

Waco MPO

2010 Socio-Economic Data Trends Report

Purpose and Need

In conjunction with the Texas Department of Transportation, the Waco MPO develops a travel demand forecast model to estimate future traffic conditions on arterial and major collector roadways within the Waco Metropolitan Area. This model requires several socio-economic data inputs in order to estimate the origin, destination and quantity of trips produced within the region. One key aspect of model development is the validation process where model outputs are estimated for a base year, usually within the past 2 to 4 years, and are compared to actual traffic counts. Should the model produce traffic counts within an acceptance level of tolerance compared to the actual counts, the model is considered validated and the results of future year forecasts would be considered acceptably reliable. The forecast model results provide important highway performance projections used by the MPO Policy Board when determining regional project funding priorities.

This report estimates population, housing units, employment by type and household income by traffic analysis zone for use in the model validation process. The base year for the travel demand forecast model is 2010.

Methodology

To estimate the origin, destination and quantity of trips produced within the region the regional model utilizes the socio-economic data identified in table 1 by traffic analysis zones. The model uses this data and calculates the number of trips produced within each zone and the number of trips attracted to each zone from each other zone within the region. The model then assigns these trips to the highway network based upon several factors such as distance, speed and the volume capacity of the highway. The model then summarizes the trips assigned to each highway link to produce an estimated traffic count.

Boundaries for the traffic analysis zones (TAZs) are determined by the highway network and other significant physical features such as railroads or bodies of water. The size of TAZs are thus highly variable and do not necessarily conform to that of US Census Tracts or Block Groups which are determined partly by minimum population thresholds. As a result, a significant amount of work associated with this study is fitting Census data to the TAZ geography. The Waco model utilizes 431 TAZs versus 157 Census Block Groups.

Table 1 – Source Data

Data	Source	Year
Population	US Census: Summary File 1	2010
Housing Units	US Census: Summary File 1	2010
Employment	Texas Workforce Commission; MPO Estimates	2010
Household Income	US Census: American Community Survey 5-year estimates; MPO Estimates	2005 to 2009

Population and Housing Units are estimated from the US Census 100 percent count file and are available at block level geography for the year 2010. As a result, the TAZ estimates are a summation of data from Census blocks.

Employment Data

The travel demand forecast model utilized by the MPO requires employment data separated into 4 employment types: retail, basic (industrial), service and educational. The model also requires the identification of special generators, destinations that have unique trip attraction and generation characteristics. Most high school campuses and colleges / universities are identified as special generators. Educational employment generally includes elementary & secondary schools (except high schools) and school administration facilities.

To estimate employment, the MPO receives a listing of employers within McLennan County from the Texas Workforce Commission. This listing includes the address, latitude and longitude for the employment site, employment type and number of employees for each employer. Since this information is often considered proprietary, the MPO is required to sign a Memorandum of Agreement which forbids the public release of information for specific employers.

The MPO supplements the workforce commission data with data from the Polk Directory for Waco, the McLennan County Appraisal District, and the 2010 telephone directory. This supplemental information is necessary since the workforce commission data often has several errors including the following: Missing or erroneous addresses or other location information, missing or erroneous number of employees, employers with multiple locations listed once in the listing, defunct employers included in the listing, employers omitted from the listing, employers located in other counties included in the listing, unverified employers included in the listing and employers listed multiple times within the listing.

Household Income

The travel demand forecast model utilized by the MPO requires Median Household Income for each travel analysis zone. The US Census Bureau, however, does not report data such as income at a geographic level smaller than the Census Block Group. Since this geography is often substantially larger than the TAZ geography, much of the work necessary to provide TAZ estimates is fitting the census data to the smaller geography. In addition, beginning in 2005, the US Census significantly changed the methodology used to estimate data other than population, race and ethnicity. Instead of surveying this data at one point in time, such as in 2000, the Census Bureau now surveys a smaller sample of the population once each year. Due to the small sample size and privacy concerns, data for block groups is averaged for a 5 year period. For this study, the average income for the years 2005 through 2009 was available. As a result, this data requires further estimation in order to determine a 2010 income estimate.

Population Trends: 2000 to 2010

The Waco Metropolitan Area grew by slightly greater than 10% between 2000 and 2010, a rate of approximately 1% per year. This growth rate is comparable to the national rate, however significantly less than the Texas rate of 20.6%. The Metropolitan growth rate for 2000 to 2010 is also somewhat less than that experienced between 1990 and 2000 (+12.9%).

Table 2 –Change in Metropolitan Population

2000	2010	Difference	Percent Change
213,517	234,906	+21,389	+10.02%

The trend of population leakage into suburban or rural zones continued during the 2000 to 2010 period. The greatest population growth occurred in zones approximately 10 to 15 miles northwest to due south of Downtown Waco generally following major thoroughfares. The primary exception was a population shift from zones immediately adjacent to Baylor University to zones south and east of LaSalle Avenue. Another significant shift was the relocation of the McLennan County Jail from Downtown Waco to Marlin Hwy southeast of Downtown and the relocation of the Regis / St Elizabeth Center from Downtown Waco to Hwy 6 adjacent to Providence Hospital. Other zones of less significant growth were areas southwest of Lorena, west of Bruceville-Eddy, southwest of Crawford and the Hills of Childress Creek located north of China Spring. The Hills of Childress Creek is located nearly 20 miles from Downtown Waco.

Table 3 – Highest Growth TAZs

TAZ	Area	City	Population Change: 2000 to 2010
237	SW of China Spring Rd at Wortham Bend Rd	Waco	+2,035
8	SW of La Salle Ave at Univ Parks Dr	Waco	+1,112
421	Vicinity of Robinson High School	Robinson	+1,016
224	SW of Hewitt Dr at Warren St	Hewitt	+915
261	Vicinity of Hillcrest Hospital	Waco	+906
412	Twin Rivers Development (NE of US 84 at Speegleville Rd)	Waco	+905
233	SE of Spring Valley Rd at Hewitt Dr	Hewitt	+875
92	McLennan County Jail	Waco	+858
211	SE of IH-35 at Spring Valley Rd	Robinson	+757
12	Baylor University	Waco	+714

The zones with the greatest declines generally continued trends observed previous to 2000. The greatest declines were observed in North and East Waco, the Texas State Technical College campus (TSTC) and zones immediately adjacent to Baylor University. The declines at TSTC were due to the demolition of a significant number of on-campus

housing units which dated from the time the campus was used as Connally Air Force Base. The declines near Baylor University were part of a shift of student population previously noted in the discussion of high growth zones. Other zones with significant declines were in portions of Woodway, South Waco, Elm Mott, Mart and Moody. The decline for one zone in Woodway was due to a Census Bureau error observed in 2000 which was corrected in 2010. The TAZ immediately across US 84 from this zone had an equal increase in population as a result of this correction.

Table 4 – TAZs with Largest Population Decline

TAZ	Area	City	Population Change: 2000 to 2010
345	Texas State Technical College	Waco	-1,732
2	Downtown Waco	Waco	-594
15	SW of Baylor Campus	Waco	-477
414*	NW of US 84 at Santa Fe Dr	Woodway	-279
42	Brook Oaks Neighborhood	Waco	-256
7	SE of Baylor Campus	Waco	-190
18	SW of S 18 th St at Dutton Ave	Waco	-184
146	NW of SH 6 at Bosque Blvd	Woodway	-172
171	NW of McLennan Community College	Waco	-153
112	NE of Loop 340 at Robinson Rd	Waco	-152

*Loss due to Census Bureau error in 2000. TAZ 217, across US 84, had a corresponding increase in population.

Employment Trends

Total Employment

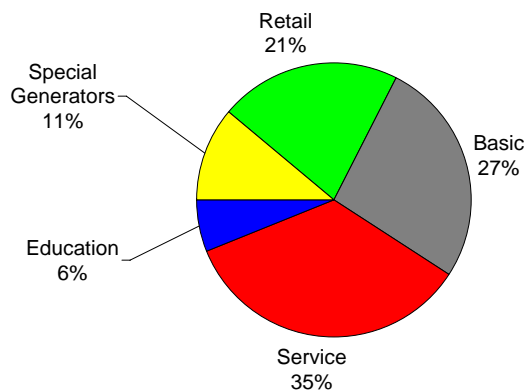
As a result of a poor economy, metropolitan employment decreased by slightly more than 1% from 2005 to 2010. The decreases were primarily due to declines in retail, basic and special generator employment, but were offset somewhat by increases in service and education employment. Considering that metropolitan population increased by approximately 5% during this same time period, the net effect is an overall reduction in employment of approximately 6% compared to what would be expected given 2005 population figures.

Reviewing the employment mix for the Metropolitan Area, Waco is generally consistent with similar regions with service employment comprising the largest sector. Basic employment continues to have a somewhat larger share of total employment when compared to other regions, however this sector also was observed to have the largest decline, a trend observed nationally as well. With 3 institutions of higher education, the education and special generator sectors also have a higher share of total employment than other regions. Note that all 3 institutions and each High School are identified as special generators (see Appendix B).

Table 5 –Change in Employment for the Waco Metropolitan Area

Employment Type	Change 2005 to 2010	Percent Change from 2005
Retail	-1,142	-5.0%
Basic	-2,138	-7.3%
Service	+2,203	+6.9%
Education	+981	+13.7%
Special Generators	-1,292	-10.3%
Total	-1,388	-1.4%

Chart 1 – Percent Employees by Employment Type - 2010



Similar to population trends, employment location is trending to suburban and in some cases, rural zones. The overall trends, however, are somewhat difficult to track due to the overall decline in metropolitan employment during this time period. One of the trends that are observable, however, is the relocation of employment within the metropolitan area. This relocation explains most of the significant increases or decreases in employment for specific zones. The largest such shift was associated with the relocation of Hillcrest Hospital from TAZ 32 to TAZ 261, a shift of over 1,200 employees. Examples of shifts with lesser magnitudes observed included retail employment from Richland Mall (TAZ 129) to Central Texas Marketplace (TAZ 228): 158 employees, basic employment from East Waco (TAZ 62) to SE of Downtown Waco (TAZ 92): 134 employees and basic employment from the Gholson Rd area (TAZ 53) to the Texas Central Industrial Park (TAZ 215): 62 employees.

Table 6 – TAZs with Highest Total Employment Growth

TAZ	Area	City	Employment Change: 2005 to 2010
261	Hillcrest Hospital	Waco	+1,457
360	Providence Hospital	Waco	+556
12	Baylor University	Waco	+545
79	Sanderson Farms	Waco	+450
268	Northeast of Lorena	Rural	+344
74	SW of IH-35 at North Loop 340	Lacy-Lakeview	+309
260	SW of Bagby Ave at Texas Central Pkwy	Waco	+294
92	McLennan County Jail	Waco	+271
133	SW of Valley Mills Dr at Waco Dr	Waco	+269
134	NE of Valley Mills Dr at Waco Dr	Waco	+267

Table 7 – TAZs with Largest Decline in Total Employment

TAZ	Area	City	Employment Change: 2005 to 2010
117	VA Hospital	Waco	-1,852
32	Old Hillcrest Hospital	Waco	-1,617
141	NW of SH 6 at Bosque Blvd	Waco	-648
129	Richland Mall	Waco	-577
128	NW of W Loop 340 at Waco Dr	Waco	-524
2	Downtown Waco	Waco	-432
216	SE of Texas Central Pkwy at Imperial Dr	Waco	-360
53	NW of Lake Shore Dr at Gholson Rd	Waco	-338
142	South of Valley Mills Dr at Bosque Blvd	Waco	-310
62	NW of Elm Ave at Brazos River	Waco	-226

Retail Employment

Retail employment is the sector most sensitive to changes in population as many retail establishments wish to locate as close to significant population centers as possible. Retail employment in Metropolitan Waco is no exception with significant shifts observed between 2005 and 2010 from older retail zones to zones with significant population growth.

Retail employment continues to have a significant presence along Valley Mills and Waco Drives, Bellmead along Loop 340, and Downtown Waco along I-35 across from Baylor. Although these areas are still large retail corridors, the newer corridors were observed to have the greatest growth: Loop 340 at I-35 at Central Texas Marketplace, New Rd and I-35, Hewitt Dr and China Spring Rd. The Valley Mills Dr corridor and Richland Mall zones were observed to have the most significant declines in retail employment.

Retail employment is also very sensitive to economic downturns of which the 2005 to 2010 period was a very significant recession. As a result, some of the observed declines may be a result of economic contraction which may reverse as the economy improves in the near future. Whether declines in specific zones are trends or temporary will be more apparent after future employment studies. With that said, however, some declines were directly attributable to the moving of certain employers. The most significant shifts observed were from Richland Mall to Central Texas Marketplace and from the Valley Mills Dr corridor to the Hewitt Dr corridor.

Table 8 – TAZs with Largest Increase in Retail Employment

TAZ	Area	City	Employment Change: 2005 to 2010
228	Central Texas Marketplace	Waco	+158
256	SW of Hewitt Dr at Chapel Rd	Waco	+126
13	SW of IH-35 at S 5 th St	Waco	+117

Table 9 – TAZs with Largest Decline in Retail Employment

TAZ	Area	City	Employment Change: 2005 to 2010
129	Richland Mall	Waco	-299
154	NW of Valley Mills Dr at Bosque Blvd	Waco	-117
4	NW of IH-35 at S 5 th St	Waco	-105

Basic Employment

The period from 2005 to 2010 saw several basic sector employers with significant employment locate within the Waco Metropolitan Area: Sanderson Farms (TAZ 79), Caterpillar (TAZ 230) amongst others. Despite this, the basic employment sector was observed to have the most significant decline in employment of any sector within the region during this period.

Basic employment continues to be concentrated in a handful of zones, the Texas Central Industrial Park, the east side of the TSTC airport, and in the vicinity of the FM 3051 / Gholson Road interchange. Lesser concentrations are also found along the Brazos River southeast of the Baylor University campus, Waco Regional Airport, along US 84 in the western portions of Woodway and in the vicinity of McGregor.

Although less sensitive to population shifts than the retail and service sectors, some relocation of basic sector employment to suburban and rural zones was observed

between 2005 and 2010. The most common shift were relocations into the Texas Central Industrial Park southwest of the IH-35 and West Loop 340 interchange. The loss of employment near McGregor, and corresponding increase in the neighboring zone to the south, was attributed to an error in the location of a large employer in 2005.

Table 10 – TAZs with Largest Increase in Basic Employment

TAZ	Area	City	Employment Change: 2005 to 2010
79	Sanderson Farms	Waco	+450
268	NE of Lorena	Rural	+355
260	SW of Bagby Ave at Texas Central Pkwy	Waco	+283

Table 11 – TAZs with Largest Decline in Basic Employment

TAZ	Area	City	Employment Change: 2005 to 2010
128	NW of W Loop 340 at Waco Dr	Waco	-564
129	Richland Mall	Waco	-522
53	NW of Lake Shore Dr at Gholson Rd	Waco	-377

Service Employment

Were it not for significant increases in service sector employment, the decrease of total employment for the Waco Metropolitan Area would have been more than doubled. This shift of employment from the basic sector to the service sector continues a trend observed for the past several decades. As a result, in 2010 more than 1 out of every 3 jobs in the metro area was identified as being service sector jobs.

Traditionally, a significant percentage of service sector employment was located within or close to Downtown Waco. Beginning in the 1980's this sector began moving to suburban areas. In 2010, the zones near SH 6 and US 84 in Woodway and West Waco now contain more service sector employment than Downtown Waco.

Service employment, similar to retail and for similar reasons, is fairly sensitive to shifts in population. As a result the most significant increases were observed along West Loop 340 and McGregor. One interesting trend was that the distribution of service employment, and especially new employment, was much more dispersed than in the past and when compared to other employment sectors. Small increases in numerous zones, rather than large increases in a few zones, were the more common trend between 2005 and 2010.

Table 12 – TAZs with Largest Increase in Service Employment

TAZ	Area	City	Employment Change: 2005 to 2010
360	Providence Hospital	Waco	+386
5	SE of Downtown Waco	Waco	+382
74	SW of IH-35 at North Loop 340	Lacy-Lakeview	+335

Table 13 – TAZs with Largest Decline in Service Employment

TAZ	Area	City	Employment Change: 2005 to 2010
141	NW of SH 6 at Bosque Blvd	Waco	-639
142	South of Valley Mills Dr at Bosque Blvd	Waco	-334
216	SE of Texas Central Pkwy at Imperial Dr	Waco	-222

Education Employment

Education employment, in addition to the service sector, also was observed to have a significant increase in employment. Unlike the other sectors, only one new campus was created between 2005 and 2010, Midway ISD's River Valley Intermediate School on Speegleville Rd. One campus was closed, Waco ISD's G L Wiley Middle School in East Waco. Important to note, each of the high schools are counted as special generators and their employment is included in the special generator category.

Special Generators

There are several large employers within the Waco Metropolitan Area whose trip attraction and production rates are unique and do not conform to rates for the 4 general employment sectors. These employers are defined as special generators and special studies are performed to identify their trip attraction and production rates. Appendix B lists the special generators for the Waco Metropolitan Area.

Some special generators may have some characteristics similar to one or more of the 4 employment sectors, but other characteristics that are unique. In these cases, the employment is included in one of the 4 sectors, but the employer is identified as a special generator to determine whether attractions or productions may be dissimilar and to model accordingly. Regional shopping malls are the most common sites within this situation.

Special generators may also have employment only during special events, such as a football game, or no employment at all, such as an Amtrak Station. In these situations, the model would not be able to calculate productions or attractions since there are no permanent employees. The special generators studies for these locations help determine the attraction and production rates for these locations.