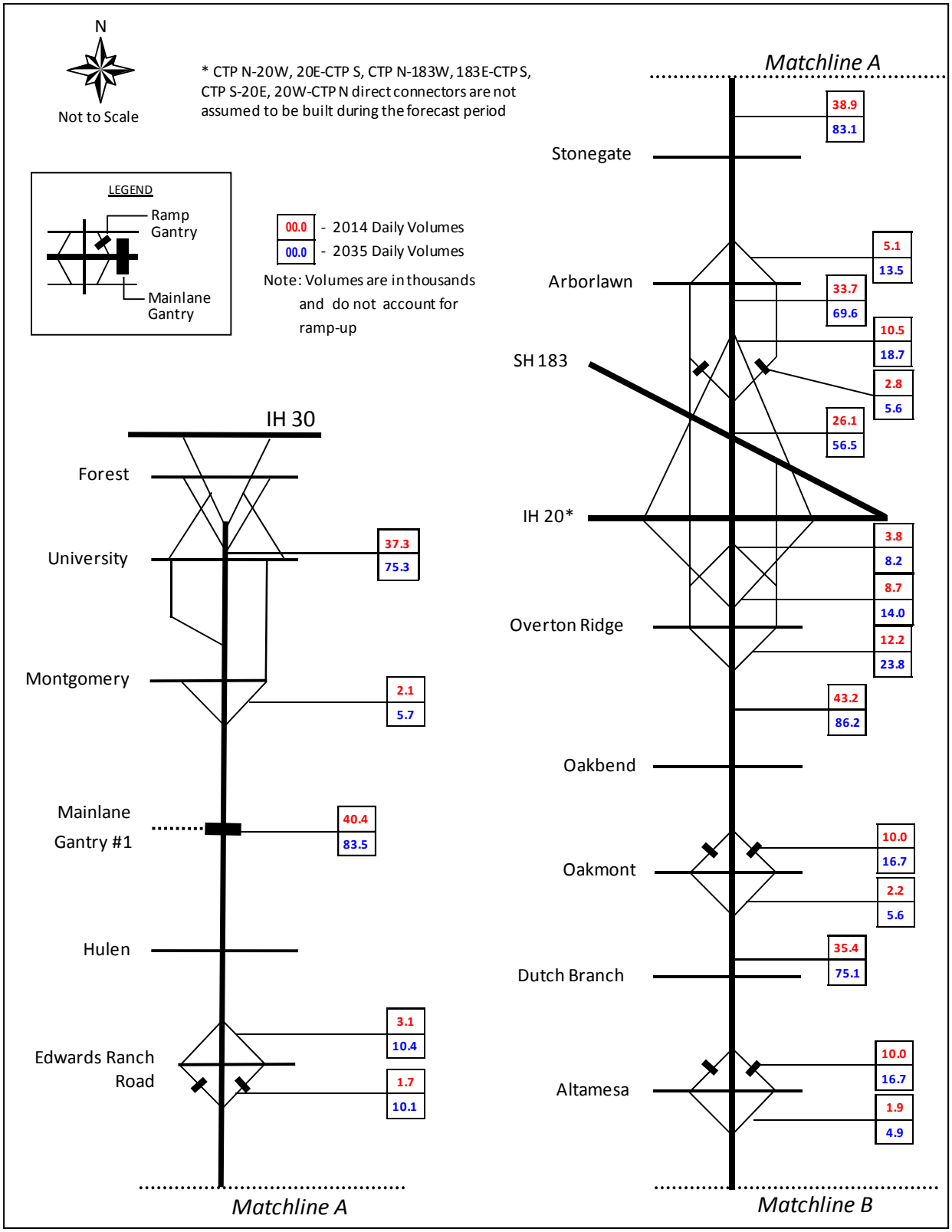

Figure 6-7. Average Weekday Volumes – Chisholm Trail Parkway

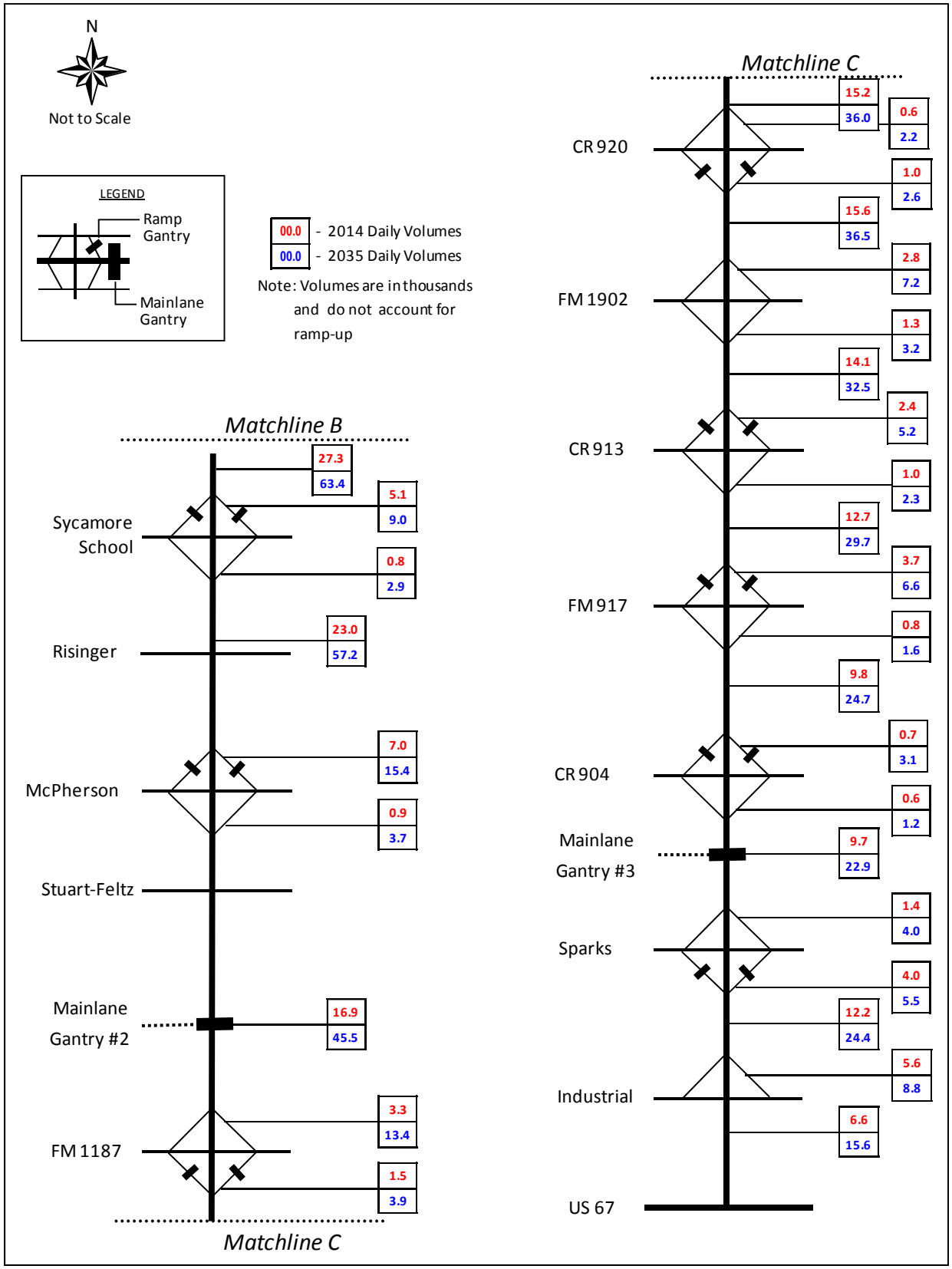

Figure 6-8. Average Weekday Volumes – Chisholm Trail Parkway

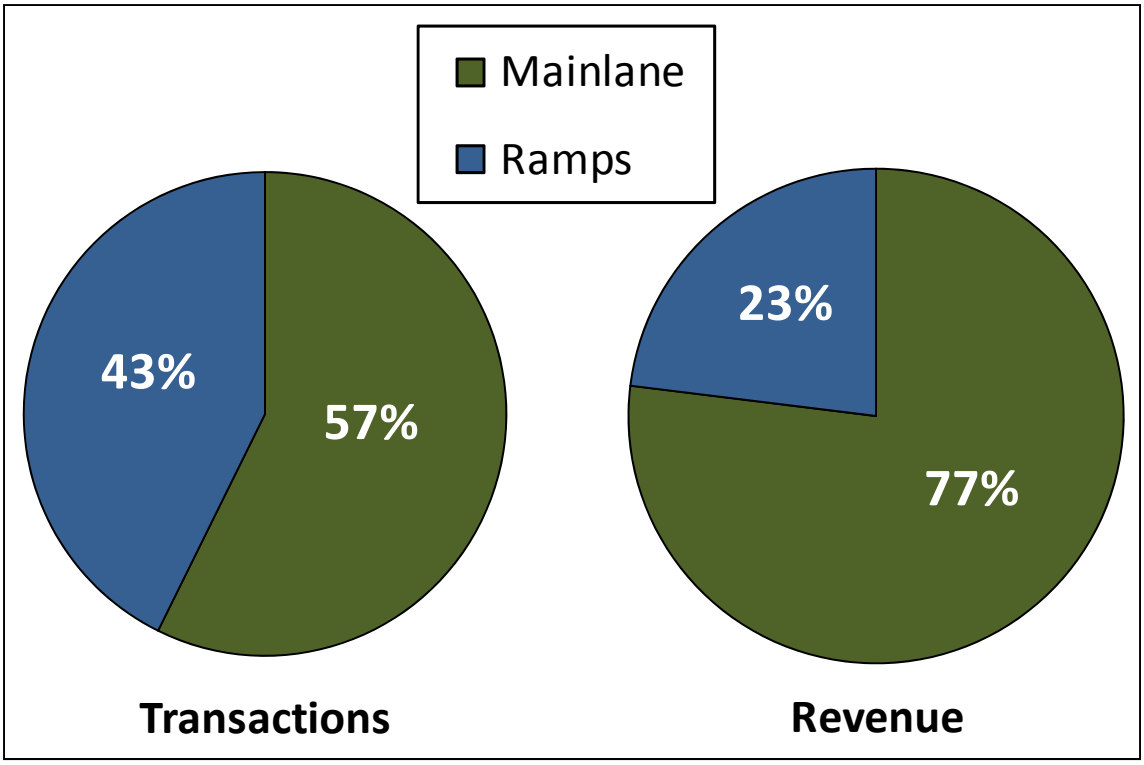

Figure 6-9. Weekday Transactions and Revenue: 2014

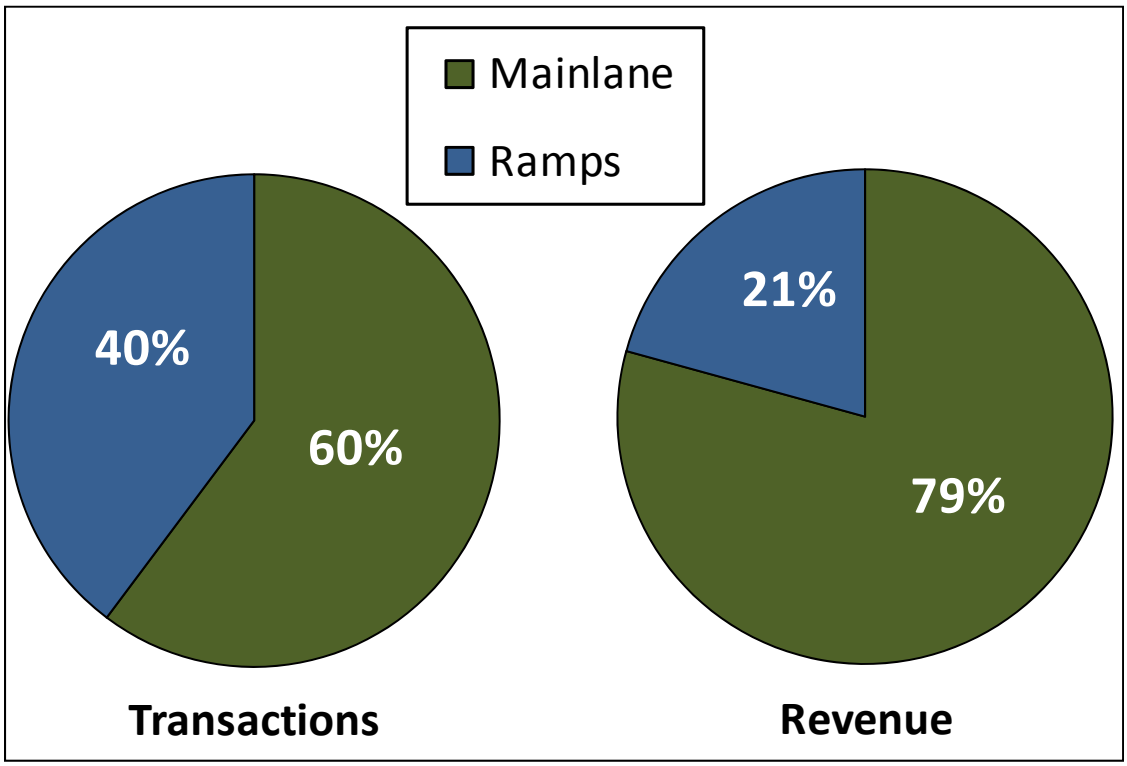

Figure 6-10. Weekday Transactions and Revenue: 2035

CORRIDOR SHARE AND DISTRIBUTION

As part of the analysis of the future traffic on the facility, the corridor share of CTP was analyzed across four screenlines in Tarrant County and two screenlines in Johnson County. As shown in Figure 6-11, six screenlines were analyzed to determine what percentage of the total demand is expected to use CTP and its competing routes. Screenline 1 lies south of IH 30; Screenline 2 is just south of IH 20; Screenline 3 is north of Sycamore School Road; Screenline 4 is just south of FM 1187; Screenline 5 runs through the city of Burleson, and Screenline 6 lies just north of the City of Cleburne. The six screenlines cover areas at the northern end, center, and southern end of the CTP corridor.

Table 6-3 shows the results of the corridor share analysis for each of the six screenlines. For Screenline 1, the CTP accounts for 28.5 percent of the corridor throughput in 2020 under a toll-free scenario. The addition of tolls drops that share to 14.8 percent with major portion of the traffic shifting to IH 35W. By 2035, the CTP mainlanes account for a 28.9 percent corridor share without tolls and 17.2 percent with tolls. For Screenline 2, the CTP mainlanes account for 29.3 percent of the corridor throughput in 2020 without tolls and 14.3 percent with tolls. In 2035, CTP mainlanes account for a 28.7 percent corridor share without tolls and 16.0 percent with tolls. On Screenline 3, the CTP mainlanes account for 27.0 percent of the 2020 traffic without tolls and 12.5 percent with tolls. In 2035, the mainlanes hold a 27.8 percent share without tolls and 14.8 percent share with tolls. On Screenline 4, the CTP accounts for 24.5 percent of the corridor throughput in 2020 under a toll-free scenario. The addition of tolls drops that share to 12.6 percent. By 2035, the CTP mainlanes account for a 21.0 percent corridor share without tolls and 14.1 percent with tolls. For Screenline 5, the CTP mainlanes account for 28.0 percent of the corridor throughput in 2020 without tolls and 14.2 percent with tolls. In 2035, CTP mainlanes account for a 22.7 percent corridor share without tolls and 15.4 percent with tolls. The CTP mainlanes account for a higher percentage of the total traffic along Screenline 6 than on most of the other screenlines. The CTP mainlanes account for 45.4 percent of the 2020 traffic without tolls and 24.7 percent with tolls. In 2035, the mainlanes hold a 39.3 percent share without tolls and a 25.5 percent share with tolls.

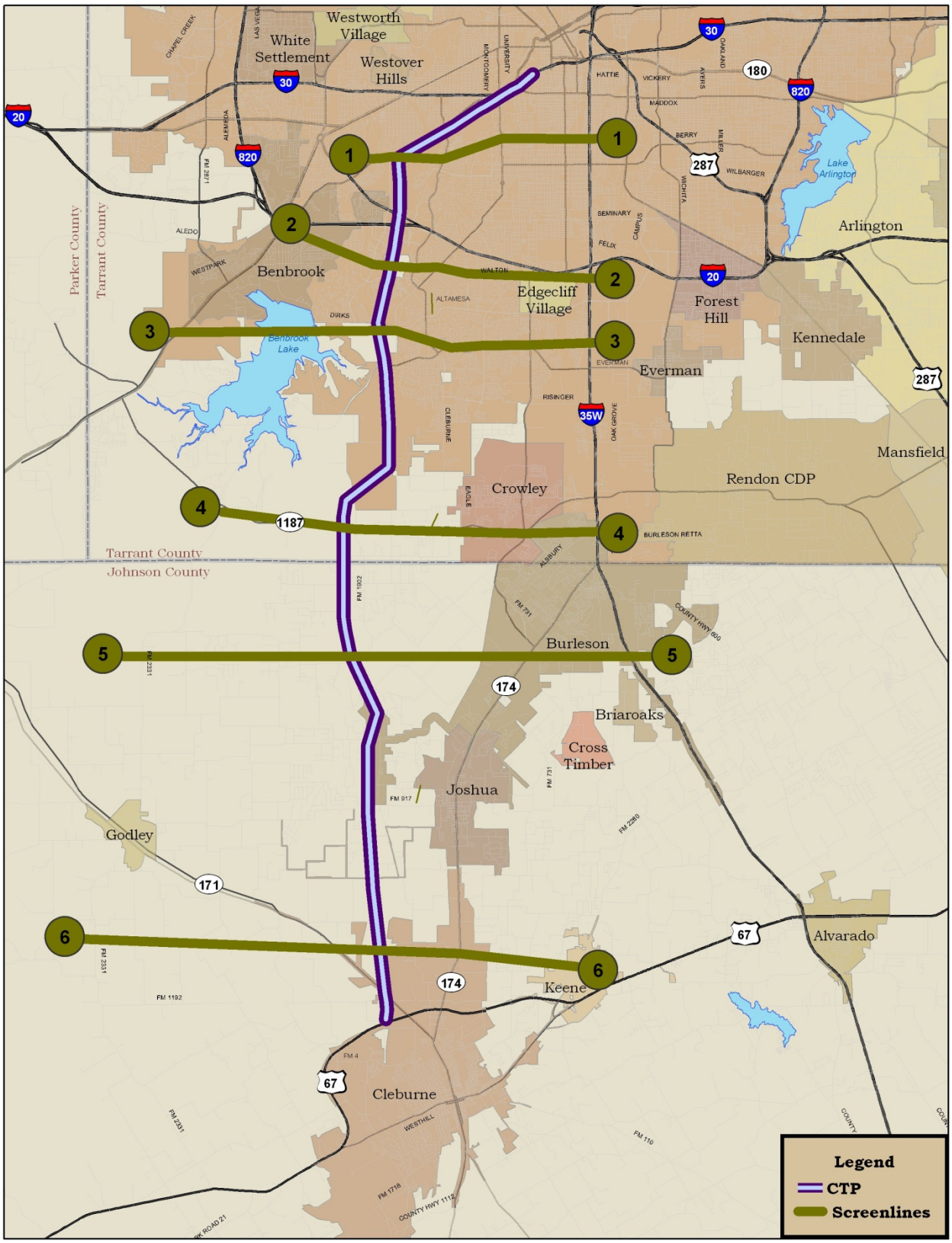

Figure 6-11. Screenlines for Corridor Share Analysis

Table 6-3
Corridor Share Analysis Results

Screenline 1:	**2020 Toll Free**	**2020 Tolled**	**2035 Toll Free**	**2035 Tolled**
Vickery Boulevard	2.1%	2.8%	2.3%	3.0%
Bryant Irvin Road	3.9%	5.5%	4.3%	5.7%
Chisholm Trail Parkway	**28.5%**	**14.8%**	**28.9%**	**17.2%**
South Hulen Street	4.3%	7.8%	5.4%	7.5%
University Drive	3.5%	4.2%	3.1%	4.0%
8th Avenue	2.3%	3.0%	2.2%	2.9%
Hemphill Street	4.6%	5.1%	4.3%	4.9%
IH 35W	50.9%	56.8%	49.4%	54.8%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Screenline 2:				
Winscott Plover Road	3.8%	3.9%	4.0%	4.1%
Bryant Irvin Road	2.6%	5.2%	3.6%	5.6%
Chisholm Trail Parkway	**29.3%**	**14.3%**	**28.7%**	**16.0%**
Hulen Street	2.0%	5.4%	2.3%	5.4%
Granbury Road	3.5%	6.4%	3.6%	5.9%
Woodway Drive	2.8%	3.1%	2.4%	2.7%
McCart Avenue	7.5%	8.1%	6.2%	6.8%
Crowley Road	5.8%	6.2%	6.0%	7.5%
IH 35W	42.7%	47.2%	43.2%	46.0%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Screenline 3:				
US 377 north of FM 1187	10.8%	11.8%	10.2%	11.5%
Chisholm Trail Parkway	**27.0%**	**12.5%**	**27.8%**	**14.8%**
Granbury Road	1.6%	6.3%	1.9%	6.1%
Hulen Street	1.7%	3.3%	2.1%	3.8%
McCart Avenue	5.5%	6.6%	4.2%	5.5%
Crowley Road	5.7%	6.7%	6.8%	8.6%
IH 35W	47.7%	52.8%	46.9%	49.6%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Screenline 4:				
Winscott Plover Rd.	2.7%	3.1%	4.6%	4.5%
Chisholm Trail Parkway	**24.5%**	**12.6%**	**21.0%**	**14.1%**
FM 1902	3.1%	5.6%	4.8%	5.6%
FM 731	5.5%	7.4%	6.9%	9.4%
IH 35W	64.3%	71.2%	62.7%	66.4%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Screenline 5:				
FM 2331	2.8%	3.2%	4.7%	4.5%
Chisholm Trail Parkway	**28.0%**	**14.2%**	**22.7%**	**15.4%**
Old Granbury	3.7%	7.3%	5.9%	7.7%
FM 731	8.7%	9.0%	9.1%	9.2%
SH 174	14.4%	22.3%	17.1%	20.9%
IH 35W	42.4%	44.0%	40.6%	42.3%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Screenline 6:				
FM 2331	4.2%	5.4%	5.5%	6.9%
SH 171	10.3%	13.3%	12.2%	15.1%
Chisholm Trail Parkway	**45.4%**	**24.7%**	**39.3%**	**25.5%**
SH 174	19.9%	34.5%	26.0%	33.8%
FM 2280	20.2%	22.1%	17.0%	18.7%
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**

TRAVEL TIME SAVINGS

An important part of the decision to use a toll facility is the potential time savings that is offered to the traveler. This section illustrates the travel time savings associated with using the CTP rather than alternative routes in the study area for years 2014 and 2035. Two origin-destination pairs were evaluated for both the morning and evening peak periods, as illustrated in Figures 6-12 and 6-13 as movements A-B and A-C. The results of this analysis are shown in Table 6-4.

For the first O/D pair, three routes were measured. The intersection of Hemphill and Vickery near downtown Fort Worth was considered as one end of the trip and the intersection of Altamesa and Granbury in southwest Fort Worth was considered as other end of the trip. This origin-destination combination covers the northern portion of the corridor. The three analyzed routes are shown in Figure 6-12. The routes were evaluated in the northbound direction for the morning peak period and in the southbound direction for the evening peak period. A shortest path route using only arterials and a shortest path route using IH 35W were compared to a route utilizing the CTP. As shown in Table 6-4, the CTP offers time savings of 6 minutes during the 2014 morning peak period over the arterial route and a time savings of 8 minutes, 44 seconds over the IH 35W route. For the 2014 evening peak period, the CTP is 5 minutes, 3 seconds faster than the arterial route and 7 minutes, 31 seconds faster than the IH 35W route.

For the second O/D pair, three routes were again measured. The intersection of Hemphill and Vickery near downtown Fort Worth was considered as one end of the trip and the intersection of FM 4 and Nolan River Road in Cleburne was considered as other end of the trip. This origin-destination combination covers the entire length of the CTP corridor. The three analyzed routes are shown in Figure 6-13. The routes were evaluated in the northbound direction for the morning peak period and in the southbound direction for the evening peak period. A shortest path route using SH 174 and IH 35W and a shortest path route using FM 2280 and IH 35W were compared to a route utilizing the CTP. As shown in Table 6-4, the CTP offers time savings of 14 minutes, 45 seconds during the 2014 morning peak period over the SH 174/IH 35W and a time savings of 16 minutes, 4 seconds over the FM 2280/IH 35W route. For the 2014 evening peak period, the CTP is 12 minutes, 34 seconds faster than the SH 174/IH 35W route and 14 minutes, 37 seconds faster than the FM 2280/IH 35W route.

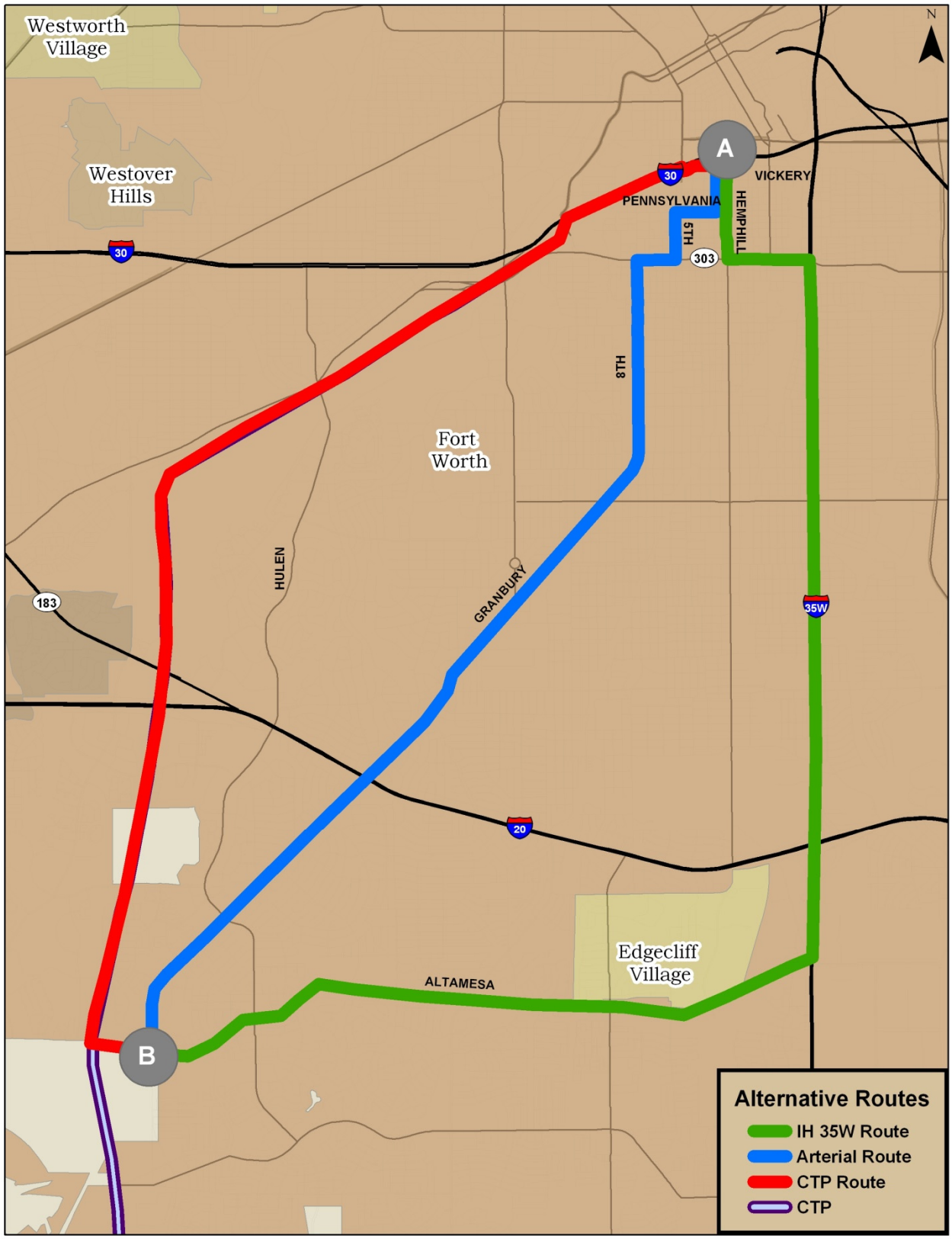

Figure 6-12. Travel Time Analysis Routes: Movement A-B

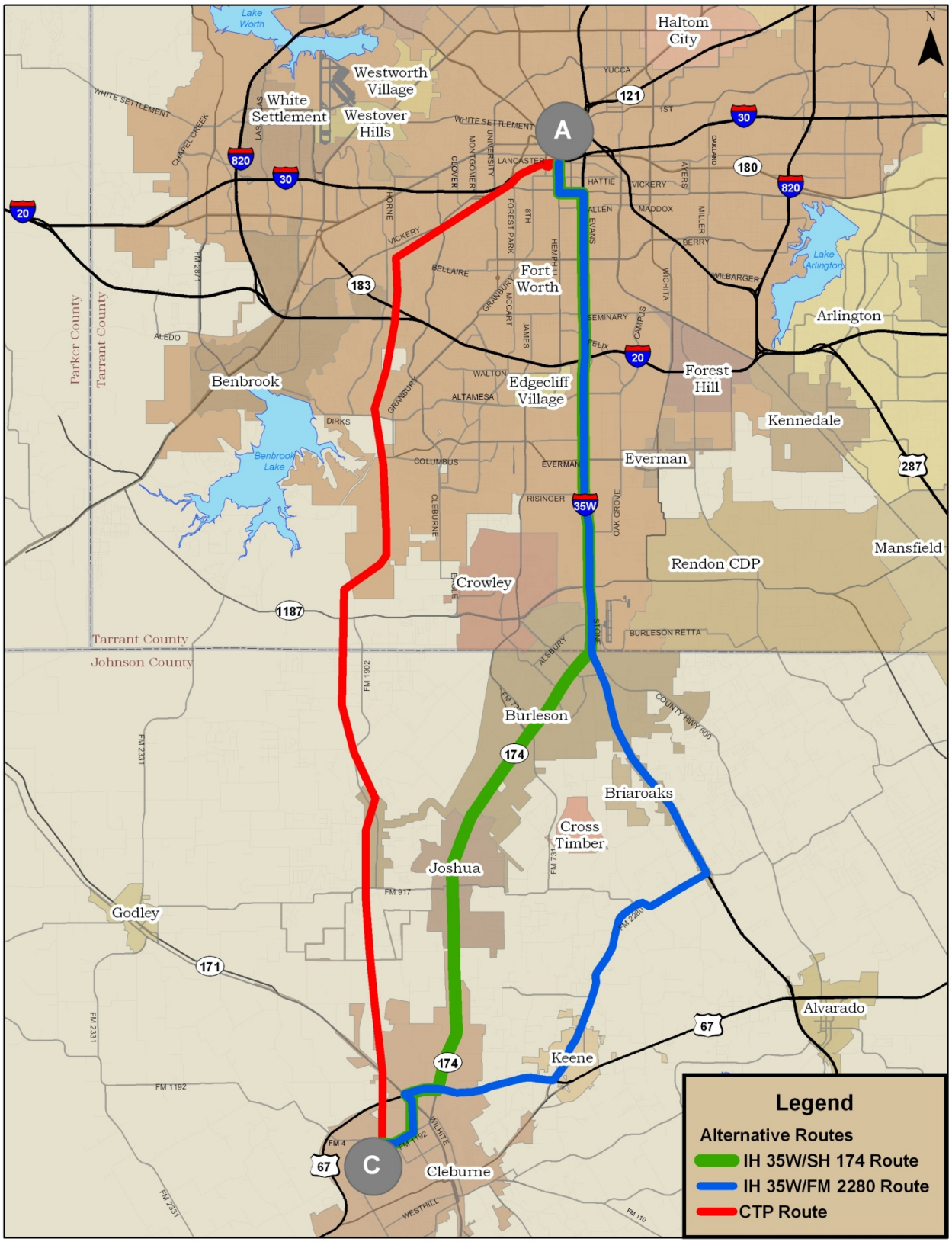

Figure 6-13. Travel Time Analysis Routes: Movement A-C

Table 6-4 Travel Time Savings			
Movement A-B			
Morning Peak Period (NB)			
2014			
	Arterial	**IH 35W**	**CTP**
Distance	9.0	12.2	10.1
Travel Time (mm:ss)	18:16	21:00	12:16
CTP Time Savings	06:00	08:44	
2035			
	Arterial	**IH 35W**	**CTP**
Distance	9.0	12.2	10.1
Travel Time (mm:ss)	21:28	23:07	14:23
CTP Time Savings	07:05	08:44	
Evening Peak Period (SB)			
2014			
	Arterial	**IH 35W**	**CTP**
Distance	9.0	12.0	10.2
Travel Time (mm:ss)	17:49	20:18	12:46
CTP Time Savings	05:03	07:31	
2035			
	Arterial	**IH 35W**	**CTP**
Distance	9.0	12.0	10.2
Travel Time (mm:ss)	21:53	24:19	14:12
CTP Time Savings	07:41	10:07	
Travel Time Savings:Movement A-C			
Morning Peak Period (NB)			
2014			
	IH 35W/FM 2280	**IH 35W/SH 174**	**CTP**
Distance	33.9	28.8	30.1
Travel Time (mm:ss)	47:04	45:46	31:00
CTP Time Savings	16:04	14:45	
2035			
	IH 35W/FM 2280	**IH 35W/SH 174**	**CTP**
Distance	33.9	28.8	30.1
Travel Time (mm:ss)	53:41	50:15	38:40
CTP Time Savings	15:01	11:35	
Evening Peak Period (SB)			
2014			
	IH 35W/FM 2280	**IH 35W/SH 174**	**CTP**
Distance	33.8	28.8	30.2
Travel Time (mm:ss)	45:46	43:43	31:09
CTP Time Savings	14:37	12:34	
2035			
	IH 35W/FM 2280	**IH 35W/SH 174**	**CTP**
Distance	33.8	28.8	30.2
Travel Time (mm:ss)	52:18	51:39	35:21
CTP Time Savings	16:57	16:18	

TOLL REVENUE ESTIMATION ASSUMPTIONS

The transaction and toll revenue estimates for CTP are based on the following specific assumptions, which are considered reasonable for the purposes of this study:

- CTP toll revenue stream was assumed to start from April 30, 2014
- Capacity assumptions
    - IH 30 to Altamesa Boulevard opens with six mainlanes with no increase in capacity assumed during the forecast period
    - Altamesa Blvd. to FM 1187 opens with four mainlanes with no increase in capacity assumed during the forecast period
    - FM 1187 to US 67 opens as a barrier divided Super 2 configuration with intermittent passing lanes with no increase in capacity assumed during the forecast period
- A partial Interchange at IH 20 / SH 183 will be open to traffic on April 30, 2014:
    - 20E-121N, 121S-20W, 20W-121S, 121N-20E direct connectors open on April 30, 2014
    - 121N-20W, 20E-121S, 121N-183W, 183E-121S, 121S-20E, 20W-121N direct connectors are not assumed to be built during the forecast period
- Posted speed limits
    - IH 30 to IH 20: 50 mph
    - IH 20 to Altamesa: 60 mph
    - Altamesa to US 67: 70 mph
- Toll rates of $0.185 per mile (in 2009 dollars) north of Altamesa and $0.145 per mile south of Altamesa were assumed on CTP, with tolls inflated at a rate of 2.75 percent annually; toll adjustments were made every two years
- Minimum toll charge was based on a trip length of 1.5 miles
- Tolls charged to users were rounded to the highest penny
- Toll rates for vehicles with more than two axles were calculated based on "N-1" weighting, i.e., a truck with N axles will be charged (N-1) times the passenger car toll rate
- ZipCash toll surcharge was the maximum of (a) 50 percent of TollTag toll or (b) 20 cents per transaction in 2009 dollars, inflated at 2.75 percent per year
- Congestion pricing was not assumed as part of this analysis
- TollTag transaction share is assumed to be 45 percent, 55 percent, 62 percent, 67 percent and 70 percent in 2014, 2015, 2016, 2017 and 2018 and then grows following a logistic function to an 85 percent maximum, including V-Tolls (variance transactions that are subsequently determined to be TollTag transactions)
- ZipCash transaction share is assumed to be 55 percent, 45 percent, 38 percent, 33 percent and 30 percent in 2014, 2015, 2016, 2017 and 2018 and then decreases following a logistic function to a 15 percent minimum, excluding V-Tolls
- Annual revenue days were assumed to be 224 in 2014 and 335 in all subsequent years
- Truck percentage was assumed to be 3.5 percent for all the CTP toll gantries and for all years
- The toll rate axle factor for vehicles with three or more axles was assumed to be 3.0
- Traffic growth between 2035 and 2040 was assumed to be the same as that between 2030 and 2035. Traffic was assumed to grow at 1.5 percent annually from 2040 to 2050 and at 1.0 percent annually beyond 2050
- Distance cost was assumed to be $0.20 per mile in 2011 and inflated by 2.75 percent per year
- A monthly ramp up factor of 50 percent was assumed in April 2014 and linearly increased to 70 percent in January 2016. Ramp up was then linearly increased to 100 percent in January 2019 and held constant thereafter.

- Revenue recovery rate for TollTag transactions/revenue was assumed to be 99.5 percent for all years; the following was assumed for the ZipCash transactions/revenue recovery:

CTP ZipCash Assumptions (excluding V-Tolls)	**2014**	**2015**	**2016**	**2017**
Bad Image and Image Rejection	15.0%	15.0%	15.0%	15.0%
Not Meeting Business Rules	7.0%	6.5%	6.0%	5.0%
No DMV/Bad DMV Information	6.0%	6.0%	6.0%	6.0%
Not Invoiced But Met BR	0.0%	0.0%	0.0%	0.0%
Total ZipCash Revenue in Process (Invoiced)	72.0%	72.5%	73.0%	74.0%
ZipCash Invoiced Revenue Recovered (After 3 months)	65.0%	67.0%	69.0%	70.0%
Effective ZipCash Revenue Recovered (After 3 months)	**46.8%**	**48.6%**	**50.4%**	**51.8%**
ZipCash Invoiced Revenue Recovered (After 1 year)	73.0%	74.0%	75.0%	75.0%
Effective ZipCash Revenue Recovered (After 1 year)	**52.6%**	**53.7%**	**54.8%**	**55.5%**
ZipCash Toll Factor	**1.50**	**1.50**	**1.50**	**1.50**
Effective ZipCash Toll Factor	**0.79**	**0.80**	**0.82**	**0.83**

ESTIMATED ANNUAL TOLL REVENUE

Based on the traffic forecast at each toll plaza locations, annual forecast for CTP were prepared until 2065. CTP forecasts were estimated based on modeled traffic volumes at each toll collection location, through the year 2035. Estimates of annual toll revenue for the proposed CTP are presented in Table 6-5. Annual toll revenue estimates assume that the CTP opens to traffic on April 30, 2014. The weekday transactions and annual revenue were adjusted to reflect "ramp-up" during the first several years of operation as described above.

Adjusted for the "ramp-up" effect, annual transactions are estimated to be 14.2 million in 2014 increasing to 58.4 million in 2020. Transactions in 2030 are estimated to be 75.2 million and transactions are expected to reach 84.5 million in 2035. Annual transactions are expected to reach 128.0 million by 2065. The estimated revenues in Table 6-5 reflect the effects of TollTag/ZipCash shares and violation rates. Annual toll revenue for 2014 is estimated to be $11.8 million increasing to $81.1 million in 2020. Annual toll revenues in 2030 are estimated to be $141.2 million and toll revenue is expected to reach $183.0 million in 2035. Annual toll revenue is expected to reach $631.0 million by 2065.

Figure 6-14 shows the annual revenue and average weekday transactions for the forecast period.

Table 6-5
Estimated CTP Transactions and Revenue

Calendar Year	Annual Transactions	Annual Revenue
2014	14,238,400	$11,793,200
2015	26,699,600	$29,679,400
2016	33,319,200	$39,809,200
2017	40,375,800	$50,326,600
2018	48,267,000	$62,341,400
2019	54,582,900	$73,013,800
2020	58,428,400	$81,136,400
2021	59,905,700	$85,755,900
2022	61,424,400	$90,779,900
2023	62,985,600	$95,774,900
2024	64,590,700	$101,465,400
2025	66,241,100	$107,036,800
2026	67,938,300	$113,333,800
2027	69,683,500	$119,523,100
2028	71,478,600	$126,465,800
2029	73,325,100	$133,410,600
2030	75,224,700	$141,233,200
2031	76,983,700	$148,561,400
2032	78,788,200	$156,680,900
2033	80,639,500	$164,878,500
2034	82,538,800	$173,980,900
2035	84,487,400	$183,012,800
2036	86,487,000	$193,044,700
2037	88,538,800	$203,112,600
2038	90,644,500	$214,289,800
2039	92,805,500	$225,594,400
2040	95,023,500	$238,024,200
2041	96,448,800	$247,927,200
2042	97,895,600	$258,739,300
2043	99,364,000	$269,715,000
2044	100,854,500	$281,846,400
2045	102,367,200	$293,504,500
2046	103,902,800	$306,432,600
2047	105,461,300	$319,270,400
2048	107,043,300	$333,376,400
2049	108,648,900	$347,090,600
2050	110,278,600	$362,269,200
2051	111,381,400	$375,463,800
2052	112,495,200	$389,973,900
2053	113,620,200	$404,291,500
2054	114,756,400	$420,131,100
2055	115,904,000	$435,545,800
2056	117,063,000	$452,577,100
2057	118,233,600	$469,119,500
2058	119,416,000	$487,567,600
2059	120,610,200	$505,266,300
2060	121,816,200	$524,782,200
2061	123,034,400	$544,138,800
2062	124,264,700	$565,504,400
2063	125,507,400	$586,017,400
2064	126,762,400	$608,766,300
2065	128,030,000	$630,983,900
TOTAL	**4,630,806,000**	**$13,784,360,800**

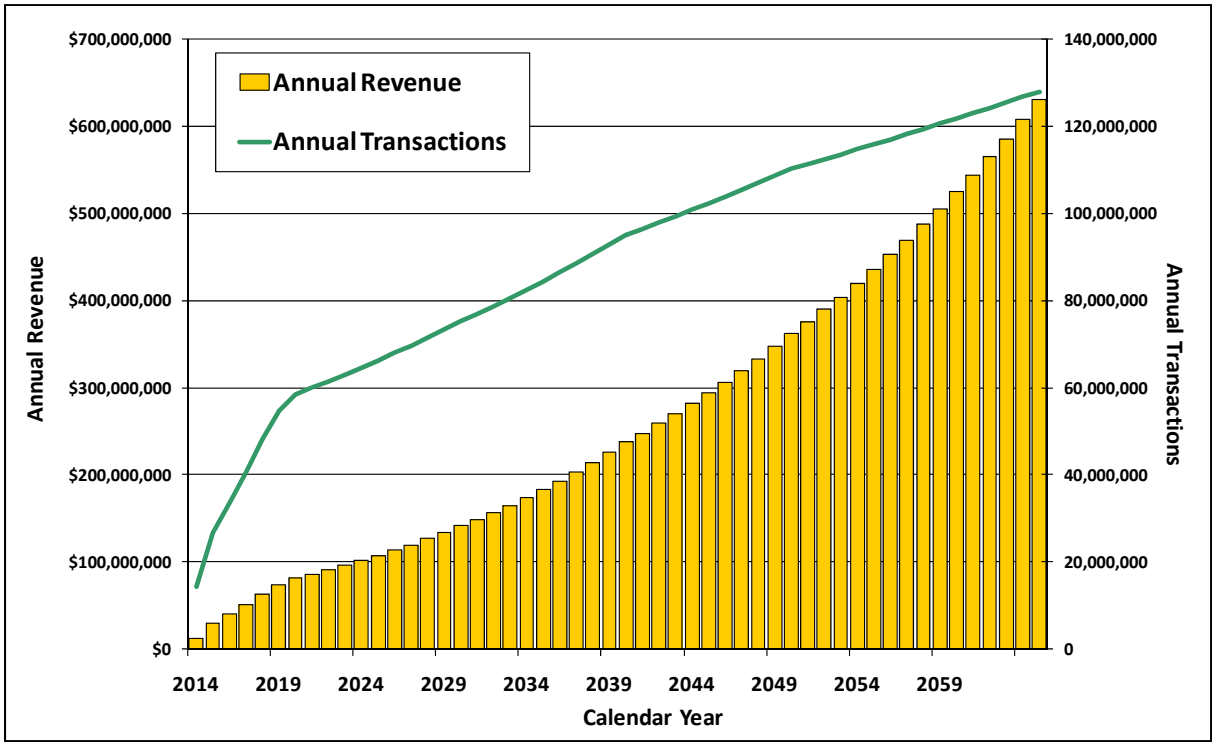

Figure 6-14. CTP Annual Revenue and Transactions

SENSITIVITY TESTS OF KEY INPUT VARIABLES

IMPACTS OF VALUE OF TIME

Values of time (VOT) that were used to produce the traffic and revenue forecast on the CTP are shown in Table 5-2. Two alternative scenarios with low VOT and high VOT were created to test the sensitivity of VOT on the traffic and revenue forecast. The alternative VOTs were created by assuming a 15 percent decrease and increase for the low and high VOT scenarios, respectively. The scenarios were tested for years 2020 and 2035, and the traffic forecast and revenue comparison is shown in Table 6-6.

As can be seen in Table 6-6, for a 15 percent decrease in VOT, traffic is expected to drop by 7.0 percent in 2020 and 2035. Conversely traffic would increase by 6.8 percent in 2020 and 6.0 percent in 2035 when VOT is increased by 15 percent. Revenue impacts due to changes in VOT are similar to impacts on transactions.

Table 6-6
Impacts of Value of Time

Year	Revenue			Revenue Index		
	Base VOT	0.85 VOT	1.15 VOT	Base VOT	0.85 VOT	1.15 VOT
2020	$81,136,400	$75,197,300	$86,942,800	100.0	92.7	107.2
2035	$183,012,800	$169,568,000	$194,630,500	100.0	92.7	106.3
Year	**Transactions**			**Transactions Index**		
	Base VOT	**0.85 VOT**	**1.15 VOT**	**Base VOT**	**0.85 VOT**	**1.15 VOT**
2020	58,428,400	54,361,700	62,398,000	100.0	93.0	106.8
2035	84,487,400	78,589,600	89,589,000	100.0	93.0	106.0

IMPACTS OF TRUCK PERCENTAGE

In the traffic and revenue forecast, trucks are assumed to account for 3.5 percent of the total traffic on the CTP. Two alternative scenarios were tested, one where the truck share is 5.0 percent in all years and another scenario with 2.0 percent trucks in all years. Table 6-7 compares the total revenue on the CTP throughout the forecast period for the base scenario and the two alternative scenarios. If the truck percentage is increased to 5.0 percent, the toll revenue is expected to increase by 2.8 percent in both 2020 and 2035. A truck share of 2.0 percent would reduce the toll revenue by 2.8 percent compared to the base scenario in 2020 and 2035.

Table 6-7
Impacts of Truck Percentage

Year	Low Scenario Index	Base Scenario Index	High Scenario Index
2020	97.2	100.0	102.8
2035	97.2	100.0	102.8

IMPACTS OF REVENUE DAYS

The annual revenue days used for the CTP revenue estimation were assumed to be 335 days per year throughout the forecast period, except for 2014 when they are assumed to be 224 due to the opening of CTP at the end of April 2014. Two alternative scenarios to this assumption were created with 320 days assumed for all years in the low case and a maximum of 345 days assumed in the high case. As shown in Table 6-8, decreasing the revenue days to 320 results in a traffic and revenue decrease of 4.5 percent, while increasing the revenue days to 345 increases the traffic and revenue by 3.0 percent.

Table 6-8
Impacts of Revenue Days

Year	Low Scenario Index	Base Scenario Index	High Scenario Index
2020	95.5	100.0	103.0
2035	95.5	100.0	103.0

IMPACTS OF TOLLTAG PARTICIPATION

The traffic and revenue estimates for the CTP assume TollTag participation to grow following a logistic function to an 85 percent maximum. Two alternatives scenarios were compared to determine the impacts of TollTag participation on revenue. The first alternative assumes a TollTag participation maximum of 95 percent, and second alternative assumes a TollTag participation maximum of 65 percent. Both alternatives assume the same opening year TollTag share as the base scenario. The impacts on revenue of the two alternative scenarios were compared for the years 2020, 2030 and 2035. As shown in Table 6-9, under the low case the revenue would decrease by 4.1 percent, 7.3 percent, and 7.8 percent from the base case in 2020, 2030 and 2035, respectively. Under the high case, revenue would increase by 1.0 percent, 3.4 percent, and 3.8 percent in 2020, 2030 and 2035, respectively.

Table 6-9 Impacts of TollTag Participation			
Year	**Low TollTag Scenario Index**	**Base Scenario Index**	**High TollTag Scenario Index**
2020	95.9	100.0	101.0
2030	92.7	100.0	103.4
2035	92.2	100.0	103.8

IMPACTS OF RAMP-UP

The CTP traffic and revenue estimates assumed an average ramp-up of 55 percent in 2014, 65 percent in 2015, 75 percent in 2016, 85 percent in 2017, 95 percent in 2018, and 100 percent in 2019 and all subsequent years. The impact of lower ramp-up was tested by assuming an initial ramp up of 45 percent in 2014, 55 percent in 2015, 65 percent in 2016, 75 percent in 2017, 85 percent in 2018, 95 percent in 2019, and 100 percent in 2020 and all subsequent years. The impact of higher ramp-up was tested by assuming an initial ramp up of 65 percent in 2014, 75 percent in 2015, 85 percent in 2016, 95 percent in 2017, and 100 percent in 2018 and all subsequent years. As shown in Table 6-10, a reduction in ramp-up would decrease revenue by 18.6 percent in 2014, 16.0 percent in 2015, 13.6 percent in 2016, 11.9 percent in 2017, 10.7 percent in 2018, and 5.9 percent in 2019. An increase in ramp-up would increase revenue by 18.6 percent in 2014, 16.0 percent in 2015, 13.6 percent in 2016, 11.9 percent in 2017, and 6.4 percent in 2018.

Table 6-10 Impacts of Ramp-up						
Year	**Base Scenario**		**Low Ramp-up Scenario**		**High Ramp-up Scenario**	
	Ramp-up	**Revenue Index**	**Ramp-up**	**Revenue Index**	**Ramp-up**	**Revenue Index**
2014	55%	100.0	45%	81.4	65%	118.6
2015	65%	100.0	55%	84.0	75%	116.0
2016	75%	100.0	65%	86.4	85%	113.6
2017	85%	100.0	75%	88.1	95%	111.9
2018	95%	100.0	85%	89.3	100%	106.4
2019	100%	100.0	95%	94.1	100%	100.2

IMPACTS OF OFFICIAL DEMOGRAPHICS

The base traffic and revenue forecasts that used the revised demographics/trip tables from RDS were compared to the NCTCOG Mobility Plan 2035 official demographics/trip tables and were tested for years 2020 and 2035. As can be seen in Table 6-11, the official demographics/trip tables result in revenue decrease of 7.3 percent and a transaction decrease of 7.6 percent in 2020. In 2035, the decrease in revenue and transactions are 8.9 percent and 9.8 percent respectively.

Table 6-11 Impacts of Official Demographics				
Year	**Revenue**		**Revenue Index**	
	Base	**Official Demographics**	**Base**	**Official Demographics**
2020	$81,136,400	$75,248,100	100.0	92.7
2035	$183,012,800	$166,803,400	100.0	91.1
	Transactions		**Transactions Index**	
Year	**Base**	**Official Demographics**	**Base**	**Official Demographics**
2020	58,428,400	53,980,300	100.0	92.4
2035	84,487,400	76,228,000	100.0	90.2

IMPACTS OF SEVERE DEMOGRAPHIC GROWTH STAGNATION

The base traffic and revenue forecasts were tested to determine the impacts of changes in demographic growth in the CTP area. Two demographic growth alternative scenarios were tested. In the first comparison, traffic and revenue forecasts were tested under severe demographic growth stagnation scenarios. The demographics are assumed to lag by five, and the corresponding traffic and revenue estimates are shown for 2020 and 2035. As can be seen in Table 6-12, the five year lag demographics result in a revenue decrease of 23.4 percent in 2020 and 12.0 percent in 2035. The impact on transactions is a 22.2 percent decrease in 2020 and a 11.4 percent decrease in 2035.

Table 6-12 Impacts of Demographic Growth Lag				
Year	**Revenue**		**Revenue Index**	
	Base	**5 Year Lag**	**Base**	**5 Year Lag**
2020	$81,136,400	$62,182,300	100.0	76.6
2035	$183,012,800	$161,032,800	100.0	88.0
	Transactions		**Transactions Index**	
Year	**Base**	**5 Year Lag**	**Base**	**5 Year Lag**
2020	58,428,400	45,449,700	100.0	77.8
2035	84,487,400	74,833,500	100.0	88.6

The second test looked at the impacts of diminished growth in the long term. For this comparison, the demographics in the opening year of 2014 were assumed to be equal to the current year (2011) demographics. Those demographics were then assumed to grow at one percent per year throughout the forecast period. The resulting revenues under this condition were compared to the base revenues for the years 2014, 2020, 2030 and 2035. As shown in Table 6-13, the low growth scenario results in revenue decreases of 17.8 percent, 36.6 percent, 42.5 percent and 46.3 percent in 2014, 2020, 2030 and 2035, respectively.

Table 6-13 Impacts of Extremely Low Growth		
Year	**Base Scenario Revenue Index**	**Low Growth Scenario Revenue Index**
2014	100.0	82.2
2020	100.0	64.4
2030	100.0	57.5
2035	100.0	53.7

IMPACTS OF VEHICLE OPERATING COST

The impacts of an increase in vehicle operating cost were tested by assuming a 25 percent increase in operating cost. The results of the test are shown in Table 6-14 for years 2020 and 2035. As shown in the table, transactions and revenue would drop by 4.2 percent in 2020 and 3.8 percent in 2035 if vehicle operating cost increased by 25 percent.

Table 6-14 Impacts of Vehicle Operating Costs				
Year	**Transactions Index**		**Revenue Index**	
	Base	**Alternative Scenario**	**Base**	**Alternative Scenario**
2020	100.0	95.8	100.0	95.8
2035	100.0	96.2	100.0	96.2

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APPENDIX A

INDEPENDENT ECONOMIC REVIEW

This appendix contains the documentation of the independent economic review as provided by the subconsultant, Research and Demographic Solutions. This report was provided to WSA in June 2011.

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Chisholm Trail Parkway Corridor

Independent Socioeconomic Analysis

Prepared for: Wilbur Smith Associates
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June 2011

Chisholm Trail Parkway Corridor

Independent Socioeconomic Analysis

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I. Introduction

Research and Demographic Solutions (**RDS**) was commissioned by Wilbur Smith Associates (**WSA**) to perform an independent socioeconomic analysis concerning household, population, and employment forecasts underlying the Chisholm Trail Parkway corridor (**CTP**) as defined by WSA. This report provides an economic analysis of the CTP corridor for the new demographic datasets (**NCTCOG Forecast**) from the Metropolitan Transportation Plan "Mobility 2035" which was adopted by the Regional Transportation Council in March 2011, and it will be included as an Appendix to the WSA investment grade traffic and toll revenue study.

RDS evaluated the latest socioeconomic forecasts (prepared by NCTCOG), for accuracy and reasonableness, detailed to the level of Traffic Analysis Process, or TAP zones. Focus was narrowed to TAP zones directly affecting the CTP corridor. The RDS evaluation was completed for the years of 2010, 2012, 2015, 2020, 2030 and 2035.

RDS also identified and calculated major emerging economic trends which directly impact the level and distribution of future socioeconomic growth in the Dallas-Fort Worth Metropolitan Statistical Area (**DFW MSA**). Such trends include patterns in land use, transportation improvements, and major planned developments. RDS evaluated any factors that will likely change economic growth potential or the overall distribution of economic growth. Examples include, but are not limited to future rail stations and rail line extensions, infrastructure expansions, and airport development.

Full citations are provided for methodologies, sources of development trends and projections, and narratives defining and detailing important issues affecting future socioeconomic growth near the CTP corridor.

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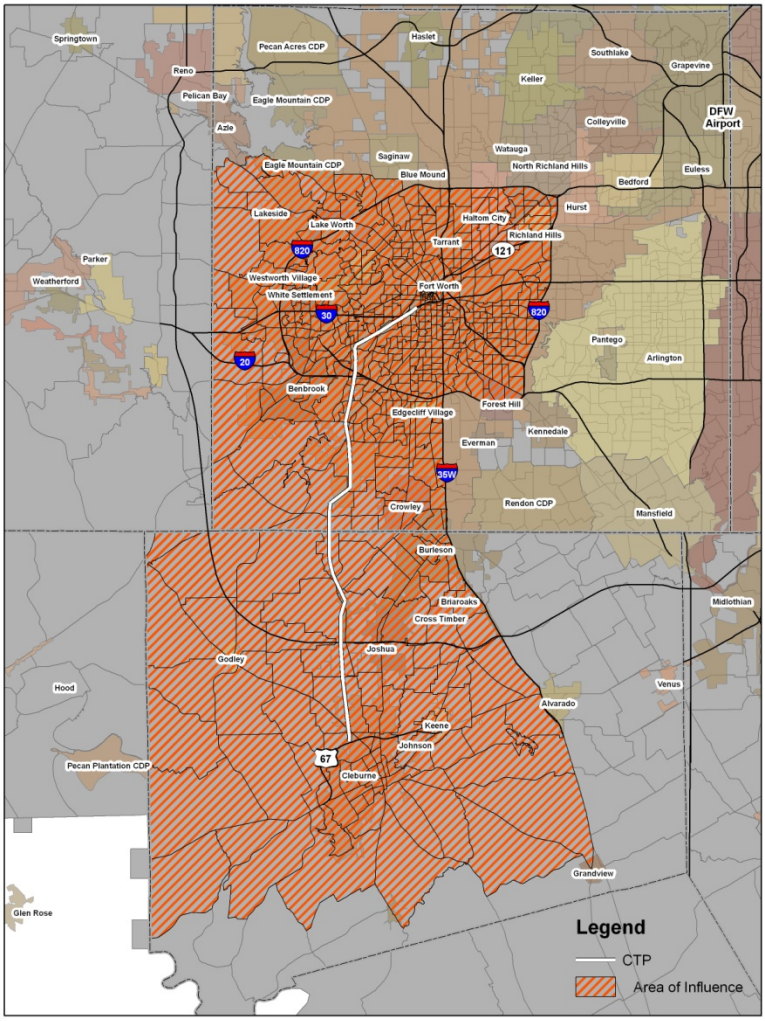
I. Chisholm Trail Parkway Area of Interest Map

The Area of Interest (**AOI**) for this study, as provided by WSA, encompasses approximately 800 square miles and 733 TAP zones that lie within the influence area of the proposed roadway alignment. The Chisholm Trail Parkway Corridor stretches from the City of Fort Worth's Central Business District southward to the City of Cleburne at US 67—a total distance of 27.3 miles. The Chisholm Trail Parkway travels 15 miles through southwestern Tarrant County and continues 12.3 miles through north central Johnson County. Overall, the AOI comprises parts of Fort Worth, Benbrook, Crowley, Burleson, Joshua, Cleburne, Edgecliff Village, Keene, Godley, River Oaks, Westover Hills, Westworth Village, and White Settlement.

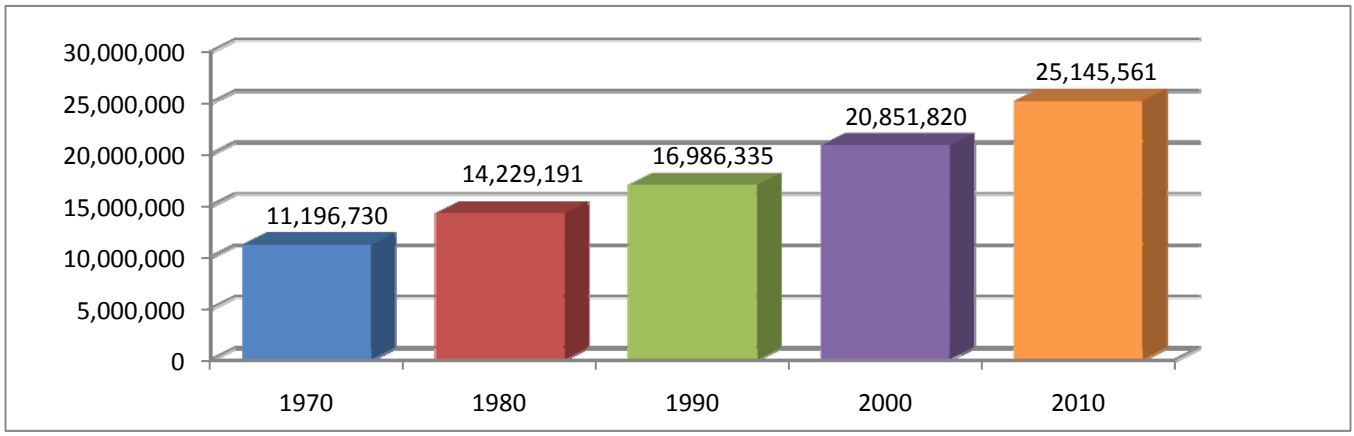
Figure 1: Area of Interest Map



II. State of Texas Population Trends and Projections

Texas continues to be one of the fastest growing states in the US. Recently, the Census Bureau reported that Texas added nearly 4.3 million persons between 2000 and 2010, a 20.6 percent increase in total population. Most likely, this upward curve will continue, mainly due to the state's high hispanic migration and their accompanying birth rates.[1] The hispanic population now makes up almost 38 percent of Texas' overall population, and rose almost 42 percent since 2000.

Figure 2: State of Texas Total Population
1970 - 2010



Source: US Census Bureau

Table 1: Texas State Population Projections (in Millions)

Scenarios	2010	2015	2020	2025	2030	2035	2010-2035 Growth	Compound Annual Growth Rate 10-35
TxSDC 0.0 Scenario	22.8	23.6	24.3	24.9	25.4	25.8	3.0	0.50%
TxSDC 0.5 Scenario	24.3	26.2	28.0	29.9	31.8	33.8	9.5	1.33%
TxSDC 1.0 Scenario	26.1	29.2	32.7	36.7	41.1	46.1	20.0	2.30%
TxSDC 2000-2007 Scenario	25.4	28.0	30.8	33.9	37.3	40.9	15.5	1.92%
Woods & Poole	25.2	27.3	29.5	31.8	34.0	36.2	11.0	1.46%
Texas Water Development Board	25.4	27.6	29.7	31.7	33.7	35.7	10.3	1.37%

Source:2008 Texas State Data Center, 2011 Woods & Poole, Year??/Texas Water Development Board

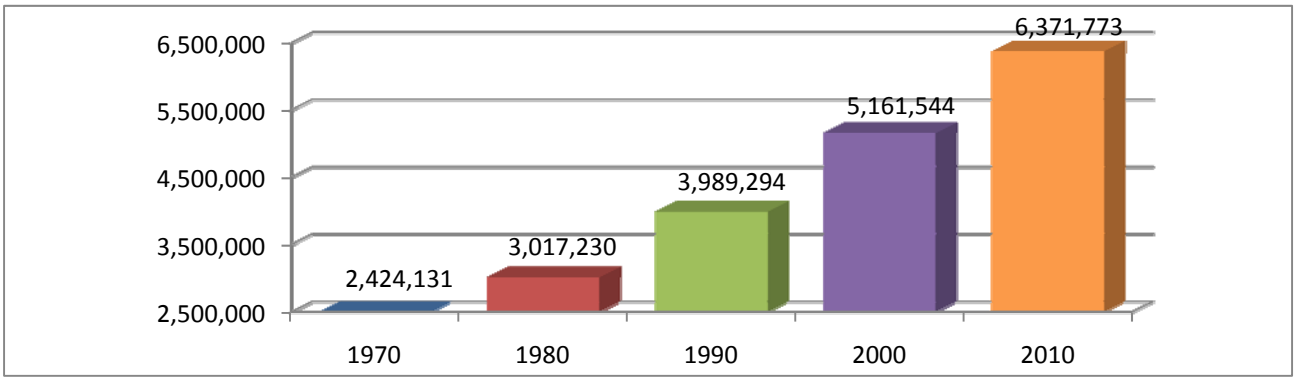
[1] "Texas population tops 25 million in 2010 Census" Fort Worth Star Telegram, 21 December, 2010.

Texas' population growth will continue to be strong going forward. The state's relatively low cost of living, attractive business climate, low tax rates, and diversified economy all will contribute to sizable future gains. Depending on varying rates of migration and natural increase, the Texas State Data Center (**TxSDC**) estimates that anywhere from 25.8 to 46.1 million people will live in the state by 2035. Though, the TxSDC recommends using the 0.5 scenario (half of migration in the 90's) for long term planning purposes and the 2000-2007 scenario (post 2000 trends) for the short term (3-10 years). Full explanations of all scenarios can be found in the Appendix, Section D of this report.

III. Metropolitan Statistical Area and NCTCOG Region Population Trends and Projections

Between 2000 and 2010, the Dallas-Fort Worth-Arlington Metropolitan Statistical Area[2] experienced the second largest regional population gain in the country and now has over 6.3 million residents. Overall, the MSA added over 1.2 million persons in this time period. Similar population growth was seen during the 1990's as well. To put this in perspective, the MSA has added two entire City of Dallas' populations from 1990 to 2010.

Figure 3: Dallas-Fort Worth-Arlington MSA Population 1970 - 2010



Source: US Census Bureau

[2] The DFWA MSA is comprised of Collin, Dallas, Delta, Denton, Ellis, Hunt, Johnson, Kaufman, Parker, Rockwall, Tarrant and Wise Counties.

Even though residential construction has slowed down considerably across the country since 2007, all forecasting agencies including the NCTCOG, the Texas State Data Center, Woods & Poole, and the Texas Water Development Board agree that the region will continue to see very strong household and population growth through 2035. There are a myriad of attributes that contribute to the overall regional projections. These include a recent history of strong growth, affordable and available land with no limiting geographic boundaries such as an ocean or foreign border, the relatively low cost of doing business in the state and region, central geographic location in the U.S., favorable weather and amenities, etc.

Table 2: Population Projections for NCTCOG Region 2010-2035

Entity	2010	2020	2030	2035	Compound Annual Growth Rate 2010-2035
NCTCOG	6,399,514	7,701,248	9,113,004	9,833,378	1.73%
Woods & Poole	6,618,341	7,776,162	8,973,190	9,572,893	1.49%
Texas State Data Center: 0.0	5,719,295	6,087,323	6,343,126	6,408,843	0.46%
Texas State Data Center: 0.5	6,240,694	7,391,773	8,708,912	9,425,077	1.66%
Texas State Data Center: 1.0	6,859,576	9,231,317	12,619,315	14,805,158	3.13%
Texas State Data Center: 2000-2007	6,656,053	8,651,288	11,353,084	13,018,090	2.72%
Texas Water Development Board	6,618,923	7,928,031	9,071,225	9,747,911	1.56%

Source: 2011 Woods &Poole, TxSDC, TWDB, *NCTCOG does not include Delta County in its projections, but includes Hood County.

IV. CTP Corridor City-Level Population Trends

The major cities in the AOI have seen relatively steady growth over the past forty years, though some have seen huge jumps especially since 2000. The City of Fort Worth has added over 200,000 people since 2000, making it the fastest growing large city in America.[3] Burleson and Crowley have seen the largest compound annual growth rates from 2000 to 2010, respectively, both growing by almost 75 percent. Of the major cities in the AOI, only Benbrook is approaching build-out.

Table 3: Historical City Population 1970-2010

City	1970	1980	1990	2000	2010	Compound Annual Growth Rate 1970-2000	Compound Annual Growth Rate 2000-2010
Fort Worth	393,455	385,164	447,619	534,694	741,206	2.13%	3.32%
Burleson	7,713	11,734	16,113	20,976	36,690	5.34%	5.75%
Cleburne	16,015	19,218	22,205	26,005	29,337	2.04%	1.21%
Benbrook	8,169	13,579	19,564	20,208	21,234	3.24%	0.50%
Crowley	2,662	5,852	6,974	7,467	12,838	5.38%	5.57%
Joshua	924	1,470	3,821	4,528	5,910	6.38%	2.70%

Source: US Census Bureau

V. Regional and County Employment Trends and Projections

Recent employment trends in the five core counties have varied considerably on a yearly basis since 2000. As shown in Table 4, the counties of Collin and Denton have gained the largest total percentage growth adding 37.27% and 30.17% respectively. Dallas County employment totals have actually dipped by 4.45% or about 50,000 jobs since 2000. In absolute terms, Tarrant County has added almost 67,000 jobs and Collin County 75,000 jobs since 2003. Though overall,

[3] "Aggressive Annexation paid off in North Fort Worth Growth" FWST, 12 April, 2011.

the core counties together have experienced positive job growth every year since 2003 and have added over 214,000 jobs in this timeframe, as shown in Table 4.[4]

Table 4: Total Employment Estimates

Year	Collin	Dallas	Denton	Johnson	Tarrant	Total
2000	286,557	1,122,180	255,727	63,343	758,903	**2,486,710**
2001	305,703	1,131,702	267,965	64,272	763,906	**2,533,548**
2002	312,667	1,099,720	272,863	64,614	766,158	**2,516,022**
2003	318,125	1,069,342	276,485	65,124	766,469	**2,495,545**
2004	331,485	1,063,586	284,887	66,428	776,431	**2,522,817**
2005	345,514	1,063,065	295,579	67,865	792,554	**2,564,577**
2006	361,681	1,068,463	307,548	68,264	807,645	**2,613,601**
2007	375,550	1,070,452	320,126	68,152	824,259	**2,658,539**
2008	386,367	1,076,686	328,291	69,015	829,343	**2,689,702**
2009	381,899	1,040,932	323,176	68,544	824,359	**2,638,910**
2010	384,259	1,047,367	325,174	68,522	824,087	**2,649,409**
2011	393,368	1,072,195	332,883	69,277	833,168	**2,700,891**
Total Absolute Growth 2000-2011	**106,811**	**-49,985**	**77,156**	**5,934**	**74,265**	**214,181**
Total Percent Growth 2000-2011	**37.27%**	**-4.45%**	**30.17%**	**9.37%**	**9.79%**	**8.61%**

Source: Texas Workforce Commission, April 2011

Table 5 and Figure 4 illustrate the individual county employment changes that have occurred since 2000. Surprisingly, 2010-2011 shows the largest overall percentage gain for the five-county area, 1.94 percent. After the bursting of the housing bubble, job growth for most counties slowed during 2007 and all counties showed employment loss during 2008, most significant of which was Dallas County losing almost 35,000 jobs. The county has already gained back 31,000 of those jobs in a short two-year timeframe.

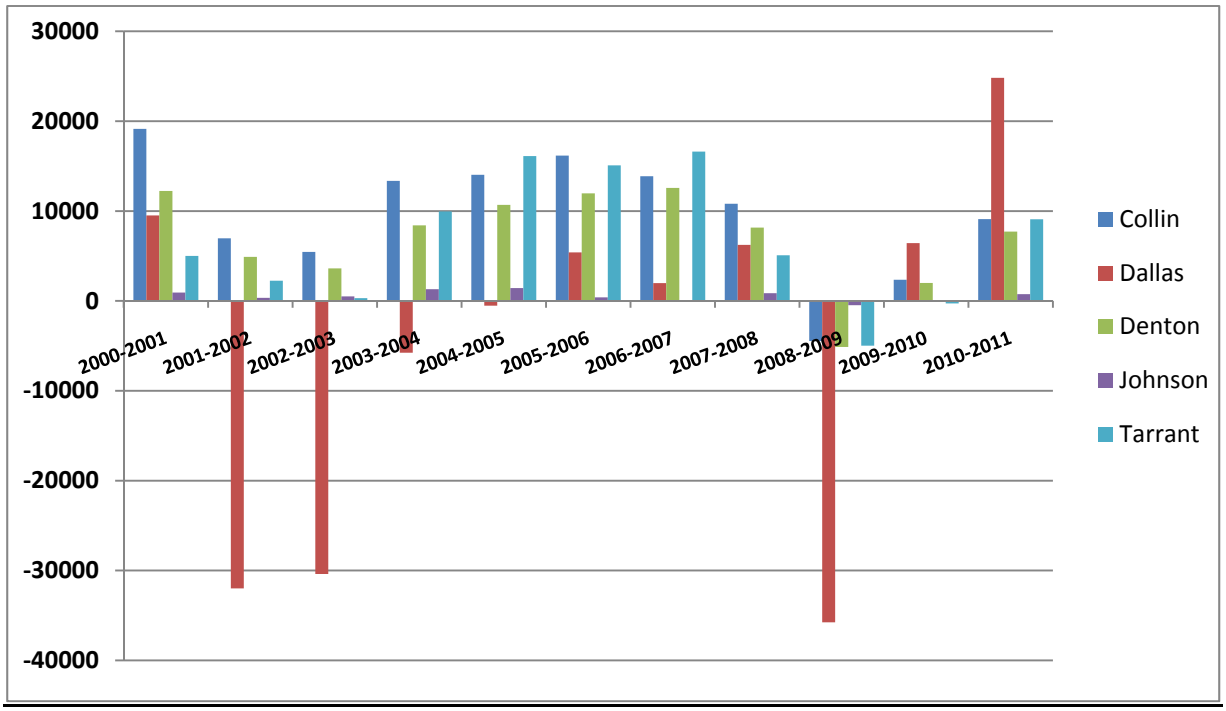
[4] Texas Workforce Commission estimates are based on place of residence.

Table 5: County Percentage Employment Change 2000-2011

Year	Collin	Dallas	Denton	Johnson	Tarrant	Total
2000-2001	6.68%	0.85%	4.79%	1.47%	0.66%	**1.88%**
2001-2002	2.28%	-2.83%	1.83%	0.53%	0.29%	**-0.69%**
2002-2003	1.75%	-2.76%	1.33%	0.79%	0.04%	**-0.81%**
2003-2004	4.20%	-0.54%	3.04%	2.00%	1.30%	**1.09%**
2004-2005	4.23%	-0.05%	3.75%	2.16%	2.08%	**1.66%**
2005-2006	4.68%	0.51%	4.05%	0.59%	1.90%	**1.91%**
2006-2007	3.83%	0.19%	4.09%	-0.16%	2.06%	**1.72%**
2007-2008	2.88%	0.58%	2.55%	1.27%	0.62%	**1.17%**
2008-2009	-1.16%	-3.32%	-1.56%	-0.68%	-0.60%	**-1.89%**
2009-2010	0.62%	0.62%	0.62%	-0.03%	-0.03%	**0.40%**
2010-2011	2.37%	2.37%	2.37%	1.10%	1.10%	**1.94%**

Source: Texas Workforce Commission, April 2011

Figure 4: County Absolute Employment Change 2000-2011



Source: Texas Workforce Commission, April 2011

As Table 6 illustrates, the Texas Workforce Commission **(TWC)** expects employment in the state and region to grow significantly from 2008-2018. Overall, the state expects employment to grow by a strong 17 percent. In the DFW region, Tarrant County is projected to grow by 17.3 percent, Dallas by 14.2 percent, and the rest of the region by more than 19 percent. Therefore, in total, the TWC expects that the DFW region will account for over 28 percent of the state's employment growth in 2018.

Table 6: Projected 2018 Total Employment for Workforce Development Areas (WDA)

State of Texas	
2008 Average Annual Employment	11,711,220
2018 Average Annual Employment	13,707,230
Absolute Difference	1,996,010
Percentage Change 2008-2018	17%
Compound Annual Growth Rate	1.59%

Tarrant County WDA	
2008 Average Annual Employment	858,180
2018 Average Annual Employment	1,006,740
Absolute Difference	148,560
Percentage Change 2008-2018	17.3%
Compound Annual Growth Rate	1.61%

Dallas County WDA	
2008 Average Annual Employment	1,640,680
2018 Average Annual Employment	1,872,880
Absolute Difference	232,200
Percentage Change 2008-2018	14.2%
Compound Annual Growth Rate	1.33%

North Central Texas WDA (NCTWDA)	
2008 Average Annual Employment	840,360
2018 Average Annual Employment	1,001,460
Absolute Difference	161,100
Percentage Change 2008-2018	19.2%
Compound Annual Growth Rate	1.77%

NCTWDA consists of Collin, Denton, Ellis, Erath, Hood, Hunt, Johnson, Kaufman, Navarro, Palo Pinto, Parker, Rockwall, Somervell, and Wise Counties.

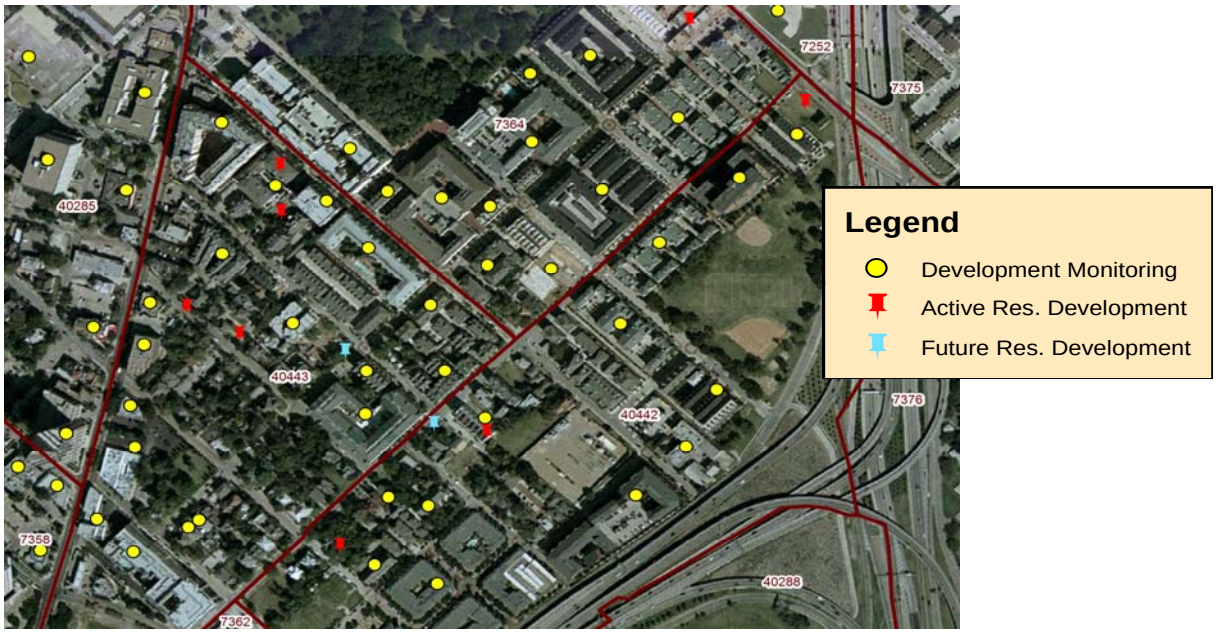
VI. RDS Forecast Review Methodology

RDS was retained to review the latest socioeconomic forecasts for the Chisholm Trail Parkway Area of Interest for accuracy and reasonableness. For the purpose of this study, WSA provided RDS with households, population, and employment data from the demographic data that were used to develop Mobility 2035 at the TAP zone level. The data was provided in five intervals, 2010, 2012, 2015, 2020, 2025 and 2035 for 733 TAP zones. A larger geography, "Market Area" forecast for years 2005, 2035 and 2040 were completed and approved by the NCTCOG Executive Board in February 2011, and at the time of this report, stands as the official demographic projection for DFW regional transportation infrastructure planning and resource allocation efforts. City planning and transportation officials are still reviewing TAP zone level data and will continue to work on possible edits with NCTCOG through December 2011. The projection process started with the establishment of regional household and employment control totals for the forecast years. The control totals were based on projections purchased from Dr. Ray Perryman, who has developed models for forecasting economic and demographic factors. The control totals were allocated to forecast districts using the Gravity Land Use Model (G-LUM). This specialized model was developed by Dr. Kara Kockelman at the University of Texas at Austin and further improved by NCTCOG staff in cooperation with UT Austin. The forecasts at the district level were then disaggregated to Traffic Survey Zones (TSZs) using a disaggregation model developed at NCTCOG. The district forecasts were aggregated to 112 markets for the next phase of the process, which is a local review of the TSZ figures.

In early 2007, NCTCOG staff began work on the 2040 Demographic Forecast and through these efforts, new 2005 baseline demographics were developed, reviewed extensively by local municipalities, and approved by the NCTCOG Executive Board in October 2007. RDS created GIS datasets that allowed review of the demographic datasets used in developing the Mobility 2035 plan for all years concurrently and implemented new Census 2010 household and population data, County Appraisal District Parcel counts by land use, rates of future development based on past economic trends, and various other calculations to assist in RDS' review.

GIS Review: RDS took advantage of geographic information system (GIS) technology during the comprehensive review process. RDS gathered multiple years of aerial photography, zoning and future land use maps, parcel boundaries and development databases for GIS analysis. Using GIS, RDS determined TAP zones where new development had occurred after 2010. RDS also acquired current housing data information from Metrostudy, one of the nation's leading new home research consultants. This data was also converted to a GIS dataset and mapped during the review process. Through the use of GIS, multiple datasets were displayed side-by-side. This allowed staff to review all iterations of the NCTCOG Forecast simultaneously.

Figure 5: Development Monitoring Map



Households/Population: During 2010 review, specific attention was given to areas that were built-out according to current land-use and development. The housing data was plotted and future and vacant lot inventories were reviewed for inclusion. The development dataset also included residential projects and was mapped and reviewed with Metrostudy data (See Figure 5). During the second round of review, specific attention was given to areas with the greatest potential of redevelopment. For example, the City of Fort Worth provided RDS a future land use shapefile that included their "Urban Village" designation. These villages are small geographic

areas zoned for dense, multiple use development that is mass-transit and pedestrian friendly.[5] Specific attention was given to areas like these, as well as future potential commuter rail stations or other land use or zoning areas that cities place focus on for future development.

Employment: The differences between the demographic data from Mobility 2035 that were provided and RDS results were more significant in employment than in households and population. Overall, RDS projects approximately 11 percent or 75,000 fewer jobs in the Chisholm Trail Parkway AOI in 2035 than NCTCOG. RDS understands that 2035 TAP zone data is still being reviewed by city officials, but will not be finished before completion of this report. This could quite possibly shrink the differences between NCTCOG and RDS employment totals.

RDS staff reviewed the data with specific attention to zones that showed significant growth during the forecast years. The development database was very important, as many of the points of interest included building square footages and future projects. RDS also used consistent employees per square footage data (see Appendix E) for estimating job potential. The result of the initial employment review resulted in significantly lower employment numbers in the first year of review (2010). The future year review was completed using data and information gathered from the cities of Fort Worth, Burleson, Cleburne and the Trinity River Vision Office and information from the development dataset that was labeled as under construction, future, or conceptual. Employment clusters around current and future rail stations, highway frontage, and CBD were also reviewed for potential growth or redevelopment.

RDS 2010 Review: It should be understood that the initial 2010 NCTCOG data was a first iteration model run based on the NCTCOG 2005 demographics. It was not the original baseline for the NCTCOG Forecast. After RDS staff review of each zone, the resultant 2010

[5] City of Fort Worth, *Urban Villages.* Retrieved from http://www.fortworthgov.org/planninganddevelopment/urbanvillages/

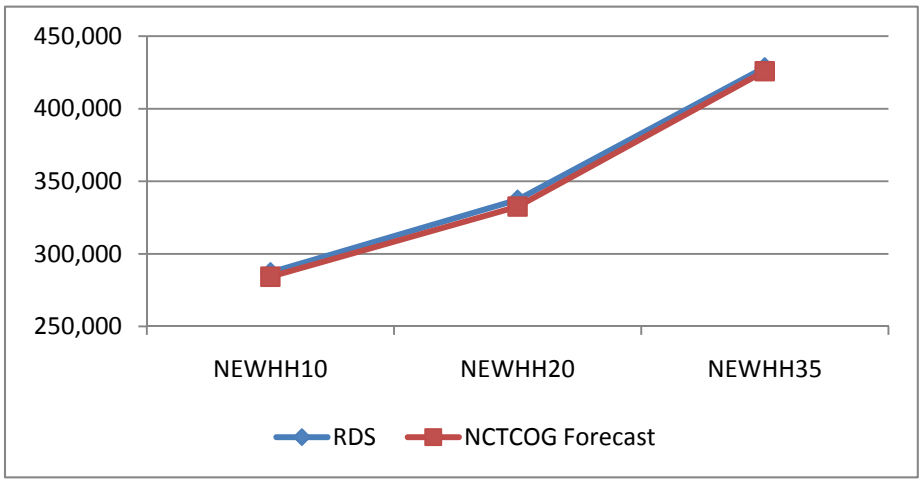
demographics only vary by 1 percent in households and population and 5 percent in employment. Table 7 illustrates the comparisons for 2010 households, population and employment.

Table 7: 2010 Area of Interest Statistics

	2010		
	NCTCOG Forecast	RDS Forecast	2010 Census
Households	284,232	287,251	277,326
Population	787,233	795,718	772,160
Employment	486,620	461,893	N/A

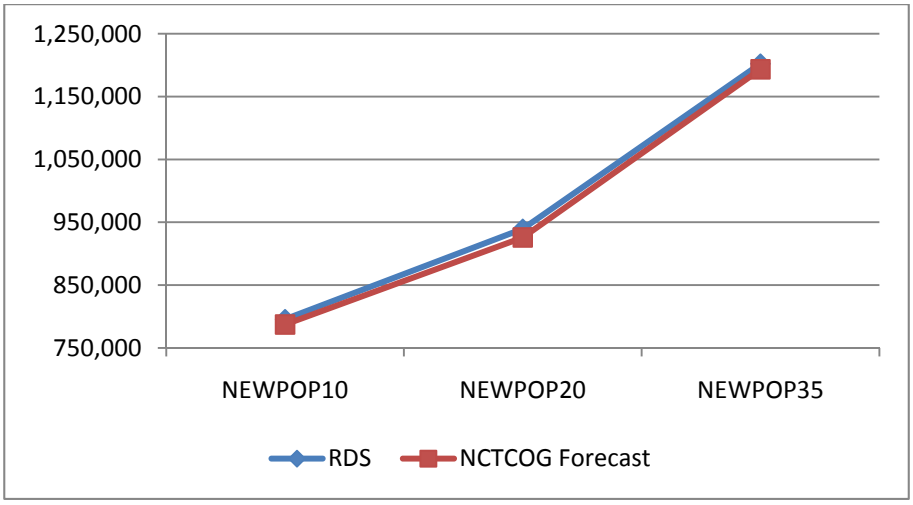
RDS 2012-2035 Review: After establishing new RDS 2010 demographics using recently released 2010 Census data, new home reports, commercial development datasets, and current year Appraisal District data for each individual TAP zone, future iterations for 2012, 2015, 2020, 2025 and 2035 were reviewed for growth and reasonableness. RDS staff established their own totals for each. Figures 6, 7, and 8 illustrate this growth from 2010-2020 and 2020-2035 and compare them by Compound Annual Growth Rate (CAGR).

Figure 6: RDS vs. NCTCOG Forecast Households



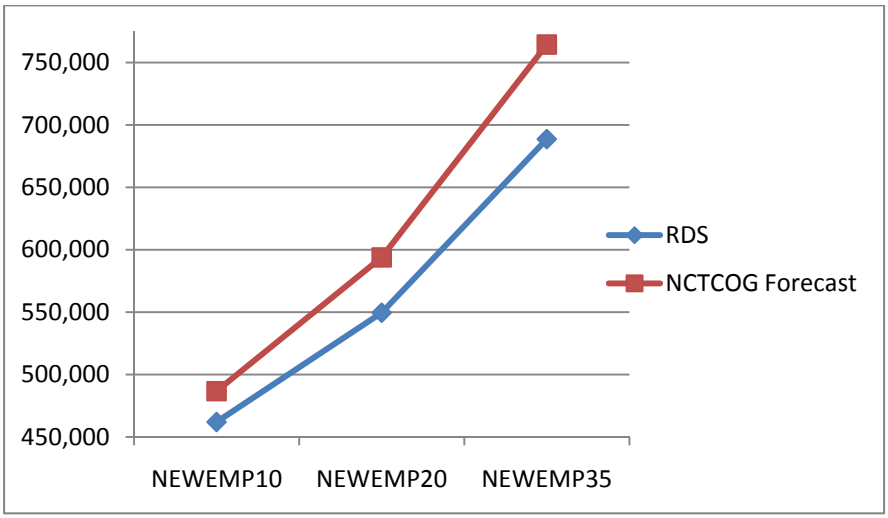
	10-20 CAGR	20-35 CAGR
RDS	2.03%	1.61%
NCTCOG Forecast	1.98%	1.66%

Figure 7: RDS vs. NCTCOG Forecast Population



	10-20 CAGR	20-35 CAGR
RDS	2.10%	1.66%
NCTCOG Forecast	2.05%	1.71%

Figure 8: RDS vs. NCTCOG Forecast Employment



	10-20 CAGR	20-35 CAGR
RDS	2.19%	1.52%
NCTCOG Forecast	2.52%	1.70%

Table 8 illustrates NCTCOG's initial and RDS' post-review AOI totals for households, population and employment for all iterations. These were the sum totals from TAP zone review.

Table 8: RDS and NCTCOG Area of Interest Statistics

	2010			2012			2015		
	HH	POP	EMP	HH	POP	EMP	HH	POP	EMP
CTP - RDS	287,251	795,718	461,894	293,047	812,883	478,364	305,126	847,916	504,388
CTP - NCTCOG	284,232	787,233	486,620	292,429	810,867	507,733	304,747	846,333	539,412

	2020			2030			2035		
	HH	POP	EMP	HH	POP	EMP	HH	POP	EMP
CTP - RDS	337,263	939,507	549,668	397,283	1,112,195	641,476	428,443	1,202,332	690,272
CTP - NCTCOG	332,584	925,755	593,018	394,778	1,103,662	707,561	425,868	1,193,372	766,152

For review of each iteration's Basic, Service, and Retail employment breakdowns, RDS used 2010 shares provided by NCTCOG to begin. RDS staff then reviewed these totals and adjusted the data over time using quantitative theory and professional judgment. Importantly, if the employment sector of a planned development was known, shares were changed accordingly. Looking forward, service and retail sectors are expected to gain in overall share of total

employment, while the basic sector will see a slow decline. These changes are accelerated beyond 2013 when the Chisholm Trail Parkway is expected to be complete.

Table 9: Chisholm Trail Parkway AOI Basic, Service and Retail Employment Shares
NCTCOG and RDS
2010 – 2035

NCTCOG - PERCENTAGE OF EMPLOYMENT BY SECTOR			
	BASIC	RETAIL	SERVICE
2010	26.0%	17.9%	56.1%
2012	25.6%	18.0%	56.4%
2015	25.2%	18.1%	56.7%
2020	24.5%	18.3%	57.3%
2030	23.1%	18.5%	58.6%
2035	22.5%	18.5%	59.2%

RDS - PERCENTAGE OF EMPLOYMENT BY SECTOR			
	BASIC	RETAIL	SERVICE
2010	25.9%	18.3%	55.9%
2012	25.6%	18.3%	56.1%
2015	25.5%	18.4%	56.1%
2020	24.9%	18.6%	56.6%
2030	23.8%	18.8%	57.5%
2035	23.3%	19.0%	58.0%

VII. Regional Economic Overview

Recent regional demographic and economic trends and the short-term outlook

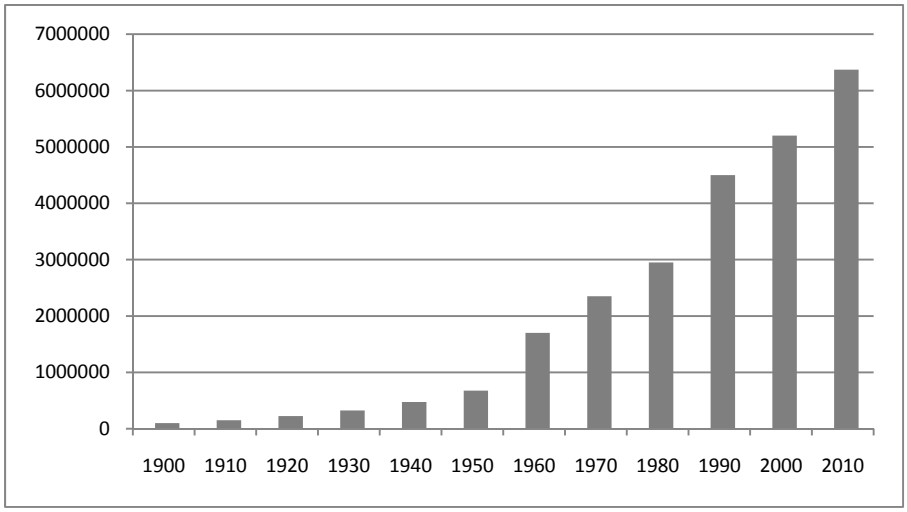
The greater Dallas-Fort Worth (DFW) Metropolitan Statistical Area, is currently the 4th largest urban region in the nation (see Table 10). What's more, since 1990 DFW has grown faster in percentage terms than any large metropolitan area except Atlanta—though in absolute numbers DFW actually added more people than any other metro area growing by almost 2.4 million residents. Even more impressive has been the pace of job creation in the Dallas-Fort Worth Metroplex, especially in the years preceding the "Great Recession" of 2008-2009. As indicated in Table 11, between 2004 and 2007 DFW added nearly 300,000 jobs, or 100,000 per year. Never before had the region added that many jobs in a three-year period.

Table 10: Population and Growth: Selected Metro Areas Ranked by 2010 Count

MSA	1990	2010	Δ%
New York-New Jersey-Long Island, NY-NJ-PA	16,863,671	18,897,109	12.10%
Los Angeles-Long Beach-Santa Ana, CA	11,273,720	12,828,837	13.80%
Chicago-Naperville-Joliet, IL-WI-IN	8,181,939	9,461,105	15.60%
Dallas-Fort Worth-Arlington, TX	**3,989,294**	**6,371,773**	**59.70%**
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	5,435,550	5,965,343	9.70%
Houston-Sugar Land-Baytown, TX	3,767,218	5,946,806	57.90%
Washington-Arlington-Alexandria, DC-VA-MD-WV	4,122,259	5,582,170	35.40%
Miami-Fort Lauderdale-Miami Beach, FL	4,056,228	5,564,635	37.20%
Atlanta-Sandy Springs-Marietta, GA	3,069,425	5,268,860	71.70%
Boston-Cambridge-Quincy, MA-NH	4,133,895	4,552,402	10.10%

Source: US Census Bureau

Figure 9: Metro DFW Historical Population



Source: US Census Bureau

Table 11: Employment Change 2004-2007

	DFW	Houston	Austin	San Antonio	Texas
2004	2,698,200 -1.20%	2,289,800 -0.70%	667,400 -2.20%	760,000 -1.10%	9,497,100 -1.30%
2005	2,766,500 -2.50%	2,348,600 -2.56%	692,200 -3.70%	782,000 -2.90%	9,740,500 -2.60%
2006	2,860,800 -3.40%	2,446,000 -4.20%	720,000 -4.00%	811,300 -3.70%	10,053,300 -3.20%
2007	2,990,800 -4.50%	2,568,500 -5.00%	763,300 -6.00%	840,100 -3.60%	10,451,700 -4.00%
Change 04-07	292,600	278,700	95,900	80,100	954,600

Source: Texas Workforce Commission

Of course, Texas and DFW were not immune from the vicissitudes of the "Great Recession." During the 2008-2009 period, the Metroplex lost about 80,000 jobs. But since the recovery began last year, more than 65,000 new jobs have been added to local payrolls according to recent data from the Texas Workforce Commission. What's more, IHS Global Insight, a reputable forecasting firm, expects DFW and Texas to outpace the nation in job growth through the end of this year (see Table 12). IHS also projects DFW employment growth over the next five years to be the second-fastest in the state averaging 1.8% per year.

Table 12: Expected Job Growth in 2011

By State		Texas Metro Areas	
State	**% Change**	**Metro**	**% Change**
Texas	**1.80%**	Austin	2.50%
Nebraska	1.80%	**Dallas-Fort Worth**	**2.20%**
Utah	1.70%	McAllen	2.10%
Oklahoma	1.60%	Houston	1.70%
Delaware	1.60%	San Antonio	1.60%
Washington DC	0.10%	El Paso	1.60%

Source: IHS Global Insight

Factors Affecting Growth in the Chisholm Trail Parkway Study Area

As shown in Table 13, there are several endogenous and exogenous factors that may influence the pace of population and employment growth in the Chisholm Trail Parkway area, as well as factors that could affect traffic volume on the CTP. The impact of these factors result in three potential growth scenarios described as conservative, most-likely, and optimistic. Several of these factors will influence overall migration scenarios into the region, while other will be more local in impact. The factors considered in developing the growth scenarios include: automotive fuel prices, housing market finances, housing market demand, immigration, natural gas prices, impacts of demographic change on household composition, regional and global competitiveness, changing tastes for low-density suburban housing, availability of rail transit options, development of other highway transportation infrastructure, and water supply issues.

Table 13: Factors Potentially Influencing Population, Employment Change, and System Utilization in the Chisholm Trail Parkway Impact Area

Factor	Conservative	Most-likely	Optimistic
Fuel Prices	Oil prices, reflecting a new era of political instability in the Middle East and continuing demand growth from developing nations rises to $140+/bbl resulting in permanent change in commuting behavior (mass transit, carpooling), and lower demand for exurban residential development.	Oil prices stay comparatively stable between $90-$130 bbl, some change in commuting patterns, but demand for new residential development in the Area of Interest (AOI) continues.	Gasoline prices return to levels below $90/bbl and commuters continue long run driving behaviors.
Real Estate Finances	Federal Government support of secondary mortgage markets is substantially curtailed resulting in the virtual elimination of the 30-yr fixed rate mortgage which will permanently lower relative demand for single family housing. Impact especially felt in outer ring suburbs and exurban areas. Potential elimination of mortgage interest from federal income taxes also lowers relative demand for SF housing.	Implicit federal government subsidization of SF housing markets continues, but loan qualifications are tighter because of regulatory (international) standards for banking reserve requirements. The lowers demand for exurban building over 2002-2006 levels, but growth is supported.	While not returning to sub-prime lending practices, housing demand is boosted by widely available loans on consumer-friendly terms resulting in substantial demand for SF housing in suburban and exurban locations.

Factor	Conservative	Most-likely	Optimistic
Transit Oriented Development (Moderate Term)	High levels of transit oriented development and other new urban forms gain in popularity reducing demand for suburban/ exurban housing.	Some transit oriented development, but capacity of transit system does not allow a meaningful impact on population or employment.	No expansion of transit service plans results in population and employment in AOI being higher.
Transit Options	Though rail transit cannot support enough riders to greatly change demand for tolled facilities, it can lower demand. If the Cottonbelt commuter line becomes functional post 2020, it will have the potential to lower facility demand north of Sycamore School Road.	Ridership on the Cottonbelt represents an insignificant percentage of facility demand of CT Parkway.	Cottonbelt commuter line does not become functional during forecast period.
Immigration policy (Short, moderate and long-term impacts)	Illegal immigration largely stopped with stringent limits on legal migration from south of the border or as a result of continuing weakness in local labor markets. Result is lower population growth, lower demand for goods and services, higher building costs, and higher cost of living, impacting business attraction.	Immigration enforcement no more effective than current efforts. Flow of low cost labor intact. Economy returns to mid-2000 job growth levels.	Immigration policy shifts to promote immigration favoring new population growth in Texas.

Factor	Conservative	Most-likely	Optimistic
Immigration Policy/ Growth in Hispanic Households Impact Population Age (Moderate to long-term impacts)	Fewer Hispanic households and rising median age leading to lower workforce participation due to retirement. Lower employment growth rates.	Relatively young Hispanic households slow the "aging" of the population with working age population remaining proportionately about the same as current.	Young Hispanic households combined with delayed retirement increases workforce participation.
Gas Drilling in Barnett Shale	Price of natural gas remains low, Barnett Shale activity decreases from current levels and drilling and production activities shift to shallower (less costly) formations.	Gas drilling and production activities increase over current levels, but less than boom years of 2004-2006.	Natural gas prices rise substantially producing another drilling boom boosting SE Tarrant and Johnson county employment and population growth.
Global /Regional Competition (Long-Term Impacts)	Dallas/Fort Worth area lags other regions of the US in growth.	Remains competitive with other US regions and is a regional hub of global enterprise.	Becomes a major hub of international commerce on par with New York, London.

Factor	Conservative	Most-likely	Optimistic
I35W Expansion (Tarrant to Denton County)	Funding available for I35W expansion supporting continued growth north of downtown Ft. Worth into Denton County, effectively drawing potential growth away from CT Parkway area.	I35W will receive funding, but it will be delayed, effectively increasing congestion and making southwest Tarrant County more attractive for residential growth.	State/federal highway funding severely curtailed, moratorium on public-private partnerships for highway development stays in place, congestion in northern Tarrant County. I35W corridor inhibits growth pushing new development to the southwest.
Trinity River Vision	Trinity River Vision project on the north Main Street receives full funding for the realignment of the river and creation of a new town lake. This massive flood control and land cleanup project will create one of the most attractive areas for high-density residential and commercial development in North Texas. It will potentially reallocate a substantial part of overall county growth to the downtown area.	The TRV will receive funding and will proceed, but not as quickly as originally envisioned offering less competition for potential development in the southwest part of the county.	Federal budget constraints effectively halt the TRV as originally designed. Flood control limited to redesigning (raising) existing levees and the north Main Street area does not see much new development during the study period lowering competition for southwestern developments.
Water Availability (Some moderate term impact, mostly long-term)	Delayed reservoir development and extended drought cause moratoriums on development	Rainfall patterns return to “norm” for past 50 years, water conservation measures decrease. Average consumption, new reservoirs are developed, no impact on development.	Substantial rainfall combined with reservoir development and conservation measures provide sufficient water resources while other areas of the southwest lose water dependent industries to Texas.

Overview of Analytic Approach

The forecast presented here employs a modified bottom-up approach. Beginning with an examination of overall county level forecasts from several sources including NCTCOG, the Texas State Data Center, Woods-Poole, our own statistical assessment of growth trends, and others, the RDS team developed overall adjustments to apply to NCTCOG forecasts. We then combined two approaches for simultaneously assessing population and employment growth within the CTP corridor. Part A was an overall assessment of the relative balance between employment and population growth in the corridor. Our economic assessment of the region suggests that for the foreseeable future, absent an extremely unlikely confluence of events, population growth in the CTP corridor will exceed employment growth. In Part B of this step in the analysis, we examined specific TAP zones for development anomalies that are described elsewhere in this report. Our approach for accomplishing Parts A and B are a combination of quantitative and qualitative analytic techniques.

Discussion of Key Assumptions

Location of Employment Growth in Tarrant County: Based on the factors reviewed in Table 13, under the most likely scenario employment centers is Tarrant County will remain closer to downtown and biased to the northern and northeastern portions of the county. The momentum of business development along the I35W corridor through the Alliance Airport area will draw a disproportionate share of growth throughout the study period. Even if some of the "conservative" market factors come to be, the majority of growth will be northward.

Growth in Johnson County: Johnson County will continue to grow, but the historic bias for north-side development over southern development in the Metroplex will not substantially change over the next twenty years. There are specific factors that could change this bias, but in the most-likely scenario, Johnson County will not become the Collin County of the south.

NCTCOG Population Projections: The NCTCOG projections of population growth in Tarrant County appear to suggest that in-migration will slow considerably over recent trends; either that or the mortality rate will substantially increase. We find no solid evidence suggesting that Tarrant County growth will slow. Tarrant County has seen impressive growth for the past twenty years and will continue to do so for the foreseeable future. Continuing with the trends observed in the past 15 years, much of that growth will be concentrated in northern Tarrant County, especially along the IH-35W corridor. Therefore, we find the implicit migration rate offered by the NCTCOG for Tarrant County more appropriate for a conservative growth scenario.

VIII. Local Review – Comments and Assumptions

RDS staff consulted with local planners and economists to gain their perspective on the existing and future demographics of the Chisholm Trail Parkway Corridor. Included in the review were conversations with personnel at the City of Fort Worth, Downtown Fort Worth, Inc., the City of Cleburne, the City of Burleson, the Naval Air Station Fort Worth Joint Reserve Base (**NAS Fort Worth JRB**) and staff from the North Central Texas Council of Governments (**NCTCOG**).

City of Fort Worth: RDS spoke with the City of Fort Worth's Planning and Development Department staff. Staff provided insight into the city's plans for developing the Trinity River Vision project and current status, progress, and potential build-out timeline of the development. The Planning and Development Department is responsible for review and comment on the new NCTCOG 2040 Forecast household and employment numbers for the city. Prior to the meeting, RDS created maps of specific TAP zones that varied considerably in either households or employment between 2010 and 2035, mainly to get direct comment from department staff for RDS' TAP zone review purposes. Further conversations with staff revealed that the city believes NCTCOG has overstated employment in the Central Business District Area and has potentially missed the growth impacts from the Trinity River Vision. Fort Worth also provided RDS with GIS shapefiles – future land use, urban village zoning, master thoroughfare plans, and potential commuter rail stations and line - all that assisted in TAP zone review.

Downtown Fort Worth, Inc. (DFWI): RDS staff felt it was important to visit with DWFI to get a better understanding of the economic drivers that may influence development in Fort Worth's Central Business District and to collect useful research data from a specialized agency. Staff at DFWI indicated that the economy in the CBD is rebounding strongly and that occupancy rates, both residential and commercial, are currently very strong. Future

developments are likely to see prompt construction groundbreakings, as the Trinity River Vision and the redevelopment of the former Tandy Center, One City Place, are prepared to get underway. Staff showed concern at NCTCOG's 2040 Forecast's overall 2010 employment and future growth, indicating that they felt that employment was overstated. Staff also shared their methodologies for estimates of employees per square foot depending on development type.

City of Cleburne: RDS met with Economic Development (ED) staff at the City of Cleburne and asked for an update of current overall economic conditions and current and future development going on throughout the city. Staff expressed concern that for Cleburne to continue to develop, that basic infrastructure delivery will be the city's most important responsibility. RDS and Cleburne ED staff looked over a recent aerial map and discussed current and future developments, focusing on industrial parks, tax increment financing (TIF) districts, commercial highway corridors, and planned residential projects. A hard copy of the city's future land use plan and major employer list were also provided. Discussions about the current state of the natural gas business in Cleburne revealed that staff believes that approximately 60-70 percent of peak 2007 employment is still there today. Primary well construction has dropped off significantly and service and maintenance jobs now make up the majority of local gas-related employment. Staff also believes that peak levels will never been seen again barring a prolonged upturn in the price of natural gas. Staff voiced concern that the current Johnson County CTP configuration is only two lanes wide and fear that this could negatively affect attraction of large-scale distribution center or industrial-type developments. Overall, staff feels that the Chisholm Trail Parkway will be a boon for the city, making it easier to travel and bringing both significant people and jobs to Cleburne in the near future.

City of Burleson: RDS met with Economic Development staff at the City of Burleson where discussion took place about how construction of Chisholm Trail Parkway will influence

growth in Burleson. Overall, staff felt that the project would not significantly affect traffic or growth for its residents due to its location in regards to the roadway. Staff feels that its residents will continue to use IH35W to commute between Fort Worth and Burleson unless their trip ends in far southwest Fort Worth. Staff provided many GIS shapefiles to assist in individual RDS TAP zone review. Files provided include future land use, new city limit boundaries, and subdivision polygons.

NAS Fort Worth JRB: RDS consulted with a planner from the Joint Reserve Base to provide an accurate total employment count for the base and the adjoining Lockheed facility. This was further verified by Lockheed staff.

NCTCOG: Attempts were made to contact NCTCOG regarding 2040 Demographic Forecast methodology and household size questions.

IX. Regional Economic Cycles – Alternative Scenarios

The conservative and optimistic scenarios were created by varying rates and magnitudes of growth due to positive or negative factors to residential or commercial development. Initial reviews of county population and employment data were performed utilizing several national and state agencies that specialize in the field. Though none of the alternatives were chosen to be used as an overall template for the project, examination of each was a valuable tool in establishing the alternative scenarios.

RDS estimated the household and employment growth impacts due to proximity to existing land uses and potential plans for new construction and redevelopment opportunity. Examples include rail stations, highways, special zoning districts, and the CTP itself. Using GIS as a tool, (see Figure 10 below) the conservative and optimistic scenarios were adjusted to reflect the potential success or lack thereof within each TAP zone.

Figure 10: Rail Station Map

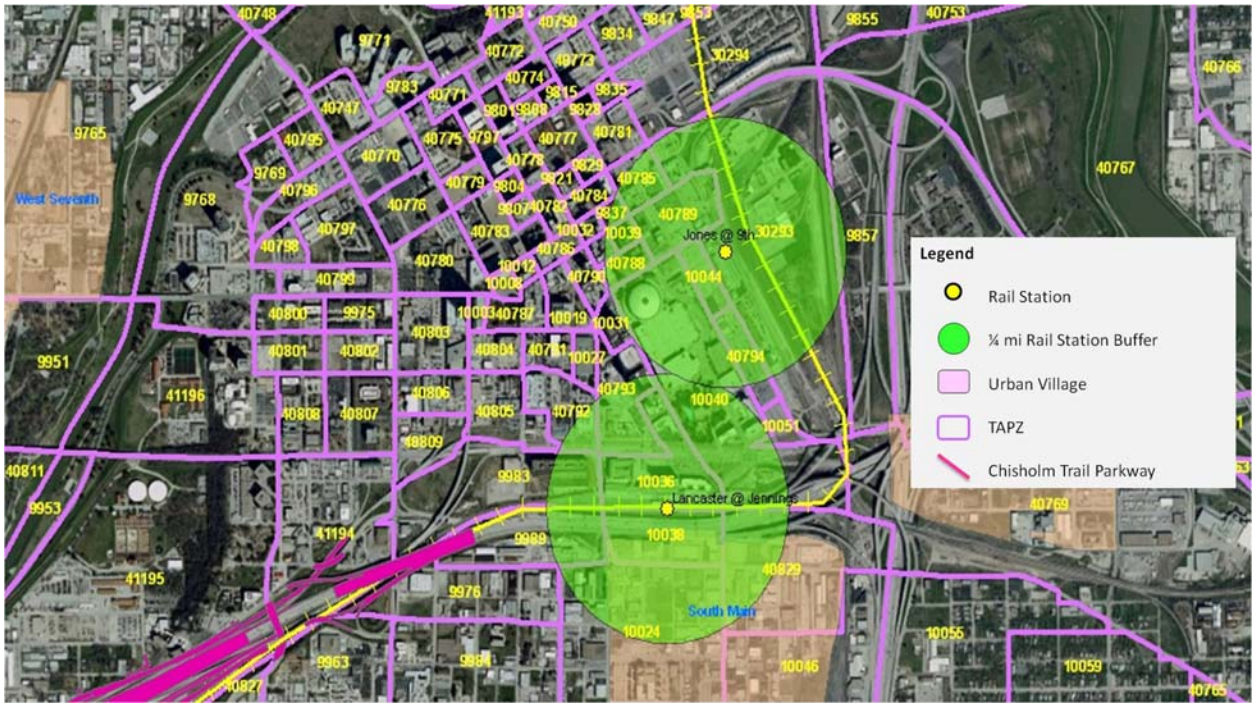
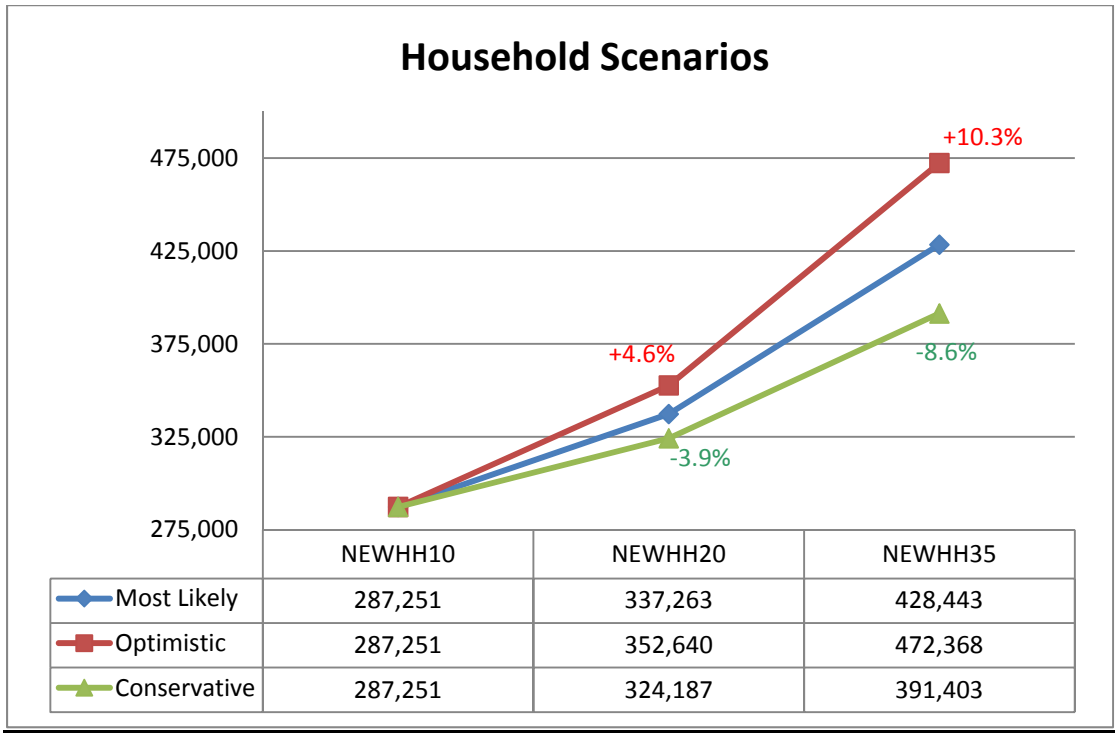
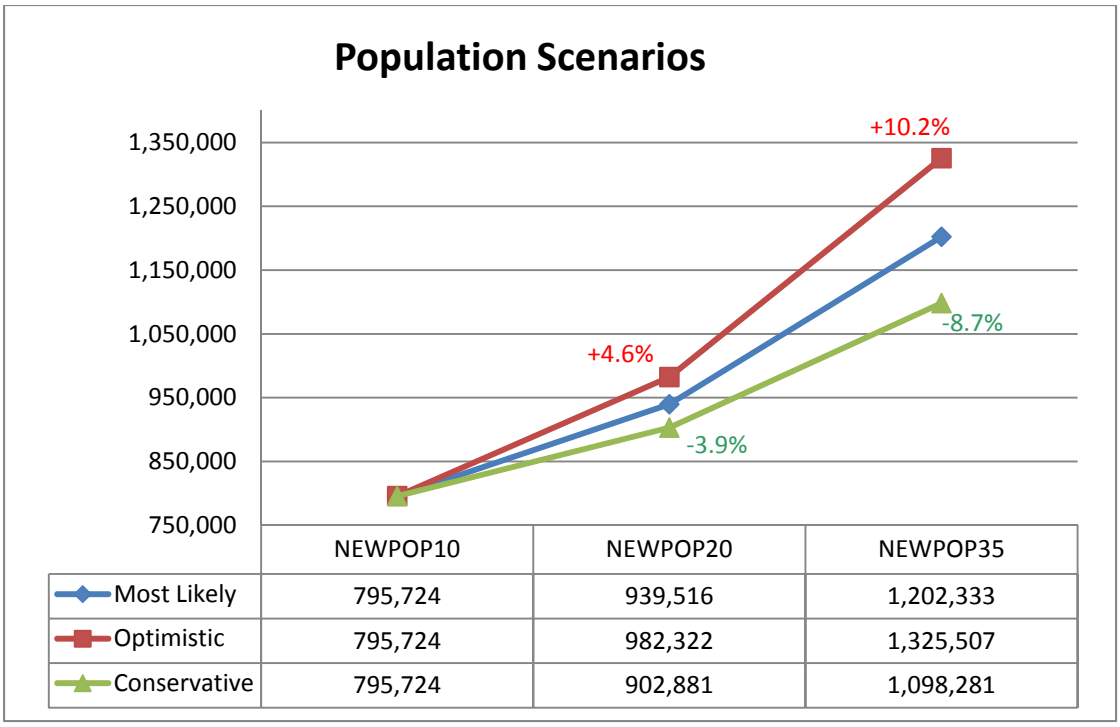


Figure 11: Household Comparison by Scenario



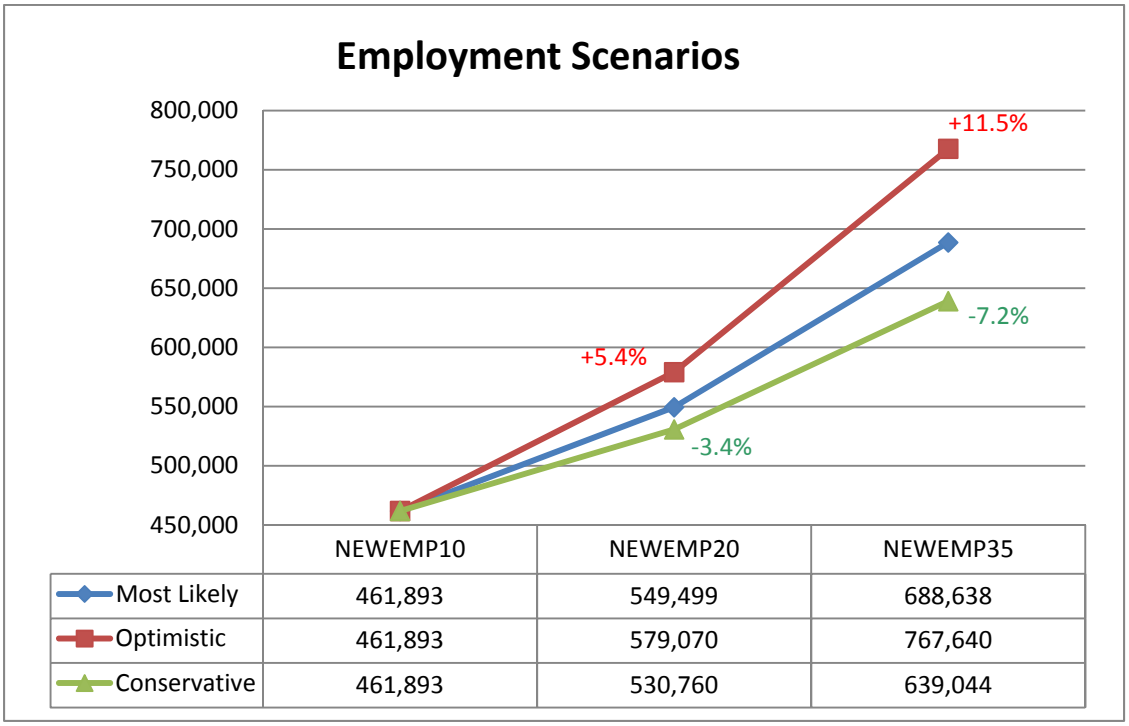
	NEWHH10	NEWHH20	NEWHH35
Most Likely	287,251	337,263	428,443
Optimistic	287,251	352,640	472,368
Conservative	287,251	324,187	391,403

Figure 12: Population Comparison by Scenario



	NEWPOP10	NEWPOP20	NEWPOP35
Most Likely	795,724	939,516	1,202,333
Optimistic	795,724	982,322	1,325,507
Conservative	795,724	902,881	1,098,281

Figure 13: Employment Comparison by Scenario



	NEWEMP10	NEWEMP20	NEWEMP35
Most Likely	461,893	549,499	688,638
Optimistic	461,893	579,070	767,640
Conservative	461,893	530,760	639,044

Appendix

A. Special Generators – p. A-1

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J. RDS Background and Bios – p. J-1 – J-4

A. Special Generators

Special generators are employers with unique traffic patterns that generate high traffic volumes on a consistent or event-driven basis. Most of these special generators are universities, hospitals, malls, and large corporate campuses. NCTCOG examines each of these to ensure correct geographical location and then assigns each an accurate employment total. Here is a list of special generators located within the AOI. Each of these was taken into account when TAPZ totals were calculated to ensure proper traffic volumes.

Special Generators within AOI

Name	Type
Walls Regional Hospital	Hospital
North Hills Hospital	Hospital
Kindred Hospital Fort Worth	Hospital
Harris Methodist Southwest Hospital	Hospital
La Gran Plaza de Fort Worth (Former Fort Worth Town Center Mall)	Shopping Mall
Hulen Mall	Shopping Mall
Tarrant County College – South Campus	University/College
Tarrant County College – Northwest Campus	University/College
Southwest Baptist Theological Seminary	University/College

Source: NCTCOG, April 2011

B. Development Reports

Metrostudy Report for AOI – April 2011

Metrostudy Housing Report 4Q10
by TAP Zone

TAP	COUNTY	SUBDIVISION	STATUS	CONSTRUCTION TYPE	ANNUAL CLOSINGS	FINISHED VACANT	VACANT DEVELOPED LOTS	FUTURE LOTS	OCCUPIED HOMES	TOTAL LOTS
9350	TARRANT	Stone Creek Ranch	Active	Single Family	18	5	44	600	221	874
9350	TARRANT	Marine Creek Ranch	Active	Single Family	55	9	258	1,102	750	2,137
9350	TARRANT	Pinion Park	Active	Single Family	3	0	29	0	65	96
9350 Total					**76**	**14**	**331**	**1,702**	**1,036**	**3,107**
9402	TARRANT	Turtle Creek Ranch	Active	Single Family	3	0	6	0	278	284
9402	TARRANT	Silver Ridge Estates	Active	Single Family	0	0	12	0	53	66
9402 Total					**3**	**0**	**18**	**0**	**331**	**350**
9666	TARRANT	Silver Ridge	Active	Single Family	2	0	71	31	124	227
9666	TARRANT	Vista West	Active	Single Family	42	7	72	0	570	660
9666	TARRANT	Westpoint Village	Active	Patio	5	0	16	0	63	79
9666	TARRANT	Chapel Springs (Ft. Worth)	Active	Single Family	5	0	4	0	38	42
9666	TARRANT	Vista West West	Future	Single Family	0	0	0	1,267	0	1,267
9666 Total					**54**	**7**	**163**	**1,298**	**795**	**2,275**
9719	TARRANT	Woodhaven Country Club Estates	Active	Single Family	0	1	26	41	111	179
9719	TARRANT	Sunset Oaks Addition	Future	Single Family	0	0	0	74	80	154
9719	TARRANT	Noble Hill	Future	Single Family	0	0	0	70	0	70
9719 Total					**0**	**1**	**26**	**185**	**191**	**403**
9763	TARRANT	KM VanZandt Addn II	Future	Single Family	0	0	0	13	0	13
9763 Total					**0**	**0**	**0**	**13**	**0**	**13**
9847	TARRANT	Pecan Place Townhomes	Active	Townhouse	5	1	0	0	27	28
9847 Total					**5**	**1**	**0**	**0**	**27**	**28**
9877	TARRANT	Crescent Place	Active	Single Family	4	6	40	0	30	77
9877	TARRANT	Villa Estate Addition	Future	Single Family	0	0	0	11	0	11
9877	TARRANT	Villa Estates Townhomes	Future	Single Family	0	0	0	7	0	7
9877 Total					**4**	**6**	**40**	**18**	**30**	**95**
9917	TARRANT	Trail Ridge Estates (Fort Worth)	Active	Single Family	12	3	39	0	168	210
9917 Total					**12**	**3**	**39**	**0**	**168**	**210**
9920	TARRANT	Sun View Addition	Active	Single Family	35	7	92	0	427	530
9920	TARRANT	Dale Lane Townhomes	Future	Townhouse	0	0	0	46	0	46
9920 Total					**35**	**7**	**92**	**46**	**427**	**576**
9930	TARRANT	Westover Square	Active	Single Family	0	0	7	0	14	21
9930 Total					**0**	**0**	**7**	**0**	**14**	**21**
9945	TARRANT	Tulsa Way Townhomes	Active	Townhouse	0	0	13	0	0	13
9945 Total					**0**	**0**	**13**	**0**	**0**	**13**
9951	TARRANT	S07 Arthouse Condos	Active	Condominium	35	19	0	0	35	54
9951	TARRANT	S07 Arthouse Gallery Homes	Active	Townhouse	8	3	0	0	8	11
9951	TARRANT	S07 Addition Townhomes	Active	Townhouse	6	2	15	0	42	59
9951 Total					**49**	**24**	**15**	**0**	**85**	**124**
10085	TARRANT	Tandy Wakefield Addition	Future	Duplex	0	0	0	19	0	19
10085 Total					**0**	**0**	**0**	**19**	**0**	**19**
10134	TARRANT	Normandale Park	Future	Single Family	0	0	0	36	0	36
10134	TARRANT	Normandale Terrace	Future	Townhouse	0	0	0	12	0	12
10134 Total					**0**	**0**	**0**	**48**	**0**	**48**
10149	TARRANT	Ridglea Place	Future	Townhouse	2	0	0	33	55	88
10149 Total					**2**	**0**	**0**	**33**	**55**	**88**
10183	TARRANT	EF Seidels Subdivision	Future	Townhouse	0	0	0	16	0	16
10183 Total					**0**	**0**	**0**	**16**	**0**	**16**
10186	TARRANT	Oleander Place Townhomes	Active	Townhouse	3	6	4	0	3	17
10186 Total					**3**	**6**	**4**	**0**	**3**	**17**
10316	TARRANT	River Park Addn/River Elm	Active	Single Family	2	0	17	0	20	37
10316	TARRANT	River Park Addn	Active	Single Family	2	1	2	0	58	61
10316 Total					**4**	**1**	**19**	**0**	**78**	**98**
10321	TARRANT	Edwards Ranch	Future	Single Family	0	0	0	379	0	379
10321 Total					**0**	**0**	**0**	**379**	**0**	**379**
10329	TARRANT	Cantley Place Townhomes	Active	Townhouse	0	0	12	0	12	24
10329 Total					**0**	**0**	**12**	**0**	**12**	**24**
10347	TARRANT	Sierra Vista (Ft. Worth)	Active	Single Family	2	1	141	0	90	232
10347 Total					**2**	**1**	**141**	**0**	**90**	**232**
10362	TARRANT	Englewood Heights	Future	Duplex	0	0	0	4	10	14
10362 Total					**0**	**0**	**0**	**4**	**10**	**14**
10420	TARRANT	Markum Ranch Estates	Future	Single Family	0	0	0	72	62	134
10420 Total					**0**	**0**	**0**	**72**	**62**	**134**
10431	TARRANT	Waterwood Place Townhomes	Active	Townhouse	0	1	4	0	40	47
10431 Total					**0**	**1**	**4**	**0**	**40**	**47**
10434	TARRANT	Edwards Ranch/Riverhills	Active	Single Family	3	3	45	139	9	199
10434 Total					**3**	**3**	**45**	**139**	**9**	**199**
10471	TARRANT	Alcannon Place Townhomes	Future	Townhouse	0	0	0	36	0	36
10471 Total					**0**	**0**	**0**	**36**	**0**	**36**
10472	TARRANT	Cobb's Orchard Addition	Future	Single Family	0	0	0	6	0	6
10472 Total					**0**	**0**	**0**	**6**	**0**	**6**
10475	TARRANT	Homewood	Future	Single Family	0	0	0	5	0	5
10475 Total					**0**	**0**	**0**	**5**	**0**	**5**

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Metrostudy Housing Report 4Q10
by TAP Zone

TAP	COUNTY	SUBDIVISION	STATUS	CONSTRUCTION TYPE	ANNUAL CLOSINGS	FINISHED VACANT	VACANT DEVELOPED LOTS	FUTURE LOTS	OCCUPIED HOMES	TOTAL LOTS
10512	TARRANT	Bellaire Ridge	Active	Single Family	25	4	28	0	37	71
10512	TARRANT	Bellaire Village Townhomes	Active	Townhouse	3	3	48	0	3	54
10512	TARRANT	Pebble Creek Ridge	Active	Garden	0	0	6	0	16	22
10512 Total					**28**	**7**	**82**	**0**	**56**	**147**
10578	TARRANT	Whitestone Ranch	Active	Single Family	17	5	58	0	203	271
10578	TARRANT	Whitestone Heights	Active	Single Family	1	2	48	62	32	146
10578 Total					**18**	**7**	**106**	**62**	**235**	**417**
10656	TARRANT	Villages at Edgecliff	Active	Single Family	54	8	2	327	178	520
10656 Total					**54**	**8**	**2**	**327**	**178**	**520**
10701	TARRANT	Winchester Park	Active	Single Family	37	9	23	139	184	365
10701 Total					**37**	**9**	**23**	**139**	**184**	**365**
10735	TARRANT	Summer Creek Ranch	Active	Single Family	15	6	206	921	1,149	2,283
10735	TARRANT	Summer Creek South	Active	Single Family	15	6	49	69	366	495
10735	TARRANT	Stone Crossing	Active	Single Family	14	4	25	116	82	228
10735	TARRANT	Villages of Sunset Pointe	Active	Single Family	2	0	25	251	126	402
10735	TARRANT	Llano Springs	Active	Single Family	5	0	377	953	44	1,374
10735	TARRANT	Panther Heights	Active	Single Family	1	1	53	0	162	217
10735	TARRANT	Villages of Sunset South	Future	Single Family	0	0	0	253	0	253
10735	TARRANT	Cibolo Hills	Future	Single Family	0	0	0	118	0	118
10735	TARRANT	Claire Ridge Estates	Future	Single Family	0	0	0	40	0	40
10735 Total					**52**	**17**	**735**	**2,721**	**1,929**	**5,410**
10737	TARRANT	Meadow Creek South	Active	Single Family	0	0	119	0	424	543
10737	TARRANT	Garden Springs Addition	Active	Single Family	0	0	70	161	470	701
10737	TARRANT	Windsor Park (Ft Worth)	Active	Single Family	41	5	0	0	69	78
10737 Total					**41**	**5**	**189**	**161**	**963**	**1,322**
10741	TARRANT	Brookwood Park	Active	Single Family	2	0	60	174	231	465
10741 Total					**2**	**0**	**60**	**174**	**231**	**465**
10776	TARRANT	Rocky Creek Ranch	Active	Single Family	1	0	81	0	10	91
10776	TARRANT	Mustang Creek Estates	Active	Single Family	4	1	42	31	141	218
10776	TARRANT	Mustang Pointe	Active	Single Family	6	1	32	0	34	70
10776	TARRANT	Mustang Ranch on the Lake Addn	Future	Single Family	0	0	0	70	0	70
10776 Total					**11**	**2**	**155**	**101**	**185**	**449**
10780	TARRANT	Rainbow Ridge	Active	Single Family	0	1	164	766	189	1,120
10780	TARRANT	Parkview Estates (Ft Worth)	Active	Single Family	17	5	149	734	61	956
10780 Total					**17**	**6**	**313**	**1,500**	**250**	**2,076**
10781	TARRANT	McKeever Meadows	Future	Single Family	0	0	0	447	0	447
10781	TARRANT	Deer Creek Meadows	Future	Single Family	0	0	0	234	0	234
10781 Total					**0**	**0**	**0**	**681**	**0**	**681**
10783	TARRANT	Parks of Deer Creek, The	Active	Single Family	22	6	81	0	769	859
10783	TARRANT	Deer Creek North Addition	Active	Single Family	78	14	119	218	107	471
10783 Total					**100**	**20**	**200**	**218**	**876**	**1,330**
10806	TARRANT	Edgewood (Ft. Worth)	Active	Single Family	0	0	32	119	57	208
10806	TARRANT	Crescent Springs Ranch	Active	Single Family	46	6	88	124	218	442
10806 Total					**46**	**6**	**120**	**243**	**275**	**650**
10831	TARRANT	Coventry East	Active	Single Family	2	2	92	139	2	236
10831	TARRANT	Highpoint Hill	Future	Single Family	0	0	0	127	144	271
10831 Total					**2**	**2**	**92**	**266**	**146**	**507**
10854	TARRANT	Hampton Meadows Addition	Active	Single Family	0	0	10	20	3	33
10854	TARRANT	Mayfair Estates	Active	Single Family	5	1	47	73	46	168
10854 Total					**5**	**1**	**57**	**93**	**49**	**201**
10859	TARRANT	Mesa Vista	Active	Single Family	3	2	17	0	323	342
10859	TARRANT	Mira Mesa Estates	Active	Single Family	0	0	68	0	0	68
10859 Total					**3**	**2**	**85**	**0**	**323**	**410**
10861	TARRANT	Mistletoe Hill	Active	Single Family	26	5	221	285	478	990
10861 Total					**26**	**5**	**221**	**285**	**478**	**990**
10885	TARRANT	Deer Creek Estates	Active	Single Family	3	4	19	0	406	429
10885 Total					**3**	**4**	**19**	**0**	**406**	**429**
16005	JOHNSON	Rancho Vista Estates	Future	Single Family	0	0	0	32	0	32
16005 Total					**0**	**0**	**0**	**32**	**0**	**32**
16007	JOHNSON	Elk Ridge Estates	Active	Single Family	13	6	36	0	255	298
16007	JOHNSON	West Bend Addition	Active	Single Family	51	9	38	159	447	660
16007	JOHNSON	Meadow Crest Estates	Active	Single Family	0	1	2	0	281	284
16007 Total					**64**	**16**	**76**	**159**	**983**	**1,242**
16008	JOHNSON	Castle Hill Estates	Future	Single Family	0	0	0	12	103	115
16008 Total					**0**	**0**	**0**	**12**	**103**	**115**
16009	JOHNSON	Hampton Place Townhomes	Active	Townhouse	0	0	29	0	0	29
16009 Total					**0**	**0**	**29**	**0**	**0**	**29**
16026	JOHNSON	Wakefield	Active	Single Family	36	3	33	0	475	519
16026	JOHNSON	Shannon Creek (Burleson)	Active	Single Family	17	5	37	340	115	499
16026	JOHNSON	Shannon Creek Estates Townhomes	Future	Townhouse	0	0	0	420	0	420
16026 Total					**53**	**8**	**70**	**760**	**590**	**1,438**
16028	JOHNSON	Senter Meadows	Active	Single Family	0	1	6	53	12	72

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TAP	COUNTY	SUBDIVISION	STATUS	CONSTRUCTION TYPE	ANNUAL CLOSINGS	FINISHED VACANT	VACANT DEVELOPED LOTS	FUTURE LOTS	OCCUPIED HOMES	TOTAL LOTS
16028	JOHNSON	Hidden Vistas	Active	Single Family	5	2	71	157	6	238
16028	JOHNSON	Senter Meadows Duplex	Active	Single Family	2	0	16	0	8	24
16028	JOHNSON	Valley Crest Estates (Burleson)	Active	Single Family	0	4	32	10	6	52
16028	JOHNSON	Heritage Village (Burleson)	Future	Single Family	0	0	0	231	0	231
16028	JOHNSON	Heritage Village - Townhomes	Future	Townhouse	0	0	0	18	0	18
16028 Total					**7**	**7**	**125**	**469**	**32**	**635**
16032	JOHNSON	Hidden Creek Estates (Burleson)	Active	Single Family	23	3	25	0	178	211
16032 Total					**23**	**3**	**25**	**0**	**178**	**211**
16050	JOHNSON	Mountain Valley/Willow Creek Ranch	Active	Single Family	0	0	6	0	52	58
16050	JOHNSON	Bluebird Meadows	Active	Single Family	0	0	79	132	0	211
16050 Total					**0**	**0**	**85**	**132**	**52**	**269**
16053	JOHNSON	Vinewood Addition	Active	Single Family	5	1	12	137	199	349
16053 Total					**5**	**1**	**12**	**137**	**199**	**349**
16062	JOHNSON	Mountain Valley/Lake	Active	Single Family	7	2	62	0	208	274
16062	JOHNSON	Oakmont Estates	Active	Single Family	1	0	8	0	7	15
16062	JOHNSON	Mountain Valley/Country Club Estates	Future	Single Family	0	0	0	668	0	668
16062 Total					**8**	**2**	**70**	**668**	**215**	**957**
16063	JOHNSON	Kingston Manor	Future	Single Family	0	0	0	39	0	39
16063 Total					**0**	**0**	**0**	**39**	**0**	**39**
16066	JOHNSON	Hillberg Addition	Active	Single Family	0	0	2	0	1	3
16066	JOHNSON	Briar Meadows Estates	Future	Single Family	0	0	0	30	0	30
16066 Total					**0**	**0**	**2**	**30**	**1**	**33**
16070	JOHNSON	Devonshire Village	Active	Single Family	2	0	9	0	22	32
16070	JOHNSON	Sherwood Forest (Johnson Co)	Future	Single Family	0	0	0	118	0	118
16070 Total					**2**	**0**	**9**	**118**	**22**	**150**
16078	JOHNSON	Cooper Valley	Active	Single Family	15	2	33	34	74	144
16078 Total					**15**	**2**	**33**	**34**	**74**	**144**
30167	TARRANT	Riverbend West Addition	Future	Single Family	0	0	0	148	0	148
30167 Total					**0**	**0**	**0**	**148**	**0**	**148**
30203	TARRANT	Ridgeview	Active	Single Family	3	3	70	102	139	314
30203	TARRANT	Summer Creek Meadows	Future	Single Family	0	0	0	37	298	335
30203 Total					**3**	**3**	**70**	**139**	**437**	**649**
30204	TARRANT	Trail Lake Addition	Future	Duplex	0	0	0	34	0	34
30204 Total					**0**	**0**	**0**	**34**	**0**	**34**
30205	TARRANT	Trails of Willow Creek	Active	Single Family	14	4	20	0	225	250
30205	TARRANT	Children's Courtyard	Active	Single Family	0	0	12	0	10	22
30205 Total					14	4	32	0	235	272
40022	TARRANT	Shady Valley (Benbrook)	Active	Single Family	4	2	1	0	19	22
40022	TARRANT	Palomino Estates	Active	Single Family	0	0	5	0	27	32
40022	TARRANT	Chapin Commons Addition	Active	Townhouse	0	0	33	0	0	33
40022 Total					**4**	**2**	**39**	**0**	**46**	**87**
40172	TARRANT	Clements Pond Estates	Future	Single Family	0	0	0	45	0	45
40172 Total					**0**	**0**	**0**	**45**	**0**	**45**
40175	TARRANT	Sycamore Pointe Addition	Active	Single Family	2	0	25	0	108	133
40175	TARRANT	South Fork Addition	Active	Single Family	0	0	102	0	13	115
40175	TARRANT	Village Parks	Active	Single Family	0	0	78	195	106	379
40175	TARRANT	Matador Ranch	Active	Single Family	27	2	55	77	123	264
40175 Total					**29**	**2**	**260**	**272**	**350**	**891**
40176	TARRANT	Lakeview Highpoint	Active	Single Family	0	0	3	0	2	5
40176 Total					**0**	**0**	**3**	**0**	**2**	**5**
40178	TARRANT	Team Ranch/La Cantera	Active	Single Family	1	0	29	27	12	68
40178	TARRANT	Team Ranch/La Vista	Future	Single Family	0	0	0	60	0	60
40178 Total					**1**	**0**	**29**	**87**	**12**	**128**
40179	TARRANT	Tiffany Gardens	Active	Single Family	0	0	38	90	73	201
40179	TARRANT	Westland Acres	Future	Single Family	0	0	0	31	0	31
40179 Total					**0**	**0**	**38**	**121**	**73**	**232**
40180	TARRANT	Skyline Ranch	Active	Single Family	25	3	42	235	108	394
40180	TARRANT	Brookside (Benbrook)	Active	Single Family	28	1	51	213	52	319
40180 Total					**53**	**4**	**93**	**448**	**160**	**713**
40183	TARRANT	River Crest Landing	Active	Single Family	0	1	2	0	19	23
40183 Total					**0**	**1**	**2**	**0**	**19**	**23**
40186	TARRANT	Chamberlin Townhomes	Active	Townhouse	5	1	4	0	18	23
40186	TARRANT	Chamberlin Arlington Heights	Active	Townhouse	9	1	8	0	18	28
40186	TARRANT	Hill Crest Addition (COFW-W)	Active	Townhouse	0	0	5	0	2	7
40186 Total					**14**	**2**	**17**	**0**	**38**	**58**
40305	TARRANT	Cottonwood Creek	Active	Single Family	0	0	11	0	25	36
40305 Total					**0**	**0**	**11**	**0**	**25**	**36**
40306	TARRANT	Remington Point Estates	Active	Single Family	7	2	48	0	845	896
40306	TARRANT	Terrace Landing	Active	Single Family	84	3	29	235	195	476
40306 Total					**91**	**5**	**77**	**235**	**1,040**	**1,372**
40319	TARRANT	Strawberry Creek Estates	Active	Single Family	0	0	10	0	30	40
40319 Total					**0**	**0**	**10**	**0**	**30**	**40**

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Metrostudy Housing Report 4Q10
by TAP Zone

TAP	COUNTY	SUBDIVISION	STATUS	CONSTRUCTION TYPE	ANNUAL CLOSINGS	FINISHED VACANT	VACANT DEVELOPED LOTS	FUTURE LOTS	OCCUPIED HOMES	TOTAL LOTS
40329	TARRANT	Caballito del Mar	Active	Single Family	3	0	52	0	131	185
40329	TARRANT	Villages at Marine Creek	Future	Single Family	0	0	0	1,145	0	1,145
40329 Total					**3**	**0**	**52**	**1,145**	**131**	**1,330**
40330	TARRANT	Marine Creek Meadows	Active	Single Family	0	0	16	0	340	356
40330 Total					**0**	**0**	**16**	**0**	**340**	**356**
40332	JOHNSON	Buffalo Run	Active	Single Family	0	0	4	8	2	14
40332 Total					**0**	**0**	**4**	**8**	**2**	**14**
40730	TARRANT	Scenic Village	Active	Single Family	0	0	9	0	15	24
40730 Total					**0**	**0**	**9**	**0**	**15**	**24**
40733	TARRANT	Quarry South, The	Future	Single Family	0	0	0	501	0	501
40733 Total					**0**	**0**	**0**	**501**	**0**	**501**
40740	TARRANT	River Gardens	Active	Patio	0	0	57	0	52	109
40740 Total					**0**	**0**	**57**	**0**	**52**	**109**
40744	TARRANT	Park, The	Active	Townhouse	0	0	10	0	10	20
40744 Total					**0**	**0**	**10**	**0**	**10**	**20**
40749	TARRANT	Palisades (FTW North)	Active	Townhouse	1	6	0	0	33	40
40749 Total					**1**	**6**	**0**	**0**	**33**	**40**
40760	TARRANT	Meadowbrook Heights	Future	Single Family	0	0	0	30	0	30
40760 Total					**0**	**0**	**0**	**30**	**0**	**30**
40812	TARRANT	Idlewild Addition	Active	Single Family	2	0	11	0	7	18
40812 Total					**2**	**0**	**11**	**0**	**7**	**18**
40813	TARRANT	William J. Bailey Addn.	Active	Townhouse	1	5	7	0	3	15
40813 Total					**1**	**5**	**7**	**0**	**3**	**15**
40819	TARRANT	Giverny Addition TH	Active	Townhouse	5	0	19	0	10	34
40819 Total					**5**	**0**	**19**	**0**	**10**	**34**
40849	TARRANT	Rolling Hills (COFW-SE)	Active	Single Family	5	5	139	0	9	155
40849 Total					**5**	**5**	**139**	**0**	**9**	**155**
40898	TARRANT	Ridgmar Estates	Active	Single Family	1	0	2	0	72	74
40898 Total					**1**	**0**	**2**	**0**	**72**	**74**
40911	TARRANT	Oakhill Vista Addition	Future	Single Family	0	0	0	145	0	145
40911 Total					**0**	**0**	**0**	**145**	**0**	**145**
40920	TARRANT	Springlake Park	Active	Single Family	7	5	28	0	81	115
40920 Total					**7**	**5**	**28**	**0**	**81**	**115**
40927	TARRANT	Meadow Lakes (Ft. Worth)	Active	Single Family	1	0	70	192	38	300
40927	TARRANT	Boat Club Estates	Active	Single Family	0	1	32	0	13	46
40927 Total					**1**	**1**	**102**	**192**	**51**	**346**
40933	TARRANT	Westworth Park	Active	Single Family	2	2	31	0	70	103
40933 Total					**2**	**2**	**31**	**0**	**70**	**103**
40938	TARRANT	Sienna Hills	Future	Single Family	0	0	0	564	0	564
40938	TARRANT	Amber Trails	Future	Single Family	0	0	0	277	117	394
40938 Total					**0**	**0**	**0**	**841**	**117**	**958**
40939	TARRANT	Homestead (Fort Worth)	Active	Single Family	24	5	31	931	75	1,044
40939 Total					**24**	**5**	**31**	**931**	**75**	**1,044**
40940	TARRANT	Lost Creek	Active	Single Family	1	0	59	35	454	550
40940 Total					**1**	**0**	**59**	**35**	**454**	**550**
40941	TARRANT	Montserrat	Active	Single Family	16	6	102	0	80	202
40941 Total					**16**	**6**	**102**	**0**	**80**	**202**
40943	TARRANT	Wellington Point	Active	Single Family	0	2	106	121	5	235
40943	TARRANT	Rosemary Ridge Addition	Active	Single Family	15	0	143	549	92	784
40943 Total					**15**	**2**	**249**	**670**	**97**	**1,019**
40945	TARRANT	Lasater Ranch	Active	Single Family	21	7	29	144	297	479
40945	TARRANT	Creekside (Crowley)	Active	Single Family	33	12	224	326	340	906
40945	TARRANT	Creekside Duplexes	Active	Duplex	0	0	38	0	54	92
40945	TARRANT	Park Meadows Addn. (Crowley)	Active	Single Family	6	1	2	0	178	181
40945	TARRANT	Bridges of Deer Creek	Future	Single Family	0	0	0	622	0	622
40945 Total					**60**	**20**	**293**	**1,092**	**869**	**2,280**
40949	TARRANT	Randall Thomas Place	Active	Single Family	0	0	20	0	0	20
40949 Total					**0**	**0**	**20**	**0**	**0**	**20**
41018	TARRANT	Bonita Oaks Estates	Active	Single Family	3	1	11	0	41	53
41018 Total					**3**	**1**	**11**	**0**	**41**	**53**
41019	TARRANT	Pecan Valley (NW Tarrant)	Active	Single Family	5	0	12	0	33	46
41019 Total					**5**	**0**	**12**	**0**	**33**	**46**
41020	TARRANT	Wolf Creek Estates (Lakeside)	Active	Single Family	2	0	7	0	66	73
41020	TARRANT	Lakeside Hills	Active	Single Family	0	0	5	91	15	111
41020 Total					**2**	**0**	**12**	**91**	**81**	**184**
41056	JOHNSON	Prairie Timber Estates	Active	Single Family	4	1	135	0	17	157
41056	JOHNSON	Mountain Valley/Heights	Active	Single Family	7	0	1	0	173	174
41056	JOHNSON	Willow Creek Crossing	Future	Single Family	0	0	0	161	0	161
41056	JOHNSON	Oak Meadows (Johnson Co)	Future	Single Family	0	0	0	72	0	72
41056	JOHNSON	Belle Oak Estates	Future	Single Family	0	0	0	31	0	31
41056 Total					**11**	**1**	**136**	**264**	**190**	**595**
41057	JOHNSON	Bent Creek Farms	Active	Single Family	0	0	8	34	14	56

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by TAP Zone

TAP	COUNTY	SUBDIVISION	STATUS	CONSTRUCTION TYPE	ANNUAL CLOSINGS	FINISHED VACANT	VACANT DEVELOPED LOTS	FUTURE LOTS	OCCUPIED HOMES	TOTAL LOTS
41057 Total					**0**	**0**	**8**	**34**	**14**	**56**
41185	TARRANT	Cattlebaron Parc	Active	Single Family	2	0	28	0	93	122
41185	TARRANT	Live Oak Creek	Active	Single Family	26	5	176	585	44	822
41185	TARRANT	Estancia	Active	Single Family	4	0	16	241	30	288
41185	TARRANT	La Cantera West	Active	Single Family	7	0	40	0	58	99
41185 Total					**39**	**5**	**260**	**826**	**225**	**1,331**
41186	TARRANT	Lake Vista Addition	Active	Single Family	9	2	41	0	32	76
41186	TARRANT	Silver Oaks - White Settlement	Future	Single Family	0	0	0	670	0	670
41186 Total					**9**	**2**	**41**	**670**	**32**	**746**
41187	TARRANT	Falcon Ridge	Active	Single Family	12	3	47	0	383	437
41187 Total					**12**	**3**	**47**	**0**	**383**	**437**
41201	TARRANT	Oaks of Aledo	Active	Single Family	0	0	4	0	12	16
41201	TARRANT	Bella Flora	Active	Single Family	5	5	58	0	20	87
41201	TARRANT	Bella Ranch	Active	Single Family	0	0	69	0	0	72
41201	TARRANT	Whitestone Crest Add.	Future	Single Family	0	0	0	169	0	169
41201 Total					**5**	**5**	**131**	**169**	**32**	**344**
41202	TARRANT	Deer Wood Forest	Active	Single Family	2	1	16	0	61	80
41202	TARRANT	Pearl Ranch Estates	Active	Single Family	2	0	7	0	26	33
41202	TARRANT	Lake Ridge Addition	Active	Single Family	0	0	10	0	28	38
41202 Total					**4**	**1**	**33**	**0**	**115**	**151**
Grand Total					**1,317**	**313**	**6,577**	**22,753**	**18,867**	**48,767**

NCTCOG Development Database Report for AOI – April 2011

NCTCOG Development Monitoring
by TAP zone

TSZ	COUNTY	NAME	SUBCLASS	CITY	STATUS	SIZE	SIZE TYPE
9350	TARRANT	GREENFIELD ELEMENTARY	Education	Fort Worth	EXISTING	607	STUDENTS
9350	TARRANT	ED WILLKIE MIDDLE SCHOOL	Education	Fort Worth	UNDER CONSTRUCTION	0	SQUARE FT.
9350	TARRANT	PARKVIEW ELEMENTARY	Education	Fort Worth	EXISTING	0	SQUARE FT.
9359	TARRANT	UNITED REFRIGERATION INC	Industrial	Fort Worth	EXISTING	130,000	SQUARE FT.
9359	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	94,010	SQUARE FT.
9359	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	98,150	SQUARE FT.
9359	TARRANT	CAVALIER TOWN & COUNTRY MOBILE HOMES (CLOSED)	Industrial	Fort Worth	VACANT	103,061	SQUARE FT.
9359	TARRANT	GEORGIA PACIFIC	Industrial	Fort Worth	EXISTING	156,431	SQUARE FT.
9365	TARRANT	SNOW HEIGHTS ELEMENTARY	Education	North Richland Hills	EXISTING	322	STUDENTS
9365	TARRANT	NORTH RICHLAND MIDDLE SCHOOL	Education	North Richland Hills	EXISTING	865	STUDENTS
9365	TARRANT	NORTH HILLS VILLAGE S/C	Retail	North Richland Hills	EXISTING	137,353	SQUARE FT.
9365	TARRANT	BEST BUY	Retail	North Richland Hills	EXISTING	137,353	SQUARE FT.
9412	TARRANT	AMERICAN IRONHORSE BLDG	Industrial	Fort Worth	EXISTING	405,280	SQUARE FT.
9412	TARRANT	CHARTER COMMUNICATIONS	Office	Fort Worth	EXISTING	26,676	SQUARE FT.
9415	TARRANT	UNITED STATES POSTAL SERVICE	Industrial	Fort Worth	EXISTING	362,702	SQUARE FT.
9415	TARRANT	TTI INC	Industrial	Fort Worth	EXISTING	271,466	SQUARE FT.
9416	TARRANT	BUDGET SUITES	Lodge	Fort Worth	EXISTING	366	RMS
9416	TARRANT	MERCANTILE DISTRIBUTION 16	Industrial	Fort Worth	EXISTING	136,900	SQUARE FT.
9416	TARRANT	NORTHERN CROSS WEST BUSINESS PARK	Industrial	Fort Worth	EXISTING	408,850	SQUARE FT.
9416	TARRANT	MERCANTILE DISTRIBUTION CENTER 12	Industrial	Fort Worth	EXISTING	121,700	SQUARE FT.
9416	TARRANT	MERCANTILE DISTRIBUTION CENTER 13	Industrial	Fort Worth	EXISTING	121,700	SQUARE FT.
9416	TARRANT	MERCANTILE DISTRIBUTION 17	Industrial	Fort Worth	EXISTING	182,400	SQUARE FT.
9416	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	103,000	SQUARE FT.
9416	TARRANT	LEO'S FOODS	Industrial	Fort Worth	EXISTING	100,000	SQUARE FT.
9416	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	106,500	SQUARE FT.
9416	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	106,500	SQUARE FT.
9416	TARRANT	GLOBAL GROUP INC	Industrial	Fort Worth	EXISTING	124,341	SQUARE FT.
9416	TARRANT	MERCANTILE DISTRIBUTION CENTER 11	Industrial	Fort Worth	EXISTING	137,500	SQUARE FT.
9416	TARRANT	MERCANTILE VII	Office	Fort Worth	EXISTING	80,000	SQUARE FT.
9416	TARRANT	SPRINT PCS CALL CENTER	Office	Fort Worth	EXISTING	151,280	SQUARE FT.
9416	TARRANT	CARTER BURGESS (MERCANTILE CENTER ONE)	Office	Fort Worth	EXISTING	115,165	SQUARE FT.
9418	TARRANT	NORTH OAKS MIDDLE SCHOOL	Education	Haltom City	EXISTING	477	STUDENTS
9419	TARRANT	STATE FAIR FOODS	Industrial	Haltom City	EXISTING	151,068	SQUARE FT.
9419	TARRANT	MEDTRONIC	Industrial	Haltom City	EXISTING	123,968	SQUARE FT.
9419	TARRANT	SARA LEE	Industrial	Haltom City	EXISTING	182,000	SQUARE FT.
9419	TARRANT	STATE FAIR FOODS DISTRIBUTION	Industrial	Haltom City	EXISTING	182,000	SQUARE FT.
9423	TARRANT	STOWE, O.H. ELEMENTARY	Education	Haltom City	EXISTING	489	STUDENTS
9423	TARRANT	LIBERTY CARTON CO. INC	Industrial	Haltom City	EXISTING	230,260	SQUARE FT.
9426	TARRANT	MULLENDORE, ALLIENE ELEMENTARY	Education	North Richland Hills	EXISTING	433	STUDENTS
9426	TARRANT	KROGER	Retail	North Richland Hills	EXISTING	104,921	SQUARE FT.
9428	TARRANT	NORTH HILLS HOSPITAL	Institutional	North Richland Hills	EXISTING	171	BEDS
9467	TARRANT	HOME DEPOT	Retail	Lake Worth	EXISTING	130,000	SQUARE FT.
9467	TARRANT	WAL-MART	Retail	Lake Worth	EXISTING	179,954	SQUARE FT.
9467	TARRANT	TARGET	Retail	Lake Worth	EXISTING	422,700	SQUARE FT.
9467	TARRANT	LAKE WORTH TOWNE CROSSING	Retail	Lake Worth	EXISTING	422,700	SQUARE FT.
9480	TARRANT	MOORE, M. H. ELEMENTARY	Education	Fort Worth	EXISTING	342	STUDENTS
9483	TARRANT	COORS DISTRIBUTION	Industrial	Fort Worth	EXISTING	112,670	SQUARE FT.
9483	TARRANT	MERCANTILE PLAZA	Office	Fort Worth	EXISTING	103,938	SQUARE FT.
9483	TARRANT	MERCANTILE TECH CENTER I	Office	Fort Worth	EXISTING	85,557	SQUARE FT.
9490	TARRANT	HALTOM CITY S/C	Retail	Haltom City	EXISTING	151,669	SQUARE FT.
9490	TARRANT	KROGER	Retail	Haltom City	EXISTING	151,669	SQUARE FT.
9491	TARRANT	WINFREE ACADEMY NRH	Education	North Richland Hills	EXISTING	272	STUDENTS
9491	TARRANT	Commercial Development	Office	North Richland Hills	EXISTING	299,196	SQUARE FT.
9537	TARRANT	BARATO BAZAAR	Retail	Fort Worth	EXISTING	149,328	SQUARE FT.
9554	TARRANT	NORTHSIDE S/C	Retail	Fort Worth	EXISTING	80,245	SQUARE FT.
9554	TARRANT	FIESTA MART S/C	Retail	Fort Worth	EXISTING	103,760	SQUARE FT.
9556	TARRANT	MEACHAM, W. A. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	708	STUDENTS
9556	TARRANT	DIAMOND HILL- JARVIS HIGH SCHOOL	Education	Fort Worth	EXISTING	887	STUDENTS
9557	TARRANT	DIAMOND HILL	Education	Fort Worth	EXISTING	686	STUDENTS
9570	TARRANT	HALTOM PLAZA CENTER	Retail	Haltom City	EXISTING	192,370	SQUARE FT.
9572	TARRANT	SHANNON LEARNING CENTER	Education	Haltom City	EXISTING	0	SQUARE FT.
9572	TARRANT	BIRDVILLE ELEMENTARY	Education	Haltom City	EXISTING	417	STUDENTS
9573	TARRANT	SOUTH BIRDVILLE ELEMENTARY	Education	Haltom City	EXISTING	418	STUDENTS
9575	TARRANT	RICHLAND ELEMENTARY	Education	Richland Hills	EXISTING	448	STUDENTS
9575	TARRANT	MIDWAY BUSINESS PARK	Industrial	Richland Hills	EXISTING	840,000	SQUARE FT.
9575	TARRANT	7500 BAKER (FORMER SAM'S CLUB)	Retail	Richland Hills	EXISTING	106,000	SQUARE FT.
9576	TARRANT	VALLEY-DYNAMO CORP (BRUNSWICK)	Industrial	Richland Hills	EXISTING	112,473	SQUARE FT.

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NCTCOG Development Monitoring
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TSZ	COUNTY	NAME	SUBCLASS	CITY	STATUS	SIZE	SIZE TYPE
9576	TARRANT	COAST DISTRIBUTION	Industrial	Richland Hills	EXISTING	113,708	SQUARE FT.
9576	TARRANT	USF DISTRIBUTION	Industrial	Richland Hills	EXISTING	96,896	SQUARE FT.
9576	TARRANT	Commercial Development	Industrial	Richland Hills	EXISTING	175,198	SQUARE FT.
9577	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	99,520	SQUARE FT.
9577	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	251,425	SQUARE FT.
9577	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	134,451	SQUARE FT.
9577	TARRANT	WATERMASTERS RESTORATION	Industrial	Fort Worth	EXISTING	94,357	SQUARE FT.
9577	TARRANT	INTERNATIONAL MARBLE COLLECTION	Industrial	Fort Worth	EXISTING	84,000	SQUARE FT.
9577	TARRANT	RIVERBEND BLDG 22	Industrial	Fort Worth	EXISTING	100,000	SQUARE FT.
9577	TARRANT	TYCO HEALTHCARE GROUP L P	Industrial	Fort Worth	EXISTING	255,200	SQUARE FT.
9577	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	142,900	SQUARE FT.
9578	TARRANT	MBM FOODS/HUNTINGTON TILE	Industrial	Fort Worth	EXISTING	456,159	SQUARE FT.
9595	TARRANT	LOCKHEED MARTIN CORP	Industrial	Fort Worth	EXISTING	4,000,000	SQUARE FT.
9596	TARRANT	NAS FORT WORTH JOINT RESERVE BASE	Government	Fort Worth	EXISTING	12,000	SQUARE FT.
9602	TARRANT	SAV-A-LOT, DOLLAR GENERAL	Retail	Fort Worth	EXISTING	123,131	SQUARE FT.
9614	TARRANT	JARA, MANUEL ELEMENTARY	Education	Fort Worth	EXISTING	704	STUDENTS
9617	TARRANT	Commercial Development	Industrial	Fort Worth	VACANT	178,359	SQUARE FT.
9617	TARRANT	FORT WORTH STOCKYARDS	Retail	Fort Worth	EXISTING	85,000	SQUARE FT.
9618	TARRANT	ELLIS, M.G. PRIMARY	Education	Fort Worth	EXISTING	483	STUDENTS
9634	TARRANT	RIVERSIDE MIDDLE SCHOOL	Education	Fort Worth	EXISTING	919	STUDENTS
9634	TARRANT	AMON CARTER RIVERSIDE HIGH SCHOOL	Education	Fort Worth	EXISTING	953	STUDENTS
9636	TARRANT	SAV-A-LOT S/C	Retail	Haltom City	EXISTING	112,696	SQUARE FT.
9642	TARRANT	PROGRESSIVE CONCEPTS INC	Industrial	Haltom City	EXISTING	56,666	SQUARE FT.
9642	TARRANT	LEWIS & LAMBERT LLLP	Industrial	Haltom City	EXISTING	67,685	SQUARE FT.
9666	TARRANT	TANNAHILL INTERMEDIATE	Education	Fort Worth	EXISTING	800	STUDENTS
9669	TARRANT	NORTH ELEMENTARY (MOVED)	Education	White Settlement	VACANT	826	STUDENTS
9686	TARRANT	MENDOZA, RUGINO ELEMENTARY	Education	Fort Worth	EXISTING	451	STUDENTS
9699	TARRANT	TINDALL RECORD STORAGE	Industrial	Fort Worth	EXISTING	128,000	SQUARE FT.
9705	TARRANT	OAKHURST ELEMENTARY	Education	Fort Worth	EXISTING	689	STUDENTS
9708	TARRANT	WAL-MART SUPERCENTER	Retail	Fort Worth	EXISTING	205,254	SQUARE FT.
9713	TARRANT	MELVIN EVANS WAREHOUSE	Industrial	Fort Worth	EXISTING	700,000	SQUARE FT.
9719	TARRANT	REMINGTON COLLEGE	Education	Fort Worth	EXISTING	1,014	STUDENTS
9719	TARRANT	HOME DEPOT	Retail	Fort Worth	EXISTING	111,840	SQUARE FT.
9740	TARRANT	WEST ELEMENTARY	Education	White Settlement	EXISTING	547	STUDENTS
9740	TARRANT	RX.COM	Office	White Settlement	CLOSED	100,000	SQUARE FT.
9745	TARRANT	LIBERTY ELEMENTARY	Education	White Settlement	EXISTING	508	STUDENTS
9749	TARRANT	RIDGMAR TOWN SQUARE SHOPPING CENTER	Retail	Westworth Village	UNDER CONSTRUCTION	363,000	SQUARE FT.
9749	TARRANT	LOWE'S HOME IMPROVEMENT	Retail	White Settlement	EXISTING	115,000	SQUARE FT.
9765	TARRANT	M & M MANUFACTURING COMPANY	Industrial	Fort Worth	EXISTING	55,750	SQUARE FT.
9765	TARRANT	SUPER TARGET	Retail	Fort Worth	EXISTING	173,890	SQUARE FT.
9765	TARRANT	MONTGOMERY PLAZA	Retail	Fort Worth	EXISTING	512,158	SQUARE FT.
9765	TARRANT	Montgomery Plaza Strip Center	Retail	Fort Worth	EXISTING	512,158	SQUARE FT.
9768	TARRANT	CASH AMERICA	Office	Fort Worth	EXISTING	165,000	SQUARE FT.
9768	TARRANT	PIER 1 IMPORTS HEADQUARTERS	Office	Fort Worth	EXISTING	460,000	SQUARE FT.
9771	TARRANT	TARRANT COUNTY CRIMINAL COURTS BUILDING	Government	Fort Worth	EXISTING	71,093	SQUARE FT.
9771	TARRANT	FORT WORTH POLICE HEADQUARTERS	Government	Fort Worth	EXISTING	282,982	SQUARE FT.
9771	TARRANT	RADIO SHACK	Office	Fort Worth	CLOSED	900,000	SQUARE FT.
9797	TARRANT	ONE CITY PLACE	Office	Fort Worth	ANNOUNCED	330,274	SQUARE FT.
9797	TARRANT	TWO CITY PLACE	Office	Fort Worth	ANNOUNCED	469,584	SQUARE FT.
9804	TARRANT	CHASE TOWER (NEW)	Office	Fort Worth	EXISTING	201,123	SQUARE FT.
9808	TARRANT	RENAISSANCE WORTHINGTON	Lodge	Fort Worth	EXISTING	504	RMS
9815	TARRANT	WELLS FARGO TOWER	Office	Fort Worth	EXISTING	716,533	SQUARE FT.
9821	TARRANT	SINCLAIR BUILDING	Office	Fort Worth	EXISTING	95,000	SQUARE FT.
9821	TARRANT	STS TOWER	Office	Fort Worth	EXISTING	916,418	SQUARE FT.
9828	TARRANT	D. R. HORTON TOWER	Office	Fort Worth	EXISTING	820,509	SQUARE FT.
9829	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	87,613	SQUARE FT.
9837	TARRANT	CARTER BURGESS PLAZA	Office	Fort Worth	EXISTING	954,895	SQUARE FT.
9858	TARRANT	TERRELL, I. M. ELEMENTARY	Education	Fort Worth	EXISTING	233	STUDENTS
9922	TARRANT	WHITE SERTTLEMENT ISD	Education	White Settlement	EXISTING	0	SQUARE FT.
9923	TARRANT	HOME DEPOT (CLOSED)	Retail	White Settlement	VACANT	136,933	SQUARE FT.
9924	TARRANT	BREWER, C. F. HIGH	Education	White Settlement	EXISTING	1,328	STUDENTS
9924	TARRANT	BREWER, C. F. MIDDLE	Education	White Settlement	EXISTING	787	STUDENTS
9926	TARRANT	RIDGMAR MALL	Retail	Fort Worth	EXISTING	1,277,000	SQUARE FT.
9926	TARRANT	DILLARDS	Retail	Fort Worth	EXISTING	1,277,000	SQUARE FT.
9926	TARRANT	JC PENNEY	Retail	Fort Worth	EXISTING	1,277,000	SQUARE FT.
9926	TARRANT	FOLEYS	Retail	Fort Worth	EXISTING	1,277,000	SQUARE FT.
9927	TARRANT	RIDGMAR TOWN SQUARE	Retail	Fort Worth	EXISTING	406,342	SQUARE FT.
9928	TARRANT	ONE RIDGMAR CENTRE	Office	Fort Worth	EXISTING	169,966	SQUARE FT.

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9928	TARRANT	PLAZA AT RIDGMAR CTR,THE	Retail	Fort Worth	EXISTING	150,000	SQUARE FT.
9928	TARRANT	ALBERTSONS	Retail	Fort Worth	EXISTING	150,000	SQUARE FT.
9928	TARRANT	BEST BUY	Retail	Fort Worth	EXISTING	150,000	SQUARE FT.
9930	TARRANT	COMPUTER SCIENCES CORP, WESTERN PLACE I	Office	Fort Worth	EXISTING	210,000	SQUARE FT.
9930	TARRANT	WESTERN PLACE II	Office	Fort Worth	EXISTING	210,226	SQUARE FT.
9946	TARRANT	NORTH HI MOUNT ELEMENTARY	Education	Fort Worth	EXISTING	278	STUDENTS
9946	TARRANT	UNT HEALTH SCIENCE CLASS OFC	Education	Fort Worth	CLOSED	195,000	SQUARE FT.
9946	TARRANT	OSTEOPATHIC MEDICAL CENTER (DEMOLISHED)	Institutional	Fort Worth	DEMOLISHED	265	BEDS
9948	TARRANT	BOTANICAL RESEARCH INSTITUTE	Education	Fort Worth	ANNOUNCED	80,000	SQUARE FT.
9948	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	107,113	SQUARE FT.
9949	TARRANT	UNT College of Osteopathic Medicine	Education	Fort Worth	EXISTING	1,390	STUDENTS
9949	TARRANT	UNT Health Science Center at Fort Worth	Education	Fort Worth	CLOSED	1,390	STUDENTS
9950	TARRANT	AMON CARTER MUSEUM	Cultural	Fort Worth	EXISTING	109,000	SQUARE FT.
9950	TARRANT	KIMBELL ART MUSEUM	Cultural	Fort Worth	EXISTING	120,000	SQUARE FT.
9950	TARRANT	MODERN ART MUSEUM OF FORT WORTH	Cultural	Fort Worth	EXISTING	153,000	SQUARE FT.
9951	TARRANT	WEST 7TH PHASE II	Retail	Fort Worth	UNDER CONSTRUCTION	25,000	DU
9951	TARRANT	WEST 7TH	Office	Fort Worth	EXISTING	106,000	SQUARE FT.
9951	TARRANT	Commercial Development	Retail	Fort Worth	EXISTING	261,730	SQUARE FT.
9953	TARRANT	PARK PLAZA	Office	Fort Worth	EXISTING	115,600	SQUARE FT.
9953	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	38,307	SQUARE FT.
9953	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	29,353	SQUARE FT.
9963	TARRANT	DANNON CO	Industrial	Fort Worth	EXISTING	204,815	SQUARE FT.
9983	TARRANT	T & P WAREHOUSE (VACANT)	Industrial	Fort Worth	CLOSED	549,000	SQUARE FT.
9984	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	21,548	SQUARE FT.
10003	TARRANT	BURNETT PLAZA	Office	Fort Worth	EXISTING	1,024,627	SQUARE FT.
10008	TARRANT	BANK OF AMERICA BUILDING	Office	Fort Worth	EXISTING	277,140	SQUARE FT.
10012	TARRANT	FORT WORTH STAR-TELEGRAM	Office	Fort Worth	EXISTING	109,300	SQUARE FT.
10019	TARRANT	LANHAM, FRITZ G FED BUILDING	Government	Fort Worth	EXISTING	0	SQUARE FT.
10019	TARRANT	OIL & GAS/COMMERCE BLDG	Office	Fort Worth	EXISTING	636,292	SQUARE FT.
10024	TARRANT	WLLIAMSON-DICKIE MFG CO	Industrial	Fort Worth	EXISTING	121,824	SQUARE FT.
10024	TARRANT	JUSTIN BOOT COMPANY	Industrial	Fort Worth	EXISTING	101,510	SQUARE FT.
10024	TARRANT	510 S MAIN (DEMOLITON) (FORMERLY MOTHERAL)	Industrial	Fort Worth	CONCEPTUAL	82,972	SQUARE FT.
10027	TARRANT	FORT WORTH CITY HALL	Government	Fort Worth	EXISTING	214,240	SQUARE FT.
10029	TARRANT	SIMPSON, BOB R. BUILDING	Office	Fort Worth	EXISTING	107,525	SQUARE FT.
10029	TARRANT	XTO ENERGY	Office	Fort Worth	UNDER CONSTRUCTION	180,000	SQUARE FT.
10031	TARRANT	AT&T	Office	Fort Worth	EXISTING	745,109	SQUARE FT.
10032	TARRANT	ONCOR BUILDING	Office	Fort Worth	ANNOUNCED	157,257	SQUARE FT.
10039	TARRANT	HILTON FORT WORTH	Lodge	Fort Worth	EXISTING	294	RMS
10040	TARRANT	SHERATON HOTEL	Lodge	Fort Worth	EXISTING	430	RMS
10040	TARRANT	FORT WORTH CONVENTION CENTER	Recreation	Fort Worth	EXISTING	714,000	SQUARE FT.
10055	TARRANT	VAN ZANDT-GUNN ELEMENTARY	Education	Fort Worth	EXISTING	264	STUDENTS
10080	TARRANT	MEADOWBROOK ELEMENTARY SCHOOL	Education	Fort Worth	EXISTING	833	STUDENTS
10081	TARRANT	SAGAMORE HILL ELEMENTARY	Education	Fort Worth	EXISTING	826	STUDENTS
10082	TARRANT	HORIZON MIDDLE SCHOOL	Education	Fort Worth	EXISTING	64	STUDENTS
10082	TARRANT	LANCASTER EAST SHOPPING CENTER	Retail	Fort Worth	EXISTING	101,000	SQUARE FT.
10136	TARRANT	WESTERN HILLS PRIMARY	Education	Fort Worth	EXISTING	741	STUDENTS
10136	TARRANT	WESTERN HILLS ELEMENTARY	Education	Fort Worth	EXISTING	448	STUDENTS
10138	TARRANT	TARGET	Retail	Fort Worth	EXISTING	98,729	SQUARE FT.
10142	TARRANT	Wilcox Plaza at Green Oaks	Office	Fort Worth	EXISTING	196,290	SQUARE FT.
10149	TARRANT	Commercial Development	Retail	Fort Worth	EXISTING	100,015	SQUARE FT.
10155	TARRANT	DFB PHARMACEUTICALS	Industrial	Fort Worth	EXISTING	80,000	SQUARE FT.
10159	TARRANT	CHAPEL HILL	Retail	Fort Worth	EXISTING	210,000	SQUARE FT.
10161	TARRANT	HULEN TOWERS	Office	Fort Worth	EXISTING	134,288	SQUARE FT.
10163	TARRANT	SOUTH HI MOUNT ELEMENTARY	Education	Fort Worth	EXISTING	664	STUDENTS
10170	TARRANT	UNIVERSITY CENTRE I & II	Office	Fort Worth	EXISTING	452,659	SQUARE FT.
10171	TARRANT	UNIVERSITY PARK VILLAGE	Retail	Fort Worth	EXISTING	175,000	SQUARE FT.
10177	TARRANT	CLAYTON, LILY B. ELEMENTARY	Education	Fort Worth	EXISTING	463	STUDENTS
10178	TARRANT	TANDY WIRE & CABLE (DEMOLISHED)	Industrial	Fort Worth	DEMOLISHED	121,017	SQUARE FT.
10179	TARRANT	BAYLOR ALL SAINTS MEDICAL CENTER AT FORT WORTH	Institutional	Fort Worth	EXISTING	525	BEDS
10179	TARRANT	BAYLOR ALL SAINTS MEDICAL OFFICE	Institutional	Fort Worth	EXISTING	145,000	SQUARE FT.
10180	TARRANT	PLAZA MEDICAL CENTER	Institutional	Fort Worth	EXISTING	320	BEDS
10180	TARRANT	MEDICAL PLAZA	Office	Fort Worth	EXISTING	104,300	SQUARE FT.
10182	TARRANT	TEXAS HALTH HARRIS METHODIST FORT WORTH	Institutional	Fort Worth	EXISTING	724	BEDS
10182	TARRANT	COOK CHILDREN'S MEDICAL CENTER	Institutional	Fort Worth	UNDER CONSTRUCTION	297	BEDS

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10182	TARRANT	Special Use Development	Institutional	Fort Worth	EXISTING	79,609	SQUARE FT.
10182	TARRANT	BEN HOGAN CENTER (HARRIS METHODIST DOCTOR'S BLDG)	Office	Fort Worth	EXISTING	109,000	SQUARE FT.
10183	TARRANT	OLEANDER WEST	Retail	Fort Worth	CONCEPTUAL	123,600	SQUARE FT.
10186	TARRANT	Young Women's Leadership Academy	Education	Fort Worth	EXISTING	0	SQUARE FT.
10187	TARRANT	DE ZAVALA ELEMENTARY	Education	Fort Worth	EXISTING	420	STUDENTS
10189	TARRANT	KROGER CO	Industrial	Fort Worth	EXISTING	111,371	SQUARE FT.
10191	TARRANT	JOHN PETER SMITH HOSPITAL	Institutional	Fort Worth	EXISTING	567	BEDS
10201	TARRANT	PEAK, CARROLL ELEMENTARY	Education	Fort Worth	EXISTING	450	STUDENTS
10216	TARRANT	POLYTECNIC HIGH	Education	Fort Worth	EXISTING	1,079	STUDENTS
10216	TARRANT	JAMES, W. M. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	1,053	STUDENTS
10218	TARRANT	TEXAS WESLEYAN UNIVERSITY	Education	Fort Worth	EXISTING	3,048	STUDENTS
10224	TARRANT	DILLOW, S. S. ELEMENTARY	Education	Fort Worth	EXISTING	481	STUDENTS
10298	TARRANT	FRANK KENT PONTIAC-GMC	Retail	Fort Worth	EXISTING	38,468	SQUARE FT.
10298	TARRANT	MORITZ OF FORT WORTH	Retail	Fort Worth	EXISTING	108,234	SQUARE FT.
10301	TARRANT	WAVERLY PARK ELEMENTARY	Education	Fort Worth	EXISTING	827	STUDENTS
10301	TARRANT	LEONARD MIDDLE SCHOOL	Education	Fort Worth	EXISTING	877	STUDENTS
10319	TARRANT	COMO MONTESORRI	Education	Fort Worth	EXISTING	370	STUDENTS
10319	TARRANT	COMO ELEMENTARY	Education	Fort Worth	EXISTING	470	STUDENTS
10320	TARRANT	UNION PACIFIC RAILROAD	Transit	Fort Worth	EXISTING	0	SQUARE FT.
10321	TARRANT	CLEARFORK - OFFICE	Office	Fort Worth	ANNOUNCED	2,000,000	SQUARE FT.
10321	TARRANT	CLEARFORK - RETAIL	Retail	Fort Worth	ANNOUNCED	1,200,000	SQUARE FT.
10322	TARRANT	TRINITY COMMONS	Retail	Fort Worth	EXISTING	197,000	SQUARE FT.
10324	TARRANT	Amon G. Carter Stadium	Recreation	Fort Worth	UNDER CONSTRUCTION	154,013	SEATS
10324	TARRANT	Daniel-Meyer Coliseum	Recreation	Fort Worth	EXISTING	104,897	SEATS
10327	TARRANT	Texas Christian University	Education	Fort Worth	EXISTING	8,853	STUDENTS
10327	TARRANT	Brown Lupton University Union	Education	Fort Worth	EXISTING	145,000	SQUARE FT.
10327	TARRANT	M.E. Sadler Hall	Education	Fort Worth	EXISTING	80,895	SQUARE FT.
10327	TARRANT	TCU Recreation Center	Recreation	Fort Worth	EXISTING	179,831	SQUARE FT.
10329	TARRANT	Winton Scott Hall	Education	Fort Worth	EXISTING	89,407	SQUARE FT.
10329	TARRANT	Tucker Technology Center	Education	Fort Worth	EXISTING	92,500	SQUARE FT.
10329	TARRANT	Mary Couts Burnett Library	Institutional	Fort Worth	EXISTING	162,074	SQUARE FT.
10330	TARRANT	PASCHAL, R. L. HIGH SCHOOL	Education	Fort Worth	EXISTING	2,204	STUDENTS
10330	TARRANT	SUCCESS HS	Education	Fort Worth	EXISTING	206	STUDENTS
10344	TARRANT	MORNINGSIDE ELEMENTARY	Education	Fort Worth	EXISTING	466	STUDENTS
10346	TARRANT	MORNINGSIDE MIDDLE SCHOOL	Education	Fort Worth	EXISTING	443	STUDENTS
10346	TARRANT	SOUTH TOWN S/C	Retail	Fort Worth	EXISTING	105,553	SQUARE FT.
10349	TARRANT	BRISCOE, EDWARD J. ELEMENTARY	Education	Fort Worth	EXISTING	425	STUDENTS
10355	TARRANT	MITCHELL BOULEVARD ELEMENTARY	Education	Fort Worth	EXISTING	454	STUDENTS
10355	TARRANT	ALL CHURCH HOME FOR CHILDREN	Education	Fort Worth	ANNOUNCED	0	SQUARE FT.
10355	TARRANT	RENAISSANCE SQUARE	Retail	Fort Worth	ANNOUNCED	480,000	SQUARE FT.
10362	TARRANT	SIMS, T. A. ELEMENTARY	Education	Fort Worth	EXISTING	815	STUDENTS
10368	TARRANT	PATE, A. M. ELEMENTARY	Education	Fort Worth	EXISTING	574	STUDENTS
10374	TARRANT	SUNRISE ELEMENTARY	Education	Fort Worth	EXISTING	412	STUDENTS
10374	TARRANT	DUNBAR (7TH-8TH GRADE)	Education	Fort Worth	EXISTING	550	STUDENTS
10374	TARRANT	DUNBAR, P. L. HIGH SCHOOL	Education	Fort Worth	EXISTING	1,104	STUDENTS
10425	TARRANT	INT'L NEWCOMER ACAD	Education	Fort Worth	EXISTING	426	STUDENTS
10425	TARRANT	LEONARD 6TH GRADE	Education	Fort Worth	EXISTING	393	STUDENTS
10431	TARRANT	SAM'S CLUB	Retail	Fort Worth	EXISTING	130,000	SQUARE FT.
10433	TARRANT	CROSSLANDS PLAZA OFFICE PARK	Office	Benbrook	EXISTING	117,000	SQUARE FT.
10433	TARRANT	Commercial Development	Office	Benbrook	EXISTING	125,177	SQUARE FT.
10434	TARRANT	FORT WORTH COUNTRY DAY SCHOOL	Education	Fort Worth	EXISTING	1,100	STUDENTS
10434	TARRANT	OVERTON CENTRE I & II	Office	Fort Worth	EXISTING	446,323	SQUARE FT.
10435	TARRANT	MCKINNEY MEMORIAL BIBLE CHURCH	Institutional	Fort Worth	EXISTING	98,000	SQUARE FT.
10435	TARRANT	SIKORSKY AIRCRAFT	Office	Fort Worth	EXISTING	138,000	SQUARE FT.
10435	TARRANT	INTERNATIONAL PLAZA	Office	Fort Worth	EXISTING	163,873	SQUARE FT.
10435	TARRANT	FROST BANK OFFICE BUILDING	Office	Fort Worth	EXISTING	122,000	SQUARE FT.
10435	TARRANT	FIRST COMMAND FINANCIAL PLANNING	Office	Fort Worth	EXISTING	706,641	SQUARE FT.
10435	TARRANT	OVERTON PARK PLAZA	Retail	Fort Worth	EXISTING	465,000	SQUARE FT.
10435	TARRANT	HOME DEPOT	Retail	Fort Worth	EXISTING	465,000	SQUARE FT.
10435	TARRANT	OLIVE GARDEN	Retail	Fort Worth	EXISTING	465,000	SQUARE FT.
10438	TARRANT	TANGLEWOOD ELEMENTARY	Education	Fort Worth	EXISTING	604	STUDENTS
10459	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	20,280	SQUARE FT.
10460	TARRANT	WORTH HEIGHTS ELEMENTARY	Education	Fort Worth	EXISTING	853	STUDENTS
10461	TARRANT	FORT WORTH CITY OF - PARKS & COMMUNITY SERVICES	Government	Fort Worth	EXISTING	1,028,644	SQUARE FT.
10461	TARRANT	LA GRAN PLAZA DE FORT WORTH (FIESTA MART)	Retail	Fort Worth	EXISTING	1,028,644	SQUARE FT.
10461	TARRANT	SEARS	Retail	Fort Worth	EXISTING	1,028,644	SQUARE FT.

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10471	TARRANT	GLENCREST 6TH GRADE SCHOOL	Education	Fort Worth	EXISTING	395	STUDENTS
10475	TARRANT	FEDERAL EXPRESS GROUND	Industrial	Fort Worth	EXISTING	175,378	SQUARE FT.
10475	TARRANT	CENTRAL FREIGHT LINES INC	Transit	Fort Worth	EXISTING	231,777	SQUARE FT.
10477	TARRANT	VILLAGE CREEK BUS PARK	Industrial	Fort Worth	EXISTING	430,000	SQUARE FT.
10508	TARRANT	Benbrook Middle School	Education	Benbrook	CONSTRUCTION	175,600	SQUARE FT.
10509	TARRANT	SHOPS AT WEST FORK	Retail	Benbrook	CONCEPTUAL UNDER	480,000	SQUARE FT.
10512	TARRANT	HOMEWOOD SUITES	Lodge	Fort Worth	CONSTRUCTION	98	DU
10512	TARRANT	KINDRED HOSPITAL FORT WORTH (SOUTHWEST)	Institutional	Fort Worth	EXISTING	0	BEDS
10512	TARRANT	LIFECARE HOSPITAL OF FORT WORTH	Institutional	Fort Worth	EXISTING	70	BEDS
10512	TARRANT	CITYVIEW SHOPPING CENTER	Retail	Fort Worth	EXISTING	352,000	SQUARE FT.
10512	TARRANT	BROOKS MAYS MUSIC COMPANY INC	Retail	Fort Worth	EXISTING	352,000	SQUARE FT.
10512	TARRANT	RAZZOOS LP	Retail	Fort Worth	EXISTING	352,000	SQUARE FT.
10513	TARRANT	HULEN MALL	Retail	Fort Worth	EXISTING	938,000	SQUARE FT.
10513	TARRANT	COSTCO	Retail	Fort Worth	EXISTING	150,000	SQUARE FT.
10513	TARRANT	DILLARDS	Retail	Fort Worth	EXISTING	938,000	SQUARE FT.
10513	TARRANT	FOLEYS	Retail	Fort Worth	EXISTING	938,000	SQUARE FT.
10513	TARRANT	CITYVIEW TOWNE CROSSING	Retail	Fort Worth	EXISTING	322,500	SQUARE FT.
10513	TARRANT	SUPERTARGET	Retail	Fort Worth	EXISTING	322,500	SQUARE FT.
10514	TARRANT	SOUTHWEST CROSSING	Retail	Fort Worth	EXISTING	499,908	SQUARE FT.
10514	TARRANT	KOHLS	Retail	Fort Worth	EXISTING	499,908	SQUARE FT.
10514	TARRANT	GARDEN RIDGE CORPORATION	Retail	Fort Worth	EXISTING	499,908	SQUARE FT.
10526	TARRANT	SOUTHWESTERN BAPTIST THEOLOGICAL SEMINARY	Education	Fort Worth	EXISTING	4,000	STUDENTS
10527	TARRANT	Rosemont Elementary	Education	Fort Worth	ANNOUNCED	80,000	SQUARE FT.
10529	TARRANT	ROSEMONT MIDDLE SCHOOL	Education	Fort Worth	EXISTING	874	STUDENTS
10532	TARRANT	WILSON, RICHARD J. ELEMENTARY	Education	Fort Worth	EXISTING	696	STUDENTS
10533	TARRANT	NORTH TEXAS STEEL COMPANY, INC	Industrial	Fort Worth	EXISTING	160,000	SQUARE FT.
10535	TARRANT	CATHOLIC CHARITIES OF FT WORTH	Office	Fort Worth	UNDER CONSTRUCTION	85,000	SQUARE FT.
10538	TARRANT	VA North Texas Health Care System Fort Worth Outpatient Clinic	Institutional	Fort Worth	EXISTING	239,000	SQUARE FT.
10540	TARRANT	TCCD SOUTH CAMPUS	Education	Fort Worth	EXISTING	11,695	STUDENTS
10540	TARRANT	WYATT, O. D. HIGH SCHOOL	Education	Fort Worth	EXISTING	1,138	STUDENTS
10550	TARRANT	GREEN, W. M. ELEMENTARY	Education	Fort Worth	EXISTING	670	STUDENTS
10581	TARRANT	BENBROOK ELEMENTARY	Education	Benbrook	EXISTING	532	STUDENTS
10582	TARRANT	Commercial Development	Retail	Fort Worth	EXISTING	80,620	SQUARE FT.
10587	TARRANT	FAMILY DOLLAR S/C	Retail	Fort Worth	EXISTING	104,092	SQUARE FT.
10587	TARRANT	WEDGEWOOD VILLAGE	Retail	Fort Worth	EXISTING	140,000	SQUARE FT.
10590	TARRANT	Frank Kent Honda	Retail	Fort Worth	EXISTING	100,000	SQUARE FT.
10598	TARRANT	SEMINARY HILLS PARK ELEMENTARY	Education	Fort Worth	EXISTING	524	STUDENTS
10604	TARRANT	5500 SOUTH FWY	Industrial	Fort Worth	EXISTING	850,000	SQUARE FT.
10604	TARRANT	TARRANT INTERIORS	Industrial	Fort Worth	EXISTING	471,574	SQUARE FT.
10604	TARRANT	C K S PACKAGING INC	Industrial	Fort Worth	EXISTING	105,788	SQUARE FT.
10604	TARRANT	CARNIVAL S/C	Retail	Fort Worth	EXISTING	138,792	SQUARE FT.
10640	TARRANT	TEXAS HEALTH HARRIS METHODIST SOUTHWEST	Institutional	Fort Worth	EXISTING	229	BEDS
10641	TARRANT	OAKMONT ELEMENTARY	Education	Fort Worth	EXISTING	614	STUDENTS
10641	TARRANT	HULEN POINTE	Retail	Fort Worth	EXISTING	192,539	SQUARE FT.
10641	TARRANT	KROGER	Retail	Fort Worth	EXISTING	171,171	SQUARE FT.
10641	TARRANT	HULEN BEND	Retail	Fort Worth	EXISTING	171,171	SQUARE FT.
10643	TARRANT	HULEN SQUARE	Retail	Fort Worth	EXISTING	86,842	SQUARE FT.
10647	TARRANT	WEDGEWOOD MIDDLE SCHOOL	Education	Fort Worth	EXISTING	974	STUDENTS
10647	TARRANT	SOUTHWEST HIGH SCHOOL	Education	Fort Worth	EXISTING	1,650	STUDENTS
10649	TARRANT	WESTCREEK ELEMENTARY	Education	Fort Worth	EXISTING	702	STUDENTS
10649	TARRANT	ALTAMESA S/C	Retail	Fort Worth	EXISTING	166,480	SQUARE FT.
10649	TARRANT	KROGER	Retail	Fort Worth	EXISTING	166,480	SQUARE FT.
10651	TARRANT	HARMONY SCIENCE ACADEMY	Education	Fort Worth	EXISTING	356	STUDENTS
10654	TARRANT	GREENBRIAR ELEMENTARY	Education	Fort Worth	EXISTING	545	STUDENTS
10656	TARRANT	FORT WORTH STAR-TELEGRAM	Industrial	Edgecliff Village	EXISTING	527,302	SQUARE FT.
10695	TARRANT	ALBERTSONS	Retail	Fort Worth	EXISTING	92,603	SQUARE FT.
10695	TARRANT	SYCAMORE VILLAGE	Retail	Fort Worth	EXISTING	92,603	SQUARE FT.
10696	TARRANT	WOODWAY ELEMENTARY	Education	Fort Worth	EXISTING	848	STUDENTS
10697	TARRANT	WAL-MART SUPERCENTER	Retail	Fort Worth	EXISTING	184,000	SQUARE FT.
10699	TARRANT	SACK & SAVE S/C	Retail	Fort Worth	EXISTING	106,040	SQUARE FT.
10701	TARRANT	SYCAMORE ELEMENTARY	Education	Fort Worth	EXISTING	654	STUDENTS
10702	TARRANT	RAY ELEMENTARY	Education	Fort Worth	EXISTING	434	STUDENTS
10735	TARRANT	DALLAS PARK ELEMENTARY	Education	Fort Worth	EXISTING	879	STUDENTS
10735	TARRANT	NORTH CROWLEY HIGH SCHOOL	Education	Fort Worth	EXISTING	1,624	STUDENTS

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10735	TARRANT	SUMMER CREEK MIDDLE SCHOOL	Education	Fort Worth	EXISTING	0	SQUARE FT.
10735	TARRANT	NORTH CROWLEY HIGH 9TH GRADE CAMPUS	Education	Fort Worth	EXISTING	611	STUDENTS
10735	TARRANT	CROUCH, SUE INTERMEDIATE SCHOOL	Education	Fort Worth	EXISTING	530	STUDENTS
10737	TARRANT	CROWLEY MIDDLE SCHOOL	Education	Fort Worth	EXISTING	1,257	STUDENTS
10737	TARRANT	CARDEN, JACKIE ELEMENTARY	Education	Fort Worth	EXISTING	791	STUDENTS
10737	TARRANT	MEADOWCREEK ELEMENTARY	Education	Fort Worth	EXISTING	825	STUDENTS
10737	TARRANT	CROWLEY INTERMEDIATE	Education	Fort Worth	EXISTING	0	SQUARE FT.
10741	TARRANT	LONE STAR BEVERAGE	Industrial	Fort Worth	EXISTING	135,470	SQUARE FT.
10741	TARRANT	HOME DEPOT	Retail	Fort Worth	EXISTING	119,531	SQUARE FT.
10780	TARRANT	HARGRAVE, J. A. ELEMENTARY	Education	Fort Worth	EXISTING	743	STUDENTS
10783	TARRANT	POYNTER, SIDNEY H ELEMENTARY	Education	Fort Worth	EXISTING	646	STUDENTS
10806	TARRANT	STEVENS, H.F. MIDDLE SCHOOL	Education	Crowley	EXISTING	946	STUDENTS
10806	TARRANT	HARBISON-FISCHER MFG	Industrial	Crowley	EXISTING	290,971	SQUARE FT.
10830	TARRANT	AZZ INC (FORMERLY AZTEC)	Industrial	Crowley	EXISTING	237,906	SQUARE FT.
10859	TARRANT	DEER CREEK ELEMENTARY	Education	Crowley	EXISTING	601	STUDENTS
10859	TARRANT	ALBERTSONS	Retail	Crowley	EXISTING	85,000	SQUARE FT.
10859	TARRANT	SHOPPES OF DEER CREEK,THE	Retail	Crowley	EXISTING	85,000	SQUARE FT.
10860	TARRANT	JUDY HAJEK ELEMENTARY	Education	Burleson	EXISTING	0	SQUARE FT.
10861	TARRANT	TAYLOR, JACK ELEMENTARY	Education	Burleson	EXISTING	697	STUDENTS
10862	TARRANT	J C PENNEY	Retail	Burleson	EXISTING	194,902	SQUARE FT.
10862	TARRANT	GATEWAY STATION	Retail	Fort Worth	EXISTING	420,100	SQUARE FT.
10862	TARRANT	BURLESON TOWN CENTER	Retail	Burleson	EXISTING	194,902	SQUARE FT.
10862	TARRANT	ALBERTSON'S	Retail	Burleson	EXISTING	194,902	SQUARE FT.
10894	TARRANT	MEDICAL CENTER AT CALLOWAY CREEK	Institutional	North Richland Hills	EXISTING	84,000	SQUARE FT.
10894	TARRANT	NORTH HILLS MALL (DEMOLISHED)	Retail	North Richland Hills	DEMOLISHED	584,000	SQUARE FT.
10896	TARRANT	BAYLOR MEDICAL CENTER AT SOUTHWEST FORT WORTH	Institutional	Fort Worth	EXISTING	71	BEDS
10897	TARRANT	5000 S HULEN S/C	Retail	Fort Worth	EXISTING	84,600	SQUARE FT.
10897	TARRANT	WAL-MART SUPERCENTER	Retail		EXISTING	222,129	SQUARE FT.
10897	TARRANT	HOBBY LOBBY/STEINMART	Retail	Fort Worth	EXISTING	104,188	SQUARE FT.
10897	TARRANT	BED BATH & BEYOND, MICHAEL'S	Retail	Fort Worth	EXISTING	107,026	SQUARE FT.
10897	TARRANT	Commercial Development	Retail	Fort Worth	EXISTING	180,638	SQUARE FT.
10897	TARRANT	CHILIS INC	Retail	Fort Worth	EXISTING	180,638	SQUARE FT.
16007	JOHNSON	FRAZIER ELEMENTARY	Education	Burleson	EXISTING	0	
16007	JOHNSON	BURLESON HIGH SCHOOL	Education	Burleson	EXISTING	2,396	STUDENTS
16008	JOHNSON	MOUND ELEMENTARY	Education	Burleson	EXISTING	692	STUDENTS
16026	JOHNSON	SOUTH TOWNE CROSSING	Retail	Burleson	EXISTING	341,677	SQUARE FT.
16027	JOHNSON	THE ACADEMY AT NOLA DUNN	Education	Burleson	EXISTING	607	STUDENTS
16028	JOHNSON	CROSSROADS LEARNING CENTER (REPLACED)	Education	Burleson	CLOSED	84	STUDENTS
16028	JOHNSON	NORWOOD J. ELEMENTARY	Education	Burleson	EXISTING	734	STUDENTS
16028	JOHNSON	BURLESON CROSSROADS HIGH SCHOOL	Education	Burleson	EXISTING	0	SQUARE FT.
16028	JOHNSON	WAL-MART SUPERCENTER	Retail	Burleson	EXISTING	170,000	SQUARE FT.
16029	JOHNSON	HUGHES MIDDLE SCHOOL	Education	Burleson	EXISTING	926	STUDENTS
16029	JOHNSON	BROOKSHIRE'S	Retail	Burleson	EXISTING	100,000	SQUARE FT.
16030	JOHNSON	KERR,NICK MIDDLE SCHOOL	Education	Burleson	EXISTING	1,000	STUDENTS
16031	JOHNSON	DUNN, NOLA ELEMENTARY	Education	Burleson	UNDER CONSTRUCTION	607	STUDENTS
16048	JOHNSON	GODLEY HIGH SCHOOL	Education	Godley	EXISTING	407	STUDENTS
16050	JOHNSON	CADDO GROVE ELEMENTARY	Education	Burleson	EXISTING	539	STUDENTS
16050	JOHNSON	NORTH JOSHUA ELEMENTARY	Education	Burleson	EXISTING	579	STUDENTS
16052	JOHNSON	CLINKSCALE ELEMENTARY SCHOOL	Education	Burleson	EXISTING	0	
16052	JOHNSON	BURLESON COMMONS	Retail	Burleson	UNDER CONSTRUCTION	245,000	SQUARE FT.
16052	JOHNSON	H-E-B	Retail	Burleson	ANNOUNCED	88,000	SQUARE FT.
16060	JOHNSON	GODLEY INTERMEDIATE	Education	Godley	EXISTING	323	STUDENTS
16060	JOHNSON	GODLEY MIDDLE SCHOOL	Education	Godley	EXISTING	358	STUDENTS
16063	JOHNSON	KWS MANUFACTURING COMPANY	Industrial		EXISTING	89,335	SQUARE FT.
16078	JOHNSON	JOSHUA HIGH SCHOOL	Education	Joshua	EXISTING	1,246	STUDENTS
16078	JOHNSON	LOFLIN, R. C. MIDDLE SCHOOL	Education	Joshua	EXISTING	673	STUDENTS
16078	JOHNSON	JOSHUA INTERMEDIATE	Education	Joshua	EXISTING	452	STUDENTS
16078	JOHNSON	ELDER, A. G. ELEMENTARY	Education	Joshua	EXISTING	496	STUDENTS
16096	JOHNSON	KEENE ELEMENTARY	Education	Keene	EXISTING	283	STUDENTS
16096	JOHNSON	KEENE INTERMEDIATE	Education	Keene	EXISTING	129	STUDENTS
16096	JOHNSON	KEENE HIGH SCHOOL	Education	Keene	EXISTING	218	STUDENTS
16096	JOHNSON	KEENE JR. HIGH	Education	Keene	EXISTING	187	STUDENTS
16100	JOHNSON	RUBBERMAID (CLOSING APRIL 2004)	Industrial	Cleburne	EXISTING	250,000	SQUARE FT.
16100	JOHNSON	JOHNS MANVILLE	Industrial	Cleburne	EXISTING	742,500	SQUARE FT.
16101	JOHNSON	BRANDON MFG TEXAS INC	Industrial	Keene	EXISTING	121,957	SQUARE FT.
16108	JOHNSON	SANTA FE ELEMENTARY	Education	Cleburne	EXISTING	0	SQUARE FT.

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16109	JOHNSON	TREE OF LIFE-SOUTHWEST	Industrial	Keene	EXISTING	0	SQUARE FT.
16114	JOHNSON	MARTI, JO AND GEORGE ELEMENTARY	Education	Cleburne	EXISTING	565	STUDENTS
16117	JOHNSON	LOWE'S HOME IMPROVEMENT	Retail	Cleburne	EXISTING	116,000	SQUARE FT.
16126	JOHNSON	COOKE EARLY CHILDHOOD CENTER	Education	Cleburne	EXISTING	871	STUDENTS
16129	JOHNSON	IRVING ELEMENTARY	Education	Cleburne	EXISTING	339	STUDENTS
16155	JOHNSON	GERARD ELEMENTARY	Education	Cleburne	EXISTING	432	STUDENTS
30124	TARRANT	FIVE STAR FORD	Retail	North Richland Hills	EXISTING	89,415	SQUARE FT.
30168	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	92,240	SQUARE FT.
30168	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	92,240	SQUARE FT.
30204	TARRANT	CHAPEL HILL ACADEMY	Education	Fort Worth	EXISTING	0	SQUARE FT.
30204	TARRANT	Hazel Harvey Peace Elementary	Education	Fort Worth	EXISTING	75,000	SQUARE FT.
30205	TARRANT	PARKWAY ELEMENTARY	Education	Fort Worth	EXISTING	857	STUDENTS
30206	TARRANT	SCS FRIGETTE	Industrial	Fort Worth	EXISTING	186,750	SQUARE FT.
30215	TARRANT	FAA HEADQUARTERS (CLOSED)	Office	Fort Worth	VACANT	170,000	SQUARE FT.
30216	TARRANT	LASKO METAL PRODUCTS	Industrial	Fort Worth	EXISTING	509,995	SQUARE FT.
30293	TARRANT	OBIM FRESH CUT FRUIT (NEW)	Industrial	Fort Worth	EXISTING	120,245	SQUARE FT.
30293	TARRANT	OBIM FRESH CUT FRUIT (OLD)	Industrial	Fort Worth	EXISTING	63,528	SQUARE FT.
30293	TARRANT	BEN E KEITH	Industrial	Fort Worth	EXISTING	72,392	SQUARE FT.
30294	TARRANT	TINDALL SQUARE	Office	Fort Worth	EXISTING	122,000	SQUARE FT.
40021	TARRANT	WESTERN HILLS HIGH SCHOOL	Education	Benbrook	EXISTING	1,628	STUDENTS
40027	JOHNSON	GUNDERSON SOUTHWEST	Industrial	Cleburne	EXISTING	34,000	SQUARE FT.
40028	JOHNSON	TEAM SCHOOL	Education	Cleburne	EXISTING	89	STUDENTS
40030	TARRANT	DAGGET, E. M. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	346	STUDENTS
40031	TARRANT	DAGGETT, E. M. ELEMENTARY	Education	Fort Worth	EXISTING	605	STUDENTS
40031	TARRANT	DAGGETT MONTESSORI	Education	Fort Worth	EXISTING	531	STUDENTS
40165	TARRANT	WALTON, MAUDRIE M. ELEMENTARY	Education	Fort Worth	EXISTING	472	STUDENTS
40167	TARRANT	BANK ONE BLDG	Office	Fort Worth	EXISTING	84,560	SQUARE FT.
40167	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	58,891	SQUARE FT.
40168	TARRANT	MCRAE, D. ELEMENTARY	Education	Fort Worth	EXISTING	851	STUDENTS
40169	TARRANT	CLARK, GEORGE C. ELEMENTARY	Education	Fort Worth	EXISTING	627	STUDENTS
40170	TARRANT	TEXAS DEPT OF TRANSPORTATION	Government	Fort Worth	EXISTING	0	SQUARE FT.
40171	TARRANT	SOUTH HILLS HIGH SCHOOL	Education	Fort Worth	EXISTING	1,417	STUDENTS
40177	TARRANT	EAGLE PROJECT (FORT WORTH)	Education	Fort Worth	EXISTING	159	STUDENTS
40177	TARRANT	RIDGLEA BANK BUILDING	Office	Fort Worth	EXISTING	181,601	SQUARE FT.
40177	TARRANT	RIDGLEA PLAZA	Retail	Fort Worth	EXISTING	154,299	SQUARE FT.
40177	TARRANT	VILLAGE AT CAMP BOWIE	Retail	Fort Worth	EXISTING	250,000	SQUARE FT.
40179	TARRANT	ALL SAINTS EPISCOPAL HIGH SCHOOL	Education	Fort Worth	CLOSED	0	SQUARE FT.
40180	TARRANT	WEST PARK ELEMENTARY	Education	Benbrook	EXISTING	376	STUDENTS
40180	TARRANT	BENBROOK FIELD	Retail	Benbrook	ANNOUNCED	245,000	SQUARE FT.
40180	TARRANT	WALMART	Retail	Benbrook	ANNOUNCED	245,000	SQUARE FT.
40180	TARRANT	LOWE'S	Retail	Benbrook	ANNOUNCED	245,000	SQUARE FT.
40182	TARRANT	METRO OPPORTUNITY	Education	Fort Worth	EXISTING	173	STUDENTS
40182	TARRANT	FORT WORTH ISD TRANSPORTATION	Education	Fort Worth	EXISTING	140,807	SQUARE FT.
40182	TARRANT	SWEET SHOP CANDIES	Industrial	Fort Worth	EXISTING	140,150	SQUARE FT.
40182	TARRANT	AUTOBAHN MOTORCARS	Retail	Fort Worth	EXISTING	81,000	SQUARE FT.
40185	TARRANT	STRIPLING, W. C. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	600	STUDENTS
40187	TARRANT	TOWN & COUNTRY SHOPPING CENTER	Retail	Fort Worth	EXISTING	125,000	SQUARE FT.
40188	TARRANT	NORTH SIDE HIGH SCHOOL	Education	Fort Worth	EXISTING	1,547	STUDENTS
40188	TARRANT	NORTHSIDE MARKETPLACE	Retail	Fort Worth	EXISTING	93,370	SQUARE FT.
40190	TARRANT	HELBING, H. V. ELEMENTARY	Education	Fort Worth	EXISTING	605	STUDENTS
40191	TARRANT	899 N. HOUSTON ST (FORMER CHS PLANT)	Industrial	Fort Worth	VACANT	96,931	SQUARE FT.
40193	TARRANT	CHAVEZ, CESAR ELEMENTARY	Education	Fort Worth	EXISTING	588	STUDENTS
40193	TARRANT	RADISSON	Lodge	Fort Worth	EXISTING	247	RMS
40193	TARRANT	M & M MANUFACTURING	Industrial	Fort Worth	EXISTING	250,000	SQUARE FT.
40193	TARRANT	QUORUM INTERNATIONAL	Industrial	Fort Worth	EXISTING	252,088	SQUARE FT.
40193	TARRANT	US COLD STORAGE	Industrial	Fort Worth	EXISTING	200,000	SQUARE FT.
40193	TARRANT	BURLINGTON NTHRN SANTA FE RLWY	Service	Fort Worth	EXISTING	86,570	SQUARE FT.
40194	TARRANT	SPRINGDALE ELEMENTARY	Education	Fort Worth	EXISTING	537	STUDENTS
40197	TARRANT	FRANCISCO, W.T. ELEMENTARY	Education	Haltom City	EXISTING	385	STUDENTS
40197	TARRANT	SMITH, DAVIID E. ELEMENTARY	Education	Haltom City	EXISTING	485	STUDENTS
40197	TARRANT	REVCOR MOLDED PRODUCTS	Industrial	Haltom City	EXISTING	130,000	SQUARE FT.
40197	TARRANT	WELBILT WALK-INS	Industrial	Haltom City	EXISTING	117,262	SQUARE FT.
40198	TARRANT	820 TOWERS	Office	Hurst	EXISTING	100,000	SQUARE FT.
40199	TARRANT	GLENVIEW ELEMENTARY	Education	Richland Hills	EXISTING	608	STUDENTS
40200	TARRANT	ATCO RUBBER PRODUCTS INC	Industrial	Fort Worth	EXISTING	255,692	SQUARE FT.
40200	TARRANT	DAYDOTS INTERNATIONAL	Industrial	Fort Worth	EXISTING	126,109	SQUARE FT.
40200	TARRANT	ALLIED ELECTRONICS	Industrial	Fort Worth	EXISTING	365,000	SQUARE FT.
40306	TARRANT	REMINGTON POINT ELEMENTARY	Education	Fort Worth	EXISTING	752	STUDENTS
40306	TARRANT	EFW INC	Industrial	Fort Worth	EXISTING	159,856	SQUARE FT.

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40306	TARRANT	NORTHWEST PIPE COMPANY	Industrial		EXISTING	102,225	SQUARE FT.
40318	TARRANT	HUBBARD ELEMENTARY	Education	Fort Worth	EXISTING	751	STUDENTS
40318	TARRANT	BH&B PROPERTIES	Industrial	Fort Worth	EXISTING	251,000	SQUARE FT.
40319	TARRANT	EAGLE HEIGHTS ELEMENTARY	Education		EXISTING	459	STUDENTS
40329	TARRANT	MILLER, MARILYN ELEMENTARY	Education	Fort Worth	EXISTING	618	STUDENTS
40329	TARRANT	COLLINS, LUCYLE MIDDLE SCHOOL	Education	Fort Worth	EXISTING	273	STUDENTS
40330	TARRANT	LAKE WORTH HIGH SCHOOL	Education	Lake Worth	EXISTING	644	STUDENTS
40330	TARRANT	MARINE CREEK ELEMENTARY	Education	Fort Worth	EXISTING	391	STUDENTS
40330	TARRANT	LAKE WORTH MARKETPLACE	Retail	Lake Worth	EXISTING	226,591	SQUARE FT.
40730	TARRANT	SCHAUMBURG DEVELOPMENT (OFFICE)	Office	Fort Worth	CONCEPTUAL	98,000	SQUARE FT.
40730	TARRANT	SCHAUMBURG DEVELOPMENT (RETAIL)	Retail	Fort Worth	CONCEPTUAL	80,000	SQUARE FT.
40731	TARRANT	TRINITY STRUCTURAL TOWERS INC	Industrial	Fort Worth	EXISTING	108,951	SQUARE FT.
40732	TARRANT	TRINITY INDUSTRIES PLANT 26	Industrial	Fort Worth	EXISTING	330,458	SQUARE FT.
40734	TARRANT	KIRKPATRICK, MILTON ELEMENTARY	Education	Fort Worth	EXISTING	409	STUDENTS
40734	TARRANT	KIRKPATRICK MIDDLE SCHOOL	Education	Fort Worth	EXISTING	454	STUDENTS
40734	TARRANT	WASHIINGTON HEIGHTS ELEMENTARY	Education	Fort Worth	EXISTING	365	STUDENTS
40736	TARRANT	ROSEN, SAM ELEMENTARY	Education	Fort Worth	EXISTING	458	STUDENTS
40739	TARRANT	TURNER, W. J. ELEMENTARY	Education	Fort Worth	EXISTING	560	STUDENTS
40744	TARRANT	MARSH, IRMA MIDDLE SCHOOL	Education	River Oaks	EXISTING	700	STUDENTS
40744	TARRANT	REACH HIGH SCHOOL	Education	River Oaks	EXISTING	48	STUDENTS
40744	TARRANT	CASTLEBERRY HIGH SCHOOL	Education	River Oaks	EXISTING	792	STUDENTS
40744	TARRANT	STRATOFLEX INC	Industrial	Fort Worth	EXISTING	219,216	SQUARE FT.
40746	TARRANT	ELDER, J. P. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	1,089	STUDENTS
40747	TARRANT	TCCD TRINITY RIVER CAMPUS	Education	Fort Worth	EXISTING	3,717	STUDENTS
40748	TARRANT	FORT WORTH CITY OF	Government	Fort Worth	EXISTING	0	SQUARE FT.
40752	TARRANT	UNITED PARCEL SERVICE INC	Industrial	Fort Worth	EXISTING	248,644	SQUARE FT.
40752	TARRANT	MILLER DISTRG OF FORT WORTH	Industrial	Fort Worth	EXISTING	109,900	SQUARE FT.
40752	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	139,856	SQUARE FT.
40752	TARRANT	LISA MOTOR LINES INC	Transit	Fort Worth	EXISTING	25,610	SQUARE FT.
40756	TARRANT	FIVE STAR CUSTOM FOODS	Industrial	Fort Worth	EXISTING	184,701	SQUARE FT.
40757	TARRANT	WEST HANDLEY ELEMENTARY	Education	Fort Worth	EXISTING	478	STUDENTS
40760	TARRANT	MEADOWBROOK MIDDLE SCHOOL	Education	Fort Worth	EXISTING	963	STUDENTS
40763	TARRANT	I-30 COMPLEX	Industrial	Fort Worth	EXISTING	108,700	SQUARE FT.
40766	TARRANT	WILLIAMS. VERSIA L. ELEMENTARY	Education	Fort Worth	EXISTING	508	STUDENTS
40769	TARRANT	CONAGRA - RANCH STYLE BEANS	Industrial	Fort Worth	CLOSED	210,810	SQUARE FT.
40769	TARRANT	FORT WORTH TRANS AUTHORITY	Office	Fort Worth	EXISTING	107,157	SQUARE FT.
40769	TARRANT	Allen's Canning Co	Industrial	Fort Worth	EXISTING	200,000	SQUARE FT.
40771	TARRANT	TARRANT COUNTY JUSTICE CENTER	Government	Fort Worth	EXISTING	473,235	SQUARE FT.
40772	TARRANT	TARRANT COUNTY COURT	Government	Fort Worth	ANNOUNCED	0	SQUARE FT.
40773	TARRANT	TARRANT COUNTY FAMILY LAW CENTER	Government	Fort Worth	EXISTING	258,000	SQUARE FT.
40773	TARRANT	FAMILY LAW CENTER PARKING GARAGE	Transit	Fort Worth	EXISTING	282,240	SQUARE FT.
40773	TARRANT	PARKING GARAGE	Transit	Fort Worth	EXISTING	434,934	SQUARE FT.
40774	TARRANT	TARRANT COUNTY ADMINISTRATION OFFICE	Government	Fort Worth	ANNOUNCED	110,584	SQUARE FT.
40775	TARRANT	TARRANT COUNTY CORRECTIONS CENTER	Government	Fort Worth	EXISTING	528,417	SQUARE FT.
40775	TARRANT	TARRANT COUNTY (FORMERLY RADIO SHACK)	Office	Fort Worth	EXISTING	304,635	SQUARE FT.
40776	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	129,000	SQUARE FT.
40780	TARRANT	CANTEY HANGER PLAZA	Office	Fort Worth	EXISTING	83,600	SQUARE FT.
40781	TARRANT	BASS PERFORMING ARTS HALL	Cultural	Fort Worth	EXISTING	183,500	SQUARE FT.
40781	TARRANT	AMC PALACE 9	Recreation	Fort Worth	EXISTING	129,328	SQUARE FT.
40781	TARRANT	PARKING GARAGE	Transit	Fort Worth	EXISTING	626,968	SQUARE FT.
40783	TARRANT	CARNEGIE (THE)	Office	Fort Worth	EXISTING	280,000	SQUARE FT.
40784	TARRANT	EMBASSY SUITES	Lodge	Fort Worth	EXISTING	256	RMS
40784	TARRANT	COURTYARD BY MARRIOTT BLACKSTONE	Lodge	Fort Worth	EXISTING	203	RMS
40785	TARRANT	PARKING GARAGE	Transit	Fort Worth	EXISTING	536,741	SQUARE FT.
40786	TARRANT	FORT WORTH CLUB TOWER	Office	Fort Worth	EXISTING	162,347	SQUARE FT.
40786	TARRANT	FORT WORTH CLUB BLDG	Office	Fort Worth	EXISTING	200,353	SQUARE FT.
40787	TARRANT	PARKING GARAGE	Transit	Fort Worth	EXISTING	157,226	SQUARE FT.
40789	TARRANT	XTO WAREHOUSE	Industrial	Fort Worth	EXISTING	90,000	SQUARE FT.
40789	TARRANT	N3 DEVELOPMENT COMPANY	Industrial	Fort Worth	EXISTING	100,000	SQUARE FT.
40789	TARRANT	NOURIAN OFFICE CONDOS	Office	Fort Worth	UNDER CONSTRUCTION	120,000	SQUARE FT.
40789	TARRANT	XTO	Office	Fort Worth	CONCEPTUAL	360,000	SQUARE FT.
40790	TARRANT	WT WAGGONER BLDG	Office	Fort Worth	EXISTING	142,054	SQUARE FT.
40793	TARRANT	OMNI HOTEL	Lodge	Fort Worth	EXISTING	607	RMS
40798	TARRANT	MALLICK TOWER	Office	Fort Worth	EXISTING	120,000	SQUARE FT.
40811	TARRANT	FORT WORTH MUSEUM OF SCIENCE & HISTORY (DEMOLISHED	Cultural	Fort Worth	DEMOLISHED	118,000	SQUARE FT.
40811	TARRANT	FT WORTH MUSEUM OF SCIENCE & HISTORY	Cultural	Fort Worth	EXISTING	135,000	SQUARE FT.
40811	TARRANT	AMON G. CARTER JR. EXHIBIT HALL	Cultural	Fort Worth	EXISTING	137,500	SQUARE FT.

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TSZ	COUNTY	NAME	SUBCLASS	CITY	STATUS	SIZE	SIZE TYPE
40811	TARRANT	FWISD FARRINGTON FIELD	Recreation	Fort Worth	ANNOUNCED	18,500	SEATS
40811	TARRANT	WESTERN HERITAGE PARKING GARAGE	Transit	Fort Worth	UNDER CONSTRUCTION	284,000	SQUARE FT.
40812	TARRANT	KELLEY, JO SPECIAL EDUCATION	Education	Fort Worth	EXISTING	64	STUDENTS
40812	TARRANT	ASSESSMENT CTR	Education	Fort Worth	EXISTING	11	STUDENTS
40813	TARRANT	MUSEUM PLACE OFFICE	Office	Fort Worth	EXISTING	143,000	SQUARE FT.
40813	TARRANT	GOFF CAPITAL RENOVATION (PREV BOMBAY)	Office	Fort Worth	EXISTING	125,071	SQUARE FT.
40814	TARRANT	APPLIED LEARNING ACADEMY	Education	Fort Worth	EXISTING	353	STUDENTS
40815	TARRANT	MERRETT, LUELLA ELEMENTARY	Education	Fort Worth	EXISTING	552	STUDENTS
40815	TARRANT	FRANK KENT CADILLAC	Retail	Fort Worth	EXISTING	142,229	SQUARE FT.
40818	TARRANT	PHILLIPS, MARY LOUISE ELEMENTARY	Education	Fort Worth	EXISTING	526	STUDENTS
40818	TARRANT	MONNIG, WILLIAM MIDDLE SCHOOL	Education	Fort Worth	EXISTING	617	STUDENTS
40818	TARRANT	DECISION SUPPORT SYSTEMS INC	Office	Fort Worth	EXISTING	16,968	SQUARE FT.
40819	TARRANT	RIDGLEA HILL ELEMENTARY	Education	Fort Worth	EXISTING	631	STUDENTS
40820	TARRANT	MILBURN, RICHARD ACADEMY	Education	Fort Worth	EXISTING	214	STUDENTS
40820	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	116,432	SQUARE FT.
40820	TARRANT	LEVITZ BLDG (CLOSED)	Retail	Fort Worth	EXISTING	155,000	SQUARE FT.
40823	TARRANT	ARLINGTON HEIGHTS HIGH SCHOOL	Education	Fort Worth	EXISTING	1,849	STUDENTS
40823	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	51,340	SQUARE FT.
40823	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	26,919	SQUARE FT.
40824	TARRANT	MIDDLE LEVEL LEARNING CENTER	Education	Fort Worth	EXISTING	67	STUDENTS
40825	TARRANT	WESTBEND (OFFICE)	Office	Fort Worth	ANNOUNCED	150,000	SQUARE FT.
40825	TARRANT	WESTBEND	Retail	Fort Worth	UNDER CONSTRUCTION	100,000	SQUARE FT.
40826	TARRANT	HILTON GARDEN INN AND HOMEWOOD SUITES	Lodge	Fort Worth	ANNOUNCED	255	RMS
40826	TARRANT	Fort Worth Center of Rehabilitatoin	Institutional	Fort Worth	EXISTING	136	BEDS
40826	TARRANT	Midtwown Medical Office	Institutional	Fort Worth	EXISTING	96,000	SQUARE FT.
40828	TARRANT	TRIMBLE, GREEN B. TECHNICAL HIGH SCHOOL	Education	Fort Worth	EXISTING	1,773	STUDENTS
40833	TARRANT	BEACH-CONNOR INDUSTRIAL	Industrial	Fort Worth	EXISTING	298,800	SQUARE FT.
40835	TARRANT	DUNBAR (6TH GRADE)	Education	Fort Worth	EXISTING	329	STUDENTS
40835	TARRANT	LOGAN, MAUDE I. ELEMENTARY	Education	Fort Worth	EXISTING	493	STUDENTS
40836	TARRANT	DALTONS BEST MAID PRODUCTS	Industrial	Fort Worth	EXISTING	116,162	SQUARE FT.
40841	TARRANT	CARLSON, ALICE APPLIED LRN CTR	Education	Fort Worth	EXISTING	386	STUDENTS
40842	TARRANT	TCU Facility Services	Education	Fort Worth	EXISTING	8,853	STUDENTS
40843	TARRANT	WESTCLIFF S/C	Retail	Fort Worth	EXISTING	133,705	SQUARE FT.
40843	TARRANT	CITY MARKET	Retail	Fort Worth	EXISTING	133,705	SQUARE FT.
40845	TARRANT	MCLEAN 6TH GRADE	Education	Fort Worth	EXISTING	374	STUDENTS
40845	TARRANT	MCLEAN, W. P. MIDDLE SCHOOL	Education	Fort Worth	EXISTING	735	STUDENTS
40848	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	63,515	SQUARE FT.
40849	TARRANT	DAVIS, CLIFFORD ELEMENTARY	Education	Fort Worth	EXISTING	418	STUDENTS
40849	TARRANT	GOODWILL INDUSTRIES	Industrial	Fort Worth	EXISTING	121,338	SQUARE FT.
40850	TARRANT	Commercial Development	Office	Fort Worth	EXISTING	27,650	SQUARE FT.
40851	TARRANT	MOSS, CHRISTENE C. ELEMENTARY	Education	Fort Worth	EXISTING	394	STUDENTS
40852	TARRANT	OAKLAWN ELEMENTARY	Education	Fort Worth	EXISTING	323	STUDENTS
40853	TARRANT	GLEN PARK ELEMENTARY	Education	Fort Worth	EXISTING	766	STUDENTS
40854	TARRANT	FOREST OAK MIDDLE SCHOOL	Education	Fort Worth	EXISTING	711	STUDENTS
40892	TARRANT	CONTRERAS, ALICE D. ELEMENTARY	Education	Fort Worth	EXISTING	858	STUDENTS
40892	TARRANT	ROSEMONT 6TH GRADE	Education	Fort Worth	EXISTING	418	STUDENTS
40892	TARRANT	CARGO FURNITURE	Industrial	Fort Worth	EXISTING	256,000	SQUARE FT.
40892	TARRANT	GAS INTERNATIONAL	Industrial	Fort Worth	EXISTING	168,735	SQUARE FT.
40892	TARRANT	RADIO SHACK	Industrial	Fort Worth	EXISTING	136,570	SQUARE FT.
40892	TARRANT	SPECIALTY PACKAGING	Industrial	Fort Worth	EXISTING	101,373	SQUARE FT.
40892	TARRANT	STRUCTURAL STEEL PRODUCTS	Industrial	Fort Worth	EXISTING	185,342	SQUARE FT.
40892	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	264,140	SQUARE FT.
40894	TARRANT	SOUTH HILLS ELEMENTARY	Education	Fort Worth	EXISTING	833	STUDENTS
40895	TARRANT	RIVERSIDE APPLIED CTR	Education	Fort Worth	EXISTING	304	STUDENTS
40895	TARRANT	JUSTIN	Industrial	Fort Worth	EXISTING	146,549	SQUARE FT.
40896	TARRANT	BRAE, BONNIE ELEMENTARY	Education	Fort Worth	EXISTING	366	STUDENTS
40896	TARRANT	FORT WORTH ISD DETENTION CENTER	Education	Fort Worth	EXISTING	74	STUDENTS
40897	TARRANT	SYLVANIA INDUSTRIAL PARK	Industrial	Fort Worth	EXISTING	500,000	SQUARE FT.
40897	TARRANT	DR PEPPER/SEVEN UP BTLG GROUP	Industrial	Fort Worth	EXISTING	88,398	SQUARE FT.
40898	TARRANT	WESTOVER VILLAGE	Retail	Fort Worth	UNDER CONSTRUCTION	255,000	SQUARE FT.
40898	TARRANT	TARGET	Retail	Fort Worth	EXISTING	174,000	SQUARE FT.
40899	TARRANT	101 ACADEMY	Office	Fort Worth	ANNOUNCED	690,346	SQUARE FT.
40899	TARRANT	HOME DEPOT	Retail	Fort Worth	EXISTING	137,156	SQUARE FT.
40899	TARRANT	TEXAS MOTORS INC	Retail	Fort Worth	EXISTING	94,029	SQUARE FT.
40902	TARRANT	WEST CLIFF ELEMENTARY	Education	Fort Worth	EXISTING	420	STUDENTS
40903	TARRANT	WEDGWOOD 6TH GRADE SCHOOL	Education	Fort Worth	EXISTING	451	STUDENTS

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TSZ	COUNTY	NAME	SUBCLASS	CITY	STATUS	SIZE	SIZE TYPE
40903	TARRANT	RIDGE ROCK PLAZA	Retail	Fort Worth	EXISTING	109,000	SQUARE FT.
40905	TARRANT	SHUCKEY, BRUCE ELEMENTARY	Education	Fort Worth	EXISTING	533	STUDENTS
40906	TARRANT	STEVENS, J. T. ELEMENTARY	Education	Fort Worth	EXISTING	683	STUDENTS
40907	TARRANT	CARTER PARK ELEMENTARY	Education	Fort Worth	EXISTING	577	STUDENTS
40911	TARRANT	SAMSILL CORP	Industrial	Fort Worth	EXISTING	226,865	SQUARE FT.
40917	TARRANT	EASTERN HILLS ELEMENTARY	Education	Fort Worth	EXISTING	562	STUDENTS
40917	TARRANT	EASTERN HILLS HIGH SCHOOL	Education	Fort Worth	EXISTING	1,548	STUDENTS
40921	TARRANT	WEST BIRDVILLE ELMENTARY	Education	Haltom City	EXISTING	678	STUDENTS
40922	TARRANT	HALTOM MIDDLE SCHOOL	Education	Haltom City	EXISTING	767	STUDENTS
40923	TARRANT	HOWELL,NATHA ELEMENTARY	Education	Haltom City	EXISTING	416	STUDENTS
40925	TARRANT	JOY JAMES ELEMENTARY	Education	Sansom Park	EXISTING	407	STUDENTS
40930	TARRANT	HOWRY, N. A. INTERMEDIATE	Education	Lake Worth	EXISTING	253	STUDENTS
40930	TARRANT	MORRIS, EFFIE ELEMENTARY	Education	Lake Worth	EXISTING	494	STUDENTS
40930	TARRANT	THR HOSPITAL	Institutional	Fort Worth	CONCEPTUAL	100	BEDS
40930	TARRANT	LANDMARK QUEBEC - RETAIL	Retail	Fort Worth	ANNOUNCED	300,000	SQUARE FT.
40930	TARRANT	LANDMARK LAKES PH I	Retail	Fort Worth	EXISTING	171,214	SQUARE FT.
40932	TARRANT	CATO A.V. ELEMENTARY	Education	River Oaks	EXISTING	391	STUDENTS
40932	TARRANT	CASTLEBERRY ELEMENTARY	Education	River Oaks	EXISTING	980	STUDENTS
40933	TARRANT	BURTON HILL ELEMENTARY	Education	Westworth Village	EXISTING	368	STUDENTS
40936	TARRANT	ABODE TREATMENT	Institutional	White Settlement	EXISTING	125	BEDS
40936	TARRANT	SPM FLOW CONTROL	Industrial	White Settlement	EXISTING	194,000	SQUARE FT.
40936	TARRANT	WAL-MART (CLOSED)	Retail	White Settlement	CLOSED	110,129	SQUARE FT.
40936	TARRANT	SAM'S CLUB (CLOSED)	Retail	White Settlement	CLOSED	135,711	SQUARE FT.
40936	TARRANT	ACADEMY SPORTS AND OUTDOORS	Retail	White Settlement	EXISTING	104,000	SQUARE FT.
40936	TARRANT	HARRIS ANTQUE&CLASSC DESGN	Retail	White Settlement	EXISTING	327,223	SQUARE FT.
40938	TARRANT	BLUE HAZE ELEMENTARY	Education	Fort Worth	EXISTING	534	STUDENTS
40941	TARRANT	TWIN CREEKS CROSSING	Retail	Fort Worth	ANNOUNCED	150,000	SQUARE FT.
40942	TARRANT	COMPUTALOG HOLDINGS INC	Industrial	Benbrook	EXISTING	80,180	SQUARE FT.
40944	TARRANT	RACE, BESS ELEMENTARY	Education	Crowley	EXISTING	811	STUDENTS
40944	TARRANT	CROWLEY 9TH GRADE CAMPUS	Education	Crowley	EXISTING	512	STUDENTS
40944	TARRANT	CROWLEY HIGH SCHOOL	Education	Crowley	EXISTING	1,274	STUDENTS
40945	TARRANT	DOMUS FUND RETAIL	Retail	Crowley	CONCEPTUAL	250,000	SQUARE FT.
40949	TARRANT	BEAL ELEMENTARY	Education	Forest Hill	EXISTING	522	STUDENTS
40949	TARRANT	SELLERS, DAVID K. ELEMENTARY	Education	Forest Hill	EXISTING	585	STUDENTS
40949	TARRANT	TRIPAC INTERNATIONAL	Industrial	Forest Hill	EXISTING	124,722	SQUARE FT.
40980	TARRANT	NOLAN CATHOLIC HIGH SCHOOL	Education	Fort Worth	EXISTING	1,130	STUDENTS
40986	TARRANT	RICHLAND MIDDLE SCHOOL	Education	Richland Hills	EXISTING	544	STUDENTS
41002	TARRANT	RADIO SHACK CORP	Industrial	Fort Worth	EXISTING	542,424	SQUARE FT.
41002	TARRANT	RADIO SHACK	Industrial	Fort Worth	EXISTING	600,000	SQUARE FT.
41002	TARRANT	TRAULSEN	Industrial	Fort Worth	EXISTING	285,168	SQUARE FT.
41002	TARRANT	AMERICOLD LOGISTICS (CONAGRA FOODS)	Industrial	Fort Worth	EXISTING	304,500	SQUARE FT.
41002	TARRANT	MORTEX PRODUCTS INC	Industrial	Fort Worth	EXISTING	181,937	SQUARE FT.
41005	TARRANT	TCCD NORTHWEST CAMPUS	Education	Fort Worth	EXISTING	11,548	STUDENTS
41005	TARRANT	SARAH HOLLENSTEIN CAREER AND TECHNOLOGY CENTER	Education	Fort Worth	ANNOUNCED	0	SQUARE FT.
41006	TARRANT	NORTHPOINT TRADE CTR III - 2 BLDGS	Industrial	Fort Worth	EXISTING	201,000	SQUARE FT.
41006	TARRANT	RAILHEAD BUS. STATION PH 1 - 3 BLDGS	Industrial	Fort Worth	EXISTING	214,000	SQUARE FT.
41006	TARRANT	RAILHEAD IV	Industrial	Fort Worth	EXISTING	428,000	SQUARE FT.
41006	TARRANT	CONAGRA	Industrial	Fort Worth	CLOSED	550,000	SQUARE FT.
41006	TARRANT	NORTHPOINT TRADE CENTER I	Industrial	Fort Worth	EXISTING	108,000	SQUARE FT.
41006	TARRANT	MILLARD REFRIGERATION	Industrial	Fort Worth	EXISTING	454,712	SQUARE FT.
41006	TARRANT	MATTEL	Industrial	Fort Worth	EXISTING	1,000,000	SQUARE FT.
41006	TARRANT	GRUMA (FORMERLY CHS & RODRIGUEZ)	Industrial	Fort Worth	EXISTING	299,239	SQUARE FT.
41006	TARRANT	DEARBORN CO.	Industrial	Fort Worth	EXISTING	142,032	SQUARE FT.
41006	TARRANT	WINCUP	Industrial	Fort Worth	EXISTING	149,850	SQUARE FT.
41006	TARRANT	SADDLE CREEK CORP	Industrial	Fort Worth	EXISTING	430,500	SQUARE FT.
41006	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	300,000	SQUARE FT.
41006	TARRANT	AMERICOLD LOGISTICS	Industrial	Fort Worth	EXISTING	120,000	SQUARE FT.
41006	TARRANT	NORTHPOINT TRADE CENTER II	Industrial	Fort Worth	EXISTING	100,000	SQUARE FT.
41006	TARRANT	AMERICOLD LOGISTICS (CONAGRA)	Industrial	Fort Worth	EXISTING	418,560	SQUARE FT.
41006	TARRANT	RAILHEAD BLDG 2	Industrial	Fort Worth	EXISTING	275,000	SQUARE FT.
41007	TARRANT	HUERTA, DOLORES ELEMENTARY	Education	Fort Worth	EXISTING	550	STUDENTS
41007	TARRANT	KYSOR PANEL SYSTEMS	Industrial	Fort Worth	EXISTING	182,482	SQUARE FT.
41007	TARRANT	DILLARD'S DISTRIBUTION	Industrial	Fort Worth	EXISTING	715,617	SQUARE FT.
41007	TARRANT	VIRBAC	Industrial	Fort Worth	EXISTING	129,662	SQUARE FT.
41007	TARRANT	BOMBAY DISTRIBUTION	Industrial	Fort Worth	EXISTING	250,000	SQUARE FT.
41007	TARRANT	4330 N SYLVANIA AVE.	Industrial	Fort Worth	EXISTING	180,000	SQUARE FT.
41007	TARRANT	TTI INC, MERCANTILE DIST CENTER III	Industrial	Fort Worth	EXISTING	190,000	SQUARE FT.
41007	TARRANT	MERCANTILE DIST CENTER II	Industrial	Fort Worth	EXISTING	120,000	SQUARE FT.

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TSZ	COUNTY	NAME	SUBCLASS	CITY	STATUS	SIZE	SIZE TYPE
41007	TARRANT	REYNOLDS CO. (THE)	Industrial	Fort Worth	EXISTING	85,000	SQUARE FT.
41007	TARRANT	FAA - SOUTHWEST REGION	Office	Fort Worth	EXISTING	290,000	SQUARE FT.
41165	JOHNSON	JOSHUA ISD ACCELERATED LEARNING CENTER	Education	Joshua	EXISTING	73	STUDENTS
41165	JOHNSON	STAPLES, H. D. ELEMENTARY	Education	Joshua	EXISTING	415	STUDENTS
41166	JOHNSON	MINERALS TECHNOLOGIES INC	Industrial		EXISTING	200,000	SQUARE FT.
41166	JOHNSON	WAL-MART DISTRIBUTION CENTER	Industrial		EXISTING	880,000	SQUARE FT.
41166	JOHNSON	JAMES HARDIE BLDG PRODUCTS	Industrial	Cleburne	EXISTING	380,000	SQUARE FT.
41166	JOHNSON	SUPREME CORPORATION OF TEXAS	Transit	Cleburne	EXISTING	48,485	SQUARE FT.
41168	JOHNSON	GODLEY ELEMENTARY	Education	Godley	EXISTING	405	STUDENTS
41170	JOHNSON	TEXAS HEALTH CLEBURNE	Institutional	Cleburne	EXISTING	137	BEDS
41171	JOHNSON	CLEBURNE INTERMEDIATE	Education	Cleburne	EXISTING	1,033	STUDENTS
41172	JOHNSON	CLEBURNE HIGH SCHOOL	Education	Cleburne	EXISTING	1,569	STUDENTS
41172	JOHNSON	WAL-MART SUPERCENTER	Retail	Cleburne	EXISTING	212,712	SQUARE FT.
41173	JOHNSON	CLEBURNE MIDDLE SCHOOL	Education	Cleburne	EXISTING	926	STUDENTS
41175	JOHNSON	ADAMS ELEMENTARY	Education	Cleburne	EXISTING	286	STUDENTS
41176	JOHNSON	COLEMAN ELEMENTARY	Education	Cleburne	EXISTING	525	STUDENTS
41176	JOHNSON	NOLAN RIVER MALL	Retail	Cleburne	EXISTING	213,725	SQUARE FT.
41176	JOHNSON	KROGER	Retail	Cleburne	EXISTING	100,000	SQUARE FT.
41176	JOHNSON	KROGER S/C	Retail	Cleburne	EXISTING	100,000	SQUARE FT.
41178	JOHNSON	RANGAIRE	Industrial	Cleburne	EXISTING	236,980	SQUARE FT.
41179	JOHNSON	WALLS INDUSTRIES INC	Industrial	Cleburne	EXISTING	342,288	SQUARE FT.
41179	JOHNSON	HOME DEPOT	Retail	Cleburne	EXISTING	109,045	SQUARE FT.
41186	TARRANT	BREWER HIGH SCHOOL (NEW)	Education	Fort Worth	EXISTING	2,400	STUDENTS
41187	TARRANT	NORTH ELEMENTARY (NEW)	Education	Fort Worth	EXISTING	826	STUDENTS
41187	TARRANT	ALBERTSONS	Retail	Fort Worth	EXISTING	84,801	SQUARE FT.
41187	TARRANT	ALBERTSONS SHOPPING CENTER	Retail	Fort Worth	EXISTING	84,801	SQUARE FT.
41187	TARRANT	WAL-MART SUPERCENTER	Retail	Fort Worth	EXISTING	216,716	SQUARE FT.
41189	TARRANT	FORT WORTH ACADEMY OF FINE ARTS	Education	Fort Worth	ANNOUNCED	375	STUDENTS
41190	TARRANT	HARRIS PACKAGING CORPORATION	Industrial	Fort Worth	EXISTING	154,552	SQUARE FT.
41193	TARRANT	TCCD DOWNTOWN CAMPUS	Education	Fort Worth	UNDER CONSTRUCTION	148,000	SQUARE FT.
41193	TARRANT	NASH, CHARLES E. ELEMENTARY	Education	Fort Worth	EXISTING	417	STUDENTS
41193	TARRANT	PROLOGIS NORTHPARK II	Industrial	Fort Worth	EXISTING	101,086	SQUARE FT.
41193	TARRANT	Commercial Development	Industrial	Fort Worth	EXISTING	278,482	SQUARE FT.
41195	TARRANT	FORT WORTH CITY OF	Government	Fort Worth	EXISTING	0	SQUARE FT.
41195	TARRANT	FORT WORTH CITY OF	Government	Fort Worth	EXISTING	0	SQUARE FT.
41195	TARRANT	SUMMIT OFFICE PARK	Office	Fort Worth	EXISTING	240,000	SQUARE FT.
41207	TARRANT	BELL HELICOPTER TEXTRON PLANT J	Industrial	Fort Worth	EXISTING	515,915	SQUARE FT.

Source: NCTCOG, April 2011 - GIS Clearing House, Development Shape File

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C. ACCRA Cost of Living Index

In comparison to major metropolitan centers on the east and west coasts, the Dallas-Fort Worth region offers a significantly lower cost of living. The American Chamber of Commerce Research Association's (ACCRA) Cost of Living Index is most widely utilized as a measure of cost of living factors. According to ACCRA, the DFW Metroplex, specifically Fort Worth, ranking is comparable to the national average and significantly lower than most major U.S. metropolitan areas.

	Composite	Utilities	Housing	Grocery
Atlanta	95.6	87.1	91.1	96.3
Austin	95.1	108.5	83.8	87.9
Boston	133.9	140.5	154.3	117.6
Chicago	116.6	112.2	134.8	111.6
Dallas	92.9	106.4	72.1	97.4
Denver	104.1	99.0	109.0	101.7
Fort Worth	***91.4***	***107.7***	***78.0***	***90.1***
NYC (Manhattan)	217.4	167.1	390.5	154.4
Philadelphia	126.5	134.5	141.5	125.0
Phoenix	99.7	98.1	88.6	108.3
San Francisco	164.2	93.7	281.5	112.2
San Jose	154.9	137.4	255.6	114.0
Washington, D.C.	140.5	98.1	228.2	108.6

Source: ACCRA, 1st Qtr 2011. Average city in survey = 100

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D. Regional Alternative Scenario Review

The list below gives a short synopsis of demographic scenarios examined and discussed earlier in the report.

NCTCOG 2030 FORECAST: This forecast allowed for city jurisdictional review. Cities were permitted to review the NCTCOG-produced forecast demographics at five-year iterations and make assumptions based on available land use and existing city policies and zoning. The resulting forecast saw growth continuing to push into the rural fringes as the suburbs build out. This forecast was released in April 2003.

NCTCOG 2040 FORECAST: Only the base year 2005, 2035 and 2040 demographics have been approved by NCTCOG Executive Board in February 2011. The TAP zone level demographics for years 2035 and 2040 are currently under jurisdictional review. It will be completed in five-year iterations as well.

VISION NORTH TEXAS: NCTCOG staff redistributed population and employment growth occurring between 2000 and 2030, while maintaining the population and employment control totals for the region. Growth was distributed based on a regional public official and city staff planning exercise.

TEXAS STATE DATA CENTER 0.0: The 0.0 scenario assumes that in-migration and out-migration are equal (i.e., net migration is zero) resulting in growth only through natural increase.

TEXAS STATE DATA CENTER 0.5: The 0.5 scenario has been prepared as an approximate average of the zero (0.0) and 1990-2000 (1.0) scenarios. It assumes rates of net migration one-half of those of the 1990's.

TEXAS STATE DATA CENTER 1.0: The 1.0 scenario assumes that the trends in the age, sex and race/ethnicity net migration rates of the 1990's will characterize those occurring in the future. The 1990's was a period characterized by rapid growth. It is seen here as the high growth alternative (i.e., 22.8% for the 1990-2000 decade for the State).

TEXAS WATER DEVELOPMENT BOARD: For the 2006 Regional Water Plan, future state and county population projections for each decade (2010, 2020, 2030, 2040, 2050, 2060) are calculated using 2000 Census data with a cohort-component procedure which uses the separate cohorts (age/sex/race/ethnic groups) and components of cohort change (fertility rates, survival rates, and migration rates).

E. Square Feet per Employee Estimations

The following chart represents employee coefficients that were used as a guide when reviewing and estimating employment.

Land Use Category	Estimated Square Feet per Employee
Office	275
Retail	300
Hotel/Motel	.75 Emp per Room
Institutional	800
Industrial	1250
Source: NCTCOG, 2040 Demographic Forecast Methodologies	

F. Employment Classes – Basic, Service and Retail by NAICS Codes

Basic	
NAICS Three-Digit Code	**Description**
111	Crop Production
112	Animal Production
113	Forestry and Logging
114	Fishing, Hunting and Trapping
115	Support Activities for Agriculture and Forestry
211	Oil and Gas Extraction
212	Mining (except Oil and Gas)
213	Support Activities for Mining
221	Utilities
236	Construction of Buildings
237	Heavy and Civil Engineering Construction
238	Specialty Trade Contractors
311	Food Manufacturing
312	Beverage and Tobacco Product Manufacturing
313	Textile Mills
314	Textile Product Mills
315	Apparel Manufacturing
316	Leather and Allied Product Manufacturing
321	Wood Product Manufacturing
322	Paper Manufacturing
323	Printing and Related Support Activities
324	Petroleum and Coal Products Manufacturing
325	Chemical Manufacturing
326	Plastics and Rubber Products Manufacturing
327	Nonmetallic Mineral Product Manufacturing
331	Primary Metal Manufacturing
332	Fabricated Metal Product Manufacturing
333	Machinery Manufacturing
334	Computer and Electronic Product Manufacturing
335	Electrical Equipment, Appliance, and Component Manufacturing
336	Transportation Equipment Manufacturing
337	Furniture and Related Product Manufacturing
339	Miscellaneous Manufacturing
423	Merchant Wholesalers, Durable Goods
424	Merchant Wholesalers, Nondurable Goods
425	Wholesale Electronic Markets and Agents and Brokers
493	Warehousing and Storage
Basic Aviation	
NAICS Three-Digit Code	**Description**
481	Air Transportation
927	Space Research and Technology

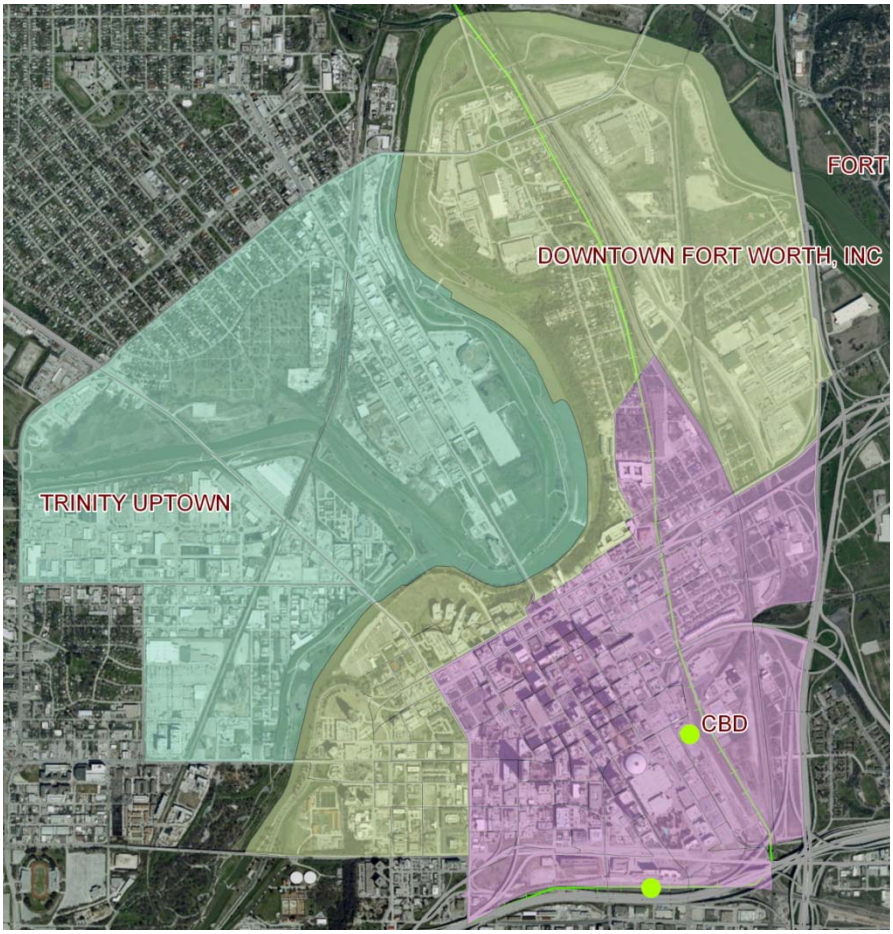
Basic Intermodal	
NAICS Three-Digit Code	**Description**
482	Rail Transportation
483	Water Transportation
484	Truck Transportation
485	Transit and Ground Passenger Transportation
486	Pipeline Transportation
487	Scenic and Sightseeing Transportation
488	Support Activities for Transportation
491	Postal Service
492	Couriers and Messengers
562	Waste Management and Remediation Services
Retail	
NAICS Three-Digit Code	**Description**
441	Motor Vehicle and Parts Dealers
442	Furniture and Home Furnishings Stores
443	Electronics and Appliance Stores
444	Building Material and Garden Equipment and Supplies Dealers
446	Health and Personal Care Stores
448	Clothing and Clothing Accessories Stores
451	Sporting Goods, Hobby, Book, and Music Stores
453	Miscellaneous Store Retailers
812	Personal and Laundry Services
Retail Food	
NAICS Three-Digit Code	**Description**
445	Food and Beverage Stores
447	Gasoline Stations
452	General Merchandise Stores
722	Food Services and Drinking Places
Service	
NAICS Three-Digit Code	**Description**
454	Nonstore Retailers
511	Publishing Industries (except Internet)
512	Motion Picture and Sound Recording Industries
515	Broadcasting (except Internet)
519	Other Information Services
521	Monetary Authorities - Central Bank
522	Credit Intermediation and Related Activities
523	Securities, Commodity Contracts, and Other Financial Investments and Related Activities
524	Insurance Carriers and Related Activities
525	Funds, Trusts, and Other Financial Vehicles
531	Real Estate
532	Rental and Leasing Services
533	Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
551	Management of Companies and Enterprises
561	Administrative and Support Services

Service	
NAICS Three-Digit Code	**Description**
711	Performing Arts, Spectator Sports, and Related Industries
712	Museums, Historical Sites, and Similar Institutions
713	Amusement, Gambling, and Recreation Industries
721	Accommodation
811	Repair and Maintenance
813	Religious, Grantmaking, Civic, Professional, and Similar Organizations
814	Private Households
921	Executive, Legislative, and Other General Government Support
922	Justice, Public Order, and Safety Activities
923	Administration of Human Resource Programs
924	Administration of Environmental Quality Programs
925	Administration of Housing Programs, Urban Planning, and Community Development
926	Administration of Economic Programs
928	National Security and International Affairs
Service Health	
NAICS Three-Digit Code	**Description**
621	Ambulatory Health Care Services
622	Hospitals
623	Nursing and Residential Care Facilities
624	Social Assistance
Service High-Tech	
NAICS Three-Digit Code	**Description**
516	Internet Publishing and Broadcasting
517	Telecommunications
518	Internet Service Providers, Web Search Portals, and Data Processing Services
541	Professional, Scientific, and Technical Services

G. Chisholm Trail Parkway Termini Analysis (CTP)

The following paragraphs provide detail of the analysis performed by RDS staff in review of the north and south terminating points of the future Chisholm Trail Parkway toll facility.

NORTHERN TERMINUS: The northern terminus of CTP is at Interstate 30 and Henderson St. in central Fort Worth. It was determined prior to this analysis that the area designated as the Central Business District (CBD) would be reviewed in its entirety. RDS consulted with WSA, the City of Fort Worth, and Downtown Fort Worth, Inc., to define the CBD for this analysis. The map below depicts the 93 TAP zones selected.



The area labeled **CBD** represents the most historical reference to downtown Fort Worth. However, the city landscape has changed dramatically over the past decade and the City and Downtown Fort Worth, Inc. now include the area highlighted in blue when defining the CBD. Furthermore, the Trinity River Vision may be the most significant development planned in Fort Worth, and given its proximity to downtown and potential impacts in the area, RDS analysts believe its geography should also be included in CBD analysis and discussions. It should also be understood that although the tables below display the results of this analysis for the entire area (93 TAP zones), individual TAP zones were only analyzed where specific data or comments were available.

CBD Forecast Analysis

	RDS						NCTCOG					
	2010	2012	2015	2020	2030	2035	2010	2012	2015	2020	2030	2035
Households	3,764	3,921	4,207	7,182	13,705	17,380	2,875	3,218	3,743	4,860	7,649	8,723
Population	10,284	10,748	11,544	19,736	38,072	48,464	6,429	7,260	8,516	11,158	18,241	20,963
Employment	59,676	61,227	63,352	68,142	76,169	79,073	69,774	71,515	74,127	78,246	85,914	89,221

From 2010 to 2015, most growth in the CBD will continue to occur in the core business district as 343 multi-family homes are added along west Lancaster (T&P Warehouse, TAP zone 9983) and 85 homes near 1600 Texas Avenue (River Tower at Trinity Terrace, TAP zone 41196). According to Downtown Fort Worth, Inc., housing is also expected to be added in proximity to Fort Worth Convention Center and Sundance Square prior to 2015. One City Place (former Tandy Center) will also be redeveloped into Class A office space. This property will be approximately 500,000 square feet and add over 1,600 jobs (assuming 90% occupancy) to the CBD. Beginning in 2015, RDS analysts began to add significant new housing and employment as the Trinity River Vision plan should be well underway. This development may add over 10,000 housing units and 15,000 jobs at build-out, which is expected to be near 2040. Downtown Fort Worth, Inc. is also expecting redevelopment along Samuels on the east side of the Trinity River. This would likely occur through demolition and higher density replacement.

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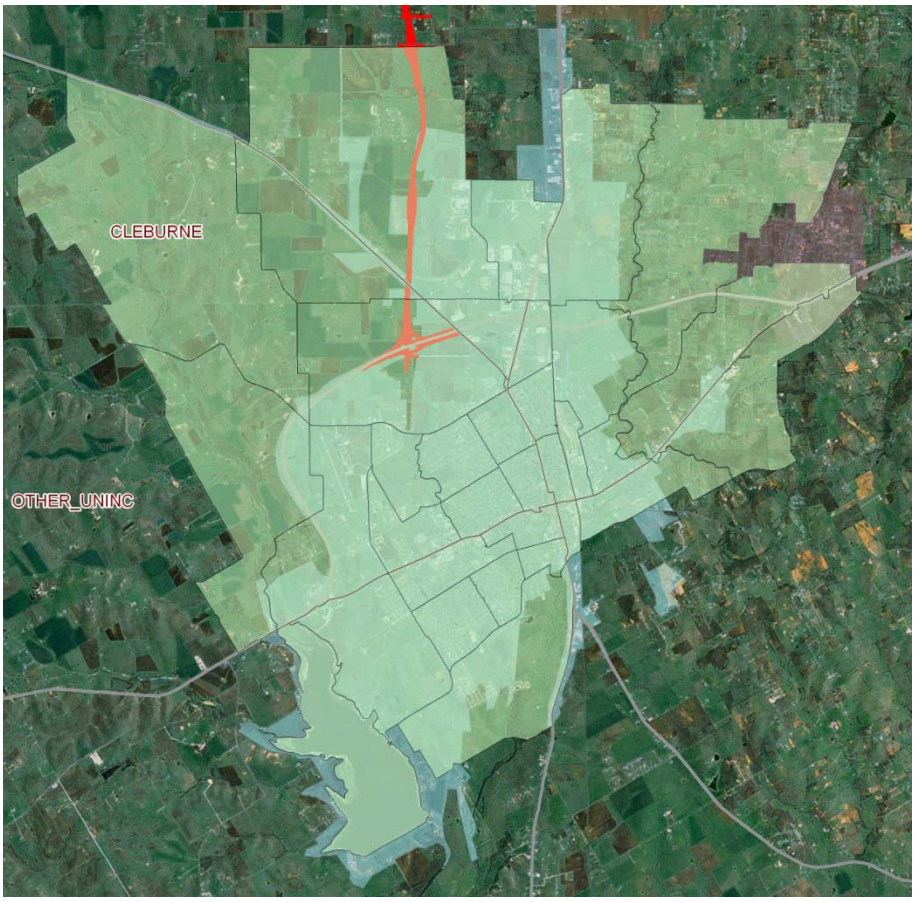
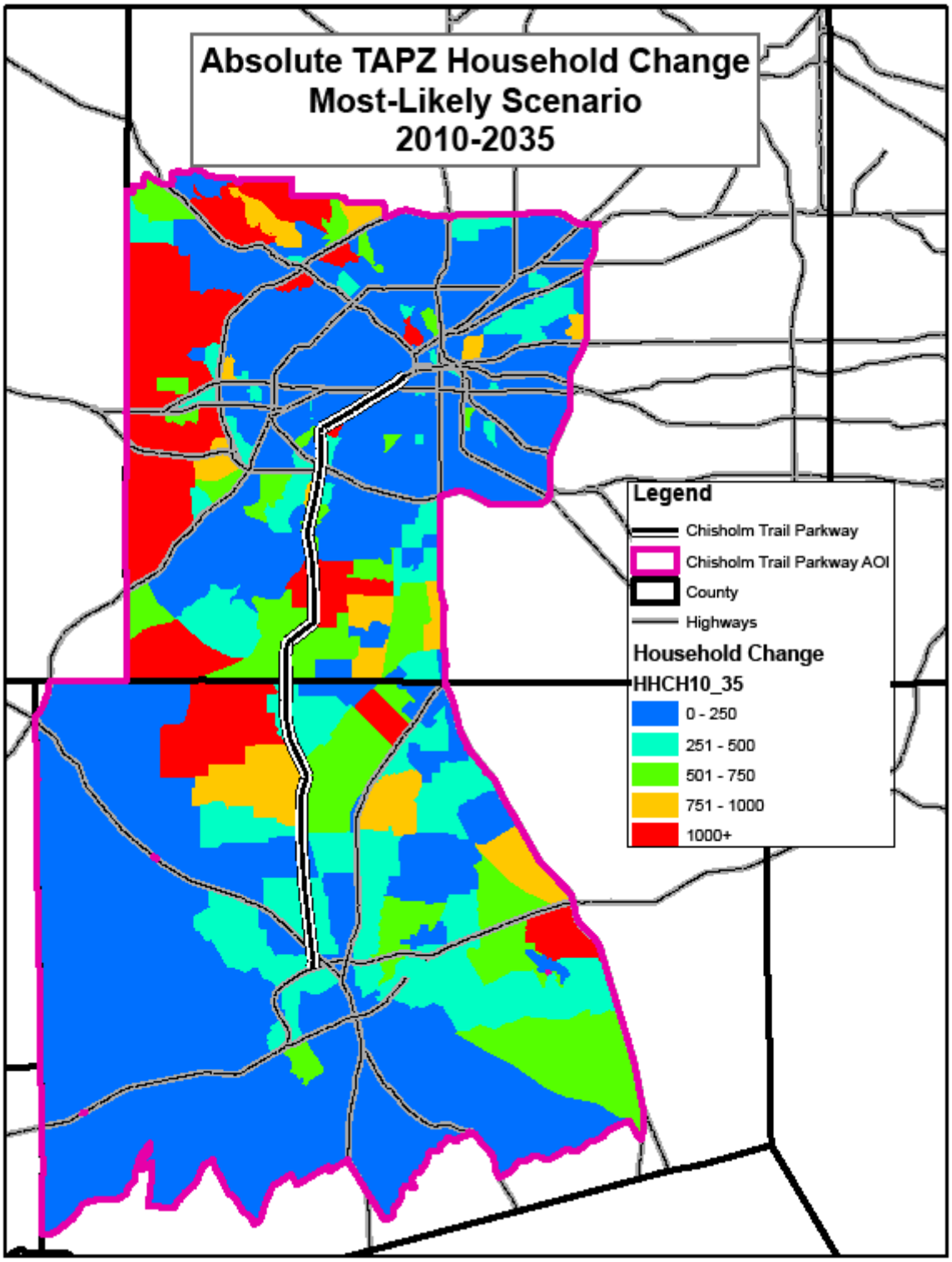
SOUTHERN TERMINUS: The CTP continues through Johnson County terminates at US 67 in Cleburne. The map below depicts the 34 TAP zones that represent the Cleburne terminus. The Cleburne Economic Development Corporation staff looks forward to construction of the Chisholm Trail and believes it could have a significant impact on residential and employment growth within the City's Extra Territorial Jurisdiction (ETJ). RDS analysts believe that residential development could increase by 50% during the term of this forecast. The strong employment growth projected by the 2040 NCTCOG Forecast appears valid, but RDS feels the 2010 employment base was aggressive and was adjusted accordingly.

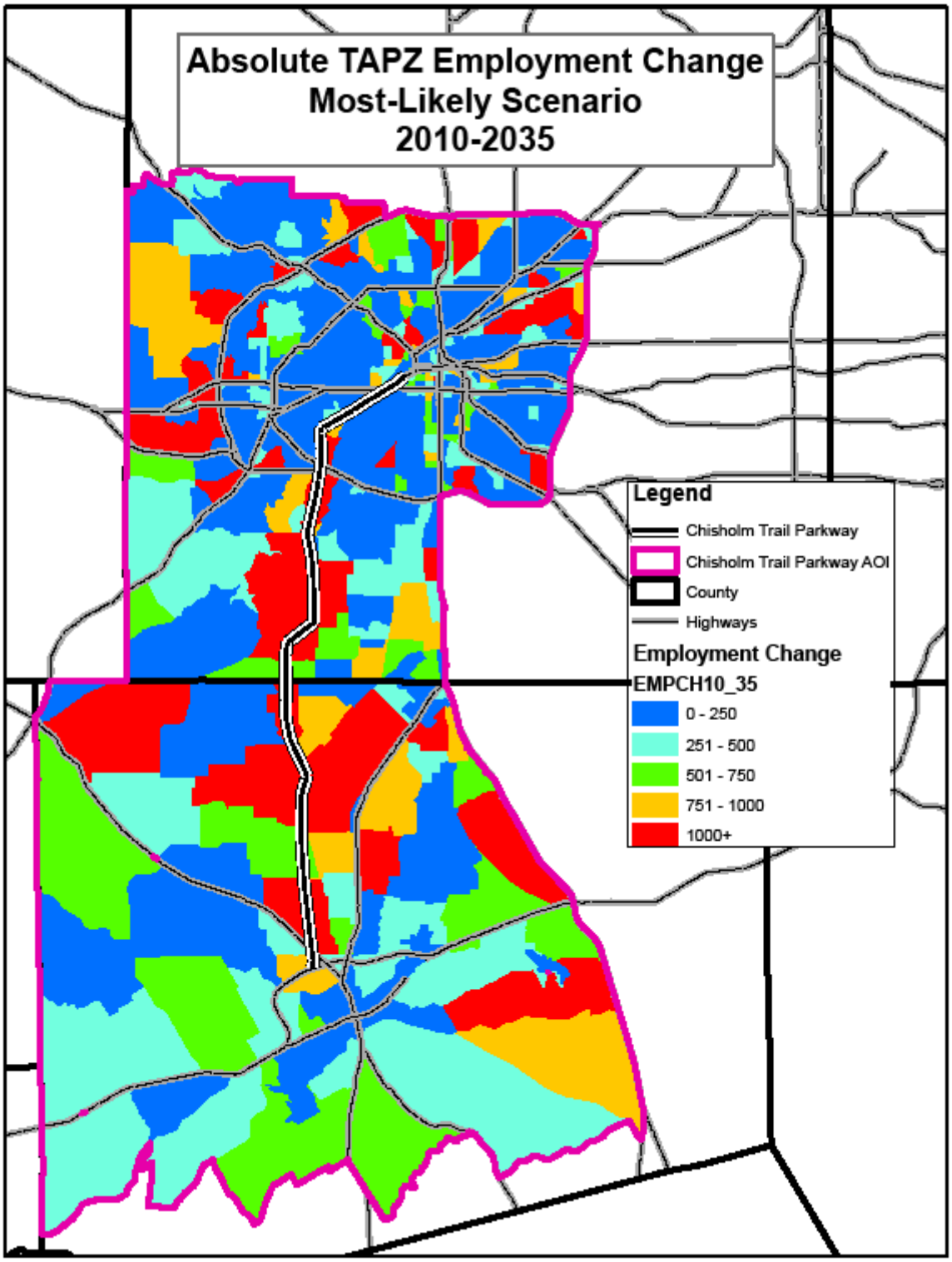


Cleburne Forecast Analysis

	RDS						NCTCOG					
	2010	2012	2015	2020	2030	2035	2010	2012	2015	2020	2030	2035
Households	12,093	12,394	13,278	14,151	16,348	18,157	12,473	12,664	12,947	13,569	14,801	16,771
Population	36,399	37,241	39,809	42,262	48,222	53,146	37,542	37,983	38,645	40,162	43,072	48,389
Employment	17,811	18,500	19,399	20,813	24,082	25,540	22,360	23,092	24,195	26,015	29,285	30,888

H. Maps


Absolute TAPZ Household Change
Most-Likely Scenario
2010-2035
Legend
Chisholm Trail Parkway
Chisholm Trail Parkway AOI
County
Highways
Household Change
HHCH10_35
0 - 250
251 - 500
501 - 750
751 - 1000
1000+


Absolute TAPZ Employment Change
Most-Likely Scenario
2010-2035
Legend
Chisholm Trail Parkway
Chisholm Trail Parkway AOI
County
Highways
Employment Change
EMPCH10_35
0 - 250
251 - 500
501 - 750
751 - 1000
1000+

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J. RDS Background and Bios

Research and Demographic Solutions **(RDS)** is a professional consulting firm that specializes in demographic research and analysis specializing in household, population and employment estimates and forecasting. RDS staff uses Geographic Information Services (GIS) for planning, demographic and mapping solutions. The services we provide help our clients establish the need for future infrastructure by providing timely decision-making information that targets rapidly changing areas within their municipalities or confirms regional and census estimates or demographic forecasts.

The principal consultants of Research and Demographic Solutions have more than 50 years of experience in helping private and public entities with demographics and facility planning. Our mission is to provide outstanding data, unmatched service and innovative GIS techniques that ensure accurate planning and forecasting decisions.

Rocky Gardiner

Rocky Gardiner has been involved in demographics and regional planning in Greater Dallas/Fort Worth area for 20 years. Mr. Gardiner started his career with the Texas Department of Transportation as a planner at their Regional Planning Office in Arlington, Texas. Mr. Gardiner moved to the North Central Texas Council of Governments (NCTCOG) in 1995 and became responsible for Population Estimates for over 150 cities in the NCTCOG region during some of the fastest growing years in DFW history.

Mr. Gardiner eventually became Manager of Research for the NCTCOG and managed all research and demographic programs for the agency. During Mr. Gardiner's tenure with the COG, the region averaged growth of over 125,000 persons per year and the region grew to over 6,000,000 persons. Other responsibilities included; major employer surveys, development monitoring, Census Bureau liaisons, and short and long-range population and employment forecasts for the North Texas Region.

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Rocky left the Council of Governments in 2004 and founded Research & Demographic Solutions, to support local governments with demographic, planning and GIS services. He is also a principal partner with Templeton Demographics, a consulting company focused on assisting school districts with forecasting, boundary planning and demographic studies.

Paul Winkelblech

Paul has been involved with regional planning and demographics in the DFW area for over 10 years. After graduating from the University of North Texas with a Bachelor's degree in Economics and a Master's degree in Economic Development and Research, Paul worked for Jamison Research as a Research Analyst. There he helped build the company's comprehensive commercial property database and was a main contributor to D Magazine's Best and Worst Places to Live issue.

After the sale of Jamison Research, Paul worked as a Research Associate for UNT's Center for Economic Development and Research. In this capacity, he assisted Dr. Bernard Weinstein and Dr. Terry Clower with projects ranging from assessment of land values around DART stations to the economic impact of Texas Motor Speedway.

In 1999, Paul joined the staff of the North Texas Council of Governments' Transportation department. There, he conducted a Transportation Land Use Impact study that assessed the relationship between Transportation Improvement Projects and their impact on adjacent land values. He was a member of the Sustainable Development and Transit team and worked on several Major Investment Studies.

Wanting to focus his efforts on demographics, Paul moved to NCTCOG's Research and Information Services department and began his partnership with Rocky Gardiner. Paul ran the

department's yearly Population Estimates program, created the largest parcel-based land use coverage in the country and assisted in the 2030 and 2040 Demographic Forecast modeling efforts. Paul routinely presented regional demographic information to various groups including real estate developers, city leaders and civic groups.

Paul has been reunited with Rocky Gardiner and is currently the Director of Research for Research and Demographic Solutions. His focus is providing top quality, decision-making information that benefits RDS clients. Paul has worked with a number of different entities while at RDS, including the North Texas Tollway Authority, Wilbur Smith Associates and the City of Dallas. Paul is also currently a member of the American Planning Association and the Dallas Area Business Economists.

Terry L. Clower, Ph.D.

Terry L. Clower is director of the Center for Economic Development and Research at the University of North Texas. The Center provides economic and public policy consulting services to clients in the private, non-profit, and public sectors. Prior to joining UNT in January 1992, Dr. Clower was employed in private industry in logistics and site location management positions.

Dr. Clower has served as associate director, project manager, staff researcher, and statistical analyst on numerous projects reflecting experience in labor relations, economic and community development, public utility issues, transportation, and economic impact analyses. He serves as the Center's resident expert on telecommunications focusing on policy issues regarding infrastructure development. Drawing upon nearly a decade of experience in logistics management, Dr. Clower leads the Center's transportation research efforts.

In addition to his work with the Center for Economic Development and Research, Dr. Clower has performed consulting services to municipalities and companies in the electronics, telecommunications, and publishing industries. The focus of these activities has included rural development, labor relations, tax policies, and market performance issues.

Dr. Clower is an associate professor with the Institute of Applied Economics at the University of North Texas. He has taught formal courses in economic and community development, research methods, and the political economy of Texas. In addition, Dr. Clower works with several students each semester in one-on-one explorations of a variety of topics.

Dr. Clower received a B.S. in Marine Transportation from Texas A&M University in 1982, a M.S. in Applied Economics from the University of North Texas in 1992, and a Ph.D. in Information Sciences from the University of North Texas in 1997 specializing in information policy issues and the use of information resources.

APPENDIX B

STATED PREFERENCE SURVEY

This appendix contains the documentation of the stated preference survey as provided by the subconsultant, Resource Systems Group. This report was originally provided to WSA in June 2006. An update letter was provided to WSA in April 2011 and is also included in this appendix.

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RSG INC.
RESOURCE SYSTEMS GROUP, INC.

Documentation for

SH 121 SOUTHWEST PARKWAY STATED PREFERENCE SURVEY

Prepared for

Wilbur Smith Associates

June 2006

EXECUTIVE SUMMARY

The SH 121 Southwest Parkway Stated Preference Survey was conducted by Resource Systems Group Inc. (RSG) for Wilbur Smith Associates and the North Texas Tollway Authority (NTTA). The SH 121 Southwest Parkway is a proposed extension of SH 121 that would run from IH-30 just west of downtown Fort-Worth to US 67 in Cleburne, Texas.

The objective of the stated preference survey was to estimate reliable values of the toll sensitivity, or "values of time," of travelers in the proposed SH 121 Southwest Parkway corridor. The data collected for this survey required sufficient detail to allow analyses of traveler responses to different toll structures and toll collection options and an analysis of toll sensitivities by trip type sufficient to support route diversion modeling.

The stated preference survey employed a computer-assisted self-interview (CASI) technique that used software developed by RSG. The customized proprietary software was programmed for administration at field intercept sites on laptop PCs as well as for use over the Internet via e-mail distribution to a targeted audience.

The survey questionnaire asked respondents to describe their most recent trip within the study area. Origin and destination information was collected from each participant in order to customize the questions relating to the respondent's most recent trip. These questions were followed with a series of eight stated preference scenarios where respondents were asked to choose between using the new SH 121 Southwest Parkway and their current toll-free route. The questionnaire included sufficient demographic details to allow the resulting values of time to be applied to the full population of users and for the results to be segmented into market groups of similar characteristics.

Data collection took place between January and February 2006. A total of 1,827 complete surveys were collected from respondents intercepted at activity centers and employees of local businesses and TollTag transponder holders who filled out the questionnaire online.

Statistical analysis and discrete choice model estimation were carried out using the stated preference survey data segmented by time of day and county of residence. The statistical estimation and specification testing were completed using a conventional maximum likelihood procedure that estimated a set of coefficients for each segment. The coefficients provide information about the relative importance of travel time and toll cost that can be used to infer travelers' values of time (VOT).

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INTRODUCTION

Resource Systems Group Inc. (RSG) conducted the SH 121 Southwest Parkway stated preference survey in early 2006 for Wilbur Smith Associates and the North Texas Tollway Authority (NTTA). The survey was conducted as part of an investment-grade traffic and revenue study of the SH 121 Southwest Parkway, a proposed extension of SH 121 from IH-30 just west of downtown Fort Worth to US 67 in Cleburne, Texas.

The objective of the stated preference survey was to collect data to develop reliable estimates of the toll sensitivity, or "values of time," of travelers in the proposed SH 121 Southwest Parkway corridor by using discrete choice model estimation. The data were required to be detailed enough to allow analyses of traveler responses to different toll structures and an analysis of toll sensitivities by trip type sufficient to support route diversion modeling. Estimates of toll price sensitivity and propensity to use the new route will support estimates of traffic and revenue on the proposed new toll road.

This report documents the development and administration of the survey, presents the results of the survey, and summarizes the discrete choice model estimation methodology and findings. Appendix A contains the script of the survey, Appendix B shows a series of example screens from the computer-based survey instrument, Appendix C presents tabulations of the responses to each question asked in the survey, and Appendix D lists respondents' free-form comments.

APPROACH

The stated preference survey instrument was programmed using customized software developed by RSG for both field intercept administration using laptop computers and online administration through RSG's SurveyCafe.com website. The customized computer-based survey software adapts to the trip characteristics of each respondent making the questionnaire realistic for each individual. By performing calculations behind the scenes, it allows for the presentation of complex ideas in a simple manner. Electronic validation of each question eliminates item nonresponse and prevents the entry of invalid inputs. Responses to each question are stored directly to a database, thus reducing data entry costs and eliminating transcription error.

The flexibility of the survey software means the questionnaire can be loaded onto laptop computers and administered at various intercept sites and also be accessible online for anyone with an Internet connection. Having both survey completion options allows for the sampling of a wide range of travelers across income, age, and other demographic factors. In particular, the online completion option is a cost effective way to reach a large number of respondents and can boost participation from segments of the population that typically have low response rates, namely individuals who are younger, more affluent, and highly educated.

SURVEY QUESTIONNAIRE

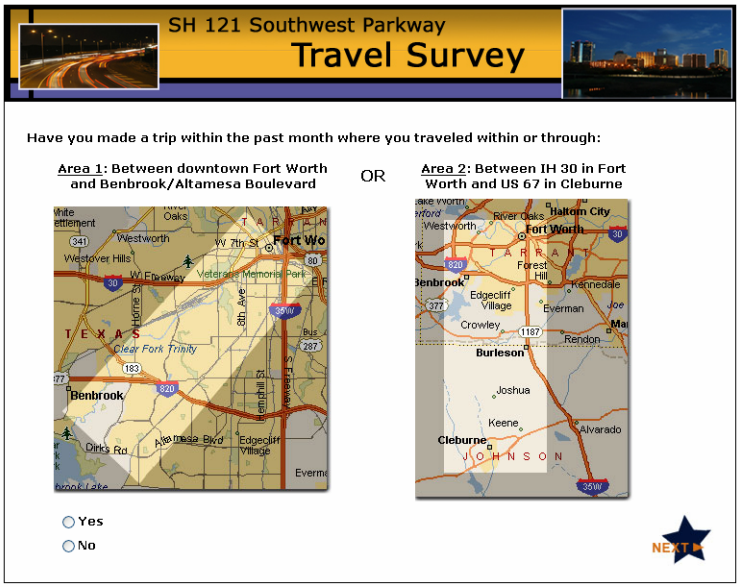
The survey questionnaire briefly introduced the purpose of the survey and then asked questions grouped into four sections: a trip-description section, a stated preference section with a series of trade-off questions regarding travel time and toll cost, a follow-up to the stated preference section,

and a demographics section. The text of this questionnaire is included in Appendix A and example survey screens are shown in Appendix B.

TRIP DESCRIPTION SECTION

Following a brief introduction to the SH 121 Southwest Parkway project and purpose of the study, respondents were asked if they had made a recent trip within all or part of the SH 121 Southwest Parkway study corridor (Figure 1).

Figure 1: Survey Screen with Screening Question



Respondents who made a qualifying trip were asked to provide details of their trip, including the day of the week they traveled, the purpose of their trip, the time period in which their trip began, and the roads they used along their route.

Respondents provided information about where their trip began and ended by either entering an address for the locations or by clicking on the locations using an interactive map. This location information was geocoded to provide the latitude and longitude for each respondent's origin and destination and was used to place the locations within specific traffic survey zones (TSZ). Skim data from a regional traffic network model were provided by Wilbur Smith Associates. The skim data contained the shortest distance and travel time between each TSZ pair for both free-flow and congested conditions.

These data were used to validate the new SH 121 Southwest Parkway as a possible alternative for the respondent's reported trip and as inputs to build the alternatives shown in the stated preference scenarios.

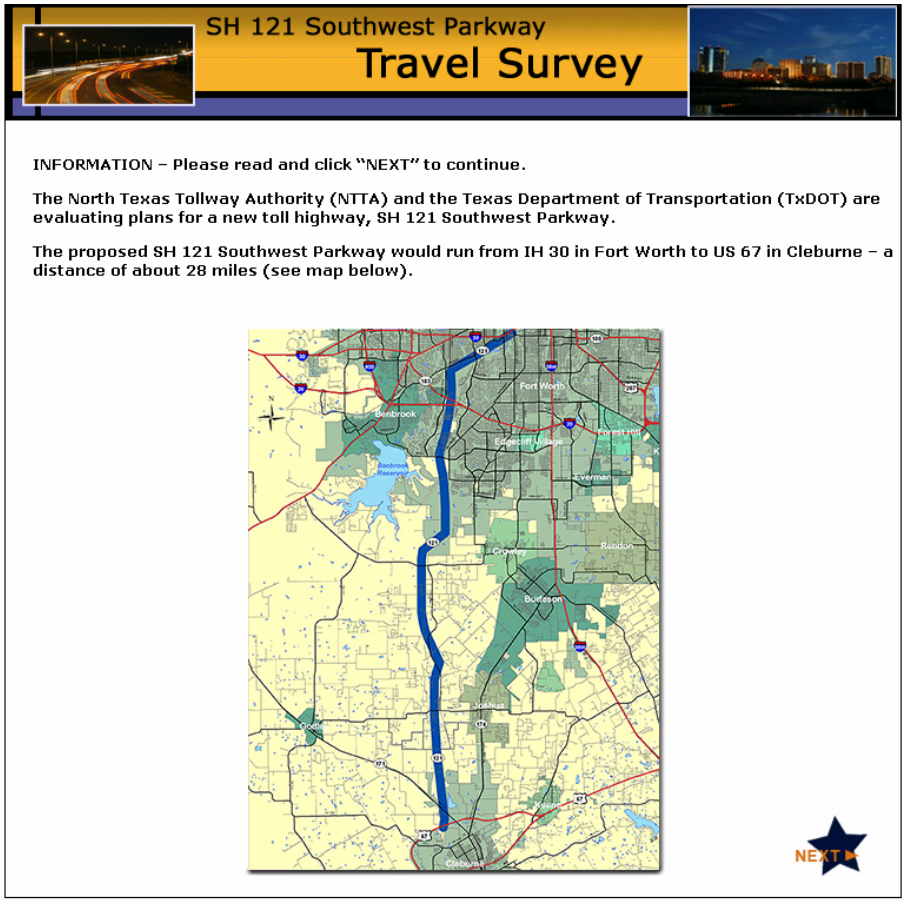
After entering origin and destination information, respondents were asked for additional details about their trip, including trip frequency, trip duration, delay experienced, vehicle occupancy, and current electronic toll collection (ETC) ownership, such as a TollTag transponder. Those who did not own, nor planned to purchase, a TollTag transponder were asked to select the reason(s) for their choice.

STATED PREFERENCE SECTION

Introduction

Before beginning the stated preference exercises, respondents were presented with more specific information about the proposed SH 121 Southwest Parkway (Figure 2). Respondents were also given a description of open road tolling and the toll collection methods that would likely be used on the new facility.

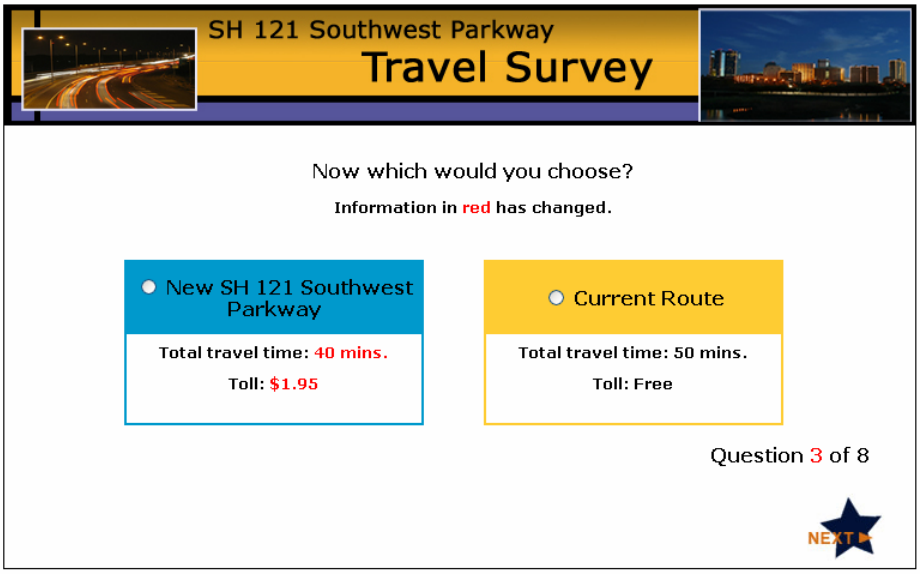
Figure 2: Survey Screen with Stated Preference Instructions



Definition of Alternatives

The stated preference section consisted of eight hypothetical scenarios. Each scenario presented respondents with two routes connecting their origin and destination points: (1) The respondent's current toll-free route with the respondent's reported travel time (this did not vary throughout the eight scenarios) and (2) travel times and toll costs based on the calculated use of SH 121 Southwest Parkway in completing an identical trip. Figure 3 shows an example stated preference scenario.

Figure 3: Survey Screen with Example Scenario



Definition of Attributes and Levels

Travel times and toll costs for the SH 121 Southwest Parkway alternative were presented at different values or "levels" in each of the respondent's eight scenarios. The combination of time and cost levels presented in each scenario was selected using a fractional factorial orthogonal experimental design, a commonly used experimental design method which allows collection of the most information possible about the relative importance of the attributes in the fewest possible scenarios. This design consisted of 32 scenarios, and each respondent saw 8 of the 32 scenarios in a randomized order.

To ensure that the SH 121 Southwest Parkway alternatives were believable to the respondent, the values for travel times and toll costs were based on characteristics of the respondent's own trip. The origin and destination traffic survey zones, along with the skim data, determined the respondent's likely route for their trip using the SH 121 Southwest Parkway. Calculations of the most likely entrance and exit ramp locations determined the respondent's hypothetical access times to, egress times from, and total distance along the parkway. Time spent on the parkway and toll costs were then varied by travel speed and toll cost per mile, respectively, to provide values meeting the experimental design criteria (Table 1). By varying the travel times and tolls shown in each scenario, the respondent

was faced with different time saving amounts for different costs, allowing the demonstration of travel preferences across a range of values of time.

Table 1: Stated Preference Attributes and Levels

Alternative 1: SH 121 Southwest Parkway
Travel Time *(If distance on SH 121 Southwest Parkway is 12 miles or more)* Access/Egress time + SH 121 distance at 45 mph Access/Egress time + SH 121 distance at 55 mph Access/Egress time + SH 121 distance at 65 mph Access/Egress time + SH 121 distance at 75 mph *(If distance on SH 121 Southwest Parkway is less than 12 miles)* Access/Egress time + SH 121 distance at 65 mph – 5 minutes Access/Egress time + SH 121 distance at 65 mph – 3 minutes Access/Egress time + SH 121 distance at 65 mph - 1 minutes Access/Egress time + SH 121 distance at 65 mph + 1 minute *Note: The minimum possible time shown to respondents was 5 minutes.* *Access/Egress time was established using respondents' origin/destination TSZ pairs and skim data and was held constant.*
Toll SH 121 distance at $0.10 per mile SH 121 distance at $0.12 per mile SH 121 distance at $0.13 per mile SH 121 distance at $0.16 per mile SH 121 distance at $0.19 per mile SH 121 distance at $0.21 per mile SH 121 distance at $0.23 per mile SH 121 distance at $0.25 per mile *Note: SH 121 distance was limited to 22 miles to create a maximum possible toll of $5.50.*
Alternative 2: Current Route, Toll-free
Travel Time Reported travel time (not varied) **Toll Free**

STATED PREFERENCE FOLLOW-UP SECTION

Directly following the stated preference section, respondents who never selected the SH 121 Southwest Parkway route in the eight stated preference scenarios were asked to indicate their primary reason for rejecting this alternative. Respondents who chose the SH 121 Southwest Parkway option

at least once, but did not have, or plan to acquire, a TollTag transponder, were asked their interest in transponder ownership given a toll discount of 25% for transponder use. Respondents were additionally asked their overall opinion of the project and their primary reason for support or opposition. Finally, respondents were asked if they would still use the SH 121 Southwest Parkway option if an increase in the toll cost of 2 cents per mile was used to fund aesthetic improvements along the corridor.

DEMOGRAPHICS SECTION

The final section of the survey contained a series of questions to collect data, such as county of residence, household size, number of children, number of household vehicles, gender, age, employment status, and income. This information was used to determine differences in responses among different traveler segments.

Respondents were given the opportunity to provide open-ended comments at the end of the survey (reported in Appendix D).

SURVEY ADMINISTRATION

Data collection took place between January 14 and April 4, 2006. The survey was administered to the target sample of respondents using a computer-assisted self-interview (CASI) instrument developed by RSG, with both Internet and field-intercept administration techniques.

ADMINISTRATION AT INTERCEPT SITES

The final survey questionnaire was administered at field intercept sites over an 11-day period between Sunday, January 14, and Wednesday, January 25. During on-site administration, 623 qualifying respondents completed the survey.

Respondents who made a current trip that could, in the future, use the proposed SH 121 Southwest Parkway were intercepted in relevant locations in the Fort Worth and Cleburne areas. Emphasis was placed on selecting sites that were proximate to the study corridor and would allow collection of responses for both work and non-work travel. The survey was administered at sites with high pedestrian traffic and where respondents had a high likelihood of meeting the screening criteria (they had made a trip in the study corridor within the last month). Sites were chosen that would allow a good cross-section of the population to be intercepted, in terms of both trip purposes and demographics. Survey sites included Texas Department of Public Safety locations and shopping centers, among others (Table 2).

Table 2: Activity Centers Where Survey Respondents Were Intercepted

Site	City/Town
Texas Department of Public Safety	Cleburne
Texas Department of Public Safety	Fort Worth
Nolan River Mall	Cleburne
Sundance Square	Fort Worth
Fort Worth Zoo	Fort Worth
Hulen Mall	Fort Worth

The intercept survey administration setup consisted of 12 laptop computer interview stations distributed across two to four locations each day. A framed poster mounted on an easel was positioned near the interview stations to assist in attracting respondents.

Each survey site was staffed by three survey attendants who were responsible for soliciting and screening potential respondents, escorting the respondents to interview stations, and assisting respondents with questions or use of the computers if necessary.

When taking the survey, respondents sat in front of a laptop computer and primarily used a mouse to record answers and navigate through the survey. On average, respondents took between 10 and 11 minutes to complete the survey. Data for each individual were automatically saved to the computer for later analysis. Respondents were generally enthusiastic about taking the survey and seemed to enjoy the survey's interactive technology.

ONLINE SURVEY ADMINISTRATION

RSG hosted an online version of the stated preference survey on their SurveyCafe.com website. The online questionnaire was identical to the one used at field-intercept administration sites. Respondents were recruited from three primary sources between January 23 and April 4, 2006:

1. Employees from businesses, colleges, universities, and school districts within the study area
2. TollTag holders residing in zip codes within 5 miles of the proposed route
3. Participants in an origin-destination survey who provided an e-mail address to participate in this survey

Employers who agreed to participate in the survey sent invitations to their employees through e-mail, online bulletins, and newsletters or paper flyers. The invitations included a brief description of the survey with a link to the online questionnaire at SurveyCafe.com. Participating employers included several large businesses, as well as colleges, universities, and secondary school districts in the area.

The North Texas Tollway Authority identified TollTag transponder holders residing in zip codes that were located within 5 miles of the proposed SH 121 Southwest Parkway route. Invitations were sent via e-mail to a total of 7,113 TollTag transponder holders with valid e-mail addresses.

Wilbur Smith Associates conducted a paper-based origin-destination survey in the study corridor, concurrent with this stated preference survey. Respondents who completed the origin-destination

survey were given the option of providing their e-mail address to participate in this survey. Those who did were sent an invitation via e-mail. A total of 678 respondents were invited to participate using this method.

SURVEY RESULTS

SAMPLE OVERVIEW

A total of 1,827 respondents completed the stated preference survey: 36% during the intercept survey that took place January 14–January 25, 48% through online completion by TollTag transponder holders, 13% from respondents who completed a separate origin-destination survey and agreed to participate in this as a follow-up, and the remaining 3% from a number of area employers (Table 3).

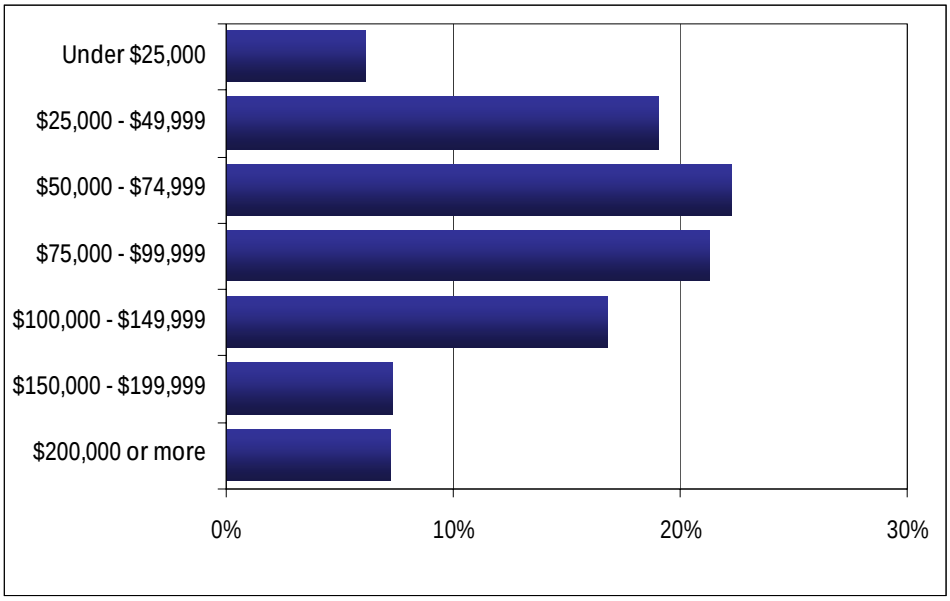
Table 3: Source of Completes

	Completes	Percentage
Intercept at activity sites	659	36%
Online TollTag recruit	881	48%
Origin-destination survey e-mail recruit	229	13%
Online business recruit	58	3%
Total	**1,827**	**100%**

RESPONDENT CHARACTERISTICS

The gender distribution in the sample was 59% male and 41% female. Nearly 83% of the sample were employed full time, part time, or were self-employed. The median age, as well as the largest sample of respondents, was between 35 and 44 years. Annual household incomes were distributed as shown in Figure 4, with the median annual household income falling in the $75,000 to $99,999 category.

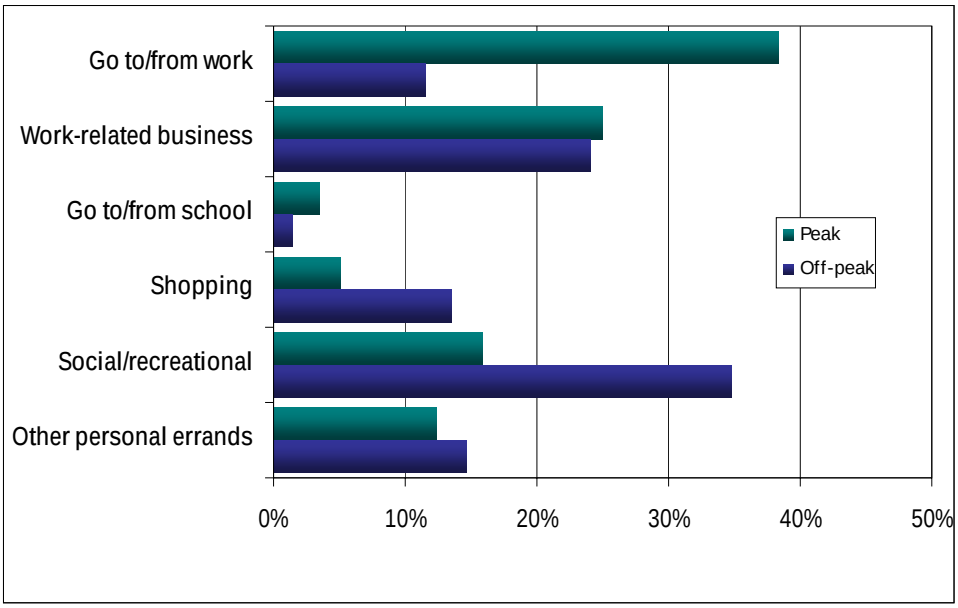
Figure 4: Annual Household Income for Survey Respondents



TRIP CHARACTERISTICS

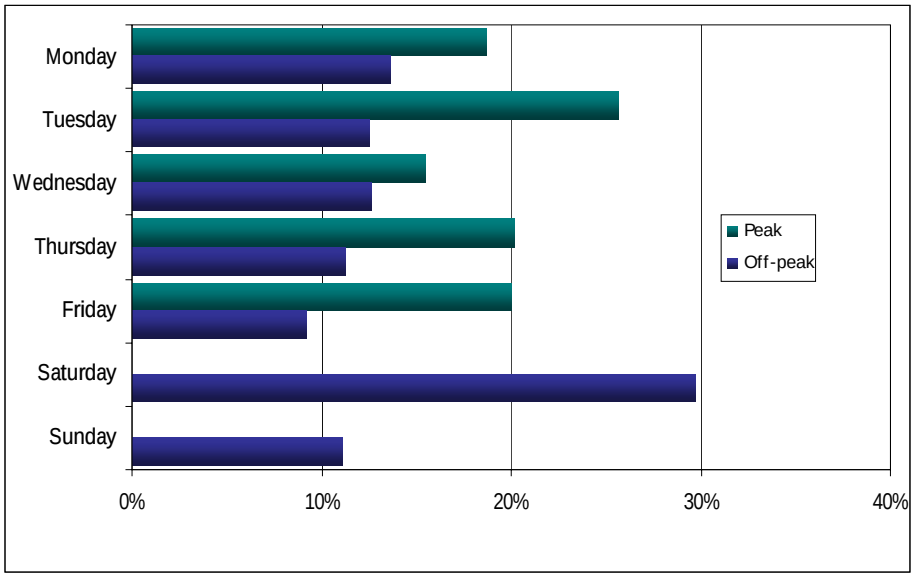
Most peak-period travelers made trips to or from work or other business-related trips (Figure 5). Nearly half of the respondents who traveled off-peak (48%) made either shopping or social/recreational trips.

Figure 5: Trip Purpose



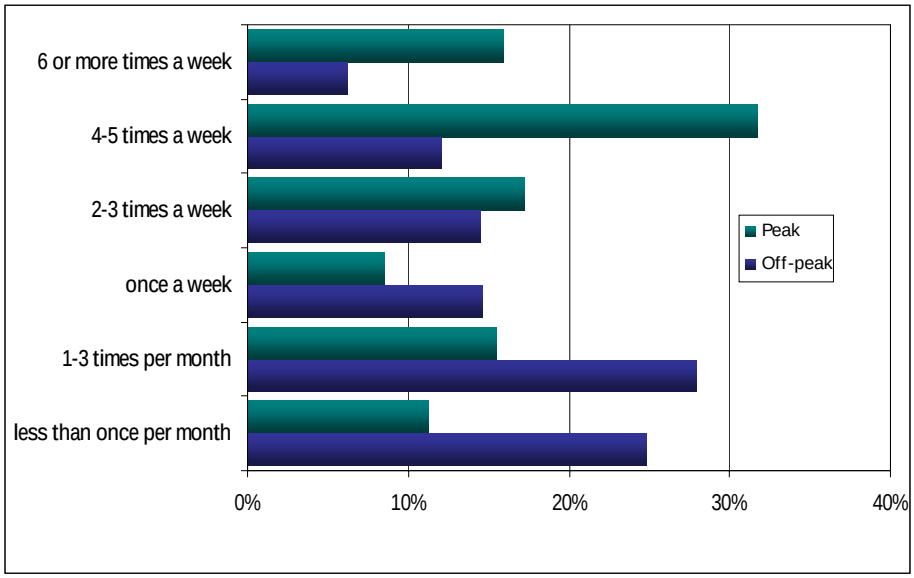
Peak period trips were distributed fairly evenly among the weekdays. Forty-one percent of off-peak trips were made on weekends (Figure 6). By definition, all peak-period trips were on weekdays.

Figure 6: Day of Week



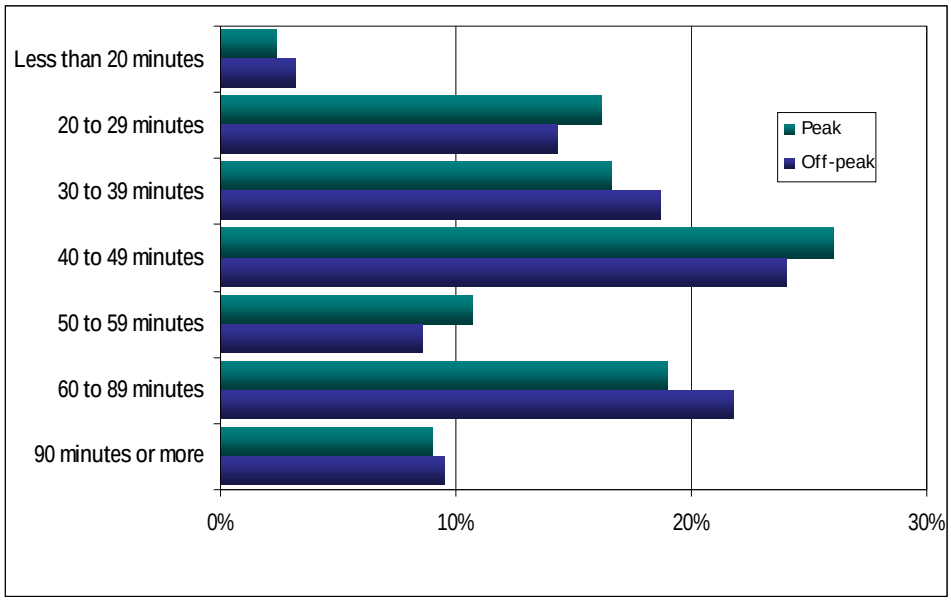
Respondents who traveled in the off-peak reported trips that were made less frequently than respondent who traveled in the peak. Fifty-three percent of off-peak trips were made less than three times per month while most peak trips (65%) were made at least two times per week (Figure 7).

Figure 7: Trip Frequency



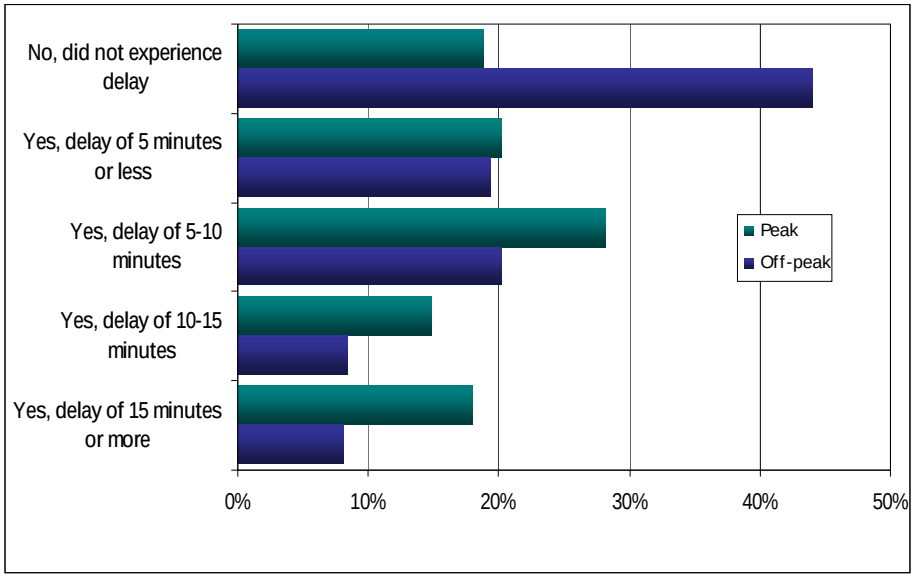
Peak-period trips were roughly equal in duration to off-peak trips. Nearly 39% of peak trips were 50 minutes or greater, while 40% of off-peak trips were also 50 minutes or greater. Less than 3% of all peak period trips took less than 20 minutes (Figure 8).

Figure 8: Trip Duration



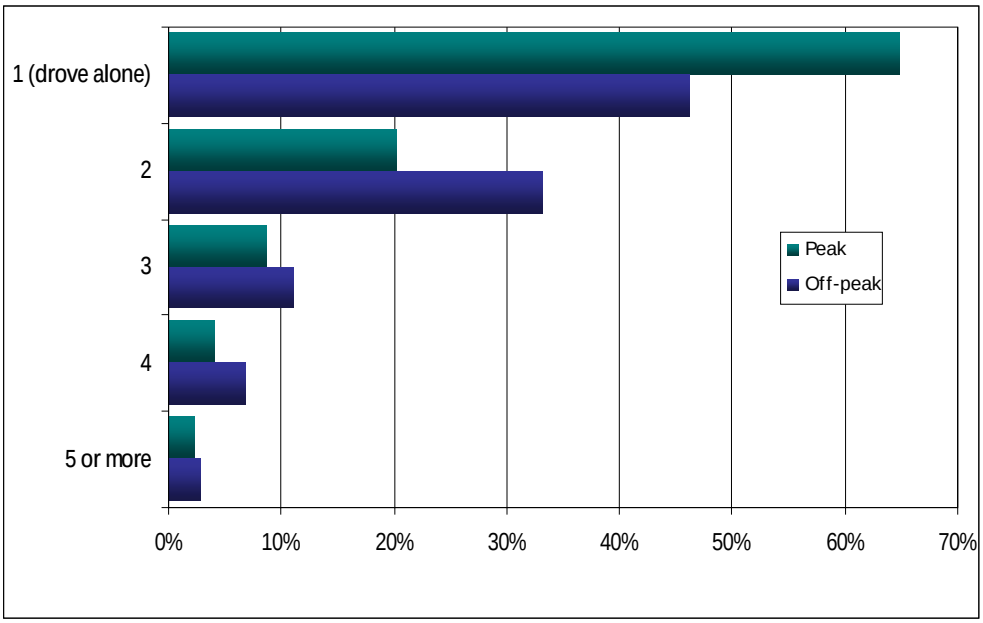
Respondents traveling during the peak period reported delays more frequently than those traveling in off-peak hours (Figure 9). Sixty-one percent of respondents who traveled during peak periods experienced a delay of 5 or more minutes.

Figure 9: Trip Delays



Respondents who traveled during off-peak periods had greater vehicle occupancy than those traveling during peak periods. Most (65%) peak-period travelers drove alone, compared with 46% of off-peak travelers (Figure 10).

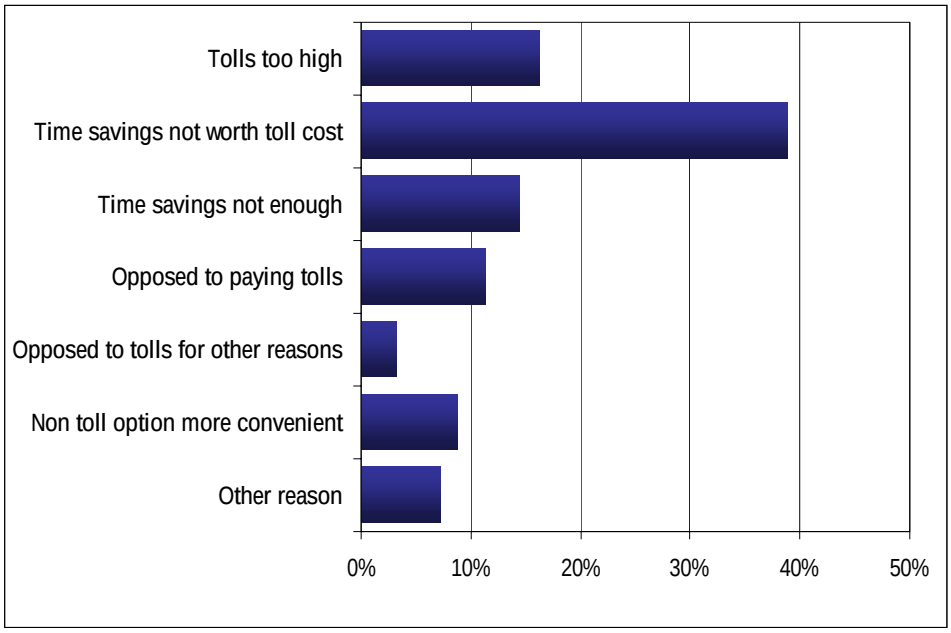
Figure 10: Vehicle Occupancy



DEBRIEF AND OPINION QUESTIONS

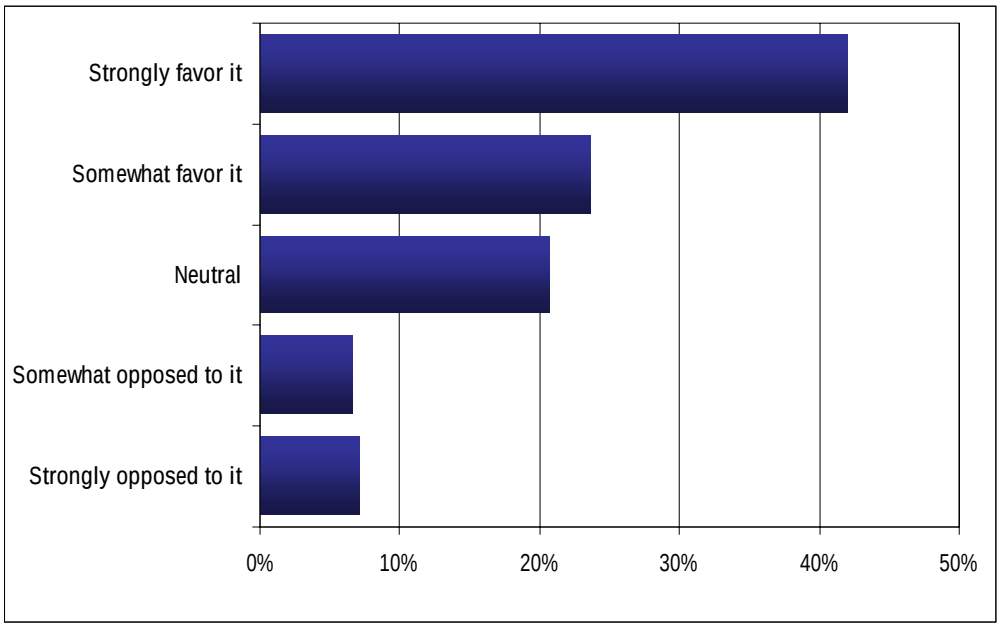
Respondents who never selected one of the SH 121 Southwest Parkway alternatives in the stated preference section were asked why they did not. Most believed that the time savings were not worth the toll cost (Figure 11).

Figure 11: Reason for Never Selecting the SH 121 Southwest Parkway Alternative in the Stated Preference Experiments



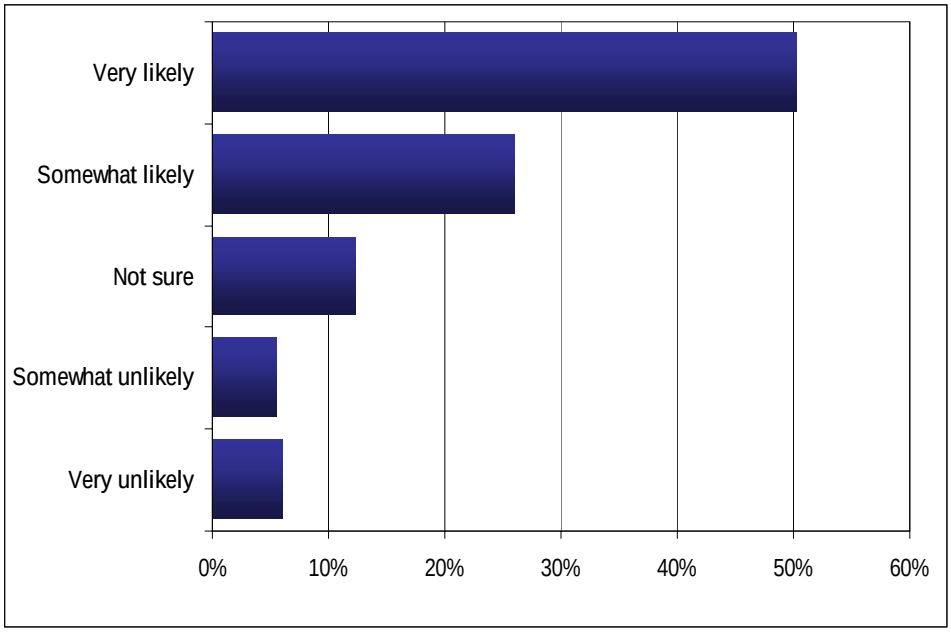
Respondents were then asked their opinion of the proposed SH 121 Southwest Parkway project. Two-thirds of respondents were somewhat or strongly in favor of the project, while only 14% were opposed (Figure 12). Those in favor reported improved access in and out of Forth Worth, less congestion, and shorter travel times as the main reasons for supporting the project. The majority (61%) of respondents opposed to the project were opposed to tolls in general or felt that the tolls on the SH 121 Southwest Parkway were too high.

Figure 12: Opinion of Proposed SH 121 Southwest Parkway Project



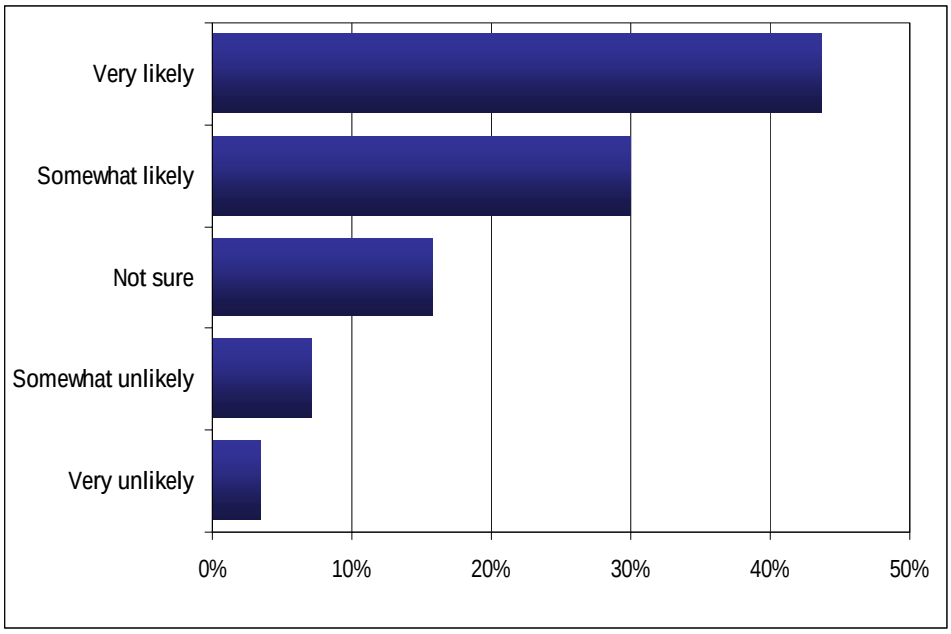
Respondents without a TollTag transponder who selected at least one of the SH 121 Southwest Parkway alternatives were asked for their likelihood of obtaining a transponder if they would receive a 25% discount over cash. More than three-quarters (76%) said that they would be very or somewhat likely to obtain a transponder (Figure 13).

Figure 13: Likelihood of Obtaining a TollTag Transponder if Toll Discounted



Respondents who selected at least one of the SH 121 Southwest Parkway alternatives were asked how likely they would be to use the SH 121 Southwest Parkway if the tolls were slightly higher in order to fund aesthetic improvements to the corridor. The response was positive, with just under three-quarters of respondents (74%) claiming to be very or somewhat likely to use the road with a slightly higher toll.

Figure 14: Likelihood of Using SH 121 Southwest Parkway with an Increased Toll to Fund Aesthetic Improvements



MODEL ESTIMATION

METHODOLOGY

The statistical estimation and specification testing was completed using a conventional maximum likelihood procedure that estimated a single set of coefficients for a multinomial logit model.[1] These coefficients were used to estimate the value of time (VOT) for travelers in the SH 121 Southwest Parkway study corridor. The VOT estimates are used as inputs for the toll traffic demand modeling and revenue estimates for the SH 121 Southwest Parkway.

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[1] The multinomial logit model has the general form $p(i) = \frac{e^{U_i}}{\sum_{AllModes} e^{U_j}}$, where *p(i)* is the probability that mode i will be chosen and U_i is the "utility" of mode i, a function of service and other variables. See, for example, M. E. Ben-Akiva and S. R. Lerman, *Discrete Choice Analysis*, MIT Press, 1985, for details on the model structure and statistical estimations procedures.

ALTERNATIVES

Each stated preference scenario consisted of two alternatives, as described in the survey questionnaire section of this report:

1. SH 121 Southwest Parkway route with a toll
2. Current toll-free route

Respondents indicated their preferred alternative given different travel times and toll costs in each scenario.

IDENTIFICATION OF OUTLIERS

Outliers in the data were identified in several ways, including identification of extreme values in the input data and post-estimation identification of responses with low choice probabilities. The data were screened for inconsistencies between reported travel time and estimated travel time from skim data and the likelihood of the proposed SH 121 Southwest Parkway being a reasonable alternative to their current route. Respondents selecting an alternative with less than a 5% choice probability were also excluded from the final estimations. Data from 1,580 respondents were used to estimate the final model results documented in this report.

GENERAL MODEL STRUCTURE

Several utility equation structures were tested using the variables included in the stated preference survey as well as demographic and trip characteristic variables. Specification testing included evaluation of various alternative-specific constants, bias-removing constants, and toll-payment coefficients. The structure of the model for which results are presented here includes four coefficients. Coefficients were specified for travel time and toll cost, as well as an alternative-specific constant (Table 4).

Table 4: Model Specification

Coefficient	Units	Alternatives	
		SH 121 Southwest Parkway	Current Route
Travel Time	minutes	X	X
Toll Cost with ETC	dollars*	X	
Toll Cost without ETC	dollars*	X	
Current Route Constant	(0,1)		X
*Toll cost is divided by the natural log of annual household income in thousands of dollars			

Two toll cost coefficients were estimated - one for respondents who had a TollTag transponder, and one for respondents who did not have a TollTag transponder. The coefficients were estimated separately to remove a potential source of bias caused by the large proportion of TollTag transponder holders in the sample. Because all TollTag holders from zip codes within 5 miles of the study corridor were invited to participate in the survey, they account for nearly 50% of this sample.

However, counts from the NTTA and data from the 2000 Census show that approximately 1.8% of the population age 18 or older in zip codes within 5 miles of the study corridor have active TollTag accounts.

An alternative specific constant was estimated to capture inertia effects, as well as any other utility for the current toll-free route that cannot be explained by time and cost alone.

Several transformations of the cost coefficients related to income and vehicle occupancy were tested. Transforming toll cost by income (by dividing it by the natural log of household income in thousands of dollars) was found to improve the models. This transformation captures the tendency for sensitivity to cost to decrease as income increases. Transformations of toll cost by vehicle occupancy were not found to improve the overall model fit.

SEGMENTATION

Models were estimated for six segments based on the respondents' time of day of travel and county of residence. There were three time of day segments, weekday peak, weekday off-peak and weekend, and two counties of interest, Tarrant and Johnson. Segmentation by county reveals any difference in traveler behavior between the mostly urban Tarrant County, which includes the city of Fort Worth, and the comparatively rural Johnson County.

MODEL COEFFICIENTS AND VALUES OF TIME

Table 5 through Table 7 present the results of the models with the specification shown in Table 4, for each of the six segments. The two county segments are shown across each of the three time of day segments, with an additional column showing the results of a model estimated with both counties combined. Table 8 presents the values of time for each segment for those respondents with TollTag, while Table 9 presents the values of time for those respondents without TollTag. The values of time are estimated at the median and mean annual household income levels for Tarrant and Johnson Counties from the 2006 American Community Survey.

Table 5: Weekday Peak-Period Model Coefficients by County

Coefficient	Units	Tarrant		Johnson		Combined	
		Value	T-Stat	Value	T-Stat	Value	T-Stat
Travel Time	Minutes	-0.116	-11.820	-0.110	-8.605	-0.112	-14.413
Toll Cost With TollTag*	Dollars	-1.342	-7.134	-0.855	-3.349	-1.102	-7.369
Toll Cost Without TollTag*	Dollars	-2.275	-12.682	-2.278	-10.624	-2.075	-16.717
Current Route Constant	(0,1)	0.676	7.818	0.369	2.431	0.653	8.948

* Toll cost is divided by the natural log of annual household income in thousands of dollars

Table 6: Weekday Off-Peak-Period Model Coefficients by County

Coefficient	Units	Tarrant		Johnson		Combined	
		Value	T-Stat	Value	T-Stat	Value	T-Stat
Travel Time	Minutes	-0.113	-12.976	-0.055	-6.119	-0.091	-13.158
Toll Cost With TollTag*	Dollars	-1.955	-11.833	-1.088	-3.558	-1.649	-11.636
Toll Cost Without TollTag*	Dollars	-2.972	-16.901	-1.651	-8.354	-2.558	-20.065
Current Route Constant	(0,1)	0.316	3.771	0.568	4.182	0.310	4.399

* Toll cost is divided by the natural log of annual household income in thousands of dollars

Table 7: Weekend Off-Peak-Period Model Coefficients by County

Coefficient	Units	Tarrant		Johnson		Combined	
		Value	T-Stat	Value	T-Stat	Value	T-Stat
Travel Time	Minutes	-0.168	-13.467	-0.055	-6.119	-0.126	-13.591
Toll Cost With TollTag*	Dollars	-3.059	-12.925	-2.002	-3.787	-2.402	-12.392
Toll Cost Without TollTag*	Dollars	-4.855	-16.177	-1.470	-6.022	-2.946	-17.097
Current Route Constant	(0,1)	0.533	5.485	0.294	1.559	0.465	5.577

* Toll cost is divided by the natural log of annual household income in thousands of dollars

Table 8: Values of Time with TollTag

Segment	Tarrant		Johnson		Combined	
	Median ($51,813)	Mean ($66,828)	Median ($50,864)	Mean ($61,387)	Median ($51,742)	Mean ($66,418)
Peak	$ 20.52	$ 21.84	$ 30.22	$ 31.67	$ 23.97	$ 25.48
Weekday Off-peak	$ 13.74	$ 14.63	$ 12.02	$ 12.60	$ 13.10	$ 13.93
Weekend Off-peak	$ 13.03	$ 13.87	$ 6.53	$ 6.85	$ 12.43	$ 13.22

Table 9: Values of Time without TollTag

Segment	Tarrant		Johnson		Combined	
	Median ($51,813)	Mean ($66,828)	Median ($50,864)	Mean ($61,387)	Median ($51,742)	Mean ($66,418)
Peak	$ 12.11	$ 12.89	$ 11.35	$ 11.89	$ 12.73	$ 13.54
Weekday Off-peak	$ 9.04	$ 9.62	$ 7.92	$ 8.30	$ 8.44	$ 8.98
Weekend Off-peak	$ 8.21	$ 8.74	$ 8.90	$ 9.32	$ 10.13	$ 10.78

The values of time presented here vary between respondent segments, with peak travelers having the highest overall value of time. Respondents with a TollTag transponder exhibited higher values of time than those without transponders across nearly all segments. Given the low incidence of TollTag transponder ownership in the corridor, the coefficients for respondents without TollTag would be more conservative inputs for the toll traffic demand models and revenue forecasting.

RSG INC.
RESOURCE SYSTEMS GROUP, INC.

MEMORANDUM

To: Wilbur Smith Associates
From: Thomas Adler and Mark Fowler
Subject: Southwest Parkway/Chisholm Trail Value of Time Update
Date: 28 April 2011

The survey data that were used to estimate values of time for travelers in the Southwest Parkway/Chisholm Trail corridor were collected in January 2006. Over five years have elapsed since that original data collection effort and, over that time and as noted in our memo of 23 April 2010, it is possible that values of time have changed. In general, values of time in a particular corridor can be affected by several factors, including:

- The types of trips being made in the corridor (e.g., trip purposes, trip lengths),
- The general travel conditions in the corridor (e.g., congestion levels on existing roads),
- The characteristics of the households making trips in the corridor (e.g., household incomes) and
- Economic conditions

While there may have been some changes in the first two items listed above, they are likely to have been small and their effects are most likely to be mixed. The factors that are more likely to affect values of time over a five-year period are the characteristics of the households traveling in the corridor and the general economic conditions.

The models that were developed in Resource Systems Group's 2006 study to estimate values of time included an income effect. In particular, those models reflected the observation that values of time increased with increasing household incomes, though at a rate less than linear. So, if income levels have changed significantly, it is likely that values of time have also changed.

In addition to the income effect, there are two economic effects that can be important. First, inflation directly affects the net value of a given income level. Since the survey was conducted in 2006, both the values of time and the income levels are in 2006 $. Over the period from January 2006 when the survey was conducted to current (March 2011), the consumer price index (CPI) has risen by approximately 10% in the Dallas/Fort Worth Metropolitan Area and so, all else equal, the nominal value of time should be increased by 10% to reflect current 2011 $. The table below shows Dallas/Fort Worth CPI values re-normalized to 1.0 for January 2006.

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	Jan	Mar	May	Jul	Sep	Nov	Avg
2006	1.00	1.00	1.01	1.02	1.02	1.00	1.01
2007	1.00	1.01	1.02	1.03	1.03	1.04	1.02
2008	1.04	1.05	1.07	1.09	1.09	1.06	1.07
2009	1.05	1.06	1.06	1.06	1.07	1.07	1.06
2010	1.07	1.07	1.07	1.06	1.07	1.07	1.07
2011	1.08	1.10					

The second potential economic effect is that consumers could change discretionary spending independently of changes in income, for example, trying to save more in anticipation of more difficult economic times. Consumer expenditures data are reported by the U.S. Bureau of Labor Statistics (BLS) at the metropolitan area level only for two-year intervals and are lagged by almost two years. The most recent data for the Dallas/Fort Worth region are for the period 2008/2009 which includes the two years of the deepest part of U.S. economic slow-down, as defined by the National Bureau of Economic Research (NBER). Compared to the 2005/2006 reporting period, which is centered on the date on which Southwest Parkway survey data were collected, overall consumer expenditures increased in 2008/2009 by only about 1%, in part because vehicle purchases declined significantly in that period. While vehicle purchases declined, transportation expenditures that are more consistent with vehicle use, such as gasoline, motor oil, and other vehicle expenses, increased by 3.8% over the same period. Although more current consumer expenditure data are not yet available, data on auto purchases for the full state of Texas and on vehicle miles of travel in Texas show significant increases since 2009.

Incomes in the region have also changed since January 2006. According to BLS quarterly wage data, between the first quarter of 2006, when the survey was conducted, and the first quarter of 2010, average weekly wages in Johnson and Tarrant Counties grew by approximately 7%. Although more recent weekly wage data is available for second and third quarters of 2010, it is important to compare data across the same quarter due to seasonal variation in wages. This wage growth is approximately equal to the CPI growth through the first quarter of 2010, meaning that there has been no significant change in real inflation-adjusted income.

CONCLUSIONS

Based on our review of the available data, we believe that the values of time that we estimated for the Southwest Parkway corridor should be adjusted only by inflating nominal values from 2006 $ to 2011 $ at the CPI (approximately 10% as of March 2011). The households in this region appear to have generally kept pace with the CPI in terms of income and so it is likely that the values of time have correspondingly kept pace.