

Final Report

2011 Michigan Seat Belt Observation Surveys

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| 16. Abstract This report summarizes the findings of the statewide seatbelt survey completed in June following the May 2011 Click it or Ticket enforcement campaign. 191 Intersections were surveyed. The overall seat belt use rate was 94.5%. For the second survey in August, the seat belt use rate fell to 93.5%. Additionally, information regarding cell phone use is contained in this report. Cell phone use rate among drivers was 8.6% in June and 10.3% in August. All data is organized by vehicle type, age, gender, race, and day and time. Additionally, logistic regression models have been provided to identify the statistical significance of differences in seat belt use and cell phone use based on these characteristics. Wayne County showed a significant increase in seat belt usage, and may be a case study for best practices. With regard to cell phone usage, the survey identified Hispanics and females age 16-29 as the primary users of cell phones while driving. | | | |
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INTRODUCTION

Seat belt use has been repeatedly shown to be the most important factor in determining the severity of injuries suffered in a crash (Teret, Jones et al. 1986; Farmer, Braver et al. 1997; Hill and Boyle 2005; Hill and Boyle 2006). Over the past several years, the seat belt use rate in Michigan has been increasing and has been among the top in the country (NHTSA 1999). One of the reasons for Michigan's high belted rate is that the State has a primary seat belt law, allowing unbelted drivers to be ticketed in the absence of any other violation. However, in 2010, the seat belt use rate fell below 96%.

With seat belt use rates above 90% since 2004, identifying those areas in Michigan for improvement is critical. This requires a comprehensive analysis of seat belt use across the country by demographics, geography, and vehicle use. In order for the Michigan Office of Highway Safety Planning to be effective in seat belt campaigns, efforts will need to be targeted to specific demographics. The results of this study are primarily aimed at assisting the OHSP in identifying those population groups in order to make the most of available time and funding.

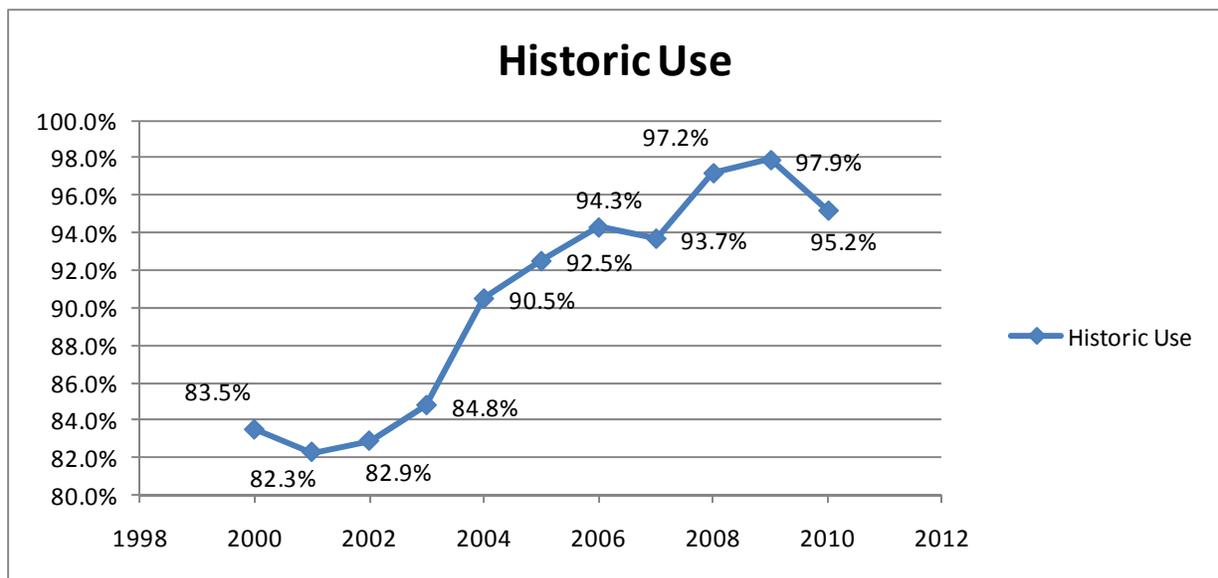


Figure 1: Historic seat belt use in the state of Michigan

METHODOLOGY

Selection of Counties

The Federal Register and the National Highway Traffic Safety Administration documents outline the uniform procedure for collecting and analyzing data for seat belt observation studies. These were the basis for developing the methodologies for the 2011 Michigan seat belt observation study.

NHTSA's guidelines require the selection of areas in the state to encompass 85 percent of the population. The counties selected were the 32 most populous counties in Michigan in 2009. Table 1 shows the population for each of these counties and the cumulative percentage of the population of the State of Michigan. As seen in Table 1, these counties currently account for 87.14% of the population in the State. Therefore, this sample of counties selected for the observation study fulfilled NHTSA's requirements.

Identification of Strata for Statistical Analysis

A system for partitioning the candidate counties into various strata, based on vehicle miles traveled (VMT), was developed and is shown in Table 2. The objective is to balance the VMT in each of the four strata in order to reduce the within strata variability in seatbelt usage rates. The number of observation sites for each stratum is also shown in Table 2. The number of observations per strata is proportional to the proportion of VMT within each strata. Stratum 1 has 48 observation sites (25.3% of 191), Stratum 2 has 49 observation sites (25.6%), Stratum 3 has 53 observation sites (27.6%), and Stratum 4 has 41 observation sites (21.5%).

Table 1: Population of the 32 largest counties in the State of Michigan (2009 US Census estimates)

| County | Population (2009 estimates) | Percent Population | Cumulative Percent Population | County Ranking by Population |
|---------------|--|-------------------------------|--|---|
| Wayne | 1,925,848 | 19.32% | 19.32% | 1 |
| Oakland | 1,205,508 | 12.09% | 31.41% | 2 |
| Macomb | 831,427 | 8.34% | 39.75% | 3 |
| Kent | 608,315 | 6.10% | 45.85% | 4 |
| Genesee | 424,043 | 4.25% | 50.10% | 5 |
| Washtenaw | 347,563 | 3.49% | 53.59% | 6 |
| Ingham | 277,633 | 2.78% | 56.37% | 7 |
| Ottawa | 261,957 | 2.63% | 59.00% | 8 |
| Kalamazoo | 248,407 | 2.49% | 61.49% | 9 |
| Saginaw | 200,050 | 2.01% | 63.50% | 10 |
| Livingston | 183,118 | 1.84% | 65.34% | 11 |
| Muskegon | 173,951 | 1.74% | 67.08% | 12 |
| St. Clair | 167,562 | 1.68% | 68.76% | 13 |
| Berrien | 160,472 | 1.61% | 70.37% | 14 |
| Jackson | 159,828 | 1.60% | 71.97% | 15 |
| Monroe | 152,721 | 1.53% | 73.51% | 16 |
| Calhoun | 135,616 | 1.36% | 74.87% | 17 |
| Allegan | 113,449 | 1.14% | 76.00% | 18 |
| Bay | 107,434 | 1.08% | 77.08% | 19 |
| Eaton | 106,077 | 1.06% | 78.15% | 20 |
| Lenawee | 99,837 | 1.00% | 79.15% | 21 |
| Lapeer | 89,974 | 0.90% | 80.05% | 22 |
| Grand | 86,333 | 0.87% | 80.92% | 23 |
| Midland | 82,548 | 0.83% | 81.74% | 24 |
| Van Buren | 78,227 | 0.78% | 82.53% | 25 |
| Shiawassee | 70,006 | 0.70% | 83.23% | 26 |
| Clinton | 69,893 | 0.70% | 83.93% | 27 |
| Isabella | 67,176 | 0.67% | 84.61% | 28 |
| Marquette | 65,703 | 0.66% | 85.26% | 29 |
| Montcalm | 62,733 | 0.63% | 85.89% | 30 |
| Ionia | 62,574 | 0.63% | 86.52% | 31 |
| St. Joseph | 61,723 | 0.62% | 87.14% | 32 |

Table 2: Thousands of Vehicle Miles Travelled (VMT) in each of the largest 32 Michigan counties. The proportion of VMT and corresponding number of sites is also shown.

| | VMT (2008) (thousands) | Total VMT (thousands) | Percent total VMT (32 counties) | Number of Sites | | | |
|-------------------------|---------------------------|--------------------------|---------------------------------------|--------------------|------------|--------|----|
| Stratum 1 | | | | | | | |
| Inham | 2,434,971 | | | | | | |
| Kalamazoo | 2,462,061 | | | | | | |
| Oakland | 12,972,414 | | | | | | |
| Washtenaw | 4,108,447 | | | | | | |
| Totals | | | | | 21,977,892 | 25.26% | 48 |
| Stratum 2 | | | | | | | |
| Bay | 1,249,878 | | | | | | |
| Eaton | 1,168,670 | | | | | | |
| Grand Traverse | 769,355 | | | | | | |
| Jackson | 1,566,231 | | | | | | |
| Kent | 6,018,153 | | | | | | |
| Monroe | 1,925,266 | | | | | | |
| Macomb | 6,440,526 | | | | | | |
| Midland | 760,668 | | | | | | |
| Ottawa | 2,231,508 | | | | | | |
| Van Buren | 952,066 | | | | | | |
| Totals | | | | | 23,082,322 | 26.53% | 49 |
| Stratum 3 | | | | | | | |
| Allegan | 1,300,760 | | | | | | |
| Berrien | 2,016,812 | | | | | | |
| Calhoun | 1,693,027 | | | | | | |
| Clinton | 1,103,240 | | | | | | |
| Genessee | 4,386,305 | | | | | | |
| Ionia | 690,853 | | | | | | |
| Isabella | 598,051 | | | | | | |
| Lapeer | 948,077 | | | | | | |
| Lenawee | 247,166 | | | | | | |
| Marquette | 601,339 | | | | | | |
| Livingston | 2,637,147 | | | | | | |
| Montcalm | 564,106 | | | | | | |
| Muskegon | 1,642,764 | | | | | | |
| Saginaw | 2,159,187 | | | | | | |
| Shiawassee | 790,323 | | | | | | |
| St Clair | 1,576,470 | | | | | | |
| St Joseph | 562,925 | | | | | | |
| Totals | | | | | 23,518,551 | 27.03% | 53 |
| Stratum 4 | | | | | | | |
| Wayne | 18,415,672 | | | | | | |
| Totals | | | | | 18,415,672 | 21.17% | 41 |
| Total Strata VMT | | | | | | | |
| | | 86,994,438 | 100.00% | 191 | | | |

Selection of Observation sites

The locations of the 191 observation sites were randomly selected as intersections and limited access highway interchanges for prior surveys. For consistency, these locations were used again for this survey. For each stratum, a grid was placed on road maps of each of the counties within that stratum. The grid was a 0.5 mile by 0.5 mile grid. Each of the squares on the road map were then assigned an X and Y coordinate. All counties within a stratum were considered as a group in order to develop a set of candidate intersections of highway interchanges for that stratum. Random numbers were then generated to select the observation locations within a stratum. If an eligible intersection or interchange existed within a selected square on the grid, this site was selected for the survey. If an appropriate location did not exist within this square, a new set of X and Y coordinates were randomly generated. This process was continued until sufficient locations for each stratum were identified. Each of the candidate locations will be evaluated immediately prior to the survey efforts in May and August. If a site is unobservable (due to construction or some other cause for lack of accessibility) a site from one of the eight neighboring squares will be randomly selected.

Selection of Time and Day

There are seven days available on which to survey for each of two weeks. The day on which each site was surveyed was randomly assigned (Sunday through Saturday for weeks one and two). To do this, a random number between one and seven was assigned to each observation from a uniform distribution. Once each of these sites was assigned to a day, the survey locations for each day were mapped out and divided among the four or five observers geographically in order to minimize travel time between sites. These sites were then further grouped into one of the two weeks for each of the seven days. On average, each observer collected data on three to four sites each day. The order of observations was randomly selected among those sites for each observer. This results in a random time of day for each observation, while still allowing some flexibility to accommodate the amount of time needed to collect the required number of observations at each site. The daily schedules and assigned observers are shown in the following tables. In most cases, there are 4 observers covering the

observations sites on a given day. Due to the random assignment of observation days, there are a couple of days on which a fifth person has been added to cover a relatively remote location which wasn't easily grouped with other observation sites. This fifth person in the Lower Peninsula was also the Co-PI in charge of quality control.

Table 3: Locations and Observers for Sundays

| County | Stratum | Location | Day | Week | Observer |
|------------|---------|---------------------------|--------|------|----------|
| Macomb | 2 | I-696 and Groesbeck | Sunday | 1 | A |
| Washtenaw | 1 | Ann Arbor and S Main | Sunday | 1 | A |
| Wayne | 4 | Wayne and Annapolis | Sunday | 1 | A |
| Wayne | 4 | Eureka and Telegraph | Sunday | 1 | A |
| Ingham | 1 | I 496 and Dunckel | Sunday | 1 | B |
| Ingham | 1 | M 43 and M 52 | Sunday | 1 | B |
| Jackson | 2 | Michigan and US 127 | Sunday | 1 | B |
| Livingston | 3 | M-36 and M-106 | Sunday | 1 | B |
| Calhoun | 3 | Evanston and Michigan | Sunday | 1 | C |
| Eaton | 2 | Kalamo and Battle Creek | Sunday | 1 | C |
| Kalamazoo | 1 | H Ave and Sprinkle | Sunday | 1 | C |
| Isabella | 3 | Winn and Blanchard | Sunday | 1 | D |
| Midland | 2 | Curtis and Lake Sanford | Sunday | 1 | D |
| Monroe | 2 | Ann Arbor and Tecumseh | Sunday | 2 | A |
| Monroe | 2 | Dunbar and Hull | Sunday | 2 | A |
| Wayne | 4 | Sumpter and Main | Sunday | 2 | A |
| Wayne | 4 | Rawsonville and Textile | Sunday | 2 | A |
| Genesee | 3 | Flushing and Bellenger | Sunday | 2 | B |
| Genesee | 3 | I-475 and Court | Sunday | 2 | B |
| Oakland | 1 | Grand river and Taft | Sunday | 2 | B |
| Allegan | 3 | M 89 and Main | Sunday | 2 | C |
| Kalamazoo | 1 | 8th and Q Ave | Sunday | 2 | C |
| Van Buren | 2 | CR-380 and CR-681 | Sunday | 2 | C |
| Van Buren | 2 | M-51 and CR-352 | Sunday | 2 | C |
| Kent | 2 | US 131 and 68th | Sunday | 2 | D |
| Montcalm | 3 | M-91 and Sidney | Sunday | 2 | D |
| Muskegon | 3 | Ravenna Hts. And Blackmer | Sunday | 2 | D |

Table 4: Locations and Observers for Mondays

| County | Stratum | Location | Day | Week | Observer |
|---------------|----------------|----------------------------|------------|-------------|-----------------|
| Oakland | 1 | I 696 and Orchard Lake | Monday | 1 | A |
| Oakland | 1 | I 696 and Woodward | Monday | 1 | A |
| Wayne | 4 | Warren and Southfield | Monday | 1 | A |
| Washtenaw | 1 | Miller and N Maple | Monday | 1 | B |
| Washtenaw | 1 | I 94 and Huron | Monday | 1 | B |
| Wayne | 4 | Ford and Sheldon | Monday | 1 | B |
| Ingham | 1 | Holt and M 52 | Monday | 1 | C |
| Ingham | 1 | US 127 and Cedar | Monday | 1 | C |
| Ingham | 1 | Haslett and Zimmer | Monday | 1 | C |
| Shiawassee | 3 | I-69 and M-52 | Monday | 1 | C |
| Midland | 2 | Coleman and Redstone | Monday | 1 | D |
| Midland | 2 | Redstone and 11 Mile | Monday | 1 | D |
| Midland | 2 | M-20 and Homer | Monday | 1 | D |
| Macomb | 2 | 27 Mile and Romeo Plank | Monday | 2 | A |
| Wayne | 4 | I-94 and Harper | Monday | 2 | A |
| Wayne | 4 | Vernier and Lake Shore | Monday | 2 | A |
| Genesee | 3 | N Elms and Beacher | Monday | 2 | B |
| Lapeer | 3 | Otter Lake and Klam | Monday | 2 | B |
| Saginaw | 3 | Fergus and Bishop | Monday | 2 | B |
| Clinton | 3 | Main and Westphalia | Monday | 2 | C |
| Eaton | 2 | M 43 and Canal | Monday | 2 | C |
| Ingham | 1 | Cavanaugh and Pennsylvania | Monday | 2 | C |
| Ionia | 3 | Bridge and State | Monday | 2 | D |
| Kent | 2 | US 131 and 10 Mile | Monday | 2 | D |
| Muskegon | 3 | Ravenna Hts. And Maple Rd | Monday | 2 | D |

Table 5: Locations and Observers for Tuesdays

| County | Stratum | Location | Day | Week | Observer |
|---------------|----------------|------------------------------|------------|-------------|-----------------|
| Wayne | 4 | Goddard and Fort | Tuesday | 1 | A |
| Wayne | 4 | Greenfield and Plymouth | Tuesday | 1 | A |
| Wayne | 4 | I-75 and Southfield | Tuesday | 1 | A |
| Wayne | 4 | Middlebelt and I-96 | Tuesday | 1 | A |
| Macomb | 2 | Moravian and Harrington | Tuesday | 1 | B |
| Macomb | 2 | Jefferson and Martin | Tuesday | 1 | B |
| Oakland | 1 | 14 Mile and S Main | Tuesday | 1 | B |
| Wayne | 4 | Outer Drive and Rotunda | Tuesday | 1 | B |
| Jackson | 2 | Rosehill and Elm | Tuesday | 1 | C |
| Lenawee | 3 | US-12 and Brooklyn | Tuesday | 1 | C |
| Clinton | 3 | Clark and Upton | Tuesday | 1 | D |
| Genesee | 3 | Grand Blanc and Duffield | Tuesday | 1 | D |
| Ingham | 1 | Tihart and Cornell | Tuesday | 1 | D |
| Wayne | 4 | Woodward and Warren | Tuesday | 2 | A |
| Wayne | 4 | Huron River and Waltz | Tuesday | 2 | A |
| Wayne | 4 | Palmer and Lilley | Tuesday | 2 | A |
| Wayne | 4 | Telegraph and Northline | Tuesday | 2 | A |
| Oakland | 1 | Clarkston and Balwin | Tuesday | 2 | B |
| Oakland | 1 | Snell and Rochester | Tuesday | 2 | B |
| St. Clair | 3 | M-19 and lambs Rd | Tuesday | 2 | B |
| Calhoun | 3 | Beckley Rd and Capital Ave | Tuesday | 2 | C |
| Eaton | 2 | Battle Creek and Ainger | Tuesday | 2 | C |
| Kalamazoo | 1 | M 89 and 34th | Tuesday | 2 | C |
| Allegan | 3 | 30th and 128th | Tuesday | 2 | D |
| Kent | 2 | Wabasis and 10 Mile | Tuesday | 2 | D |
| Kent | 2 | Sparta Ave and Ball Creek Rd | Tuesday | 2 | D |

Table 6: Locations and Observers for Wednesdays

| County | Stratum | Location | Day | Week | Observer |
|---------------|----------------|-----------------------------|------------|-------------|-----------------|
| Washtenaw | 1 | Mooreville and Stoney Creek | Wednesday | 1 | A |
| Wayne | 4 | Willis and Rawsonville | Wednesday | 1 | A |
| Wayne | 4 | Van Horn and Inkster | Wednesday | 1 | A |
| Wayne | 4 | Geddes and Canton Center | Wednesday | 1 | A |
| Macomb | 2 | 23 Mile and Van Dyke | Wednesday | 1 | B |
| Oakland | 1 | Walton and Lapeer | Wednesday | 1 | B |
| St. Clair | 3 | M-29 and Perch | Wednesday | 1 | B |
| Ingham | 1 | M 43 and Putnam | Wednesday | 1 | C |
| Ingham | 1 | Onondaga and Rossman | Wednesday | 1 | C |
| Ingham | 1 | Barnes and Eden | Wednesday | 1 | C |
| Ingham | 1 | M 106 and M 52 | Wednesday | 1 | D |
| Livingston | 3 | M-36 and Dexter | Wednesday | 1 | D |
| Washtenaw | 1 | Geddes and Earheart | Wednesday | 1 | D |
| Bay County | 2 | Pinconning and I 75 | Wednesday | 1 | E |
| Oakland | 1 | M 10 and 8 Mile | Wednesday | 2 | A |
| Wayne | 4 | Greenfield and 9 Mile | Wednesday | 2 | A |
| Wayne | 4 | McNichols and Evergreen | Wednesday | 2 | A |
| Wayne | 4 | Vandyke and 7 Mile | Wednesday | 2 | A |
| Genesee | 3 | M-57 and Vassar | Wednesday | 2 | B |
| Shiawassee | 3 | Juddville and Chipman | Wednesday | 2 | B |
| Shiawassee | 3 | M-52 and Grand River | Wednesday | 2 | B |
| Berrien | 3 | I-94 and M-139 | Wednesday | 2 | C |
| Kalamazoo | 1 | M 43 and 9th | Wednesday | 2 | C |
| Kalamazoo | 1 | G and Riverview | Wednesday | 2 | C |
| Kalamazoo | 1 | Sprinkle and Zylman | Wednesday | 2 | C |
| Ottawa | 2 | Lake Michigan and US-31 | Wednesday | 2 | D |
| St. Joseph | 3 | US-131 and Millard | Wednesday | 2 | D |
| Van Buren | 2 | CR-681 and CR-384 | Wednesday | 2 | D |
| Van Buren | 2 | I-196 and Phoenix Rd | Wednesday | 2 | D |

Table 7: Locations and Observers for Thursdays

| County | Stratum | Location | Day | Week | Observer |
|---------------|----------------|---------------------------------|------------|-------------|-----------------|
| Wayne | 4 | Wayne and Wick | Thursday | 1 | A |
| Wayne | 4 | Ecorse and Haggerty | Thursday | 1 | A |
| Wayne | 4 | Michigan and Greenfield | Thursday | 1 | A |
| Wayne | 4 | Eureka and Middlebelt | Thursday | 1 | A |
| Lapeer | 3 | M-24 and Coulter Rd | Thursday | 1 | B |
| Macomb | 2 | 22 Mile and Heydenreich | Thursday | 1 | B |
| Macomb | 2 | 34 Mile and Van Dyke | Thursday | 1 | B |
| Jackson | 2 | Michigan and Lake | Thursday | 1 | C |
| Jackson | 2 | US 127 and Page | Thursday | 1 | C |
| Livingston | 3 | Grand River Rd and Kensington | Thursday | 1 | D |
| Livingston | 3 | US-23 and Clyde | Thursday | 1 | D |
| Livingston | 3 | Grand River and Pleasant Valley | Thursday | 1 | D |
| Oakland | 1 | Holly and Grange Hall | Thursday | 1 | D |
| Monroe | 2 | US-23 and US-223 | Thursday | 1 | E |
| Oakland | 1 | Northwestern and Middlebelt | Thursday | 2 | A |
| Wayne | 4 | Vernier and Mack | Thursday | 2 | A |
| Wayne | 4 | Waltz and Willow | Thursday | 2 | A |
| Wayne | 4 | Huron River and Haggerty | Thursday | 2 | A |
| Wayne | 4 | Northline and I-75 | Thursday | 2 | A |
| Bay County | 2 | Munger and M 15 | Thursday | 2 | B |
| Clinton | 3 | Hyde and Welling | Thursday | 2 | B |
| Eaton | 2 | M 43 and M 50 | Thursday | 2 | B |
| Berrien | 3 | Nickerson and Pipestone | Thursday | 2 | C |
| Kalamazoo | 1 | Sprinkle and Center | Thursday | 2 | C |
| Kalamazoo | 1 | M 43 and M 89 | Thursday | 2 | C |
| Kent | 2 | Myers Lake and 17 Mile | Thursday | 2 | D |
| Kent | 2 | US 131 and 84th | Thursday | 2 | D |
| Muskegon | 3 | Ravenna Hts. And Moorland | Thursday | 2 | D |
| Marquette | 3 | M-95 and Cr-LLK | Thursday | 2 | E |

Table 8: Locations and Observers for Fridays

| County | Stratum | Location | Day | Week | Observer |
|----------------|----------------|-----------------------------|------------|-------------|-----------------|
| Wayne | 4 | Grand River and Schaefer | Friday | 1 | A |
| Wayne | 4 | Van Dyke and McNichols | Friday | 1 | A |
| Wayne | 4 | Sumpter and Oakville Waltz | Friday | 1 | A |
| Wayne | 4 | Jefferson and Randolph | Friday | 1 | A |
| Genesee | 3 | Mt. Morris and I-75 | Friday | 1 | B |
| Midland | 2 | Badour and Pine River | Friday | 1 | B |
| Lenawee | 3 | Clinton Macon and Tecumseh | Friday | 1 | C |
| Monroe | 2 | Ostrander and Plank | Friday | 1 | C |
| Monroe | 2 | Telegraph and Seventh | Friday | 1 | C |
| Wayne | 4 | Ecorse and Monroe | Friday | 1 | C |
| Eaton | 2 | Royston and Island Hwy | Friday | 1 | D |
| Eaton | 2 | Washington and Lawrence | Friday | 1 | D |
| Eaton | 2 | Nixon and Willow | Friday | 1 | D |
| Ingham | 1 | Michigan and Waverly | Friday | 1 | D |
| Grand Traverse | 2 | M 72 and US 31 | Friday | 1 | E |
| Oakland | 1 | 9 Mile and Taft | Friday | 2 | A |
| Oakland | 1 | I 75 and Sashabaw | Friday | 2 | A |
| Wayne | 4 | 8 Mile and Randolph | Friday | 2 | A |
| Clinton | 3 | M-21 and Lowell | Friday | 2 | B |
| Clinton | 3 | M-21 and Shepardsville | Friday | 2 | B |
| Montcalm | 3 | Sidney and Crystal | Friday | 2 | B |
| Jackson | 2 | Wolf Lake and Cady | Friday | 2 | C |
| Washtenaw | 1 | Jackson and I 94 | Friday | 2 | C |
| Washtenaw | 1 | Saline Milan and Mooreville | Friday | 2 | C |
| Allegan | 3 | US 131 and 135th | Friday | 2 | D |
| Calhoun | 3 | 15 Mile and Michigan Ave | Friday | 2 | D |
| Ingham | 1 | US 127 and Saginaw | Friday | 2 | D |

Table 9: Locations and Observers for Saturdays

| County | Stratum | Location | Day | Week | Observer |
|------------|---------|---------------------------|----------|------|----------|
| Livingston | 3 | Old US-23 and M-59 | Saturday | 1 | A |
| Washtenaw | 1 | Dixboro and N Territorial | Saturday | 1 | A |
| Washtenaw | 1 | I 94 and S State St | Saturday | 1 | A |
| Oakland | 1 | Dixie and Davisburg | Saturday | 1 | B |
| St. Clair | 3 | I-69 and Riley Centre Rd | Saturday | 1 | B |
| Berrien | 3 | Lakeside and Union Pier | Saturday | 1 | C |
| St. Joseph | 3 | Banker and Klinger | Saturday | 1 | C |
| Allegan | 3 | M 89 and US 131 | Saturday | 1 | D |
| Kalamazoo | 1 | G Ave and 33rd | Saturday | 1 | D |
| Kalamazoo | 1 | 8th and U Ave | Saturday | 1 | D |
| Calhoun | 3 | I-94 and Capital Ave | Saturday | 1 | D |
| Bay County | 2 | M 61 and Standish | Saturday | 1 | E |
| Bay County | 2 | Adams and Kockville | Saturday | 1 | E |
| Wayne | 4 | Farmington and Plymouth | Saturday | 2 | A |
| Wayne | 4 | 8 Mile and Grand River | Saturday | 2 | A |
| Wayne | 4 | I-96 and Livernois | Saturday | 2 | A |
| Wayne | 4 | Greenfield and M-10 | Saturday | 2 | A |
| Ingham | 1 | Hagadorn and Lake Lansing | Saturday | 2 | B |
| Montcalm | 3 | Condensary and Crystal | Saturday | 2 | B |
| Ionia | 3 | Cross and Main | Saturday | 2 | B |
| Monroe | 2 | US-23 and Plank | Saturday | 2 | C |
| Washtenaw | 1 | Zeeb and N Territorial | Saturday | 2 | C |
| Washtenaw | 1 | Austin and Schneider | Saturday | 2 | C |
| Lenawee | 3 | M-50 and Pentecost Hwy | Saturday | 2 | C |
| Kent | 2 | 14 Mile and Harvard | Saturday | 2 | D |
| Kent | 2 | 4 Mile and Walker | Saturday | 2 | D |
| Ottawa | 2 | 104th and Polk | Saturday | 2 | D |
| Marquette | 3 | Washington and McClellan | Saturday | 2 | E |

Data Analysis

A minimum of 50 observations were collected at each of the 191 observation sites over the course of 50 minutes. If 50 observations are not collected in the 50 minutes, the observer continued to collect data until at least 50 observations are made. The number of observations taken at an intersection was not necessarily a measure of traffic volume since the time to fill out data for a particular vehicle is rather constant. In order to estimate the total traffic volume, a ten minute volume count at the intersection will be taken prior to the observations. This

value was multiplied by five in order to estimate the total number of vehicles passing in the 50 minute observation period. This traffic volume value was divided by the number of observations in order to weight the number of belted and unbelted occupants at that intersection. As an example, if fifteen vehicles were observed in ten minutes at an intersection, then 75 vehicles per 50 minutes were going through the intersection. If 60 vehicles are observed in 50 minutes, the weighting factor for that intersection was $75/60 = 1.25$.

The weighted safety belt use rate was calculated by summing up the strata safety belt use rates, each multiplied by a vehicle miles of travel weighting factor for that stratum, divided by the sum of the vehicle miles of travel weighting factor. The 2009 vehicle miles of travel from the Michigan Department of Transportation shown in Table 2 was used for these calculations. Stratum 3 had the highest total VMT (23,518,551,000), and is assigned a weight factor of 1.0. The other three strata's weight factors were determined by dividing the vehicle miles of travel for each respective stratum by Stratum 3's vehicle miles of travel. Stratum 1 was assigned a weight factor equal to 0.93 (21,977,892 / 23,518,551VMT). Stratum 2 was assigned a weight factor equal to 0.98 (23,082,322 / 23,518,551). Stratum 4 was assigned a weight factor equal to 0.78 (18,415,672 / 23,518,551). The sum of the total weighting factors is 3.69.

The relative error must be less than five percent according to NHTSA guidelines and is equal to the standard error divided by the weighted statewide safety belt use rate. The 95 percent confidence interval is equal to the weighted safety belt use rate plus/minus 1.96 (for the Z-test at alpha = 0.05) multiplied by the square root of the stratum's or statewide variance expressed as a percent. The standard error is equal to the square root of the variance. In calculating the overall variance within each stratum, both unequal sample size and unequal variance at each location must be assumed. As a result, the appropriate equation taken from Cochran (1977) is as follows:

$$Variance_{Stratum\ j} = \frac{n_j}{n_j - 1} \sum_{i=1}^{n_j} \left[\left(\frac{y_{ij}}{\sum_{i=1}^{n_j} y_{ij}} \right)^2 (y_{ij} - \bar{y}_j)^2 \right]$$

Where n_j = number of observations in stratum j

n_{ij} = number of observations at location i in stratum j

r_{ij} = seat belt usage rate at location i in stratum j

r_j = overall seat belt usage rate in stratum j

The overall Statewide variance is calculated as the summations of the squares of the stratum weighting factor multiplied by the variance of that stratum, all divided by the summation of the weighting factors squared.

Quality Control

Of the 191 sites, twelve sites had an unannounced quality control assessment (6.3%). This exceeded the 5% quality check recommendation by NHTSA. This assessment consisted of one of the principle investigators showing up to a site unannounced, and conducting a duplicate survey. This duplicate survey did not necessarily observe identical vehicles, however, it is useful in validating traffic counts, the accuracy of the percent belted drivers observed within a range depending on sample size, and ensuring that the observers were collecting data at the right location. Each of the four full time observers were randomly checked 3 times during the two weeks. In addition to these twelve checks, the principle investigators made additional trips to sites to collect data books and to ensure that there were no issues with the data collection process. The quality check sites were different for the August and June surveys.

Observer Training

Three permanent employees of the Michigan Tech Research Institute (MTRI) in Ann Arbor Michigan, along with four summer interns, and a faculty member at Michigan Technological University collected data for this project. The staff at MTRI has extensive experience in field data collection in a variety of applications. Observers were trained on identifying age, gender and racial background through a series of laboratory based exercises involving photos of individuals of known age, gender and race in vehicles. The training session for MTRI was led by the faculty from Michigan Tech and was a week-long session which also involved multiple field observations studies in order to become familiar with the process followed by a single field data test run in which each of the staff members (interns and full time staff doing data collection) spent nearly two hours observing identical vehicles on a busy intersection. Data from this test exercise was taken on 71 vehicles. There was 100% consistency between observers on belt usage during the trial run.

RESULTS

Seat Belt Survey

As seen in Table 10, the overall seatbelt usage rate for the state of Michigan for the post-memorial day enforcement survey was 94.5%. This ranged from a low stratum belt usage of 91.4% for Stratum 3 to a high usage of 98.5% in Stratum 4 (Wayne county). For the August survey, seat belt usage dropped to 93.5% with a low of 91.9% in Stratum 3 and a high of 94.3% in Stratum 4. Below are a set of tables detailing seat belt usage by county, vehicle, and demographic information. Seat belt usage is reported either in terms of vehicle or person. For vehicle reports, a vehicle is considered belted if all front occupants are belted (depending on whether a passenger is present). The calculation by person for the other tables considers drivers and passengers independently. As a result, the use rate reported by vehicle may differ somewhat from that reported on a by-person basis.

Table 10: Statewide weighted seat belt use rate

| Survey | Safety Belt Use Rate | Standard Error | Relative Error |
|-----------------------|-----------------------------|-----------------------|-----------------------|
| June Post Enforcement | 94.5% +/- 0.84% | 0.43% | 0.45% |
| August Survey | 93.5% +/- 0.79% | 0.40% | 0.44% |

Table 11: Seat belt use rate by stratum

| Stratum | June Use Rate | Standard Error | August Use Rate | Standard Error |
|----------------|----------------------|-----------------------|------------------------|-----------------------|
| Stratum 1 | 95.3% +/- 1.29% | 0.66% | 94.0% +/- 1.48% | 0.76% |
| Stratum 2 | 93.7% +/- 2.02% | 1.03% | 94.1% +/- 1.28% | 0.65% |
| Stratum 3 | 91.4% +/- 1.98% | 1.01% | 91.9% +/- 1.85% | 0.94% |
| Stratum 4 | 98.5% +/- 0.55% | 0.28% | 94.3% +/- 1.66% | 0.85% |

Descriptive Statistics

Table 12: Observations completed by day of the week

| Day of the Week | No. of Sites | Percent of Sites on that Day | June | | August | |
|-----------------|--------------|------------------------------|---------------------------------|-------------------------------------|---------------------------------|-------------------------------------|
| | | | Actual No. of Vehicles Observed | Percent Observations in Day of Week | Actual No. of Vehicles Observed | Percent Observations in Day of Week |
| Sunday | 27 | 14.1% | 1,535 | 12.7% | 1,827 | 14.1% |
| Monday | 25 | 13.1% | 1,576 | 13.0% | 1,026 | 7.9% |
| Tuesday | 26 | 13.6% | 1,433 | 11.8% | 1,952 | 15.1% |
| Wednesday | 29 | 15.2% | 1,940 | 16.0% | 2,187 | 16.9% |
| Thursday | 29 | 15.2% | 1,913 | 15.8% | 1,976 | 15.3% |
| Friday | 27 | 14.1% | 1,912 | 15.8% | 2,054 | 15.9% |
| Saturday | 28 | 14.7% | 1,825 | 15.0% | 1,906 | 14.7% |
| Total | 191 | 100.0% | 12,134 | 100.0% | 12,928 | 100.0% |

Table 13: Observations completed by time of the day

| Time of the Day | No. of Sites (June/August) | Percent of Sites During the Hour (June/August) | June | | August | |
|-----------------|----------------------------|--|---------------------------------|----------------------------------|---------------------------------|----------------------------------|
| | | | Actual No. of Vehicles Observed | Percent Observations in the Hour | Actual No. of Vehicles Observed | Percent Observations in the Hour |
| 7am-8am | 7 / 2 | 3.7% / 1.0% | 394 | 3.2% | 112 | 0.9% |
| 8am-9am | 10 / 4 | 5.2% / 2.1% | 626 | 5.2% | 213 | 1.6% |
| 9am-10am | 23 / 20 | 12.0% / 10.5% | 1,329 | 11.0% | 1,294 | 10.0% |
| 10am-11am | 29 / 27 | 15.2% / 14.1% | 1,810 | 14.9% | 1,733 | 13.4% |
| 11am-12pm | 27 / 24 | 14.1% / 12.6% | 1,712 | 14.1% | 1,630 | 12.6% |
| 12pm-1pm | 26 / 27 | 13.6% / 14.1% | 1,726 | 14.2% | 1,723 | 13.3% |
| 1pm-2pm | 22 / 25 | 11.5% / 13.1% | 1,425 | 11.7% | 1,597 | 12.4% |
| 2pm-3pm | 23 / 21 | 12.0% / 11.0% | 1,522 | 12.5% | 1,358 | 10.5% |
| 3pm-4pm | 14 / 19 | 7.3% / 9.9% | 910 | 7.5% | 1,307 | 10.1% |
| 4pm-5pm | 7 / 9 | 3.7% / 4.7% | 446 | 3.7% | 654 | 5.1% |
| 5pm-6pm | 2 / 6 | 1.0% / 3.1% | 137 | 1.1% | 499 | 3.9% |
| 6pm-7pm | 1 / 6 | 0.5% / 3.1% | 97 | 0.8% | 467 | 3.6% |
| 7pm-8pm | 0 / 1 | 0.0% / 0.5% | | | 341 | 2.6% |
| Total | 1 | 100% / 100% | 12,134 | 100.0% | 12,928 | 100.0% |

Observations were spread evenly throughout the days of the week. In the event of adverse weather, a makeup observation was scheduled for the same day a week later. The distribution of times for the study was normally distributed about noon as early as 7am and as late as 7pm. Observers would work an eight hour shift that would start as early as 7am or as late as 11am in order to ensure finishing by noon. This results in a larger number of

observations between 11 and 3 when all observers would have been conducting surveys. For the August survey due to electronic survey data collection, in addition to identifying the time at which each survey started, actual times for each observation were available. As a result, the hours identified for the August survey reflect each survey rather than a start time for the site.

The results of the survey (starting in table 14) show a slightly higher belt use among drivers than passengers. Four of the front seat observations in the study found a child seat in the front (all in August). Shoulder belts behind the back or under the arm were also very rare occurrences.

Table 14: Statewide Seat belt use by driver and passenger

| Driver Belt Use | June | | | August | | |
|------------------|------------------------------|-----------------------------------|-------------------------|------------------------------|-----------------------------------|-------------------------|
| | Actual No. of Obs. (Drivers) | Weighted Total # of Obs (Drivers) | Weighted %SBU (Drivers) | Actual No. of Obs. (Drivers) | Weighted Total # of Obs (Drivers) | Weighted %SBU (Drivers) |
| Belted | 11,315 | 20,476 | 95.0% | 12,047 | 45,234 | 93.9% |
| Not Belted | 704 | 1,035 | 4.8% | 823 | 2,697 | 5.6% |
| Belt Behind Back | 14 | 15 | 0.1% | 20 | 79 | 0.2% |
| Belt Under Arm | 21 | 28 | 0.1% | 38 | 139 | 0.3% |
| Totals | 12,054 | 21,554 | 100.0% | 12,928 | 48,149 | 100.0% |

| Front Passenger Belt Use | June | | | August | | |
|--------------------------|--------------------------------|-------------------------------------|---------------------------|--------------------------------|-------------------------------------|---------------------------|
| | Actual No. of Obs. (Passenger) | Weighted Total # of Obs (Passenger) | Weighted %SBU (Passenger) | Actual No. of Obs. (Passenger) | Weighted Total # of Obs (Passenger) | Weighted %SBU (Passenger) |
| Belted | 3,073 | 4,917 | 94.3% | 3,359 | 11,624 | 92.9% |
| Not Belted | 205 | 264 | 5.1% | 222 | 753 | 6.0% |
| Belt Behind Back | 9 | 12 | 0.2% | 9 | 36 | 0.3% |
| Belt Under Arm | 16 | 22 | 0.4% | 30 | 83 | 0.7% |
| Child Seat | 0 | 0 | 0.0% | 4 | 17 | 0.1% |
| Totals | 3,303 | 5,215 | 100.0% | 3,624 | 12,513 | 100.0% |

| Total Belt Use | June | | | August | | |
|------------------|--------------------|-------------------------|---------------|--------------------|-------------------------|---------------|
| | Actual No. of Obs. | Weighted Total # of Obs | Weighted %SBU | Actual No. of Obs. | Weighted Total # of Obs | Weighted %SBU |
| Belted | 14,388 | 25,393 | 94.8% | 15,406 | 56,858 | 93.7% |
| Not Belted | 909 | 1,299 | 4.9% | 1,045 | 3,450 | 5.7% |
| Belt Behind Back | 23 | 27 | 0.1% | 29 | 115 | 0.2% |
| Belt Under Arm | 37 | 50 | 0.2% | 68 | 222 | 0.4% |
| Child Seat | 0 | 0 | 0.0% | 4 | 17 | 0.0% |
| Totals | 15,357 | 26,769 | 100.0% | 16,552 | 60,662 | 100.0% |

Table 15: Seat belt use by County (sorted by stratum)

| Stratum 1 | June | | | August | | |
|-----------------------|--------------|--------------|--------------|--------------|---------------|--------------|
| | | Weighted | Weighted % | | Weighted | Weighted % |
| | Observations | Observations | SBU | Observations | Observations | SBU |
| Ingham County | 1,270 | 2,271 | 93.1% | 1,110 | 3,362 | 91.5% |
| Kalamazoo County | 983 | 1,067 | 92.2% | 816 | 2,291 | 93.6% |
| Oakland County | 1,092 | 4,104 | 96.1% | 1,387 | 7,689 | 94.0% |
| Washtenaw County | 884 | 2,129 | 93.6% | 1,032 | 4,505 | 96.0% |
| Total | 4,229 | 9,570 | 95.1% | 4,345 | 17,847 | 94.0% |
| Stratum 2 | June | | | August | | |
| | | Weighted | Weighted % | | Weighted | Weighted % |
| | Observations | Observations | SBU | Observations | Observations | SBU |
| Bay County | 301 | 204 | 93.3% | 279 | 498 | 93.3% |
| Eaton County | 565 | 431 | 91.5% | 821 | 1,952 | 92.6% |
| Grand Traverse County | 121 | 509 | 92.6% | 138 | 1,127 | 97.8% |
| Jackson County | 374 | 378 | 96.4% | 406 | 1,044 | 94.2% |
| Kent County | 852 | 695 | 90.0% | 792 | 1,569 | 92.6% |
| Macomb County | 426 | 914 | 91.2% | 611 | 2,137 | 92.3% |
| Midland County | 335 | 316 | 92.8% | 350 | 689 | 96.2% |
| Monroe County | 441 | 645 | 95.5% | 457 | 1,485 | 95.8% |
| Ottawa County | 175 | 295 | 96.4% | 173 | 755 | 96.1% |
| Van Buren County | 330 | 303 | 95.2% | 369 | 585 | 93.5% |
| Total | 3,920 | 4,689 | 93.7% | 4,396 | 11,840 | 94.1% |
| Stratum 3 | June | | | August | | |
| | | Weighted | Weighted % | | Weighted | Weighted % |
| | Observations | Observations | SBU | Observations | Observations | SBU |
| Allegan County | 425 | 398 | 94.2% | 383 | 779 | 92.9% |
| Berrien County | 274 | 302 | 88.4% | 279 | 640 | 91.9% |
| Calhoun County | 354 | 850 | 89.4% | 350 | 1,745 | 93.9% |
| Clinton County | 335 | 118 | 90.1% | 327 | 399 | 91.2% |
| Genessee County | 586 | 1,165 | 90.5% | 557 | 1,346 | 86.3% |
| Ionia County | 196 | 252 | 91.4% | 184 | 406 | 94.0% |
| Isabella County | 84 | 38 | 92.9% | 98 | 115 | 88.8% |
| Lapeer County | 131 | 154 | 91.3% | 128 | 88 | 91.1% |
| Lenawee County | 197 | 90 | 93.3% | 215 | 215 | 94.4% |
| Livingston County | 539 | 758 | 94.1% | 594 | 2,127 | 94.2% |
| Marquette County | 179 | 301 | 93.4% | 164 | 437 | 92.1% |
| Montcalm County | 244 | 275 | 89.1% | 214 | 493 | 91.3% |
| Muskegeon County | 212 | 107 | 86.6% | 197 | 182 | 85.3% |
| Saginaw County | 58 | 49 | 77.6% | 66 | 175 | 89.4% |
| Shiawassee County | 205 | 216 | 93.1% | 269 | 498 | 97.5% |
| St Clair County | 178 | 339 | 89.7% | 208 | 114 | 92.6% |
| St Joseph County | 207 | 352 | 94.3% | 162 | 863 | 87.6% |
| Total | 4,404 | 5,764 | 91.3% | 4,395 | 10,623 | 91.9% |
| Stratum 4 | June | | | August | | |
| | | Weighted | Weighted % | | Weighted | Weighted % |
| | Observations | Observations | SBU | Observations | Observations | SBU |
| Wayne County | 2,884 | 9,840 | 98.5% | 3,416 | 20,352 | 94.3% |
| Total | 2,884 | 9,840 | 98.5% | 3,416 | 20,352 | 94.3% |

Seat belt used did not vary greatly by day of the week. The range was from 91.1% on Wednesdays in August to 95.4% on Tuesdays in June. Similarly, seat belt use was above 91.5% regardless of the time of day, although use was highest early in the morning, and lowest after 4 pm. This was consistent across both surveys.

Table 16: Seat belt use by day of week and time of day

| Day of the Week | June | | | August | | |
|-----------------|----------------------------|------------------------------------|------------------------------------|----------------------------|------------------------------------|------------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| | | | | | | |
| Monday | 1,576 | 4,268 | 94.1% | 1,026 | 4,331 | 93.0% |
| Tuesday | 1,433 | 2,539 | 95.4% | 1,952 | 7,683 | 91.9% |
| Wednesday | 1,940 | 3,872 | 93.2% | 2,187 | 9,377 | 91.1% |
| Thursday | 1,913 | 2,747 | 94.2% | 1,976 | 6,535 | 93.3% |
| Friday | 1,912 | 3,372 | 94.7% | 2,054 | 7,672 | 92.4% |
| Saturday | 1,825 | 2,053 | 94.9% | 1,906 | 6,377 | 92.8% |
| Totals | 12,134 | 21,718 | 94.5% | 12,928 | 48,149 | 92.5% |

| Time of the Day | June | | | August | | |
|-----------------|----------------------------|------------------------------------|------------------------------------|----------------------------|------------------------------------|------------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| | | | | | | |
| 8am-9am | 626 | 1,064 | 94.4% | 213 | 596 | 97.8% |
| 9am-10am | 1,329 | 1,935 | 95.8% | 1,294 | 4,795 | 93.6% |
| 10am-11am | 1,810 | 3,799 | 93.9% | 1,733 | 6,446 | 93.3% |
| 11am-12pm | 1,712 | 3,677 | 94.3% | 1,630 | 7,254 | 92.5% |
| 12pm-1pm | 1,726 | 2,936 | 93.6% | 1,723 | 6,591 | 90.8% |
| 1pm-2pm | 1,425 | 2,564 | 94.1% | 1,597 | 6,910 | 93.8% |
| 2pm-3pm | 1,522 | 3,003 | 93.0% | 1,358 | 5,465 | 93.3% |
| 3pm-4pm | 910 | 1,115 | 92.5% | 1,307 | 4,225 | 91.9% |
| 4pm-5pm | 446 | 357 | 91.5% | 654 | 1,286 | 88.2% |
| 5pm-6pm | 137 | 215 | 91.8% | 499 | 1,358 | 87.4% |
| 6pm-7pm | 97 | 235 | 91.8% | 467 | 2,088 | 91.9% |
| 7pm-8pm | | | | 341 | 964 | 92.1% |
| Total | 12,134 | 21,718 | 94.5% | 12,928 | 48,149 | 92.5% |

As seen in table 17, seat belt use was lowest among pickup trucks (89.1%,89.6%) and highest among vans and minivans (95.5% in June) and SUVs (94.3% in August). There was very little difference in seat belt use by race. Females had a 2-4% higher use rate than males and among adults, use increased slightly with age. The highest use rate among front seat

occupants was among 4 to 15 year olds in June following the enforcement campaign, but fell significantly during the August survey and trailed those 30 years and older (>94%).

Table 17: Seat belt use by vehicle type and demographic data (all vehicles)

| Vehicle Type | June | | | August | | |
|---------------|----------------------------|------------------------------------|------------------------------------|----------------------------|------------------------------------|------------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| Passenger Car | 5,707 | 11,387 | 94.7% | 6,284 | 25,507 | 92.5% |
| Van/Minivan | 1,546 | 2,766 | 95.6% | 1,757 | 6,775 | 92.6% |
| SUV | 2,772 | 4,549 | 94.7% | 2,646 | 9,301 | 94.3% |
| Pickup Truck | 2,156 | 2,900 | 89.1% | 2,241 | 6,563 | 89.6% |
| Total | 12,181 | 21,602 | 94.1% | 12,928 | 48,146 | 92.5% |

| Gender | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Male | 8,281 | 14,139 | 93.9% | 8,954 | 32,536 | 92.0% |
| Female | 7,076 | 12,629 | 95.9% | 7,598 | 28,126 | 95.7% |
| Totals | 15,357 | 26,768 | 94.8% | 16,552 | 60,662 | 93.5% |

| Age | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| 0 to 3 | 7 | 9 | 77.8% | 8 | 42 | 60.3% |
| 4 to 15 | 354 | 483 | 96.3% | 355 | 1,111 | 91.0% |
| 16 to 29 | 3,838 | 6,774 | 93.3% | 4,001 | 15,003 | 92.1% |
| 30 to 59 | 8,486 | 15,101 | 95.4% | 9,559 | 35,509 | 94.5% |
| 60 and older | 2,575 | 4,183 | 95.5% | 2,629 | 8,996 | 94.0% |
| Totals | 15,260 | 26,550 | 94.9% | 16,552 | 60,661 | 93.5% |

| Race | June | | | August | | |
|------------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Caucasian | 13,397 | 21,326 | 94.7% | 14,455 | 48,767 | 94.3% |
| African American | 1,522 | 4,632 | 95.0% | 1,727 | 10,591 | 91.1% |
| Asian | 175 | 353 | 94.6% | 164 | 717 | 98.8% |
| Hispanic | 191 | 331 | 95.5% | 181 | 540 | 92.5% |
| Native American | 8 | 12 | 100.0% | 25 | 46 | 84.4% |
| Totals | 15,293 | 26,654 | 94.8% | 16,552 | 60,661 | 93.5% |

Tables 18 – 30 provide a breakdown of seatbelt use by day, time and demographics for each vehicle type. Generally, the vehicle specific data trends mirror that of the survey as a whole. Statistical significance of any differences in usage rate is outlined in the following section displaying the results of regression modeling.

Table 18: Car seat belt use summary by day and time

| Day of the Week | June | | | August | | |
|-----------------|----------------------------|------------------------------------|------------------------------------|----------------------------|------------------------------------|------------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| Sunday | 768 | 1,571 | 93.2% | 889 | 3,118 | 92.3% |
| Monday | 780 | 2,400 | 94.5% | 479 | 2,241 | 94.0% |
| Tuesday | 671 | 1,364 | 95.4% | 931 | 3,984 | 91.5% |
| Wednesday | 903 | 1,968 | 94.3% | 1,076 | 5,051 | 91.6% |
| Thursday | 858 | 1,302 | 96.0% | 937 | 3,414 | 93.4% |
| Friday | 897 | 1,701 | 95.1% | 1,034 | 4,130 | 92.6% |
| Saturday | 830 | 1,081 | 94.6% | 938 | 3,570 | 92.9% |
| Totals | 5,707 | 11,388 | 94.7% | 6,284 | 25,508 | 92.5% |

| Time of the Day | June | | | August | | |
|-----------------|----------------------------|------------------------------------|------------------------------------|----------------------------|------------------------------------|------------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| 7am-8am | 230 | 484 | 99.0% | 40 | 68 | 93.5% |
| 8am-9am | 272 | 515 | 96.1% | 105 | 310 | 98.8% |
| 9am-10am | 621 | 1,021 | 96.0% | 701 | 2,706 | 94.1% |
| 10am-11am | 830 | 1,949 | 93.9% | 831 | 3,417 | 94.1% |
| 11am-12pm | 831 | 2,013 | 94.5% | 773 | 3,961 | 92.3% |
| 12pm-1pm | 797 | 1,535 | 94.4% | 864 | 3,730 | 90.9% |
| 1pm-2pm | 644 | 1,365 | 95.4% | 738 | 3,444 | 93.2% |
| 2pm-3pm | 746 | 1,555 | 94.1% | 671 | 2,875 | 93.1% |
| 3pm-4pm | 433 | 569 | 91.9% | 589 | 1,972 | 91.1% |
| 4pm-5pm | 130 | 157 | 92.2% | 334 | 679 | 86.2% |
| 5pm-6pm | 61 | 98 | 90.7% | 233 | 668 | 91.6% |
| 6pm-7pm | 52 | 126 | 96.2% | 230 | 1,115 | 92.3% |
| 7pm-8pm | | | | 175 | 560 | 90.3% |
| Total | 5,707 | 11,388 | 94.7% | 6,284 | 25,505 | 92.5% |

Table 19: Car general demographic seat belt use summary

| Gender | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Male | 3,453 | 6,643 | 94.9% | 3,838 | 15,568 | 92.3% |
| Female | 3,673 | 7,191 | 95.8% | 4,075 | 16,218 | 95.1% |
| Totals | 7,126 | 13,834 | 95.4% | 7,913 | 31,786 | 93.7% |

| Age | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| 0 to 3 | 6 | 8 | 87.5% | 3 | 18 | 96.7% |
| 4 to 15 | 112 | 167 | 95.8% | 137 | 529 | 91.3% |
| 16 to 29 | 2,163 | 4,151 | 93.9% | 2,326 | 9,255 | 92.0% |
| 30 to 59 | 3,523 | 7,100 | 95.9% | 4,082 | 16,816 | 94.5% |
| 60 and older | 1,274 | 2,268 | 96.8% | 1,365 | 5,168 | 94.6% |
| Totals | 7,078 | 13,694 | 95.4% | 7,913 | 31,786 | 93.7% |

| Race | June | | | August | | |
|------------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Caucasian | 5,949 | 10,480 | 95.7% | 6,668 | 24,245 | 94.4% |
| African American | 936 | 2,867 | 94.7% | 1,085 | 6,912 | 91.2% |
| Asian | 100 | 229 | 91.7% | 86 | 367 | 98.6% |
| Hispanic | 107 | 194 | 93.3% | 69 | 260 | 89.2% |
| Native American | 3 | 3 | 100.0% | 5 | 2 | 87.9% |
| Totals | 7,095 | 13,773 | 95.4% | 7,913 | 31,786 | 93.7% |

Table 20: Van/minivan seat belt use summary by day and time

| Day of the Week | June | | | August | | |
|-----------------|----------------------------|----------------------|----------------------|----------------------------|----------------------|----------------------|
| | Actual # Obs (vehicles) | Weighted # | Weighted % | Actual # Obs (vehicles) | Weighted # | Weighted % |
| | | of Obs (vehicles) | of SBU (vehicles) | | of Obs (vehicles) | of SBU (vehicles) |
| Sunday | 185 | 322 | 95.9% | 243 | 900 | 96.0% |
| Monday | 202 | 536 | 95.3% | 146 | 683 | 94.1% |
| Tuesday | 181 | 311 | 96.0% | 295 | 1,102 | 93.7% |
| Wednesday | 260 | 510 | 94.0% | 289 | 1,299 | 89.5% |
| Thursday | 257 | 378 | 96.7% | 270 | 871 | 93.4% |
| Friday | 253 | 491 | 96.4% | 274 | 1,077 | 93.2% |
| Saturday | 208 | 217 | 95.9% | 240 | 843 | 89.6% |
| Totals | 1,546 | 2,766 | 95.6% | 1,757 | 6,775 | 92.6% |

| Time of the Day | June | | | August | | |
|-----------------|----------------------------|----------------------|----------------------|----------------------------|----------------------|----------------------|
| | Actual # Obs (vehicles) | Weighted # | Weighted % | Actual # Obs (vehicles) | Weighted # | Weighted % |
| | | of Obs (vehicles) | of SBU (vehicles) | | of Obs (vehicles) | of SBU (vehicles) |
| 7am-8am | 54 | 105 | 99.8% | 15 | 23 | 75.4% |
| 8am-9am | 97 | 174 | 95.9% | 32 | 95 | 98.5% |
| 9am-10am | 167 | 227 | 95.6% | 195 | 764 | 92.9% |
| 10am-11am | 241 | 523 | 96.9% | 250 | 859 | 94.2% |
| 11am-12pm | 213 | 436 | 96.9% | 203 | 954 | 91.8% |
| 12pm-1pm | 232 | 377 | 93.8% | 220 | 854 | 91.9% |
| 1pm-2pm | 171 | 284 | 95.0% | 243 | 1,228 | 94.6% |
| 2pm-3pm | 164 | 390 | 93.9% | 185 | 736 | 91.0% |
| 3pm-4pm | 121 | 147 | 94.5% | 187 | 644 | 93.1% |
| 4pm-5pm | 61 | 45 | 94.8% | 74 | 159 | 95.6% |
| 5pm-6pm | 14 | 23 | 97.3% | 59 | 173 | 79.9% |
| 6pm-7pm | 11 | 27 | 90.9% | 50 | 200 | 91.1% |
| 7pm-8pm | | | | 44 | 84 | 96.2% |
| Total | 1,546 | 2,766 | 95.6% | 1,757 | 6,773 | 92.6% |

Table 21: Van/minivan general demographic seat belt use summary

| Gender | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Male | 1,066 | 1,898 | 95.3% | 1,224 | 4,713 | 92.5% |
| Female | 1,009 | 1,664 | 97.7% | 1,150 | 4,125 | 96.2% |
| Totals | 2,075 | 3,563 | 96.4% | 2,374 | 8,838 | 94.2% |

| Age | June | | | August | | |
|---------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| 0 to 3 | 0 | 0 | 0.0% | 1 | 8 | 0.0% |
| 4 to 15 | 83 | 127 | 98.2% | 85 | 210 | 92.4% |
| 16 to 29 | 323 | 531 | 95.3% | 395 | 1,460 | 91.5% |
| 30 to 59 | 1,303 | 2,281 | 97.0% | 1,514 | 5,844 | 95.7% |
| 60 and older | 355 | 599 | 94.7% | 379 | 1,317 | 91.6% |
| Totals | 2,064 | 3,538 | 96.4% | 2,374 | 8,839 | 94.2% |

| Race | June | | | August | | |
|------------------|---|---|---|---|---|---|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Caucasian | 1,823 | 2,872 | 95.9% | 2,036 | 7,113 | 94.8% |
| African American | 195 | 602 | 98.1% | 253 | 1,429 | 90.5% |
| Asian | 31 | 51 | 100.0% | 33 | 154 | 100.0% |
| Hispanic | 19 | 30 | 100.0% | 45 | 118 | 97.7% |
| Native American | 0 | 0 | 0.0% | 7 | 24 | 83.4% |
| Totals | 2,068 | 3,555 | 96.4% | 2,374 | 8,838 | 94.2% |

Table 22: SUV seat belt use summary by day and time

| Day of the Week | June | | | August | | |
|-----------------|----------------------------|----------------------|----------------------|----------------------------|----------------------|----------------------|
| | Actual # Obs (vehicles) | Weighted # | Weighted % | Actual # Obs (vehicles) | Weighted # | Weighted % |
| | | of Obs (vehicles) | of SBU (vehicles) | | of Obs (vehicles) | of SBU (vehicles) |
| Sunday | 366 | 615 | 92.0% | 376 | 1,269 | 96.0% |
| Monday | 312 | 858 | 94.0% | 213 | 825 | 91.6% |
| Tuesday | 315 | 507 | 97.7% | 418 | 1,619 | 94.4% |
| Wednesday | 398 | 788 | 94.8% | 435 | 1,757 | 92.8% |
| Thursday | 421 | 618 | 95.1% | 412 | 1,229 | 95.9% |
| Friday | 423 | 697 | 94.8% | 380 | 1,399 | 94.0% |
| Saturday | 343 | 465 | 95.9% | 412 | 1,204 | 95.0% |
| Totals | 2,668 | 4,549 | 94.7% | 2,646 | 9,302 | 94.3% |

| Time of the Day | June | | | August | | |
|-----------------|----------------------------|----------------------|----------------------|----------------------------|----------------------|----------------------|
| | Actual # Obs (vehicles) | Weighted # | Weighted % | Actual # Obs (vehicles) | Weighted # | Weighted % |
| | | of Obs (vehicles) | of SBU (vehicles) | | of Obs (vehicles) | of SBU (vehicles) |
| 7am-8am | 71 | 148 | 98.3% | 28 | 42 | 96.7% |
| 8am-9am | 152 | 231 | 94.7% | 38 | 98 | 99.4% |
| 9am-10am | 284 | 418 | 95.8% | 227 | 760 | 93.9% |
| 10am-11am | 378 | 807 | 94.2% | 338 | 1,277 | 93.6% |
| 11am-12pm | 347 | 684 | 95.5% | 348 | 1,403 | 95.3% |
| 12pm-1pm | 402 | 637 | 95.1% | 358 | 1,180 | 94.4% |
| 1pm-2pm | 325 | 518 | 94.1% | 337 | 1,313 | 95.8% |
| 2pm-3pm | 337 | 623 | 93.8% | 274 | 1,094 | 95.6% |
| 3pm-4pm | 192 | 252 | 96.2% | 287 | 932 | 94.7% |
| 4pm-5pm | 121 | 102 | 91.4% | 131 | 278 | 90.7% |
| 5pm-6pm | 43 | 67 | 89.9% | 117 | 262 | 80.0% |
| 6pm-7pm | 16 | 39 | 93.8% | 101 | 442 | 95.0% |
| 7pm-8pm | | | | 62 | 192 | 93.5% |
| Total | 2,668 | 4,549 | 94.7% | 2,646 | 9,273 | 94.3% |

Table 23: SUV general demographic seat belt use summary

| Gender | June | | | August | | |
|---------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Actual # Obs | Weighted # of Obs | Weighted % of SBU | Actual # Obs | Weighted # of Obs | Weighted % of SBU |
| | (Driver and Passenger) |
| Male | 1,561 | 2,591 | 95.4% | 1,606 | 5,605 | 93.1% |
| Female | 1,900 | 3,125 | 95.9% | 1,799 | 6,177 | 97.0% |
| Totals | 3,461 | 5,717 | 95.6% | 3,405 | 11,782 | 95.1% |

| Age | June | | | August | | |
|---------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Actual # Obs | Weighted # of Obs | Weighted % of SBU | Actual # Obs | Weighted # of Obs | Weighted % of SBU |
| | (Driver and Passenger) |
| 0 to 3 | 0 | 0 | 0.0% | 0 | 0 | 0.0% |
| 4 to 15 | 100 | 132 | 95.8% | 81 | 259 | 88.8% |
| 16 to 29 | 787 | 1,284 | 94.2% | 747 | 2,633 | 93.2% |
| 30 to 59 | 2,049 | 3,497 | 96.0% | 2,115 | 7,481 | 95.6% |
| 60 and older | 495 | 761 | 96.4% | 462 | 1,408 | 97.2% |
| Totals | 3,481 | 5,674 | 95.6% | 3,405 | 11,781 | 95.1% |

| Race | June | | | August | | |
|------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| | Actual # Obs | Weighted # of Obs | Weighted % of SBU | Actual # Obs | Weighted # of Obs | Weighted % of SBU |
| | (Driver and Passenger) |
| Caucasian | 3,049 | 4,608 | 95.7% | 3,028 | 9,765 | 95.6% |
| African American | 309 | 931 | 95.1% | 293 | 1,741 | 92.4% |
| Asian | 38 | 69 | 99.1% | 41 | 167 | 97.8% |
| Hispanic | 41 | 71 | 97.2% | 38 | 101 | 94.1% |
| Native American | 2 | 2 | 100.0% | 5 | 7 | 64.4% |
| Totals | 3,439 | 5,681 | 95.6% | 3,405 | 11,781 | 95.1% |

Table 24: Pickup truck seat belt use summary by day and time

| Day of the Week | June | | | August | | |
|-----------------|-------------------------|------------------------------|------------------------------|-------------------------|------------------------------|------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| Sunday | 210 | 341 | 87.6% | 319 | 889 | 91.8% |
| Monday | 276 | 463 | 90.6% | 188 | 581 | 89.6% |
| Tuesday | 255 | 334 | 91.0% | 308 | 977 | 87.6% |
| Wednesday | 370 | 583 | 86.9% | 387 | 1,270 | 88.5% |
| Thursday | 372 | 441 | 85.3% | 357 | 1,020 | 89.5% |
| Friday | 326 | 459 | 91.4% | 366 | 1,065 | 88.9% |
| Saturday | 340 | 273 | 93.0% | 316 | 761 | 92.6% |
| Totals | 2,149 | 2,895 | 89.1% | 2,241 | 6,563 | 89.6% |

| Time of the Day | June | | | August | | |
|-----------------|-------------------------|------------------------------|------------------------------|-------------------------|------------------------------|------------------------------|
| | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) | Actual # Obs (vehicles) | Weighted # of Obs (vehicles) | Weighted % of SBU (vehicles) |
| 7am-8am | 37 | 71 | 94.4% | 29 | 39 | 84.4% |
| 8am-9am | 102 | 138 | 85.7% | 38 | 93 | 92.2% |
| 9am-10am | 254 | 262 | 95.1% | 171 | 564 | 91.5% |
| 10am-11am | 354 | 502 | 90.5% | 314 | 893 | 88.9% |
| 11am-12pm | 311 | 512 | 89.8% | 306 | 935 | 89.7% |
| 12pm-1pm | 283 | 356 | 87.4% | 281 | 826 | 84.6% |
| 1pm-2pm | 274 | 375 | 88.6% | 279 | 925 | 92.2% |
| 2pm-3pm | 263 | 413 | 86.9% | 228 | 760 | 92.9% |
| 3pm-4pm | 163 | 145 | 85.8% | 244 | 676 | 89.1% |
| 4pm-5pm | 71 | 50 | 86.5% | 115 | 169 | 85.1% |
| 5pm-6pm | 19 | 27 | 95.3% | 90 | 225 | 89.1% |
| 6pm-7pm | 18 | 44 | 77.8% | 86 | 331 | 87.0% |
| 7pm-8pm | | | | 60 | 127 | 95.1% |
| Totals | 2,149 | 2,895 | 89.1% | 2,241 | 6,563 | 89.6% |

Table 25: Pickup truck general demographic seat belt use summary

| Gender | June | | | August | | |
|---------------|---|--|--|---|--|--|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Male | 2,198 | 2,976 | 89.1% | 2,286 | 6,650 | 90.1% |
| Female | 504 | 613 | 93.3% | 574 | 1,606 | 96.3% |
| Totals | 2,702 | 3,589 | 89.8% | 2,860 | 8,256 | 91.3% |

| Age | June | | | August | | |
|---------------|---|--|--|---|--|--|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| 0 to 3 | 1 | 1 | 0.0% | 4 | 16 | 47.8% |
| 4 to 15 | 59 | 56 | 94.8% | 52 | 114 | 92.3% |
| 16 to 29 | 563 | 787 | 87.1% | 533 | 1,655 | 90.9% |
| 30 to 59 | 1,656 | 2,182 | 90.8% | 1,848 | 5,368 | 91.7% |
| 60 and older | 452 | 548 | 89.4% | 423 | 1,103 | 90.3% |
| Totals | 2,690 | 3,574 | 89.8% | 2,860 | 8,256 | 91.3% |

| Race | June | | | August | | |
|------------------|---|--|--|---|--|--|
| | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) | Actual # Obs (Driver and Passenger) | Weighted # of Obs (Driver and Passenger) | Weighted % of SBU (Driver and Passenger) |
| Caucasian | 2,580 | 3,312 | 89.5% | 2,723 | 7,644 | 91.5% |
| African American | 83 | 220 | 92.6% | 96 | 508 | 87.5% |
| Asian | 6 | 5 | 100.0% | 4 | 29 | 100.0% |
| Hispanic | 25 | 36 | 100.0% | 29 | 62 | 93.7% |
| Native American | 3 | 6 | 100.0% | 8 | 13 | 97.7% |
| Totals | 2,697 | 3,579 | 89.8% | 2,860 | 8,256 | 91.3% |

Table 26: All vehicle detailed demographic seat belt use summary

| Gender | Age | Race | June | | | August | | |
|-----------------|--------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|----------------|
| | | | Act Total # Obs | Weighted Total # Obs | Weighted % SBU | Act Total # Obs | Weighted Total # Obs | Weighted % SBU |
| Male | 0 to 3 | Caucasian | 3 | 2 | 100.0% | 5 | 17 | 46.1% |
| | | Total | 3 | 2 | 100.0% | 5 | 17 | 46.1% |
| | 4 to 15 | Caucasian | 188 | 232 | 96.6% | 174 | 470 | 85.2% |
| | | African American | 20 | 46 | 87.4% | 19 | 119 | 91.7% |
| | | Asian | 2 | 2 | 100.0% | 5 | 15 | 100.0% |
| | | Hispanic | 1 | 1 | 100.0% | 4 | 9 | 100.0% |
| | | Total | 211 | 281 | 95.2% | 202 | 613 | 87.0% |
| | 16 to 29 | Caucasian | 1,592 | 2,525 | 91.7% | 1,697 | 5,841 | 91.4% |
| | | African American | 278 | 716 | 89.8% | 295 | 1,748 | 85.7% |
| | | Asian | 30 | 57 | 96.7% | 26 | 107 | 100.0% |
| | | Hispanic | 37 | 61 | 97.4% | 60 | 169 | 100.0% |
| | | Native American | 1 | 1 | 100.0% | 1 | 3 | 93.5% |
| | Total | 1,938 | 3,360 | 91.5% | 2,079 | 7,868 | 90.3% | |
| | 30 to 59 | Caucasian | 4,170 | 6,741 | 94.4% | 4,619 | 15,718 | 93.3% |
| | | African American | 415 | 1,289 | 94.9% | 551 | 3,350 | 91.0% |
| | | Asian | 37 | 80 | 89.2% | 31 | 191 | 100.0% |
| | | Hispanic | 68 | 104 | 94.6% | 57 | 144 | 89.7% |
| | | Native American | 1 | 2 | 100.0% | 7 | 14 | 79.0% |
| | Total | 4,691 | 11,576 | 94.5% | 5,265 | 19,417 | 92.9% | |
| | 60 + | Caucasian | 1,308 | 1,940 | 94.0% | 1,300 | 3,995 | 92.9% |
| | | African American | 53 | 175 | 97.5% | 89 | 555 | 82.8% |
| | | Asian | 10 | 17 | 100.0% | 11 | 55 | 100.0% |
| | | Hispanic | 6 | 9 | 78.6% | 2 | 9 | 100.0% |
| Native American | | | | | 1 | 7 | 100.0% | |
| Total | 1,377 | 2,141 | 94.2% | 1,403 | 4,621 | 91.8% | | |
| Total | 8,220 | 17,360 | 93.9% | 8,954 | 32,536 | 92.0% | | |
| Female | 0 to 3 | Caucasian | 2 | 1 | 39.5% | 3 | 25 | 69.8% |
| | | African American | 2 | 6 | 72.2% | | | |
| | | Total | 4 | 7 | 68.4% | 3 | 3 | 69.8% |
| | 4 to 15 | Caucasian | 123 | 154 | 97.6% | 131 | 386 | 96.9% |
| | | African American | 14 | 45 | 100.0% | 15 | 93 | 91.8% |
| | | Asian | 2 | 1 | 100.0% | 4 | 10 | 100.0% |
| | | Hispanic | 3 | 3 | 100.0% | 2 | 9 | 100.0% |
| | | Native American | | | | 1 | 1 | 0.0% |
| | Total | 142 | 203 | 98.1% | 153 | 499 | 96.0% | |
| | 16 to 29 | Caucasian | 1,565 | 2,453 | 94.7% | 1,646 | 5,726 | 94.9% |
| | | African American | 257 | 799 | 95.5% | 216 | 1,216 | 90.7% |
| | | Asian | 33 | 58 | 85.7% | 28 | 97 | 94.8% |
| | | Hispanic | 32 | 73 | 97.4% | 28 | 93 | 85.4% |
| | | Native American | 1 | 1 | 100.0% | 4 | 3 | 56.9% |
| | Total | 1,888 | 3,384 | 94.8% | 1,922 | 7,135 | 94.0% | |
| | 30 to 59 | Caucasian | 3,257 | 5,318 | 95.7% | 3,725 | 12,682 | 96.6% |
| | | African American | 431 | 1,375 | 96.2% | 481 | 3,085 | 95.1% |
| | | Asian | 55 | 118 | 99.5% | 51 | 208 | 98.2% |
| | | Hispanic | 36 | 65 | 97.9% | 28 | 107 | 98.7% |
| | | Native American | 5 | 8 | 100.0% | 9 | 10 | 100.0% |
| | Total | 3,784 | 6,884 | 95.9% | 4,294 | 16,092 | 96.4% | |
| | 60 + | Caucasian | 1,146 | 1,875 | 96.2% | 1,155 | 3,908 | 96.3% |
| | | African American | 38 | 136 | 100.0% | 61 | 426 | 97.6% |
| Asian | | 5 | 15 | 100.0% | 8 | 33 | 100.0% | |
| Hispanic | | 3 | 2 | 100.0% | | | | |
| Native American | | | | | 2 | 10 | 73.2% | |
| Total | 1,192 | 2,028 | 96.5% | 1,226 | 4,377 | 96.4% | | |
| Total | 7,010 | 12,506 | 95.9% | 7,598 | 28,106 | 95.7% | | |

Table 27: Passenger car detailed demographic seat belt use summary

| Gender | Age | Race | June | | | August | | |
|--------------|------------------|------------------|--------------------|-------------------------|-------------------|--------------------|-------------------------|-------------------|
| | | | Act Total # Obs | Weighted Total # Obs | Weighted % SBU | Act Total # Obs | Weighted Total # Obs | Weighted % SBU |
| Male | 0 to 3 | Caucasian | 3 | 3 | 100.0% | 1 | 1 | 0.0% |
| | | Total | 3 | 3 | 100.0% | 1 | 1 | 0.0% |
| | 4 to 15 | Caucasian | 55 | 74 | 94.2% | 65 | 204 | 87.2% |
| | | African American | 11 | 25 | 92.0% | 10 | 80 | 100.0% |
| | | Asian | | | | 3 | 9 | 100.0% |
| | | Hispanic | 1 | 1 | 100.0% | 2 | 7 | 100.0% |
| | | Total | 67 | 100 | 93.7% | 80 | 300 | 91.3% |
| | 16 to 29 | Caucasian | 773 | 1,330 | 92.9% | 877 | 3,178 | 92.2% |
| | | African American | 186 | 505 | 90.7% | 211 | 1,227 | 86.2% |
| | | Asian | 19 | 42 | 95.5% | 19 | 72 | 100.0% |
| | | Hispanic | 24 | 45 | 96.5% | 25 | 91 | 89.4% |
| | | Native American | 1 | 1 | 100.0% | 0 | 0 | 0.0% |
| | | Total | 1,003 | 1,923 | 92.4% | 1,132 | 4,568 | 90.6% |
| | 30 to 59 | Caucasian | 1,498 | 2,753 | 96.3% | 1,653 | 6,250 | 93.8% |
| | | African American | 213 | 682 | 95.1% | 303 | 1,955 | 91.2% |
| | | Asian | 18 | 47 | 81.6% | 15 | 104 | 100.0% |
| | | Hispanic | 30 | 36 | 89.8% | 15 | 52 | 84.3% |
| | | Total | 1,759 | 3,518 | 95.8% | 1,986 | 8,361 | 93.2% |
| | 60 + | Caucasian | 541 | 876 | 96.9% | 579 | 1,973 | 93.4% |
| | | African American | 31 | 108 | 98.1% | 52 | 236 | 85.3% |
| Asian | | 6 | 11 | 100.0% | 8 | 39 | 100.0% | |
| Hispanic | | 4 | 6 | 68.8% | 0 | 0 | 0.0% | |
| Total | | 582 | 1,001 | 96.9% | 639 | 2,248 | 92.4% | |
| Total | | | 3,414 | 6,545 | 95.4% | 3,838 | 15,478 | 92.3% |
| Female | 0 to 3 | Caucasian | 1 | 1 | 100.0% | 2 | 18 | 100.0% |
| | | African American | 2 | 6 | 72.2% | 0 | 0 | 0.0% |
| | | Total | 3 | 7 | 73.5% | 2 | 18 | 100.0% |
| | 4 to 15 | Caucasian | 37 | 47 | 99.5% | 45 | 152 | 92.1% |
| | | African American | 6 | 19 | 100.0% | 8 | 66 | 88.6% |
| | | Asian | 1 | 1 | 100.0% | 2 | 2 | 100.0% |
| | | Hispanic | 1 | 1 | 100.0% | 1 | 8 | 100.0% |
| | | Native American | | | | 1 | 1 | 0.0% |
| | | Total | 45 | 68 | 99.7% | 57 | 229 | 91.3% |
| | 16 to 29 | Caucasian | 918 | 1,546 | 95.6% | 1,011 | 3,693 | 94.8% |
| | | African American | 191 | 581 | 94.0% | 153 | 881 | 88.5% |
| | | Asian | 20 | 44 | 81.2% | 17 | 63 | 92.0% |
| | | Hispanic | 21 | 51 | 96.3% | 12 | 48 | 78.4% |
| | | Native American | 1 | 1 | 100.0% | 1 | 1 | 100.0% |
| | | Total | 1,151 | 2,223 | 94.9% | 1,194 | 4,686 | 93.4% |
| | 30 to 59 | Caucasian | 1,439 | 2,652 | 95.9% | 1,763 | 6,322 | 95.8% |
| | | African American | 255 | 792 | 95.8% | 296 | 2,006 | 95.0% |
| | | Asian | 31 | 69 | 100.0% | 20 | 73 | 100.0% |
| | | Hispanic | 20 | 45 | 97.0% | 14 | 54 | 100.0% |
| | | Native American | 1 | 3 | 100.0% | 3 | 1 | 100.0% |
| Total | | 1,746 | 3,561 | 96.0% | 2,096 | 8,456 | 95.7% | |
| 60 + | Caucasian | 646 | 1,125 | 96.2% | 672 | 2,456 | 96.3% | |
| | African American | 30 | 111 | 100.0% | 52 | 370 | 97.3% | |
| | Asian | 4 | 10 | 100.0% | 2 | 4 | 100.0% | |
| | Hispanic | 3 | 3 | 100.0% | 0 | 0 | 0.0% | |
| | Total | 680 | 1,249 | 96.6% | 726 | 2,830 | 96.4% | |
| Total | | | 3,625 | 7,108 | 95.8% | 4,075 | 16,219 | 95.1% |

Table 28: Van/minivan detailed demographic seat belt use summary

| Gender | Age | Race | June | | | August | | |
|-----------------|--------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|----------------|
| | | | Act Total # Obs | Weighted Total # Obs | Weighted % SBU | Act Total # Obs | Weighted Total # Obs | Weighted % SBU |
| Male | 4 to 15 | Caucasian | 44 | 55 | 95.8% | 42 | 98 | 83.8% |
| | | African American | 4 | 10 | 100.0% | | | |
| | | Asian | | | | 2 | 6 | 100.0% |
| | | Hispanic | | | | 1 | 1 | 100.0% |
| | | Total | 48 | 65 | 96.5% | 45 | 105 | 84.9% |
| | 16 to 29 | Caucasian | 116 | 192 | 93.7% | 159 | 563 | 90.7% |
| | | African American | 24 | 62 | 95.2% | 31 | 205 | 87.1% |
| | | Asian | 3 | 5 | 100.0% | 2 | 8 | 100.0% |
| | | Hispanic | 2 | 4 | 100.0% | 31 | 28 | 95.1% |
| | | Native American | | | | 1 | 3 | 100.0% |
| | Total | 145 | 263 | 94.3% | 224 | 807 | 90.0% | |
| | 30 to 59 | Caucasian | 582 | 978 | 95.8% | 652 | 2,479 | 95.1% |
| | | African American | 64 | 184 | 98.1% | 97 | 522 | 87.7% |
| | | Asian | 9 | 14 | 100.0% | 7 | 48 | 100.0% |
| | | Hispanic | 11 | 18 | 100.0% | 17 | 39 | 96.5% |
| | | Total | 666 | 1,194 | 96.3% | 773 | 3,088 | 93.9% |
| | 60 + | Caucasian | 189 | 332 | 92.1% | 181 | 572 | 90.6% |
| | | African American | 7 | 26 | 90.8% | 16 | 119 | 85.8% |
| | | Asian | 2 | 3 | 100.0% | 1 | 7 | 100.0% |
| | | Hispanic | 1 | 1 | 100.0% | 1 | 8 | 100.0% |
| Native American | | | | | 1 | 7 | 100.0% | |
| Total | 199 | 362 | 92.2% | 200 | 713 | 90.1% | | |
| Total | 1,058 | 1,884 | 95.3% | 1,242 | 4,713 | 92.5% | | |
| Female | 0 to 3 | Caucasian | | | | 1 | 8 | 0.0% |
| | | Total | | | | 1 | 8 | 0.0% |
| | 4 to 15 | Caucasian | | 45 | 100.0% | 35 | 88 | 100.0% |
| | | African American | | 16 | 100.0% | 3 | 8 | 100.0% |
| | | Asian | | | | 2 | 8 | 100.0% |
| | | Total | 0 | 61 | 100.0% | 40 | 104 | 100.0% |
| | 16 to 29 | Caucasian | | 200 | 94.9% | 160 | 518 | 93.3% |
| | | African American | | 62 | 100.0% | 22 | 124 | 93.6% |
| | | Asian | | 3 | 100.0% | 1 | 2 | 100.0% |
| | | Hispanic | | 2 | 100.0% | 5 | 9 | 100.0% |
| | | Native American | | | | 1 | 1 | 0.0% |
| | Total | 0 | 267 | 96.2% | 189 | 654 | 93.2% | |
| | 30 to 59 | Caucasian | | 823 | 97.3% | 638 | 2,247 | 97.9% |
| | | African American | | 225 | 98.8% | 76 | 400 | 95.1% |
| | | Asian | | 27 | 100.0% | 17 | 72 | 100.0% |
| | | Hispanic | | 4 | 100.0% | 8 | 34 | 100.0% |
| | | Native American | | | | 2 | 3 | 100.0% |
| | Total | 0 | 1,079 | 97.7% | 741 | 2,756 | 97.6% | |
| | 60 + | Caucasian | | 232 | 98.4% | 168 | 540 | 93.2% |
| | | African American | | 6 | 100.0% | 8 | 51 | 99.6% |
| Asian | | | | | 1 | 3 | 100.0% | |
| Native American | | | | | 2 | 10 | 73.2% | |
| Total | 0 | 238 | 98.5% | 179 | 604 | 93.5% | | |
| Total | 0 | 1,645 | 97.7% | 1,150 | 4,126 | 96.2% | | |

Table 29: SUV detailed demographic seat belt use summary

| Gender | Age | Race | June | | | August | | |
|--------------|--------------|------------------|-----------------|----------------------|----------------|-----------------|----------------------|----------------|
| | | | Act Total # Obs | Weighted Total # Obs | Weighted % SBU | Act Total # Obs | Weighted Total # Obs | Weighted % SBU |
| Male | 4 to 15 | Caucasian | 51 | 66 | 100.0% | 34 | 101 | 81.3% |
| | | African American | 4 | 10 | 64.3% | 8 | 36 | 72.4% |
| | | Asian | 1 | 1 | 100.0% | 0 | 0 | 0.0% |
| | | Hispanic | | | | 1 | 1 | 100.0% |
| | | Total | 56 | 77 | 95.5% | 43 | 138 | 79.2% |
| | 16 to 29 | Caucasian | 274 | 412 | 96.9% | 275 | 933 | 90.1% |
| | | African American | 49 | 104 | 85.5% | 34 | 219 | 88.8% |
| | | Asian | 7 | 10 | 100.0% | 5 | 27 | 100.0% |
| | | Hispanic | 2 | 1 | 100.0% | 12 | 31 | 100.0% |
| | | Total | 332 | 527 | 94.7% | 326 | 1,210 | 90.3% |
| | 30 to 59 | Caucasian | 807 | 1,271 | 95.5% | 882 | 2,899 | 94.7% |
| | | African American | 96 | 301 | 93.7% | 99 | 593 | 90.4% |
| | | Asian | 8 | 18 | 100.0% | 8 | 36 | 100.0% |
| | | Hispanic | 16 | 30 | 95.4% | 10 | 15 | 88.7% |
| | | Native American | | | | 3 | 4 | 27.0% |
| | | Total | 927 | 1,620 | 95.2% | 1,002 | 3,547 | 94.0% |
| | 60 + | Caucasian | 222 | 306 | 96.2% | 226 | 669 | 96.2% |
| | | African American | 6 | 25 | 100.0% | 8 | 35 | 86.1% |
| | | Asian | 2 | 3 | 100.0% | 1 | 5 | 100.0% |
| | | Total | 230 | 334 | 96.5% | 235 | 709 | 95.7% |
| Total | | | 1,545 | 2,558 | 95.4% | 1,606 | 5,604 | 93.1% |
| Female | 4 to 15 | Caucasian | 27 | 44 | 95.2% | 34 | 102 | 99.9% |
| | | African American | 4 | 10 | 100.0% | 4 | 18 | 100.0% |
| | | Hispanic | 2 | 2 | 100.0% | 0 | 0 | 0.0% |
| | | Total | 33 | 56 | 96.2% | 38 | 120 | 99.9% |
| | 16 to 29 | Caucasian | 392 | 586 | 92.3% | 366 | 1,187 | 95.4% |
| | | African American | 43 | 127 | 98.9% | 36 | 180 | 98.0% |
| | | Asian | 7 | 9 | 100.0% | 9 | 21 | 100.0% |
| | | Hispanic | 7 | 17 | 100.0% | 10 | 36 | 91.9% |
| | | Total | 449 | 739 | 93.7% | 421 | 1,424 | 95.7% |
| | 30 to 59 | Caucasian | 989 | 1,493 | 96.3% | 989 | 3,193 | 97.5% |
| | | African American | 99 | 330 | 97.9% | 103 | 655 | 94.9% |
| | | Asian | 12 | 22 | 97.1% | 14 | 63 | 94.2% |
| | | Hispanic | 12 | 15 | 100.0% | 5 | 18 | 97.5% |
| | | Native American | 2 | 2 | 100.0% | 2 | 4 | 100.0% |
| | | Total | 1,114 | 1,862 | 96.6% | 1,113 | 3,933 | 97.0% |
| | 60 + | Caucasian | 259 | 403 | 96.1% | 222 | 680 | 98.7% |
| | | African American | 5 | 18 | 100.0% | 1 | 5 | 100.0% |
| | | Asian | 1 | 5 | 100.0% | 4 | 14 | 100.0% |
| | | Total | 265 | 426 | 96.3% | 1,340 | 4,632 | 98.7% |
| | Total | | | 1,861 | 3,083 | 95.9% | 2,912 | 10,109 |

Table 30: Pickup truck detailed demographic seat belt use summary

| Gender | Age | Race | June | | | August | | |
|--------------|--------------|------------------|--------------------|-------------------------|-------------------|--------------------|-------------------------|-------------------|
| | | | Act Total # Obs | Weighted Total # Obs | Weighted % SBU | Act Total # Obs | Weighted Total # Obs | Weighted % SBU |
| Male | 0 to 3 | Caucasian | | | | 4 | 16 | 47.8% |
| | | Total | | | | 4 | 16 | 47.8% |
| | 4 to 15 | Caucasian | 38 | 38 | 96.8% | 33 | 67 | 86.9% |
| | | African American | 1 | 1 | 0.0% | 1 | 3 | 100.0% |
| | | Asian | 1 | 1 | 100.0% | | | |
| | | Total | 40 | 40 | 96.1% | 34 | 70 | 87.4% |
| | 16 to 29 | Caucasian | 425 | 582 | 84.6% | 386 | 1,166 | 90.8% |
| | | African American | 19 | 43 | 88.7% | 19 | 98 | 69.1% |
| | | Asian | 1 | 1 | 100.0% | | | |
| | | Hispanic | 9 | 11 | 100.0% | 10 | 20 | 100.0% |
| | | Total | 454 | 637 | 85.2% | 415 | 1,284 | 89.3% |
| | 30 to 59 | Caucasian | 1,271 | 1,701 | 90.1% | 1,432 | 4,090 | 90.4% |
| | | African American | 42 | 122 | 92.5% | 52 | 279 | 97.3% |
| | | Asian | 2 | 1 | 100.0% | 1 | 2 | 100.0% |
| | | Hispanic | 11 | 20 | 100.0% | 15 | 38 | 90.6% |
| | | Native American | 1 | 2 | 100.0% | 4 | 10 | 97.2% |
| | | Total | 1,327 | 1,846 | 90.4% | 1,504 | 4,419 | 90.8% |
| | 60 + | Caucasian | 355 | 422 | 87.8% | 314 | 781 | 90.6% |
| | | African American | 9 | 16 | 100.0% | 13 | 74 | 65.2% |
| | | Asian | | | | 1 | 4 | 100.0% |
| Hispanic | | 1 | 2 | 100.0% | 1 | 1 | 100.0% | |
| Total | | 365 | 440 | 88.3% | 329 | 860 | 88.5% | |
| Total | 2,186 | 2,963 | 89.1% | 2,286 | 6,649 | 90.1% | | |
| Female | 0 to 3 | Caucasian | 1 | 1 | 0.0% | 0 | 0 | 0.0% |
| | | Total | 1 | 1 | 0.0% | 0 | 0 | 0.0% |
| | 4 to 15 | Caucasian | 19 | 17 | 91.7% | 17 | 43 | 100.0% |
| | | Hispanic | | | | 1 | 1 | 100.0% |
| | | Total | 19 | 17 | 91.7% | 18 | 44 | 100.0% |
| | 16 to 29 | Caucasian | 98 | 118 | 94.1% | 109 | 329 | 96.3% |
| | | African American | 5 | 21 | 100.0% | 5 | 30 | 100.0% |
| | | Asian | 2 | 2 | 100.0% | 1 | 11 | 100.0% |
| | | Hispanic | 2 | 2 | 100.0% | 1 | 1 | 0.0% |
| | | Native American | | | | 2 | 1 | 100.0% |
| | | Total | 107 | 143 | 95.1% | 118 | 372 | 96.7% |
| | 30 to 59 | Caucasian | 276 | 313 | 93.3% | 335 | 920 | 95.8% |
| | | African American | 7 | 17 | 88.4% | 6 | 24 | 100.0% |
| | | Hispanic | 1 | 1 | 100.0% | 1 | 1 | 100.0% |
| | | Native American | 2 | 3 | 100.0% | 2 | 2 | 100.0% |
| | | Total | 286 | 334 | 93.1% | 344 | 947 | 95.9% |
| | 60 + | Caucasian | 86 | 108 | 93.4% | 93 | 232 | 96.6% |
| | | Asian | | | | 1 | 12 | 100.0% |
| | | Total | 86 | 108 | 93.4% | 94 | 244 | 96.7% |
| | Total | 499 | 603 | 93.3% | 574 | 1,607 | 96.3% | |

Regression Analysis

Tables 33 and 34 provide the results of the regression modeling. This model identifies statistically significant differences between variables shown in the descriptive statistics section. Statistical significance cannot be assessed from merely looking at the descriptive statistics. For this model, observations for the June and August surveys were combined for a total weighted observation of 87,596 occupants.

As seen in table 33, female occupants were 82% more likely to wear a seat belt than male occupants. Occupants of minivans and SUVs were 16 % and 23% more likely to be belted than occupants of passenger cars, however occupants of pickup trucks were much less likely to wear a seat belt compared to those in passenger cars.

Table 31: Parameter estimates for logistic regression model predicting seat belt usage.

| Parameter | Estimate | Odds Ratio | p-value |
|-----------------------|---|------------|----------|
| Intercept | 2.5701 | | < 0.0001 |
| Female Occupant | 0.6039 | 1.829 | < 0.0001 |
| Van or Minivan | 0.1565 | 1.169 | 0.0005 |
| SUV | 0.2062 | 1.229 | < 0.0001 |
| Pickup Truck | -0.3059 | 0.736 | < 0.0001 |
| Passenger Car | Baseline against which other vehicle types are compared | | |
| Occupant Age 0 to 3 | Not significantly different than the baseline age group | | |
| Occupant Age 4 to 15 | -0.0785 | 0.875 | 0.0052 |
| Occupant Age 16 to 29 | -0.0218 | 0.974 | < 0.0001 |
| Occupant Age 30 to 59 | Baseline against which other age groups are compared | | |
| Occupant Age 60 + | Not significantly different than the baseline age group | | |
| 7:00 am - 8:00 am | 0.6422 | 1.376 | < 0.0001 |
| Monday | 0.0897 | 1.094 | 0.0498 |
| Thursday | 0.1149 | 1.122 | 0.0089 |
| Passenger | -0.1885 | 0.828 | < 0.0001 |
| Observations | | | 31989 |
| Weighted Observations | | | 87596 |

The youngest occupant group had too few observations to assess significance. While the June survey showed that children age 4-15 were the most likely to be belted, when combining with the August survey, these passengers were actually slightly less likely to be belted than occupants age 30 to 59. The same held true for occupants age 16-29. Occupants over 60 years old had similar belt use rates to those of 30-59 year olds.

Occupants of vehicles observed between 7am and 8am were over 30 percent likely to be belted than occupants driving at other times of the day. Drivers on Monday and Thursday were also more likely to be belted than Tuesday, Wednesday, Friday, Saturday or Sunday.

Cell Phone Survey

In addition to seat belt usage, this survey also looked at cell phone usage. Cell phone usage includes hand held devices, hands free devices, and texting. Overall, 8.6% of drivers used a cell phone in one of these capacities during the survey. Tuesday had the highest rate and 8am to 9am and 2pm to 3pm were the most common times.

Table 32: Cell phone use by day and time

| Day of the Week | June | | | August | | |
|-----------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| Sunday | 1,535 | 2,867 | 6.6% | 1,827 | 6,175 | 6.1% |
| Monday | 1,576 | 4,268 | 9.4% | 1,026 | 4,331 | 11.9% |
| Tuesday | 1,433 | 2,539 | 10.5% | 1,952 | 7,683 | 12.0% |
| Wednesday | 1,940 | 3,872 | 8.8% | 2,187 | 9,377 | 11.4% |
| Thursday | 1,913 | 2,747 | 8.3% | 1,976 | 6,535 | 10.1% |
| Friday | 1,912 | 3,372 | 8.6% | 2,054 | 7,672 | 11.2% |
| Saturday | 1,825 | 2,053 | 6.9% | 1,906 | 6,377 | 9.0% |
| Totals | 12,134 | 21,718 | 8.6% | 12,928 | 48,149 | 10.3% |

| Time of the Day | June | | | August | | |
|-----------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| 7am-8am | 394 | 818 | 7.2% | 112 | 172 | 2.0% |
| 8am-9am | 626 | 1,064 | 11.2% | 213 | 596 | 6.2% |
| 9am-10am | 1,329 | 1,935 | 8.5% | 1,294 | 4,795 | 7.9% |
| 10am-11am | 1,810 | 3,799 | 7.6% | 1,733 | 6,446 | 8.9% |
| 11am-12pm | 1,712 | 3,677 | 8.9% | 1,630 | 7,254 | 13.3% |
| 12pm-1pm | 1,726 | 2,936 | 7.9% | 1,723 | 6,591 | 10.6% |
| 1pm-2pm | 1,425 | 2,564 | 9.3% | 1,597 | 6,910 | 9.8% |
| 2pm-3pm | 1,522 | 3,003 | 10.1% | 1,358 | 5,465 | 12.2% |
| 3pm-4pm | 910 | 1,115 | 6.2% | 1,307 | 4,225 | 9.6% |
| 4pm-5pm | 446 | 357 | 6.5% | 654 | 1,286 | 9.8% |
| 5pm-6pm | 137 | 215 | 6.4% | 499 | 1,358 | 10.3% |
| 6pm-7pm | 97 | 235 | 9.3% | 467 | 2,088 | 10.6% |
| 7pm-8pm | | | | 341 | 964 | 7.7% |
| Total | 12,134 | 21,718 | 8.6% | 12,928 | 48,149 | 10.3% |

Descriptive Statistics

As seen in table 32, cell phone usage was most common among Hispanics, followed by African Americans. Vans and minivans were the vehicle type with the highest proportion of cell phone users. A greater proportion of females used cell phones, as did a greater proportion of younger drivers.

Table 33: Cell phone use by vehicle type and demographic information

| Vehicle Type | June | | | August | | |
|--------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| Van/Minivan | 1,546 | 2,766 | 10.5% | 1,757 | 6,775 | 10.9% |
| SUV | 2,772 | 4,549 | 9.6% | 2,646 | 9,301 | 12.1% |
| Pickup Truck | 2,156 | 2,900 | 6.5% | 2,241 | 6,563 | 8.6% |
| Total | 12,181 | 21,602 | 8.6% | 12,928 | 48,146 | 10.3% |

| Gender | June | | | August | | |
|---------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| Female | 5,089 | 9,445 | 10.8% | 7,598 | 28,126 | 11.1% |
| Totals | 12,134 | 21,720 | 8.6% | 16,552 | 60,662 | 10.3% |

| Age | June | | | August | | |
|---------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| 30 to 59 | 7,193 | 13,103 | 8.7% | 9,559 | 35,509 | 10.8% |
| 60 and older | 1,931 | 3,209 | 2.7% | 2,629 | 8,996 | 2.4% |
| Totals | 12,021 | 21,465 | 8.6% | 16,189 | 59,508 | 10.3% |

| Race | June | | | August | | |
|------------------|--------------------------|----------------------------------|---|--------------------------|----------------------------------|---|
| | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) | Actual # Obs (Driver) | Weighted # of Obs (Driver) | Weighted % of Electronic Device Use (Driver) |
| | | | | | | |
| African American | 1,186 | 3,706 | 11.4% | 1,727 | 10,591 | 13.6% |
| Asian | 132 | 278 | 9.0% | 164 | 717 | 12.7% |
| Hispanic | 134 | 256 | 16.1% | 181 | 540 | 8.8% |
| Native American | 7 | 10 | 0.0% | 25 | 46 | 39.1% |
| Totals | 12,048 | 21,558 | 8.6% | 16,552 | 60,661 | 10.3% |

Regression Modeling

Table 34 shows that female drivers are 18% more likely than male drivers to use a cell phone. Drivers of minivans were 1.36 times more likely to use a cell phone than those of passenger cars and drivers of SUVs were also significantly less more to be on a cell phone. There was a clear relationship between age and cell phone use. Drivers age 16-29 were 39% more likely to use a cell phone than drivers age 30-59, while drivers over 60 were 76% less likely to use a cell phone compared to middle aged drivers.

Table 34: Parameter estimates for logistic regression model predicting cell phone usage

| Parameter | Estimate | Odds Ratio | p-value |
|-------------------------|--|------------|----------|
| Intercept | -2.0738 | | < 0.0001 |
| Female Driver | 0.1656 | 1.18 | < 0.0001 |
| Van or Minivan | 0.1658 | 1.361 | < 0.0001 |
| SUV | 0.2463 | 1.279 | < 0.0001 |
| Pickup Truck | Not significantly different than the baseline vehicle type | | |
| Passenger Car | Baseline against which other vehicle types are compared | | |
| Driver Age 16 to 29 | 0.3355 | 1.399 | < 0.0001 |
| Driver Age 30 to 59 | Baseline against which other age groups are compared | | |
| Driver Age 60 + | 1.426 | 0.24 | < 0.0001 |
| African American Driver | 0.1127 | 1.119 | 0.0389 |
| Asian Driver | Not significantly different than the baseline racial group | | |
| Hispanic Driver | 0.4661 | 1.594 | 0.0077 |
| Native American Driver | Not significantly different than the baseline racial group | | |
| Caucasian Driver | Baseline against which other racial groups are compared | | |
| 7:00 am - 8:00 am | -0.548 | 0.578 | < 0.0001 |
| Tuesday | 0.0957 | 1.1 | 0.0084 |
| Thursday | -0.1295 | 0.879 | 0.0013 |
| Saturday | -0.1588 | 0.853 | 0.0003 |
| Sunday | -0.464 | 0.629 | < 0.0001 |
| Passenger in Car | -1.3957 | 0.227 | < 0.0001 |
| Observations | | | 25008 |
| Weighted Observations | | | 69869 |

Among drivers, Hispanics were 59% more likely as other racial groups to use a cell phone. There was no significant difference among Caucasians and Asians. African Americans were slightly more likely to be driving and using a cell phone than Caucasians, but less so than Hispanics. Very few of the Native American drivers observed were using cell phones. Cell phone use was 10% more likely to occur on Tuesday compared with the rest of the week, and much less likely on Saturday and Sunday. Cell phone use was significantly lower between 7am-8am compared with other times of the day.

The greatest effect on cell phone usage is the presence of a passenger. Drivers who were alone in the front of the vehicle were four times more likely to be on a cell phone than drivers with a front seat passenger.

Historical Comparisons

Seat belt use has continued to decline, although overall levels are still quite high. Based on the standard error of 0.43%, this year’s survey results of 94.5% in June and 93.5% in August, although lower than 2010, is not a statistically significant difference based on 95% CI.

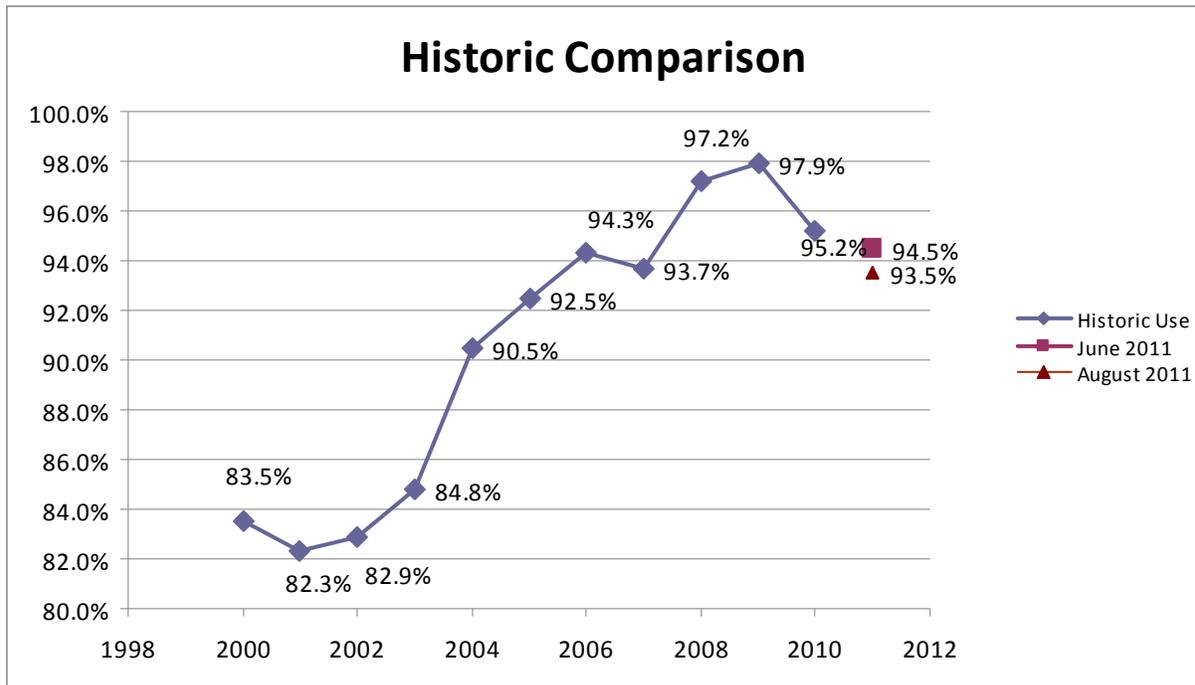


Figure 2: Historical seat belt use with 2011 data

RECOMMENDATIONS

One of the highlights from this year's survey is the increased seat belt use in Wayne County. Historically, this county has been the stratum with the lowest seat belt usage. This year, Stratum 4 (Wayne County) had the highest seat belt usage. Particular attention should be given to any efforts in the last year that may have been effective in increasing seat belt usage as a potential best practice for the rest of the State. Counties of particular concern for low usage during both surveys include Genesee (90.5% and 86.3%), Saginaw (77.6% and 89.4%) and Muskegon (86.6% and 85.3%).

As OHSP addresses cell phone use in vehicles, the survey suggests that younger female drivers should be of particular concern. Much the same way that OHSP develops the *Click it or Ticket* campaign to appeal to young male drivers, campaigns on cell phone use should be created with the younger female driver in mind. Additionally, Hispanics were shown to be much more likely to be driving while on a cell phone. Public service messages regarding cell phones should also be developed with this group as a target audience.

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APPENDIX I: Seat Belt Observations by Intersection (June)

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|-----------|---------|-----------------------------|--------------------|------------------------|----------------------|--------------------------|
| Ingham | 1 | Michigan and Waverly | 137 | 125 | 335 | 306 |
| Ingham | 1 | US 127 and Saginaw | 191 | 178 | 430 | 401 |
| Ingham | 1 | Haslett and Zimmer | 69 | 67 | 35 | 34 |
| Ingham | 1 | Holt and M 52 | 63 | 56 | 10 | 9 |
| Ingham | 1 | US 127 and Cedar | 76 | 74 | 170 | 166 |
| Ingham | 1 | Cavanaugh and Pennsylvania | 111 | 106 | 275 | 263 |
| Ingham | 1 | Hagadorn and Lake Lansing | 106 | 99 | 65 | 61 |
| Ingham | 1 | I 496 and Dunckel | 67 | 66 | 198 | 195 |
| Ingham | 1 | M 43 and M 52 | 68 | 67 | 113 | 111 |
| Ingham | 1 | Tihart and Cornell | 68 | 67 | 8 | 7 |
| Ingham | 1 | Barnes and Eden | 61 | 57 | 10 | 9 |
| Ingham | 1 | M 106 and M 52 | 106 | 92 | 58 | 50 |
| Ingham | 1 | M 43 and Putnam | 71 | 63 | 65 | 58 |
| Ingham | 1 | Onondaga and Rossman | 61 | 51 | 33 | 27 |
| Kalamazoo | 1 | 8th and U Ave | 97 | 92 | 55 | 52 |
| Kalamazoo | 1 | G Ave and 33rd | 229 | 216 | 75 | 71 |
| Kalamazoo | 1 | H Ave and Sprinkle | 70 | 64 | 200 | 183 |
| Kalamazoo | 1 | 8th and Q Ave | 92 | 85 | 30 | 28 |
| Kalamazoo | 1 | M 43 and M 89 | 80 | 75 | 68 | 63 |
| Kalamazoo | 1 | Sprinkle and Center | 64 | 60 | 30 | 28 |
| Kalamazoo | 1 | M 89 and 34th | 57 | 51 | 20 | 18 |
| Kalamazoo | 1 | G and Riverview | 77 | 70 | 93 | 84 |
| Kalamazoo | 1 | M 43 and 9th | 97 | 91 | 158 | 148 |
| Kalamazoo | 1 | Sprinkle and Zylman | 110 | 104 | 80 | 76 |
| Oakland | 1 | 9 Mile and Taft | 74 | 74 | 93 | 93 |
| Oakland | 1 | I 75 and Sashabaw | 69 | 69 | 118 | 118 |
| Oakland | 1 | I 696 and Orchard Lake | 72 | 70 | 443 | 430 |
| Oakland | 1 | I 696 and Woodward | 66 | 65 | 668 | 657 |
| Oakland | 1 | Dixie and Davisburg | 131 | 129 | 140 | 138 |
| Oakland | 1 | Grand river and Taft | 86 | 82 | 210 | 200 |
| Oakland | 1 | Holly and Grange Hall | 161 | 148 | 170 | 156 |
| Oakland | 1 | Northwestern and Middlebelt | 68 | 68 | 333 | 333 |
| Oakland | 1 | 14 Mile and S Main | 59 | 57 | 383 | 370 |
| Oakland | 1 | Clarkston and Balwin | 65 | 63 | 168 | 162 |
| Oakland | 1 | Snell and Rochester | 61 | 56 | 108 | 99 |
| Oakland | 1 | M 10 and 8 Mile | 69 | 67 | 450 | 437 |
| Oakland | 1 | Walton and Lapeer | 90 | 84 | 113 | 105 |
| Washtenaw | 1 | Jackson and I 94 | 113 | 111 | 85 | 83 |
| Washtenaw | 1 | Saline Milan and Mooreville | 109 | 106 | 75 | 73 |
| Washtenaw | 1 | I 94 and Huron | 58 | 51 | 455 | 400 |
| Washtenaw | 1 | Miller and N Maple | 73 | 66 | 155 | 140 |
| Washtenaw | 1 | Dixboro and N Territorial | 56 | 56 | 13 | 13 |
| Washtenaw | 1 | I 94 and S State St | 68 | 68 | 273 | 273 |
| Washtenaw | 1 | Austin and Schneider | 63 | 59 | 35 | 33 |
| Washtenaw | 1 | Zeeb and N Territorial | 66 | 61 | 8 | 7 |
| Washtenaw | 1 | Ann Arbor and S Main | 67 | 64 | 380 | 363 |
| Washtenaw | 1 | Geddes and Dixboro | 142 | 135 | 228 | 216 |
| Washtenaw | 1 | Mooreville and Stoney Creek | 60 | 60 | 55 | 55 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|----------------|----------------|------------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Bay County | 2 | Adams and Kockville | 93 | 87 | 30 | 28 |
| Bay County | 2 | M 61 and M 30 | 72 | 71 | 43 | 42 |
| Bay County | 2 | Munger and M 15 | 67 | 61 | 43 | 39 |
| Bay County | 2 | Pinconning and I 75 | 68 | 61 | 33 | 29 |
| Eaton | 2 | Nixon and Willow | 105 | 101 | 38 | 36 |
| Eaton | 2 | Royston and Island Hwy | 69 | 63 | 30 | 27 |
| Eaton | 2 | Washington and Lawrence | 66 | 57 | 33 | 28 |
| Eaton | 2 | M 43 and Canal | 82 | 76 | 155 | 144 |
| Eaton | 2 | Kalamo and Battle Creek | 65 | 59 | 10 | 9 |
| Eaton | 2 | M 43 and M 50 | 108 | 102 | 50 | 47 |
| Eaton | 2 | Battle Creek and Ainger | 67 | 56 | 13 | 10 |
| Grand Traverse | 2 | M 72 and US 31 | 118 | 111 | 400 | 376 |
| Jackson | 2 | Wolf Lake and Cady | 67 | 65 | 18 | 17 |
| Jackson | 2 | Michigan and US 127 | 73 | 71 | 113 | 109 |
| Jackson | 2 | Michigan and Lake | 69 | 66 | 73 | 69 |
| Jackson | 2 | US 127 and Page | 99 | 97 | 55 | 54 |
| Jackson | 2 | Rosehill and Elm | 67 | 61 | 28 | 25 |
| Kent | 2 | US 131 and 10 Mile | 165 | 150 | 113 | 102 |
| Kent | 2 | 14 Mile and Harvard | 69 | 56 | 5 | 4 |
| Kent | 2 | 4 Mile and Walker | 138 | 127 | 108 | 99 |
| Kent | 2 | US 131 and 68th | 86 | 74 | 48 | 41 |
| Kent | 2 | Myers Lake and 17 Mile | 93 | 85 | 40 | 37 |
| Kent | 2 | US 131 and 84th | 117 | 109 | 203 | 189 |
| Kent | 2 | Sparta Ave and Ball Creek Rd | 110 | 95 | 18 | 15 |
| Kent | 2 | Wabasis and 10 Mile | 67 | 61 | 5 | 5 |
| Macomb | 2 | 27 Mile and Romeo Plank | 68 | 68 | 38 | 38 |
| Macomb | 2 | I-696 and Groesbeck | 65 | 63 | 98 | 95 |
| Macomb | 2 | 22 Mile and Heydenreich | 57 | 51 | 143 | 128 |
| Macomb | 2 | 34 Mile and Van Dyke | 70 | 67 | 33 | 31 |
| Macomb | 2 | Jefferson and Martin | 59 | 58 | 65 | 64 |
| Macomb | 2 | Moravian and Harrington | 52 | 47 | 120 | 108 |
| Macomb | 2 | 23 Mile and Van Dyke | 54 | 48 | 315 | 280 |
| Midland | 2 | Badour and Pine River | 57 | 52 | 30 | 27 |
| Midland | 2 | Coleman and Redstone | 67 | 55 | 5 | 4 |
| Midland | 2 | M-20 and Homer | 60 | 56 | 203 | 189 |
| Midland | 2 | Redstone and 11 Mile | 67 | 61 | 15 | 14 |
| Midland | 2 | Curtis and Lake Sanford | 83 | 80 | 13 | 12 |
| Monroe | 2 | Ostrander and Plank | 56 | 48 | 23 | 19 |
| Monroe | 2 | Telegraph and Seventh | 114 | 104 | 143 | 130 |
| Monroe | 2 | US-23 and Plank | 69 | 62 | 20 | 18 |
| Monroe | 2 | Ann Arbor and Tecumseh | 68 | 68 | 210 | 210 |
| Monroe | 2 | Dunbar and Hull | 63 | 63 | 35 | 35 |
| Monroe | 2 | US-23 and US-223 | 71 | 65 | 60 | 55 |
| Ottawa | 2 | 104th and Quincy | 77 | 72 | 23 | 21 |
| Ottawa | 2 | Lake Michigan and US-31 | 97 | 94 | 233 | 225 |
| Van Buren | 2 | CR-380 and CR-681 | 76 | 73 | 25 | 24 |
| Van Buren | 2 | M-51 and CR-352 | 86 | 83 | 120 | 116 |
| Van Buren | 2 | CR-681 and CR-384 | 65 | 61 | 8 | 7 |
| Van Buren | 2 | I-196 and Phoenix Rd | 101 | 95 | 58 | 54 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|------------|---------|---------------------------------|--------------------|------------------------|----------------------|--------------------------|
| Allegan | 3 | US 131 and 135th | 121 | 117 | 135 | 131 |
| Allegan | 3 | M 89 and US 131 | 142 | 130 | 80 | 73 |
| Allegan | 3 | M 89 and Main | 94 | 90 | 43 | 41 |
| Allegan | 3 | 30th and 128th | 68 | 65 | 28 | 26 |
| Berrien | 3 | Lakeside and Union Pier | 81 | 74 | 28 | 25 |
| Berrien | 3 | Nickerson and Pipestone | 70 | 63 | 75 | 68 |
| Berrien | 3 | I-94 and M-139 | 118 | 105 | 128 | 113 |
| Calhoun | 3 | 15 Mile and Michigan Ave | 63 | 55 | 25 | 22 |
| Calhoun | 3 | I-94 and Capital Ave | 75 | 70 | 243 | 226 |
| Calhoun | 3 | Evanston and Michigan | 82 | 76 | 90 | 83 |
| Calhoun | 3 | Beckley Rd and Capital Ave | 127 | 118 | 248 | 230 |
| Clinton | 3 | M-21 and Lowell | 65 | 59 | 3 | 2 |
| Clinton | 3 | M-21 and Shepardsville | 66 | 60 | 28 | 25 |
| Clinton | 3 | Main and Westphalia | 75 | 68 | 35 | 32 |
| Clinton | 3 | Hyde and Welling | 61 | 53 | 13 | 11 |
| Clinton | 3 | Clark and Upton | 68 | 64 | 20 | 19 |
| Genesee | 3 | M-57 and I-75 | 116 | 114 | 348 | 342 |
| Genesee | 3 | N Elms and Beacher | 91 | 87 | 123 | 117 |
| Genesee | 3 | Flushing and Bellenger | 148 | 114 | 203 | 156 |
| Genesee | 3 | I-475 and Court | 107 | 100 | 105 | 98 |
| Genesee | 3 | Grand Blanc and Duffield | 60 | 52 | 35 | 30 |
| Genesee | 3 | M-57 and Vassar | 63 | 59 | 60 | 56 |
| Ionia | 3 | Bridge and State | 113 | 105 | 153 | 142 |
| Ionia | 3 | Cross and Main | 82 | 73 | 38 | 33 |
| Isabella | 3 | Winn and Blanchard | 83 | 78 | 23 | 21 |
| Lapeer | 3 | Otter Lake and Klam | 66 | 61 | 38 | 35 |
| Lapeer | 3 | M-24 and Coulter Rd | 65 | 58 | 80 | 71 |
| Lenawee | 3 | Clinton Macon and Tecumseh | 55 | 50 | 18 | 16 |
| Lenawee | 3 | M-50 and Pentecost Hwy | 75 | 69 | 23 | 21 |
| Lenawee | 3 | US-12 and Brooklyn | 67 | 65 | 33 | 32 |
| Livingston | 3 | Old US-23 and M-59 | 61 | 61 | 178 | 178 |
| Livingston | 3 | M-36 and M-106 | 73 | 68 | 70 | 65 |
| Livingston | 3 | Grand River and Pleasant Valley | 134 | 119 | 75 | 67 |
| Livingston | 3 | Grand River Rd and Kensington | 85 | 83 | 105 | 103 |
| Livingston | 3 | US-23 and Clyde | 70 | 63 | 33 | 29 |
| Livingston | 3 | M-36 and Dexter | 114 | 103 | 165 | 149 |
| Marquette | 3 | M-95 and Cr-LG | 71 | 62 | 5 | 4 |
| Marquette | 3 | Washington and McClellan | 107 | 101 | 215 | 203 |
| Montcalm | 3 | Sidney and Crystal | 63 | 60 | 43 | 40 |
| Montcalm | 3 | Condensary and Crystal | 66 | 61 | 10 | 9 |
| Montcalm | 3 | M-91 and Sidney | 115 | 100 | 133 | 115 |
| Muskegon | 3 | Ravenna Hts. And Maple Rd | 69 | 62 | 38 | 34 |
| Muskegon | 3 | Ravenna Hts. And Blackmer | 77 | 64 | 23 | 19 |
| Muskegon | 3 | Ravenna Hts. And Moorland | 65 | 57 | 15 | 13 |
| Saginaw | 3 | Fergus and Bishop | 55 | 44 | 40 | 32 |
| Shiawassee | 3 | I-69 and M-52 | 79 | 75 | 110 | 104 |
| Shiawassee | 3 | Juddville and Chipman | 63 | 58 | 28 | 25 |
| Shiawassee | 3 | M-52 and Grand River | 60 | 57 | 23 | 21 |
| St. Clair | 3 | I-69 and Riley Centre Rd | 62 | 60 | 30 | 29 |
| St. Clair | 3 | M-19 and lambs Rd | 60 | 57 | 40 | 38 |
| St. Clair | 3 | M-29 and Palms | 57 | 50 | 223 | 195 |
| St. Joseph | 3 | Banker and Klinger | 69 | 67 | 13 | 12 |
| St. Joseph | 3 | US-131 and Millard | 139 | 131 | 235 | 221 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|---------------|----------------|----------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Wayne | 4 | Ecorse and Monroe | 110 | 103 | 235 | 220 |
| Wayne | 4 | Grand River and Schaefer | 54 | 54 | 233 | 233 |
| Wayne | 4 | Jefferson and Randolph | 80 | 79 | 400 | 395 |
| Wayne | 4 | Sumpter and Oakville Waltz | 58 | 58 | 25 | 25 |
| Wayne | 4 | Van Dyke and McNichols | 64 | 62 | 278 | 269 |
| Wayne | 4 | 8 Mile and Randolph | 84 | 82 | 80 | 78 |
| Wayne | 4 | Ford and Sheldon | 61 | 57 | 605 | 565 |
| Wayne | 4 | Warren and Evergreen | 62 | 60 | 150 | 145 |
| Wayne | 4 | I-94 and Harper | 84 | 84 | 488 | 488 |
| Wayne | 4 | Vernier and Lake Shore | 66 | 66 | 238 | 238 |
| Wayne | 4 | 8 Mile and Grand River | 85 | 85 | 225 | 225 |
| Wayne | 4 | Farmington and Plymouth | 71 | 71 | 95 | 95 |
| Wayne | 4 | Greenfield and M-10 | 86 | 83 | 293 | 282 |
| Wayne | 4 | I-96 and Livernois | 72 | 70 | 98 | 95 |
| Wayne | 4 | Eureka and Telegraph | 69 | 67 | 160 | 155 |
| Wayne | 4 | Wayne and Annapolis | 67 | 67 | 173 | 173 |
| Wayne | 4 | Rawsonville and Textile | 71 | 70 | 158 | 155 |
| Wayne | 4 | Sumpter and Main | 65 | 65 | 108 | 108 |
| Wayne | 4 | Ecorse and Haggerty | 64 | 64 | 105 | 105 |
| Wayne | 4 | Eureka and Middlebelt | 68 | 68 | 100 | 100 |
| Wayne | 4 | Huron River and Haggerty | 105 | 104 | 100 | 99 |
| Wayne | 4 | Michigan and Greenfield | 70 | 67 | 328 | 313 |
| Wayne | 4 | Wayne and Wick | 65 | 65 | 123 | 123 |
| Wayne | 4 | Northline and I-75 | 61 | 59 | 83 | 80 |
| Wayne | 4 | Vernier and Mack | 71 | 70 | 250 | 246 |
| Wayne | 4 | Waltz and Willow | 61 | 61 | 43 | 43 |
| Wayne | 4 | Goddard and Fort | 70 | 70 | 70 | 70 |
| Wayne | 4 | Greenfield and Plymouth | 60 | 59 | 268 | 263 |
| Wayne | 4 | I-75 and Southfield | 67 | 66 | 110 | 108 |
| Wayne | 4 | Middlebelt and I-96 | 73 | 72 | 453 | 446 |
| Wayne | 4 | Outer Drive and Rotunda | 55 | 51 | 218 | 202 |
| Wayne | 4 | Huron River and Waltz | 64 | 64 | 75 | 75 |
| Wayne | 4 | Palmer and Lilley | 56 | 55 | 145 | 142 |
| Wayne | 4 | Telegraph and Northline | 62 | 62 | 148 | 148 |
| Wayne | 4 | Woodward and Warren | 78 | 77 | 108 | 106 |
| Wayne | 4 | Geddes and Canton Center | 71 | 69 | 205 | 199 |
| Wayne | 4 | Van Horn and Inkster | 64 | 62 | 100 | 97 |
| Wayne | 4 | Willis and Rawsonville | 66 | 66 | 68 | 68 |
| Wayne | 4 | Greenfield and 9 Mile | 78 | 76 | 593 | 577 |
| Wayne | 4 | McNichols and Evergreen | 67 | 67 | 240 | 240 |
| Wayne | 4 | Vandyke and 7 Mile | 64 | 63 | 158 | 155 |

APPENDIX II: Seat Belt Observations by Intersection (August)

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|-----------|---------|------------------------------|--------------------|------------------------|----------------------|--------------------------|
| Ingham | 1 | Pinconning and I 75 | 59 | 54 | 35 | 32 |
| Ingham | 1 | Munger and M 15 | 114 | 100 | 865 | 759 |
| Ingham | 1 | M 61 and M 30 | 83 | 82 | 152 | 150 |
| Ingham | 1 | Adams and Kockville | 74 | 72 | 119 | 116 |
| Ingham | 1 | Kalamo and Battle Creek | 65 | 59 | 6 | 6 |
| Ingham | 1 | M 43 and Canal | 79 | 72 | 293 | 267 |
| Ingham | 1 | Battle Creek and Ainger | 89 | 80 | 216 | 194 |
| Ingham | 1 | M 43 and M 50 | 96 | 86 | 236 | 212 |
| Ingham | 1 | Royston and Island Hwy | 105 | 99 | 214 | 201 |
| Ingham | 1 | Washington and Lawrence | 156 | 144 | 1101 | 1016 |
| Ingham | 1 | Nixon and Willow | 70 | 59 | 78 | 66 |
| Ingham | 1 | M 72 and US 31 | 63 | 59 | 25 | 23 |
| Ingham | 1 | Michigan and US 127 | 98 | 93 | 260 | 247 |
| Ingham | 1 | Rosehill and Elm | 115 | 107 | 863 | 803 |
| Kalamazoo | 1 | Michigan and Lake | 82 | 80 | 285 | 278 |
| Kalamazoo | 1 | US 127 and Page | 78 | 75 | 45 | 43 |
| Kalamazoo | 1 | Wolf Lake and Cady | 71 | 61 | 251 | 216 |
| Kalamazoo | 1 | US 131 and 68th | 82 | 78 | 292 | 277 |
| Kalamazoo | 1 | US 131 and 10 Mile | 92 | 89 | 181 | 175 |
| Kalamazoo | 1 | Wabasis and 10 Mile | 84 | 74 | 246 | 217 |
| Kalamazoo | 1 | Sparta Ave and Ball Creek Rd | 88 | 86 | 434 | 424 |
| Kalamazoo | 1 | Myers Lake and 17 Mile | 69 | 66 | 247 | 237 |
| Kalamazoo | 1 | US 131 and 84th | 74 | 69 | 64 | 59 |
| Kalamazoo | 1 | 14 Mile and Harvard | 96 | 85 | 246 | 218 |
| Oakland | 1 | 4 Mile and Walker | 124 | 110 | 1202 | 1066 |
| Oakland | 1 | I-696 and Groesbeck | 94 | 90 | 150 | 144 |
| Oakland | 1 | 27 Mile and Romeo Plank | 153 | 142 | 414 | 384 |
| Oakland | 1 | Moravian and Harrington | 166 | 159 | 423 | 405 |
| Oakland | 1 | Jefferson and Martin | 78 | 74 | 170 | 161 |
| Oakland | 1 | 23 Mile and Van Dyke | 115 | 98 | 345 | 294 |
| Oakland | 1 | 22 Mile and Heydenreich | 87 | 84 | 893 | 862 |
| Oakland | 1 | 34 Mile and Van Dyke | 87 | 84 | 1699 | 1641 |
| Oakland | 1 | Curtis and Lake Sanford | 85 | 83 | 334 | 326 |
| Oakland | 1 | Coleman and Redstone | 86 | 80 | 1047 | 974 |
| Oakland | 1 | Redstone and 11 Mile | 87 | 84 | 371 | 358 |
| Oakland | 1 | M-20 and Homer | 134 | 128 | 392 | 375 |
| Oakland | 1 | Badour and Pine River | 91 | 88 | 248 | 240 |
| Washtenaw | 1 | Ann Arbor and Tecumseh | 85 | 85 | 973 | 973 |
| Washtenaw | 1 | Dunbar and Hull | 62 | 60 | 101 | 98 |
| Washtenaw | 1 | US-23 and US-223 | 58 | 58 | 70 | 70 |
| Washtenaw | 1 | Ostrander and Plank | 133 | 120 | 712 | 642 |
| Washtenaw | 1 | Telegraph and Seventh | 110 | 100 | 615 | 559 |
| Washtenaw | 1 | US-23 and Plank | 115 | 114 | 958 | 950 |
| Washtenaw | 1 | Lake Michigan and US-31 | 106 | 101 | 158 | 151 |
| Washtenaw | 1 | 104th and Quincy | 111 | 106 | 425 | 406 |
| Washtenaw | 1 | CR-380 and CR-681 | 81 | 80 | 278 | 274 |
| Washtenaw | 1 | M-51 and CR-352 | 109 | 100 | 147 | 135 |
| Washtenaw | 1 | CR-681 and CR-384 | 62 | 59 | 68 | 65 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|----------------|----------------|------------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Bay County | 2 | Adams and Kockville | 105 | 94 | 152 | 136 |
| Bay County | 2 | M 61 and M 30 | 61 | 58 | 18 | 17 |
| Bay County | 2 | Munger and M 15 | 69 | 62 | 101 | 91 |
| Bay County | 2 | Pinconning and I 75 | 105 | 102 | 245 | 238 |
| Eaton | 2 | Nixon and Willow | 108 | 98 | 68 | 61 |
| Eaton | 2 | Royston and Island Hwy | 171 | 159 | 412 | 383 |
| Eaton | 2 | Washington and Lawrence | 64 | 57 | 38 | 34 |
| Eaton | 2 | M 43 and Canal | 60 | 58 | 102 | 99 |
| Eaton | 2 | Kalamo and Battle Creek | 67 | 61 | 59 | 54 |
| Eaton | 2 | M 43 and M 50 | 69 | 61 | 68 | 60 |
| Eaton | 2 | Battle Creek and Ainger | 65 | 62 | 96 | 91 |
| Grand Traverse | 2 | M 72 and US 31 | 138 | 135 | 1127 | 1103 |
| Jackson | 2 | Wolf Lake and Cady | 98 | 96 | 510 | 500 |
| Jackson | 2 | Michigan and US 127 | 72 | 66 | 91 | 84 |
| Jackson | 2 | Michigan and Lake | 77 | 73 | 161 | 153 |
| Jackson | 2 | US 127 and Page | 96 | 91 | 211 | 200 |
| Jackson | 2 | Rosehill and Elm | 63 | 61 | 69 | 67 |
| Kent | 2 | US 131 and 10 Mile | 106 | 98 | 155 | 143 |
| Kent | 2 | 14 Mile and Harvard | 127 | 119 | 408 | 383 |
| Kent | 2 | 4 Mile and Walker | 60 | 55 | 69 | 63 |
| Kent | 2 | US 131 and 68th | 76 | 66 | 124 | 108 |
| Kent | 2 | Myers Lake and 17 Mile | 105 | 92 | 112 | 98 |
| Kent | 2 | US 131 and 84th | 85 | 80 | 335 | 315 |
| Kent | 2 | Sparta Ave and Ball Creek Rd | 68 | 61 | 20 | 18 |
| Kent | 2 | Wabasis and 10 Mile | 165 | 155 | 345 | 324 |
| Macomb | 2 | 27 Mile and Romeo Plank | 74 | 73 | 245 | 241 |
| Macomb | 2 | I-696 and Groesbeck | 68 | 67 | 66 | 65 |
| Macomb | 2 | 22 Mile and Heydenreich | 145 | 134 | 414 | 383 |
| Macomb | 2 | 34 Mile and Van Dyke | 67 | 59 | 233 | 205 |
| Macomb | 2 | Jefferson and Martin | 131 | 121 | 1017 | 940 |
| Macomb | 2 | Moravian and Harrington | 62 | 53 | 143 | 122 |
| Macomb | 2 | 23 Mile and Van Dyke | 64 | 58 | 19 | 17 |
| Midland | 2 | Badour and Pine River | 75 | 69 | 39 | 36 |
| Midland | 2 | Coleman and Redstone | 71 | 62 | 14 | 12 |
| Midland | 2 | M-20 and Homer | 66 | 61 | 19 | 18 |
| Midland | 2 | Redstone and 11 Mile | 69 | 67 | 575 | 558 |
| Midland | 2 | Curtis and Lake Sanford | 69 | 64 | 41 | 38 |
| Monroe | 2 | Ostrander and Plank | 88 | 87 | 634 | 627 |
| Monroe | 2 | Telegraph and Seventh | 60 | 60 | 47 | 47 |
| Monroe | 2 | US-23 and Plank | 78 | 72 | 252 | 233 |
| Monroe | 2 | Ann Arbor and Tecumseh | 58 | 55 | 52 | 50 |
| Monroe | 2 | Dunbar and Hull | 97 | 90 | 406 | 377 |
| Monroe | 2 | US-23 and US-223 | 76 | 73 | 93 | 90 |
| Ottawa | 2 | 104th and Quincy | 99 | 96 | 656 | 636 |
| Ottawa | 2 | Lake Michigan and US-31 | 74 | 67 | 100 | 90 |
| Van Buren | 2 | CR-380 and CR-681 | 87 | 80 | 121 | 111 |
| Van Buren | 2 | M-51 and CR-352 | 103 | 97 | 291 | 274 |
| Van Buren | 2 | CR-681 and CR-384 | 71 | 63 | 28 | 25 |
| Van Buren | 2 | I-196 and Phoenix Rd | 108 | 102 | 145 | 137 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|---------------|----------------|---------------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Allegan | 3 | 30th and 128th | 70 | 63 | 112 | 101 |
| Allegan | 3 | M 89 and Main | 91 | 87 | 142 | 135 |
| Allegan | 3 | M 89 and US 131 | 98 | 91 | 205 | 190 |
| Allegan | 3 | US 131 and 135th | 124 | 115 | 320 | 297 |
| Berrien | 3 | I-94 and M-139 | 135 | 122 | 349 | 316 |
| Berrien | 3 | Lakeside and Union Pier | 74 | 71 | 80 | 77 |
| Berrien | 3 | Nickerson and Pipestone | 70 | 65 | 211 | 196 |
| Calhoun | 3 | 15 Mile and Michigan Ave | 68 | 65 | 73 | 70 |
| Calhoun | 3 | Beckley Rd and Capital Ave | 111 | 102 | 548 | 504 |
| Calhoun | 3 | Evanston and Michigan | 72 | 68 | 450 | 425 |
| Calhoun | 3 | I-94 and Capital Ave | 99 | 94 | 674 | 640 |
| Clinton | 3 | Clark and Upton | 65 | 61 | 51 | 48 |
| Clinton | 3 | Hyde and Welling | 65 | 55 | 65 | 55 |
| Clinton | 3 | M-21 and Lowell | 66 | 63 | 73 | 69 |
| Clinton | 3 | M-21 and Shepardsville | 65 | 60 | 124 | 114 |
| Clinton | 3 | Main and Westphalia | 66 | 59 | 87 | 78 |
| Genesee | 3 | Flushing and Bellenger | 120 | 94 | 441 | 345 |
| Genesee | 3 | Grand Blanc and Duffield | 65 | 57 | 50 | 44 |
| Genesee | 3 | I-475 and Court | 103 | 97 | 306 | 288 |
| Genesee | 3 | M-57 and I-75 | 110 | 94 | 234 | 200 |
| Genesee | 3 | M-57 and Vassar | 62 | 58 | 101 | 95 |
| Genesee | 3 | N Elms and Beacher | 97 | 86 | 214 | 190 |
| Ionia | 3 | Bridge and State | 103 | 95 | 273 | 252 |
| Ionia | 3 | Cross and Main | 81 | 79 | 133 | 129 |
| Isabella | 3 | Winn and Blanchard | 98 | 87 | 115 | 102 |
| Lapeer | 3 | M-24 and Coulter Rd | 60 | 55 | 61 | 56 |
| Lapeer | 3 | Otter Lake and Klam | 68 | 61 | 27 | 24 |
| Lenawee | 3 | Clinton Macon and Tecumseh | 61 | 55 | 67 | 61 |
| Lenawee | 3 | M-50 and Pentecost Hwy | 65 | 61 | 20 | 18 |
| Lenawee | 3 | US-12 and Brooklyn | 89 | 86 | 128 | 124 |
| Livingston | 3 | Grand River and Pleasant Valley | 149 | 135 | 242 | 219 |
| Livingston | 3 | Grand River Rd and Kensington | 90 | 81 | 426 | 383 |
| Livingston | 3 | M-36 and Dexter | 121 | 114 | 500 | 471 |
| Livingston | 3 | M-36 and M-106 | 78 | 68 | 87 | 76 |
| Livingston | 3 | Old US-23 and M-59 | 95 | 93 | 800 | 783 |
| Livingston | 3 | US-23 and Clyde | 61 | 60 | 72 | 71 |
| Marquette | 3 | M-95 and Cr-LG | 68 | 58 | 34 | 29 |
| Marquette | 3 | Washington and McClellan | 96 | 89 | 403 | 374 |
| Montcalm | 3 | Condensary and Crystal | 70 | 64 | 42 | 38 |
| Montcalm | 3 | M-91 and Sidney | 81 | 71 | 249 | 218 |
| Montcalm | 3 | Sidney and Crystal | 63 | 60 | 202 | 192 |
| Muskegon | 3 | Ravenna Hts. And Blackmer | 77 | 61 | 75 | 60 |
| Muskegon | 3 | Ravenna Hts. And Maple Rd | 62 | 54 | 61 | 53 |
| Muskegon | 3 | Ravenna Hts. And Moorland | 58 | 54 | 45 | 42 |
| Saginaw | 3 | Fergus and Bishop | 66 | 59 | 175 | 156 |
| Shiawassee | 3 | I-69 and M-52 | 142 | 139 | 397 | 389 |
| Shiawassee | 3 | Juddville and Chipman | 65 | 63 | 39 | 38 |
| Shiawassee | 3 | M-52 and Grand River | 62 | 59 | 62 | 59 |
| St. Clair | 3 | I-69 and Riley Centre Rd | 69 | 64 | 307 | 285 |
| St. Clair | 3 | M-19 and lambs Rd | 73 | 68 | 0 | 0 |
| St. Clair | 3 | M-29 and Palms | 66 | 61 | 53 | 49 |
| St. Joseph | 3 | Banker and Klinger | 73 | 64 | 177 | 155 |
| St. Joseph | 3 | US-131 and Millard | 89 | 78 | 805 | 705 |

| County | Stratum | Location | Actual # of Obs | Actual # Belted Obs | Weighted # of Obs | Weighted # Belted Obs |
|---------------|----------------|----------------------------|----------------------------|--------------------------------|------------------------------|----------------------------------|
| Wayne | 4 | 8 Mile and Grand River | 62 | 58 | 608 | 569 |
| Wayne | 4 | 8 Mile and Randolph | 90 | 80 | 144 | 128 |
| Wayne | 4 | Ecorse and Haggerty | 65 | 64 | 307 | 303 |
| Wayne | 4 | Ecorse and Monroe | 127 | 115 | 533 | 483 |
| Wayne | 4 | Eureka and Middlebelt | 95 | 94 | 520 | 514 |
| Wayne | 4 | Eureka and Telegraph | 82 | 81 | 410 | 405 |
| Wayne | 4 | Farmington and Plymouth | 88 | 86 | 481 | 470 |
| Wayne | 4 | Ford and Sheldon | 111 | 109 | 1303 | 1280 |
| Wayne | 4 | Geddes and Canton Center | 76 | 76 | 567 | 567 |
| Wayne | 4 | Goddard and Fort | 73 | 69 | 249 | 236 |
| Wayne | 4 | Grand River and Schaefer | 86 | 75 | 424 | 370 |
| Wayne | 4 | Greenfield and 9 Mile | 89 | 80 | 1594 | 1432 |
| Wayne | 4 | Greenfield and M-10 | 99 | 83 | 785 | 658 |
| Wayne | 4 | Greenfield and Plymouth | 77 | 65 | 456 | 385 |
| Wayne | 4 | Huron River and Haggerty | 97 | 94 | 290 | 281 |
| Wayne | 4 | Huron River and Waltz | 63 | 56 | 133 | 118 |
| Wayne | 4 | I-75 and Southfield | 72 | 70 | 426 | 414 |
| Wayne | 4 | I-94 and Harper | 102 | 98 | 1289 | 1239 |
| Wayne | 4 | I-96 and Livernois | 98 | 81 | 418 | 346 |
| Wayne | 4 | Jefferson and Randolph | 62 | 61 | 998 | 982 |
| Wayne | 4 | McNichols and Evergreen | 65 | 62 | 331 | 316 |
| Wayne | 4 | Michigan and Greenfield | 85 | 81 | 498 | 474 |
| Wayne | 4 | Middlebelt and I-96 | 78 | 75 | 1170 | 1125 |
| Wayne | 4 | Northline and I-75 | 90 | 79 | 425 | 373 |
| Wayne | 4 | Outer Drive and Rotunda | 138 | 129 | 605 | 566 |
| Wayne | 4 | Palmer and Lilley | 72 | 71 | 206 | 203 |
| Wayne | 4 | Rawsonville and Textile | 85 | 84 | 340 | 336 |
| Wayne | 4 | Sumpter and Main | 91 | 91 | 192 | 192 |
| Wayne | 4 | Sumpter and Oakville Waltz | 61 | 61 | 132 | 132 |
| Wayne | 4 | Telegraph and Northline | 88 | 84 | 687 | 656 |
| Wayne | 4 | Van Dyke and McNichols | 76 | 66 | 431 | 374 |
| Wayne | 4 | Van Horn and Inkster | 104 | 102 | 306 | 300 |
| Wayne | 4 | Vandyke and 7 Mile | 64 | 58 | 217 | 197 |
| Wayne | 4 | Vernier and Lake Shore | 90 | 88 | 567 | 555 |
| Wayne | 4 | Vernier and Mack | 86 | 80 | 672 | 625 |
| Wayne | 4 | Waltz and Willow | 66 | 62 | 97 | 91 |
| Wayne | 4 | Warren and Evergreen | 77 | 76 | 366 | 361 |
| Wayne | 4 | Wayne and Annapolis | 79 | 76 | 306 | 294 |
| Wayne | 4 | Wayne and Wick | 64 | 62 | 390 | 378 |
| Wayne | 4 | Willis and Rawsonville | 74 | 71 | 130 | 124 |
| Wayne | 4 | Woodward and Warren | 69 | 66 | 351 | 335 |