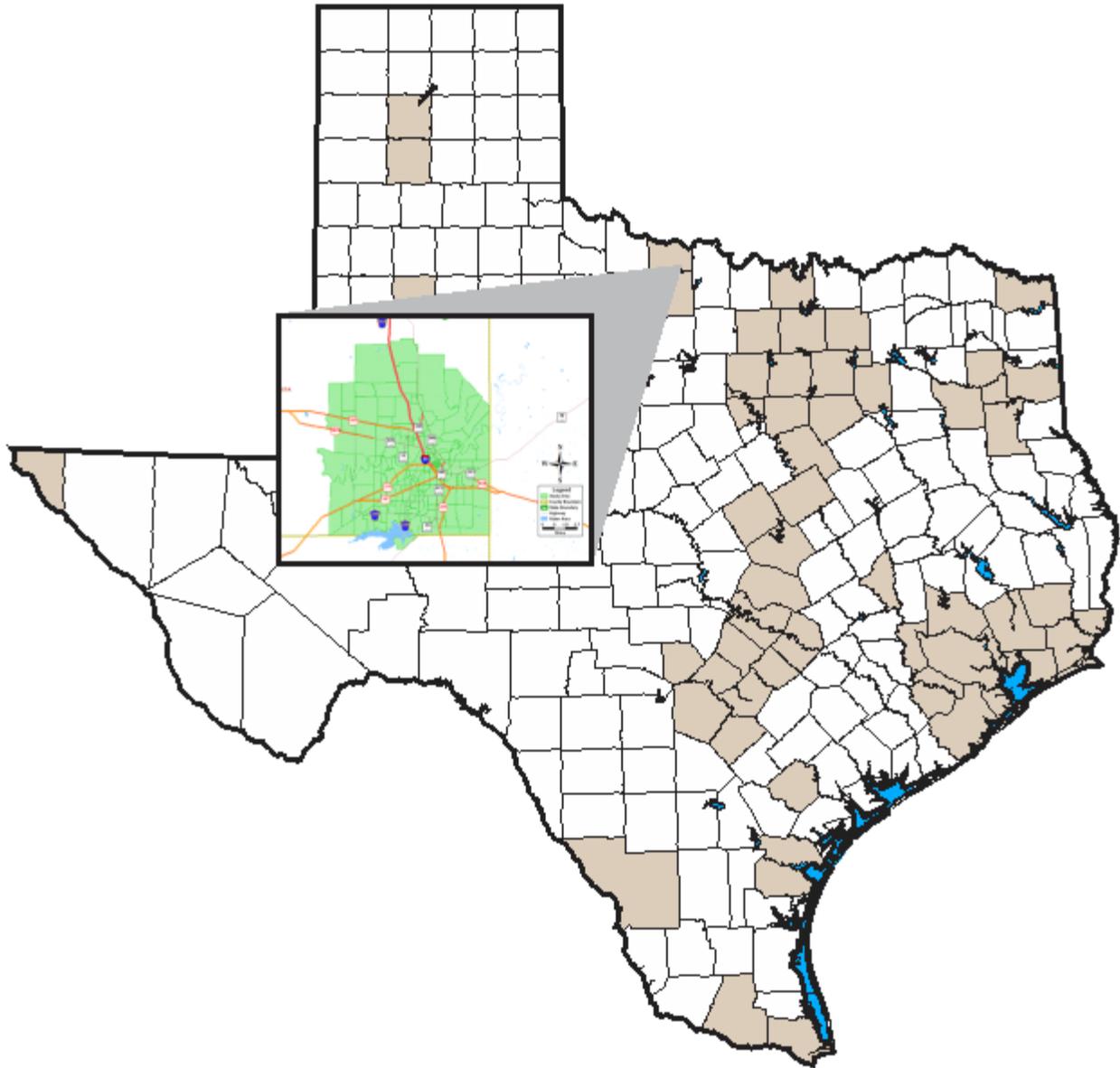


# 2011 Wichita Falls Work Place Travel Survey Technical Summary



Prepared by the  
Texas A&M Transportation Institute  
May 2014



**2011  
Wichita Falls Work Place  
and Special Generator Travel Survey**

**TECHNICAL SUMMARY**

**Texas Department of Transportation Travel Survey Program**

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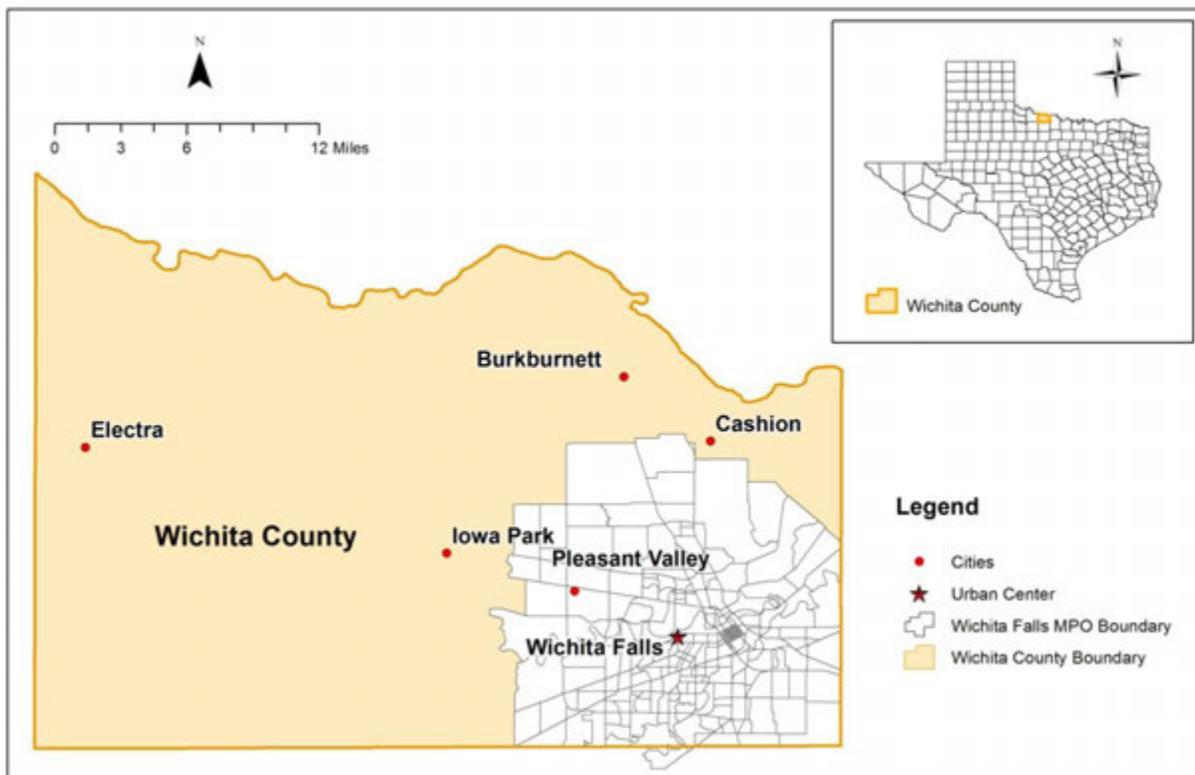
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## INTRODUCTION

In 2011, the Transportation Planning and Programming (TPP) Division of the Texas Department of Transportation (TxDOT) funded the Wichita Falls work place and special generator travel surveys. The purpose of the survey was to collect data on the travel characteristics of employees and non-employees at basic, retail, service, and education establishments. These data would enable TxDOT, in cooperation with the local Metropolitan Planning Organization (MPO), to develop and/or update trip attraction models to forecast travel demand within the Wichita Falls urban area.

The study area, shown in Figure 1, is located in Wichita County. Wichita Falls is the urban center and county seat, which has a total population of 104,554 and a total land area of approximately 72.14 square miles based on the 2010 Census. The MPO planning area boundary includes a portion of Archer County.



**Figure 1. Wichita Study Area.**

## SURVEY METHODOLOGY

The Wichita Falls work place surveys were conducted during the period between June 2011 through October 2011. TxDOT contracted with Alliance Transportation Group, Inc. (Alliance) to conduct the surveys. The Texas A&M Transportation Institute (TTI) provided technical assistance to both TxDOT and Alliance in the effort.

The Wichita Falls work place survey consisted of the following four data collection efforts.

- *Establishment Survey*. This survey determined whether the work place was free standing (e.g., points of vehicle access and parking were clearly established and were designed to serve that work place only), or non-free standing (e.g., vehicle access points and parking were designed to serve more than one establishment). Data on total employment, number of employees at work during the travel survey day, amount of parking, number of daily deliveries, hours of operation, and other general information were collected in this survey.
- *Intercept Interview Survey*. This survey involved an intercept interview of persons as they entered and/or exited the establishments. All survey participants were randomly selected, and included both employees and non-employees.
- *Person or Vehicle Count*. This task involved counting all vehicles or persons entering and exiting surveyed establishments during their normal operating hours. Most of the counts were person counts collected manually as employees and visitors entered and exited the establishment. Vehicle counts were conducted manually at free-standing establishments with clearly defined parking and access points. The counts were performed at each entrance and exit beginning a minimum of one hour prior to the location's normal operating hours and ending no later than one hour after normal operating hours.
- *Commercial Vehicle Count*. This task involved counting the number of commercial vehicles accessing the establishment (i.e., making deliveries, pick-ups or other purposes). All commercial vehicle counts at the surveyed establishments were collected manually.

The surveyed establishments were classified as either full survey sites or partial survey sites, and distinguished according to their free standing or non-free standing status. Full survey sites included all the previously mentioned data collection activities, while partial survey sites only collected general information (e.g., establishment survey) and did not include intercept interview surveys. Counts were conducted at all surveyed sites. Appendix A of this report contains the travel survey forms used in the Wichita Falls work place and special generator surveys.

## SAMPLING PLAN AND RECRUITMENT

The sampling plan was developed based on the establishment data available from the Texas Workforce Commission (TWC), and the North American Industry Classification System (NAICS) code groupings shown in Table 1.

**Table 1. NAICS Groupings by Employment Type.**

Employment Type	NAICS Code	Industry Group
Basic	11	Agriculture, Forestry, Fishing and Hunting
	21	Mining
	22	Utilities
	23	Construction
	31-33	Manufacturing
	42	Wholesale Trade
	48-49	Transportation and Warehousing (except 491)
	5111	Newspaper Publishers/Book Publishers/Directory Publishers
	5112	Software Publishers
	512	Motion Picture and Sound Recording (except 51213)
	5151	Radio and TV Broadcasting
	5152	TW Cable
	5173	Telecommunications Resellers
	5174	Satellite Network
5175	Cable and Other Program Distribution	
Retail	44-45	Retail trade
	51213	Motion Picture Theaters
	71	Arts, Entertainment, and Recreation
	722	Accommodation (except Hotels) and Food Services
	491	Post Offices
Service	516-5172	Internet Publishing and Telecommunications
	5179	Other Telecommunications
	518-519	Internet Service Providers and News Syndicates
	52	Finance & Insurance
	53	Real Estate, Rental and Leasing
	54	Professional, Scientific and Technical Services
	55-56	Company Management and Administrative Support
	6114-6116	Business, Technical, Trade and Other Schools
	6117	Educational Support Services
	62	Health Care and Social Assistance (including hospitals)
	721	Accommodation (Hotels)
	81	Other Service, Repair and Maintenance
	92	Public Administration (including Justice, Public Order and Safety, i.e., Police, Fire, and Courts)
9999	Unknown	
Education	6111	Elementary and Secondary Schools
	6112-6113	Jr. Colleges, Colleges, Universities & Professional Schools

Source: TxDOT, 2004.

As Table 2 shows, the sampling plan sought to obtain a total of 200 full surveys and 200 partial surveys. The survey sample was drawn from a listing of establishments generated from the TWC database that consisted of 884 basic, 726 retail, 1,602 service, and 78 education establishments. Each TWC listing included the name, address, and NAICS code of the establishment, and were placed in random order for sampling.

**Table 2. Sampling Targets by Employment Category and Survey Type.**

Employment Type	Type of Survey	
	Full	Partial
Basic	30	30
Retail	70	70
Service	70	70
Education	30	30
<b>Total</b>	<b>200</b>	<b>200</b>

The recruitment process involved contacting the businesses from each employment type in the randomized order that they appeared on the list. Businesses were verified and tracked based on their willingness to participate in a full or partial survey. Table 3 shows the distribution of full and partial survey establishments by employment type and establishment type.

**Table 3. Distribution of Surveys by Employment Type and Establishment Type.**

Employment Type	Full Survey			Partial Survey			All Surveys		
	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total
Basic	25	2	27	26	4	30	51	6	57
Retail	62	10	72	51	20	71	113	30	143
Service	53	18	71	49	27	76	102	45	147
Education	30	0	30	23	0	23	53	0	53
<b>Total</b>	<b>170</b>	<b>30</b>	<b>200</b>	<b>149</b>	<b>51</b>	<b>200</b>	<b>319</b>	<b>81</b>	<b>400</b>

<sup>1</sup> FS - Free Standing, NFS – Non-Free Standing.

## SURVEY RESULTS

The Wichita Falls work place survey covered 400 establishments and four special generators. The distribution of full and partial survey sites, as shown in Table 4, is slightly different from the pre-determined targets. Four partial survey sites were fully surveyed while one full survey site was converted as a partial site. Table 4 shows the actual number of full and partial surveys by employment type and establishment type.

**Table 4. Full and Partial Surveys by Employment Type and Establishment Type.**

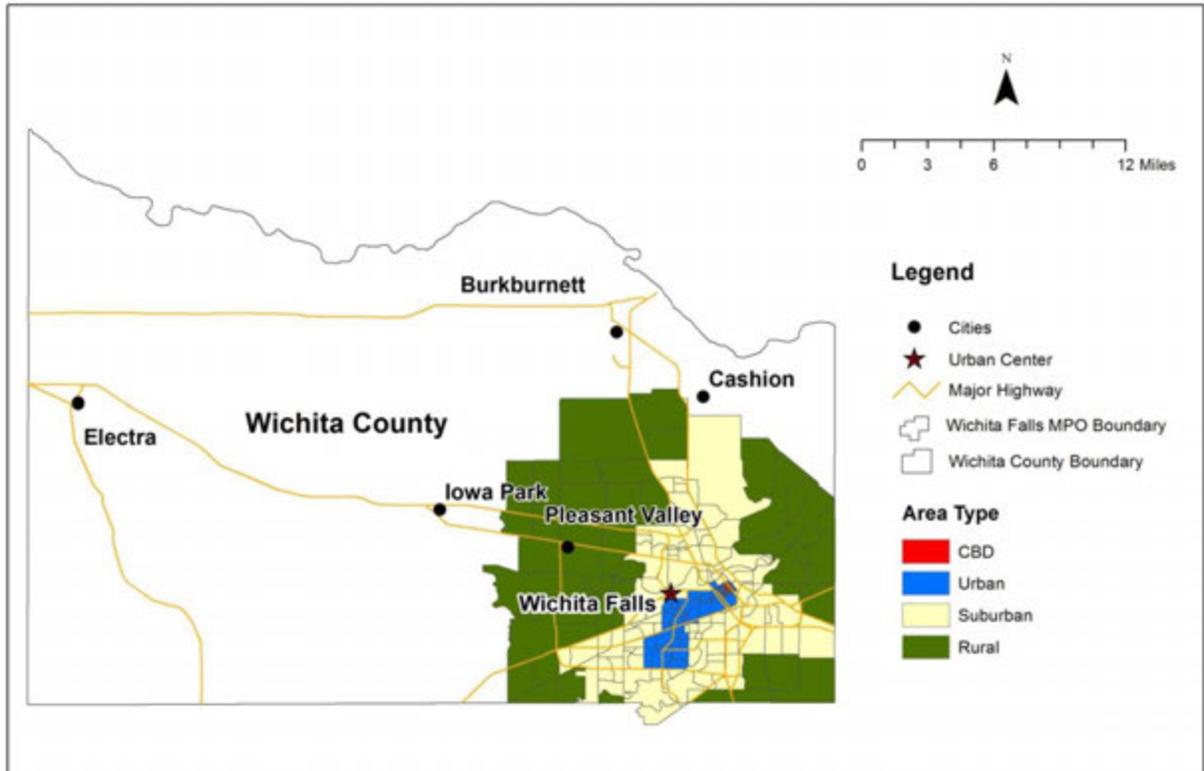
Employment Type	Full Survey			Partial Survey			All Surveys		
	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total
Basic	25	1	26	26	5	31	51	6	57
Retail	65	10	75	48	20	68	113	30	143
Service	53	18	71	49	27	76	102	45	147
Education	31	0	31	22	0	22	53	0	53
<b>Total</b>	<b>174</b>	<b>29</b>	<b>203</b>	<b>145</b>	<b>52</b>	<b>197</b>	<b>319</b>	<b>81</b>	<b>400</b>

<sup>1</sup> FS - Free Standing, NFS – Non-Free Standing.

The full survey sites consisted of 203 establishments (174 free standing and 29 non-free standing) that reported a total employment of 4,817. A total of 2,685 employees and 6,345 non-employees (referred to in this report as visitors) participated in the intercept surveys. The surveyed employees represented approximately 68 percent of the total 3,940 employees reported to be at work during the travel survey day.

The partial survey sites consisted of 197 establishments (145 free standing and 52 non-free standing) that reported a total employment of 4,698, of which 3,668 employees were reported to be at work during the travel survey day. No intercept surveys were conducted at these sites, but general information about the establishments was collected.

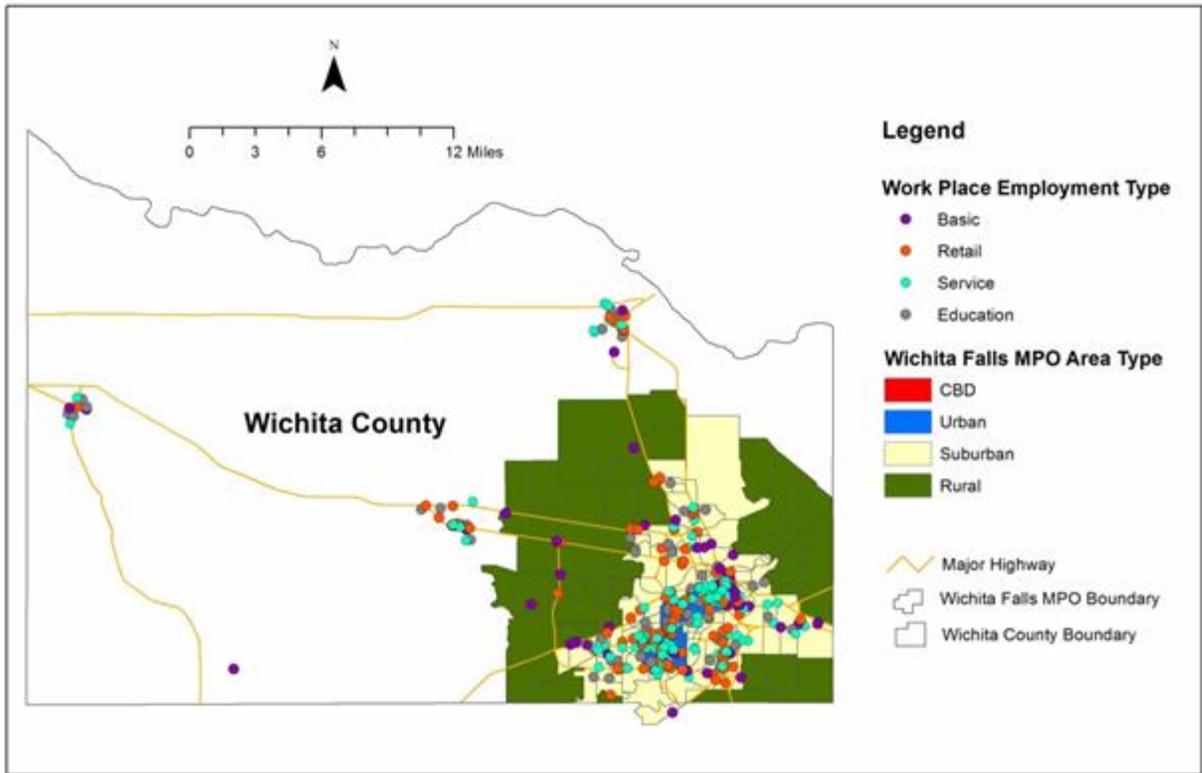
The Wichita Falls MPO boundary consisted of four area types — Central Business District (CBD), Urban, Suburban, and Rural. Area type, which is generally determined by land use activity within a Traffic Analysis Zone (TAZ), is measured based on a combination of population and employment density in the zone. Figure 2 shows the Wichita Falls MPO boundary area types.



**Figure 2. Wichita Falls MPO Boundary Area Types.**

Figure 3 shows the general locations of the surveyed establishments in the study area, color coded by employment type and corresponding area type. It is important to note that the Wichita Falls work place survey included 57 establishments that were located outside the Wichita Falls MPO Boundary but within Wichita County. Table 5 shows the business locations of the surveyed work places.

Table 6 and Table 7 provide information on the number of sites, employee and visitor surveys, and employment data by area type for each category of employment, respectively. Those establishments located outside the Wichita Falls MPO Boundary were assigned to the “rural” area type category. The analysis of employee and visitor surveys conducted at these establishments were separated from those surveys within the MPO boundary to avoid any bias in the analysis of non-resident trips.



**Figure 3. Wichita Falls Study Area Surveyed Work Place Locations.**

**Table 5. Full and Partial Surveys by Business Location and Establishment Type.**

Business Location	Full Survey			Partial Survey			All Surveys		
	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total	FS <sup>1</sup>	NFS <sup>1</sup>	Total
Burkburnett	16	2	18	3	1	4	19	3	22
Electra	7	0	7	2	0	2	9	0	9
Iowa Park	15	3	18	6	0	6	21	3	24
Kamay	1	0	1	0	0	0	1	0	1
Wichita Falls	135	24	159	134	51	185	269	75	344
<b>Total</b>	<b>174</b>	<b>29</b>	<b>203</b>	<b>145</b>	<b>52</b>	<b>197</b>	<b>319</b>	<b>81</b>	<b>400</b>

<sup>1</sup> FS - Free Standing, NFS – Non-Free Standing.

**Table 6. Full Surveys Data Summary.**

Area Type	Item	Basic	Retail	Service	Education	Total
CBD	Number of sites	0	0	4	0	4
	Surveyed employees	0	0	44	0	44
	Surveyed visitors	0	0	144	0	144
	Total employment	0	0	38	0	38
	Employees at work	0	0	38	0	38
Urban	Number of sites	5	34	33	4	76
	Surveyed employees	29	174	363	130	696
	Surveyed visitors	28	1,655	446	146	2,275
	Total employment	29	503	723	230	1,485
	Employees at work	28	315	591	222	1,156
Suburban	Number of sites	12	24	21	13	70
	Surveyed employees	248	185	193	514	1,140
	Surveyed visitors	131	1,085	169	731	2,116
	Total employment	320	476	326	713	1,835
	Employees at work	266	300	270	699	1,535
Rural	Number of sites	9	17	13	14	53
	Surveyed employees	110	85	75	535	805
	Surveyed visitors	47	1,285	171	307	1,810
	Total employment	299	286	168	706	1,459
	Employees at work	285	172	146	608	1,211
<b>Total</b>	<b>Number of sites</b>	<b>26</b>	<b>75</b>	<b>71</b>	<b>31</b>	<b>203</b>
	<b>Surveyed employees</b>	<b>387</b>	<b>444</b>	<b>675</b>	<b>1,179</b>	<b>2,685</b>
	<b>Surveyed visitors</b>	<b>206</b>	<b>4,025</b>	<b>930</b>	<b>1,184</b>	<b>6,345</b>
	<b>Total employment</b>	<b>648</b>	<b>1,265</b>	<b>1,255</b>	<b>1,649</b>	<b>4,817</b>
	<b>Employees at work</b>	<b>579</b>	<b>787</b>	<b>1,045</b>	<b>1,529</b>	<b>3,940</b>

**Table 7. Partial Surveys Data Summary.**

<b>Area Type</b>	<b>Item</b>	<b>Basic</b>	<b>Retail</b>	<b>Service</b>	<b>Education</b>	<b>Total</b>
CBD	Number of sites	2	2	2	0	6
	Total employment	26	9	56	0	91
	Employees at work	26	9	50	0	85
Urban	Number of sites	3	31	35	5	74
	Total employment	24	882	668	386	1,960
	Employees at work	22	421	584	367	1,394
Suburban	Number of sites	21	28	35	15	99
	Total employment	553	570	635	623	2,381
	Employees at work	463	370	550	596	1,979
Rural	Number of sites	5	7	4	2	18
	Total employment	75	98	15	78	266
	Employees at work	49	69	15	77	210
<b>Total</b>	<b>Number of sites</b>	<b>31</b>	<b>68</b>	<b>76</b>	<b>22</b>	<b>197</b>
	<b>Total employment</b>	<b>678</b>	<b>1,559</b>	<b>1,374</b>	<b>1,087</b>	<b>4,698</b>
	<b>Employees at work</b>	<b>560</b>	<b>869</b>	<b>1,199</b>	<b>1,040</b>	<b>3,668</b>

**Trip Characteristics**

This section presents the trip characteristics of persons entering or exiting the surveyed work places. Information on residency, trip purpose, mode of travel and occupancy, trip origins, and trip destinations were analyzed to measure the amount of trip attractions to the sites.

*Residence*

Approximately 78 percent of the total surveyed respondents were from Wichita Falls, 3 percent were residents of Iowa Park, and 3 percent were from Burkburnett. Approximately 4 percent lived in nearby Archer and Clay counties. Less than 1 percent came from outside Texas, the majority of which were from Oklahoma.

### *Trip Purpose*

The percentages of resident and non-resident trips for all sites inside the study area were used under the assumption that these are the percentages that would be observed for those sites outside the modeling area if they had been inside the Wichita Falls study area. Table 8 summarizes the trip purposes of surveyed resident and non-residents at the establishments located within the Wichita Falls study area, and outside of the MPO Boundary but within Wichita County, respectively. It was deemed logical to separate the survey trip data between these two locations to avoid any bias in the analysis of non-resident trips for those outside the Wichita Falls MPO Boundary. The percentages of resident and non-resident trips for all sites inside the study area were used under the assumption that these are the percentages that would be observed for those sites outside the modeling area if they had been inside the Wichita Falls study area.

**Table 8. Survey Trip Purposes.**

Trip Purpose	Resident		Non-Resident		Total		Grand Total
	Employee	Visitor	Employee	Visitor	Employee	Visitor	
<b>Within MPO Boundary</b>							
Return Home	8	13	3	1	11	14	25
Work Related	1,474	179	315	61	1,789	240	2,029
School Related	13	95	4	5	17	100	117
Social/Recreational/Visit	6	178	1	33	7	211	218
Shop	24	1,414	6	350	30	1,764	1,794
Eat Out	12	712	1	132	13	844	857
Personal Business	66	782	2	162	68	944	1,012
Pick-Up/Drop-Off Passenger	35	662	3	24	38	686	724
Change Travel Mode	0	1	0	1	0	2	2
Delivery – Pick-Up/Drop-Off	13	90	3	25	16	115	131
Other	5	89	0	17	5	106	111
Unknown	0	3	0	1	0	4	4
<b>Total</b>	<b>1,656</b>	<b>4,218</b>	<b>338</b>	<b>812</b>	<b>1,994</b>	<b>5,030</b>	<b>7,024</b>
<b>Outside MPO Boundary</b>							
Return Home	2	14	1	1	3	15	18
Work Related	489	48	104	17	593	65	658
School Related	49	26	15	1	64	27	91
Social/Recreational/Visit	0	57	0	10	0	67	67
Shop	7	426	2	106	9	532	541
Eat Out	4	159	0	30	4	189	193
Personal Business	8	143	0	30	8	173	181
Pick-Up/Drop-Off Passenger	8	161	1	6	9	167	176
Change Travel Mode	0	0	0	0	0	0	0
Delivery – Pick-Up/Drop-Off	0	36	0	10	0	46	46
Other	1	29	0	5	1	34	35
Unknown	0	0	0	0	0	0	0
<b>Total</b>	<b>568</b>	<b>1,099</b>	<b>123</b>	<b>216</b>	<b>691</b>	<b>1,315</b>	<b>2,006</b>
<b>Total Trips</b>	<b>2,224</b>	<b>5,317</b>	<b>461</b>	<b>1,028</b>	<b>2,685</b>	<b>6,345</b>	<b>9,030</b>

In the analysis, the surveyed trip purposes were classified according to the following trip categories and were distinguished between those made by residents and non-residents of the Wichita Falls study area.

- 1) Home-based work (HBW) – when the purpose was work-related, the origin or destination was the home, and the origin or destination was located within the study area.
- 2) Home-based non-work (HBNW) – when the purpose was not work-related, the origin or destination was the home, and the origin or destination was located within the study area.
- 3) Non home-based destination (NHB-D) – when the origin was not the home, the destination was the establishment being surveyed, and the origin was located within the study area.
- 4) Non home-based origin (NHB-O) – when the reported destination when leaving the establishment being surveyed was not the home, and the destination was located within the study area.
- 5) External trip origin (EXT-O) – when the origin was outside the study area.
- 6) External trip destination (EXT-D) – when the destination was outside the study area when leaving the establishment.
- 7) Non-resident (NON-RES) – when the person making the trip to and from the establishment lived outside the study area and the origin or destination of the trip was inside the study area.

In the same manner as the resident trips, non-resident trips were also classified based on the previously mentioned trip purpose categories (1 through 6). Table 9 and Table 10 show the breakdown of trip purpose categories by resident and non-residents at surveyed establishments located within the MPO and outside MPO boundary, respectively. However, in the analysis and expansion of survey non-resident trip data, such trips were presented as one trip purpose category (NON-RES).

Table 10 and Table 11 show the distribution of survey trip purposes by area type and employment type, at surveyed establishments located within the MPO and outside MPO boundary, respectively. It is important to note that the total trips excluded those trips (42 trips) that were reported as “not the first store visited” at non-free standing establishments. Those trips from outside the modeling area were assigned to the “rural” area type category, and as mentioned in the previous section, the reported residence code (resident or non-resident) for these trips were not used given that such trips would likely be NON-RES trip purposes being outside of the modeling area. Instead, the percentages of resident and non-resident trips for all sites inside the modeling area were used under the assumption that these are the percentages that would be observed for those sites outside the modeling area if they had been inside the study area.

**Table 9. Survey Trips by Purpose (Within MPO Boundary Establishments).**

Trip Purpose	Resident			Non-Resident			All Trips		
	Employee	Visitor	Total	Employee	Visitor	Total	Employee	Visitor	Total
HBW	2,385	220	2,605	0	0	0	2,385	220	2,605
HBNW	250	5,456	5,706	0	0	0	250	5,456	5,706
NHB-D	626	2,467	3,093	40	305	345	666	2,772	3,438
NHB-O	18	119	137	74	333	407	92	452	544
EXT-O	33	134	167	298	507	805	331	641	972
EXT-D	0	3	3	264	479	743	264	482	746
<b>Total</b>	<b>3,312</b>	<b>8,399</b>	<b>11,711</b>	<b>676</b>	<b>1,624</b>	<b>2,300</b>	<b>3,988</b>	<b>10,023</b>	<b>14,011</b>

**Table 10. Survey Trips by Purpose (Outside MPO Boundary Establishments).**

Trip Purpose	Resident			Non-Resident			All Trips		
	Employee	Visitor	Total	Employee	Visitor	Total	Employee	Visitor	Total
HBW	898	87	985	0	0	0	898	87	985
HBNW	132	1,705	1,837	0	0	0	132	1,705	1,837
NHB-D	99	283	382	6	35	41	105	318	423
NHB-O	34	89	123	138	250	388	172	339	511
EXT-O	4	18	22	37	68	105	41	86	127
EXT-D	0	1	1	34	89	123	34	90	124
<b>Total</b>	<b>1,166</b>	<b>2,183</b>	<b>3,349</b>	<b>216</b>	<b>442</b>	<b>658</b>	<b>1,382</b>	<b>2,625</b>	<b>4,007</b>

**Table 11. Survey Trips by Purpose, Area Type and Employment Type (Within MPO Boundary Establishments).**

Area Type	Employment Type	Trip Purpose							Total
		HBW	HBNW	NHB-D	NHB-O	EXT-O	EXT-D	NON-RES	
CBD	Basic	0	0	0	0	0	0	0	0
	Retail	0	0	0	0	0	0	0	0
	Service	56	196	41	37	1	3	42	376
	Education	0	0	0	0	0	0	0	0
Urban	Basic	42	19	8	12	0	1	32	114
	Retail	232	1757	465	571	12	29	562	3,628
	Service	526	448	153	191	3	9	284	1,614
	Education	141	227	49	87	3	3	42	552
Suburban	Basic	274	96	45	86	8	5	244	758
	Retail	230	1251	306	263	18	23	446	2,537
	Service	234	168	80	97	6	5	134	724
	Education	710	1071	205	288	2	10	204	2,490
Rural	Basic	96	11	3	10	1	1	44	166
	Retail	35	427	112	107	16	11	258	966
	Service	0	0	0	0	0	0	0	0
	Education	29	35	6	8	0	0	8	86
<b>Total Trips</b>		<b>2,605</b>	<b>5,706</b>	<b>1,473</b>	<b>1,757</b>	<b>70</b>	<b>100</b>	<b>2,300</b>	<b>14,011</b>

**Table 12. Survey Trips by Purpose, Area Type and Employment Type (Outside MPO Boundary Establishments).**

Area Type	Employment Type	Trip Purpose							Total
		HBW	HBNW	NHB-D	NHB-O	EXT-O	EXT-D	NON-RES	
Rural	Basic	47	20	22	8	2	0	49	148
	Retail	115	1,112	187	50	14	1	291	1,770
	Service	121	210	50	20	2	0	88	491
	Education	702	495	123	45	4	0	229	1,598
<b>Total Trips</b>		<b>985</b>	<b>1,837</b>	<b>382</b>	<b>123</b>	<b>22</b>	<b>1</b>	<b>657</b>	<b>4,007</b>

*Mode of Travel and Vehicle Occupancy*

Table 13 and Table 14 show the mode of travel used by the survey participants to the work place. Approximately 88 percent of the trips to the work places were made by drivers of cars, trucks, or vans, and more than 7 percent were passengers of a vehicle. The average occupancy was estimated at 1.5 persons per vehicle.

**Table 13. Survey Mode of Travel to the Work Place (within MPO Boundary Establishments).**

Mode	Resident		Non-Resident		All Surveys		
	Employee	Visitor	Employee	Visitor	Total	Percent of Total	Average Vehicle Occupancy
Driver (car/truck/van)	1,503	3,664	326	680	6,173	87.88	1.39
Passenger (car/truck/van)	87	334	9	95	525	7.47	2.29
Walk	36	119	0	9	164	2.33	0
Bicycle	1	20	0	1	22	0.31	0
Transit Bus	7	5	0	0	12	0.17	0
School Bus	2	1	0	0	3	0.04	0
Taxi/Limo	3	3	0	0	6	0.09	1.00
Commercial Cargo Transport Vehicle	2	24	1	9	36	0.51	1.17
Commercial Service Vehicle	4	16	1	9	30	0.43	1.20
Motorcycle	8	30	1	7	46	0.65	1.30
Other	3	2	0	1	6	0.09	1.70
No Response	0	0	0	1	1	0.01	0
<b>Total</b>	<b>1,656</b>	<b>4,218</b>	<b>338</b>	<b>812</b>	<b>7,024</b>	<b>100.00</b>	<b>1.50</b>

**Table 14. Survey Mode of Travel to the Work Place (outside MPO Boundary Establishments).**

Mode	Resident		Non-Resident		All Surveys		
	Employee	Visitor	Employee	Visitor	Total	Percent of Total	Average Vehicle Occupancy
Driver (car/truck/van)	430	1096	88	211	1,825	90.98	1.33
Passenger (car/truck/van)	23	59	5	11	98	4.89	2.26
Walk	8	22	2	4	36	1.79	0
Bicycle	1	2	0	0	3	0.15	0
Transit Bus	0	0	0	0	0	0.00	0
School Bus	1	1	0	0	2	0.10	0
Taxi/Limo	0	0	0	0	0	0.00	0
Commercial Cargo Transport Vehicle	1	3	0	1	5	0.25	1.00
Commercial Service Vehicle	5	13	1	3	22	1.10	1.50
Motorcycle	2	5	0	1	8	0.40	1.00
Other	2	4	0	1	7	0.34	4.57
<b>Total</b>	<b>473</b>	<b>1,205</b>	<b>96</b>	<b>232</b>	<b>2,006</b>	<b>100.00</b>	<b>1.37</b>

### *Trip Length*

Each trip in the survey, based on its reported origin location and destination location, was geocoded either to a TAZ system for the Wichita Falls study area, or to the statewide TAZ system when the location was outside the study area (but within the state of Texas). After the trips were geocoded, the travel distance and travel time for each trip to the surveyed work place was estimated using the transportation network available for the Wichita Falls study area that provides the zone-to-zone trip lengths and travel times based on network speeds. The Wichita Falls network matrix only provides distances and travel time between zones (inter-zonal) and not within zones (intra-zonal).

The analyses of trip length and travel time to and from the surveyed work place pertain only to inter-zonal trips by person and auto-driver mode of travel. Person trips included all travel modes, including walking and bicycle trips. Auto-driver trips pertain to trips made by drivers of cars, trucks, and or vans, including commercial cargo and service vehicles.

Table 15 and Table 16 show the survey inter-zonal trip lengths and travel times to and from the work place within the Wichita Falls MPO boundary by trip purpose, respectively. HBW trips had an average travel distance of approximately 4.2 miles per trip, and average travel time of 6.7 minutes per trip. For HBNW trips, the average trip length was 3.1 miles per trip while the average travel time was approximately 5.2 minutes per trip. The estimates for NHB trips reflected the average of NHB-D and NHB-O trips, which showed an average trip length of 2.9 per person trip and 3.1 per auto-driver trip, while the average travel time was approximately 5 minutes per person trip and 5.2 per auto-driver trip. NON-RES trips had an average trip length of approximately 3.5 miles per trip and average travel time of 5.8 minutes per trip.

**Table 15. Survey Inter-Zonal Trip Lengths to and from the Work Place.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Miles</b>	<b>Average Person Miles</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Miles</b>	<b>Average Auto-Driver Miles</b>
HBW	2,910	12,199	4.19	2,297	9,611	4.18
HBNW	8,443	25,812	3.06	4,670	14,347	3.07
NHB	2,167.5	6,374	2.94	1,378	4,240	3.08
NON-RES	1,025	3,556	3.47	614	2,176	3.54
<b>Total</b>	<b>14,545.5</b>	<b>47,942</b>	<b>3.30</b>	<b>8,959</b>	<b>30,374</b>	<b>3.39</b>

**Table 16. Survey Inter-Zonal Trip Travel Times to and from the Work Place.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Minutes</b>	<b>Average Person Minutes</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Minutes</b>	<b>Average Auto-Driver Minutes</b>
HBW	2,910	19,557	6.72	2,297	15,514	6.75
HBNW	8,443	43,822	5.19	4,670	24,247	5.19
NHB	2,167.5	10,926	5.04	1,378	7,214	5.24
NON-RES	1,025	5,893	5.75	614	3,601	5.86
<b>Total</b>	<b>14,545.5</b>	<b>80,198</b>	<b>5.51</b>	<b>8,959</b>	<b>50,576</b>	<b>5.65</b>

Table 17 and Table 18 provide the survey trip length frequency distributions (TLFDs) and travel times by trip purpose for all survey person and auto-driver trips.

**Table 17. Survey Person and Auto-Driver Trip TLFDs.**

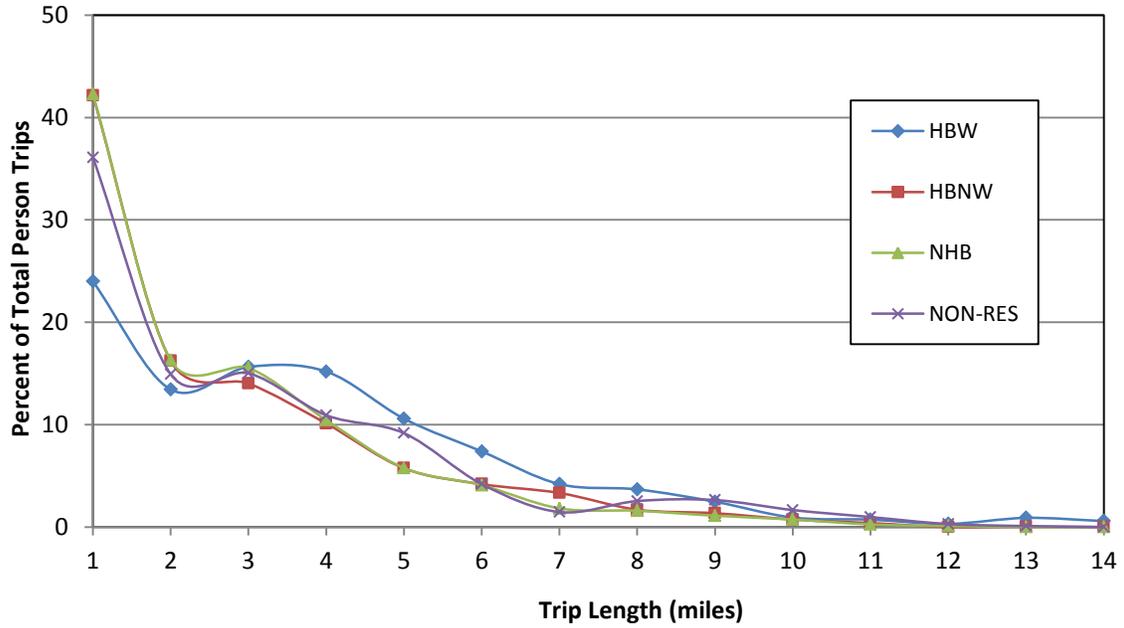
Miles	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	698	3559	916	370	512	1950	555.5	206
2	391	1370	353	153	309	789	223	98
3	455	1185	337	154	395	650	211.5	100
4	442	854	226.5	112	343	454	150	70
5	308	485	125	94	252	290	88	51
6	215	354	88.5	43	172	181	55	26
7	122	281	39.5	15	106	147	34.5	14
8	107	143	34.5	26	82	93	23	16
9	72	114	24	27	60	63	18.5	17
10	27	62	16	17	25	29	12	11
11	21	33	5.5	10	21	22	5	1
12	9	0	2	3	9	0	2	3
13	26	3	0	1	10	2	0	1
14	17	0	0	0	1	0	0	0
<b>Total</b>	<b>2,910</b>	<b>8,443</b>	<b>2,167.5</b>	<b>1,025</b>	<b>2,297</b>	<b>4,670</b>	<b>1,378</b>	<b>614</b>

**Table 18. Survey Person and Auto-Driver Trip Travel Times.**

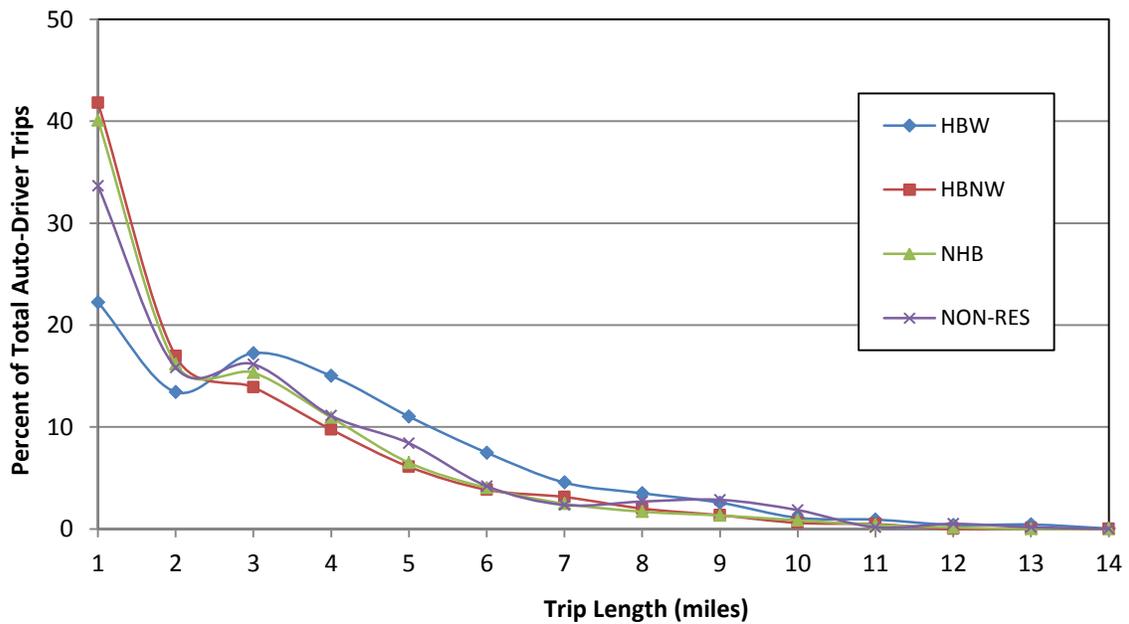
Minutes	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	206	1295	408.5	156	162	688	239.5	83
2	314	1212	273	119	212	642	169	74
3	255	1319	300	119	191	773	198	66
4	278	932	253.5	122	233	563	154.5	74
5	324	788	216.5	80	261	421	130	57
6	305	750	180	113	260	421	116.5	68
7	285	641	146	91	223	332	99	47
8	259	368	122.5	59	205	205	80	33
9	166	293	92	50	147	170	60	36
10	130	242	50.5	26	98	112	37.5	18
11	99	191	32.5	7	83	112	25	7
12	110	151	32	19	90	77	23.5	14
13	57	92	25	29	45	60	17	19
14	29	88	12	3	26	52	7.5	3
15	13	52	8	1	13	26	5	1
16	20	19	8.5	5	20	11	8.5	3
17	31	9	2	2	15	4	3	2
18	24	1	4	23	8	1	3.5	8
19	4	0	1	1	4	0	1	1
20	1	0	0	0	1	0	0	0
<b>Total</b>	<b>2,910</b>	<b>8,443</b>	<b>2,167.5</b>	<b>1,025</b>	<b>2,297</b>	<b>4,670</b>	<b>1,378</b>	<b>614</b>

Figure 4 (a and b) shows the trip lengths in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



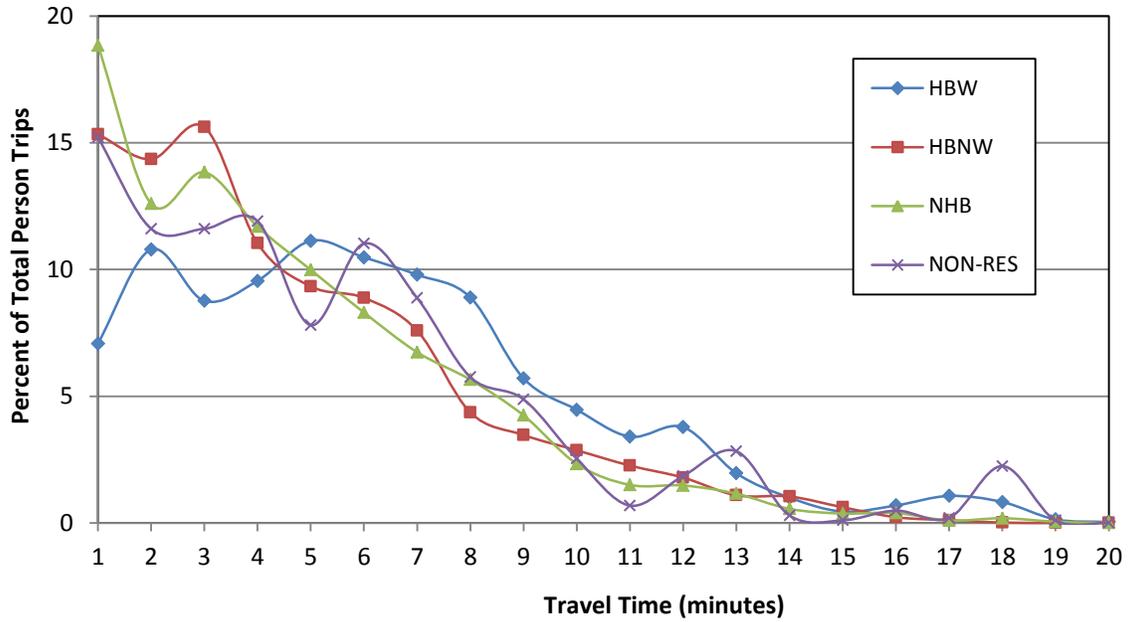
**(b) Auto-Driver Trips**



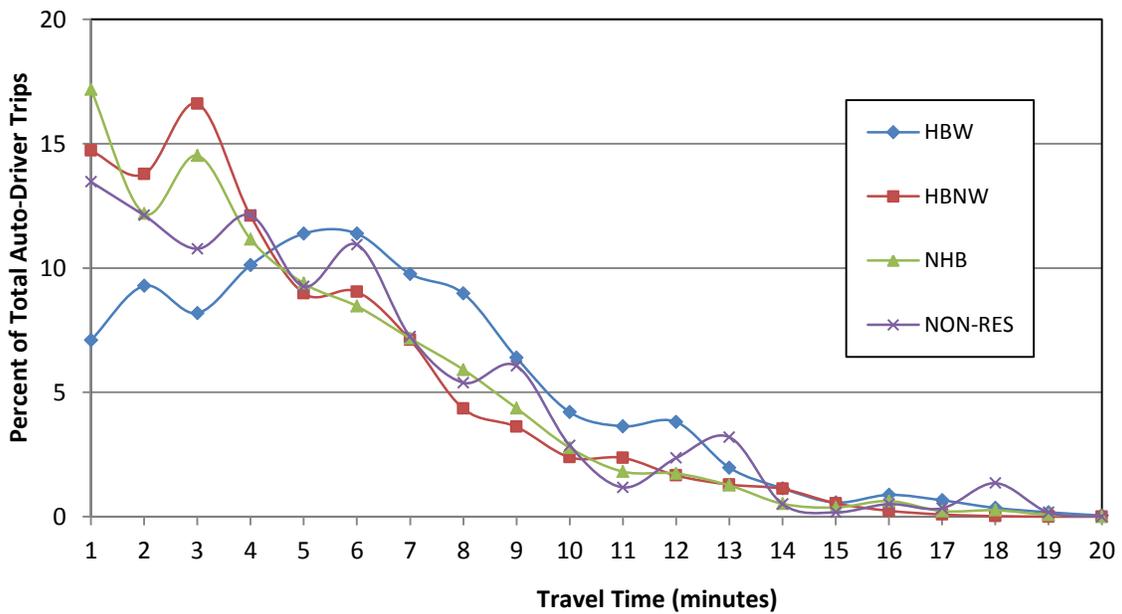
**Figure 4. TLFDs of Person and Auto-Driver Trips to and from the Work Place.**

Figure 5 (a and b) shows the travel times in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



**(b) Auto-Driver Trips**

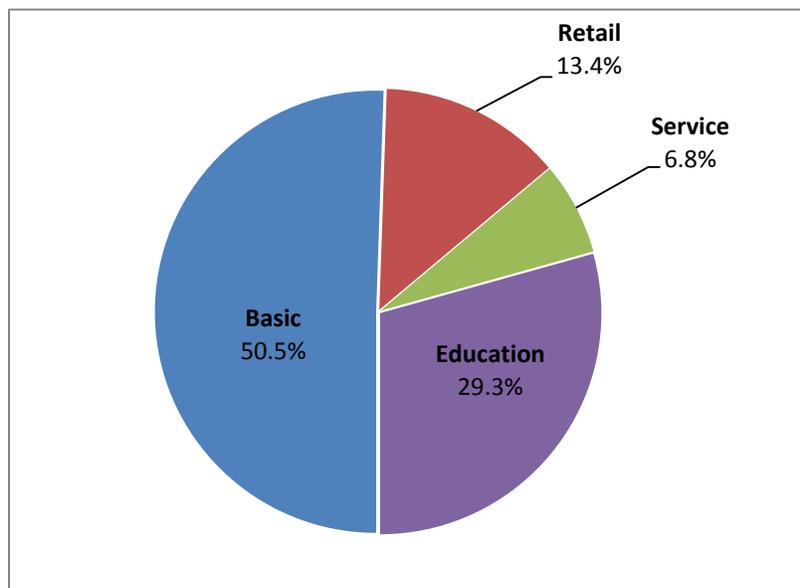


**Figure 5. Travel Times of Person and Auto-Driver Trips to and from the Work Place.**

## COMMERCIAL VEHICLE COUNTS

The commercial vehicle (CV) counts involved counting the number of cargo and service vehicles traveling to and from the surveyed establishments during the work place travel survey day. The counts were conducted using Accumulative Count Recorders (ACRs), video cameras, or manual counts. The counts were conducted for a 24-hour period beginning at 6:00 a.m. and ending at 6:00 a.m. on the following day of the survey. A total of 1,490 commercial vehicles were counted at 110 of the 400 surveyed establishments. It was not certain whether the remaining 290 establishments did or did not have commercial vehicles traveling to and from the sites. Based on the total CV counts, approximately 50 percent were at basic establishments, and 29 percent were at education establishments.

Figure 6 shows the distribution of commercial vehicle counts by employment type while Table 19 shows the distribution by area and employment types for the Wichita Falls study area.



**Figure 6. Commercial Vehicle Counts by Employment Type.**

**Table 19. Commercial Vehicle Counts by Area Type and Employment Type.**

Area Type	Basic	Retail	Service	Education	Total
CBD	0	0	0	0	0
Urban	113	34	22	142	311
Suburban	371	131	64	277	843
Rural	269	34	15	18	336
<b>Total</b>	<b>753</b>	<b>199</b>	<b>101</b>	<b>437</b>	<b>1,490</b>

## COMMERCIAL VEHICLE SURVEYS

CV intercept interviews were conducted as part of Wichita Falls work place survey. A total of 115 drivers of commercial vehicles making deliveries or pick-ups agreed to participate in the CV survey at 11 establishments (9 fully surveyed and 2 partially surveyed sites). The commercial vehicles were distinguished based on nine classification types listed in Table 20, and were categorized either as cargo transport or service vehicle types. The CV analysis included the trip purpose, the type of place where the trips occurred, and the type and average weight of cargo being transported at pick-up and drop-off locations.

Table 20 shows the vehicle classification types of the surveyed commercial vehicles for each category of employment. Approximately 94 percent of the total were cargo transport vehicles and 6 percent were service vehicles. The majority of the CV surveys were at basic establishments, with 64 percent classified as single-unit 2-axle (6-wheelers), 16 percent were semi all tractor-trailer combinations, and 5 percent were cargo or mini vans.

**Table 20. Survey Commercial Vehicle Classification Types.**

Vehicle Classification	Basic	Retail	Service	Education	Total	Percent of Total
Passenger Car	1	0	0	0	1	0.87
Pick-Up Truck	3	0	0	0	3	2.61
Van (cargo or mini)	5	1	0	0	6	5.22
Sport Utility Vehicle	1	0	0	0	1	0.87
Single Unit 2-axle (6 wheels)	0	5	2	0	7	6.09
Single Unit 3-axle (10 wheels)	74	0	0	0	74	64.35
Single Unit 4-axle (14 wheels)	0	0	0	0	0	0.00
Semi (all tractor-trailer combination)	15	3	0	0	18	15.65
Other	5	0	0	0	5	4.34
<b>Total</b>	<b>104</b>	<b>9</b>	<b>2</b>	<b>0</b>	<b>115</b>	<b>100.00</b>
<b>Percent of Total</b>	<b>90.44</b>	<b>7.82</b>	<b>1.74</b>	<b>0.00</b>	<b>100.00</b>	
Cargo Transport Vehicle Type	97	9	2	0	108	93.91
Service Vehicle Type	7	0	0	0	7	6.09

Table 21 and Table 22 show the trip purposes and types of place at the origin and destination of all surveyed commercial vehicles, respectively.

**Table 21. Survey Commercial Vehicle Travel Purposes at Trip Origins and Destinations.**

<b>Trip Purpose</b>	<b>Origin</b>	<b>Percent of Total</b>	<b>Destination</b>	<b>Percent of Total</b>
Base Location/Return to Base Location	54	46.95	34	29.57
Delivery	4	3.48	32	27.82
Pick-Up	0	0.00	17	14.78
Delivery and Pick-Up	10	8.70	11	9.57
Maintenance	3	2.61	7	6.09
Driver Needs (lunch, etc.)	2	1.74	1	0.87
To Home	0	0.00	5	4.34
Buy Gas/Fuel	1	0.87	0	0.00
Other	1	0.87	3	2.61
Refused/Unknown	40	34.78	5	4.35
<b>Total</b>	<b>115</b>	<b>100.00</b>	<b>115</b>	<b>100.00</b>

**Table 22. Survey Commercial Vehicle Types of Place at Trip Origins and Destinations.**

<b>Type of Place</b>	<b>Origin</b>	<b>Percent of Total</b>	<b>Destination</b>	<b>Percent of Total</b>
Office Building	4	3.48	5	4.35
Retail/Shopping	2	1.74	5	4.35
Industrial/Manufacturing	0	0.00	8	6.96
Government Office/Building	0	0.00	2	1.74
Residential	8	6.96	1	0.87
Airport	1	0.87	2	1.74
Warehouse	48	41.74	8	6.96
Distribution Center	26	22.61	26	22.61
Construction Site	9	7.82	35	30.43
Other	11	9.56	12	10.43
Refused/Unknown	6	5.22	11	9.56
<b>Total</b>	<b>115</b>	<b>100.00</b>	<b>115</b>	<b>100.00</b>

Table 23 shows the types of commodities being transported at the work place by 108 out of the total 115 surveyed commercial vehicles.

**Table 23. Survey Cargo Types.**

Cargo Type	Number of Deliveries	Percent of Total	Average Cargo Delivery Weight (lbs.)	Number of Pick-Ups	Percent of Total	Average Cargo Pick-Up Weight (lbs.)
Farm Products	1	0.93	2,700.00	1	0.93	x
Metals and Minerals	1	0.93	85,000.00	1	0.93	x
Food, Health, and Beauty Products	3	2.78	32.33	1	0.93	8.00
Clay, Concrete, Glass, or Stone	2	1.85	48,000.00	25	23.15	23,840.00
Wastes	2	1.85	2,100.00	3	2.78	2,100.00
Miscellaneous Shipments	2	1.85	0.50	0	0.00	x
Transportation	1	0.93	4,000.00	1	0.93	x
Unclassified Cargo	1	0.93	x	1	0.93	x
Driver Refused to Answer	1	0.93	x	0	0.00	x
Unknown to Driver	2	1.85	51.50	0	0.00	x
Empty	1	0.93	2,100.00	0	0.00	x
No Cargo Delivery/Pick Up	91	84.26	NA	75	69.44	NA
<b>Total</b>	<b>108</b>	<b>100.00<sup>1</sup></b>	<b>14,938.54<sup>2</sup></b>	<b>108</b>	<b>100.00<sup>1</sup></b>	<b>20,769.24<sup>2</sup></b>

<sup>1</sup> Percentage total may not be exact due to rounding.

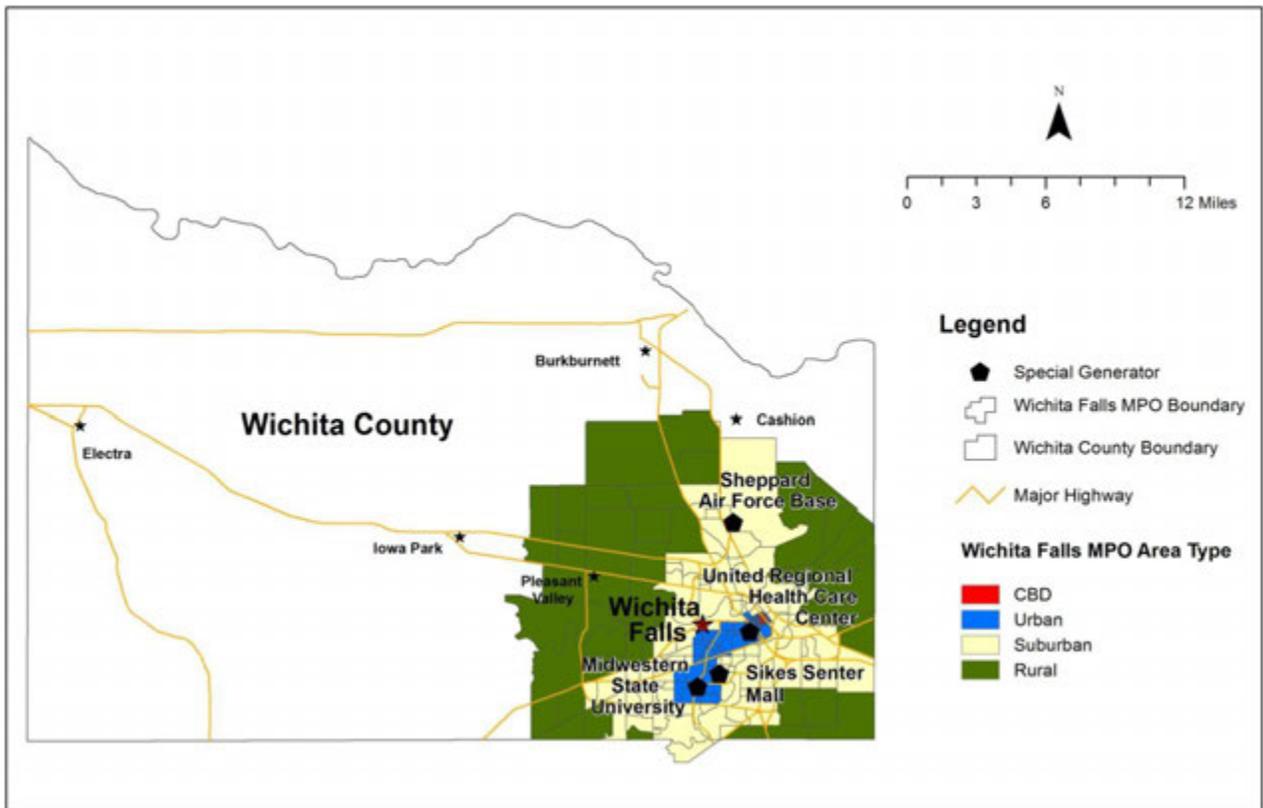
<sup>2</sup> Total average estimates were developed based on deliveries and pick-ups with reported cargo weights.

x - Not reported, NA - Not applicable.

## SPECIAL GENERATOR SURVEYS

Special generators are those establishments that are considered unique trip attractors. These may include major shopping centers, hospitals, colleges/universities, recreational facilities, military bases, airports, and other land use developments that have unique trip generation characteristics and therefore require modeling outside the typical travel demand modeling framework.

Four special generators were surveyed in the Wichita Falls study area — Sheppard Air Force Base, Midwestern State University, Sikes Senter Mall, and United Regional Health Center. Figure 7 shows their locations and corresponding area types.



**Figure 7. Wichita Falls Special Generators.**

The methodology used to survey special generators was the same as that used for full work place surveys (see page 2 of this report). It included a general survey, an intercept survey, non-commercial vehicle counts and/or person counts, and commercial vehicle counts. Table 24 provides a summary of the general data collected from the special generator surveys.

**Table 24. Wichita Falls Special Generators Data Summary.**

<b>Data Elements</b>	<b>Sheppard Air Force Base</b>	<b>Midwestern State University</b>	<b>Sikes Senter Mall</b>	<b>United Regional Health Care Center</b>
Total Employment	10,015	1,341	891	1800
Employees at Work	10,015	1,300	385	850
Commercial Vehicle Counts	338	18	0	0
Non-Commercial Vehicle Counts	17,802	11,979	11,676	6,972 <sup>1</sup>
Person Counts <sup>2</sup>	23,232	14,435	15,529	9,168
Employee Surveys	476	182	197	513
Visitor Surveys	342	950	875	296
Commercial Vehicle Surveys	1	0	2	2

<sup>1</sup> Estimate was developed by dividing the person count at the site by the average auto-driver vehicle occupancy.

<sup>2</sup> Estimates were developed by multiplying the non-commercial vehicle count at the site by the average auto-driver vehicle occupancy.

The trip characteristics observed from each special generator are described by mode of travel, trip purpose, and trip length. The analyses of trip length and travel time to and from the surveyed special generator pertain only to inter-zonal trips by person and auto-driver mode of travel. Person trips included all travel modes, including walking and bicycle trips. Auto-driver trips pertain to trips made by drivers of cars, trucks, and or vans, including commercial cargo transport and service vehicles.

It is important to note that the results presented throughout this section were based on survey trip data. These results significantly change after weighting is applied to the trip data during the survey expansion. The CV intercept surveys were deemed insignificant to provide a good representation of the commercial vehicle characteristics for each special generator, and were therefore not used for analysis.

## Sheppard Air Force Base

Sheppard Air Force Base had a reported total employment of 10,015, with all of the employees estimated to be at work during the travel survey day. A total of 476 employees and 342 visitors participated in the survey. The surveyed employees represented approximately 5 percent of the total employees at work. Vehicle counts were conducted for a 24-hour period (6:00 a.m. to 6:00 a.m.), with a total count of 17,802 non-commercial vehicles and 338 commercial vehicles.

Table 25 shows the mode of travel used by survey participants traveling to and from Sheppard Air Force Base. Approximately 91 percent of the total trips were made by drivers of cars, trucks, or vans and more than 6 percent were passengers of cars, trucks, or vans. The average occupancy rates for the auto-driver mode of travel were 1.2 persons for employee trips and 1.4 persons for visitor trips.

**Table 25. Survey Mode of Travel to and from Sheppard Air Force Base.**

Mode	To Work Place	From Work Place	Total Trips	Percent of Total
Driver (car/truck/van)	761	728	1,489	91.02
Passenger (car/truck/van)	34	72	106	6.48
Walk	8	4	12	0.73
Bicycle	1	2	3	0.18
Transit Bus	5	5	10	0.61
School Bus	0	0	0	0.00
Taxi/Limo	1	1	2	0.12
Commercial Cargo Transport Vehicle	1	0	1	0.06
Commercial Service Vehicle	0	0	0	0.00
Motorcycle	6	6	12	0.73
Other	1	0	1	0.06
<b>Total</b>	<b>818</b>	<b>818</b>	<b>1,636</b>	<b>100.00<sup>1</sup></b>

<sup>1</sup> Percentage may not be exact due to rounding.

Table 26 shows the number and percentage of surveyed trips to and from Sheppard Air Force Base by purpose.

**Table 26. Survey Trips by Purposes to and from Sheppard Air Force Base.**

<b>Trip Purpose</b>	<b>To Work Place</b>	<b>From Work Place</b>	<b>Total Trips</b>	<b>Percent of Total</b>
HBW	185	172	357	21.82
HBNW	341	301	642	39.24
NHB-D	98	0	98	5.99
NHB-O	0	147	147	8.99
EXT-D	2	0	2	0.12
EXT-O	0	6	6	0.37
NON RES	192	192	384	23.47
<b>Total</b>	<b>818</b>	<b>818</b>	<b>1,636</b>	<b>100.00</b>

Table 27 and Table 28 show the trip lengths and travel times by trip purpose for person and auto-driver trips, respectively. The number of trips slightly differed from the number of trips shown in Table 26 since these represented inter-zonal trips only. The estimates for NHB trips reflected the average of NHB-D and NHB-O trips. The average trip length was approximately 7 miles per person and 7.1 miles per auto-driver trip. The average travel time was close to 14 minutes per trip.

**Table 27. Survey Inter-Zonal Trip Lengths to and from Sheppard Air Force Base by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Miles</b>	<b>Average Person Miles</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Miles</b>	<b>Average Auto-Driver Miles</b>
HBW	387	2,667.03	6.89	326	2,335.48	7.16
HBNW	834	5,881.77	7.05	560	3,917.82	7.00
NHB	164	1,118.81	6.82	95.5	669.79	7.01
NON-RES	86	589.06	6.85	61	425.85	6.98
<b>Total</b>	<b>1,471</b>	<b>10,256.67</b>	<b>6.97</b>	<b>1,041.5</b>	<b>7,338.46</b>	<b>7.05</b>

**Table 28. Survey Inter-Zonal Travel Times to and from Sheppard Air Force Base by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Minutes</b>	<b>Average Person Minutes</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Minutes</b>	<b>Average Auto-Driver Minutes</b>
HBW	387	5,257.52	13.59	326	4,546.72	13.95
HBNW	834	11,464.10	13.75	560	7,638.47	13.64
NHB	164	2,162.63	13.19	95.5	1,284.62	13.45
NON-RES	86	1,131.59	13.16	61	812.47	13.32
<b>Total</b>	<b>1,471</b>	<b>20,015.84</b>	<b>13.61</b>	<b>1,041.5</b>	<b>14,282.28</b>	<b>13.70</b>

Table 29 and Table 30 provide the survey trip length frequency distributions (TLFDs) and travel times by trip purpose, for all survey person and auto-driver trips to and from Sheppard Air Force Base.

**Table 29. Survey Person and Auto-Driver Trip TLFDs to and from Sheppard Air Force Base.**

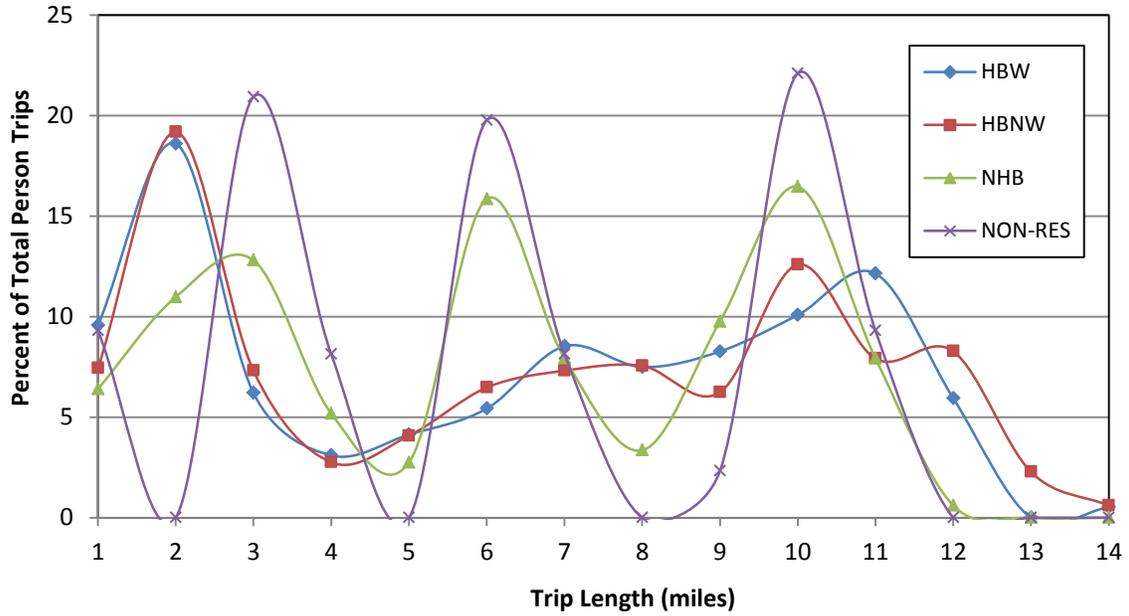
Miles	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	37	62	10.5	8	24	41	6	5
2	72	160	18	0	61	111	8.5	0
3	24	61	21	18	21	46	11	12
4	12	23	8.5	7	10	17	5.5	5
5	16	34	4.5	0	14	21	3.5	0
6	21	54	26	17	14	32	15.5	12
7	33	61	13	7	30	36	6	6
8	29	63	5.5	0	21	48	4.5	0
9	32	52	16	2	23	34	9	2
10	39	105	27	19	38	60	17.5	14
11	47	66	13	8	45	53	7.5	5
12	23	69	1	0	23	46	1	0
13	0	19	0	0	0	12	0	0
14	2	5	0	0	2	3	0	0
<b>Total</b>	<b>387</b>	<b>834</b>	<b>164</b>	<b>86</b>	<b>326</b>	<b>560</b>	<b>95.5</b>	<b>61</b>

**Table 30. Survey Person and Auto-Driver Trip Travel Times to and from Sheppard Air Force Base.**

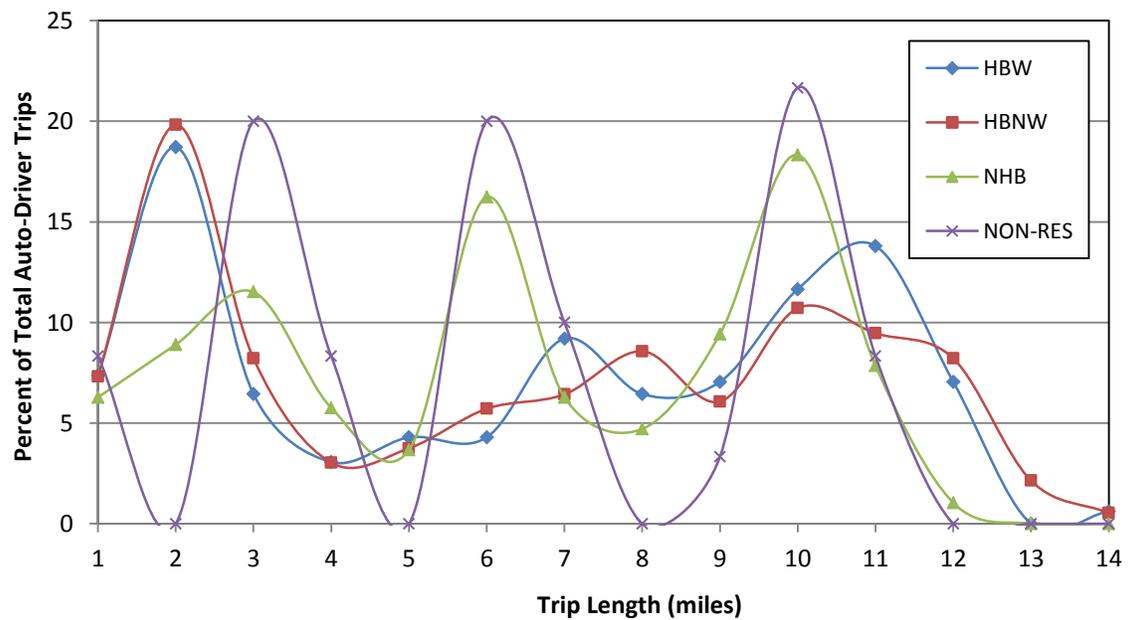
Minutes	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
6	37	62	10.5	8	24	41	6	5
7	72	161	18.5	0	61	112	9	0
8	21	60	10	9	18	45	5.5	6
9	9	13	15.5	14	9	10	9	10
10	7	18	6	2	5	12	3.5	1
11	12	19	1.5	0	10	16	1	0
12	23	59	27.5	18	17	30	16	13
13	11	28	6.5	4	10	16	4.5	3
14	25	41	4.5	2	21	24	1.5	2
15	15	23	5.5	0	13	18	3.5	0
16	25	62	8.5	0	19	49	5.5	0
17	28	41	12	8	22	29	7.5	6
18	24	67	17.5	9	21	29	12	7
19	26	50	18.5	10	24	40	9.5	7
20	22	38	0	2	22	31	0	1
21	7	16	0.5	0	7	10	0.5	0
22	21	63	1	0	21	42	1	0
23	1	13	0	0	1	6	0	0
24	1	0	0	0	1	0	0	0
<b>Total</b>	<b>387</b>	<b>834</b>	<b>164</b>	<b>86</b>	<b>326</b>	<b>560</b>	<b>95.5</b>	<b>61</b>

Figure 8 (a and b) show the trip lengths in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



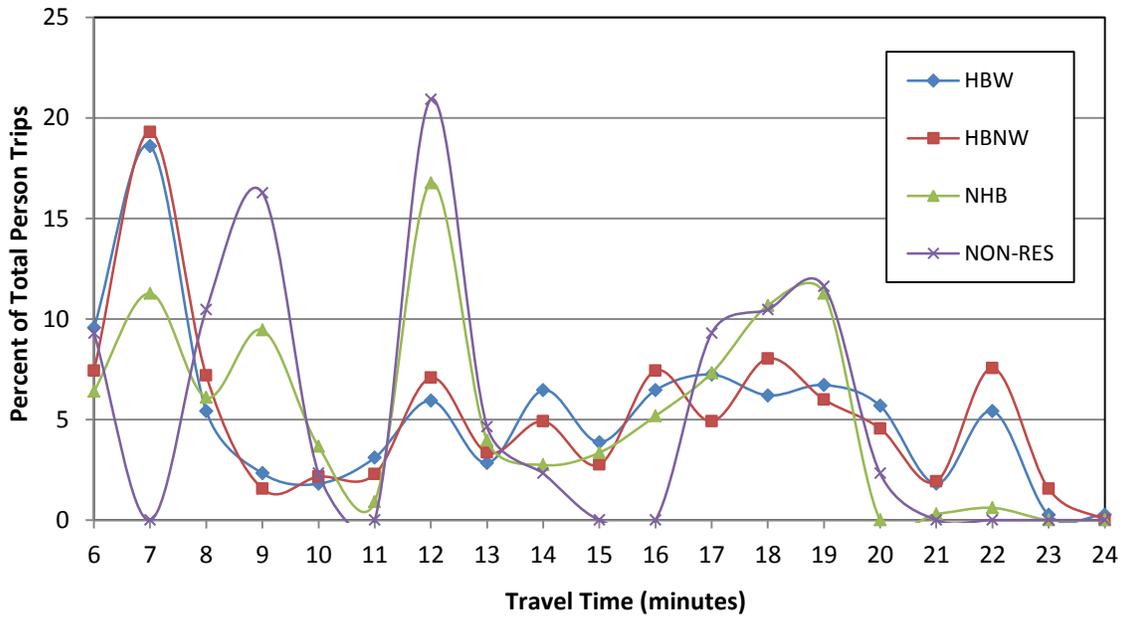
**(b) Auto-Driver Trips**



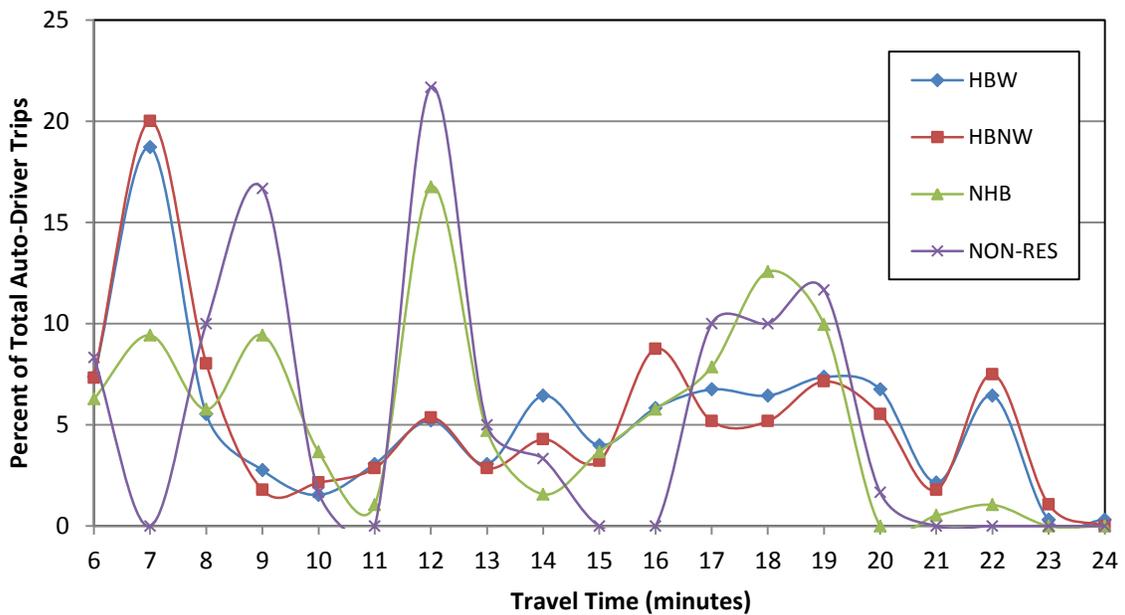
**Figure 8. TLFDs of Person and Auto-Driver Trips to and from Sheppard Air Force Base.**

Figure 9 (a and b) show the travel times in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



**(b) Auto-Driver Trips**



**Figure 9. Travel Times of Person and Auto-Driver Trips to and from Sheppard Air Force Base.**

## Midwestern State University

Midwestern State University had a reported total employment of 1,341 and 1,300 of its employees were estimated to be at work during the travel survey day. A total of 182 employees, and 950 non-employees (899 students and 51 visitors) participated in the survey. The surveyed employees represented 14 percent of the total employees at work. Vehicle counts were conducted for a 24-hour period (6:00 a.m. to 6:00 a.m.), with a total count of 11,979 non-commercial vehicles and 18 commercial vehicles. The data analysis excluded 22 surveys collected from participants who resided on campus.

Table 31 shows the mode of travel used by survey participants traveling to and from Midwestern State University. Approximately 78 percent were drivers of cars, trucks, or vans and close to 4 percent were passengers of cars, trucks, or vans. Approximately 9 percent rode a transit bus, while close to 4 percent rode a school bus. Only 3 percent used non-motorized mode of travel, with 2 percent walking and 1 percent riding bicycles. The average occupancy rates for the auto-driver mode of travel, including commercial service vehicles, were 1.1 persons per employee trip and 1.2 persons per visitor trip.

**Table 31. Survey Mode of Travel to and from Midwestern State University.**

Mode	To Work Place	From Work Place	Total Trips	Percent of Total
Driver (car/truck/van)	871	872	1,743	78.51
Passenger (car/truck/van)	45	42	87	3.92
Walk	23	23	46	2.07
Bicycle	13	13	26	1.17
Transit Bus	100	102	202	9.10
School Bus	43	43	86	3.87
Taxi/Limo	0	0	0	0.00
Commercial Cargo Transport Vehicle	0	0	0	0.00
Commercial Service Vehicle	2	2	4	0.18
Motorcycle	13	13	26	1.17
Other	0	0	0	0.00
<b>Total</b>	<b>1,110</b>	<b>1,110</b>	<b>2,220</b>	<b>100.00</b>

Table 32 shows the number and percentage of surveyed trips to and from Midwestern State University by purpose.

**Table 32. Survey Trips by Purposes to and from Midwestern State University.**

<b>Trip Purpose</b>	<b>To Work Place</b>	<b>From Work Place</b>	<b>Total Trips</b>	<b>Percent of Total</b>
HBW	159	157	316	14.23
HBNW	741	666	1407	63.38
NHB-D	66	0	66	2.97
NHB-O	0	142	142	6.40
EXT-D	4	0	4	0.18
EXT-O	0	5	5	0.23
NON RES	140	140	280	12.61
<b>Total</b>	<b>1,110</b>	<b>1,110</b>	<b>2,220</b>	<b>100.00</b>

Table 33 and Table 34 show the trip lengths and travel times by trip purpose for person and vehicle trips, respectively. The number of trips slightly differed from the number of trips shown in Table 32 since these represented inter-zonal trips. The estimates for NHB trips reflected the average of NHB-D and NHB-O trips. The average trip length was close to 3 miles per trip. The average travel time was around 5 minutes per trip.

**Table 33. Survey Inter-Zonal Trip Lengths to and from Midwestern State University by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Miles</b>	<b>Average Person Miles</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Miles</b>	<b>Average Auto-Driver Miles</b>
HBW	340	1,188.13	3.49	298	1,058.86	3.55
HBNW	1,523	4,009.88	2.63	947	2,652.15	2.80
NHB	118.5	338.42	2.86	79	220.20	2.79
NON-RES	44	141.83	3.22	36	113.01	3.14
<b>Total</b>	<b>2,025.5</b>	<b>5,678.26</b>	<b>2.80</b>	<b>1,360</b>	<b>4,044.22</b>	<b>2.97</b>

**Table 34. Survey Inter-Zonal Travel Times to and from Midwestern State University by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Minutes</b>	<b>Average Person Minutes</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Minutes</b>	<b>Average Auto-Driver Minutes</b>
HBW	340	2,001.75	5.89	298	1783.71	5.99
HBNW	1,523	7,125.90	4.68	947	4649.81	4.91
NHB	118.5	813.13	6.86	79	389.73	4.93
NON-RES	44	247.46	5.62	36	198.65	5.52
<b>Total</b>	<b>2,025.5</b>	<b>10,188.24</b>	<b>5.03</b>	<b>1,360</b>	<b>7,021.90</b>	<b>5.16</b>

Table 35 and Table 36 provide the survey TLFDs and travel times by trip purpose, for all survey person and auto-driver trips to and from Midwestern State University.

**Table 35. Survey Person and Auto-Driver Trip TLFDs to and from Midwestern State University.**

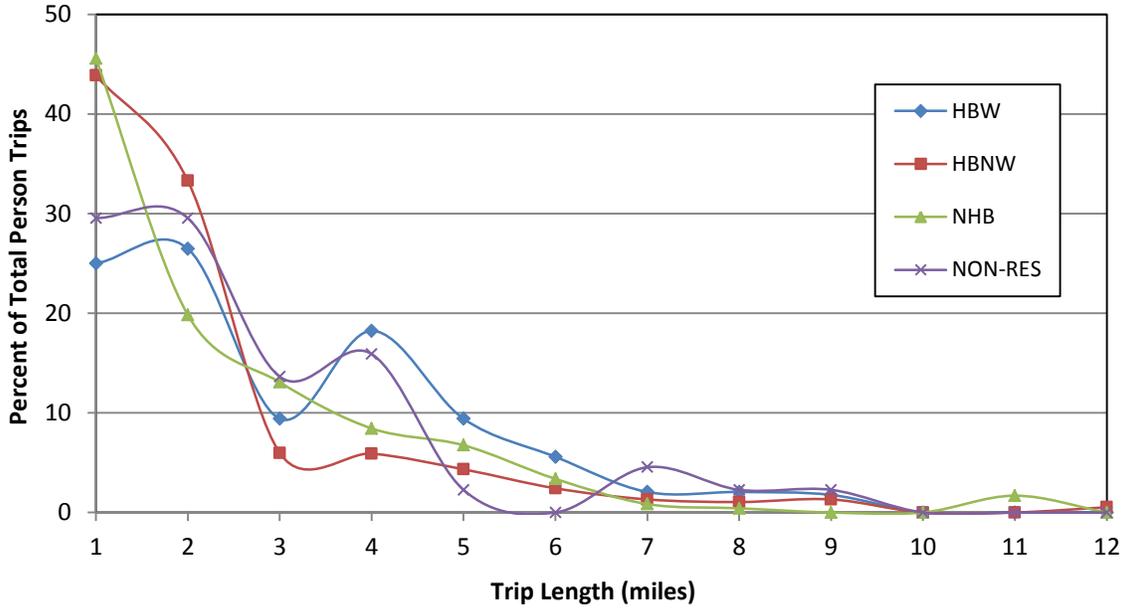
Miles	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	85	668	54	13	68	366	35.5	13
2	90	507	23.5	13	79	326	18	10
3	32	91	15.5	6	31	64	12.5	3
4	62	90	10	7	58	70	6.5	6
5	32	66	8	1	30	46	2	1
6	19	37	4	0	15	27	1	0
7	7	20	1	2	7	14	1	1
8	7	16	0.5	1	6	12	0.5	1
9	6	20	0	1	4	18	0	1
10	0	0	0	0	0	0	0	0
11	0	0	2	0	0	0	2	0
12	0	8	0	0	0	4	0	0
<b>Total</b>	<b>340</b>	<b>1,523</b>	<b>118.5</b>	<b>44</b>	<b>298</b>	<b>947</b>	<b>79</b>	<b>36</b>

**Table 36. Survey Person and Auto-Driver Trip Travel Times to and from Midwestern State University.**

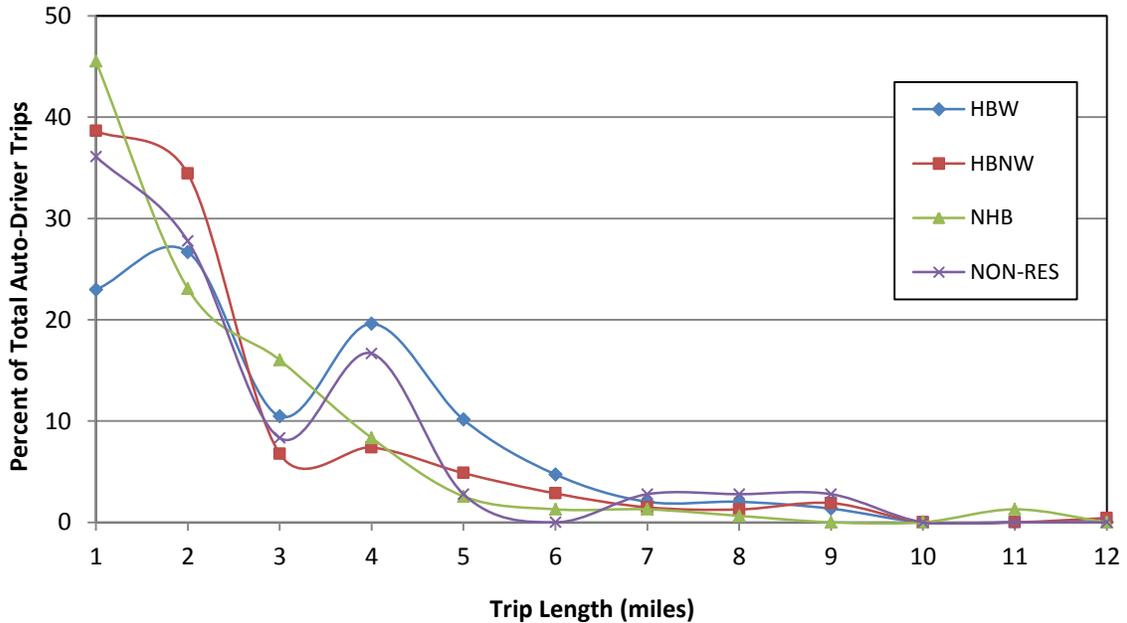
Minutes	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	15	124	8	1	13	97	4	1
2	12	72	12.5	6	6	45	7	6
3	75	701	38.5	10	61	329	27.5	9
4	53	193	14	7	49	164	11	5
5	41	137	14	5	39	91	11	3
6	27	57	8	3	22	46	7	2
7	40	69	6.5	6	40	46	3.5	5
8	37	57	3	1	35	49	3	1
9	15	28	1	1	11	16	1	1
10	6	14	7.5	1	6	8	1.5	1
11	2	16	3	1	2	15	0	0
12	9	28	0	0	8	20	0	0
13	8	17	0.5	1	6	15	0.5	1
14	0	2	0	0	0	2	0	0
15	0	0	0	0	0	0	0	0
16	0	8	2	0	0	4	2	0
17	0	0	0	1	0	0	0	1
<b>Total</b>	<b>340</b>	<b>1,523</b>	<b>118.5</b>	<b>44</b>	<b>298</b>	<b>947</b>	<b>79</b>	<b>36</b>

Figure 10 (a and b) show the trip lengths in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



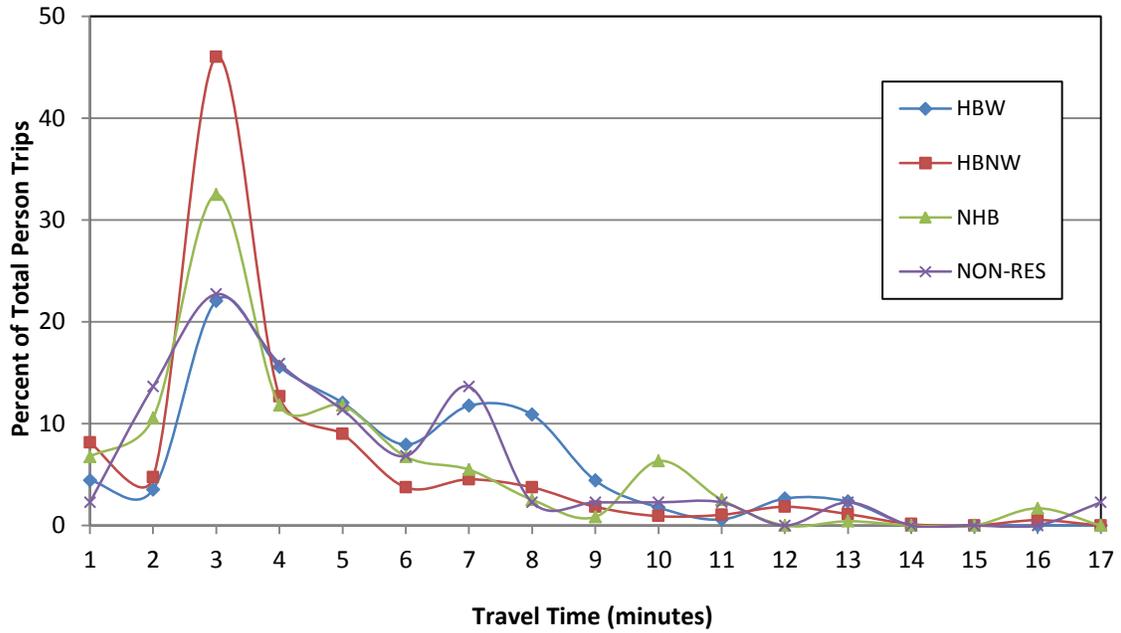
**(b) Auto-Driver Trips**



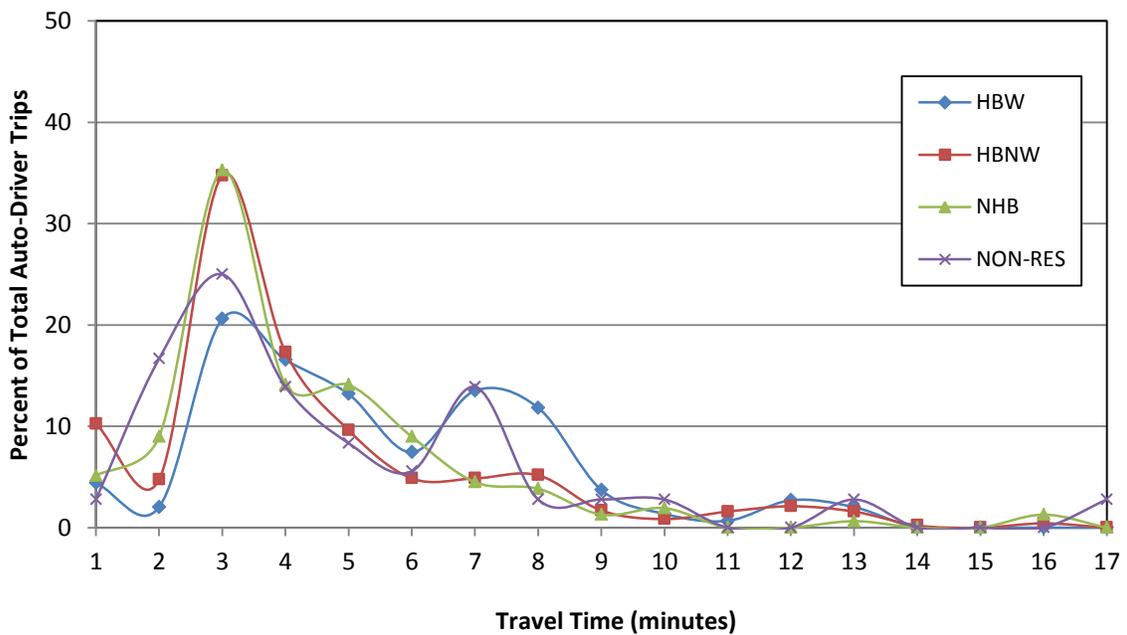
**Figure 10. TLFDs of Person and Auto-Driver Trips to and from Midwestern State University.**

Figure 11 (a and b) show the travel times in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



**(b) Auto-Driver Trips**



**Figure 11. Travel Times of Person and Auto-Driver Trips to and from  
Midwestern State University.**

## Sikes Senter Mall

The Sikes Senter Mall had a reported total employment of 891 and 385 of its employees were estimated to be at work during the travel survey day. A total of 197 employees and 875 non-employees participated in the survey. The surveyed employees represented 51 percent of the total employees at work. Vehicle counts were conducted from 6:00 a.m. to 10:00 p.m. during the day of survey, with a total count of 11,676 non-commercial vehicles.

Table 37 shows the mode of travel used by survey participants traveling to the Sikes Senter Mall. The same mode of travel was assumed for the other leg of the trip. Approximately 90 percent were drivers of cars, trucks, or vans and more than 5 percent were passengers of cars, trucks, or vans. Close to 2 percent either walked or used a transit bus. The average occupancy rates for the auto-driver mode of travel, including commercial service vehicles, were 1.2 persons per employee trip and 1.4 persons per visitor trip.

**Table 37. Survey Mode of Travel to the Sikes Senter Mall.**

<b>Mode</b>	<b>To Work Place</b>	<b>Percent of Total</b>
Driver (car/truck/van)	965	90.02
Passenger (car/truck/van)	59	5.50
Walk	19	1.77
Bicycle	0	0.00
Transit Bus	18	1.68
School Bus	0	0.00
Taxi/Limo	4	0.37
Commercial Cargo Transport Vehicle	0	0.00
Commercial Service Vehicle	2	0.19
Motorcycle	3	0.28
Other	2	0.19
<b>Total</b>	<b>1,072</b>	<b>100.00</b>

Table 38 shows the number and percentage of surveyed trips to and from the Sikes Senter Mall by purpose.

**Table 38. Survey Trips by Purposes to and from the the Sikes Senter Mall.**

<b>Trip Purpose</b>	<b>To Work Place</b>	<b>From Work Place</b>	<b>Total Trips</b>	<b>Percent of Total</b>
HBW	144	134	278	12.97
HBNW	478	469	947	44.17
NHB-D	219	0	219	10.22
NHB-O	0	229	229	10.68
EXT-D	2	0	2	0.09
EXT-O	0	11	11	0.51
NON RES	229	229	458	21.36
<b>Total</b>	<b>1,072</b>	<b>1,072</b>	<b>2,144</b>	<b>100.00</b>

Table 39 and Table 40 show the trip lengths and travel times by trip purpose for person and auto-driver trips, respectively. The number of trips slightly differed from the number of trips shown in Table 38 since these represented inter-zonal trips only. The estimates for NHB trips reflected the average of NHB-D and NHB-O trips. The average trip length was around 3.3 miles per trip. The average travel time was close to 6 minutes per trip.

**Table 39. Survey Inter-Zonal Trip Lengths to and from the Sikes Senter Mall by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Miles</b>	<b>Average Person Miles</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Miles</b>	<b>Average Auto-Driver Miles</b>
HBW	303	1,125.04	3.71	255	946.61	3.71
HBNW	1,550	5,751.05	3.71	832	2,980.52	3.58
NHB	319.5	660.87	2.07	193.5	408.47	2.11
NON-RES	270	682.74	2.53	166	418.54	2.52
<b>Total</b>	<b>2,442.5</b>	<b>8,219.70</b>	<b>3.37</b>	<b>1,446.5</b>	<b>4,754.14</b>	<b>3.29</b>

**Table 40. Survey Inter-Zonal Travel Times to and from the Sikes Senter Mall by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Minutes</b>	<b>Average Person Minutes</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Minutes</b>	<b>Average Auto-Driver Minutes</b>
HBW	303	1,915.25	6.32	255	1,614.45	6.33
HBNW	1,550	9,838.31	6.35	832	5,120.59	6.15
NHB	319.5	1,239.87	3.88	193.5	762.78	3.94
NON-RES	270	1,232.48	4.56	166	752.22	4.53
<b>Total</b>	<b>2,442.5</b>	<b>14,225.91</b>	<b>5.82</b>	<b>1,446.5</b>	<b>8,250.04</b>	<b>5.70</b>

Table 41 and Table 42 provide the survey TLFDDs and travel times by trip purpose, for all survey person and auto-driver trips to and from the Sikes Senter Mall.

**Table 41. Survey Person and Auto-Driver Trip TLFDDs to and from the Sikes Senter Mall.**

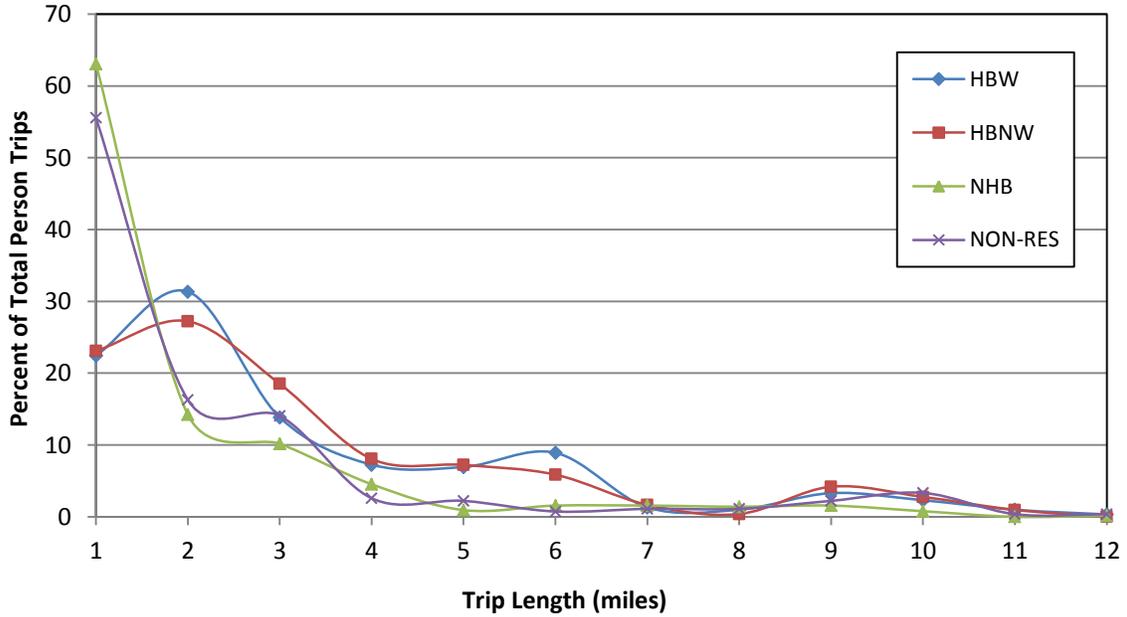
<b>Miles</b>	<b>Person Trips</b>				<b>Auto-Driver Trips</b>			
	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
1	68	358	201.5	150	57	209	119	91
2	95	422	45.5	44	81	230	29.5	30
3	42	287	32.5	38	35	148	20.5	22
4	22	125	14.5	7	20	66	9	5
5	21	112	3	6	13	55	2	4
6	27	91	5	2	25	46	3	1
7	4	26	5	3	4	18	2	1
8	3	6	4.5	3	3	5	3.5	2
9	10	65	5	6	6	27	3	3
10	7	43	2.5	9	7	22	1.5	5
11	3	15	0	1	3	6	0	1
12	1	0	0.5	1	1	0	0.5	1
<b>Total</b>	<b>303</b>	<b>1,550</b>	<b>319.5</b>	<b>270</b>	<b>255</b>	<b>832</b>	<b>193.5</b>	<b>166</b>

**Table 42. Survey Person and Auto-Driver Trip Travel Times to and from the Sikes Senter Mall.**

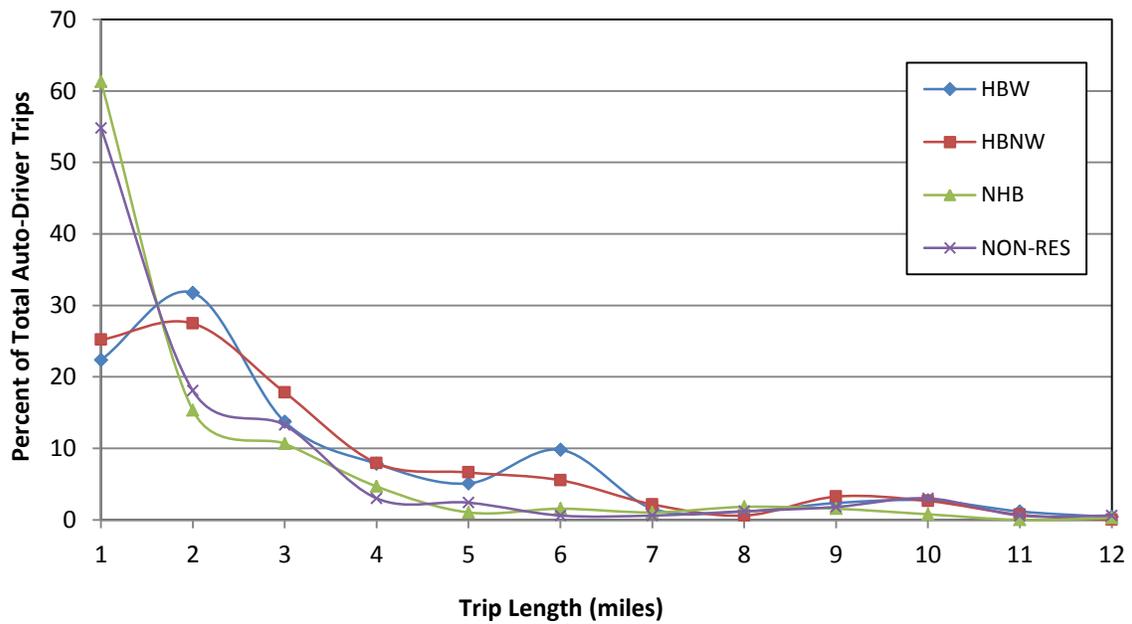
Minutes	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	16	96	126.5	89	14	54	72	50
2	34	95	52.5	32	29	57	33.5	22
3	29	207	26.5	29	25	121	15.5	19
4	54	289	37	36	46	164	25	24
5	55	235	26	34	44	125	16.5	21
6	18	154	11	11	16	71	6.5	6
7	23	103	10	7	15	60	6.5	5
8	18	79	6.5	4	16	39	3.5	4
9	8	85	4.5	0	8	29	3	0
10	14	25	2.5	5	12	18	1.5	2
11	6	35	4	2	6	21	1.5	0
12	7	24	3.5	4	7	18	3.5	3
13	0	10	1	1	0	4	0	1
14	9	55	2.5	2	5	24	2	2
15	9	50	3	7	9	22	1.5	3
16	0	0	0	2	0	0	0	2
17	1	0	0.5	0	1	0	0.5	0
18	0	0	0	0	0	0	0	0
19	2	8	2	5	2	5	1	2
<b>Total</b>	<b>303</b>	<b>1,550</b>	<b>319.5</b>	<b>270</b>	<b>255</b>	<b>832</b>	<b>193.5</b>	<b>166</b>

Figure 12 (a and b) show the trip lengths in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



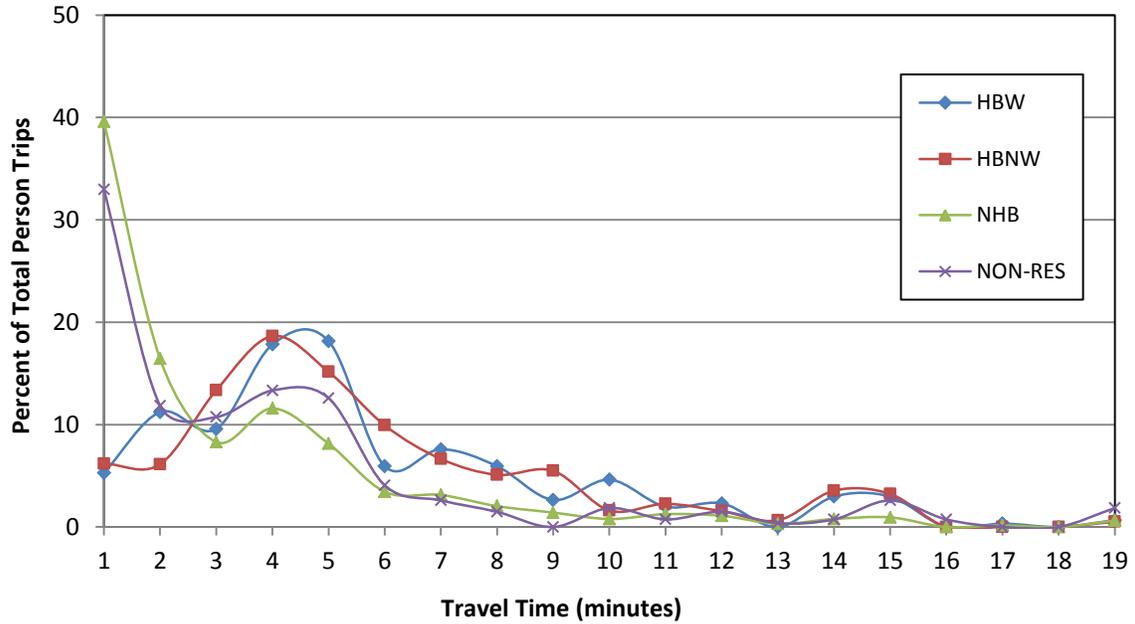
**(b) Auto-Driver Trips**



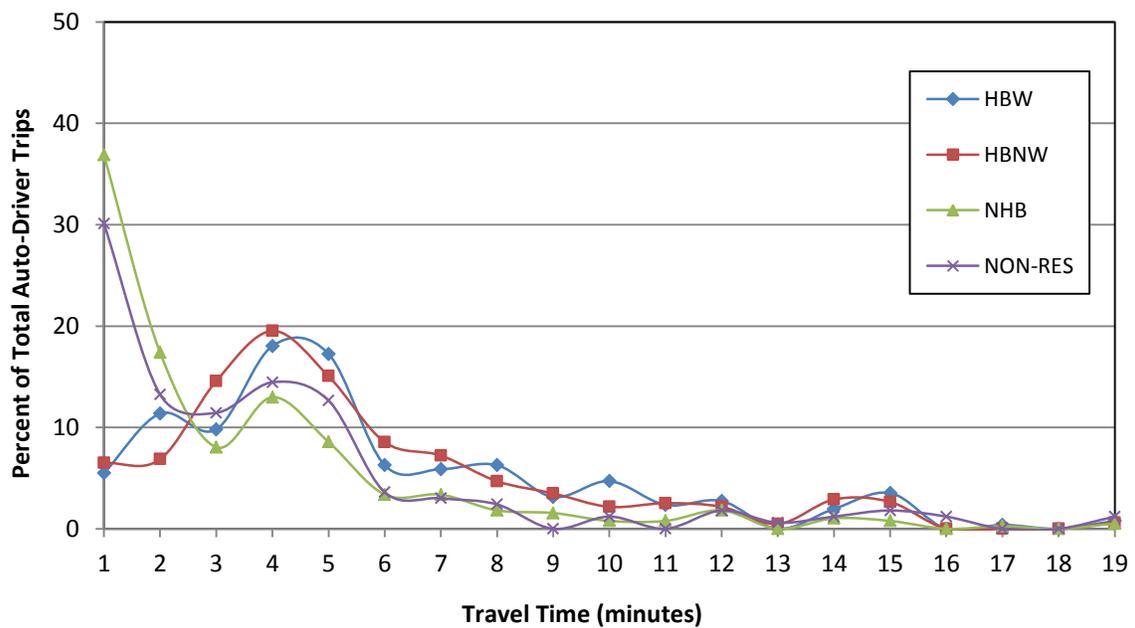
**Figure 12. TLFDs of Person and Auto-Driver Trips to and from the Sikes Senter Mall.**

Figure 13 (a and b) show the travel times in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



**(b) Auto-Driver Trips**



**Figure 13. Travel Times of Person and Auto-Driver Trips to and from the Sikes Senter Mall.**

## United Regional Health Care Center

The United Regional Health Care Center had a reported total employment of 1,800, with 850 of the employees estimated to be at work during the travel survey day. A total of 513 employees and 296 visitors participated in the survey. The surveyed employees represented approximately 60 percent of the total employees at work. Vehicle counts were not conducted at the facility, but persons entering and exiting the establishment were counted manually, which was conducted from 6:00 a.m. to 10:00 p.m. on the day of survey. Based on the total 9,168 person count, and average employee and visitor occupancy rate for auto-driver mode of travel, approximately 6,972 non-commercial vehicles entered and exited the facility during the travel survey day.

Table 43 shows the mode of travel used by survey participants traveling to United Regional Health Care Center. The same mode of travel was assumed for the other leg of the trip. Approximately 95 percent were drivers of cars, trucks, or vans and close to 4 percent were passengers of cars, trucks, or vans. The average occupancy rates for the auto-driver mode of travel, including commercial cargo transport vehicle, were 1.1 persons per employee trip and 1.5 persons per visitor trip.

**Table 43. Survey Mode of Travel to United Regional Health Care Center.**

<b>Mode</b>	<b>To Work Place</b>	<b>Percent of Total</b>
Driver (car/truck/van)	765	94.56
Passenger (car/truck/van)	30	3.71
Walk	3	0.37
Bicycle	0	0.00
Transit Bus	1	0.12
School Bus	1	0.12
Taxi/Limo	2	0.25
Commercial Cargo Transport Vehicle	1	0.12
Commercial Service Vehicle	0	0.00
Motorcycle	2	0.25
Other	4	0.49
<b>Total</b>	<b>809</b>	<b>100.00<sup>1</sup></b>

<sup>1</sup> Percentage may not be exact due to rounding.

Table 44 shows the number and percentage of surveyed trips to and from United Regional Health Care Center by purpose.

**Table 44. Survey Trips by Purposes to and from United Regional Health Care Center.**

<b>Trip Purpose</b>	<b>To Work Place</b>	<b>From Work Place</b>	<b>Total Trips</b>	<b>Percent of Total</b>
HBW	370	326	696	43.02
HBNW	212	186	398	24.60
NHB-D	55	0	55	3.40
NHB-O	0	125	125	7.72
EXT-D	4	0	4	0.25
EXT-O	0	4	4	0.25
NON RES	168	168	336	20.76
<b>Total</b>	<b>809</b>	<b>809</b>	<b>1,618</b>	<b>100.00</b>

Table 45 and Table 46 show the trip lengths and travel times by trip purpose for person and vehicle trips, respectively. The number of trips slightly differed from the number of trips shown in Table 44 since these represented inter-zonal trips. The estimates for NHB trips reflected the average of NHB-D and NHB-O trips. The average trip length was close to 3.5 miles per trip. The average travel time was close to 6 minutes per trip.

**Table 45. Survey Inter-Zonal Trip Lengths to and from United Regional Health Care Center by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Miles</b>	<b>Average Person Miles</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Miles</b>	<b>Average Auto-Driver Miles</b>
HBW	752	2710.51	3.60	677	2476.85	3.66
HBNW	631	2066.19	3.27	355	1167.81	3.29
NHB	109.5	317.195	2.90	84	248.71	2.96
NON-RES	66	205.18	3.11	43	152.07	3.54
<b>Total</b>	<b>1,558.5</b>	<b>5,299.08</b>	<b>3.40</b>	<b>1,159</b>	<b>4,045.44</b>	<b>3.49</b>

**Table 46. Survey Inter-Zonal Travel Times to and from United Regional Health Care Center by Trip Purpose.**

<b>Trip Purpose</b>	<b>Total Person Trips</b>	<b>Total Person Minutes</b>	<b>Average Person Minutes</b>	<b>Total Auto-Driver Trips</b>	<b>Total Auto-Driver Minutes</b>	<b>Average Auto-Driver Minutes</b>
HBW	752	4,475.16	5.95	677	4,089.57	6.04
HBNW	631	3,451.46	5.47	355	1,951.77	5.50
NHB	109.5	548.53	5.01	84	427.15	5.09
NON-RES	66	342.86	5.19	43	248.14	5.77
<b>Total</b>	<b>1,558.5</b>	<b>8,818.01</b>	<b>5.66</b>	<b>1,159</b>	<b>6,716.63</b>	<b>5.80</b>

Table 47 and Table 48 provide the survey TLFDs and travel times by trip purpose, for all survey person and auto-driver trips to and from United Regional Health Care Center.

**Table 47. Survey Person and Auto-Driver Trip TLFDs to and from United Regional Health Care Center.**

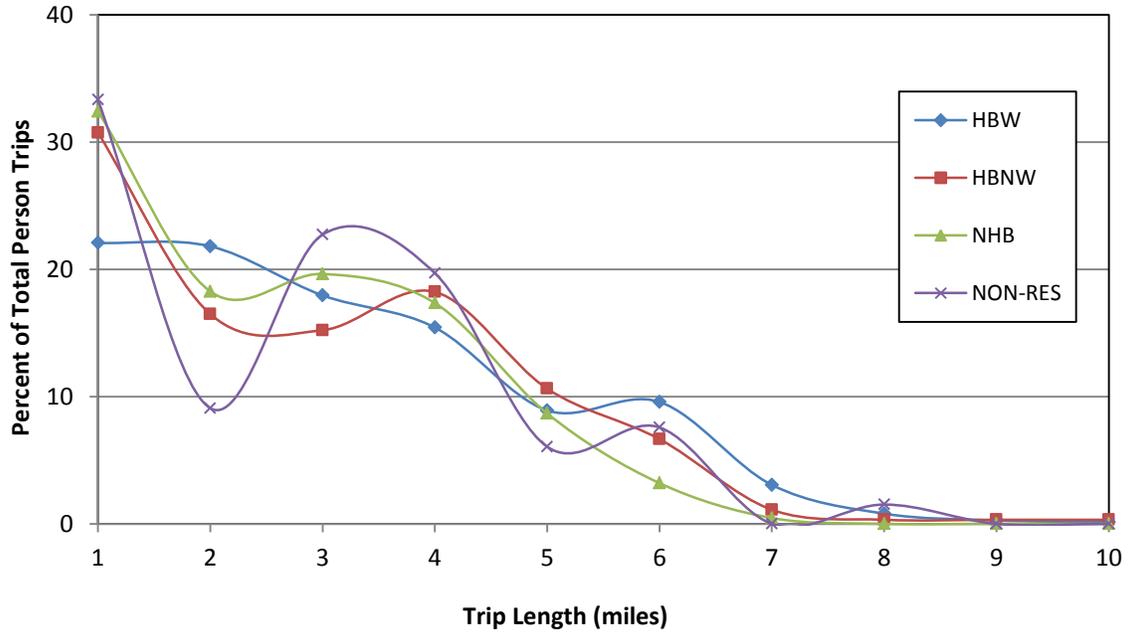
<b>Miles</b>	<b>Person Trips</b>				<b>Auto-Driver Trips</b>			
	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
1	166	194	35.5	22	151	104	26	10
2	164	104	20	6	134	62	16	5
3	135	96	21.5	15	119	63	16	12
4	116	115	19	13	112	61	15.5	8
5	67	67	9.5	4	66	31	7.5	3
6	72	42	3.5	5	67	26	2.5	4
7	23	7	0.5	0	19	5	0.5	0
8	6	2	0	1	6	1	0	1
9	2	2	0	0	2	2	0	0
10	1	2	0	0	1	0	0	0
<b>Total</b>	<b>752</b>	<b>631</b>	<b>109.5</b>	<b>66</b>	<b>677</b>	<b>355</b>	<b>84</b>	<b>43</b>

**Table 48. Survey Person and Auto-Driver Trip Travel Times to and from United Regional Health Care Center.**

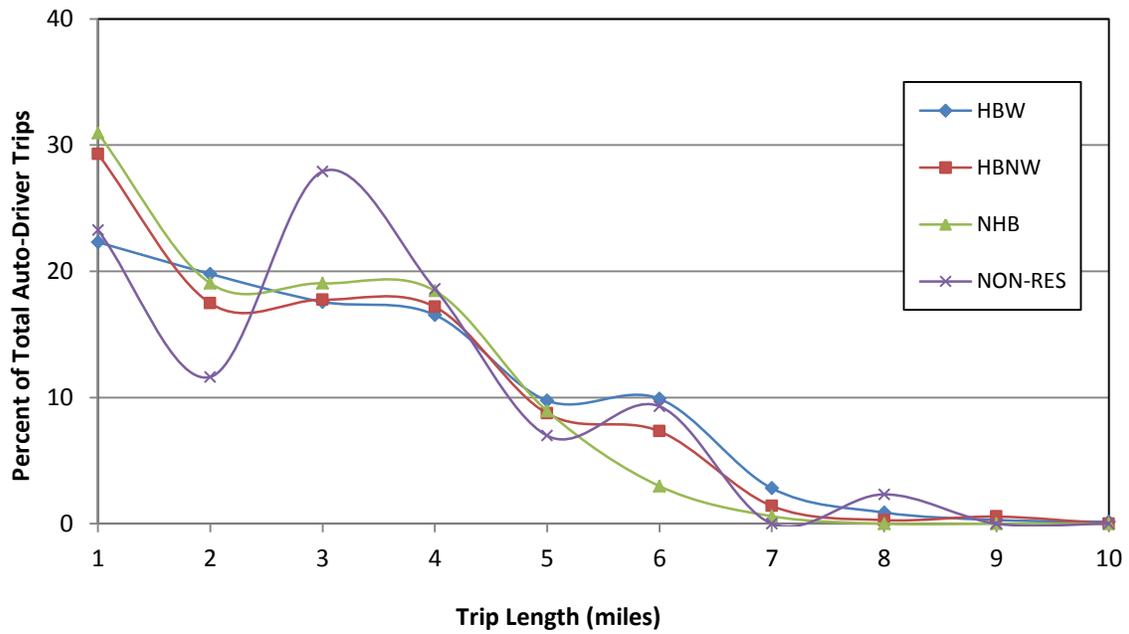
Minutes	Person Trips				Auto-Driver Trips			
	HBW	HBNW	NHB	NON-RES	HBW	HBNW	NHB	NON-RES
1	28	57	21.5	8	26	23	16.5	2
2	72	69	7.5	11	59	39	4	6
3	100	80	14	7	86	51	12	5
4	111	87	11.5	6	96	52	8.5	4
5	97	73	8	5	83	48	6.5	4
6	83	71	20	11	80	39	15.5	10
7	93	77	12.5	8	88	42	10	4
8	72	59	10.5	8	72	27	8	6
9	31	20	1.5	0	29	13	0.5	0
10	24	23	1	1	24	11	1	1
11	32	8	0	0	25	6	0	0
12	8	7	1.5	1	8	4	1.5	1
13	1	0	0	0	1	0	0	0
<b>Total</b>	<b>752</b>	<b>631</b>	<b>109.5</b>	<b>66</b>	<b>677</b>	<b>355</b>	<b>84</b>	<b>43</b>

Figure 14 (a and b) show the trip lengths in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



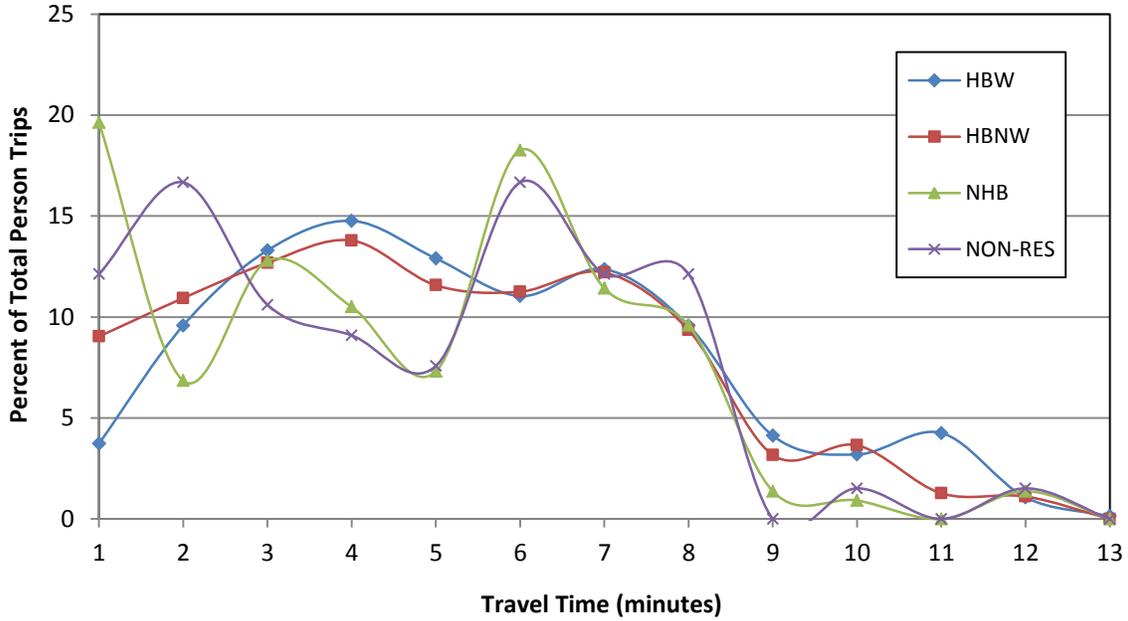
**(b) Auto-Driver Trips**



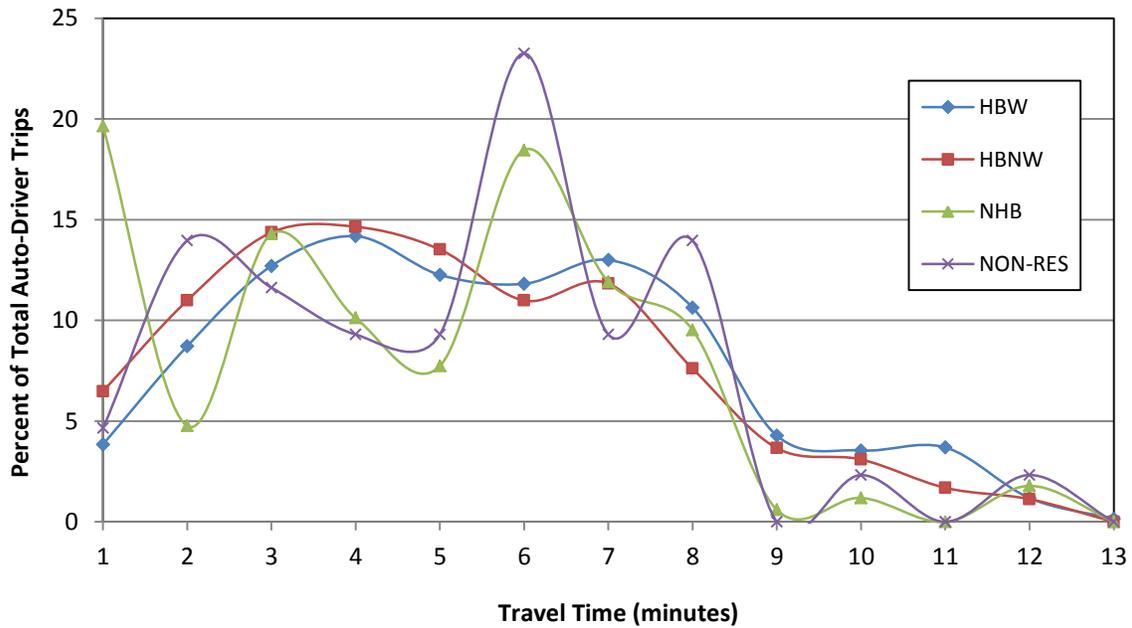
**Figure 14. TLFDs of Person and Auto-Driver Trips to and from United Regional Health Care Center.**

Figure 15 (a and b) show the travel times in percentage values of total person and auto-driver trips by trip purpose, respectively.

**(a) Person Trips**



**(b) Auto-Driver Trips**



**Figure 15. Travel Times of Person and Auto-Driver Trips to and from United Regional Health Care Center.**

## **DATA EXPANSION**

The expansion of work place and special generator survey data involved a series of procedures. This section provides a general description of the expansion process.

The full survey trip data were aggregated by site and then linked with the employment and count data collected from the establishment survey. The person and vehicle counts at each site were used to expand the survey trip data. The total trips were counted separately for employees and visitors at free-standing and non-freestanding establishments, and distinguished between residents and non-residents of the Wichita Falls study area. The total trips were classified by purpose, both from the origin to the work place and from the work place to the next destination, and summed as person trips (all travel modes, including walking and bicycle trips) and auto-driver trips (all trips by drivers and passengers of cars, trucks, and vans, including commercial cargo transport and service vehicles) for each category of trip purpose.

The survey employee trips were expanded first to estimate the total employee person trips and employee auto-driver trips by purpose. The process involved dividing the survey employee trips for each category of purpose by the number of employee surveys and then multiplying this number by the total number of employees reported to be at work during the survey day. The expanded employee person/auto-driver trips were subtracted from the total person/vehicle count at the site to yield the total visitor person/auto-driver trips to the site.

The survey visitor person/auto-driver trips were used to establish the proportion of visitor trips for each category of trip purpose. These percentages were applied to the total estimated visitor trips to yield the visitor person/auto-driver trips by purpose. The average visitor vehicle occupancy rates were based on the auto-driver mode of travel, and were calculated for each trip purpose. These occupancy rates were used to convert the expanded visitor person trips to auto-driver trips, or visitor auto-driver trips to person trips, depending on whether a vehicle count or a person count was conducted at the site.

After the data were expanded for each site, the results were aggregated by employment type and area type. The results from the full survey sites were then used to estimate the number of employee and visitor trips by purpose and employment type at the partial survey sites. The person and vehicle counts at each partial survey site were used to expand the trip estimates. Table 49 provides the work place survey data summary by area and employment types, for all the establishments that were surveyed, including those outside the Wichita Falls boundary but within Wichita County. The expansion of trip data for those trips outside MPO establishments were assigned “rural” area type, and used the proportion of

resident/nonresident employee and visitor trips by trip purpose developed from the MPO boundary work place surveys to avoid an over-estimation of non-resident trips.

**Table 49. Work Place Survey Data Summary by Area Type and Employment Type.**

<b>Area Type</b>	<b>Item</b>	<b>Basic</b>	<b>Retail</b>	<b>Service</b>	<b>Education</b>	<b>Total</b>
<b>CBD</b>	Number of sites	2	2	6	0	10
	Total employment	26	9	94	0	129
	Employees at work	26	9	88	0	123
	Total person count	143	280	1,210	0	1,633
	Total vehicle count	126	199	922	0	1,247
	Total CV count	0	0	0	0	0
<b>Urban</b>	Number of sites	8	65	68	9	150
	Total employment	53	1,385	1,391	616	3,445
	Employees at work	50	736	1,175	589	2,550
	Total person count	528	42,417	13,339	15,377	71,661
	Total vehicle count	464	29,159	10,712	9,560	49,896
	Total CV count	113	34	22	142	311
<b>Suburban</b>	Number of sites	33	52	56	28	169
	Total employment	873	1,046	961	1,336	4,216
	Employees at work	717	670	818	1,295	3,500
	Total person count	3,983	37,470	8,580	39,105	89,138
	Total vehicle count	3,454	26,788	7,136	24,624	62,002
	Total CV count	371	131	64	277	843
<b>Rural</b>	Number of sites	14	24	17	16	71
	Total employment	374	384	183	784	1,725
	Employees at work	334	241	161	685	1,421
	Total person count	1,844	13,584	2,443	14,890	32,761
	Total vehicle count	1,765	10,413	2,198	10,979	25,355
	Total CV count	269	34	15	18	336
<b>Total</b>	<b>Number of sites</b>	<b>57</b>	<b>143</b>	<b>147</b>	<b>53</b>	<b>400</b>
	<b>Total employment</b>	<b>1,326</b>	<b>2,824</b>	<b>2,629</b>	<b>2,736</b>	<b>9,515</b>
	<b>Employees at work</b>	<b>1,127</b>	<b>1,656</b>	<b>2,242</b>	<b>2,569</b>	<b>7,594</b>
	<b>Total person count</b>	<b>6,498</b>	<b>93,751</b>	<b>25,572</b>	<b>69,372</b>	<b>195,193</b>
	<b>Total vehicle count</b>	<b>5,809</b>	<b>66,559</b>	<b>20,968</b>	<b>45,163</b>	<b>138,499</b>
	<b>Total CV count</b>	<b>753</b>	<b>199</b>	<b>101</b>	<b>437</b>	<b>1,490</b>

The expanded person and auto-driver trips by purpose, shown in Table 50 and Table 51 for each category of employment and area type, were divided by the total employment (in Table 49) to develop the attraction rates (in Table 52 and Table 53). The total expanded trips do not include the external trips and “not first store” trips to the surveyed work places.

**Table 50. Survey Person Trips by Trip Purpose, Area Type, and Employment Type.**

Area Type	Basic					
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	Total Person Trips
CBD	34	42	10	17	37	140
Urban	89	164	36	50	188	527
Suburban	926	1,102	368	558	959	3,913
Rural	454	830	88	101	338	1,811
<b>Total</b>	<b>1,503</b>	<b>2,138</b>	<b>502</b>	<b>726</b>	<b>1,522</b>	<b>6,391</b>
Area Type	Retail					
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	Total Person Trips
CBD	16	131	32	37	59	275
Urban	1,272	21,154	5,638	6,451	7,378	41,893
Suburban	1,718	19,298	4,076	4,411	7,139	36,642
Rural	477	8,319	1,478	583	2,553	13,410
<b>Total</b>	<b>3,483</b>	<b>48,902</b>	<b>11,224</b>	<b>11,482</b>	<b>17,129</b>	<b>92,220</b>
Area Type	Service					
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	Total Person Trips
CBD	128	726	116	123	106	1,199
Urban	2,080	5,051	1,531	1,986	2,563	13,211
Suburban	1,233	2,718	1,250	1,316	1,671	8,188
Rural	230	1,378	233	120	469	2,430
<b>Total</b>	<b>3,671</b>	<b>9,873</b>	<b>3,130</b>	<b>3,545</b>	<b>4,809</b>	<b>25,028</b>
Area Type	Education					
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	Total Person Trips
CBD	0	0	0	0	0	0
Urban	1,259	8,996	1,635	2,649	583	15,122
Suburban	3,086	25,490	3,659	4,977	1,707	38,919
Rural	1,083	9,802	1,335	466	2,127	14,813
<b>Total</b>	<b>5,428</b>	<b>44,288</b>	<b>6,629</b>	<b>8,092</b>	<b>4,417</b>	<b>68,854</b>

**Table 51. Survey Auto-Driver Trips by Trip Purpose, Area Type, and Employment Type.**

Area Type	Basic					Total Auto-Driver Trips
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	
CBD	33	35	9	14	33	124
Urban	82	145	28	44	165	464
Suburban	890	925	300	462	818	3,395
Rural	441	825	84	100	285	1,735
<b>Total</b>	<b>1,446</b>	<b>1,930</b>	<b>421</b>	<b>620</b>	<b>1,301</b>	<b>5,718</b>
Area Type	Retail					Total Auto-Driver Trips
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	
CBD	14	91	23	26	41	195
Urban	1,130	14,440	3,917	4,412	4,869	28,768
Suburban	1,358	13,651	2,939	3,164	5,074	26,186
Rural	422	6,342	1,183	475	1,852	10,274
<b>Total</b>	<b>2,924</b>	<b>34,524</b>	<b>8,062</b>	<b>8,077</b>	<b>11,836</b>	<b>65,423</b>
Area Type	Service					Total Auto-Driver Trips
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	
CBD	122	531	75	95	91	914
Urban	1,915	3,899	1,211	1,569	2,014	10,608
Suburban	1,134	2,153	1,037	1,076	1,414	6,814
Rural	219	1,268	226	101	371	2,185
<b>Total</b>	<b>3,390</b>	<b>7,851</b>	<b>2,549</b>	<b>2,841</b>	<b>3,890</b>	<b>20,521</b>
Area Type	Education					Total Auto-Driver Trips
	HBW Attractions	HBNW Attractions	NHB-D	NHB-O	NON-RES	
CBD	0	0	0	0	0	0
Urban	1,013	5,327	1,024	1,642	397	9,403
Suburban	2,645	15,257	2,297	3,095	1,208	24,502
Rural	1,071	6,628	1,164	390	1,665	10,918
<b>Total</b>	<b>4,729</b>	<b>27,212</b>	<b>4,485</b>	<b>5,127</b>	<b>3,270</b>	<b>44,823</b>

Table 52 and Table 53 show the survey person and auto-driver trip attraction rates by purpose for each employment category and area type, respectively. The NHB trips represented the average of NHB origin and destination trips. The NON-RES trips were divided by two to develop a rate for non-resident trip attractions. The external trips were removed from the analysis because these trips were estimated using the external survey and input to the travel demand model directly.

**Table 52. Survey Person Trip Attraction Rates.**

Trip Purpose	Area Type	Person Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.298	1.779	1.365	0.000
	Urban	1.672	0.918	1.495	2.043
	Suburban	1.061	1.643	1.283	2.310
	Rural	1.213	1.242	1.259	1.382
HBNW Retail	CBD		14.516		
	Urban		15.274		
	Suburban		18.449		
	Rural		21.665		
HBNW Other	CBD	1.621		7.726	
	Urban	3.092		3.631	
	Suburban	1.263		2.828	
	Rural	2.220		7.529	
HBNW School	CBD				0.000
	Urban				14.603
	Suburban				19.080
	Rural				12.503
NHB	CBD	0.518	3.875	1.267	0.000
	Urban	0.814	4.365	1.265	3.478
	Suburban	0.530	4.057	1.335	3.232
	Rural	0.254	2.684	0.965	1.149
NON-RES	CBD	0.713	3.256	0.565	0.000
	Urban	1.773	2.664	0.922	0.474
	Suburban	0.550	3.413	0.870	0.639
	Rural	0.451	3.324	1.282	1.357

Note: Attraction rates represent observed rates, with zero CBD rates for Education facilities.

**Table 53. Survey Auto-Driver Trip Attraction Rates.**

Trip Purpose	Area Type	Auto-Driver Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.273	1.602	1.302	0.000
	Urban	1.542	0.816	1.377	1.644
	Suburban	1.020	1.299	1.180	1.980
	Rural	1.180	1.098	1.195	1.367
HBNW Retail	CBD		10.060		
	Urban		10.426		
	Suburban		13.051		
	Rural		16.515		
HBNW Other	CBD	1.347		5.644	
	Urban	2.739		2.803	
	Suburban	1.060		2.241	
	Rural	2.206		6.931	
HBNW School	CBD				0.000
	Urban				8.648
	Suburban				11.420
	Rural				8.454
NHB	CBD	0.442	2.722	0.906	0.000
	Urban	0.678	3.007	0.999	2.164
	Suburban	0.436	2.918	1.100	2.018
	Rural	0.245	2.158	0.894	0.991
NON-RES	CBD	0.630	2.291	0.482	0.000
	Urban	1.560	1.758	0.724	0.322
	Suburban	0.469	2.426	0.736	0.452
	Rural	0.382	2.412	1.014	1.062

Note: Attraction rates represent observed rates, with zero CBD rates for Education facilities.

The commercial vehicle counts taken at each site were aggregated by area type and employment type, and then divided by the total employment, and then divided by two to develop a trip attraction rate for commercial vehicle travel. Table 54 shows the survey commercial vehicle trip attraction rates.

**Table 54. Survey Commercial Vehicle Trip Attraction Rates.**

Area Type	Commercial Vehicle Trips Per Employee			
	Basic	Retail	Service	Education
CBD	0.000	0.000	0.000	0.000
Urban	2.132	0.025	0.016	0.231
Suburban	0.425	0.125	0.067	0.207
Rural	0.719	0.089	0.082	0.023

Note: Attraction rates represent observed rates, with zero CBD rates for all employment types.

Table 55 shows the expanded survey trip attractions and attraction rates by purpose for each Wichita Falls special generator. The expansion procedures used were similar to the full work place survey sites. The attraction rates were developed by dividing the expanded trips by purpose by the total employment at the special generator. The external trips were removed from the analysis. The NHB trips represented the average of the NHB origin and destination trips. The NON-RES trips were divided by two to develop a rate for non-resident trip attractions. The commercial vehicle count at the special generator was divided by two to develop a rate for commercial vehicle trip attractions. It is important to note that the CV estimates may not be representative of the commercial vehicle movement in the study area. It is not certain whether the zero count data at Sikes Senter Mall and United Regional Health Care Center were typical.

**Table 55. Wichita Falls Special Generator Survey Person and Auto-Driver Trip Attractions and Rates.**

Trip Purpose	Sheppard Air Force Base			
	Total Person Trips	Person Trips Per Employee	Total Auto-Driver Trips	Auto-Driver Trips Per Employee
HBW	7,298	0.729	6,109	0.610
HBNW	7,925	0.792	5,604	0.560
NHB	1,628	0.163	1,188	0.119
NON-RES	2,321	0.232	1,819	0.182
Commercial Vehicle Trips	169	0.017	169	0.017
<b>Total</b>	<b>19,341</b>	<b>1.933</b>	<b>14,889</b>	<b>1.488</b>
Trip Purpose	Midwestern State University			
	Total Person Trips	Person Trips Per Employee	Total Auto-Driver Trips	Auto-Driver Trips Per Employee
HBW	2,183	1.628	2,122	1.583
HBNW	8,561	6.384	6,811	5.079
NHB	649	0.484	570	0.425
NON-RES	881	0.657	921	0.687
Commercial Vehicle Trips	9	0.007	9	0.007
<b>Total</b>	<b>12,283</b>	<b>9.160</b>	<b>10,433</b>	<b>7.781</b>
Trip Purpose	Sikes Senter Mall			
	Total Person Trips	Person Trips Per Employee	Total Auto-Driver Trips	Auto-Driver Trips Per Employee
HBW	664	0.745	753	0.845
HBNW	7,607	8.537	5,491	6.163
NHB	1,707	1.916	951	1.067
NON-RES	1,761	1.977	1,727	1.938
Commercial Vehicle Trips	0	0.000	0	0.000
<b>Total</b>	<b>11,739</b>	<b>13.175</b>	<b>8,922</b>	<b>10.013</b>
Trip Purpose	United Regional Health Care Center			
	Total Person Trips	Person Trips Per Employee	Total Auto-Driver Trips	Auto-Driver Trips Per Employee
HBW	1,383	0.769	1,336	0.742
HBNW	4,473	2.485	3,654	2.030
NHB	566	0.314	495	0.275
NON-RES	1,067	0.593	895	0.497
Commercial Vehicle Trips	0	0.000	0	0.000
<b>Total</b>	<b>7,489</b>	<b>4.161</b>	<b>6,380</b>	<b>3.545</b>

## Model Rate Development

The work place survey data must be converted into recommended attraction rates to be used as inputs to the travel demand model. Attraction rates, defined as the estimated number of attractions per employee, were developed for each trip purpose, area type, and employment type. The NHB origin and destination trips were combined and divided by two to develop an attraction rate for NHB trips. The NON-RES trips were divided by two to develop an attraction rate for non-resident travel.

Table 56 and Table 57 show the total person and auto-driver vehicle trip attraction rates by purpose and employment type for all area types, as calculated from the survey trip data, respectively. The next step in model rate development involved applying the survey attraction rates to the overall employment estimates for the study area. The TWC Employment data that was utilized for the work place survey sampling was used to estimate the total trip attractions and develop the attraction rates. The TWC employment estimates were classified by area type, using the percentage of employment by area type established for the Wichita Falls MPO.

**Table 56. Survey Total Person Trip Attraction Rates.**

Employment Type	HBW	HBNW	NHB	NON-RES
Basic	1.133	1.613	0.463	0.574
Retail	1.233	17.317	4.021	3.033
Service	1.396	3.755	1.270	0.915
Education	1.984	16.187	2.691	0.807

**Table 57. Survey Total Auto-Driver Trip Attraction Rates.**

Employment Type	HBW	HBNW	NHB	NON-RES
Basic	1.091	1.456	0.392	0.491
Retail	1.035	12.225	2.858	2.096
Service	1.290	2.986	1.025	0.740
Education	1.729	9.946	1.757	0.598

**Table 58. Total Employment in Wichita County by Employment Type and Area Type.**

Area Type	Total Employment				
	Basic	Retail	Service	Education	Total
CBD	303	339	1,558	0	2,200
Urban	1,214	5,957	7,442	1,795	16,408
Suburban	9,002	6,883	12,218	2,523	30,626
Rural	2,049	114	1,118	107	3,388
<b>Total</b>	<b>12,568</b>	<b>13,293</b>	<b>22,336</b>	<b>4,425</b>	<b>52,622</b>

Source: TWC Employment Estimates, 2009.

Table 59 and Table 60 show the estimated total person and auto-driver trip attractions to Wichita County by employment type and trip purpose, respectively.

**Table 59. Total Person Trip Attractions by Employment Type and Trip Purpose.**

Employment Type	HBW	HBNW	NHB	NON-RES	Total
Basic	14,240	20,272	5,825	7,214	47,551
Retail	16,390	230,195	53,445	40,311	340,341
Service	31,181	83,872	28,356	20,426	163,835
Education	8,779	71,627	11,905	3,571	95,882
<b>Total</b>	<b>70,590</b>	<b>405,966</b>	<b>99,531</b>	<b>71,522</b>	<b>647,609</b>

**Table 60. Total Auto-Driver Trip Attractions by Employment Type and Trip Purpose.**

Employment Type	HBW	HBNW	NHB	NON-RES	Total
Basic	13,712	18,299	4,927	6,165	43,103
Retail	13,758	162,507	37,985	27,855	242,105
Service	28,813	66,695	22,894	16,517	134,919
Education	7,651	44,011	7,773	2,644	62,079
<b>Total</b>	<b>63,934</b>	<b>291,512</b>	<b>73,579</b>	<b>53,181</b>	<b>482,206</b>

Table 61 shows the commercial vehicle trip attraction rates and total commercial vehicle attractions by employment type. It is important to note that the estimates may not be representative of the actual commercial vehicle movement in the study area given the incomplete count data from the work place surveys.

**Table 61. Survey Commercial Vehicle Trip Attraction Rates and Total Trip Attractions by Employment Type.**

Employment Type	Total Commercial Vehicle Trips Per Employee	Total Commercial Vehicle Trip Attractions
Basic	0.568	7,139
Retail	0.070	930
Service	0.038	849
Education	0.160	708
<b>All Employment Types</b>	<b>0.183</b>	<b>9,626</b>

The total trip attractions estimated from the work place survey were then compared with the estimated total trip productions from the household survey and commercial vehicle survey. Table 62 provides a summary of the trip estimates from the travel surveys conducted in the Wichita Falls study area. The results showed significant differences between the number of HBNW retail trips from the work place survey and the household survey. The work place survey sample included big box retail establishments that generated high volumes of person and vehicle counts during the survey day. The estimates of commercial vehicle trips from the work place survey were approximately 13 percent of the trip estimates from the commercial vehicle survey. These estimates may not be representative of the actual commercial vehicle movement in the study area. It is not certain whether the zero count data in several establishments were typical.

**Table 62. Travel Estimates from the Wichita Falls Travel Surveys.**

Trip Purpose	Work Place Survey <sup>1</sup>		Household Survey <sup>1</sup>		Commercial Vehicle Survey <sup>1</sup>
	Person Trips	Auto-Driver Trips	Person Trips	Auto-Driver Trips	Vehicle Trips
HBW	70,590	63,934	85,725	80,299	
HBNW Retail	230,195	162,507	89,958	61,904	
HBNW Other	104,144	84,994	87,884	39,036	
HBNW Education (K to 12)	71,627	44,011	98,453	67,841	
NHB	99,531	73,578	123,559	89,472	
NON-RES	71,522	53,181	0	0	
Commercial Vehicle Trips	0	9,626	0	0	75,234

<sup>1</sup> Estimates are for Wichita County.

The attraction rates by trip purpose from the work place survey required further adjustments to balance the aggregate estimates of trip attractions with the aggregate estimates of trip productions from the household survey and commercial vehicle survey. Correction factors for HBW and HBNW person trips were calculated by dividing the number of person trips from the household survey with the number of person trips from the work place survey for HBW and HBNW trips, respectively.

The NHB destination and origin trips from the work place survey were summed and averaged to reflect the adjustment when calculating the correction factor for the total NHB trips from the household survey.

The NON-RES trips from the work place survey were calculated, summed, and divided by the total employment. The resulting rates were applied to the employment data to develop an estimate of the total internal trips made by persons that did not live in the study area. The total non-resident trips from the Wichita Falls work place survey when converted to trip productions and attractions yield an estimate of 71,522 person trips and 53,181 auto-driver trips. These estimates are recommended for use in the travel demand model for non-resident travel.

Table 63 and Table 64 show the survey person and auto-driver trip attraction rates, with cell adjustments, by area type for each category of trip purpose and employment type, respectively. Table 65 and Table 66 show the adjusted and balanced person and auto-driver trip production/attraction rates, by area type for each category of trip purpose and employment type. Table 67 and Table 68 show the balanced total trip production/attraction rates by employment category and trip purpose. Table 69 and Table 70 show the balanced total trip productions/attractions by employment category and trip purpose. It is important to note that totals may not be exact due to rounding. The attraction rates used in the estimation of the balanced total trip productions/attractions were in full significant digits.

**Table 63. Adjusted Survey Person Trip Attraction Rates.**

Trip Purpose	Area Type	Person Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.514	1.664	1.403	1.984
	Urban	1.514	0.859	1.537	1.857
	Suburban	1.081	1.537	1.319	2.100
	Rural	1.081	1.162	1.294	1.381
HBNW Retail	CBD		14.827		
	Urban		15.602		
	Suburban		18.845		
	Rural		22.130		
HBNW Other	CBD	2.507		7.900	
	Urban	2.507		3.713	
	Suburban	1.490		2.892	
	Rural	1.490		7.698	
HBNW School	CBD				16.187
	Urban				13.819
	Suburban				18.056
	Rural				11.832
NHB	CBD	0.692	3.726	1.248	2.691
	Urban	0.692	4.197	1.248	2.838
	Suburban	0.432	3.905	1.315	2.657
	Rural	0.432	2.632	0.946	0.997
NON-RES	CBD	1.299	3.214	0.583	0.807
	Urban	1.299	2.629	0.951	0.649
	Suburban	0.474	3.369	0.897	0.875
	Rural	0.474	3.281	1.322	1.859

Note: Attraction rates represent observed rates with adjustments and after correction factors were applied. The CBD rates for Education facilities were based on average attraction rates for this category of employment.

**Table 64. Adjusted Survey Auto-Driver Trip Attraction Rates.**

Trip Purpose	Area Type	Auto-Driver Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.423	1.523	1.338	1.729
	Urban	1.423	0.776	1.416	1.554
	Suburban	1.045	1.235	1.213	1.872
	Rural	1.045	1.044	1.228	1.292
HBNW Retail	CBD		10.398		
	Urban		10.776		
	Suburban		13.489		
	Rural		17.069		
HBNW Other	CBD	2.200		5.811	
	Urban	2.200		2.886	
	Suburban	1.354		2.307	
	Rural	1.354		7.136	
HBNW School	CBD				9.946
	Urban				8.413
	Suburban				11.110
	Rural				8.224
NHB	CBD	0.580	2.636	0.891	1.757
	Urban	0.580	2.915	0.984	1.840
	Suburban	0.366	2.831	1.081	1.733
	Rural	0.366	2.137	0.875	0.913
NON-RES	CBD	1.139	2.261	0.490	0.598
	Urban	1.139	1.735	0.736	0.465
	Suburban	0.401	2.395	0.747	0.652
	Rural	0.401	2.381	1.030	1.532

Note: Attraction rates represent observed rates with adjustments and after correction factors were applied. The CBD rates for Education facilities were based on average attraction rates for this category of employment.

**Table 65. Balanced Person Trip Production/Attraction Rates.**

Trip Purpose	Area Type	Person Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.838	2.021	1.704	2.409
	Urban	1.837	1.043	1.866	2.255
	Suburban	1.313	1.866	1.602	2.550
	Rural	1.313	1.411	1.572	1.677
HBNW Retail	CBD		5.794		
	Urban		6.097		
	Suburban		7.364		
	Rural		8.648		
HBNW Other	CBD	2.370		7.467	
	Urban	2.370		3.510	
	Suburban	1.409		2.734	
	Rural	1.409		7.276	
HBNW School	CBD				19.861
	Urban				16.956
	Suburban				22.154
	Rural				14.517
NHB	CBD	0.859	4.625	1.550	3.340
	Urban	0.859	5.210	1.549	3.524
	Suburban	0.536	4.848	1.633	3.299
	Rural	0.536	3.267	1.174	1.237
NON-RES	CBD	1.299	3.214	0.583	0.807
	Urban	1.299	2.629	0.951	0.649
	Suburban	0.474	3.369	0.897	0.875
	Rural	0.474	3.281	1.322	1.859

Note: Attraction rates represent balanced and adjusted rates to match trip production estimates from the 2010/2011 Wichita Falls Household Travel Survey. The CBD trip rates for Education facilities used the average trip rates by trip purpose at this employment category.

**Table 66. Balanced Auto-Driver Trip Production/Attraction Rates.**

Trip Purpose	Area Type	Auto-Driver Trips Per Employee			
		Basic	Retail	Service	Education
HBW	CBD	1.789	1.913	1.681	2.172
	Urban	1.789	0.974	1.778	1.953
	Suburban	1.313	1.551	1.523	2.352
	Rural	1.313	1.311	1.543	1.623
HBNW Retail	CBD		3.961		
	Urban		4.105		
	Suburban		5.138		
	Rural		6.502		
HBNW Other	CBD	1.756		4.637	
	Urban	1.756		2.302	
	Suburban	1.081		1.842	
	Rural	1.081		5.695	
HBNW School	CBD				8.822
	Urban				7.462
	Suburban				9.854
	Rural				7.295
NHB	CBD	0.705	3.206	1.083	2.136
	Urban	0.705	3.544	1.195	2.238
	Suburban	0.445	3.442	1.314	2.107
	Rural	0.445	2.599	1.063	1.110
NON-RES	CBD	1.139	2.261	0.490	0.598
	Urban	1.139	1.735	0.736	0.465
	Suburban	0.401	2.395	0.747	0.652
	Rural	0.401	2.381	1.030	1.532

Note: Attraction rates represent balanced and adjusted rates to match trip production estimates from the 2010/2011 Wichita Falls Household Travel Survey. The CBD trip rates for Education facilities used the average trip rates by trip purpose at this employment category.

**Table 67. Balanced Total Person Trip Production/Attraction Rates.**

<b>Employment Type</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
Basic	1.376	1.525	0.575	0.574
Retail	1.497	6.767	4.991	3.033
Service	1.695	3.550	1.576	0.915
Education	2.409	19.861	3.340	0.807

**Table 68. Balanced Total Auto-driver Trip Production/Attraction Rates.**

<b>Employment Type</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
Basic	1.370	1.162	0.477	0.491
Retail	1.300	4.657	3.475	2.096
Service	1.620	2.383	1.246	0.740
Education	2.172	8.822	2.136	0.598

**Table 69. Balanced Total Person Trip Productions/Attractions by Employment Type and Trip Purpose.**

<b>Employment Type</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
Basic	17,293	19,164	7,232	7,214
Retail	19,904	89,958	66,346	40,311
Service	37,866	79,289	35,201	20,426
Education	10,662	87,884	14,780	3,571
<b>Total</b>	<b>85,725</b>	<b>276,295</b>	<b>123,559</b>	<b>71,522</b>

**Table 70. Balanced Total Auto-Driver Trip Productions/Attractions by Employment Type and Trip Purpose.**

<b>Employment Type</b>	<b>HBW</b>	<b>HBNW</b>	<b>NHB</b>	<b>NON-RES</b>
Basic	17,222	14,606	5,991	6,165
Retail	17,280	61,904	46,190	27,855
Service	36,185	53,227	27,830	16,517
Education	9,612	39,037	9,452	2,644
<b>Total</b>	<b>80,299</b>	<b>168,774</b>	<b>89,463</b>	<b>53,181</b>

Table 71 shows the adjusted and balanced CV trip attraction rates in the Wichita Falls study area, by area type and employment type, including household. The CV rates per household were held constant across area types. The CBD Rates represent the overall average attraction rate for each category of employment.

**Table 71. Adjusted and Balanced Commercial Vehicle Trip Attractions Rates.**

Area Type	Per Basic Employee	Per Retail Employee	Per Service Employee	Per Education Employee	Per Household
CBD	4.439	0.547	0.297	1.251	0.381
Urban	16.664	0.195	0.125	1.805	0.381
Suburban	3.322	0.977	0.524	1.618	0.381
Rural	5.620	0.696	0.641	0.180	0.381
<b>All Area Types</b>	<b>4.439</b>	<b>0.547</b>	<b>0.297</b>	<b>1.251</b>	<b>0.381</b>

Note: Attraction rates represent balanced and adjusted rates to match total CV trip estimates from the 2010 Wichita Falls Commercial Vehicle Survey. The CBD rates represent the overall average attraction rate for each category of employment.

Table 72 shows the total CV trip attractions by area type and employment type. Correction factors were applied and trip balancing was performed based on the estimated CV trips from the 2010 Wichita Falls Commercial Vehicle Survey.

**Table 72. Total Commercial Vehicle Trip Attractions.**

Area Type	Basic	Retail	Service	Education	Total
CBD	1,191	165	360	0	1,716
Urban	17,918	1,038	726	2,442	22,124
Suburban	26,486	5,999	4,989	3,077	40,551
Rural	10,199	71	559	14	10,843
<b>Total</b>	<b>55,794</b>	<b>7,273</b>	<b>6,634</b>	<b>5,533</b>	<b>75,234</b>

Table 73 and Table 74 show the recommended person and auto-driver trip attraction rates to be used as data inputs to the Wichita Falls travel demand model. These rates represent adjusted, balanced, and smoothed data.

**Table 73. Recommended Person Trip Attraction Rates.**

Trip Purpose	Area Type	Person Trips				
		Per Basic Employee	Per Retail Employee	Per Service Employee	Per Education Employee	Per Household
HBW	CBD	1.763	1.674	1.647	2.409	0.039
	Urban	1.885	1.163	1.874	2.289	0.039
	Suburban	1.273	1.785	1.608	2.507	0.039
	Rural	1.469	1.049	1.526	2.126	0.039
HBNW Retail	CBD		4.907			0.000
	Urban		6.118			0.000
	Suburban		7.389			0.000
	Rural		8.678			0.000
HBNW Other	CBD	2.070		7.406		0.424
	Urban	2.652		3.471		0.424
	Suburban	1.343		2.777		0.424
	Rural	1.576		7.141		0.424
HBNW School	CBD				19.861	0.000
	Urban				16.956	0.000
	Suburban				22.154	0.000
	Rural				14.517	0.000
NHB	CBD	0.693	4.601	1.472	3.340	0.119
	Urban	0.915	5.211	1.554	3.524	0.119
	Suburban	0.572	4.849	1.639	3.299	0.119
	Rural	0.373	3.267	1.178	1.237	0.119
NON-RES	CBD	0.935	3.200	0.787	0.807	0.000
	Urban	1.350	2.629	0.935	0.649	0.000
	Suburban	0.493	3.369	0.883	0.875	0.000
	Rural	0.416	3.282	1.301	1.859	0.000

Note: Recommended attraction rates represent adjusted, balanced, and smoothed rates to match the trip production estimates from the 2010/2011 Wichita Falls Household Travel Survey. The CBD rate for Education facilities represents the average attraction rate for this category of employment.

**Table 74. Recommended Auto-Driver Trip Attraction Rates.**

Trip Purpose	Area Type	Auto-Driver Trips				
		Per Basic Employee	Per Retail Employee	Per Service Employee	Per Education Employee	Per Household
HBW	CBD	1.637	1.618	1.590	2.172	0.037
	Urban	1.882	1.111	1.822	2.062	0.037
	Suburban	1.273	1.452	1.563	2.279	0.037
	Rural	1.455	1.027	1.497	1.519	0.037
HBNW Retail	CBD		3.705			0.000
	Urban		4.111			0.000
	Suburban		5.146			0.000
	Rural		6.511			0.000
HBNW Other	CBD	1.526		4.025		0.283
	Urban	1.848		2.483		0.283
	Suburban	1.063		1.884		0.283
	Rural	1.137		4.881		0.283
HBNW School	CBD				8.822	0.000
	Urban				7.462	0.000
	Suburban				9.854	0.000
	Rural				7.295	0.000
NHB	CBD	0.626	3.200	1.195	2.136	0.086
	Urban	0.761	3.544	1.171	2.238	0.086
	Suburban	0.480	3.442	1.315	2.107	0.086
	Rural	0.270	2.599	1.064	1.110	0.086
NON-RES	CBD	0.877	2.553	0.695	0.598	0.000
	Urban	1.176	1.355	0.721	0.465	0.000
	Suburban	0.414	2.704	0.732	0.652	0.000
	Rural	0.361	2.688	1.009	1.532	0.000

Note: Recommended attraction rates represent adjusted, balanced, and smoothed rates to match the trip production estimates from the 2010/2011 Wichita Falls Household Travel Survey. The CBD rate for Education facilities represents the average attraction rate for this category of employment.

## **SURVEY SUMMARY**

The TPP Division of TxDOT funded the Wichita Falls work place and special generator surveys in 2011. The purpose of the survey was to collect data on the travel characteristics of employees and non-employees at industrial, retail, service, and education establishments. These data are used for forecasting travel demand within the Wichita County.

The work place survey consisted of four data collection efforts, which involved a general establishment survey, an intercept interview survey, a person or vehicle count, and a commercial vehicle count. The surveyed establishments were classified as either full survey sites or partial survey sites. The full survey sites consisted of 203 establishments (159 were located within the Wichita Falls MPO boundary, and 44 were outside the MPO boundary but within Wichita County). These sites had a total reported employment of 4,817, with 3,940 employees reported to be at work during the survey day. A total of 2,685 employees and 6,345 non-employees/visitors participated in the intercept interviews. The partial survey sites consisted of 197 establishments (184 were located within the MPO boundary and 13 were located outside the MPO boundary). These sites had a total reported employment of 4,698, and 3,668 employees reported to be at work during the survey day. The partial sites did not include intercept interview surveys. The survey findings indicated that approximately 195,200 persons and 138,500 non-commercial vehicles were traveling to and from the surveyed establishments during the travel survey period. There were 1,490 commercial vehicles counted at the surveyed establishments during their normal operating hours.

The special generator survey consisted of Sheppard Air Base, Midwestern State University, Sikes Senter Mall, and United Regional Health Care Center. The data collection efforts for the special generator survey were similar to the work place survey.

The expansion of work place and special generator survey data involved a series of procedures to develop the trip rate estimates for each category of trip purpose based on employment and count data. In the final analysis, the aggregate estimates of trip attractions from the Wichita Work Place Survey were compared with the aggregate estimates of trip productions from the 2010/2011 Wichita Falls Household Travel Survey. Adjustments and correction factors were applied to match the total trip attractions with the total trip productions. The recommended trip attraction rates represent adjusted, balanced, and smoothed data.

The total non-resident trip attractions amounted to approximately 71,500 person trips and 53,200 auto-driver trips. The commercial vehicle trip attraction rates were developed to match the total 75,200 trip estimates from the 2010 Wichita Falls Commercial Vehicle Survey.

Adjustments made to the observed trip rates are highly sensitive to the amount of employment and distribution of employment. The 2009 TWC employment data was used as basis in developing the trip rates and estimating the total attractions. Therefore, the recommended attraction rates presented in this report may require further adjustments during the calibration phase of the travel demand model for the Wichita Falls study area using a more updated employment data. Additionally, it is important to note that the resulting estimates may not be exact due to rounding.



**APPENDIX A:  
WORK PLACE TRAVEL SURVEY FORMS**



WORK PLACE RECRUITMENT SURVEY

Form G

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SAMPLE NUMBER: \_\_\_\_\_ RECRUITER: \_\_\_\_\_  
DATE: \_\_\_\_/\_\_\_\_/\_\_\_\_ COMPANY NAME: \_\_\_\_\_  
ADDRESS: \_\_\_\_\_  
CONTACT NAME / POSITION: \_\_\_\_\_ / \_\_\_\_\_  
COMPANY PHONE: \_\_\_\_\_ FAX NUMBER: \_\_\_\_\_  
EMPLOYMENT TYPE: \_\_\_\_\_ TRANSPORTATION ANALYSIS ZONE (TAZ #): \_\_\_\_\_

---

Hello, my name is \_\_\_\_\_ from (vendor name). We are working with the Texas Department of Transportation to collect travel data at area businesses. May I speak to the owner or manager, please?

**(If you have to call back, get):**

The manager or owner's name: \_\_\_\_\_

And, a good time to call back: \_\_\_\_\_

(If you are transferred to the owner or manager, repeat):

Hello, my name is \_\_\_\_\_ from (vendor name). We are working with the Texas Department of Transportation to collect travel data at area businesses. Your business has been randomly selected to participate in this data collection effort because TxDOT needs information about where traffic is being generated. Do you have time for me to explain how the data collection would work? It will take about 3 minutes.

**If yes, continue. If NO, when can I call back?** \_\_\_\_\_

**If a refusal, ask if they can provide some information to assist in this study, if yes ask preliminary questions, if no thank them.**

- For one single day, we would have a person outside of your business, a discrete distance away from your business. After visitors and employees leave your business, we would ask them politely to answer a few questions about where they came from and where they are going to.

Would you be willing to participate in this data collection effort?

**If yes, ask:**

We'll need to coordinate with someone at your workplace on the survey day. Should we coordinate with you or is there someone else you would like us coordinate with on the day of the survey?

**(Name: \_\_\_\_\_). Then ask the Preliminary Questions.**

**If no, ask:** I just explained the longer version of our data collection effort. Would you be willing to allow us to just place traffic counters at the entrances to your business? In this case no one would ask your visitors or employees any questions, but we could still get data on the amount of traffic your business generates each day.

**If the answer is yes,**

We'll need to coordinate with someone at your workplace on the survey day. Should we coordinate with you or is there someone else you would like us coordinate with on the day of the survey?

**(Name: \_\_\_\_\_). Tell them that we will call them back in a couple of days to let them know the day we will be there to perform the counts. Thank them and ask the Preliminary Questions.**

**Wichita Falls Workplace Recruitment Survey Form G (English) - Continued**

If they have agreed to participate in the survey, tell them you need to get some preliminary information from them to assist in planning the data collection effort at their location.

If they did not agree to participate in the survey, tell them they can assist the study by answering a few questions about their business and where it is located.

**PRELIMINARY QUESTIONS**

First, let me verify your address (**front page**).

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- 1. How many full and part time employees are located at your site? EMPLOYEES \_\_\_\_\_ #
- 2. On a typical week day, how many persons visit this location? VISITORS \_\_\_\_\_ #
- 3. On a typical week day, how many employees do you have working at this location? \_\_\_\_\_ #
- 4. What are your hours of operation? FROM \_\_\_\_\_ am/pm, TO \_\_\_\_\_ am/pm
- 5. Are you in a shopping center or in an office building? \_\_\_\_\_  
If yes, are any other companies in the shopping center or office building?  
Yes No (circle one)
- 6. Does the building you are in have its own parking lot? Yes No (circle one)  
Is this parking shared between your business and other businesses? Yes No (circle one)  
Do people use your parking lot **or driveway** as a cut through to access other businesses?  
Yes No (circle one)
- 7. What time does your first employee arrive? \_\_\_\_\_ : \_\_\_\_\_ am or \_\_\_\_\_ : \_\_\_\_\_ pm
- 8. What time does your last employee leave? \_\_\_\_\_ : \_\_\_\_\_ am or \_\_\_\_\_ : \_\_\_\_\_ pm
- 9. How many deliveries are made at this location on an average day? \_\_\_\_\_ #
- 10. What are the delivery hours? FROM \_\_\_\_\_ : \_\_\_\_\_ am/pm, TO \_\_\_\_\_ : \_\_\_\_\_ am/pm
- 11. Do you have a special door for deliveries or for employees? Yes No (circle one)
- 12. How many vehicles are owned and/or leased by your company for business use in this area? \_\_\_\_\_ #

How many of these are:

- \_\_\_\_\_ passenger car or sport utility vehicle
- \_\_\_\_\_ pickup truck
- \_\_\_\_\_ van used for cargo delivery or pickup
- \_\_\_\_\_ van used as a service vehicle

If not one of the above categories, how many of these are:

- \_\_\_\_\_ cargo transport vehicles
- \_\_\_\_\_ vehicles used for service or other business purposes

Thank you very much. We will call you in a day or two to schedule an exact date for the data collection. If you have any questions about the survey, please don't hesitate to call \_\_\_\_\_ at ###-####.

**Wichita Falls Workplace Recruitment Survey Form G (English) - Continued**

CALL DISPOSITION LOG

Company Name: \_\_\_\_\_

Keep a record of the calls made to this company below. Indicate if it is an initial call, a call back, a reminder call, a follow-up call, or a form retrieval call.  
Record notes about what happened during the call.

DATE                      CALLS

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**Record 9**

Survey Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Site #: \_\_\_\_\_

NAICS Code: \_\_\_\_\_

TAZ #: \_\_\_\_\_

**WORK PLACE GENERAL SURVEY**

**Form A**

Employment Type: \_\_\_\_\_

Free Standing

Non-Free Standing

---

**Work Place Information**

\_\_\_\_\_  
Name

\_\_\_\_\_  
Street Address

\_\_\_\_\_  
City

\_\_\_\_\_  
State

\_\_\_\_\_  
Zip Code

\_\_\_\_\_  
Telephone

---

**Management Information**

CEO/Administrator

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Title: \_\_\_\_\_

Personnel Manager

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

or Other Contact

Title: \_\_\_\_\_

Security Director

Name: \_\_\_\_\_ Telephone: \_\_\_\_\_

Title: \_\_\_\_\_

---

**Traffic Counts / Hours of Operation**

Weekday Hours of Operation: \_\_\_\_\_

Commercial Vehicle Count: \_\_\_\_\_ Non-Commercial Vehicle Count: \_\_\_\_\_ Person Count: \_\_\_\_\_

---

**Employment Information**

Total Employees (Full and Part Time): \_\_\_\_\_ Number at Work on Survey Day: \_\_\_\_\_

---

**Delivery Information**

Delivery Hours (If Restricted): \_\_\_\_\_ Number of Deliveries on Day of Survey: \_\_\_\_\_

---

**Number/Type of Vehicles Owned/Leased for Commercial/Business Purposes**

\_\_\_\_\_ Commercial Cargo Transport Vehicles \_\_\_\_\_ Commercial Service Vehicles

\_\_\_\_\_ Cars/SUVs \_\_\_\_\_ Cargo Vans \_\_\_\_\_ Service Vans \_\_\_\_\_ Pickup Trucks

**Record W10**

**WICHITA FALLS WORK PLACE  
INTERCEPT TRAVEL SURVEY  
Form B**

Free Standing Work Place

TAZ #: \_\_\_\_\_ Survey Area: \_\_\_\_\_

Site #: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Interviewer: \_\_\_\_\_

Employment Type: \_\_\_\_\_

Address: \_\_\_\_\_

Location: \_\_\_\_\_

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
Time interview began	_____ am / _____ pm	_____ am / _____ pm
Time interview ended	_____ am / _____ pm	_____ am / _____ pm
1. Do you work in this building or at this location?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. In what city or county do you live?		
3a. Is that in Wichita county? (If YES, go to question 4)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)
3b. If NO, which roadway did you use to enter the area? (airport is an option)	b. _____	b. _____
4. What is your home address or the names of the nearest two intersecting streets?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
5a. Did you travel here directly from your home with no stops? (If YES, go to Question 7)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)
5b. If NO, where did you start the trip that brought you to _____?	b. _____ (Address or nearest intersection)	b. _____ (Address or nearest intersection)
6a. Is that location in:	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____
6b. If outside of Wichita County, what street or highway were you on when you entered the area?	b. _____	b. _____
7. What approximate time did you arrive at this location today?	_____ am / _____ pm	_____ am / _____ pm
8. How did you arrive here at the _____ today? (Choose from Arrival Options)	Arrival Option #: _____ Other: _____	Arrival Option #: _____ Other: _____
Arrival Options: 1) Driver (car/truck/van)                      5) Transit Bus                                      9) Commercial Service Vehicle 2) Passenger (car/truck/van)                6) School Bus                                      10) Motorcycle 3) Walk    7) Taxi/Paid Limousine                        11) Other (Specify) 4) Bicycle    8) Commercial Cargo Transport Vehicle    99) Refused		
9a. If car/truck/van, ask: How many people, including you, were in the vehicle?	a) # of People _____	a) # of People _____
9b. If bus, ask: What fare did you pay?	b) Fare \$ _____.	b) Fare \$ _____.



**WICHITA FALLS WORK PLACE  
INTERCEPT TRAVEL SURVEY  
Form C**

Non-Free Standing Work Place

TAZ #: \_\_\_\_\_ Survey Area: \_\_\_\_\_

Site #: \_\_\_\_\_

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_

Interviewer: \_\_\_\_\_

Employment Type: \_\_\_\_\_

Address: \_\_\_\_\_

Location: \_\_\_\_\_

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
Time interview began	_____ am / _____ pm	_____ am / _____ pm
Time interview ended	_____ am / _____ pm	_____ am / _____ pm
1. Do you work in this building or at this location?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. In what city or county do you live?		
3a. Is that in Wichita county? (If YES, go to question 4)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)
3b. If NO, which roadway did you use to enter the area? (airport is an option)	b. _____	b. _____
4. What is your home address or the names of the nearest two intersecting streets?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
5a. Did you travel here directly from your home with no stops? (If YES, go to Question 7)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)
5b. If NO, where did you start the trip that brought you to _____?	b. _____ (Address or nearest intersection)	b. _____ (Address or nearest intersection)
6a. Is that location in:	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____
6b. If outside of Wichita county, what street or highway were you on when you entered the area?	b. _____	b. _____
7. What approximate time did you arrive at this location today?	_____ am / _____ pm	_____ am / _____ pm
8. How did you arrive here at the _____ today? (Choose from Arrival Options)	Arrival Option #: _____ Other: _____	Arrival Option #: _____ Other: _____
Arrival Options: 1) Driver (car/truck/van)                      5) Transit Bus                                      9) Commercial Service Vehicle 2) Passenger (car/truck/van)                6) School Bus                                      10) Motorcycle 3) Walk    7) Taxi/Paid Limousine                        11) Other (Specify) 4) Bicycle    8) Commercial Cargo Transport Vehicle   99) Refused		
9a. If car/truck/van, ask: How many people, including you, were in the vehicle?	a) # of People _____	a) # of People _____
9b. If bus, ask: What fare did you pay?	b) Fare \$ _____.	b) Fare \$ _____.





<u>Questions</u>	<u>Vehicle 1</u>	<u>Vehicle 2</u>
10. What is your reason for coming here today? (Choose from Trip Purpose Options below)	_____ (Trip Purpose Option #)	_____ (Trip Purpose Option #)
11a. What is the address of the last place you got into your vehicle? (Address or nearest two intersecting streets) 11b. What type of place was that location? (Choose from Type of Place Options below)	a. _____ _____ b. Type of Place Option # _____	a. _____ _____ b. Type of Place Option # _____
12a. Is that location in:  12b. If outside of Wichita County, what street or highway were you on when you entered the study area?	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____ b. _____	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____ b. _____
13. What was your purpose for being at that location? (Choose from Trip Purpose Options below)	_____ (Trip Purpose Option #)	_____ (Trip Purpose Option #)
14. What approximate time did you leave that location?	_____ am / _____ pm	_____ am / _____ pm
15a. What is the address of the place you will be going when you leave? (place/address or nearest intersection/city) 15b. What type of place is that location? (Choose from Type of Place Options below)	a. _____ _____ b. Type of Place Option # _____	a. _____ _____ b. Type of Place Option # _____
16a. Is that location in:  16b. If outside Wichita County, what street or highway will you be on when you leave the study area?	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____ b. _____	a. <input type="checkbox"/> Wichita County <input type="checkbox"/> Other county (enter name) _____ b. _____
17. What is your purpose for traveling to your next destination? (Choose from Trip Purpose Options below)	_____ (Trip Purpose Option #)	_____ (Trip Purpose Option #)
18. Thank them for their time and participation.		

**Trip Purpose Options**

- |  |   |                     |
|--|---|---------------------|
| 1) Base location/Return to base location | 4) Delivery and Pick Up                 | 7) To home          |
| 2) Delivery                              | 5) Maintenance                          | 8) Buy gas/fuel     |
| 3) Pickup                                | 6) Driver Needs (lunch, restroom, etc.) | 9) Other (Specify)  |
|  |   | 99) Refused/Unknown |

**Type of Place Options**

- |   |                                       |                         |
|---|---------------------------------------|-------------------------|
| 1) Office Building                              | 6) Educational (College, Trade, etc.) | 11) Warehouse           |
| 2) Retail / Shopping                            | 7) Government Office/Building         | 12) Distribution Center |
| 3) Industrial/Manufacturing                     | 8) Residential                        | 13) Construction Site   |
| 4) Medical / Hospital                           | 9) Airport                            | 14) Other (Specify)     |
| 5) Educational (12 <sup>th</sup> grade or less) | 10) Intermodal Facility               | 99) Refused/Unknown     |

**SHEPPARD AIR FORCE BASE  
SPECIAL GENERATOR INTERCEPT SURVEY  
Form B**

Date: \_\_\_\_/\_\_\_\_/\_\_\_\_ TAZ #: \_\_\_\_ Survey Area: \_\_\_\_\_  
 Interviewer: \_\_\_\_\_ Location on Base: \_\_\_\_\_

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
Time interview began	_____ am / _____ pm	_____ am / _____ pm
Time interview ended	_____ am / _____ pm	_____ am / _____ pm
1. Do you work here at Sheppard AFB?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. In what city or county do you live?		
3a. Is that in Wichita county? (If YES, go to question 4)  3b. If NO, which roadway did you use to enter the Wichita area? (airport is an option)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)  b. _____	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b)  b. _____
4. What is your home address or nearest two intersecting streets?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
5a. Did you travel directly from your home to the base with no stops?  5b. If NO, where did you start the trip that brought you to the base?	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)  b. _____ _____ (Address or nearest intersection)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b)  b. _____ _____ (Address or nearest intersection)
6a. Is that location in Wichita county?  6b. If NO, what street or highway were you on when you entered the Wichita area?	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) _____ b. _____	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) _____ b. _____
7. What approximate time did you arrive at the base today?	_____ am / _____ pm	_____ am / _____ pm
8. How did you arrive here at the base today? (Choose from Arrival Options)	Arrival Option # _____ Other _____	Arrival Option # _____ Other _____
Arrival Options: 1) Driver (car/truck/van)                      5) Transit Bus                                      9) Commercial Service Vehicle 2) Passenger (car/truck/van)                6) School Bus                                      10) Motorcycle 3) Walk    7) Taxi/Paid Limousine                        11) Other (Specify) 4) Bicycle    8) Commercial Cargo Transport Vehicle    99) Refused		
9a. If car/truck/van, ask: How many people, including you, were in the vehicle?  9b. If bus, ask: What fare did you pay?	a. # of People _____  b. Fare \$ _____.	a. # of People _____  b. Fare \$ _____.



**MIDWESTERN STATE UNIVERSITY  
SPECIAL GENERATOR INTERCEPT SURVEY**

**Form B**

Date: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

TAZ #: \_\_\_\_\_ Survey Area: \_\_\_\_\_

Interviewer: \_\_\_\_\_

Location on Campus: \_\_\_\_\_

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
Time interview began	_____ am / _____ pm	_____ am / _____ pm
Time interview ended	_____ am / _____ pm	_____ am / _____ pm
1. Are you a student here?	<input type="checkbox"/> Yes (Go to 2) <input type="checkbox"/> No (Go to 3)	<input type="checkbox"/> Yes (Go to 2) <input type="checkbox"/> No (Go to 3)
2. Do you live on campus?	<input type="checkbox"/> Yes (Terminate Interview) <input type="checkbox"/> No (Go to 3)	<input type="checkbox"/> Yes (Terminate Interview) <input type="checkbox"/> No (Go to 3)
3. Do you work here at the university or are you visiting the university?	<input type="checkbox"/> Employee <input type="checkbox"/> Visitor	<input type="checkbox"/> Employee <input type="checkbox"/> Visitor
4. In what city or county do you live?		
5. Is that in Wichita county?	<input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 6)	<input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 6)
If they live outside Wichita county, ask: 6. Which roadway did you use to enter the Wichita area? (airport is an option)	_____ _____	_____ _____
If they live in Wichita county, ask: 7. What is your home address or nearest two intersecting streets?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
8. How did you arrive here at the university today? (Choose from Arrival Options)	Arrival Option # _____ Other _____	Arrival Option # _____ Other _____
Arrival Options: 1) Driver (car/truck/van)                      5) Transit Bus                                      9) Commercial Service Vehicle 2) Passenger (car/truck/van)                6) School Bus                                      10) Motorcycle 3) Walk    7) Taxi/Paid Limousine                        11) Other (Specify) 4) Bicycle    8) Commercial Cargo Transport Vehicle    99) Refused		
9a. If arrival was by car/truck/van, how many people, including you, were in the vehicle when you arrived at the university? 9b. Where did you park?	a. # of People _____ b. 1) On-Campus    2) Off Campus Parking Lot 3) Off Campus in Street Designated Parking Spot 4) Other (specify) _____	a. # of People _____ b. 1) On-Campus    2) Off Campus Parking Lot 3) Off Campus in Street Designated Parking Spot 4) Other (specify) _____
10a. Did you travel directly from your home to the university with no stops? 10b. If NO, where did you start the trip that brought you to the university?	a. <input type="checkbox"/> Yes (Go to 12) <input type="checkbox"/> No (Go to 10b) b. _____ _____ (Address or nearest intersection)	a. <input type="checkbox"/> Yes (Go to 12) <input type="checkbox"/> No (Go to 10b) b. _____ _____ (Address or nearest intersection)
11a. Is that location in Wichita county? 11b. If NO, what street or highway were you on when you entered the Wichita area?	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) b. _____ _____	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) b. _____ _____

Midwestern State University Special Generator Survey, Record SWU, Form B - Continued

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
12. What approximate time did you arrive at the university today?	_____ am / _____ pm	_____ am / _____ pm
13. What is the reason for coming here today? (Choose from Trip Purpose Options)	Trip Purpose Option # _____ Other _____	Trip Purpose Option # _____ Other _____
Trip Purpose Options: 1) Return Home 2) Work Related 3) School 4) Social Recreation/Visit 5) Shop 6) Eat Out 7) Personal Business 8) Pick Up/Drop Off Passenger 9) Change Travel Mode 10) Delivery – Pick Up/Drop Off Cargo 11) Other (Specify) 99) Refused		
14. When you leave the university, what mode will you use? (Choose from Departure Options)	Departure Option # _____ Other _____	Departure Option # _____ Other _____
Departure Options: 1) Driver (car/truck/van) 2) Passenger (car/truck/van) 3) Walk 4) Bicycle 5) Transit Bus 6) School bus 7) Taxi/Paid Limousine 8) Commercial Cargo Vehicle 9) Commercial Service Vehicle 10) Motorcycle 11) Other (Specify) 99) Refused		
15. When you leave the university, are you going straight home with no stops?	<input type="checkbox"/> Yes (Go to 18) <input type="checkbox"/> No (Go to 16)	<input type="checkbox"/> Yes (Go to 18) <input type="checkbox"/> No (Go to 16)
16. What is the name and address of the place you will be going?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
17a. Is that location in Wichita county?  17b. If NO, what street or highway will you be on when you leave the Wichita area?	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county)  _____ b. _____	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county)  _____ b. _____
18. Thank them for their time and participation.		

**SIKES SENTER MALL**  
**SPECIAL GENERATOR INTERCEPT SURVEY**  
**Form B**

Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ TAZ #: \_\_\_\_ Survey Area: \_\_\_\_\_  
 Interviewer: \_\_\_\_\_ Location at Mall: \_\_\_\_\_

<u>Questions</u>	<u>Person 1</u>	<u>Person 2</u>
Time interview began	_____ am / _____ pm	_____ am / _____ pm
Time interview ended	_____ am / _____ pm	_____ am / _____ pm
1. Do you work in this Mall?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2. In what city or county do you live?		
3a. Is that in Wichita county? (If YES, go to question 4) 3b. If NO, which roadway did you use to enter the Wichita area? (airport is an option)	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b) b. _____	a. <input type="checkbox"/> Yes (Go to 4) <input type="checkbox"/> No (Go to 3b) b. _____
4. What is your home address or nearest two intersecting streets?	_____ _____ (Address or nearest intersection)	_____ _____ (Address or nearest intersection)
5a. Did you travel directly from your home to the Mall with no stops? 5b. If NO, where did you start the trip that brought you to the Mall?	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b) b. _____ (Address or nearest intersection)	a. <input type="checkbox"/> Yes (Go to 7) <input type="checkbox"/> No (Go to 5b) b. _____ (Address or nearest intersection)
6a. Is that location in Wichita county? 6b. If NO, what street or highway were you on when you entered the Wichita area?	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) _____ b. _____	a. <input type="checkbox"/> Yes <input type="checkbox"/> No (enter name of county) _____ b. _____
7. What approximate time did you arrive at the Mall today?	_____ am / _____ pm	_____ am / _____ pm
8. How did you arrive at the Mall today? (Choose from Arrival Options)	Arrival Option # _____ Other _____	Arrival Option # _____ Other _____
Arrival Options: 1) Driver (car/truck/van)                      5) Transit Bus                                      9) Commercial Service Vehicle 2) Passenger (car/truck/van)                6) School Bus                                      10) Motorcycle 3) Walk    7) Taxi/Paid Limousine                        11) Other (Specify) 4) Bicycle    8) Commercial Cargo Transport Vehicle    99) Refused		
9a. If car/truck/van, ask: How many people, including you, were in the vehicle? 9b. If bus, ask: What fare did you pay?	a. # of People _____ b. Fare \$ _____	a. # of People _____ b. Fare \$ _____







