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Determination of Traffic Adjustment Factors for Florida's High Tourist Activity Sites

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Final Report

November 2018

PREPARED FOR

Florida Department of Transportation

Center for Urban Transportation Research
University of South Florida
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Determination of Traffic Adjustment Factors for Florida's High Tourist Activity Sites

Final Report

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DISCLAIMER

The opinions, findings, and conclusions expressed in this publication are those of the authors and not necessarily those of the State of Florida Department of Transportation.

UNIT CONVERSION TABLE

APPROXIMATE CONVERSIONS TO SI UNITS

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
LENGTH				
in	inches	25.4	millimeters	mm
ft	feet	0.305	meters	m
yd	yards	0.914	meters	m
mi	miles	1.61	kilometers	km

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
AREA				
in^2	squareinches	645.2	square millimeters	mm^2
ft^2	squarefeet	0.093	square meters	m^2
yd^2	square yard	0.836	square meters	m^2
ac	acres	0.405	hectares	ha
mi^2	square miles	2.59	square kilometers	km^2

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
VOLUME				
fl oz	fluid ounces	29.57	milliliters	mL
gal	gallons	3.785	liters	L
ft^3	cubic feet	0.028	cubic meters	m^3
yd^3	cubic yards	0.765	cubic meters	m^3
NOTE: volumes greater than 1000 L shall be shown in m^3				

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
MASS				
oz	ounces	28.35	grams	g
lb	pounds	0.454	kilograms	kg
T	short tons (2000 lb)	0.907	megagrams (or "metric ton")	Mg (or "t")

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
TEMPERATURE (exact degrees)				
°F	Fahrenheit	5 (F-32)/9 or (F-32)/1.8	Celsius	°C

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
ILLUMINATION				
fc	foot-candles	10.76	lux	lx
fl	foot-Lamberts	3.426	candela/m^2	cd/m^2

SYMBOL	WHEN YOU KNOW	MULTIPLY BY	TO FIND	SYMBOL
FORCE and PRESSURE or STRESS				
lbf	poundforce	4.45	newtons	N
lbf/in^2	poundforce per square inch	6.89	kilopascals	kPa

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16. Abstract

Florida experiences heavy traffic demand on its roadways during the peak tourist season, especially near popular tourist destinations such as beaches and coastal areas and on weekends and holidays; thus, their monthly traffic adjustment factors are likely to be different from other roadways in Florida. The major objectives of this research were to determine accurate monthly traffic adjustment factors for roadways leading to major tourist/beach attraction areas in Florida. FDOT collects either continuous traffic data through permanently-installed traffic counters or short-term traffic data through temporarily-placed traffic counters. FDOT transmitted hourly traffic count data from July 2017–June 2018 collected through these counters at count station sites to researchers at the Center for Urban Transportation Research (CUTR) at the University of South Florida. Eight coastal locations comprising 12 count station sites with high tourist activity in Florida were selected for analysis and determination of monthly traffic adjustment factors. Before the evaluation of adjustment factors, select analysis site were visited, and traffic count data spot-checks were conducted for traffic count validation purposes during peak season hours, where sites with heavy queue back-ups might have traffic count discrepancies due to the limitations of traffic counting hardware. In this validation study, it was determined that most FDOT counts and manual (video) traffic counts were in agreement, with some minor deviations that were deemed acceptable. However, it should be noted that both permanent and temporary count stations undercounted vehicles once bumper-to-bumper traffic on these counters was observed at these tourist/beach locations. After the calculation and comparison of monthly traffic adjustment factors for each site, it was determined that factors computed by the USF research team were found highly comparable with the monthly traffic adjustment factors posted by FDOT, where data were available.

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EXECUTIVE SUMMARY

Currently, Florida and other major tourist destination states struggle with heavy traffic demand on their roadways during peak tourist seasons, especially near popular destinations. Because of this heavy traffic demand, Annual Average Daily Traffic (AADT) and seasonal, monthly, weekday, and weekend traffic adjustment factors on roadways leading to these destinations need to be reexamined and revised, as they are likely different from those for general roadways. The main goal of this study was to reexamine monthly traffic adjustment factors on roadways leading to selected popular beach locations in Florida.

The Florida Department of Transportation (FDOT) uses traffic-monitoring site data throughout the state to record traffic data and process and analyze it to develop traffic adjustment factors. These traffic-monitoring sites are classified into two categories— telemetered permanent count station sites and portable count station sites. Florida has more than 300 telemetered permanent count station sites that collect continuous traffic data through permanently-installed traffic counters; portable count stations are short-term and are placed temporarily at specific locations to record traffic data. As a part of this study, the research team analyzed 12 count station sites—9 permanent and 3 temporary—in 8 coastal areas of Florida.

As a first step, to validate the effectiveness of traffic-counting hardware used at count station sites, a validation study was conducted to spot-check traffic counts obtained from FDOT (through the counters) with manual (video) counts. The research team visited roadways leading to select nine count station sites at popular beach locations and video-recorded the traffic volume in both directions continuously, from 8:00 AM to 4:00 PM on weekend days, when back-ups and peak volume are normally observed. After reviewing the observed results during the field visits and traffic count data spot-checks, it was determined that most FDOT counts and manual (video) traffic counts were comparable, with some minor deviations that were deemed acceptable. However, it should be noted that sites with heavy queue back-ups and standstill traffic at count stations showed traffic count discrepancies between the FDOT counts and the manual (video) counts, which was correlated to the limitations of some traffic-counting hardware when these traffic conditions were present.

As a major part of this study, the data recorded by FDOT through the traffic monitoring sites were sent to researchers at the Center for Urban Transportation Research (CUTR) for a period of 12 months, from July 2017 to June 2018, for the 12 analysis count station sites. For permanent count station sites, hourly counts for each day of the analysis period were recorded and sent to CUTR. For portable, temporary count station sites, hourly counts were recorded for seven days of each month of the analysis period and sent to CUTR. These data were carefully processed to account for missing and/or erroneous data and later analyzed using data visualization tools and charts to gain insights about traffic trends at tourist/beach locations. Overall, the analysis conducted suggested a correlation between weather conditions and traffic volume at the coastal sites; in the spring and summer seasons, during March, April, May, June, and July, these sites were observed to experience heavier traffic volumes, as expected. Also, Saturdays were generally the busiest among most sites, and traffic volumes were found to increase as the week progressed from Monday to Saturday. It should be noted that where data were not available, assumptions and approximations were made by the CUTR research team, as described in this report.

After analysis, for each count station site, along with AADT, Annual Average Weekday Daily Traffic (AAWDT), Monthly Average Daily Weekday Traffic (MADW), and Monthly Average Daily Traffic (MADT), three types of adjustment factors were calculated: K Factor, D Factor, and monthly adjustment factors. These factors, computed by CUTR and compared with the factors available on FDOT's website, were found to be in close agreement, where data were available.

As noted, manual (video) count spot-checks were conducted by the CUTR research team on traffic counts obtained through FDOT's counters, and it was observed that both permanent and temporary counters undercounted vehicles once bumper-to-bumper traffic was observed. Therefore, it is recommended that traffic count multiplier factors be developed for these specific high tourist areas via a follow-up study to be applied to peak hours to adjust and account for this undercounting phenomenon.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 Introduction

Florida experiences heavy traffic on roadways that lead to popular tourist destinations such as beaches and coastal areas, especially on weekends and holidays; thus, their traffic adjustment factors are likely to be different from other roadways in Florida. The major goal of this project was to determine accurate traffic adjustment factors for roadways leading to major tourist attraction areas in Florida.

1.1 Background

One of the main goals of a statewide traffic monitoring program is to estimate the Annual Average Daily Traffic (AADT) for roadway segments within the state as accurately as possible. Currently, Florida and other major tourist destination states struggle with the heavy amount of traffic demand on their roadways during peak tourist seasons, especially near popular tourist destinations such as beaches and coastal areas. To accurately account for this heavy traffic demand on roadways near these popular destinations, AADT as well as seasonal, monthly, weekday, and weekend traffic adjustment factors on the roadways leading to these tourist attraction areas need to be reexamined and revised, as they are likely different from those for general roadways. For this effort, collecting and storing accurate traffic volume and vehicle classification counts was necessary.

1.2 Project Objectives

The major goal of this project was to determine the traffic adjustment factors for each analysis site (roadways leading to major tourist attraction areas) for a 12-month period by accurately collecting, storing, and analyzing traffic count data in the vicinity of the analysis sites. A basic assumption was that seasonal variability and traffic characteristics of short-term and permanent counts are similar for sites in close proximity to one another. The traffic counts were collected by the Florida Department of Transportation (FDOT) and provided to researchers at the Center for Urban Transportation Research (CUTR) at the University of South Florida (USF) in spreadsheet format for analysis. In addition, the CUTR research team visited each site and conducted traffic count data spot-checks for traffic count validation purposes during peak season hours (Saturdays for eight hours) where sites with heavy queue back-ups might result in traffic count discrepancies due to the limitations of traffic counting hardware. To achieve this goal, the specific project objectives included the following:

- Conduct literature review on current FDOT traffic adjustment factors, other studies, etc.
- Visit select analysis sites and conduct traffic count data spot-checks for traffic count validation purposes during peak season hours where sites with heavy queue back-ups might result in traffic count discrepancies due to the limitations of the traffic counting hardware.
- Analyze monthly traffic data to be collected (traffic counts conducted by FDOT and sent to CUTR) in the vicinity of the analysis sites to determine traffic adjustment factors for each analysis site for a 12-month period.
- Generate a final report with updated/revised adjustment factors for the analysis sites.

2 Literature Review

This section presents an extensive literature review of current FDOT traffic adjustment factors, technical reports, academic papers, and studies related to traffic adjustment factors along with discussion on beach/coastal sites with high tourist activities. The section is divided into three major components: (1) Understanding Seasonal Traffic Adjustment Factors, (2) Florida's Current Traffic Adjustment Factor Studies, and (3) Discussion on Beach/Coastal Sites with High Tourist Activity.

2.1 Understanding Seasonal Traffic Adjustment Factors

This subsection consists of an introductory background on traffic adjustment factors and discussion on continuous (permanent) and short-term (temporary) traffic monitoring sites.

2.1.1 Background

FDOT collects and stores a broad range of traffic data for analysis to help highway engineers maintain and design safe, state-of-the-art, and cost-effective facilities. Traffic data collection efforts may include traffic volume and vehicle classification counts, speed surveys, etc. FDOT's Transportation Data and Analytics (TDA) is responsible for collecting, processing, and storing traffic data from permanent count stations throughout Florida. Annual data processing includes factor development and assignments and application of appropriate factors to traffic counts. AADT and K, D, and T factors (see Glossary in Appendix A) are estimated for every section break of the State Highway System (SHS). Unless otherwise stated, K and D factors are for the 30th highest hour of the year based on data from continuous monitoring sites.

2.1.2 Continuous Monitoring Sites

The TDA office collects continuous traffic data through permanently-installed traffic counters located throughout the state. These Telemetered Traffic Monitoring sites continuously record the distribution and variation of traffic flow by hour of day and day of week from year to year and transmit the daily data to TDA via wireless communication. The permanent counters provide users with day-to-day traffic information throughout the year.

Permanent traffic counters use inductive loops to detect vehicles and record traffic volumes for each hour; a single loop is required to collect traffic volume data. Several count sites throughout the state have non-intrusive traffic counters that use microwave and magnetic sensors to collect vehicle weight data. The continuous count data are processed by the TDA office to develop Monthly Average Daily Traffic (MADT), Annual Average Daily Traffic (AADT), and monthly factors. FDOT uses Standard K for publishing and planning purposes.

MADT is calculated as follows:

- Separate processing is done for each direction of travel at each site.
- Only the daily records that have flags—N (Normal), A (Atypical), H (Holiday), and S (Special day)—are taken into consideration. Any records with tag B (Bad) are discarded.
- For each month, all specific days are averaged.

- MADT is computed by taking the average of seven days of the week. If the average of a Saturday or Sunday is not available, MADT is not considered, but if both Saturday and Sunday and a weekday's average are available, then the MADT is counted based on the available days.

AADT is computed as follows:

- The monthly averages for each day of the week are averaged to generate the annual day of week average.
- The seven annual average day-of-week values are averaged to generate the AADT.
- The directional annual average daily traffic volumes are summed to generate the AADT for a specific station.
- AADT = ADT × Seasonal Adjustment Factor × Axle Correction Factor.
- The ADT multiplied by seasonal adjustment factors and the axle adjustment factor for the site will provide a statistically-accurate count for the entire year at that site—the AADT.

Seasonal adjustment factors are calculated as follows:

- Each direction of travel is processed separately at each site.
- MADT is estimated for the months for which there is a lack of data. Missing MADT will not be calculated for stations with missing data for two or more consecutive months.
- Monthly factors are calculated by dividing AADT by MADT (MSF= AADT/MADT).
- For each station, the directional monthly factors are averaged together. For stations having only one good direction of data, those monthly factors are used for the station.

Each year, changes in the number and type of counts result in the need to update the Assignment of Stations to Categories and the Assignment of Categories to Counts. FDOT Districts work closely with the FDOT Central Office to make certain the correct assignments are made and the Inventory Database is updated. Seasonal and Axle factors (for road tube counters) are applied to short-term counts to estimate AADT.

Assignments to categories can be made any time throughout the count-year cycle by using the Seasonal or Axle Factor Category Assignment screens available under the FCAT tab on the mainframe TCI application.

It is recommended that more than one count station be assigned to each factor category so a fair representation of the traffic's seasonal flow and volume can be estimated. Seasonal categories have been designed to be county-specific, with at least one Seasonal countywide category for each county and one Seasonal Factor category for each interstate roadway within each county. Additional Seasonal Factor categories can be developed to handle geographic differences within a single county (e.g., beach traffic has different characteristics than urban traffic).

Axle Factor categories are handled similar to Seasonal Factor categories, except both TTMS and PTMS classification stations can be assigned to Axle Factor categories. Axle Factor categories are more highway-specific than Seasonal Factor categories—an Axle Factor category must be developed for each highway section; this results in considerably more Axle Factor categories than Seasonal Factor categories. The Central Office derives Axle factors from classification counts by dividing the total volume of

vehicles by half the number of axles present on those same vehicles. This results in a factor that is always less than 1.00 (although it may round to 1.00 if there are few trucks in the traffic stream).

2.1.3 Short-term Monitoring Sites

Short-term monitoring sites use automatic traffic recorders that are placed temporarily at specific locations throughout the state to record the distribution and variation of traffic flow. Toll data also are collected to supplement volume counts. These counts are conducted one or more times per year as deemed necessary to capture seasonal truck variation.

The data collected at the continuous count stations are used to develop the traffic adjustment factors. These adjustment factors are also applied to the short-term counts to estimate AADT, K, D, and T. Actual AADT, D, and T are measured at continuous counters; at all other locations, AADT, D, and T are estimated. Axle Correction, Percent Trucks, and Seasonal Volume factors are applied to short-term traffic counts taken by portable axle and vehicle counters to estimate AADT, D, and T for every section break of the SHS.

2.2 Florida's Current Traffic Adjustment Factor Studies

As part of an ongoing evaluation of intersection alternatives along US 41 in Sarasota, FDOT collected peak season vehicular volume data during February and March 2017. One purpose for this data collection was to allow actual peak-season volume conditions to be compared with FDOT Seasonal factor tables. This section of the document outlines the findings from the available data.

Seven-day volume counts were collected during the peak season along US 41, Gulfstream Ave, and Fruitville Rd in Sarasota during the 2017 peak season (February and March). The average volume over the seven-day count period was calculated and axle-adjusted to account for heavy vehicles. These peak-season data were reviewed against the 2016 FDOT collected counts along US 41 between Fruitville Rd and Gulfstream Ave (Count Site 17-5030) and along Gulfstream Ave between Sunset Ave and US 41 (Count Site 17-5031).

As shown in Table 1, part of the results of the ongoing evaluations of intersection alternatives study were consolidated. The 2016 AADT from FDOT sites 17-5030 and 17-5031 were 39,500 and 35,500, respectively. For the two locations evaluated, the estimated 2016 peak season volumes were approximately 2,700–2,800 daily vehicles lower than the actual peak season volumes collected in 2017 (approximately 6–7% lower). General annual traffic fluctuations over the course of a year likely contributed to this volume difference; however, it is possible that the accuracy of the Seasonal factor tables also contributed.

Table 1. Peak-Season Volume Summary of US 41, Sarasota

Location	FDOT Site	Seasonal Factor	2016 AADT	Estimated 2016 Peak Season Volume	Actual 2016 Peak Season Volume	% Difference
US 41 between Fruitville Rd and Gulfstream Ave	17-5030	0.87	39,500	45,400	48,200	6.20%
Gulfstream Ave between Sunset Ave and US 41	17-5031	0.88	35,500	40,300	43,000	6.70%

Based upon the information presented in Table 1, the Seasonal factors appear to be potentially under-estimating the magnitude of daily volume increases during the peak season. The following are general potential implications for traffic analyses:

- When raw data are collected during the peak season and converted to AADT using the existing Seasonal Factor (SF) tables, the resulting calculated AADT would potentially be higher than the actual AADT conditions. This would result in slightly conservative analyses.
- Without additional data for the remainder of the year, conclusions cannot be made regarding the relative accuracy of the existing Seasonal Factor tables for those months.
- The daily volume trends during the peak season do not appear to apply to peak-hour volumes. Peak-hour volumes measured during the peak season were found to be generally comparable to volumes previously collected outside the peak season in November and January due to volumes being spread throughout more of the day during the peak season. This reflects the constrained conditions of the study area corridors.

Figure 1 and Figure 2 show the AADT data for US 41 between Fruitville Rd and Gulfstream Ave and Gulfstream Ave between Sunset Ave and US 41, respectively. Figure 3 shows the 2016 Peak Season Factor Category report from FDOT for Gulfstream Ave.

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 5030 - SR 45/US 41, NORTH OF SR 789/GULFSTREAM AVE

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2016	39500 C	N 20000	S 19500	9.00	52.60	3.00
2015	38500 C	N 19000	S 19500	9.00	52.80	3.00
2014	35500 C	N 17500	S 18000	9.00	52.50	3.10
2013	37500 C	N 18500	S 19000	9.00	52.40	3.00
2012	36500 C	N 17500	S 19000	9.00	52.70	3.10
2011	40000 C	N 19000	S 21000	9.00	53.10	2.80
2010	40500 C	N 19000	S 21500	10.54	52.03	2.70
2009	41500 C	N 20000	S 21500	10.59	53.04	2.70
2008	37000 C	N 18500	S 18500	10.48	52.68	3.20
2007	37500 C	N 18000	S 19500	10.00	54.96	2.50
2006	37000 C	N 18000	S 19000	9.78	53.48	2.70
2005	35000 C	N 17500	S 17500	9.90	55.00	4.80
2004	41500 C	N 20000	S 21500	9.80	53.60	4.80
2003	39000 C	N 19000	S 20000	9.80	53.40	4.80
2002	36000 F	N 17500	S 18500	10.00	51.50	2.90
2001	35000 C	N 17000	S 18000	10.20	52.10	2.20

Figure 1. 2016 AADT Data from FDOT for US 41 between Fruitville Rd and Gulfstream Ave

FLORIDA DEPARTMENT OF TRANSPORTATION
TRANSPORTATION STATISTICS OFFICE
2016 HISTORICAL AADT REPORT

COUNTY: 17 - SARASOTA

SITE: 5031 - SR 789/GULFSTREAM AVE, WEST OF SR 45/US 41

YEAR	AADT	DIRECTION 1	DIRECTION 2	*K FACTOR	D FACTOR	T FACTOR
2016	35500 C	W 18000	E 17500	9.00	52.60	4.10
2015	36000 C	W 18000	E 18000	9.00	52.30	4.10
2014	36000 C	W 18000	E 18000	9.00	52.10	2.20
2013	36000 F	W 18000	E 18000	9.00	52.00	3.00
2012	36000 C	W 18000	E 18000	9.00	51.80	3.00
2011	33500 F	W 17000	E 16500	9.00	52.30	2.80
2010	33500 C	W 17000	E 16500	10.80	51.78	2.80
2009	37500 C	W 19000	E 18500	10.76	53.10	3.60
2008	34000 C	W 17000	E 17000	10.84	51.92	3.00
2007	35000 C	W 17500	E 17500	11.00	52.45	2.80
2006	33500 C	W 16500	E 17000	10.30	53.57	3.60
2005	29000 C	W 14000	E 15000	10.50	52.90	8.10
2004	32500 C	W 16500	E 16000	10.40	53.60	8.10
2003	31500 C	W 16000	E 15500	10.10	53.80	8.10
2002	38000 F	W 19000	E 19000	10.00	52.00	5.00
2001	38000 C	W 19000	E 19000	10.20	52.10	4.70

Figure 2. 2016 AADT Data from FDOT for Gulfstream Ave between Sunset Ave and US 41

2016 PEAK SEASON FACTOR CATEGORY REPORT - REPORT TYPE: ALL
CATEGORY: 1701 US 41 & US 301

MOCF: 0.90

WEEK	DATES	SF	PSCF
1	01/01/2016 - 01/02/2016	0.96	1.07
2	01/03/2016 - 01/09/2016	0.95	1.06
3	01/10/2016 - 01/16/2016	0.95	1.06
* 4	01/17/2016 - 01/23/2016	0.93	1.03
* 5	01/24/2016 - 01/30/2016	0.92	1.02
* 6	01/31/2016 - 02/06/2016	0.90	1.00
* 7	02/07/2016 - 02/13/2016	0.89	0.99
* 8	02/14/2016 - 02/20/2016	0.88	0.98
* 9	02/21/2016 - 02/27/2016	0.87	0.97
*10	02/28/2016 - 03/05/2016	0.87	0.97
*11	03/06/2016 - 03/12/2016	0.87	0.97
*12	03/13/2016 - 03/19/2016	0.87	0.97
*13	03/20/2016 - 03/26/2016	0.88	0.98
*14	03/27/2016 - 04/02/2016	0.90	1.00
*15	04/03/2016 - 04/09/2016	0.92	1.02
*16	04/10/2016 - 04/16/2016	0.94	1.04
17	04/17/2016 - 04/23/2016	0.96	1.07
18	04/24/2016 - 04/30/2016	0.98	1.09
19	05/01/2016 - 05/07/2016	1.00	1.11
20	05/08/2016 - 05/14/2016	1.02	1.13
21	05/15/2016 - 05/21/2016	1.04	1.16
22	05/22/2016 - 05/28/2016	1.06	1.18
23	05/29/2016 - 06/04/2016	1.07	1.19
24	06/05/2016 - 06/11/2016	1.09	1.21
25	06/12/2016 - 06/18/2016	1.11	1.23
26	06/19/2016 - 06/25/2016	1.11	1.23
27	06/26/2016 - 07/02/2016	1.11	1.23
28	07/03/2016 - 07/09/2016	1.11	1.23
29	07/10/2016 - 07/16/2016	1.11	1.23
30	07/17/2016 - 07/23/2016	1.12	1.24
31	07/24/2016 - 07/30/2016	1.12	1.24
32	07/31/2016 - 08/06/2016	1.13	1.26
33	08/07/2016 - 08/13/2016	1.13	1.26
34	08/14/2016 - 08/20/2016	1.14	1.27
35	08/21/2016 - 08/27/2016	1.13	1.26
36	08/28/2016 - 09/03/2016	1.13	1.26
37	09/04/2016 - 09/10/2016	1.13	1.26
38	09/11/2016 - 09/17/2016	1.13	1.26
39	09/18/2016 - 09/24/2016	1.11	1.23
40	09/25/2016 - 10/01/2016	1.09	1.21
41	10/02/2016 - 10/08/2016	1.07	1.19
42	10/09/2016 - 10/15/2016	1.05	1.17
43	10/16/2016 - 10/22/2016	1.03	1.14
44	10/23/2016 - 10/29/2016	1.02	1.13
45	10/30/2016 - 11/05/2016	1.01	1.12
46	11/06/2016 - 11/12/2016	1.00	1.11
47	11/13/2016 - 11/19/2016	0.99	1.10
48	11/20/2016 - 11/26/2016	0.98	1.09
49	11/27/2016 - 12/03/2016	0.97	1.08
50	12/04/2016 - 12/10/2016	0.96	1.07
51	12/11/2016 - 12/17/2016	0.96	1.07
52	12/18/2016 - 12/24/2016	0.95	1.06
53	12/25/2016 - 12/31/2016	0.95	1.06

* PEAK SEASON

21-FEB-2017 10:54:33 830UPD 1_1701_PKSEASON.TXT

Figure 3. 2016 Peak Season Factor Category Report from FDOT for Gulfstream Ave

2.3 Discussion on Beach/Coastal Sites with High Tourist Activity

Eight Florida beach/coastal sites were selected for analysis. These sites are distributed along the coastal region and were determined to have high tourist activity, especially in the peak season. The selected coastal sites are as follows:

1. Sarasota (US Hwy 41 and N Gulfstream Ave)
2. Bradenton Beach (Cortez Rd W and Gulf Dr N)
3. Madeira Beach (150th Ave [Tom Stuart Cswy] and Gulf Blvd)
4. Destin (Spence Pkwy and Emerald Coast Pkwy [US Hwy 98] / US Hwy 331 and US Hwy 98)
5. Key Largo (Overseas Hwy [US Hwy 1] and Card Sound Rd)
6. South/Miami Beach (Julia Tuttle Cswy [I-195] and Alton Rd/MacArthur Cswy and Alton Rd)
7. Cocoa Beach (W Cocoa Beach Cswy and N Atlantic Ave)
8. Jacksonville Beach (Beach Blvd [US Hwy 90] and Hwy A1A

The traffic count/monitoring stations (both permanent and temporary) to be used were determined as a result of a meeting of the FDOT project managers, the project Principal Investigator (PI), and the co-PI on June 16, 2017, via GoToMeeting. These count stations are shown in Figures 4 through 11, with corresponding explanations below each figure.

Figure 4 shows the Sarasota site, the intersection of US Hwy 41 and N Gulfstream Ave. The green squares point out the short-term monitoring sites. There is no continuous monitoring site in vicinity of the Sarasota site; short-term monitoring site 170011 was used to calculate the traffic volume data.

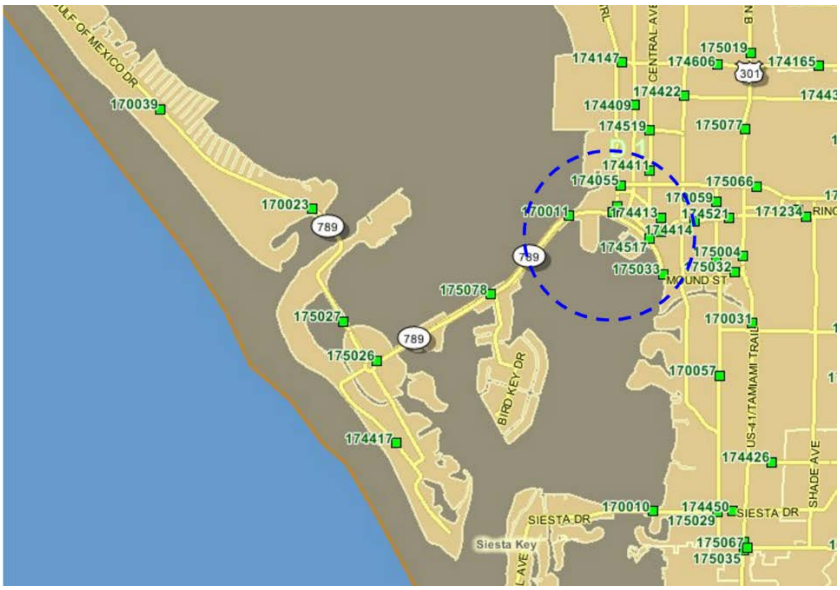

Figure 4. Sarasota Site (US Hwy 41 and N Gulfstream Ave)

Figure 5 shows the location Bradenton Beach site, the intersection of Cortez Road W and Gulf Dr N. The red squares point out the continuous monitoring sites. Continuous monitoring sites 134111 and 134004 were used to calculate the adjustment factors for this location.

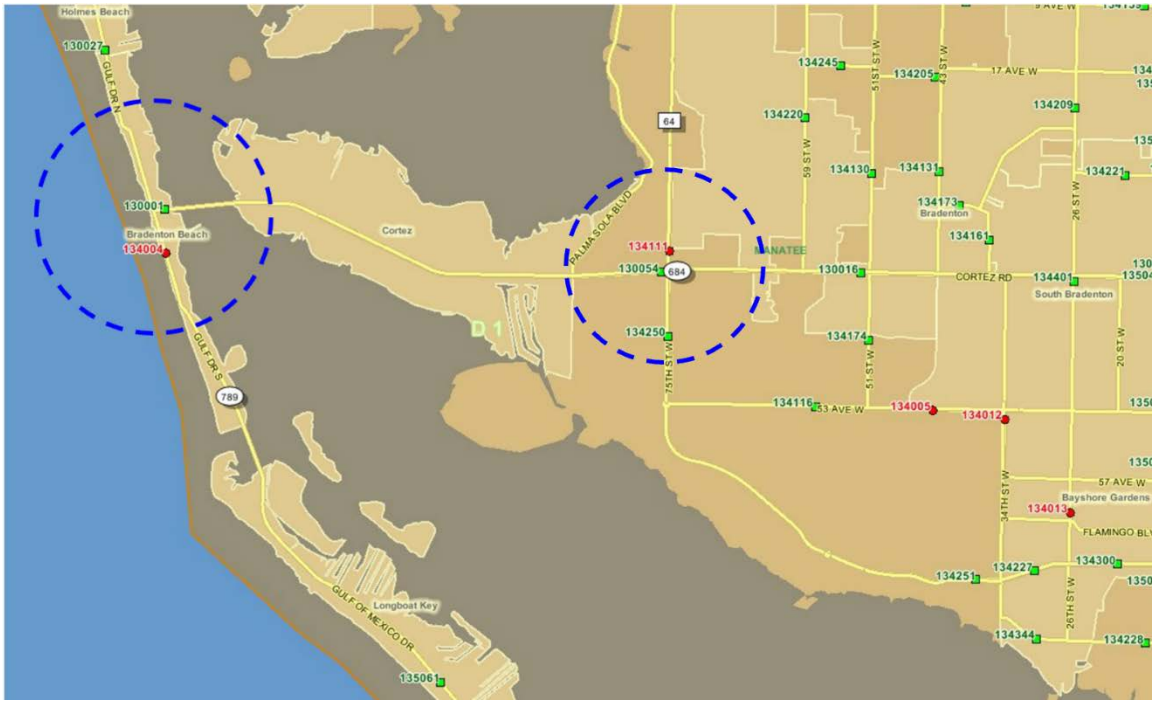

Figure 5. Bradenton Beach Site (Cortez Road W and Gulf Dr N)

Figure 6 shows the location of the Madeira Beach site, the intersection of 150th Ave (Tom Stuart Cswy) and Gulf Blvd. There is no continuous monitoring site in vicinity of the Madeira Beach site; short-term monitoring site 150031 was selected to calculate the traffic volume data.

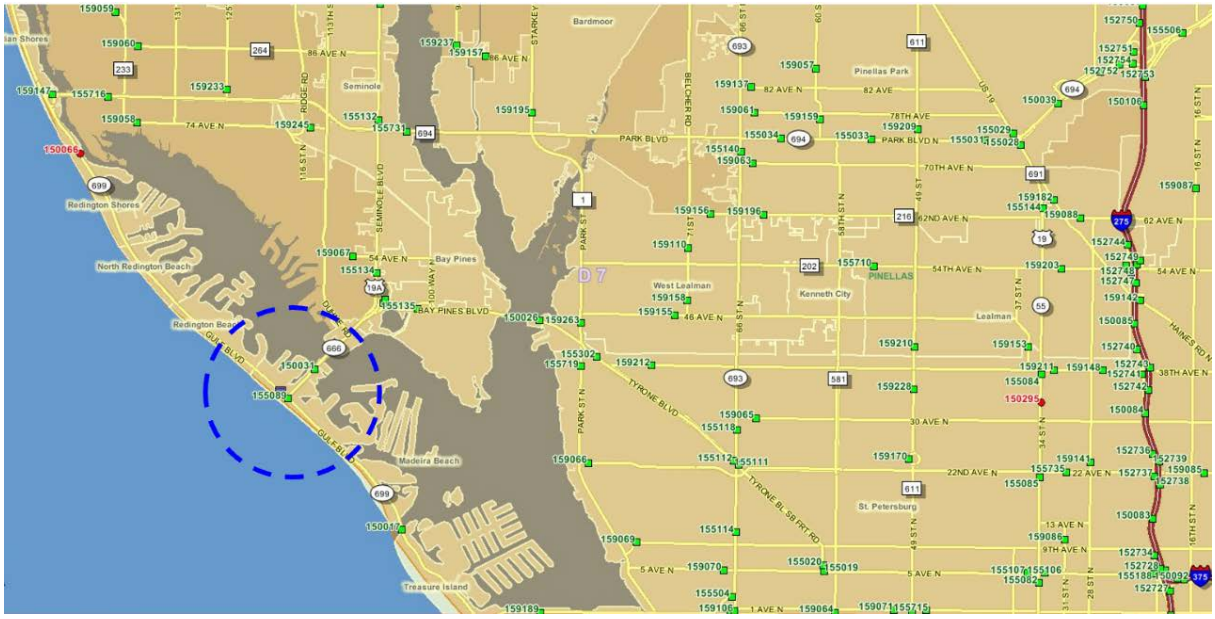

Figure 6. Madeira Beach Site (150th Ave [Tom Stuart Cswy] and Gulf Blvd)

Figure 7 shows the location of the Destin Beach site, the intersection of Spence Pkwy and Emerald Coast Pkwy/US Hwy 331 and US Hwy 98. Continuous monitoring sites 600168 and 570385 and short-term monitoring sites 600123 were selected to calculate the adjustment factors for this location.

Figure 7. Destin Site (Spence Pkwy and Emerald Coast Pkwy/US Hwy 331 and US Hwy 98)

Figure 8 shows the location of the Key Largo site, the intersection of Overseas Hwy (US Hwy 1) and Card Sound Rd. Continuous monitoring site 900164 was used to calculate the adjustment factors for this location.

Figure 8. Key Largo Site (Overseas Hwy [US Hwy 1] and Card Sound Rd)

Figure 9 shows the location of the South/Miami Beach site, the intersection of Julia Tuttle Cswy (I-195) and Alton Rd/ MacArthur Cswy and Alton Rd. Continuous monitoring sites 870108 and 870031 were used to calculate the adjustment factors for this location.

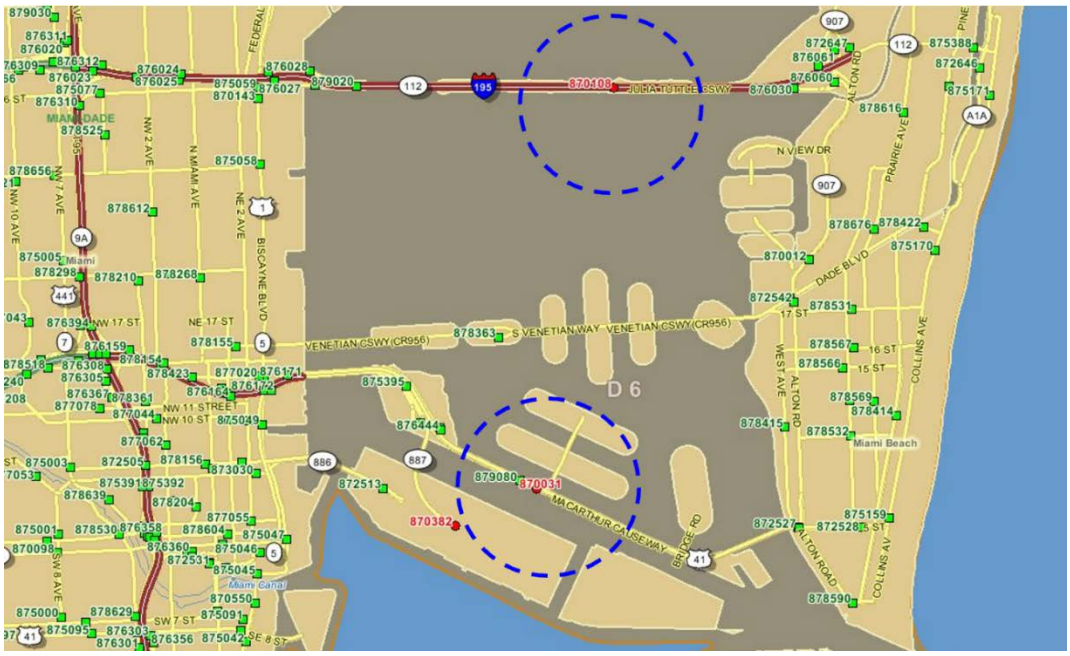

Figure 9. South/Miami Beach Site (Julia Tuttle Cswy [I-195] & Alton Rd/MacArthur Cswy & Alton Rd)

Figure 10 shows the location of the Cocoa Beach site, the intersection of W Cocoa Beach Cswy and N Atlantic Ave. Continuous monitoring site 700113 was used to calculate the adjustment factors for this location.

Figure 10. Cocoa Beach Site (W Cocoa Beach Cswy and N Atlantic Ave)

Figure 11 shows the location of the Jacksonville Beach site, the intersection of Beach Blvd (US Hwy 90) and Hwy A1A. Continuous monitoring site 720062 was used to calculate the adjustment factors for this location.

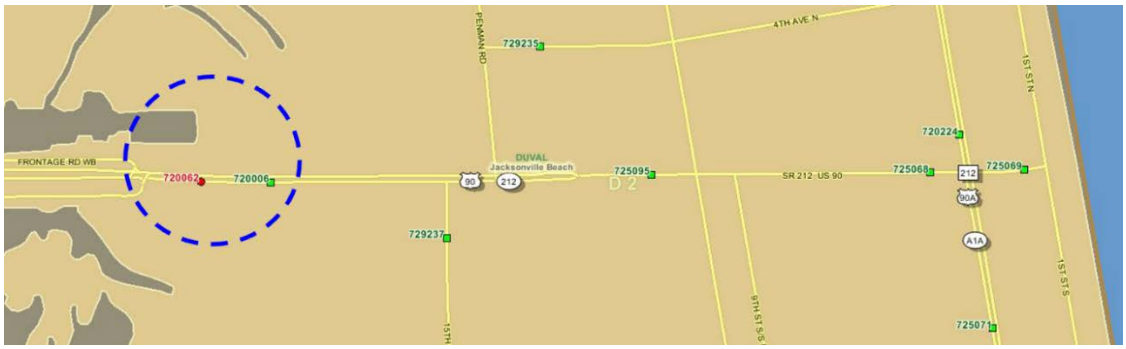

Figure 11. Jacksonville Beach Site (Beach Blvd [US Hwy 90] and Hwy A1A)

3 Field Visits and Traffic Count Data Spot-checks for Validation

This section discusses a validation study to spot-check traffic counts of temporary and permanent (continuous) sites with manual video counts, including a comparison of manual (video) data and FDOT traffic counts of three temporary and six permanent sites. Table 2 presents details of the sites and dates of data collection. All data collection took place on a Saturday from 8:00 AM–4:00 PM, with the exception of the Destin site #570385, at which data were collected on a Sunday from 8:00 AM–4:00 PM, as it had two sites, with data collected on Saturday for one site and on the following Sunday for the other.

Table 2. Field Sites and Data Collection Schedule

Site Name	Site Number	Site Type	Weekday	Date	Longitude	Latitude
Sarasota	170011	Temporary	Saturday	7/15/2017	-82.5524	27.3354
Bradenton Beach	134004	Permanent	Saturday	7/29/2017	-82.6981	27.4637
Madeira Beach	150031	Temporary	Saturday	8/12/2017	-82.7966	27.8055
Cocoa Beach	700113	Permanent	Saturday	9/2/2017	-80.7070	28.3570
Destin	600123	Temporary	Saturday	9/16/2017	-86.1712	30.3948
Destin	570385	Permanent	Sunday	9/17/2017	-86.5461	30.3922
South Miami Beach	870108	Permanent	Saturday	9/23/2017	-80.1575	25.8104
Key Largo	900164	Permanent	Saturday	9/30/2017	-80.3760	25.1693
Jacksonville Beach	720062	Permanent	Saturday	10/7/2017	-81.4145	30.2882

The following subsections compare the manual (video) counts with FDOT counts by direction for each site. For each direction, the following information is presented: (1) table showing 15-minute manual (video) counts by four vehicle classes (passenger car, truck, motorcycle, bicycle), (2) table comparing manual counts with FDOT counts, (3) bar chart comparing side-by-side manual (video) counts with FDOT counts, and (4) scatter plot depicting the correlation of manual (video) and FDOT traffic count pairs from an ideal equality line.

3.1 Bradenton Beach (Site #134004)

The Bradenton Beach site (#134004) is a permanent type count station located on N Gulf Dr in Bradenton Beach. Details of the location are shown in Figure 12. The count station's designated directions are northbound and southbound.

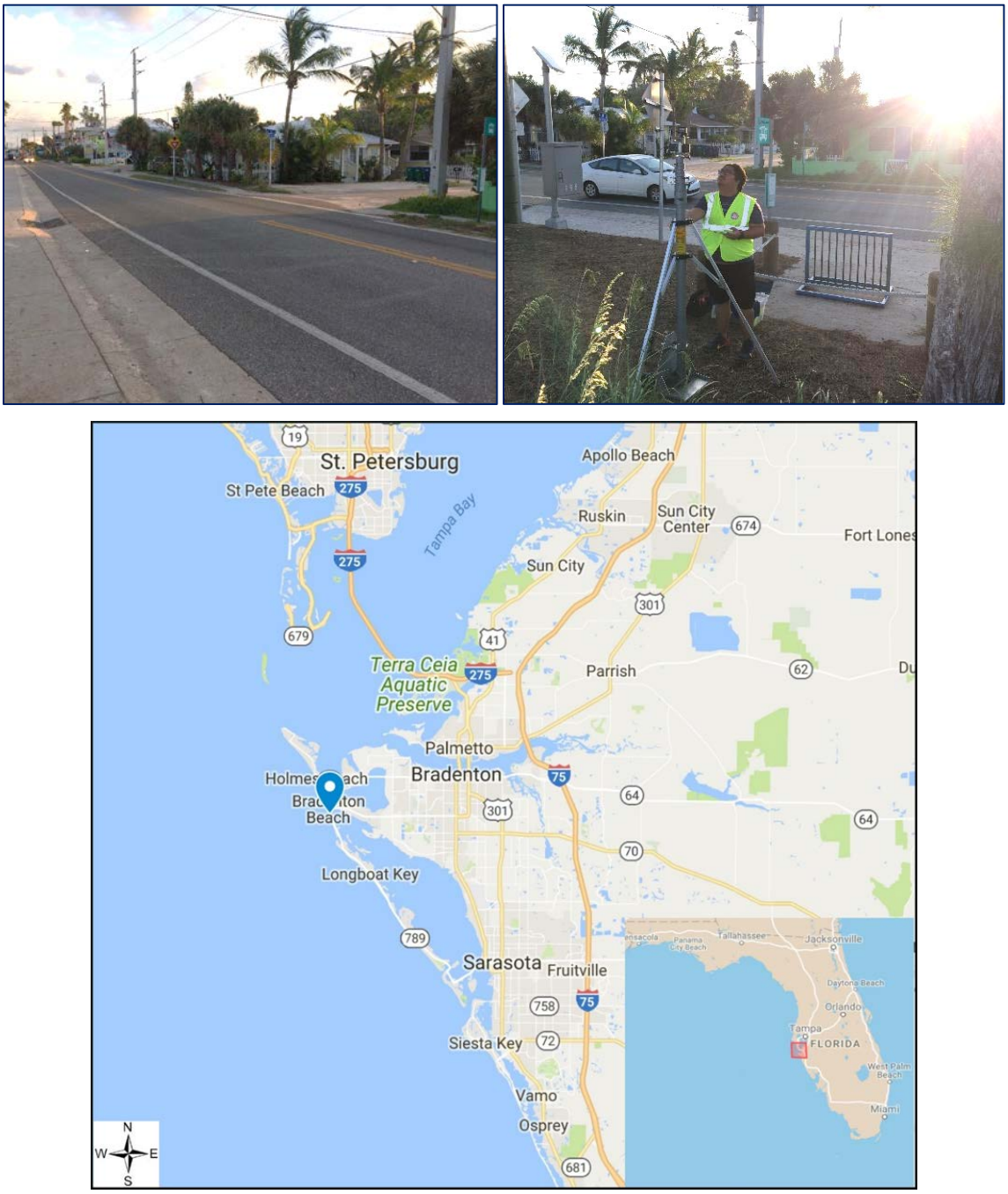

Figure 12. Data Collection for Bradenton Beach (Site #134004)

Northbound

Table 3 shows the 15-minute manual (video) traffic counts for the northbound direction of the Bradenton Beach site. Figure 13 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The difference between the manual (video) and FDOT counts are significant after 1:00 PM, for which manual (video) counts are approximately 25% higher than FDOT counts.

Table 3. 15-Minute Manual Vehicle Counts, Bradenton Beach (Site #134004) Northbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	51	3	0	0	54
8:15-8:30	59	0	2	1	61
8:30-8:45	73	1	2	1	76
8:45-9:00	62	2	1	4	65
9:00-9:15	58	2	1	1	61
9:15-9:30	90	2	4	2	96
9:30-9:45	82	1	2	0	85
9:45-10:00	79	3	1	0	83
10:00-10:15	96	1	0	3	97
10:15-10:30	91	4	1	3	96
10:30-10:45	89	2	6	0	97
10:45-11:00	102	12	7	1	121
11:00-11:15	119	4	2	0	125
11:15-11:30	112	9	1	1	122
11:30-11:45	112	2	3	0	117
11:45-12:00	100	2	0	1	102
12:00-12:15	103	5	1	1	109
12:15-12:30	118	1	8	1	127
12:30-12:45	112	2	1	0	115
12:45-13:00	129	2	1	1	132
13:00-13:15	156	2	2	0	160
13:15-13:30	138	3	3	0	144
13:30-13:45	121	3	1	0	125
13:45-14:00	158	1	1	1	160
14:00-14:15	144	2	3	0	149
14:15-14:30	149	2	2	2	153
14:30-14:45	139	1	1	1	141
14:45-15:00	154	0	0	0	154
15:00-15:15	137	1	1	0	139
15:15-15:30	165	1	0	0	166
15:30-15:45	141	1	2	0	144
15:45-16:00	138	1	0	0	139

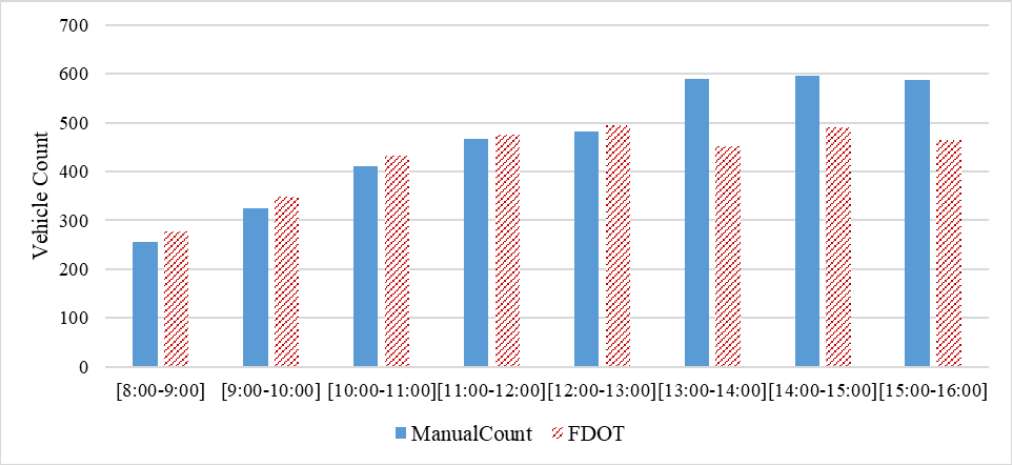

Figure 13. Manual Vehicle Counts vs. FDOT Counts, Bradenton Beach (Site #134004) Northbound

From Table 4, it is evident that the ratio between the FDOT and manual counts varied during the afternoon from 13:00–16:00 for the northbound direction. This variation is correlated to the observed traffic back-ups during the afternoon at the site.

Table 4. Manual Vehicle Counts vs. FDOT Counts, Bradenton Beach (Site #134004) Northbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	256	278	0.92	No back-ups observed
9:00-10:00	325	348	0.93	No back-ups observed
10:00-11:00	411	432	0.95	No back-ups observed
11:00-12:00	466	476	0.98	No back-ups observed
12:00-13:00	483	495	0.98	No back-ups observed
13:00-14:00	589	452	**1.30**	☒ 1st 15-min; ☒ 2nd 15-min; ☐ 3rd 15-min; ☒ 4th 15-min
14:00-15:00	597	490	**1.22**	☐ 1st 15-min; ☒ 2nd 15-min; ☐ 3rd 15-min; ☐ 4th 15-min
15:00-16:00	588	465	**1.26**	☒ 1st 15-min; ☒ 2nd 15-min; ☒ 3rd 15-min; ☒ 4th 15-min

Figure 14 plots the difference between the manual (video) to FDOT counts ratio using a 45-degree reference line, which represents the manual counts to FDOT counts ratio to be equal to 1 (equality line). The marks represent the pairs of manual (video)–FDOT counts. The marks (representing eight hourly time periods) farther from the ideal equality line are less likely to be accurate, and vice versa.

Figure 14 highlights three marks (time periods) with a significant distance from the equality line. These occurred when the manual count was close to 600 vehicles per hour, but the FDOT count remained under 500 vehicles per hour. For each of these three observation hours, back-ups were observed, as highlighted in Table 4.

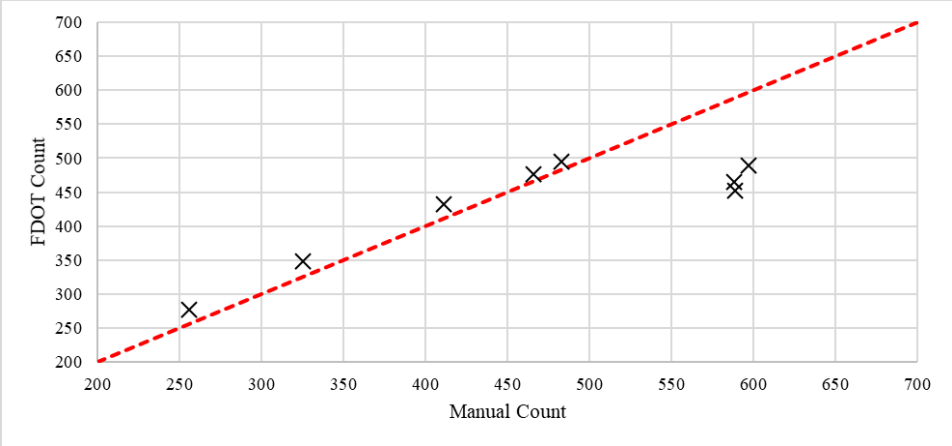

Figure 14. Distance of Count from Equality Ref. Line, Bradenton Beach (Site #134004) Northbound

Southbound

Table 5 shows the 15-minute manual (video) traffic counts for the southbound direction of the Bradenton Beach site. Figure 15 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts are very close to each other, and the difference is not significant.

Table 5. 15-Minute Manual Vehicle Counts, Bradenton Beach (Site #134004) Southbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	81	2	1	3	84
8:15-8:30	82	2	0	5	84
8:30-8:45	123	1	1	1	125
8:45-9:00	95	3	1	0	99
9:00-9:15	129	2	2	1	133
9:15-9:30	144	2	6	2	152
9:30-9:45	154	1	1	19	156
9:45-10:00	150	3	1	2	154
10:00-10:15	124	1	0	1	125
10:15-10:30	167	3	2	3	172
10:30-10:45	188	5	1	0	194
10:45-11:00	168	1	1	0	170
11:00-11:15	148	3	0	1	151
11:15-11:30	170	1	4	0	175
11:30-11:45	156	0	3	0	159
11:45-12:00	195	3	3	2	201
12:00-12:15	162	4	2	1	168
12:15-12:30	161	3	1	0	165
12:30-12:45	177	1	1	1	179
12:45-13:00	159	1	2	0	162
13:00-13:15	157	2	7	0	166
13:15-13:30	177	1	2	0	180
13:30-13:45	145	1	3	0	149
13:45-14:00	140	0	0	0	140
14:00-14:15	149	3	0	0	152
14:15-14:30	166	1	1	0	168
14:30-14:45	158	0	0	0	158
14:45-15:00	141	3	1	1	145
15:00-15:15	137	1	1	0	139
15:15-15:30	118	1	1	0	120
15:30-15:45	139	1	2	0	142
15:45-16:00	110	2	1	2	113

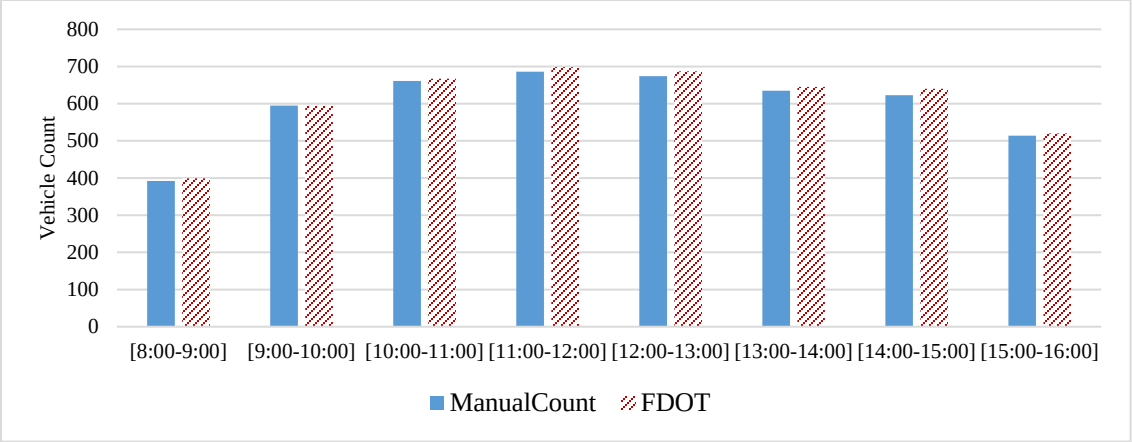

Figure 15. Manual Vehicle Counts vs. FDOT Counts, Bradenton Beach (Site #134004) Southbound

Table 6 shows that the ratio between the FDOT and manual counts is close to 1, and no backups were observed during the entire analysis period for the southbound direction. Figure 16 shows that the manual and FDOT counts are very close to the ideal line, which is due to the fact that no back-ups were observed during the analysis period.

Table 6. Manual Vehicle Counts vs. FDOT Counts, Bradenton Beach (Site #134004) Southbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	392	399	0.98	No back-ups observed
9:00-10:00	595	594	1.00	No back-ups observed
10:00-11:00	661	667	0.99	No back-ups observed
11:00-12:00	686	698	0.98	No back-ups observed
12:00-13:00	674	687	0.98	No back-ups observed
13:00-14:00	635	645	0.98	No back-ups observed
14:00-15:00	623	640	0.97	No back-ups observed
15:00-16:00	514	520	0.99	No back-ups observed

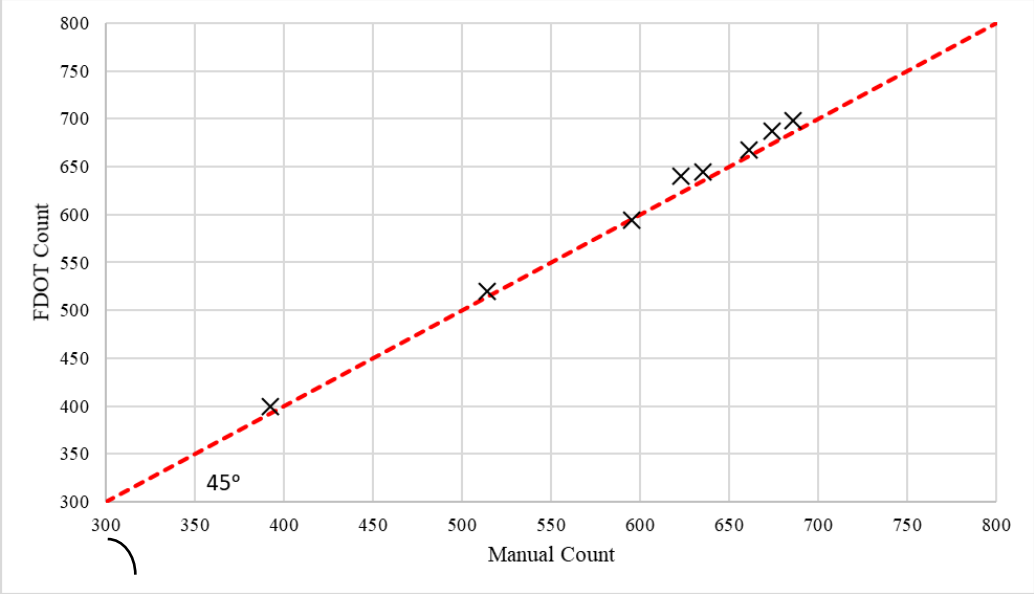

Figure 16. Distance of Count from Equality Ref. Line, Bradenton Beach (Site #134004) Southbound

3.2 Cocoa Beach (Site #700113)

The Cocoa Beach site (#700113) is a permanent type count station located on the Hubert Humphrey Cswy in Cocoa Beach. Details of the location are provided in Figure 17. The count station's designated directions are eastbound and westbound.

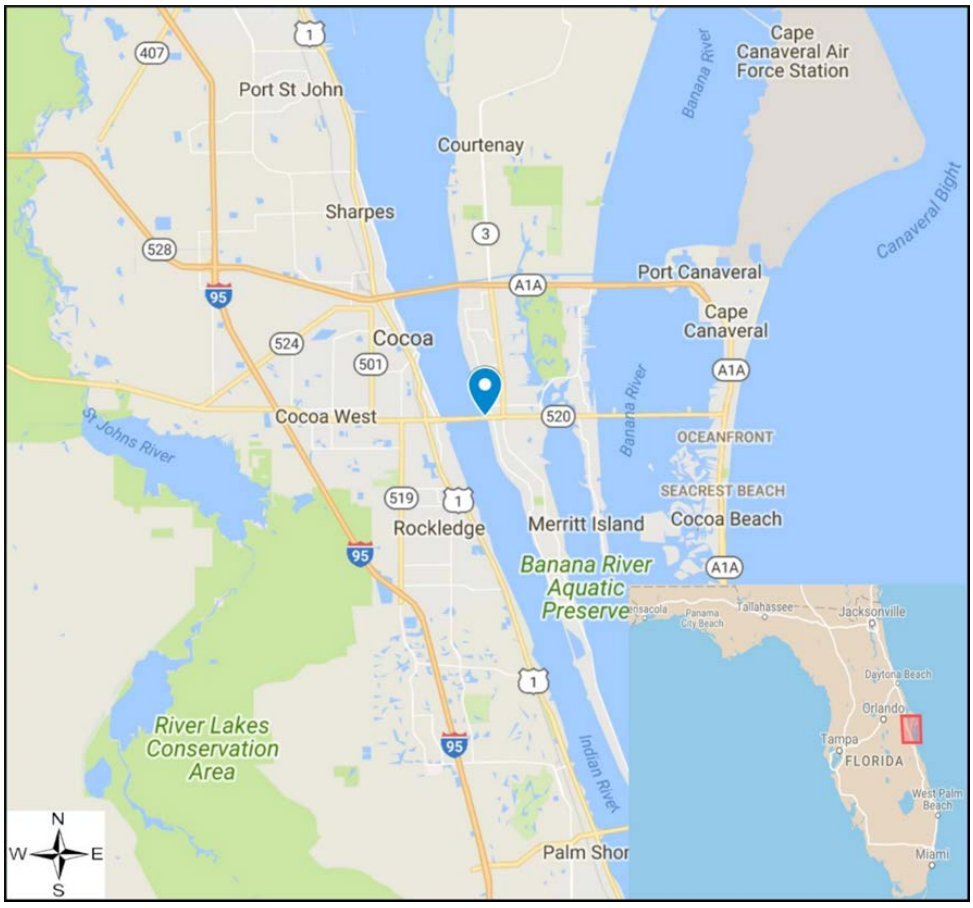

Figure 17. Data Collection for Cocoa Beach (Site #700113)

Eastbound

Table 7 shows the 15-minute manual (video) traffic counts for the eastbound direction of the Cocoa Beach site. Figure 18 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The manual counts were found to be about 4–9% higher than the FDOT counts. This could have resulted due to the traffic back-ups observed after 10:00 AM.

Table 7. 15-Minute Manual Vehicle Counts, Cocoa Beach (Site #700113) Eastbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	194	5	0	0	199
8:15-8:30	207	3	2	0	212
8:30-8:45	257	3	2	0	262
8:45-9:00	242	4	3	0	249
9:00-9:15	244	3	2	3	249
9:15-9:30	265	6	2	1	273
9:30-9:45	295	3	1	1	299
9:45-10:00	372	6	1	0	379
10:00-10:15	326	5	3	0	334
10:15-10:30	324	9	4	2	337
10:30-10:45	337	5	2	1	344
10:45-11:00	410	9	5	4	424
11:00-11:15	350	3	6	1	359
11:15-11:30	426	3	2	2	431
11:30-11:45	395	3	9	1	407
11:45-12:00	395	5	4	0	404
12:00-12:15	416	4	7	1	427
12:15-12:30	401	4	4	1	409
12:30-12:45	449	2	5	0	456
12:45-13:00	446	4	3	0	453
13:00-13:15	420	4	2	0	426
13:15-13:30	406	3	7	0	416
13:30-13:45	390	3	6	0	399
13:45-14:00	403	3	3	0	409
14:00-14:15	415	4	5	1	424
14:15-14:30	417	4	1	0	422
14:30-14:45	412	5	2	0	419
14:45-15:00	364	2	4	0	370
15:00-15:15	379	3	3	0	385
15:15-15:30	350	1	7	4	358
15:30-15:45	407	3	10	0	420
15:45-16:00	411	0	3	0	414

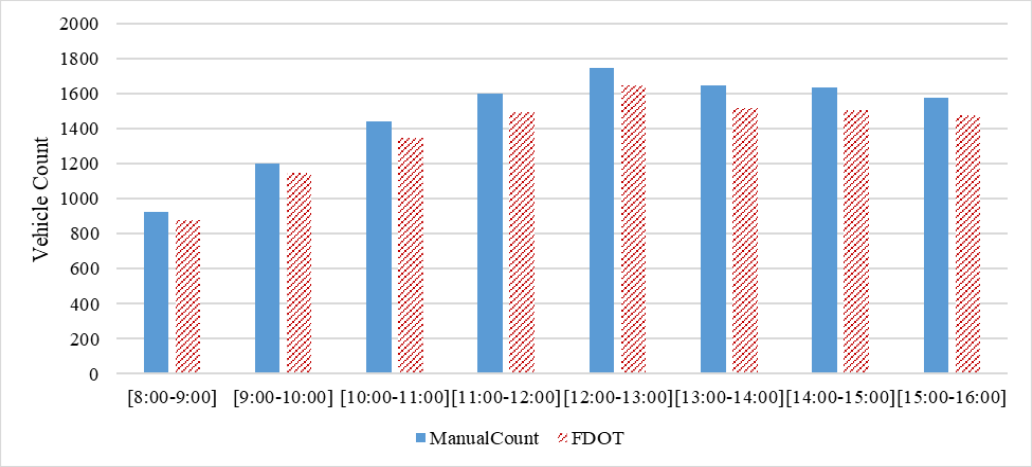

Figure 18. Manual Vehicle Counts vs. FDOT Counts, Cocoa Beach (Site #700113) Eastbound

Table 8 shows that the FDOT counts were lower than the manual (video) counts during the entire analysis period. Also, traffic back-ups were observed for several 15-minute durations during each hour of the analysis for the eastbound direction. Figure 19 shows that the manual (video) counts were found to be higher than the FDOT counts, as the plotted marks are below the equality line. This could be due to back-ups in traffic stream observed during the analysis period.

Table 8. Manual Vehicle Counts vs. FDOT Count, Cocoa Beach (Site #700113) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	9,22	877	1.05	No back-ups observed
9:00-10:00	1,200	1,150	1.04	No back-ups observed
10:00-11:00	1,439	1,348	1.07	☐ 1st 15-min; ☐ 2nd 15-min; ☐ 3rd 15-min; ☒ 4th 15-min
11:00-12:00	1,601	1,494	1.07	☒ 1st 15-min; ☐ 2nd 15-min; ☒ 3rd 15-min; ☐ 4th 15-min
12:00-13:00	1,745	1,647	1.06	☒ 1st 15-min; ☐ 2nd 15-min; ☒ 3rd 15-min; ☐ 4th 15-min
13:00-14:00	1,650	1,520	1.09	☐ 1st 15-min; ☐ 2nd 15-min; ☒ 3rd 15-min; ☐ 4th 15-min
14:00-15:00	1,635	1,509	1.08	☐ 1st 15-min; ☒ 2nd 15-min; ☐ 3rd 15-min; ☐ 4th 15-min
15:00-16:00	1,577	1,477	1.07	☐ 1st 15-min; ☒ 2nd 15-min; ☒ 3rd 15-min; ☒ 4th 15-min

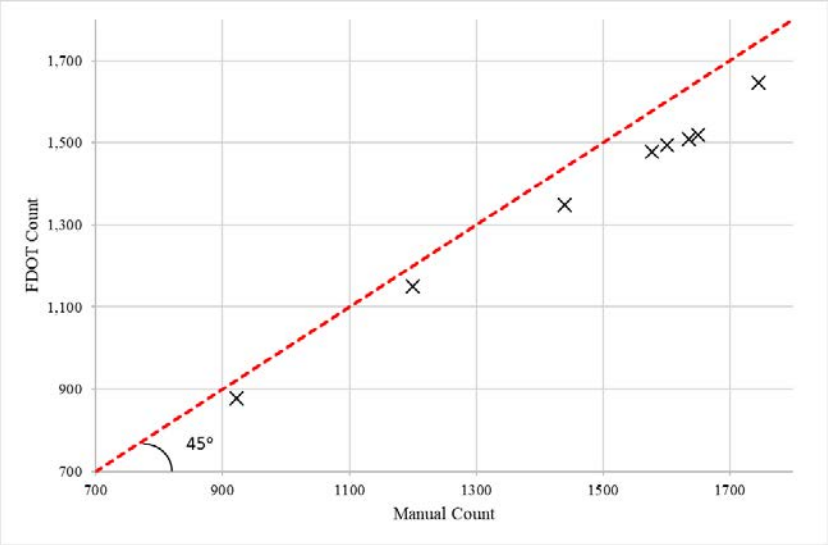

Figure 19. Distance of Count from Equality Ref. Line, Cocoa Beach (Site #700113) Eastbound

Westbound

Table 9 shows the 15-minute manual (video) traffic count for the westbound direction of the Cocoa Beach site. Figure 20 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to one another, and the difference is not significant.

Table 9. 15-Minute Manual Vehicle Counts, Cocoa Beach (Site #700113) Westbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	135	4	0	0	139
8:15-8:30	153	9	1	0	163
8:30-8:45	195	9	3	0	207
8:45-9:00	211	8	4	0	223
9:00-9:15	232	1	0	0	233
9:15-9:30	223	8	3	1	234
9:30-9:45	243	4	0	0	247
9:45-10:00	237	7	6	1	250
10:00-10:15	297	9	2	0	308
10:15-10:30	280	16	3	1	299
10:30-10:45	300	3	1	0	304
10:45-11:00	320	7	1	0	328
11:00-11:15	348	7	5	0	360
11:15-11:30	303	6	4	0	313
11:30-11:45	333	7	5	1	345
11:45-12:00	383	5	5	1	393
12:00-12:15	370	4	9	0	383
12:15-12:30	407	4	5	0	416
12:30-12:45	424	7	5	0	436
12:45-13:00	382	6	1	0	389
13:00-13:15	389	7	1	0	397
13:15-13:30	387	9	3	0	399
13:30-13:45	312	6	0	0	318
13:45-14:00	363	6	3	0	372
14:00-14:15	411	7	1	0	419
14:15-14:30	383	7	8	3	398
14:30-14:45	364	8	2	1	374
14:45-15:00	369	5	10	0	384
15:00-15:15	381	5	1	0	387
15:15-15:30	375	8	7	0	390
15:30-15:45	397	5	3	0	405
15:45-16:00	398	6	6	0	410

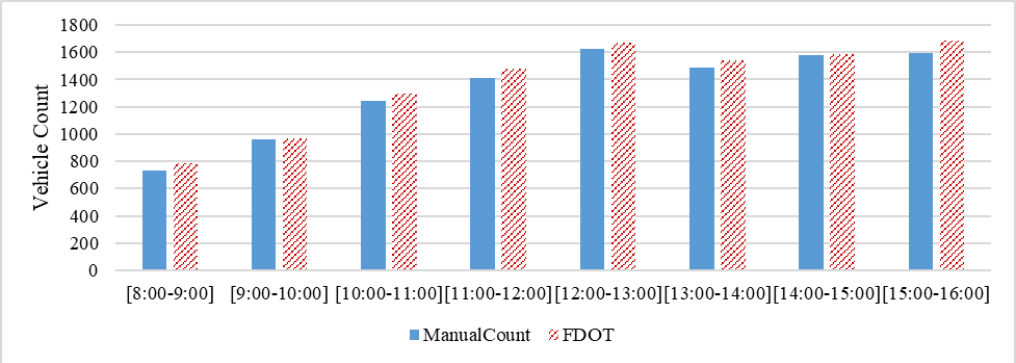

Figure 20. Manual Vehicle Counts vs. FDOT Counts, Cocoa Beach (Site #700113) Westbound

Table 10 shows that the ratios between the FDOT and manual (video) counts have minor deviations, and no back-ups were observed during the entire analysis period for westbound direction. Figure 21 shows that the manual (video) and FDOT counts are almost on the ideal match line. This is due to no back-ups being observed in the traffic stream during the analysis period.

Table 10. Manual Vehicle Counts vs. FDOT Count, Cocoa Beach (Site #700113) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	732	789	0.93	No back-ups observed
9:00-10:00	964	965	1.00	No back-ups observed
10:00-11:00	1,239	1,294	0.96	No back-ups observed
11:00-12:00	1,411	1,479	0.95	No back-ups observed
12:00-13:00	1,624	1,668	0.97	No back-ups observed
13:00-14:00	1,486	1,543	0.96	No back-ups observed
14:00-15:00	1,575	1,587	0.99	No back-ups observed
15:00-16:00	1,592	1,682	0.95	No back-ups observed

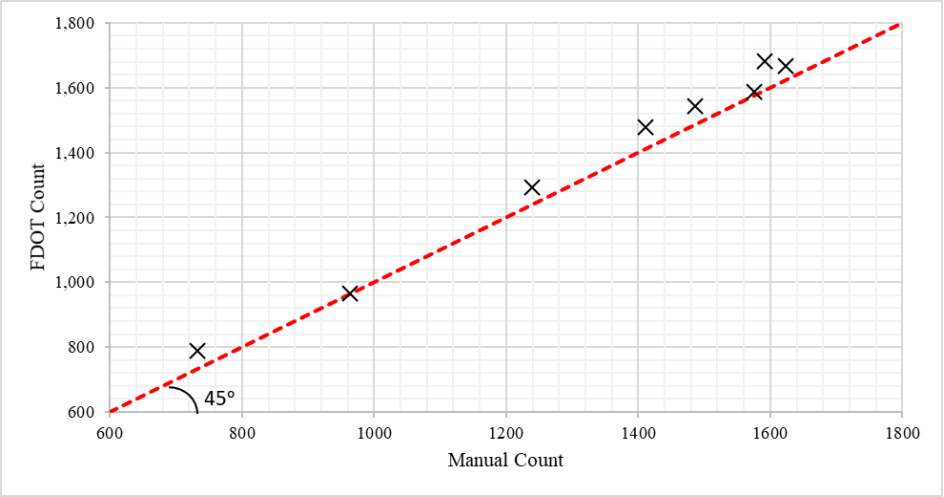

Figure 21. Distance of Count from Equality Ref. Line, Cocoa Beach (Site #700113) Westbound

3.3 Destin (Site #600123)

The Destin site (#600123) is a temporary type count station located on US 331 in Destin. Details of the location are provided in Figure 22. The count station's designated directions are northbound and southbound.

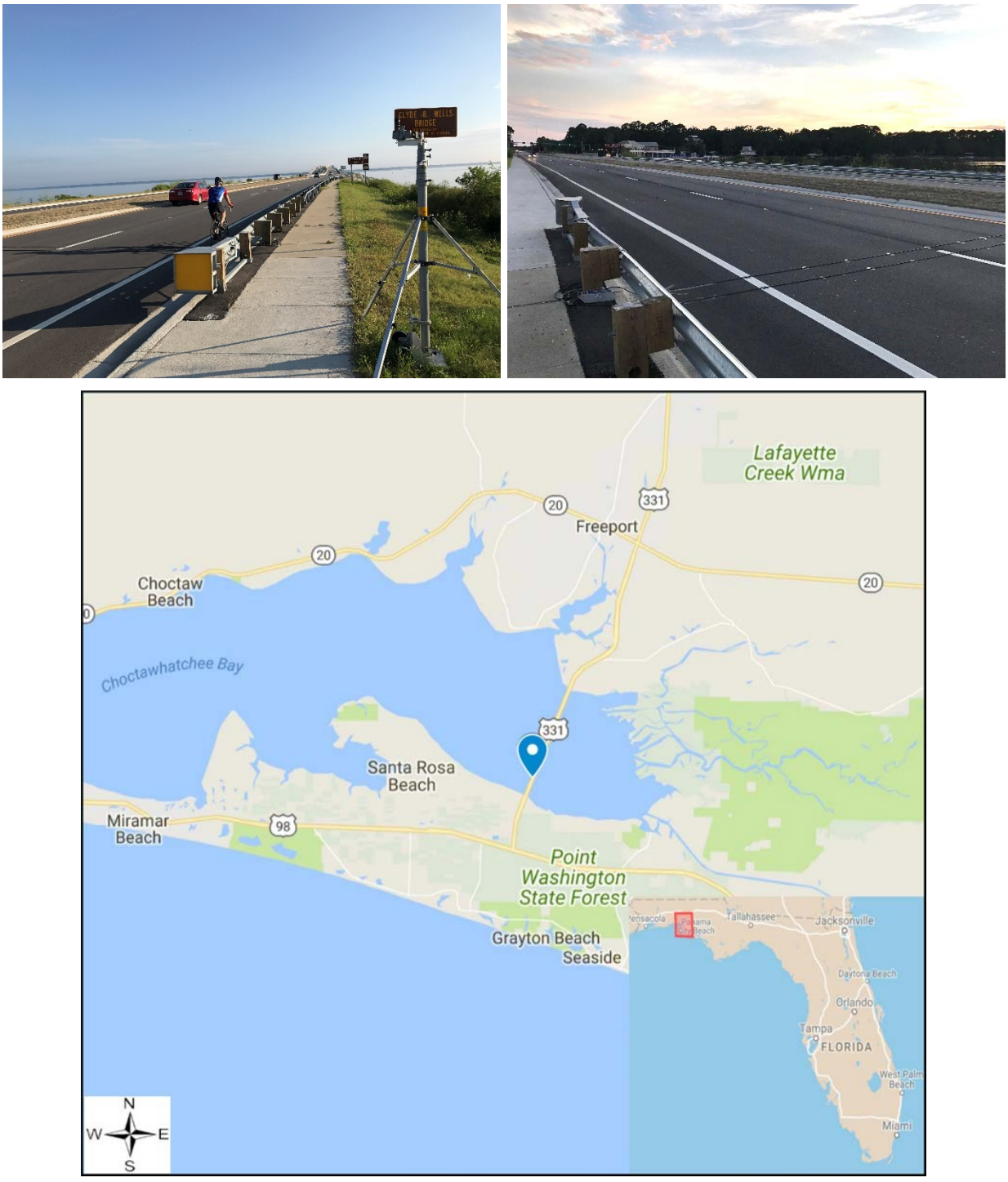

Figure 22. Data Collection for Destin (Site #600123)

Northbound

Table 11 shows the 15-minute manual (video) traffic counts for northbound direction of the Destin site. Figure 23 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 11. 15-Minute Manual Vehicle Counts, Destin (Site #600123) Northbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	85	3	2	0	90
8:15-8:30	106	2	1	0	109
8:30-8:45	123	9	4	0	136
8:45-9:00	107	6	0	0	113
9:00-9:15	120	5	1	1	126
9:15-9:30	125	6	0	0	131
9:30-9:45	143	4	4	0	151
9:45-10:00	157	3	0	0	160
10:00-10:15	141	8	0	0	149
10:15-10:30	129	3	4	0	136
10:30-10:45	141	1	1	0	143
10:45-11:00	109	6	11	0	126
11:00-11:15	121	4	2	0	127
11:15-11:30	97	7	3	0	107
11:30-11:45	89	7	2	0	98
11:45-12:00	100	4	1	0	105
12:00-12:15	110	3	1	0	114
12:15-12:30	99	4	3	0	106
12:30-12:45	104	2	1	0	107
12:45-13:00	97	3	2	0	102
13:00-13:15	101	3	4	0	108
13:15-13:30	94	6	0	0	100
13:30-13:45	125	3	0	0	128
13:45-14:00	107	7	3	0	117
14:00-14:15	125	4	1	0	130
14:15-14:30	117	3	0	0	120
14:30-14:45	123	1	2	0	126
14:45-15:00	142	5	3	0	150
15:00-15:15	121	4	2	0	127
15:15-15:30	145	0	5	0	150
15:30-15:45	149	8	0	0	157
15:45-16:00	131	5	0	0	136

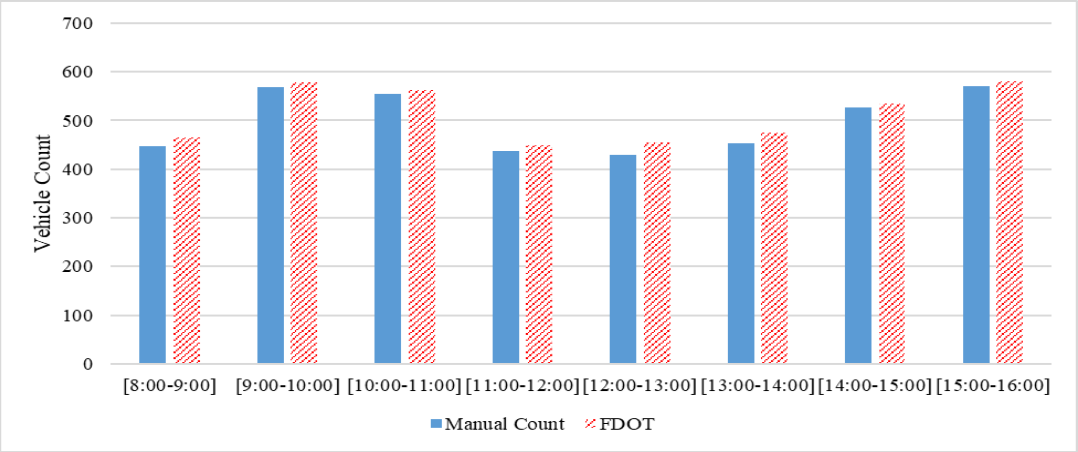

Figure 23. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #600123) Northbound

Table 12 shows that the ratios between the FDOT and manual (video) counts had some minor deviations, and no back-ups were observed during the entire analysis period for northbound direction. Figure 24 shows the correlation between the FDOT and manual (video) counts with respect to the ideal line.

Table 12. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #600123) Northbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	448	465	0.96	No back-ups observed
9:00-10:00	568	579	0.98	No back-ups observed
10:00-11:00	554	562	0.99	No back-ups observed
11:00-12:00	437	449	0.97	No back-ups observed
12:00-13:00	429	456	0.94	No back-ups observed
13:00-14:00	453	476	0.95	No back-ups observed
14:00-15:00	526	534	0.99	No back-ups observed
15:00-16:00]	570	581	0.98	No back-ups observed

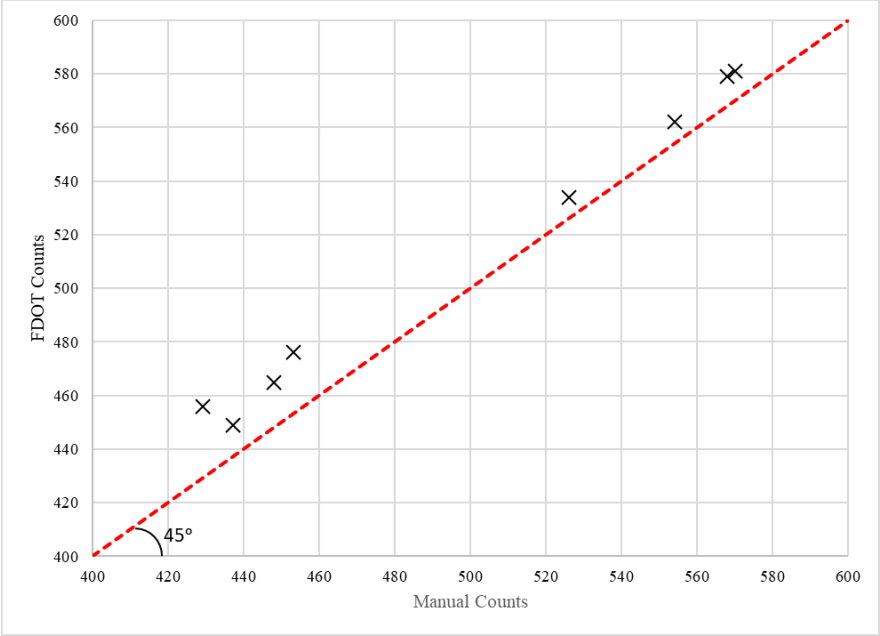

Figure 24. Distance of Count from Equality Ref. Line, Destin (Site #600123) Northbound

Southbound

Table 13 shows the 15-minute manual (video) traffic counts for the southbound direction of the Destin site. Figure 25 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 13. 15-Minute Manual Vehicle Counts, Destin (Site #600123) Southbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	121	4	1	1	126
8:15-8:30	137	1	1	1	139
8:30-8:45	140	5	2	0	147
8:45-9:00	173	2	0	2	175
9:00-9:15	127	3	1	0	131
9:15-9:30	132	1	0	0	133
9:30-9:45	135	1	3	0	139
9:45-10:00	129	1	1	1	131
10:00-10:15	129	3	0	0	132
10:15-10:30	124	7	2	0	133
10:30-10:45	117	1	1	1	119
10:45-11:00	155	2	0	0	157
11:00-11:15	111	3	5	0	119
11:15-11:30	120	5	4	0	129
11:30-11:45	154	4	3	0	161
11:45-12:00	161	3	1	0	165
12:00-12:15	128	6	2	0	136
12:15-12:30	138	5	1	0	144
12:30-12:45	155	0	2	0	157
12:45-13:00	161	2	1	0	164
13:00-13:15	156	4	1	0	161
13:15-13:30	173	6	1	0	180
13:30-13:45	156	2	4	0	162
13:45-14:00	169	1	1	0	171
14:00-14:15	156	2	0	0	158
14:15-14:30	164	2	1	0	167
14:30-14:45	170	3	2	0	175
14:45-15:00	182	4	1	0	187
15:00-15:15	187	4	4	0	195
15:15-15:30	205	2	1	0	208
15:30-15:45	173	3	2	0	178
15:45-16:00]	188	0	4	0	192

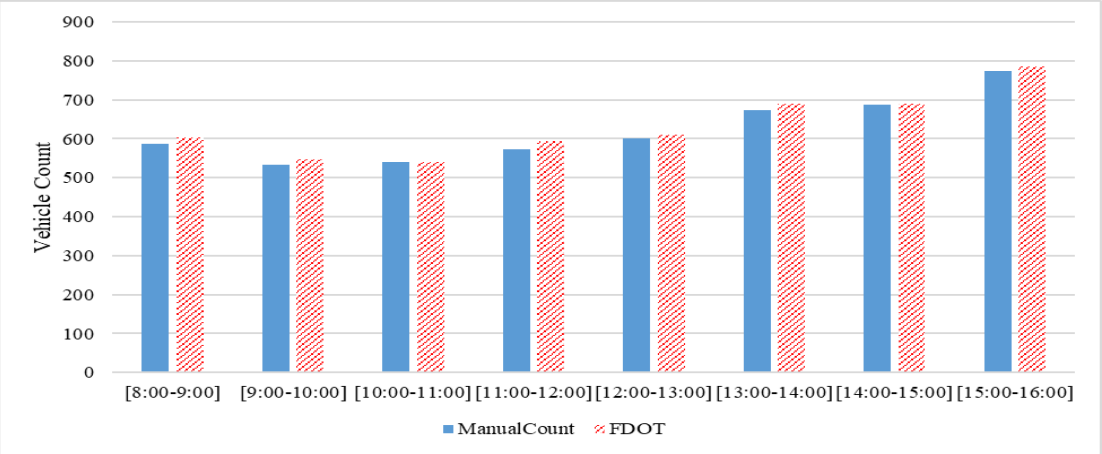

Figure 25. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #600123) Southbound

Table 14 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the southbound direction. Figure 26 shows that as the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 14. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #600123) Southbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	587	604	0.97	No back-ups observed
9:00-10:00	534	546	0.98	No back-ups observed
10:00-11:00	541	540	1.00	No back-ups observed
11:00-12:00	574	594	0.97	No back-ups observed
12:00-13:00	601	610	0.99	No back-ups observed
13:00-14:00	674	690	0.98	No back-ups observed
14:00-15:00	687	690	1.00	No back-ups observed
15:00-16:00	773	785	0.98	No back-ups observed

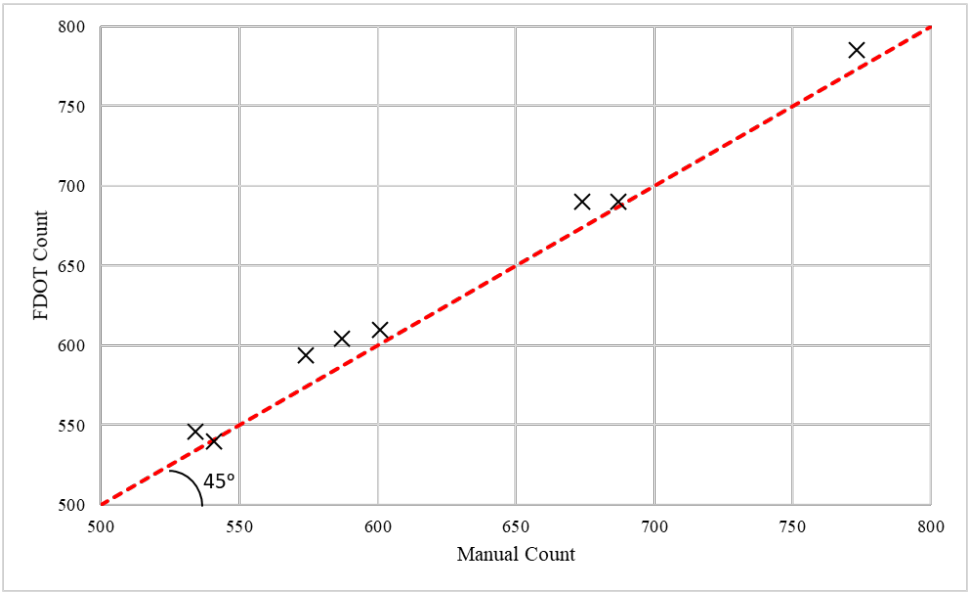

Figure 26. Distance of Count from Equality Ref. Line, Destin (Site #600123) Southbound

3.4 Destin (Site #570385)

The Destin site (#570385) is a permanent type count station located on the Miracle Strip Pkwy SE in Destin. Details of the location are provided in Figure 27. The count station's designated directions are eastbound and westbound.

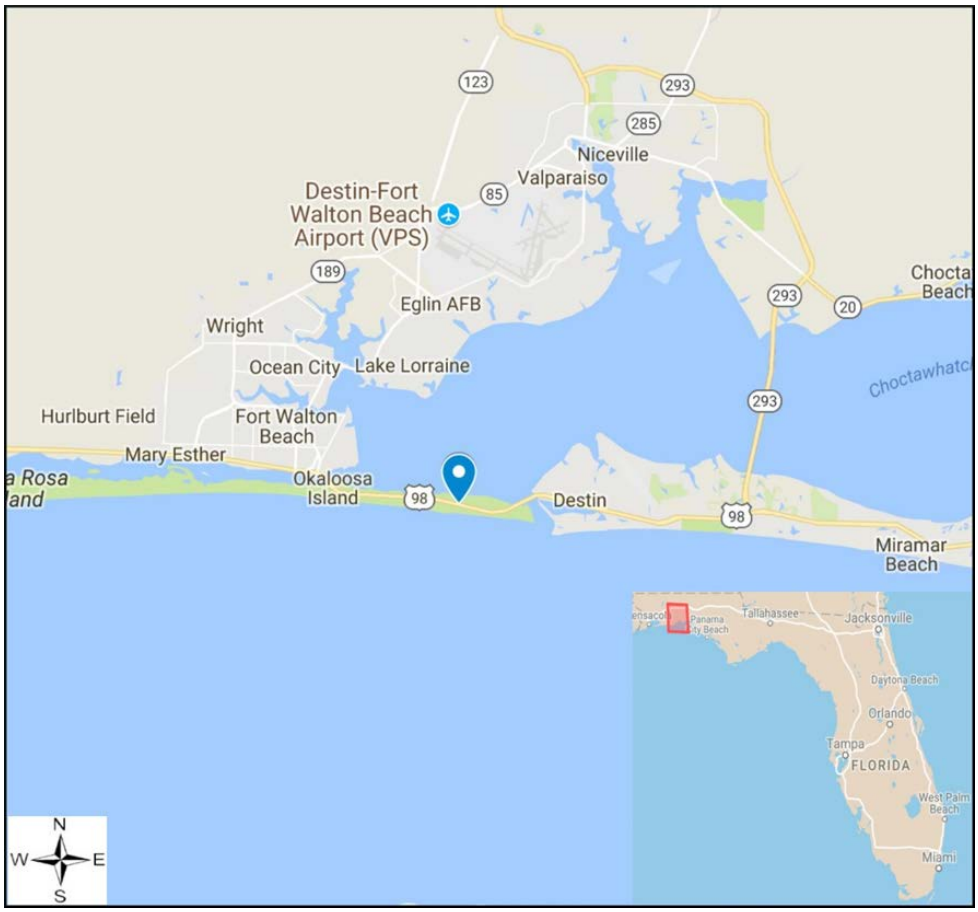

Figure 27. Data Collection for Destin (Site #570385)

Eastbound

Table 15 shows the 15-minute manual (video) traffic counts for the eastbound direction of the Destin site. Figure 28 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 15. 15-Minute Manual Vehicle Counts, Destin (Site #570385) Eastbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	162	2	1	0	165
8:15-8:30	219	0	1	1	220
8:30-8:45	233	1	1	0	235
8:45-9:00	240	3	3	0	246
9:00-9:15	193	0	2	1	195
9:15-9:30	249	1	2	0	252
9:30-9:45	298	3	4	0	305
9:45-10:00	306	1	1	0	308
10:00-10:15	296	1	2	0	299
10:15-10:30	304	2	6	0	312
10:30-10:45	334	1	3	0	338
10:45-11:00	352	4	5	0	361
11:00-11:15	311	3	3	0	317
11:15-11:30	357	3	3	1	363
11:30-11:45	317	2	8	0	327
11:45-12:00	323	0	5	0	328
12:00-12:15	347	3	5	0	355
12:15-12:30	327	1	24	0	352
12:30-12:45	297	1	9	0	307
12:45-13:00	333	0	0	0	333
13:00-13:15	287	1	1	0	289
13:15-13:30	308	2	1	0	311
13:30-13:45	343	3	19	0	365
13:45-14:00	238	0	0	0	238
14:00-14:15	338	4	0	0	342
14:15-14:30	406	5	10	0	421
14:30-14:45	352	0	4	0	356
14:45-15:00	322	3	4	0	329
15:00-15:15	318	2	1	0	321
15:15-15:30	309	3	2	0	314
15:30-15:45	317	1	3	0	321
15:45-16:00	316	1	3	0	320

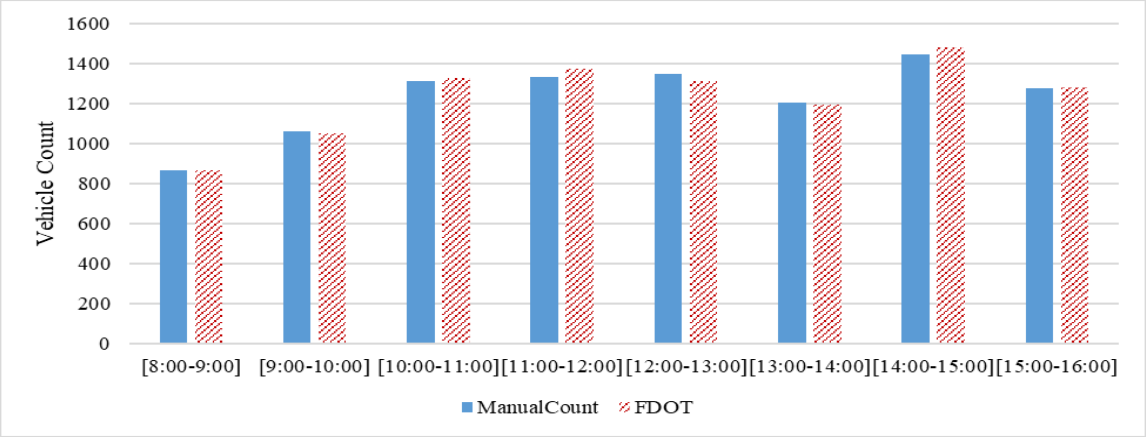

Figure 28. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #570385) Eastbound

Table 16 shows that the ratios between the FDOT and manual (video) counts have minor deviations, and no back-ups were observed during the entire analysis period for the eastbound direction. Figure 29 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 16. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #570385) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	866	869	1.00	No back-ups observed
9:00-10:00	1060	1,051	1.01	No back-ups observed
10:00-11:00	1,310	1,329	0.99	No back-ups observed
11:00-12:00	1,335	1,376	0.97	No back-ups observed
12:00-13:00	1,347	1,311	1.03	No back-ups observed
13:00-14:00	1,203	1,194	1.01	No back-ups observed
14:00-15:00	1,448	1,483	0.98	No back-ups observed
15:00-16:00	1,276	1,280	1.00	No back-ups observed

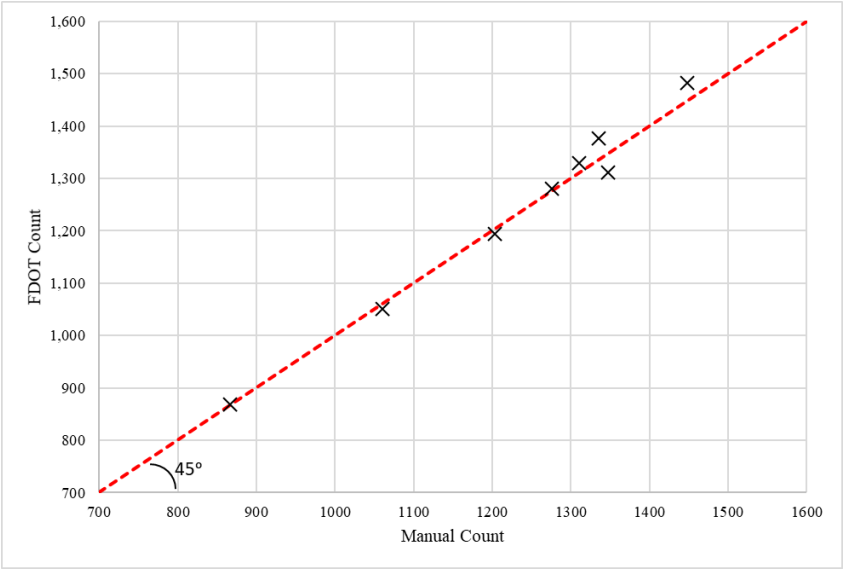

Figure 29. Distance of Count from Equality Ref. Line, Destin (Site #570385) Eastbound

Westbound

Table 17 shows the 15-minute manual (video) traffic counts for the westbound direction of the Destin site. Figure 30 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 17. 15-Minute Manual Vehicle Counts, Destin (Site #570385) Westbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	113	1	1	0	115
8:15-8:30	120	1	0	0	121
8:30-8:45	139	0	3	0	142
8:45-9:00	134	0	1	0	135
9:00-9:15	180	1	1	1	182
9:15-9:30	178	0	0	0	178
9:30-9:45	186	1	7	0	194
9:45-10:00	212	3	1	0	216
10:00-10:15	219	1	5	0	225
10:15-10:30	236	3	0	5	239
10:30-10:45	219	0	0	0	219
10:45-11:00	245	4	2	0	251
11:00-11:15	219	3	5	0	227
11:15-11:30	317	3	3	0	323
11:30-11:45	249	0	3	2	252
11:45-12:00	264	0	1	0	265
12:00-12:15	266	4	1	0	271
12:15-12:30	273	2	5	0	280
12:30-12:45	307	3	3	0	313
12:45-13:00	296	2	4	0	302
13:00-13:15	291	1	4	0	296
13:15-13:30	289	5	7	0	301
13:30-13:45	319	5	4	0	328
13:45-14:00	293	2	4	0	299
14:00-14:15	299	3	2	0	304
14:15-14:30	330	0	1	0	331
14:30-14:45	330	5	0	0	335
14:45-15:00	325	1	1	0	327
15:00-15:15	230	0	5	0	235
15:15-15:30	165	0	1	0	166
15:30-15:45	171	0	1	0	172
15:45-16:00	136	2	2	0	140

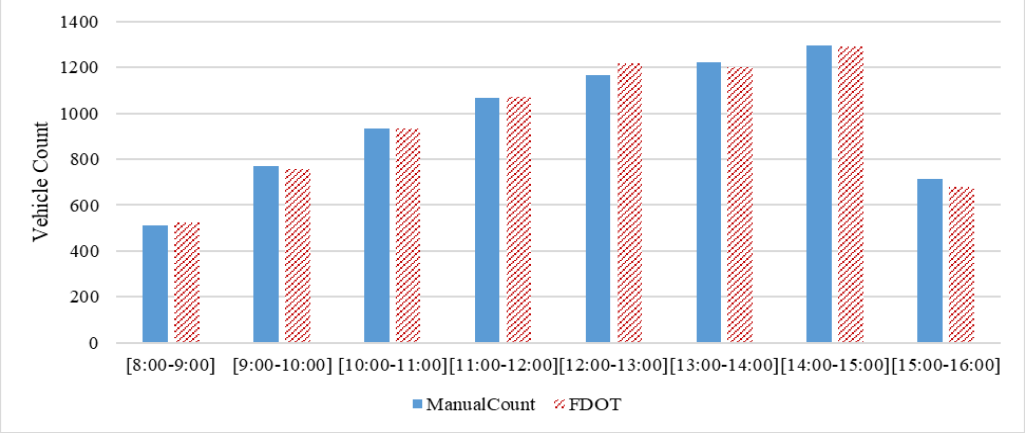

Figure 30. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #570385) Westbound

Table 18 shows that the ratios between the FDOT and manual (video) counts had minor deviations. Also, back-ups were observed from 15:00–16:00 due to an incident further down the road during the analysis period for the westbound direction. Figure 31 shows that the manual (video) and FDOT counts are almost on the ideal line.

Table 18. Manual Vehicle Counts vs. FDOT Counts, Destin (Site #570385) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	513	524	0.98	No back-ups observed
9:00-10:00	770	759	1.01	No back-ups observed
10:00-11:00	934	936	1.00	No back-ups observed
11:00-12:00	1,067	1,070	1.00	No back-ups observed
12:00-13:00	1,166	1,217	0.96	No back-ups observed
13:00-14:00	1,224	1,201	1.02	No back-ups observed
14:00-15:00	1,297	1,291	1.00	No back-ups observed
15:00-16:00	713	678	1.05	☒ 1st 15-min; ☒ 2nd 15-min; ☐ 3rd 15-min; ☒ 4th 15-min

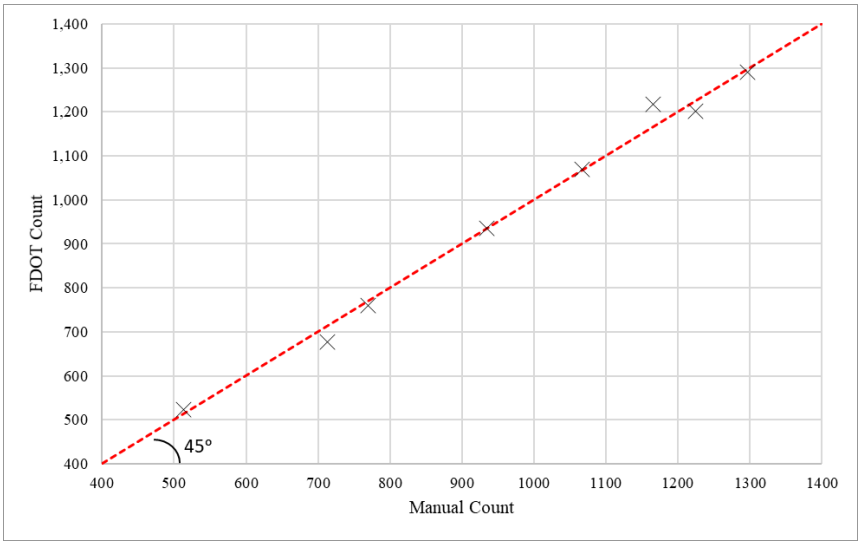

Figure 31. Distance of Count from Equality Ref. Line, Destin (Site #570385) Westbound

3.5 Key Largo (Site #900164)

The Key Largo site (#900164) is a permanent type count station located on the Overseas Hwy in Key Largo. Details of the location are provided in Figure 32. The count station's designated directions are northbound and southbound.

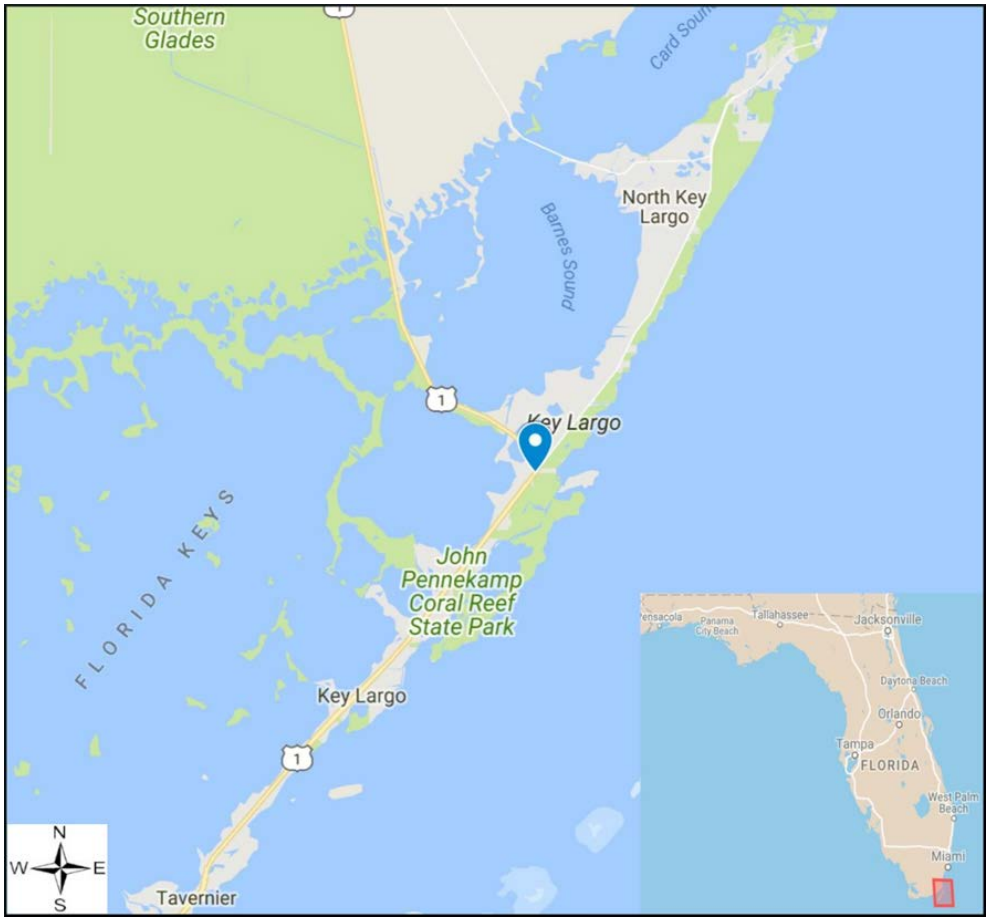

Figure 32. Data Collection for Key Largo (Site #900164)

Northbound

Table 19 shows the 15-minute manual (video) traffic counts for the northbound direction of the Key Largo site. Figure 33 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 19. 15-Minute Manual Vehicle Counts, Key Largo (Site #900164) Northbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	130	7	0	1	137
8:15-8:30	133	10	0	0	143
8:30-8:45	128	13	1	0	142
8:45-9:00	99	9	0	0	108
9:00-9:15	143	14	0	0	157
9:15-9:30	108	10	0	0	118
9:30-9:45	145	12	1	0	158
9:45-10:00	140	9	1	0	150
10:00-10:15	128	8	0	0	136
10:15-10:30	136	11	0	0	147
10:30-10:45	150	13	0	0	163
10:45-11:00	150	12	2	0	164
11:00-11:15	142	18	2	0	162
11:15-11:30	170	15	4	0	189
11:30-11:45	176	18	1	1	195
11:45-12:00	174	15	0	0	189
12:00-12:15	192	17	2	0	211
12:15-12:30	178	10	0	0	188
12:30-12:45	208	17	1	0	226
12:45-13:00	186	14	0	1	200
13:00-13:15	168	16	3	0	187
13:15-13:30	181	12	1	0	194
13:30-13:45	167	12	1	0	180
13:45-14:00	172	11	2	0	185
14:00-14:15	217	15	6	0	238
14:15-14:30	198	13	1	0	212
14:30-14:45	189	14	2	0	205
14:45-15:00	197	13	0	0	210
15:00-15:15	195	13	1	0	209
15:15-15:30	226	15	0	0	241
15:30-15:45	211	15	0	0	226
15:45-16:00	266	15	0	0	281

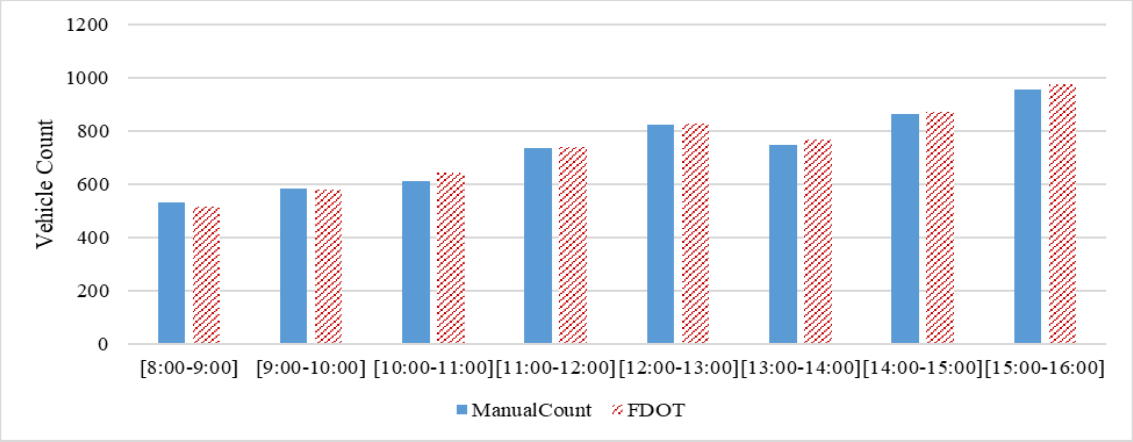

Figure 33. Manual Vehicle Counts vs. FDOT Counts, Key Largo (Site #900164) Northbound

Table 20 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the northbound direction. Figure 34 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 20. Manual (Video) Vehicle Counts vs. FDOT Counts, Key Largo (Site #900164) Northbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	530	514	1.03	No back-ups observed
9:00-10:00	583	578	1.01	No back-ups observed
10:00-11:00	610	643	0.95	No back-ups observed
11:00-12:00	735	738	1.00	No back-ups observed
12:00-13:00	825	829	1.00	No back-ups observed
13:00-14:00	746	766	0.97	No back-ups observed
14:00-15:00	865	870	0.99	No back-ups observed
15:00-16:00]	957	974	0.98	No back-ups observed

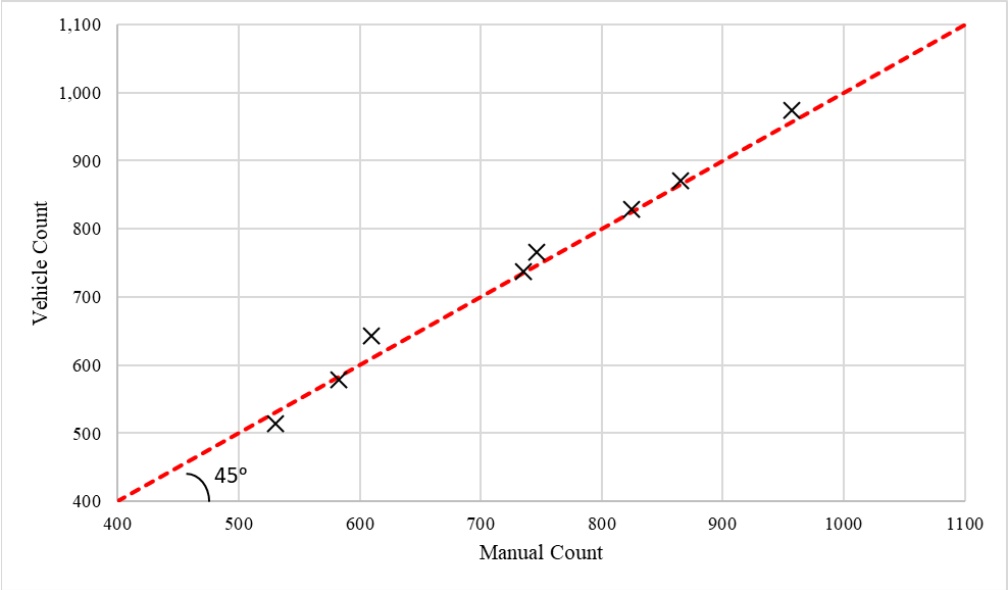

Figure 34. Distance of Count from Equality Ref. Line, Key Largo (Site #900164) Northbound

Southbound

Table 21 shows the 15-minute manual (video) traffic counts for the southbound direction of the Key Largo site. Figure 35 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 21. 15-Minute Manual Vehicle Counts, Key Largo (Site #900164) Southbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	270	19	0	0	289
8:15-8:30	260	20	1	0	281
8:30-8:45	274	15	0	0	289
8:45-9:00	247	20	0	0	267
9:00-9:15	241	22	0	0	263
9:15-9:30	224	19	0	0	243
9:30-9:45	222	15	0	0	237
9:45-10:00	216	20	1	0	237
10:00-10:15	228	10	1	0	239
10:15-10:30	217	7	1	0	225
10:30-10:45	192	18	0	0	210
10:45-11:00	264	8	2	0	274
11:00-11:15	184	11	0	0	195
11:15-11:30	220	11	1	0	232
11:30-11:45	238	9	2	0	249
11:45-12:00	220	12	6	0	238
12:00-12:15	192	7	7	0	206
12:15-12:30	205	13	0	0	218
12:30-12:45	191	10	1	0	202
12:45-13:00	212	10	0	0	222
13:00-13:15	254	7	0	0	261
13:15-13:30	166	6	0	0	172
13:30-13:45	203	8	1	0	212
13:45-14:00	197	11	3	1	211
14:00-14:15	175	7	0	0	182
14:15-14:30	186	12	1	0	199
14:30-14:45	180	4	1	0	185
14:45-15:00	237	13	4	0	254
15:00-15:15	156	10	0	0	166
15:15-15:30	190	5	1	0	196
15:30-15:45	192	21	1	0	214
15:45-16:00	159	11	0	0	170

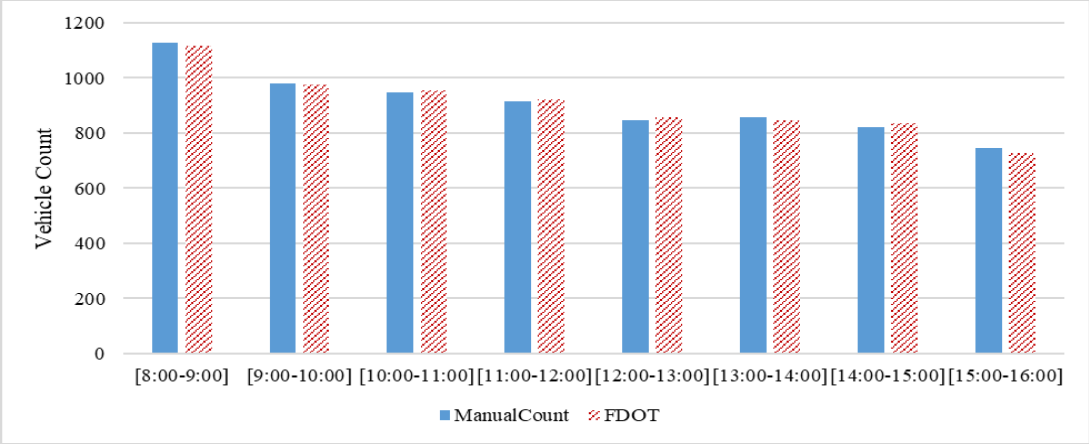

Figure 35. Manual Vehicle Counts vs. FDOT Counts, Key Largo (Site #900164) Southbound

Table 22 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the southbound direction. Figure 36 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 22. Manual Vehicle Counts vs. FDOT Counts, Key Largo (Site #900164) Southbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	1,126	1,117	1.01	No back-ups observed
9:00-10:00	980	976	1.00	No back-ups observed
10:00-11:00	948	953	0.99	No back-ups observed
11:00-12:00	914	923	0.99	No back-ups observed
12:00-13:00	848	857	0.99	No back-ups observed
13:00-14:00	856	848	1.01	No back-ups observed
14:00-15:00	820	836	0.98	No back-ups observed
15:00-16:00	746	726	1.03	No back-ups observed

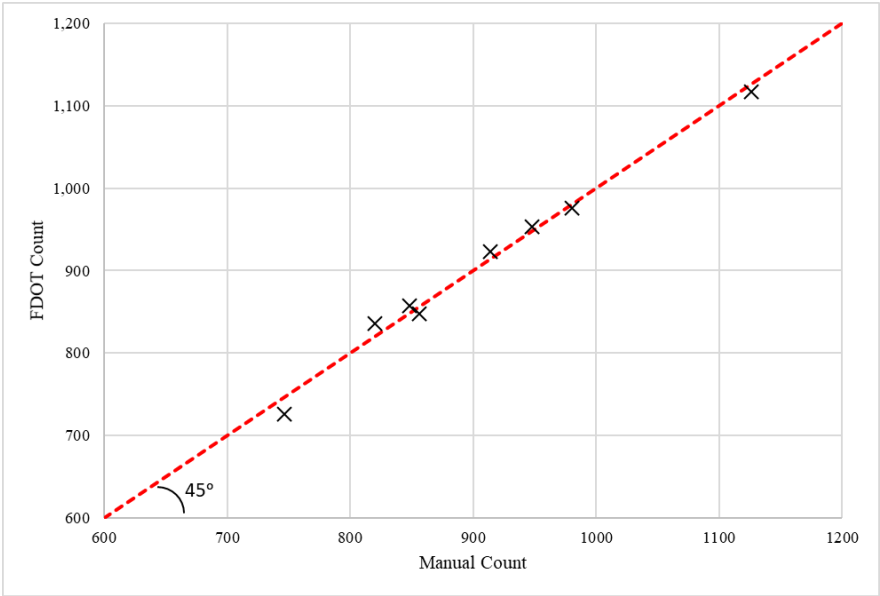

Figure 36. Distance of Count from Equality Ref. Line, Key Largo (Site #900164) Southbound

3.6 Sarasota (Site #170011)

The Sarasota site (#170011) is a temporary type count station located on Gulfstream Ave in Sarasota. Details of the location are provided in Figure 37. The count station's designated directions are eastbound and westbound.

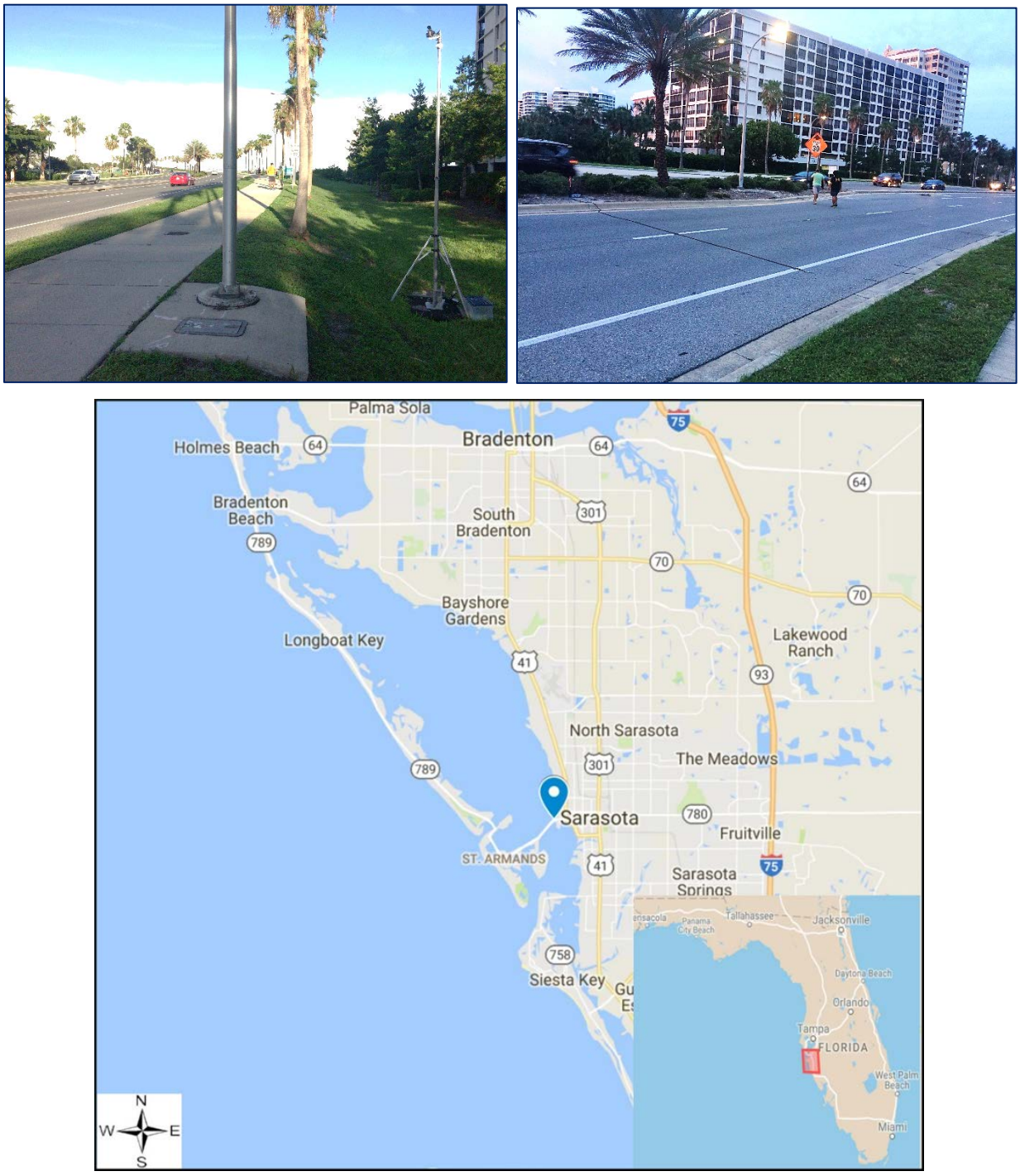

Figure 37. Data Collection for Sarasota (Site #170011)

Eastbound

Table 23 shows the 15-minute manual (video) traffic counts for the eastbound direction of the Sarasota site. Figure 38 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to one another.

Table 23. 15-Minute Manual Vehicle Counts, Sarasota (Site #170011) Eastbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	112	3	1	0	116
8:15-8:30	116	2	2	0	120
8:30-8:45	141	3	0	1	145
8:45-9:00	167	1	1	4	173
9:00-9:15	168	2	0	2	172
9:15-9:30	184	4	0	1	189
9:30-9:45	187	8	1	5	201
9:45-10:00	195	4	4	2	205
10:00-10:15	154	1	5	3	163
10:15-10:30	195	8	1	0	204
10:30-10:45	192	3	1	2	198
10:45-11:00	204	3	1	4	212
11:00-11:15	205	4	0	2	211
11:15-11:30	239	5	1	4	249
11:30-11:45	222	1	3	1	227
11:45-12:00	249	2	0	0	251
12:00-12:15	253	5	1	2	261
12:15-12:30	243	4	1	2	250
12:30-12:45	240	4	2	1	247
12:45-13:00	245	3	1	3	252
13:00-13:15	269	7	4	1	281
13:15-13:30	253	3	1	0	257
13:30-13:45	287	5	2	4	298
13:45-14:00	245	5	6	0	256
14:00-14:15	297	1	2	1	301
14:15-14:30	347	5	3	1	356
14:30-14:45	331	2	2	0	335
14:45-15:00	328	4	1	0	333
15:00-15:15	380	3	1	0	384
15:15-15:30	378	4	6	2	390
15:30-15:45	366	2	1	1	370
15:45-16:00	358	4	1	0	363

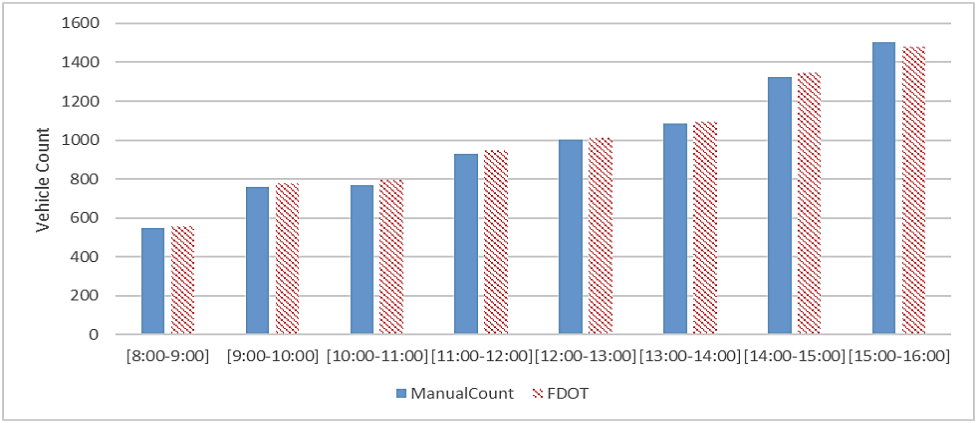

Figure 38. Manual (Video) Vehicle Counts vs. FDOT Counts, Sarasota (Site #170011) Eastbound

Table 24 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the eastbound direction. Figure 39 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 24. Manual (Video) Vehicle Counts vs. FDOT Counts, Sarasota (Site #170011) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	549	559	0.98	No back-ups observed
9:00-10:00	757	777	0.97	No back-ups observed
10:00-11:00	768	796	0.96	No back-ups observed
11:00-12:00	931	946	0.98	No back-ups observed
12:00-13:00	1,002	1014	0.99	No back-ups observed
13:00-14:00	1,087	1096	0.99	No back-ups observed
14:00-15:00	1,323	1345	0.98	No back-ups observed
15:00-16:00	1,504	1482	1.01	No back-ups observed

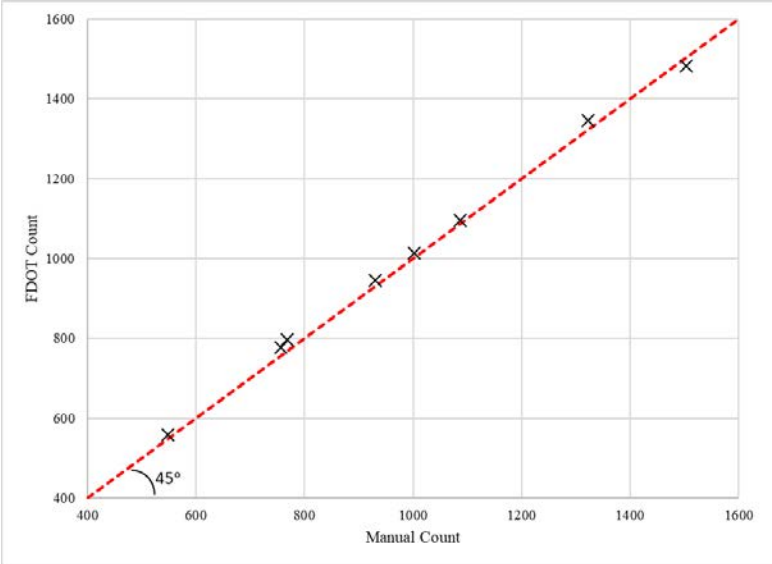

Figure 39. Distance of Count from Equality Ref. Line, Sarasota (Site #170011) Eastbound

Westbound

Table 25 shows the 15-minute manual (video) traffic counts for the westbound direction of the Sarasota site. Figure 40 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be close to one another.

Table 25. 15-Minute Manual Vehicle Counts, Sarasota (Site #170011) Westbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	167	10	2	4	183
8:15-8:30	171	2	1	5	179
8:30-8:45	235	4	6	1	246
8:45-9:00	235	8	1	4	248
9:00-9:15	234	9	0	4	247
9:15-9:30	238	9	1	4	252
9:30-9:45	308	6	2	3	319
9:45-10:00	286	9	2	1	298
10:00-10:15	235	9	9	1	254
10:15-10:30	320	6	4	5	335
10:30-10:45	330	11	3	3	347
10:45-11:00	325	9	3	3	340
11:00-11:15	386	14	3	0	403
11:15-11:30	351	6	0	1	358
11:30-11:45	323	2	4	1	330
11:45-12:00	327	6	2	3	338
12:00-12:15	354	7	3	0	364
12:15-12:30	322	3	2	3	330
12:30-12:45	386	4	4	0	394
12:45-13:00	383	6	2	0	391
13:00-13:15	340	6	2	0	348
13:15-13:30	331	3	3	0	337
13:30-13:45	374	4	3	1	382
13:45-14:00	308	4	3	0	315
14:00-14:15	310	5	3	1	319
14:15-14:30	320	4	1	0	325
14:30-14:45	339	1	4	2	346
14:45-15:00	306	4	0	0	310
15:00-15:15	291	4	5	0	300
15:15-15:30	275	1	0	0	276
15:30-15:45	310	4	2	1	317
15:45-16:00	333	3	1	0	337

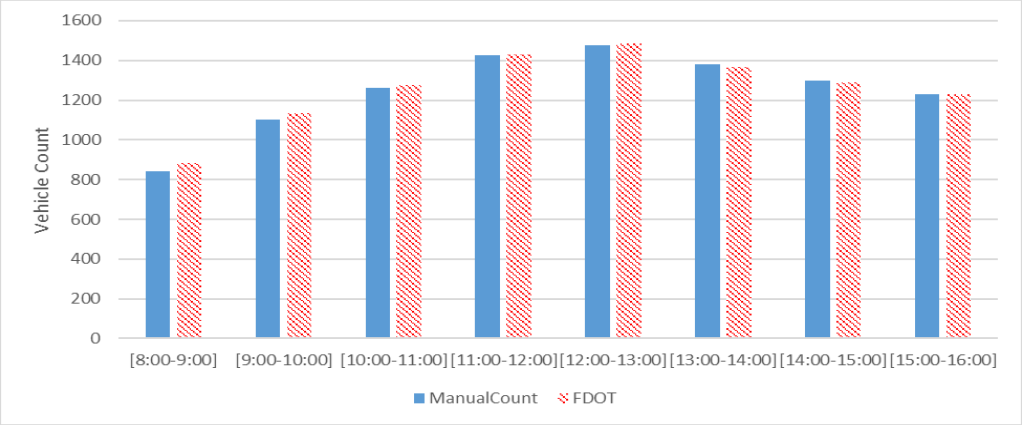

Figure 40. Manual Vehicle Counts vs. FDOT Counts, Sarasota (Site #170011) Westbound

Table 26 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the westbound direction. Figure 41 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 26. Manual Vehicle Counts vs. FDOT Counts, Sarasota (Site #170011) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	842	881	0.96	No back-ups observed
9:00-10:00	1,104	1136	0.97	No back-ups observed
10:00-11:00	1,264	1275	0.99	No back-ups observed
11:00-12:00	1,424	1431	1.00	No back-ups observed
12:00-13:00	1,476	1484	0.99	No back-ups observed
13:00-14:00	1,381	1366	1.01	No back-ups observed
14:00-15:00	1,297	1290	1.01	No back-ups observed
15:00-16:00	1,229	1230	1.00	No back-ups observed

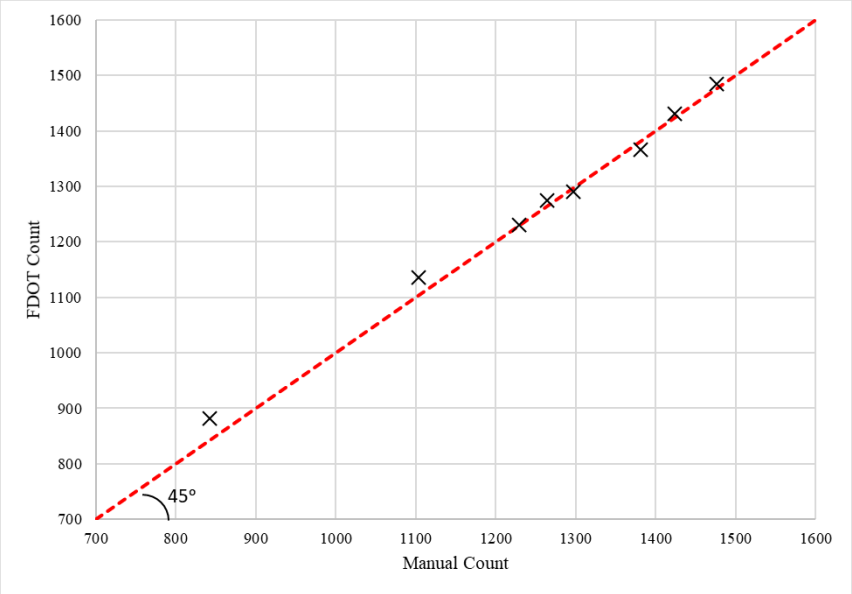

Figure 41. Distance of Count from Equality Ref. Line, Sarasota (Site #170011) Westbound

3.7 South Miami Beach (Site #870108)

The South Miami Beach site (#870108) is a permanent type count station located on I-195 in South Miami. Details of the location are provided in Figure 42. The count station's designated directions are eastbound and westbound.

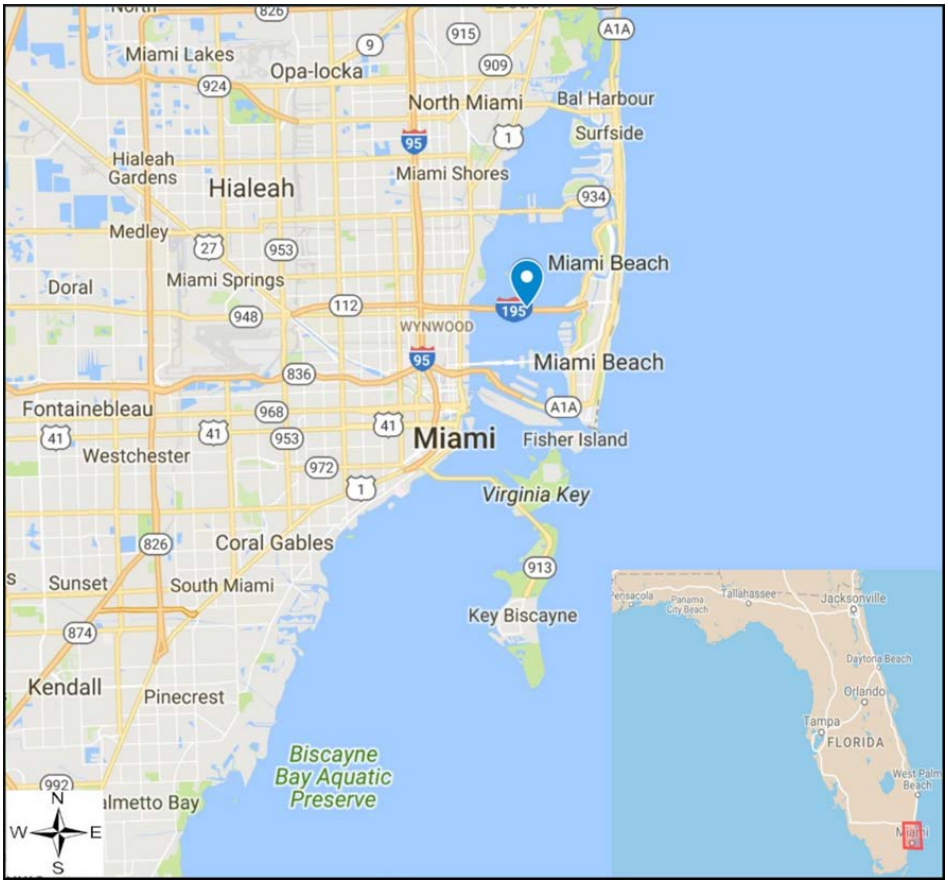

Figure 42. Data Collection for South Miami Beach (Site #870108)

Eastbound

Table 27 shows the 15-minute manual (video) traffic counts for the eastbound direction of the South Miami Beach site. Figure 43 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 27. 15-Minute Manual Vehicle Counts, South Miami (Site #870108) Eastbound

Time Period	Passenger Car	Trucks	Motorcycle	Bicycle	Total
8:00-8:15	504	21	1	0	526
8:15-8:30	506	34	1	0	541
8:30-8:45	577	34	3	0	614
8:45-9:00	628	22	2	0	652
9:00-9:15	488	18	0	0	506
9:15-9:30	522	18	4	0	544
9:30-9:45	572	14	1	0	587
9:45-10:00	598	15	1	0	614
10:00-10:15	541	14	6	0	561
10:15-10:30	549	11	1	0	561
10:30-10:45	541	17	1	0	559
10:45-11:00	563	12	3	0	578
11:00-11:15	563	15	1	0	579
11:15-11:30	544	10	1	0	555
11:30-11:45	557	14	4	0	575
11:45-12:00	597	15	4	0	616
12:00-12:15	606	8	2	0	616
12:15-12:30	555	11	5	0	571
12:30-12:45	613	12	2	0	627
12:45-13:00	669	14	1	0	684
13:00-13:15	633	12	5	0	650
13:15-13:30	644	5	3	0	652
13:30-13:45	636	12	2	0	650
13:45-14:00	712	8	1	0	721
14:00-14:15	628	9	1	2	638
14:15-14:30	762	4	3	2	769
14:30-14:45	814	5	4	0	823
14:45-15:00	805	13	6	0	824
15:00-15:15	732	9	4	0	745
15:15-15:30	702	7	3	0	712
15:30-15:45	762	8	8	0	778
15:45-16:00	757	7	2	0	766

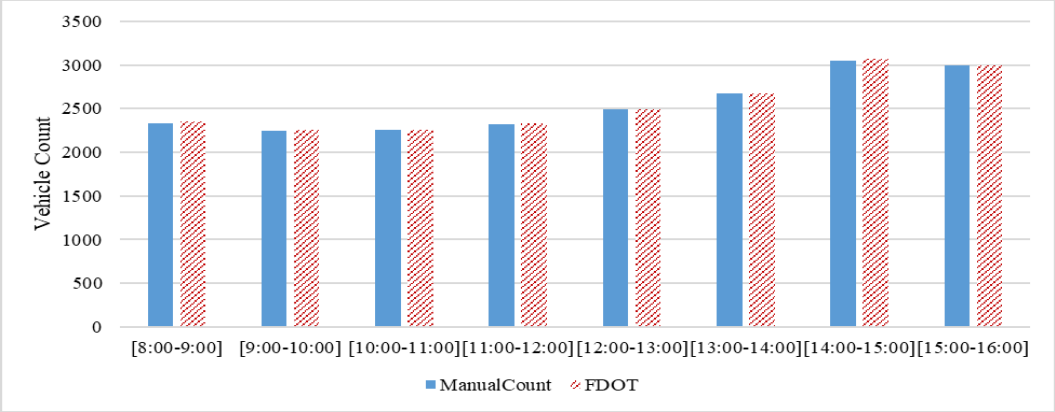

Figure 43. Manual (Video) Vehicle Counts vs. FDOT Counts, South Miami (Site #870108) Eastbound

Table 28 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for eastbound direction. Figure 44 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 28. Manual (Video) Vehicle Counts vs. FDOT Counts, South Miami (Site #870108) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	2,333	2,356	0.99	No back-ups observed
9:00-10:00	2,251	2,260	1.00	No back-ups observed
10:00-11:00	2,259	2,254	1.00	No back-ups observed
11:00-12:00	2,325	2,335	1.00	No back-ups observed
12:00-13:00	2,498	2,488	1.00	No back-ups observed
13:00-14:00	2,673	2,679	1.00	No back-ups observed
14:00-15:00	3,054	3,073	0.99	No back-ups observed
15:00-16:00	3,001	2,999	1.00	No back-ups observed

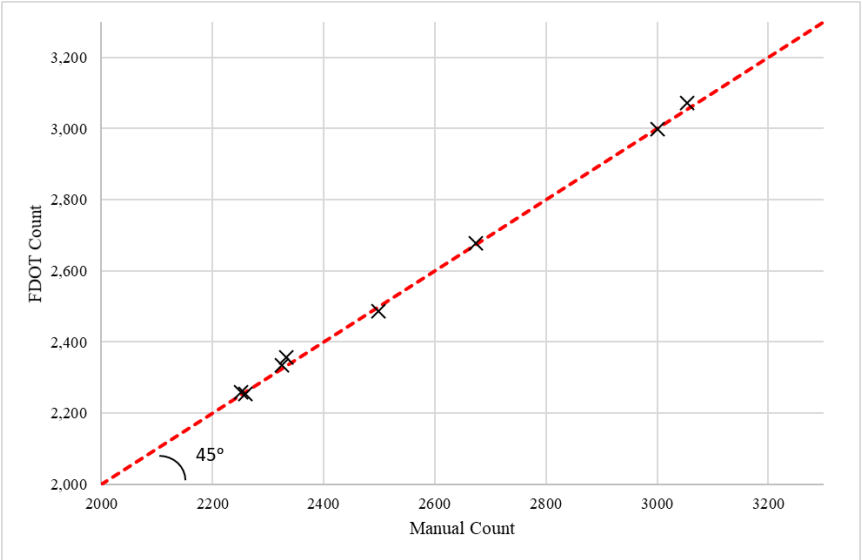

Figure 44. Distance of Count from Equality Ref. Line, South Miami (Site #870108) Eastbound

Westbound

Table 29 shows the 15-minute manual (video) traffic counts for the westbound direction of the South Miami Beach site. Figure 45 compares the FDOT counts with manual (video) counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 29. 15-Minute Manual Vehicle Counts, South Miami (Site #870108) Westbound

Time Period	Passenger Car	Trucks	Motorcycle	Bicycle	Total
8:00-8:15	354	13	0	0	367
8:15-8:30	354	5	1	2	360
8:30-8:45	392	10	1	2	403
8:45-9:00	401	8	2	0	411
9:00-9:15	423	4	1	0	428
9:15-9:30	444	15	1	1	460
9:30-9:45	509	16	0	3	525
9:45-10:00	485	16	2	0	503
10:00-10:15	501	7	2	1	510
10:15-10:30	508	11	3	1	522
10:30-10:45	539	12	2	0	553
10:45-11:00	585	16	4	1	605
11:00-11:15	551	19	0	0	570
11:15-11:30	643	26	1	0	670
11:30-11:45	597	13	2	0	612
11:45-12:00	576	8	1	0	585
12:00-12:15	615	14	3	0	632
12:15-12:30	652	24	4	0	680
12:30-12:45	621	21	1	0	643
12:45-13:00	602	19	2	1	623
13:00-13:15	597	14	4	0	615
13:15-13:30	587	15	1	0	603
13:30-13:45	657	12	0	0	669
13:45-14:00	661	16	1	0	678
14:00-14:15	594	23	6	0	623
14:15-14:30	713	18	7	0	738
14:30-14:45	665	19	2	0	686
14:45-15:00	682	13	3	1	698
15:00-15:15	749	10	1	0	760
15:15-15:30	786	10	3	0	799
15:30-15:45	836	14	2	0	852
15:45-16:00	748	9	5	0	762

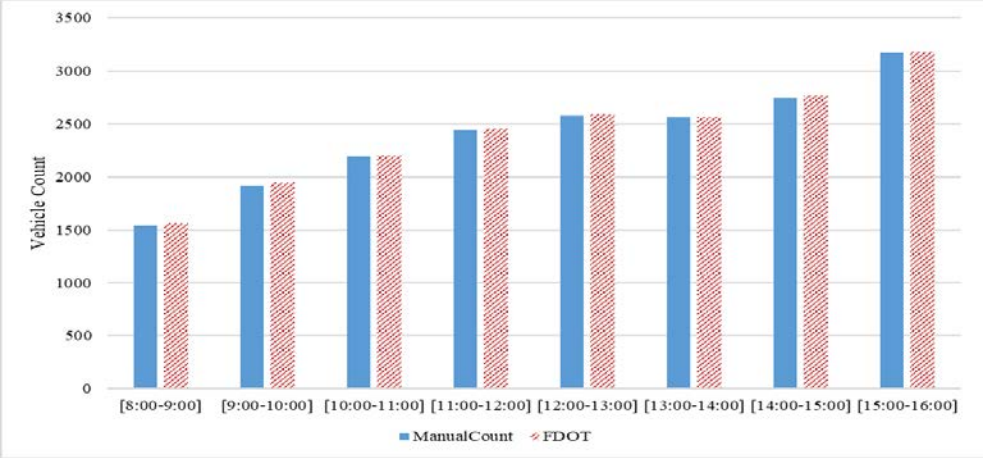

Figure 45. Manual Vehicle Counts vs. FDOT Counts, South Miami (Site #870108) Westbound

Table 30 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the westbound direction. Figure 46 shows that the manual (video) and FDOT counts are almost on the ideal line. This is due to no back-ups observed during the analysis period.

Table 30. Manual Vehicle Counts vs. FDOT Counts, South Miami (Site #870108) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	1541	1,559	0.99	No back-ups observed
9:00-10:00	1916	1,946	0.98	No back-ups observed
10:00-11:00	2,190	2,198	1.00	No back-ups observed
11:00-12:00	2,437	2,453	0.99	No back-ups observed
12:00-13:00	2,578	2,594	0.99	No back-ups observed
13:00-14:00	2,565	2,563	1.00	No back-ups observed
14:00-15:00	2,745	2,766	0.99	No back-ups observed
15:00-16:00	3,173	3,179	1.00	No back-ups observed

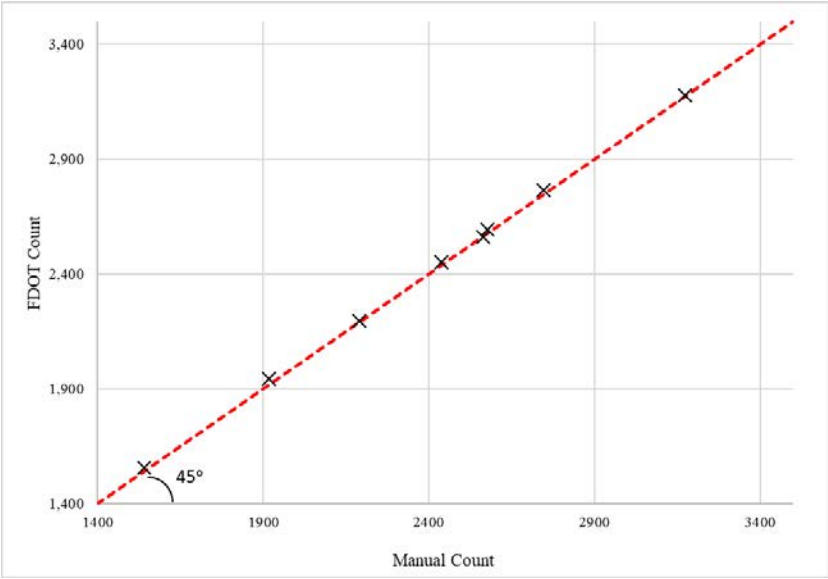

Figure 46. Distance of Count from Equality Ref. Line, South Miami (Site #870108) Westbound

3.8 Jacksonville Beach (Site #720062)

The Jacksonville Beach site (#720062) is a permanent type count station located on Beach Blvd in Jacksonville. Details of the location are provided in Figure 47. The count station's designated directions are eastbound and westbound.

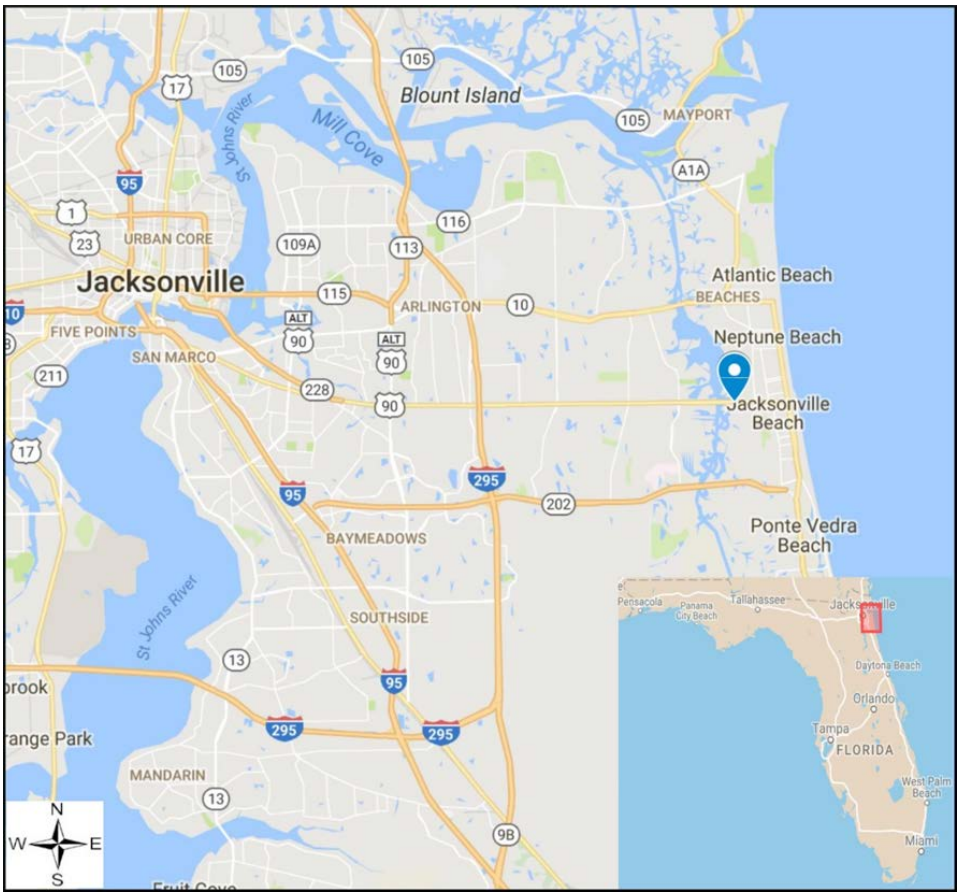

Figure 47. Data Collection for Jacksonville Beach (Site #720062)

Eastbound

Table 31 shows the 15-minute manual (video) traffic counts for the eastbound direction of the Jacksonville Beach site. Figure 48 compares the FDOT counts with the manual counts side-by-side using a bar chart. There is a significant difference between FDOT counts and manual (video) counts for the morning, from 8:00–11:00 AM. Considering that back-ups were observed only between 10:00–11:00 AM, it is possible that the counter was malfunctioning for a short while. The project team suggests the possible investigation of the reason for lower counts from the counter during that period.

Table 31. 15-Minute Manual Vehicle Counts, Jacksonville Beach (Site #720062) Eastbound

Time Period	Passenger Car	Trucks	Motorcycle	Bicycle	Total
8:00-8:15	171	2	1	0	174
8:15-8:30	228	3	1	1	232
8:30-8:45	241	5	1	3	247
8:45-9:00	344	4	2	0	350
9:00-9:15	257	5	1	2	263
9:15-9:30	279	3	1	0	283
9:30-9:45	292	2	2	1	296
9:45-10:00	364	2	5	1	371
10:00-10:15	314	3	1	3	318
10:15-10:30	312	3	3	1	318
10:30-10:45	273	10	0	0	283
10:45-11:00	389	6	3	2	398
11:00-11:15	362	3	5	1	370
11:15-11:30	367	4	3	2	374
11:30-11:45	427	4	0	0	431
11:45-12:00	323	7	2	0	332
12:00-12:15	378	2	3	0	383
12:15-12:30	369	6	2	0	377
12:30-12:45	395	3	2	0	400
12:45-13:00	449	2	2	0	453
13:00-13:15	376	1	0	0	377
13:15-13:30	341	4	3	0	348
13:30-13:45	386	4	1	1	391
13:45-14:00	361	5	2	0	368
14:00-14:15	340	2	1	0	343
14:15-14:30	358	4	2	0	364
14:30-14:45	350	0	1	1	351
14:45-15:00	377	3	1	1	381
15:00-15:15	353	3	5	0	361
15:15-15:30	350	2	2	0	354
15:30-15:45	332	2	4	0	338
15:45-16:00	346	3	3	0	352

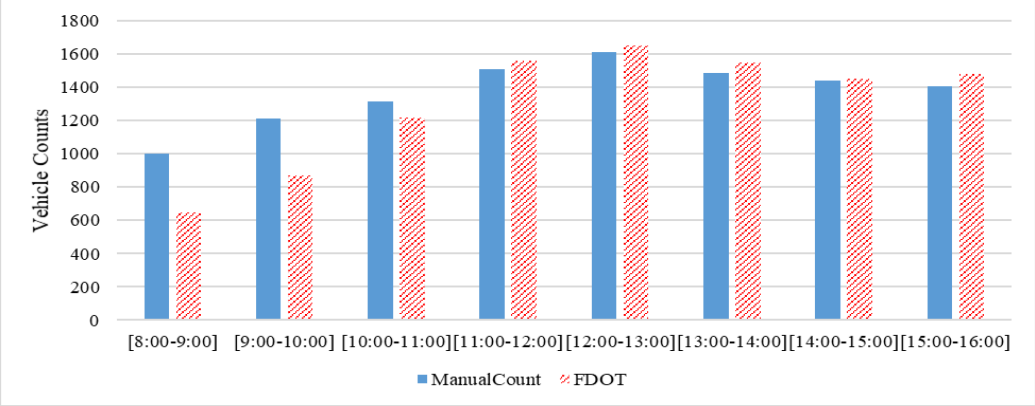

Figure 48. Manual Vehicle Counts vs. FDOT Counts, Jacksonville Beach (Site #720062) Eastbound

Table 32 shows that the ratio between the FDOT and manual counts have some deviations, and back-ups were observed in the late morning period for the eastbound direction. Figure 49 shows that the morning FDOT counts were not as accurate when compared to manual (video) counts due to a possible malfunction of the counter device in the morning. During the afternoon, the counts were much closer to the ideal line and were found to be more accurate compared to the morning time.

Table 32. Manual Vehicle Counts vs. FDOT Count, Jacksonville Beach (Site #720062) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	1,003	648	1.55	No back-ups observed
9:00-10:00	1,213	870	1.39	No back-ups observed
10:00-11:00	1,317	1217	1.08	☒ 1st 15-min; ☐ 2nd 15-min; ☒ 3rd 15-min; ☒ 4th 15-min
11:00-12:00	1,507	1558	0.97	No back-ups observed
12:00-13:00	1,613	1650	0.98	No back-ups observed
13:00-14:00	1,484	1548	0.96	No back-ups observed
14:00-15:00	1,439	1453	0.99	No back-ups observed
15:00-16:00	1,405	1479	0.95	No back-ups observed

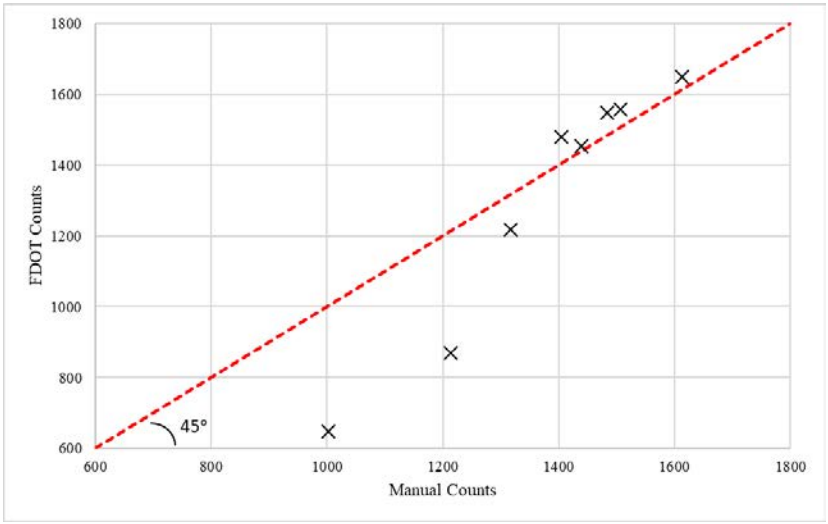

Figure 49. Distance of Count from Equality Ref. Line, Jacksonville Beach (Site #720062) Eastbound

Westbound

Table 33 shows the 15-minute manual (video) traffic counts for the westbound direction of the Jacksonville Beach site. Figure 50 compares the FDOT counts with the manual counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 33. 15-Minute Manual Vehicle Counts, Jacksonville Beach (Site #720062) Westbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	162	5	1	2	168
8:15-8:30	201	1	1	3	203
8:30-8:45	210	2	2	0	214
8:45-9:00	204	2	1	1	207
9:00-9:15	201	6	1	10	208
9:15-9:30	236	4	3	2	243
9:30-9:45	269	3	4	1	276
9:45-10:00	276	3	0	2	279
10:00-10:15	275	4	3	1	282
10:15-10:30	288	3	0	3	291
10:30-10:45	299	3	3	3	305
10:45-11:00	335	2	2	2	339
11:00-11:15	357	3	3	0	363
11:15-11:30	293	4	3	0	300
11:30-11:45	344	6	4	2	354
11:45-12:00	329	2	1	0	332
12:00-12:15	393	3	0	1	396
12:15-12:30	343	6	4	0	353
12:30-12:45	353	3	5	1	361
12:45-13:00	320	3	2	0	325
13:00-13:15	360	1	3	0	364
13:15-13:30	350	3	1	0	354
13:30-13:45	328	4	2	0	334
13:45-14:00	320	5	0	0	325
14:00-14:15	352	2	2	0	356
14:15-14:30	333	1	3	0	337
14:30-14:45	289	1	4	0	294
14:45-15:00	357	4	5	0	366
15:00-15:15	407	0	1	0	408
15:15-15:30	349	5	0	1	354
15:30-15:45	324	1	4	0	329
15:45-16:00	316	1	0	0	317

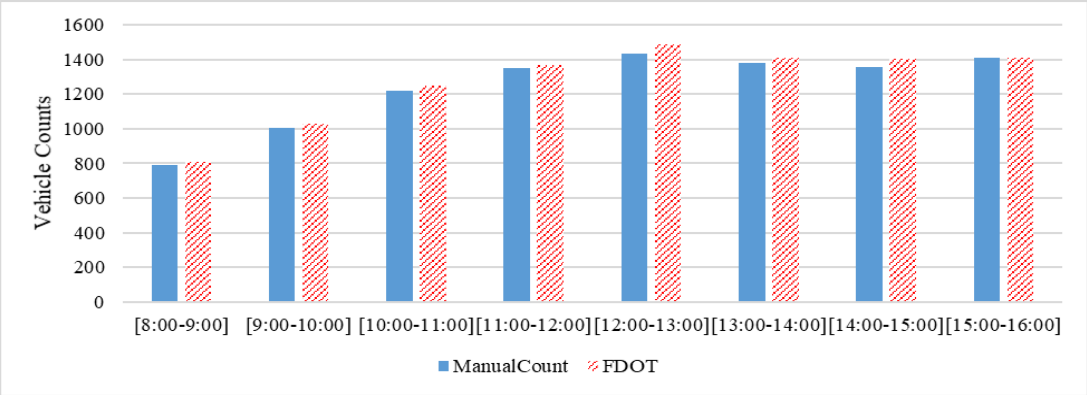

Figure 50. Manual Vehicle Counts vs. FDOT Counts, Jacksonville Beach (Site #720062) Westbound

Table 34 shows that the ratios between the FDOT and manual (video) counts have minor deviations, and no back-ups were observed during the entire analysis period for westbound direction. Figure 51 shows that the manual (video) and FDOT counts are very close to the ideal line. This is due to no back-ups observed during the analysis period.

Table 34. Manual Vehicle Counts vs. FDOT Counts, Jacksonville Beach (Site #720062) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	792	810	0.98	No back-ups observed
9:00-10:00	1006	1,026	0.98	No back-ups observed
10:00-11:00	1,217	1,249	0.97	No back-ups observed
11:00-12:00	1,349	1,367	0.99	No back-ups observed
12:00-13:00	1,435	1,485	0.97	No back-ups observed
13:00-14:00	1,377	1,409	0.98	No back-ups observed
14:00-15:00	1,353	1,401	0.97	No back-ups observed
15:00-16:00	1,408	1,412	1.00	No back-ups observed

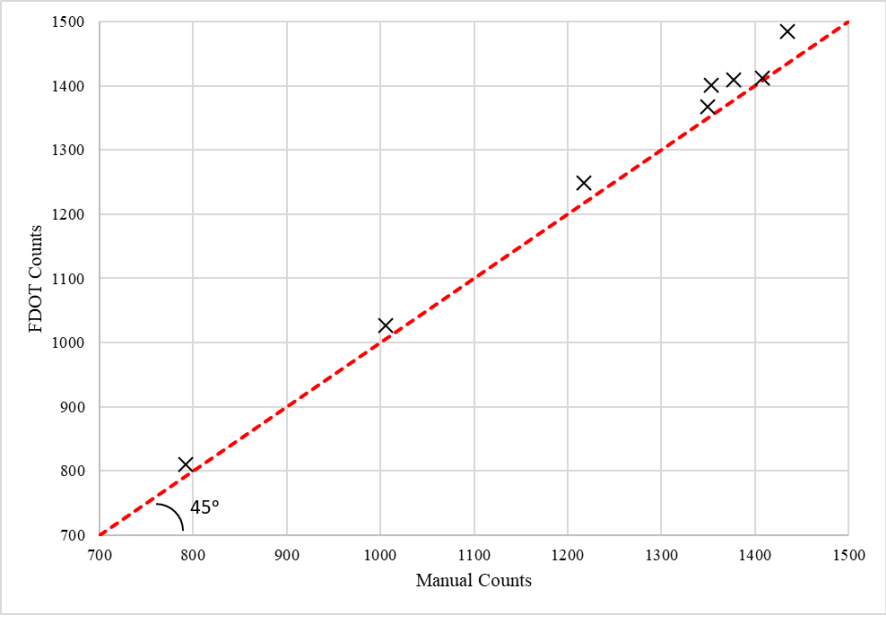

Figure 51. Distance of Count from Equality Ref. Line, Jacksonville Beach (Site #720062) Westbound

3.9 Madeira Beach (Site #150031)

The Madeira Beach site (#150031) is a temporary type count station located on 150th Ave in Madeira Beach. Details of the location are provided in Figure 52. The count station's designated directions are eastbound and westbound.

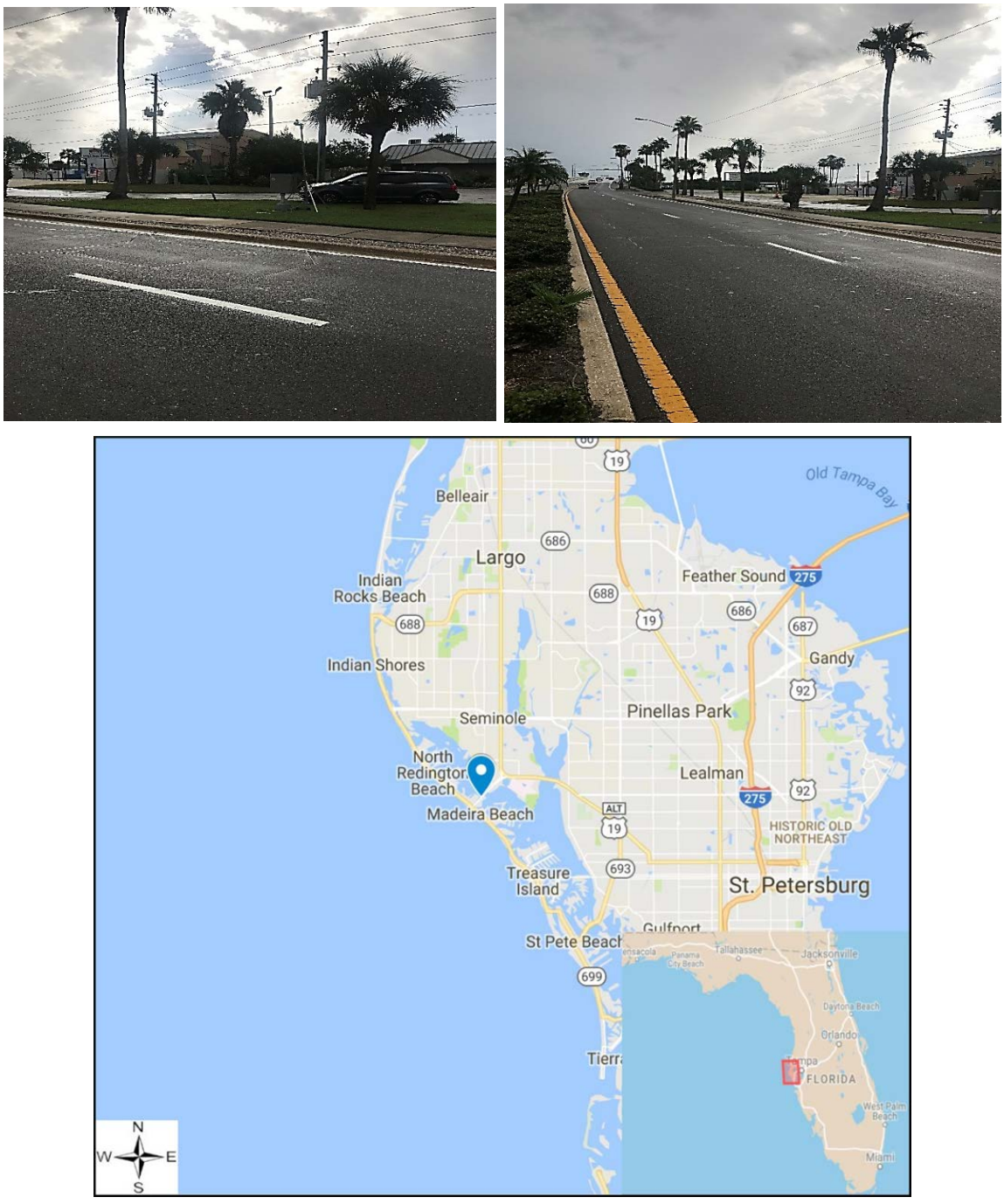

Figure 52. Data Collection for Madeira Beach (Site #150031)

Eastbound

Table 35 shows the 15-minute manual (video) counts for the eastbound direction of the Madeira Beach site. Figure 53 compares the FDOT counts with the manual counts side-by-side using a bar chart. The counts were found to be very close to each other, and the difference is not significant.

Table 35. 15-Minute Manual Vehicle Counts, Madeira Beach (Site #150031) Eastbound

Time Period	Passenger Car	Truck	Motorcycle	Bicycle	Total
8:00-8:15	141	3	0	0	144
8:15-8:30	147	3	0	0	150
8:30-8:45	163	2	0	0	165
8:45-9:00	157	3	0	0	160
9:00-9:15	128	2	0	0	130
9:15-9:30	172	3	1	0	176
9:30-9:45	203	2	1	0	206
9:45-10:00	229	5	0	0	234
10:00-10:15	230	2	1	0	233
10:15-10:30	233	2	0	0	235
10:30-10:45	248	3	1	0	252
10:45-11:00	197	1	0	0	198
11:00-11:15	225	3	1	0	229
11:15-11:30	239	3	0	0	242
11:30-11:45	223	3	2	0	228
11:45-12:00	217	2	1	0	220
12:00-12:15	206	2	0	0	208
12:15-12:30	205	3	2	0	210
12:30-12:45	209	2	0	0	211
12:45-13:00	202	3	2	0	207
13:00-13:15	215	3	0	0	218
13:15-13:30	200	5	3	0	208
13:30-13:45	234	2	1	0	237
13:45-14:00	234	2	7	0	243
14:00-14:15	252	2	0	1	254
14:15-14:30	210	1	1	0	212
14:30-14:45	242	2	1	0	245
14:45-15:00	233	0	3	0	236
15:00-15:15	218	4	1	0	223
15:15-15:30	258	9	2	0	269
15:30-15:45	242	2	3	0	247
15:45-16:00	228	3	2	0	233

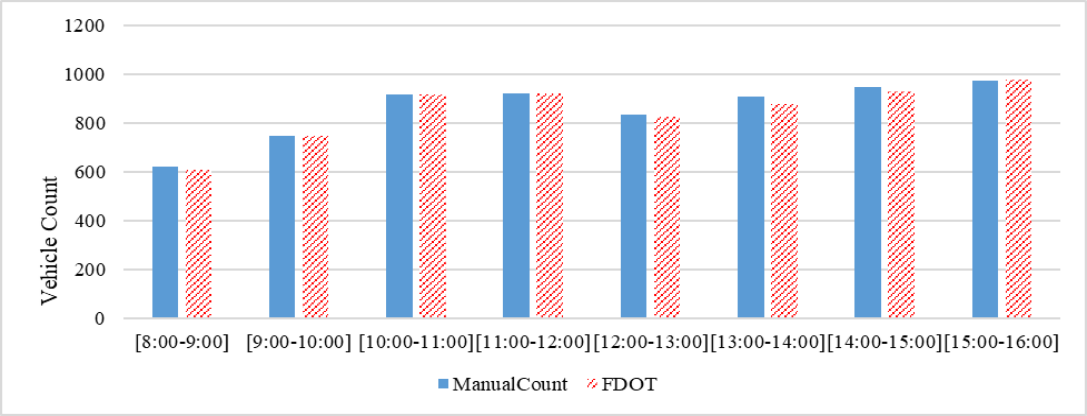

Figure 53. Manual Vehicle Counts vs. FDOT Counts, Madeira Beach (Site #150031) Eastbound

Table 36 shows that the ratios between the FDOT and manual (video) counts had minor deviations, and no back-ups were observed during the entire analysis period for the eastbound direction. Figure 54 shows that the manual (video) and FDOT counts are very close to the ideal line. This is due to no back-ups observed during the analysis period.

Table 36. Manual Vehicle Counts vs. FDOT Counts, Madeira Beach (Site #150031) Eastbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	619	609	1.02	No back-ups observed
9:00-10:00	746	746	1.00	No back-ups observed
10:00-11:00	918	917	1.00	No back-ups observed
11:00-12:00	919	921	1.00	No back-ups observed
12:00-13:00	836	827	1.01	No back-ups observed
13:00-14:00	906	878	1.03	No back-ups observed
14:00-15:00	947	930	1.02	No back-ups observed
15:00-16:00	972	979	0.99	No back-ups observed

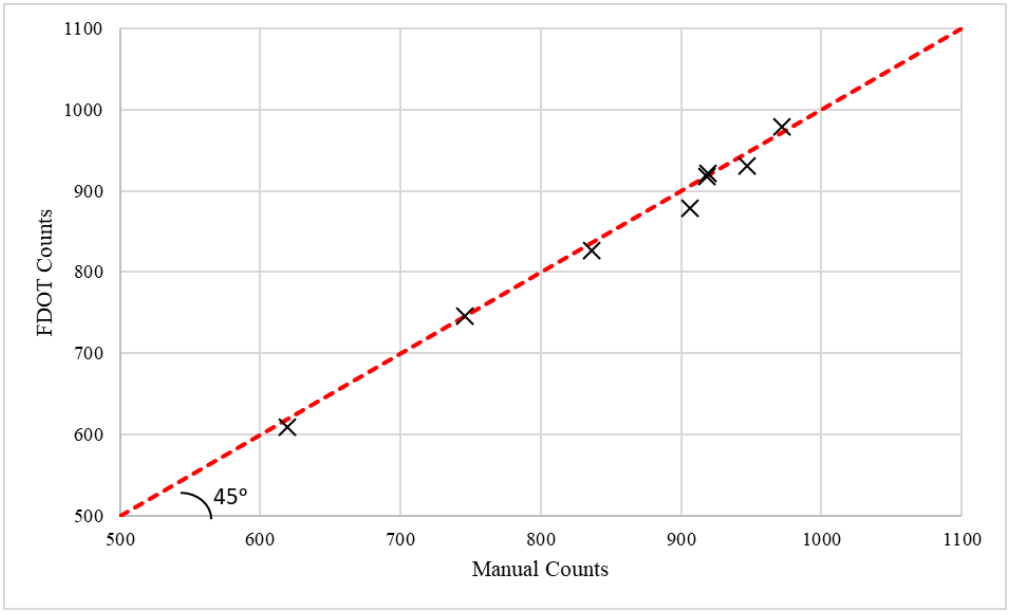

Figure 54. Distance of Count from Equality Ref. Line, Madeira Beach (Site #150031) Eastbound

Westbound

Table 37 shows the 15-minute manual (video) traffic counts for the westbound direction of the Madeira Beach site. Figure 55 compares the FDOT counts with the manual (video) counts side-by-side using a bar chart. Except for the 12:00–1:00 PM time slot, there is good agreement between the counts, and they are very close to each other. FDOT's count at 12:00–1:00 PM is about 10% higher than that of the manual (video) counts and might represent a minor issue with the counter during this time period only.

Table 37. 15-Minute Manual Vehicle Counts, Madeira Beach (Site #150031) Westbound

Time Period	Passenger Car	Trucks	Motorcycle	Bicycle	Total
8:00-8:15	100	3	1	0	104
8:15-8:30	123	1	0	0	124
8:30-8:45	168	3	0	0	171
8:45-9:00	151	1	0	0	152
9:00-9:15	137	5	0	0	142
9:15-9:30	157	4	0	0	161
9:30-9:45	172	3	1	0	176
9:45-10:00	199	0	0	1	199
10:00-10:15	216	2	0	0	218
10:15-10:30	186	2	0	0	188
10:30-10:45	219	2	0	0	221
10:45-11:00	222	2	3	0	227
11:00-11:15	209	2	3	0	214
11:15-11:30	222	2	1	0	225
11:30-11:45	267	2	0	0	269
11:45-12:00	272	3	0	0	275
12:00-12:15	148	2	0	0	150
12:15-12:30	268	1	3	0	272
12:30-12:45	281	2	2	0	285
12:45-13:00	297	5	3	0	305
13:00-13:15	268	5	1	0	274
13:15-13:30	299	2	8	0	309
13:30-13:45	289	3	3	0	295
13:45-14:00	234	0	2	0	236
14:00-14:15	284	2	5	1	291
14:15-14:30	286	1	2	0	289
14:30-14:45	282	4	2	1	288
14:45-15:00	265	1	4	0	270
15:00-15:15	246	1	5	0	252
15:15-15:30	273	1	3	0	277
15:30-15:45	287	1	2	0	290
15:45-16:00	256	1	5	0	262

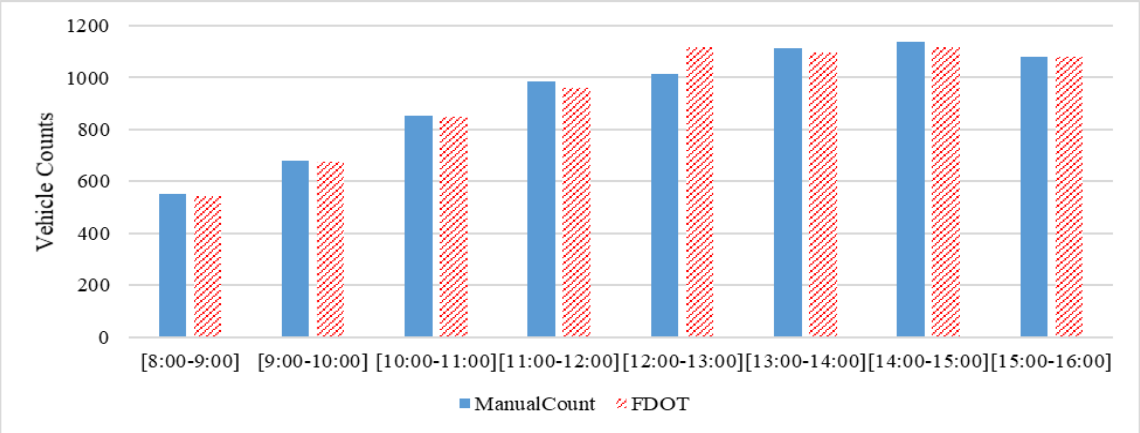

Figure 55. Manual Vehicle Counts vs. FDOT Counts, Madeira Beach (Site #150031) Westbound

Table 38 shows that the ratios between the FDOT and manual (video) counts had minor deviations, except for the previously-mentioned 12:00–1:00 PM time period. Figure 56 shows that the manual (video) and FDOT counts are on the ideal line, except for one hour in the afternoon from 12:00–13:00, which could be due to a malfunction in the counter during this time period.

Table 38. Manual Vehicle Counts vs. FDOT Counts, Madeira Beach (Site #150031) Westbound

Time Period	Manual Count	FDOT Count	Ratio to FDOT	Traffic Back-up Observation
8:00-9:00	551	542	1.02	No back-ups observed
9:00-10:00	678	676	1.00	No back-ups observed
10:00-11:00	854	850	1.00	No back-ups observed
11:00-12:00	983	959	1.03	No back-ups observed
12:00-13:00	1,012	1,118	0.91	No back-ups observed
13:00-14:00	1,114	1,096	1.02	No back-ups observed
14:00-15:00	1,138	1,116	1.02	No back-ups observed
15:00-16:00	1,081	1,081	1.00	No back-ups observed

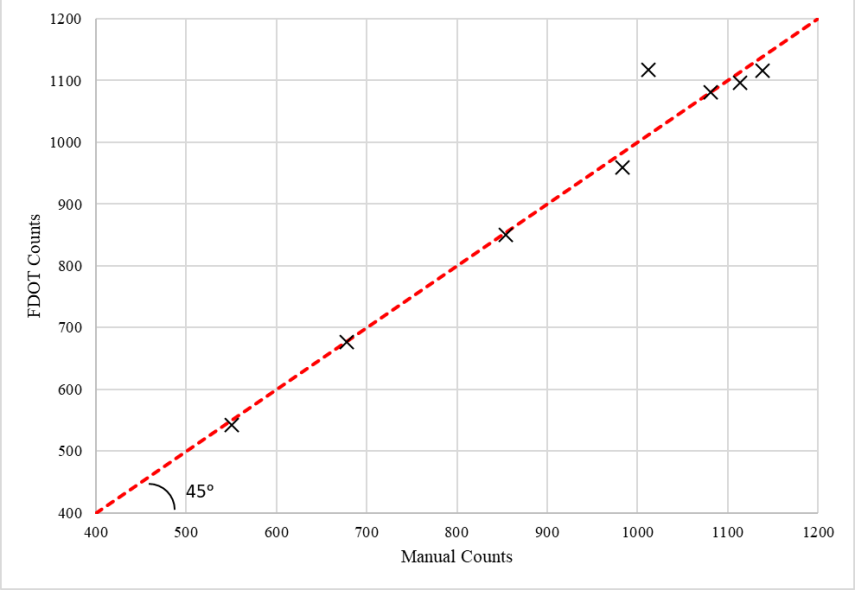

Figure 56. Distance of Count from Equality Ref. Line, Madeira Beach (Site #150031) Westbound

3.10 Conclusion on Field Visits and Traffic Count Data Spot-checks for Validation

After reviewing the observed results during the field visits and traffic count data spot-checks for validation, as described in the above subsections, it was determined that most FDOT counts and the manual (video) traffic counts were in good agreement, with some minor deviations that are deemed acceptable.

It should be noted that in cases where the counter malfunctioned, only a couple of hours of data showed deviations. In each case, the detector recovered, and the FDOT and manual (video) counts were found to be in good agreement within the remainder of the eight-hour analysis period.

Another major observation was that the difference between the FDOT and manual (video) counts was the highest when traffic back-ups were observed during specific hours of the day (especially afternoons when beach traffic peaks). This could be associated with the traffic counters counting the vehicles not as effectively when the vehicles are at a standstill on top of the counter and/or traffic was moving bumper-to-bumper.

4 Data Processing and Analysis

This section discusses analysis conducted for the eight locations. The data processing methods used and the data replacement assumptions made for unavailable data are discussed in depth for each site, and the results obtained for each count station site for a 12-month period are highlighted.

Data were provided to CUTR by FDOT on a monthly basis, from July 2017 to June 2018, in spreadsheet format. For a few months, data were not available for a number of sites; these missing data were completed by either an adjusted/inflated version of the previous-year data (July 2016 to June 2017) or the annual average for the day of week, calculated using current-year's available data. After careful handling of missing and erroneous data, the sum of hourly traffic—specifically, 24 hours of traffic counts—was calculated to obtain daily traffic counts. The date field was used to extract month and day of week for each day in the current analysis period. Daily traffic counts and information about the month and day of week were used to process various traffic stream characteristics and charts to ease data visualization.

To understand the daily and monthly traffic counts, four traffic stream characteristics were calculated as follows:

- AADT was calculated by taking an average of the daily traffic volume for a specific direction from July 2017 to June 2018.
- AAWDT was calculated by taking an average of the daily traffic volume for a specific direction on all weekdays from July 2017 to June 2018.
- MADW was calculated by taking an average of the daily traffic volume for a specific direction on a day of week for each month in the year from July 2017 to June 2018.
- MADT was calculated for each specific direction by taking an average of the respective MADWs for each month in the year from July 2017 to June 2018.

In addition, four charts were prepared for ease of data visualization for each site:

- Bar chart that shows total traffic observed for a specific direction every month from July 2017 to June 2018 to aid in visualizing monthly variations experienced in traffic.
- Radar chart of total traffic volume on a scale of 100,000-vehicle counts experienced during a week at a site for a specific direction from July 2017 to June 2018 to aid in visualizing weekly traffic trends.
- Clustered column chart that shows total traffic volume experienced on every day of the week, clustered monthly from July 2017 to June 2018, to aid in visualizing total traffic trends on a day of the week of a specific month.
- Radar chart that depicts annual total traffic volume on a scale of 100,000 vehicle counts experienced on a day of the week from July 2017 to June 2018 to aid in visualizing annual variations in traffic on a specific day of the week.

The 12 count station sites selected for this study were split into two types of count stations, permanent and temporary. The following subsections introduce these sites and provide detailed information on data cleaning, transforming, calculations, and analysis conducted for each site.

4.1 Permanent Sites

Continuous traffic data were collected at permanent sites through permanently-installed counters located at these specific sites. A total of nine permanent count station sites were selected for this study, as listed in Table 39.

Table 39. Permanent Count Station Sites

Station #	Station Location	Count Station #	Count Station Type
1	Bradenton Beach	134004	Permanent
2	Bradenton Beach	134111	Permanent
3	Cocoa Beach	700113	Permanent
4	Destin	570385	Permanent
5	Destin	600168	Permanent
6	South Miami Beach	870031	Permanent
7	South Miami Beach	870108	Permanent
8	Key Largo	900164	Permanent
9	Jacksonville Beach	720062	Permanent

For each of these permanent count station sites, FDOT provided a spreadsheet on a monthly basis containing counts of vehicles for each hour of each day in a month from July 2017 to June 2018. As noted, for the months for which data were not available for the current analysis period, an adjusted/inflated version of the previous-year data (i.e., July 2016 to June 2017), also provided by FDOT, was used to fill in these missing data. The adjusted/inflated version was calculated by multiplying the previous-year data with an inflation factor, calculated for each site using the following two step methodology:

1) A comparison ratio (shown in blue in Figure 57) that compared the current year's monthly traffic volume over previous-year's monthly traffic volume was calculated. Calculation of these comparison ratios was possible only for months that had both current and previous-year's data available for the site in consideration.

2) An average of all monthly comparison ratios was computed (shown in orange in Figure 57) to obtain the inflation factor for a specific site.

For example, assume that for a given site's current-year August traffic, count data were unavailable; however, previous-year August traffic count data were available. As shown in Figure 57 and Figure 58, the inflation factor was computed for this site comparing previous-year data with current-year data, and the inflation factor was multiplied with previous-year August data to get an adjusted/inflated version of the data, which was then used in place of current-year's missing August data.

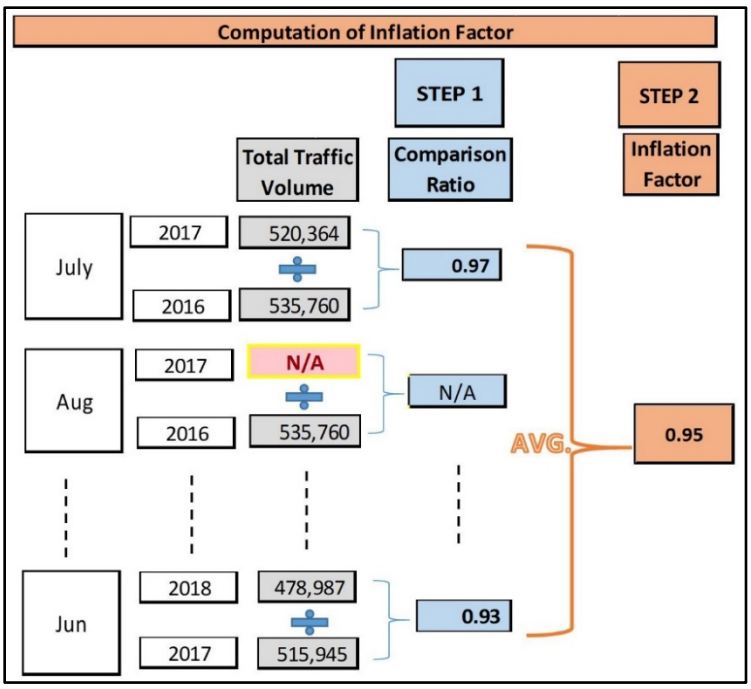

Figure 57. Calculation Steps for Inflation Factor of Permanent Site

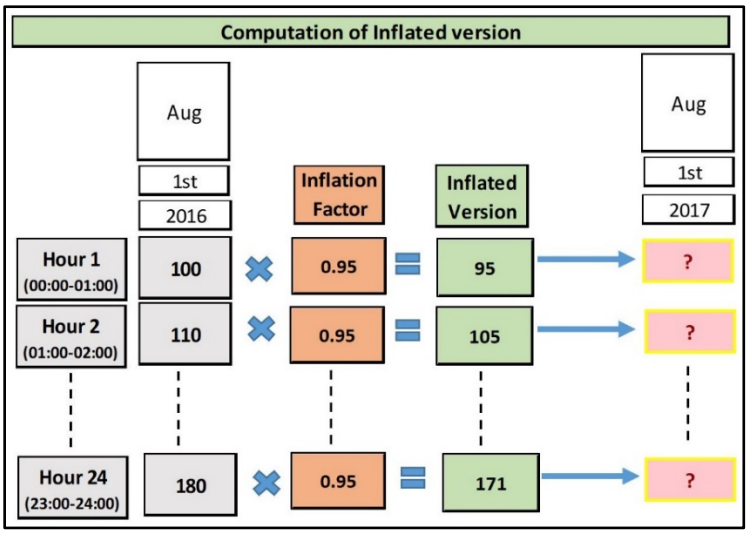

Figure 58. Handling Missing Data with Inflated Version of Previous Year Data for Permanent Site

The inflation factor represents a possible change in current-year's traffic over previous-year's traffic. Most inflation factors computed for permanent sites were found to be closer to 1, representing an expected slight change in current-year's traffic over previous-year's traffic and also validating that previous-year's traffic count data can be a valid/similar representation of current-year's missing traffic count data.

In addition to missing records, some data were erroneous. Each day of the current analysis period was categorized by its field "type," which indicates the occasion for a day using five variables:

- N indicates that day is Normal
- A indicates that day is Atypical
- H indicates that day is a Holiday
- S indicates that day had a Special Event
- B indicates data are “Bad” due to possible malfunction of the counter

To obtain uniformity in data, type B hourly data were replaced by an hourly average of monthly traffic volume on that specific day of the week. An average of traffic counts for each hour of the day on a day of the week in a specific direction was calculated to replace respective erroneous hourly data. For example, as shown in Figure 59, assume that Monday, July 31, 2017, is a “bad” data day for a permanent site in the northbound direction. The data from the 1st hour of the day to the 24th hour of the day would have been replaced. For the sake of simplicity, focusing only on the first hour of this day, an average of first hour’s data for all the Mondays in July would have been computed to replace the erroneous data.

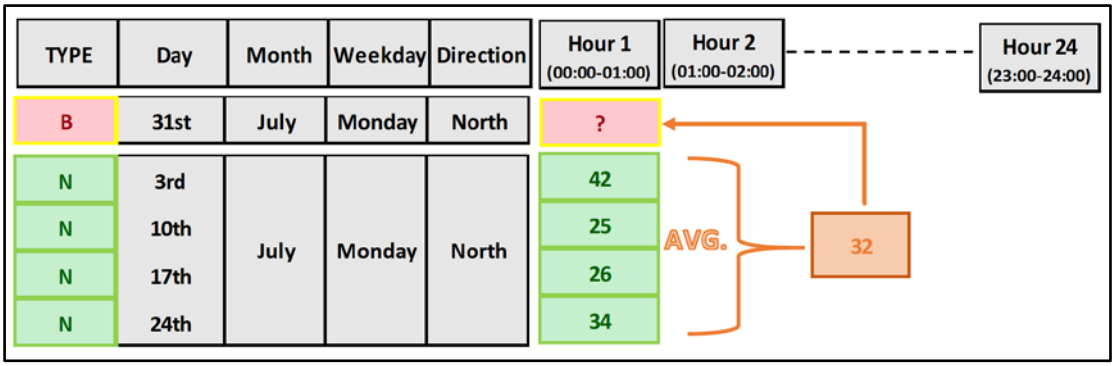

Figure 59. Calculation Procedure for Replacing Hourly Erroneous Data of a Permanent Site

Subsequent subsections provide site-specific information for all permanent count station sites, their detailed data processing methods, and analysis results for each direction as follows: (1) table depicting AADT, AAWDT, MADW, and MADT for the analysis period; (2) bar chart plotting total monthly traffic volume; 3) radar chart plotting total weekly traffic volume; (4) clustered bar chart depicting total traffic volume for a day of the week in a specific month; and (5) radar chart showing the total traffic volume for a day of the week.

4.1.1 Bradenton Beach (Site #134004)

The Bradenton Beach site (#134004) is a permanent count station; its site-specific information is provided in Section 3.1. In the analysis period from July 2017 to June 2018, data for January, February, March, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 1.00, which was generated by comparing the monthly traffic volume of the current year over the previous year for April, July, August, September, October, November, and December. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Northbound

Table 40 shows the AADT, AAWDT, MADW, and MADT for the northbound direction.

Table 40. AADT, AAWDT, MADW, and MADT, Bradenton Beach (Site #134004), Northbound

AADT	AAWDT
5,937	5,895

MADW: Monthly Average Days of the Week								
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	6,068	5,965	6,239	6,116	6,334	6,585	6,805	6,302
Aug-17	6,114	4,901	5,243	5,280	5,308	5,640	5,962	5,492
Sep-17	3,933	4,248	4,476	4,453	4,507	4,538	4,182	4,334
Oct-17	5,152	5,146	5,140	5,364	5,485	5,775	5,446	5,358
Nov-17	5,704	5,425	5,600	5,693	5,258	5,831	6,089	5,657
Dec-17	5,512	5,291	5,696	5,748	5,798	5,847	5,321	5,602
Jan-18	5,938	5,337	5,916	6,244	6,560	6,450	6,306	6,107
Feb-18	6,626	6,638	6,714	7,050	6,692	6,793	6,968	6,783
Mar-18	6,902	6,870	6,699	7,143	7,253	6,811	6,880	6,937
Apr-18	6,570	6,272	6,306	7,102	6,985	7,280	7,764	6,897
May-18	6,520	6,666	6,021	5,662	5,688	5,797	6,085	6,063
Jun-18	6,237	5,911	5,308	5,575	5,770	6,076	6,260	5,877

Figure 60 depicts the monthly traffic volume from July 2017 to June 2018. As shown, traffic increased with the progression of the summer season and decreased with onset of the winter season. Also, for the northbound direction, March and April were the busiest months of the year, and September had the lowest traffic volume due to Hurricane Irma.

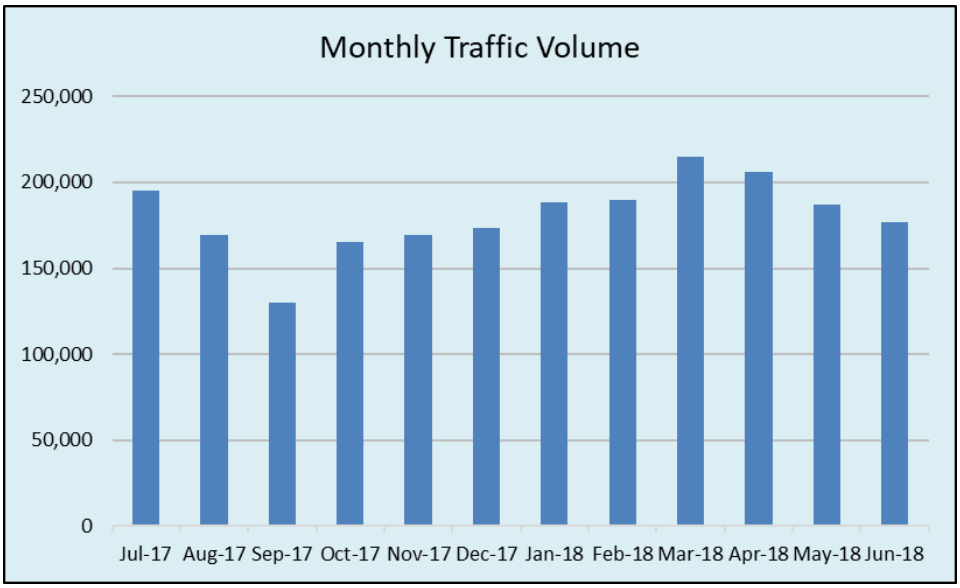

Figure 60. Monthly Traffic Volume, Bradenton Beach (Site #134004), Northbound

Figure 61 shows weekly traffic volume from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping from week 9 onward due to Hurricane Irma. Overall, there is variance in weekly traffic volume, ranging from 20,000 to 50,000 vehicles per week.

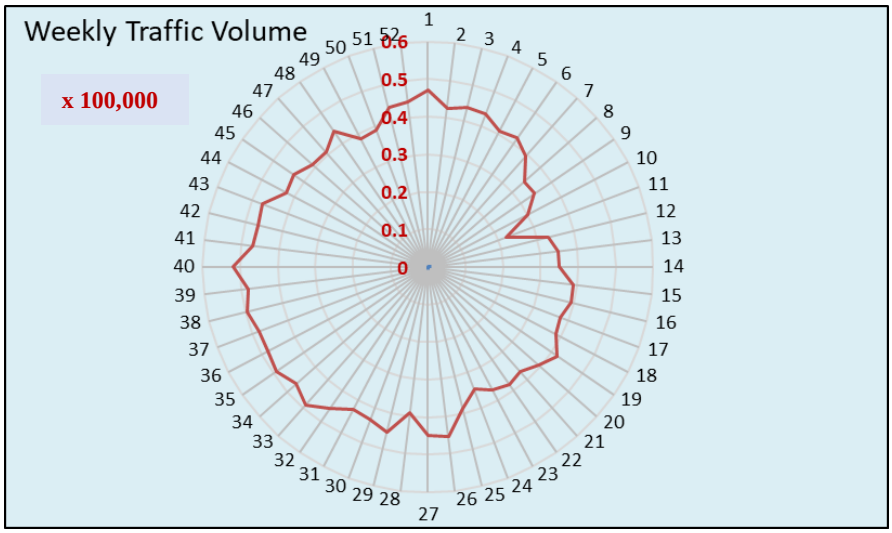

Figure 61. Weekly Traffic Volume, Bradenton Beach (Site #134004), Northbound

Figure 62 depicts monthly traffic volume on a day of the week for each month in the analysis period. As shown, Saturdays were busier than Sunday in general. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Thursday).

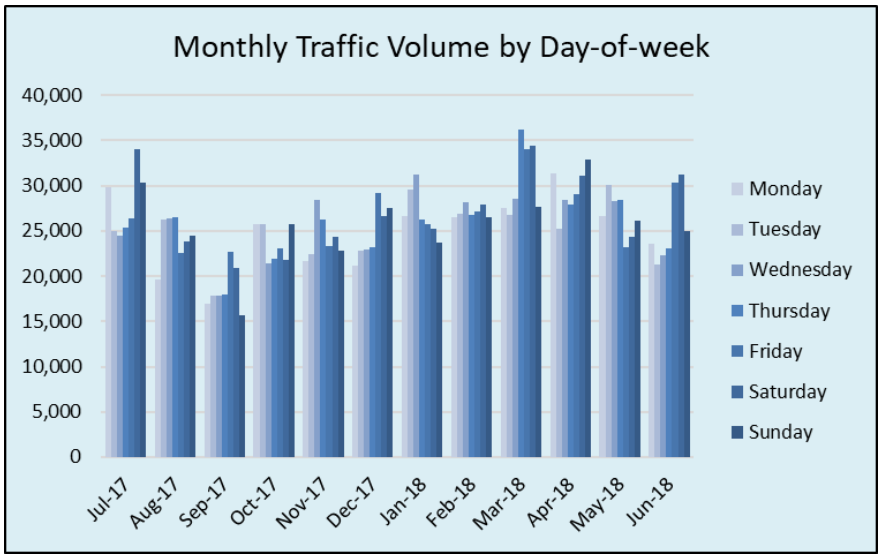

Figure 62. Monthly Traffic Volume by Day of Week,
Bradenton Beach (Site #134004), Northbound

Figure 63 depicts annual traffic volume on a day of the week. As shown, Monday had the lowest traffic volume annually, after which the radar gradually increased until Saturday, which incurred the highest traffic volume.

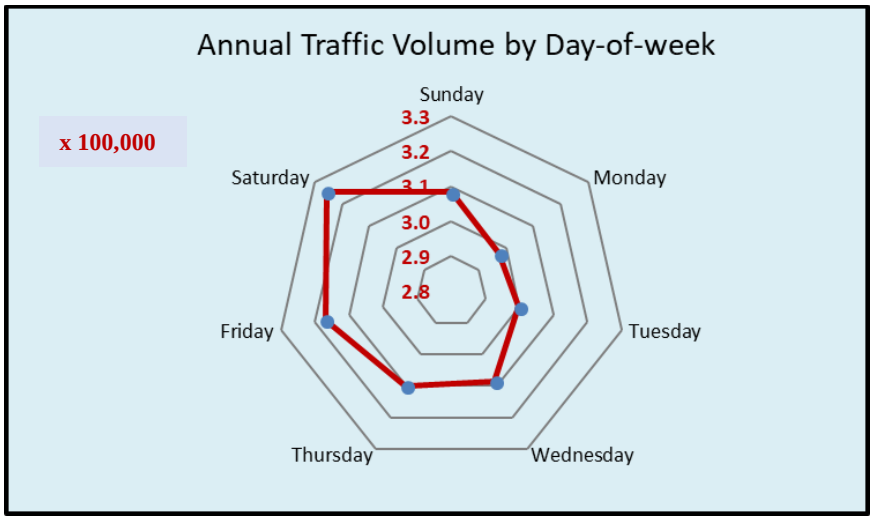

Figure 63. Annual Traffic Volume by Day of Week, Bradenton Beach (Site #134004), Northbound

Southbound

Table 41 shows the AADT, AAWDT, MADW, and MADT for the southbound direction.

Table 41. AADT, AAWDT, MADW, and MADT, Bradenton Beach (Site #134004), Southbound

AADT	AAWDT
5,874	5,813

MADW: Monthly Average Days of the Week								
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	5,976	5,985	5,975	5,999	6,410	6,617	7,437	6,343
Aug-17	5,534	4,691	5,121	5,142	5,225	5,741	5,900	5,336
Sep-17	3,906	4,195	4,355	4,279	4,426	4,510	4,134	4,258
Oct-17	4,993	5,027	5,022	5,374	5,494	5,939	5,599	5,350
Nov-17	5,482	5,347	5,576	5,662	5,253	5,826	6,133	5,611
Dec-17	5,514	5,209	5,626	5,809	5,670	5,739	5,248	5,545
Jan-18	5,564	5,035	5,774	6,088	6,465	6,287	6,183	5,914
Feb-18	6,401	6,579	6,761	6,874	6,508	6,572	6,957	6,664
Mar-18	7,213	7,031	6,668	7,096	7,313	7,080	7,049	7,064
Apr-18	6,134	6,147	6,177	6,504	6,483	6,734	6,794	6,425
May-18	7,080	7,272	5,847	5,660	5,771	5,868	6,335	6,262
Jun-18	6,317	5,457	5,154	5,358	5,538	6,145	6,931	5,843

Figure 64 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the southbound direction, the summer season was busier than the winter season, with March being the busiest month of the year and September having the lowest traffic volume due to Hurricane Irma.

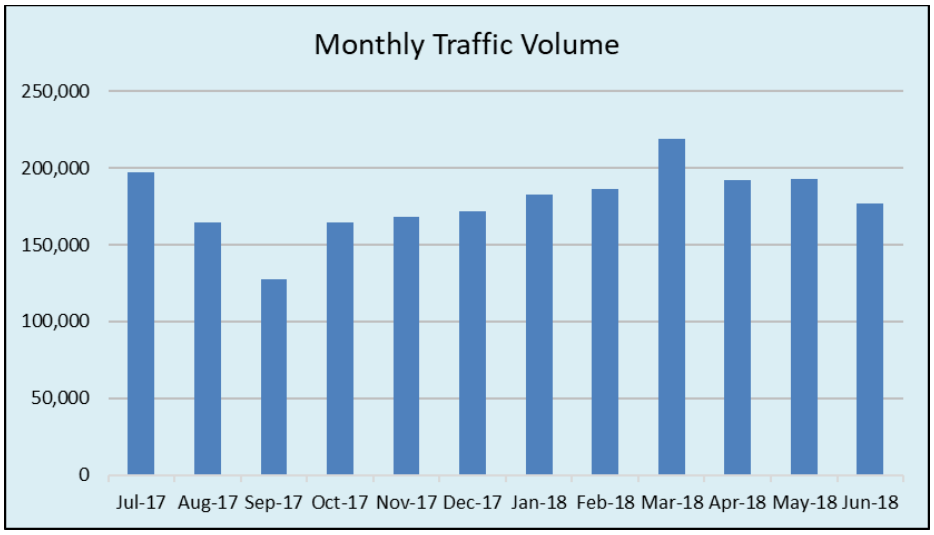

Figure 64. Monthly Traffic Volume, Bradenton Beach (Site #134004), Southbound

Figure 65 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping in week 9 onward due to Hurricane Irma. Overall, there was variance in weekly traffic volume, ranging from 20,000 to 50,000 vehicles.

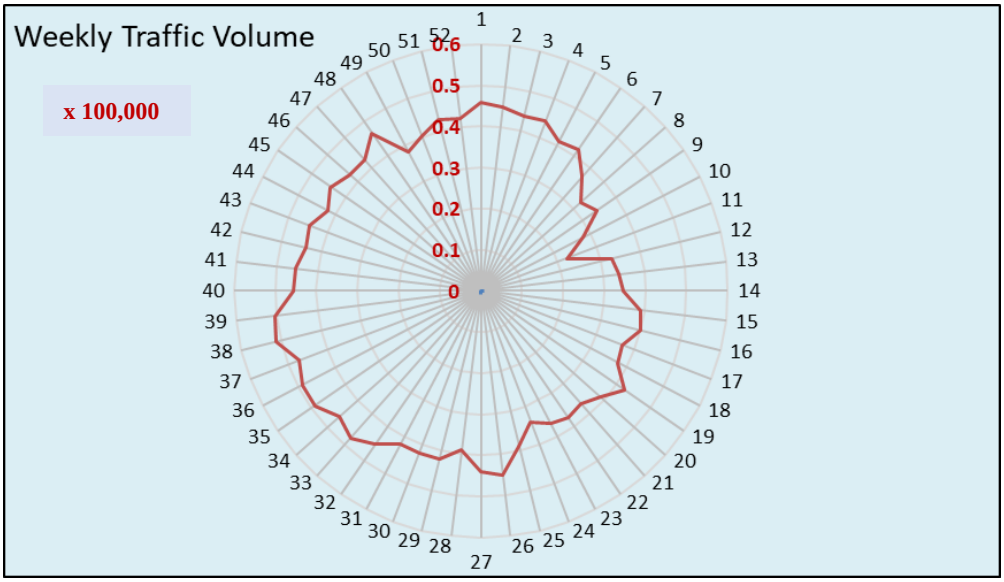

Figure 65. Weekly Traffic Volume, Bradenton Beach (Site #134004), Southbound

Figure 66 depicts the traffic variation on a day of week for each month in the analysis period. As shown, Saturdays were busier than Sundays. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Thursday).

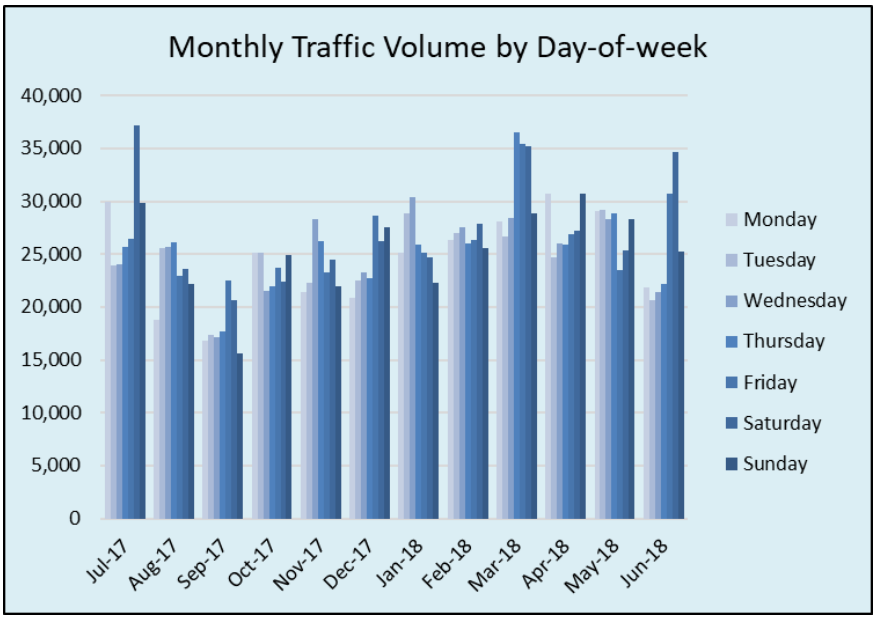

Figure 66. Monthly Traffic Volume by Day of Week, Bradenton Beach (Site #134004), Southbound

Figure 67 depicts the annual traffic volume incurred by day of week. As shown, Monday had the lowest traffic volume annually, after which the radar gradually expanded until Saturday, which had the highest annual traffic volume.

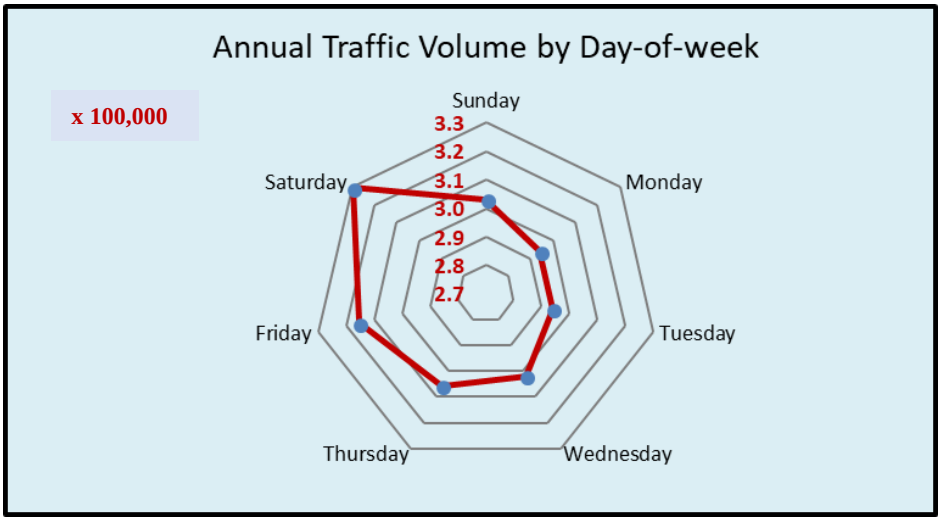

Figure 67. Annual Traffic Volume by Day of Week, Bradenton Beach (Site #134004), Southbound

4.1.2 Bradenton Beach (Site #134111)

The Bradenton Beach site (#134111) is a permanent count station located on 75th St. Figure 68 shows a map of the site. The count station's designated directions are northbound and southbound.

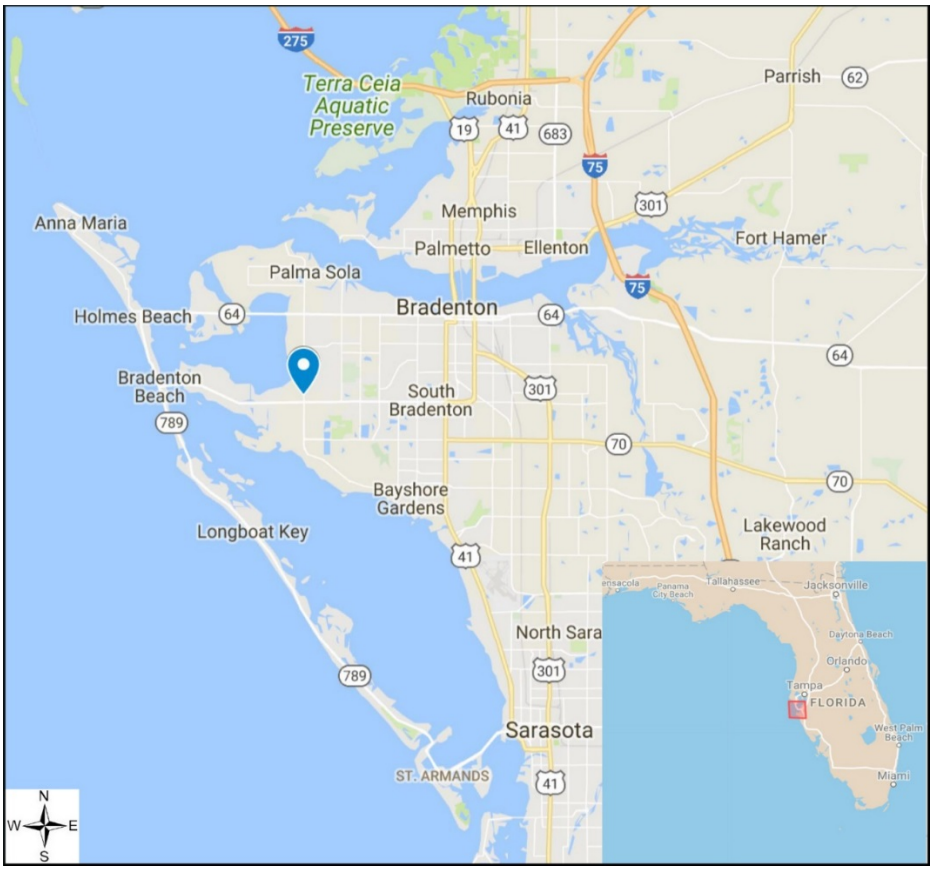

Figure 68. Bradenton Beach (Site #134111)

In the analysis period from July 2017 to June 2018, data for January, February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.99, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Northbound

Table 42 shows the AADT, AAWDT, MADW, and MADT for the northbound direction.

Table 42. AADT, AAWDT, MADW, and MADT, Bradenton Beach (Site #134111), Northbound

AADT	AAWDT
9,288	9,577

MADW: Monthly Average Days of the Week								
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	6,644	8,374	8,264	8,940	8,967	9,317	7,811	8,331
Aug-17	6,523	8,662	9,056	9,177	9,050	9,598	7,611	8,525
Sep-17	5,263	7,545	8,894	9,159	8,949	8,935	6,903	7,950
Oct-17	6,919	9,312	9,727	9,812	9,749	10,078	8,102	9,100
Nov-17	7,422	10,094	10,243	10,375	9,304	9,978	8,501	9,417
Dec-17	7,840	8,866	10,037	10,434	10,251	10,701	8,808	9,562
Jan-18	8,862	7,479	9,736	10,542	10,762	10,623	10,916	9,846
Feb-18	9,617	8,757	10,909	11,263	11,093	11,087	11,593	10,617
Mar-18	9,716	8,591	10,732	11,217	11,379	11,101	11,617	10,622
Apr-18	9,295	8,062	10,415	10,683	10,795	10,530	10,906	10,098
May-18	8,259	7,486	8,930	9,712	9,797	9,730	10,090	9,144
Jun-18	7,800	6,638	8,523	8,688	8,891	9,032	9,293	8,409

Figure 69 depicts the monthly traffic volume from July 2017 to June 2018. As shown, from December to April, traffic remained consistently high and, overall, there is seasonal variation in the monthly traffic volume. September had the lowest traffic volume due to Hurricane Irma.

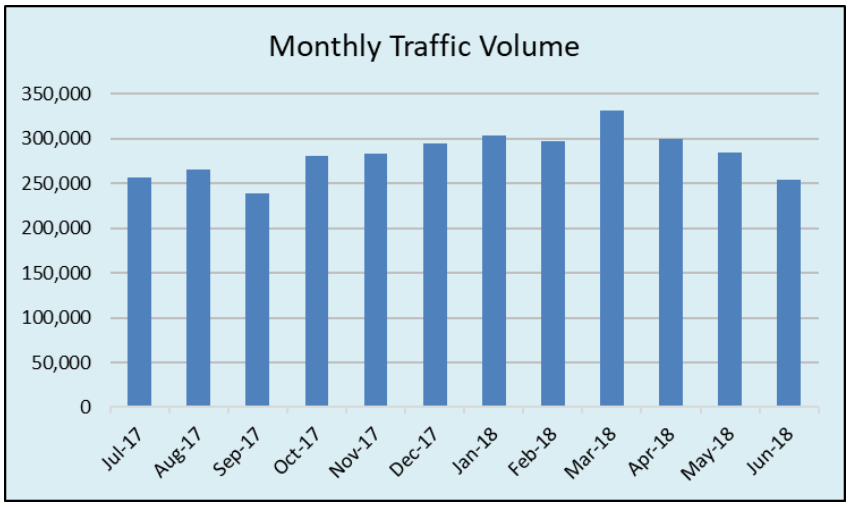

Figure 69. Monthly Traffic Volume, Bradenton Beach (Site #134111), Northbound

Figure 70 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping from week 9 onward due to Hurricane Irma. In addition, during weeks 25 and 26, a dip in traffic was observed with the onset of colder-than-normal days in December. Overall, traffic was consistent and remained under 80,000 vehicles per week.

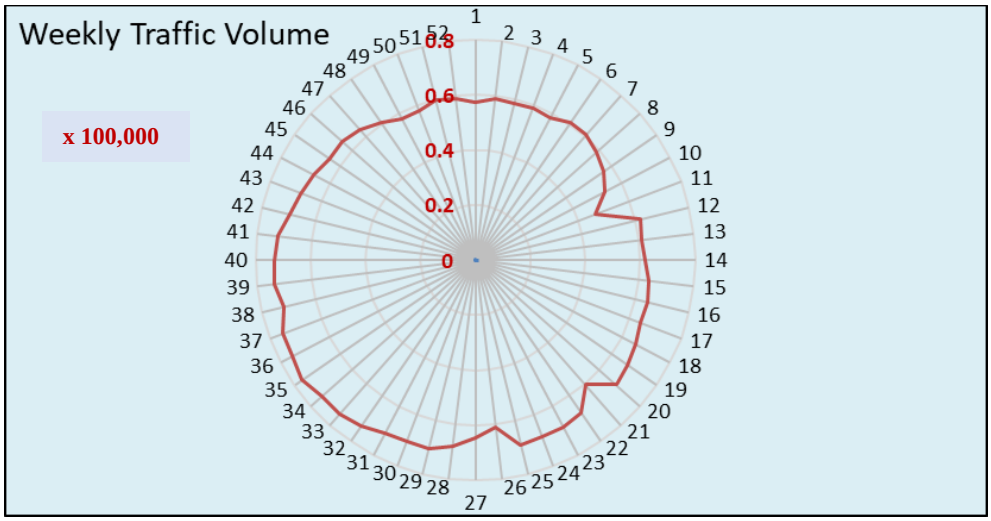

Figure 70. Weekly Traffic Volume, Bradenton Beach (Site #134111), Northbound

Figure 71 depicts traffic variation on a day of the week for each month. As shown, mid-week experienced high traffic volume for most months. Also, different patterns were observed across months; for instance, November had more traffic at the start of the week (Monday to Thursday), whereas December experienced more traffic toward the end of the week (Friday to Sunday).

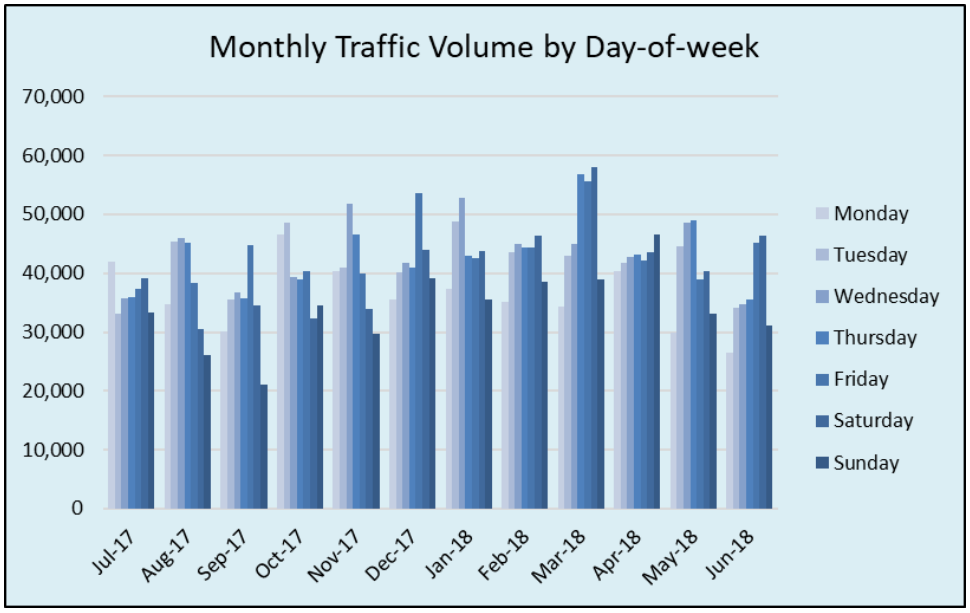

Figure 71. Monthly Traffic Volume by Day of Week, Bradenton Beach (Site #134111), Northbound

Figure 72 depicts the annual traffic volume by day of week. As shown, Sunday had the lowest annual traffic volume, after which the radar expanded a level (approximately 100,000 vehicles) and remained consistent for weekdays. Friday was the busiest day of the week for the northbound direction.

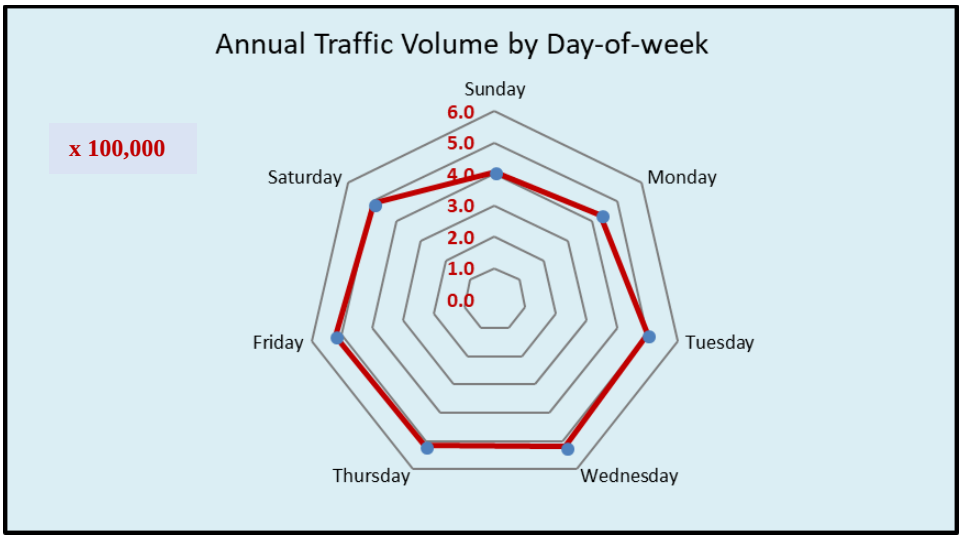

Figure 72. Annual Traffic Volume by Day of Week, Bradenton Beach (Site #134111), Northbound

Southbound

Table 43 shows the AADT, AAWDT, MADW, and MADT for the southbound direction.

Table 43. AADT, AAWDT, MADW, and MADT, Bradenton Beach (Site #134111), Southbound

AADT	AAWDT
9,345	9,600

MADW: Monthly Average Days of the Week								
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	6,959	8,514	8,501	9,068	9,139	9,619	8,320	8,588
Aug-17	6,657	8,532	9,221	9,249	9,229	9,698	7,881	8,638
Sep-17	5,346	7,597	8,841	9,018	8,868	8,906	6,924	7,928
Oct-17	7,058	9,334	9,651	9,863	9,833	10,157	8,222	9,159
Nov-17	7,467	9,863	10,187	10,369	9,368	9,991	8,660	9,415
Dec-17	7,992	8,797	9,997	10,375	10,212	10,784	8,799	9,565
Jan-18	8,814	7,552	9,649	10,494	10,666	10,595	10,869	9,806
Feb-18	9,657	8,770	10,747	11,218	11,119	11,171	11,689	10,625
Mar-18	10,049	8,766	10,768	11,199	11,290	11,160	11,671	10,700
Apr-18	9,277	8,251	10,432	10,695	10,763	10,645	10,927	10,141
May-18	8,587	7,520	8,930	9,725	9,764	9,784	10,158	9,210
Jun-18	8,126	6,811	8,366	8,722	8,899	9,116	9,496	8,505

Figure 73 shows the monthly traffic volume from July 2017 to June 2018. As shown, for the southbound direction, there was little variation in traffic across months, and monthly traffic remained mostly in the range of 250,000–300,000 vehicles. September had the lowest traffic volume due to Hurricane Irma.

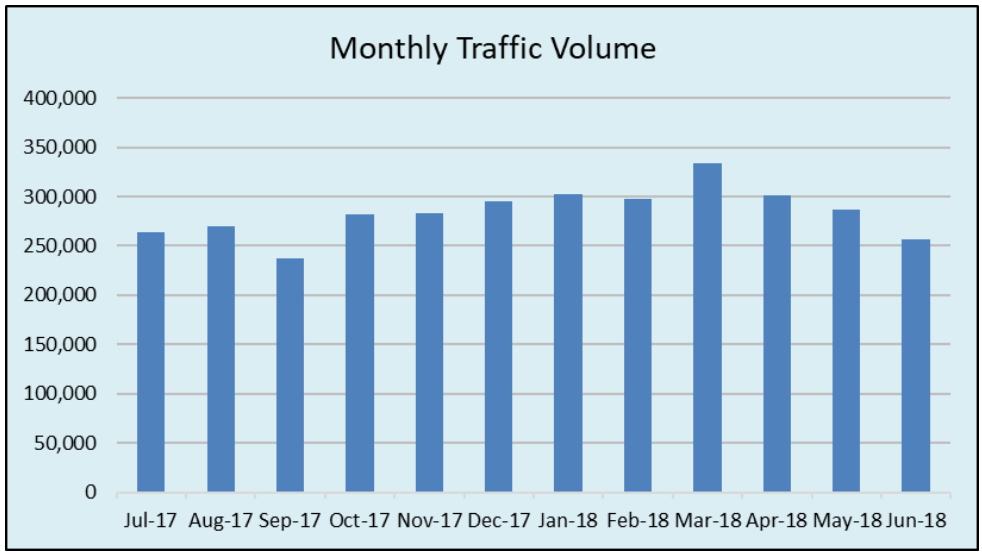

Figure 73. Monthly Traffic Volume, Bradenton Beach (Site #134111), Southbound

Figure 74 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping from week 9 onward due to Hurricane Irma. Overall, traffic volumes were consistent and remained under around 80,000 vehicles per week.

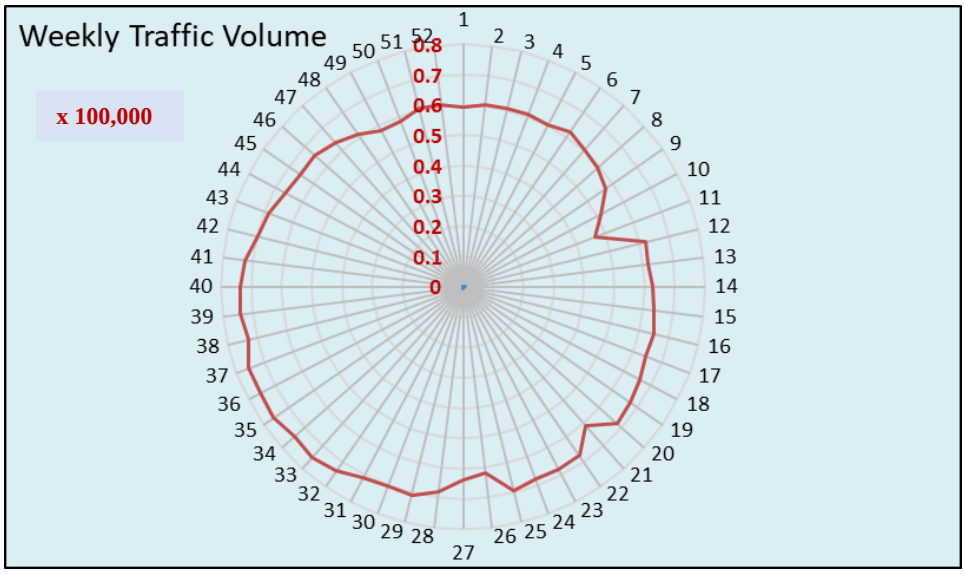

Figure 74. Weekly Traffic Volume, Bradenton Beach (Site #134111), Southbound

Figure 75 depicts traffic variation in a day of week for each month. As shown, Friday and Saturday had the highest peak among most months. Also, there was high variance in traffic for each day of the week in March compared to April, which had a steady traffic volume for each day of week.

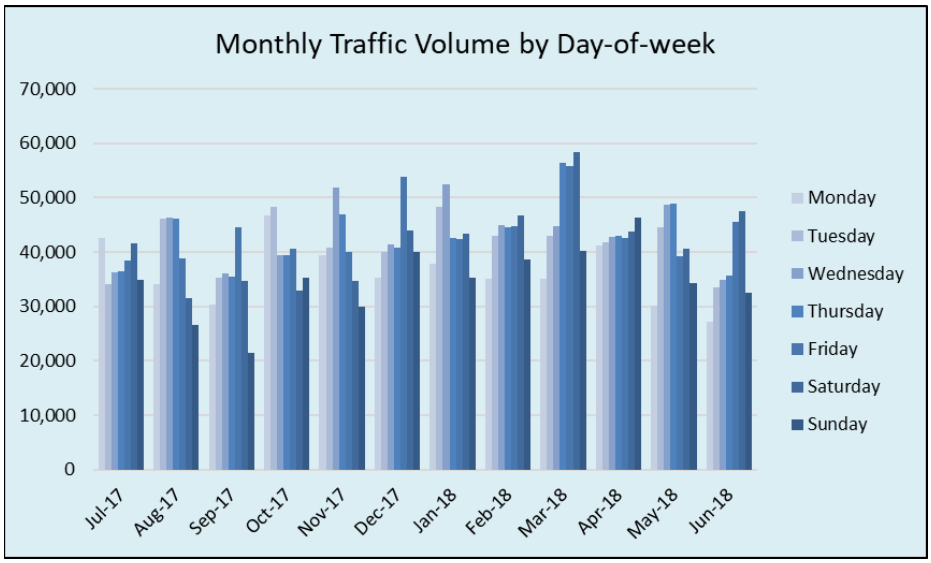

Figure 75. Monthly Traffic Volume by Day of Week, Bradenton Beach (Site #134111), Southbound

Figure 76 shows the annual total traffic incurred by day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar expanded a level (approximately 100,000 vehicles) and remained consistent for weekdays. Friday was the busiest day of the week for this site.

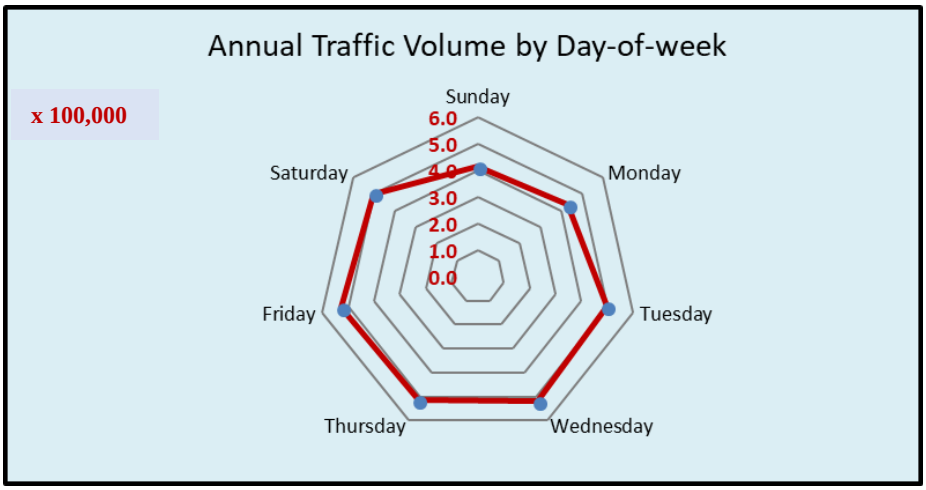

Figure 76. Annual Traffic Volume by Day of Week, Bradenton Beach (Site #134111), Southbound

4.1.3 Cocoa Beach (Site #700113)

The Cocoa Beach site (#700113) is a permanent count station; its site-specific information is provided in Section 3.2. In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.98, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December

and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Westbound

Table 44 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 44. AADT, AAWDT, MADW, and MADT Cocoa Beach (Site #700113), Eastbound

AADT	AAWDT
21,228	22,003

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	15,845	22,014	20,919	21,748	22,559	23,855	19,560	20,929
Aug-17	15,011	22,046	22,489	22,484	22,890	23,834	19,447	21,171
Sep-17	11,757	17,137	20,948	21,564	21,335	20,998	16,180	18,560
Oct-17	15,333	22,710	22,997	23,459	23,203	24,866	20,098	21,809
Nov-17	15,356	23,062	23,034	23,197	21,382	23,467	19,484	21,283
Dec-17	16,407	20,123	22,974	23,745	23,776	25,056	20,302	21,769
Jan-18	14,806	18,264	22,348	22,365	22,936	23,961	19,248	20,561
Feb-18	20,788	15,897	22,813	23,618	22,761	23,946	25,171	22,142
Mar-18	21,313	16,787	23,318	24,034	24,014	23,899	25,461	22,689
Apr-18	20,385	15,746	22,712	22,968	23,070	23,449	24,424	21,822
May-18	20,341	16,793	20,931	22,119	22,409	23,088	24,299	21,426
Jun-18	19,318	15,471	21,367	21,410	21,757	22,000	23,300	20,660

Figure 77 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the eastbound direction, no seasonal pattern was observed. Also, there was a lot of variation in traffic across months, especially between February and March. Overall, monthly traffic volume remained in the range of 600,000–700,000 vehicles, except for September, which experienced very low traffic volume due to Hurricane Irma.

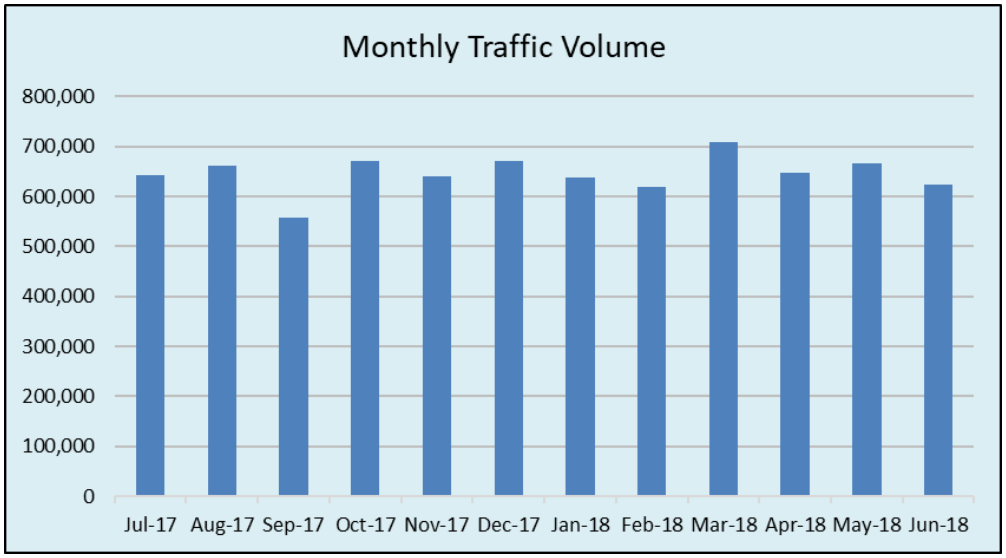

Figure 77. Monthly Traffic Volume, Cocoa Beach (Site #700113), Eastbound

Figure 78 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping from week 9 onward due to Hurricane Irma. Also, weeks

26 and 27 experienced a dip in traffic volume related to colder-than-normal December days. Overall, traffic was consistent and remained under 160,000 vehicles per week.

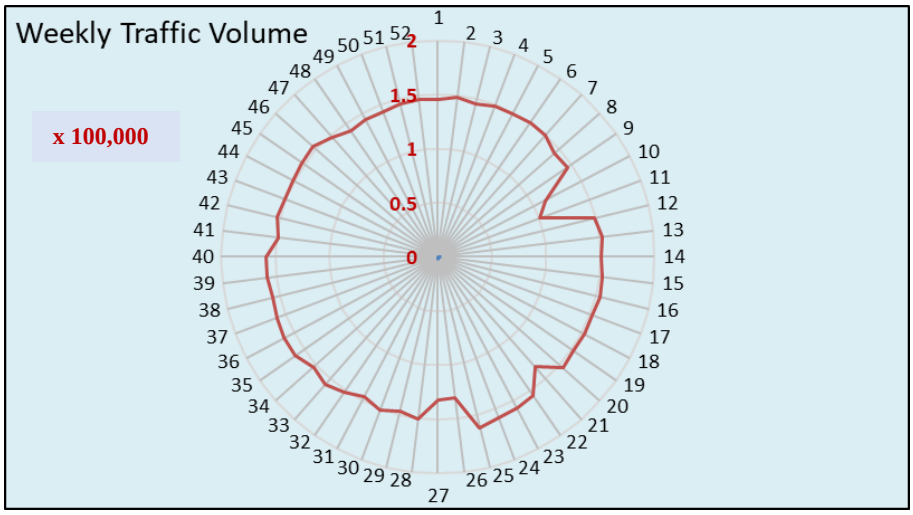

Figure 78. Weekly Traffic Volume, Cocoa Beach (Site #700113), Eastbound

Figure 79 depicts traffic variation by day of week for each month. As shown, a high variance in traffic for each day of the week was observed, except for April, which had a steady traffic volume throughout week.

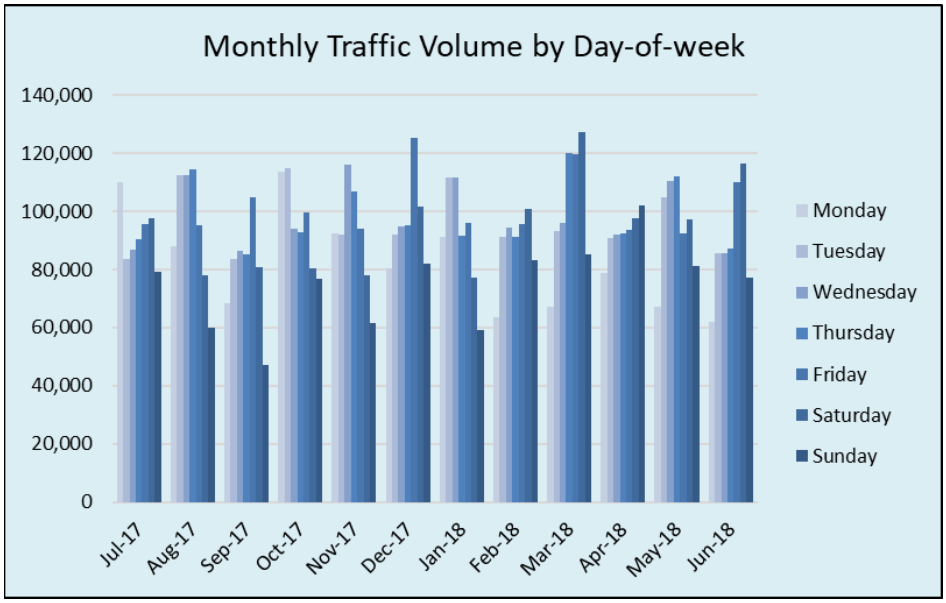

Figure 79. Monthly Traffic Volume by Day of Week, Cocoa Beach (Site #700113), Eastbound

Figure 80 depicts the annual traffic volume by day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar expanded by two levels and remained consistent for weekdays. Friday was observed as the busiest day of the week.

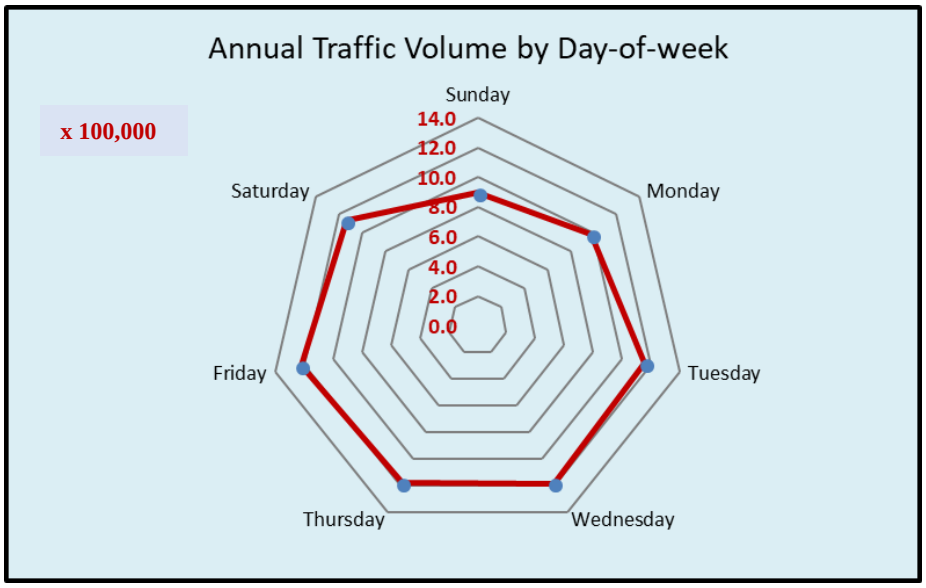

Figure 80. Annual Traffic Volume by Day of Week, Cocoa Beach (Site #700113), Eastbound

Westbound

Table 45 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 45. AADT, AAWDT, MADW, and MADT, Cocoa Beach (Site #700113), Westbound

AADT	AAWDT
23,283	24,083

	MADW: Monthly Average Days of the Week							
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	17,454	24,001	23,236	23,657	24,679	26,375	21,583	22,998
Aug-17	16,900	24,111	24,570	24,376	25,110	26,015	21,362	23,206
Sep-17	13,085	18,988	23,196	23,542	23,654	23,411	17,994	20,553
Oct-17	17,042	24,767	25,023	25,494	25,154	27,033	22,252	23,824
Nov-17	17,211	25,266	25,186	25,340	23,513	25,391	21,497	23,343
Dec-17	18,127	21,977	25,156	25,919	26,107	27,337	22,486	23,873
Jan-18	16,394	19,934	24,664	24,289	24,565	26,172	20,970	22,427
Feb-18	22,918	17,643	24,804	25,740	24,713	25,861	27,371	24,150
Mar-18	23,446	18,777	25,473	26,186	26,240	26,079	27,646	24,835
Apr-18	22,568	17,731	24,838	25,153	25,229	25,424	26,596	23,934
May-18	22,592	18,434	23,203	24,215	24,646	25,166	26,657	23,559
Jun-18	21,620	17,483	23,537	23,264	23,733	24,015	25,705	22,765

Figure 81 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the westbound direction, a variation in traffic was observed across months, especially between February and March. September had the lowest traffic volume due to Hurricane Irma.

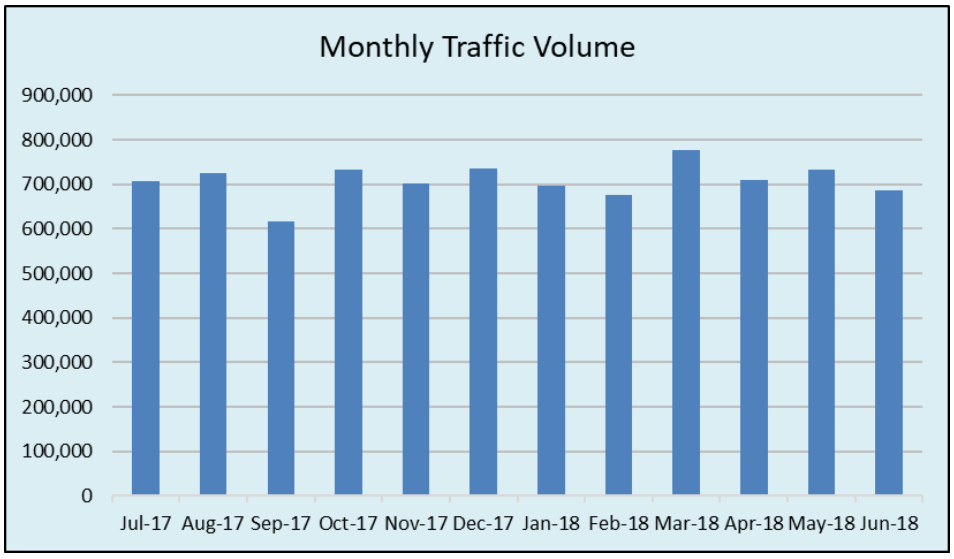

Figure 81. Monthly Traffic Volume, Cocoa Beach (Site #700113), Westbound

Figure 82 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks and started dropping from week 9 onward due to Hurricane Irma. Weeks 26 and 27 experienced a dip in traffic similar to other locations with the onset of cold days in December. Overall, traffic was consistent and remained under 200,000 vehicles per week.

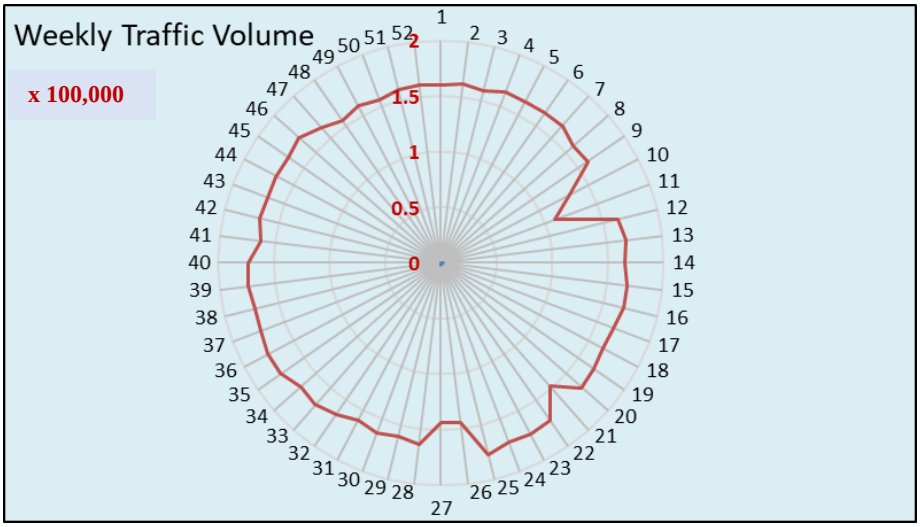

Figure 82. Weekly Traffic Volume, Cocoa Beach (Site #700113), Westbound

Figure 83 depicts traffic variation by day of week per month. March was observed to have major variation among its weekday's and weekend volumes.

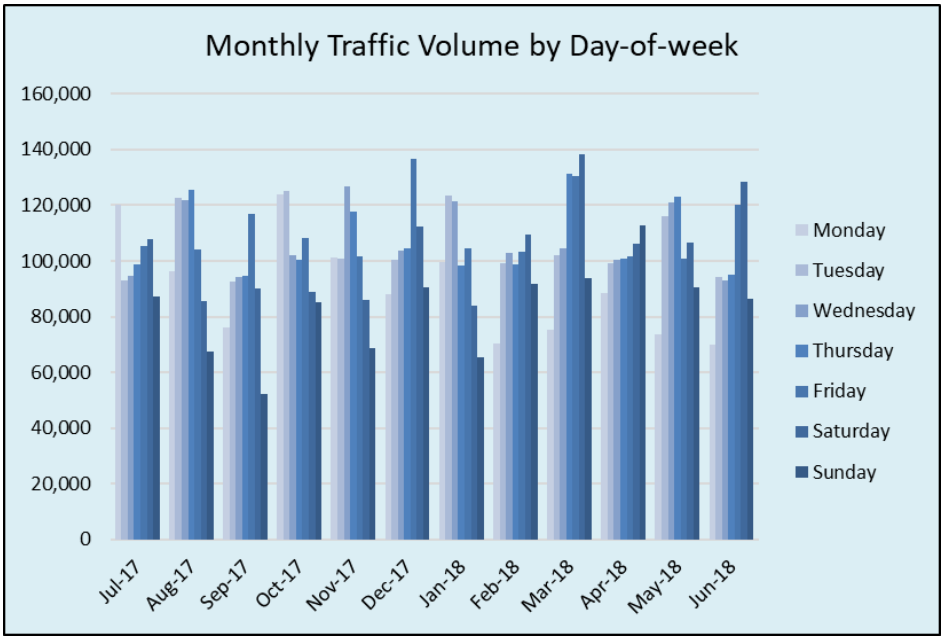

Figure 83. Monthly Traffic Volume by Day of Week, Cocoa Beach (Site #700113), Westbound

Figure 84 depicts the annual total traffic incurred by day of week. As shown, Sunday had the lowest annual traffic volume, after which the radar expanded a level and remained consistent for weekdays. Friday was the busiest day of the week for the westbound direction.

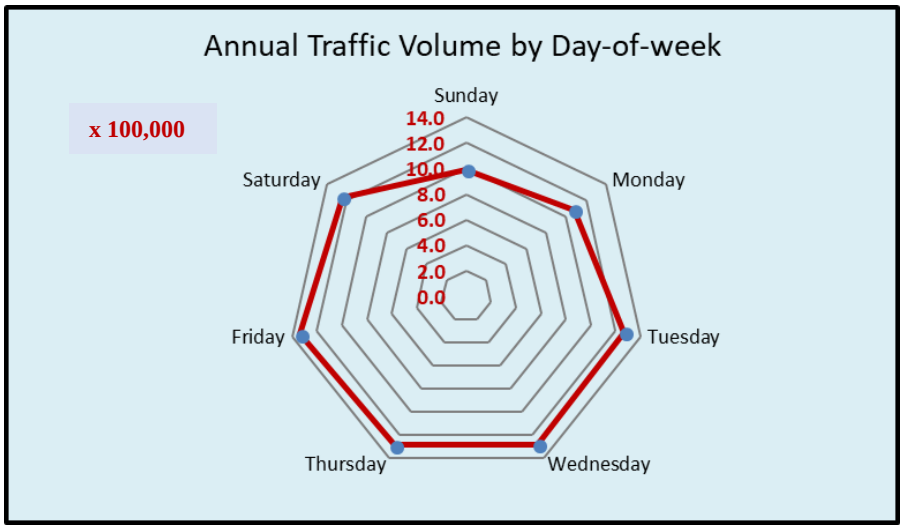

Figure 84. Annual Traffic Volume by Day of Week, Cocoa Beach (Site #700113), Westbound

4.1.4 Destin Site (#570385)

The Destin site (#570385) is a permanent count station whose site-specific information is noted in Section 3.4. The count station's designated directions are eastbound and westbound. In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not

available and were replaced by an inflated version of the previous-year data, calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 1.00, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Eastbound

Table 46 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 46. AADT, AAWDT, MADW, and MADT, Destin (Site #570385), Eastbound

AADT	AAWDT
21,157	21,240

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	21,476	24,606	23,862	25,204	26,153	26,799	26,113	24,887
Aug-17	18,673	21,139	21,997	22,324	22,918	24,470	23,692	22,173
Sep-17	16,792	17,444	21,181	20,622	21,216	23,410	21,592	20,322
Oct-17	15,462	20,080	20,950	21,949	22,602	23,909	20,337	20,755
Nov-17	14,219	18,724	19,332	19,555	18,604	22,062	18,917	18,773
Dec-17	14,298	15,804	18,747	19,018	19,549	20,992	18,517	18,132
Jan-18	12,923	15,544	18,227	17,748	18,693	20,337	17,408	17,269
Feb-18	20,584	15,594	19,822	19,807	20,401	20,996	22,841	20,006
Mar-18	22,652	17,884	21,535	22,628	22,690	22,875	24,716	22,140
Apr-18	23,366	17,577	20,869	22,012	22,483	23,559	25,508	22,196
May-18	24,343	20,047	21,460	22,861	23,373	24,175	25,887	23,164
Jun-18	25,414	20,317	23,931	23,812	23,273	25,130	26,294	24,024

Figure 85 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the eastbound direction was observed, with the summer season having a higher traffic volume than the winter season.

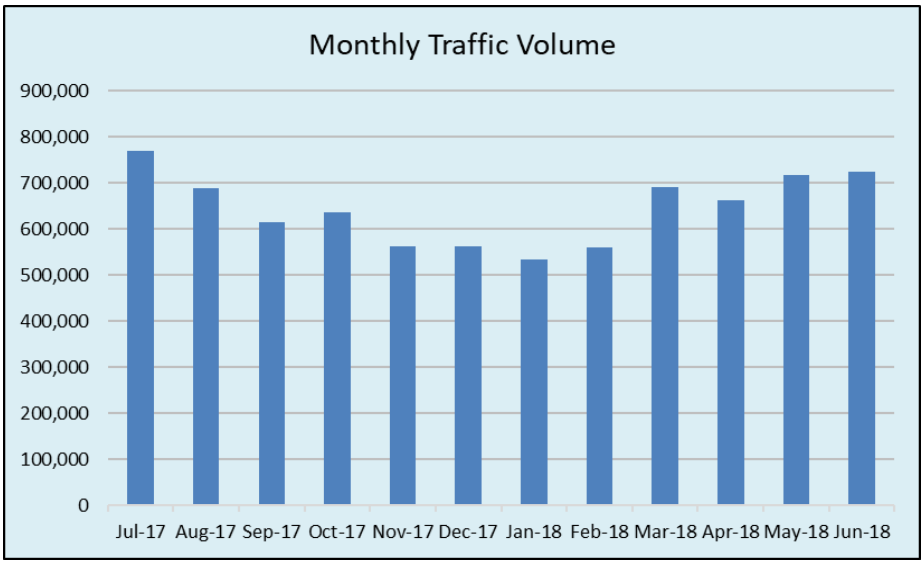

Figure 85. Monthly Traffic Volume, Destin (Site #570385), Eastbound

Figure 86 depicts the weekly variation in traffic volume from July 2017 to June 2018. As shown, overall weekly traffic remained under 200,000 vehicles.

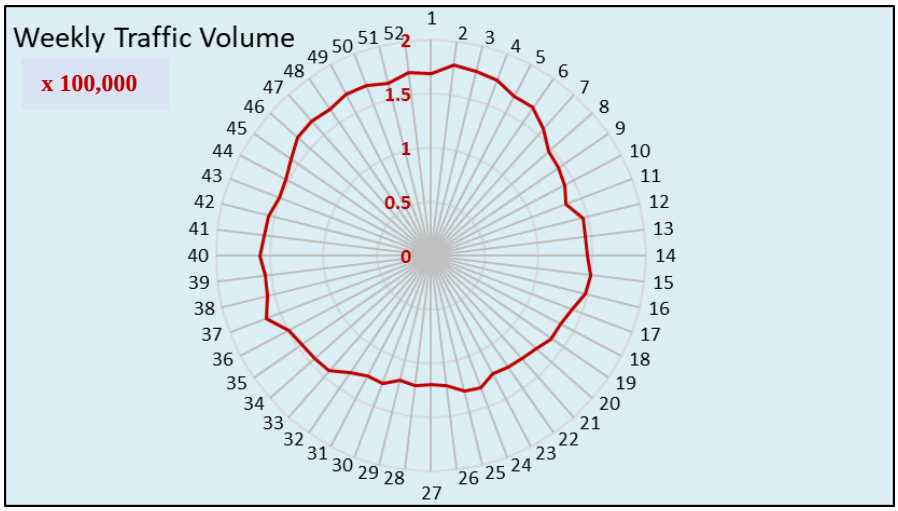

Figure 86. Weekly Traffic Volume, Destin (Site #570385), Eastbound

Figure 87 depicts traffic variation by day of week per month. As shown, a high variance in traffic for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday and Saturday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

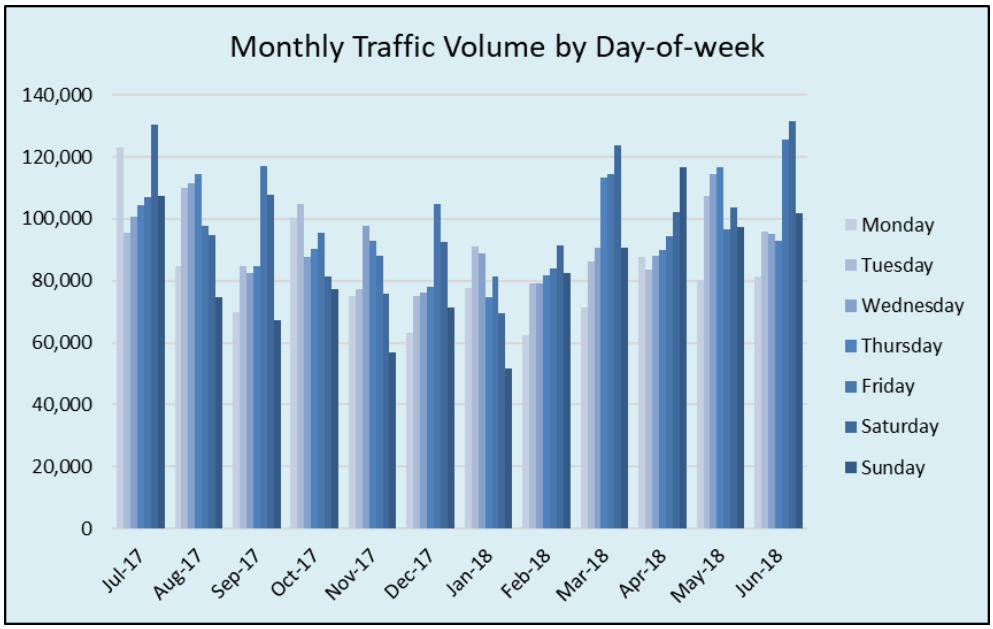

Figure 87. Monthly Traffic Volume by Day of Week, Destin (Site #570385), Eastbound

Figure 88 depicts the annual total traffic incurred by day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar expanded a level and remained consistent for weekdays. Fridays and Saturdays were the busiest days of the week for this site.

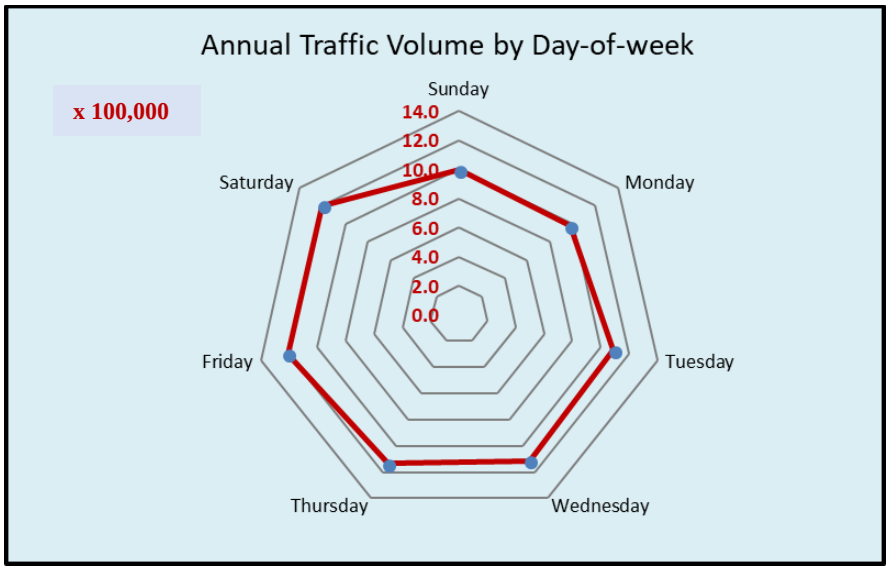

Figure 88. Annual Traffic Volume by Day of Week, Destin (Site #570385), Eastbound

Westbound

Table 47 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 47. AADT, AAWDT, MADW, and MADT, Destin (Site #570385), Westbound

AADT	AAWDT
21,243	21,309

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	22,517	24,390	23,869	25,258	25,590	26,338	25,531	24,785
Aug-17	20,619	21,482	22,215	22,426	22,478	24,095	23,654	22,424
Sep-17	18,365	18,427	20,313	20,516	20,897	22,600	21,685	20,400
Oct-17	16,908	20,383	21,056	21,907	22,319	23,413	20,570	20,936
Nov-17	15,689	18,968	19,358	19,437	18,368	21,691	19,022	18,933
Dec-17	14,723	15,826	18,707	18,970	19,423	20,520	18,553	18,103
Jan-18	13,621	16,457	18,390	17,894	18,781	19,920	17,411	17,496
Feb-18	20,625	16,757	20,065	19,858	20,451	21,121	22,058	20,133
Mar-18	22,728	19,008	21,505	22,670	22,959	22,877	24,157	22,272
Apr-18	23,229	19,568	21,112	22,076	22,354	23,193	24,524	22,294
May-18	23,856	21,601	21,990	22,979	23,227	23,675	24,840	23,167
Jun-18	24,786	21,537	23,767	23,767	23,393	24,680	25,452	23,912

Figure 89 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the westbound direction was observed, with the summer season having a higher traffic volume than the winter season.

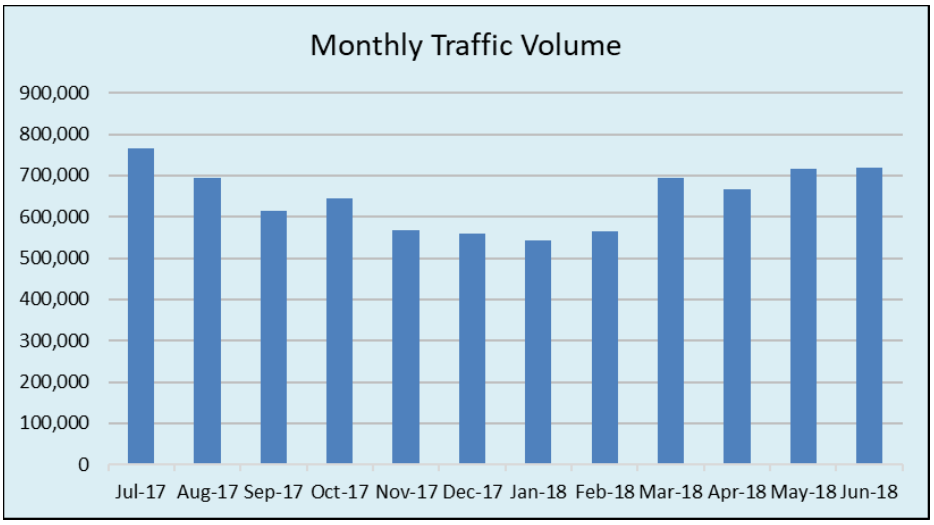

Figure 89. Monthly Traffic Volume, Destin (Site #570385), Westbound

Figure 90 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11, a sudden drop in traffic was observed due to hurricane Irma, after which the traffic volume picked up and followed a symmetrical rise.

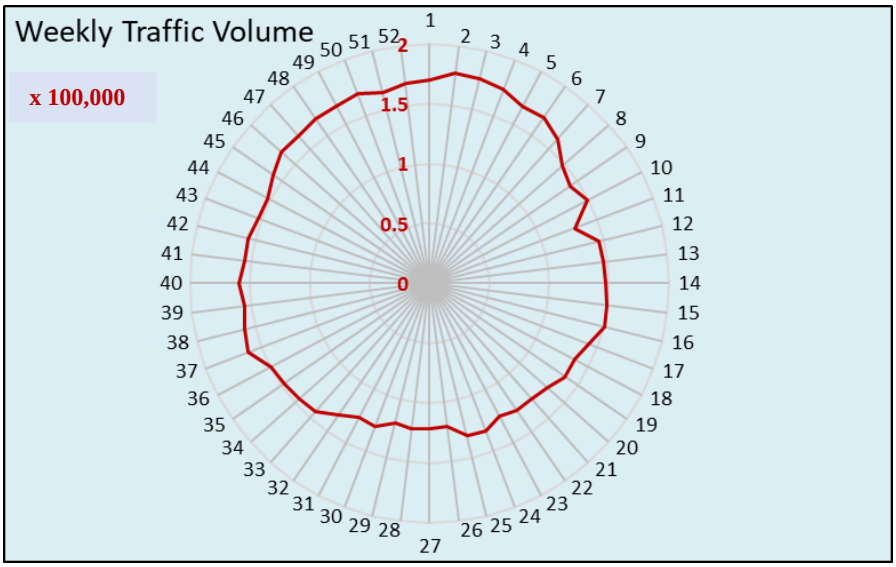

Figure 90. Weekly Traffic Volume, Destin (Site #570385), Westbound

Figure 91 depicts traffic variation by day of week per month. As shown, a high variance in traffic for each day of the week was observed. Also, different patterns were observed across months; for instance, September incurred more traffic toward the end of the week (Friday and Saturday), whereas October incurred more traffic at the start of the week (Monday and Tuesday).

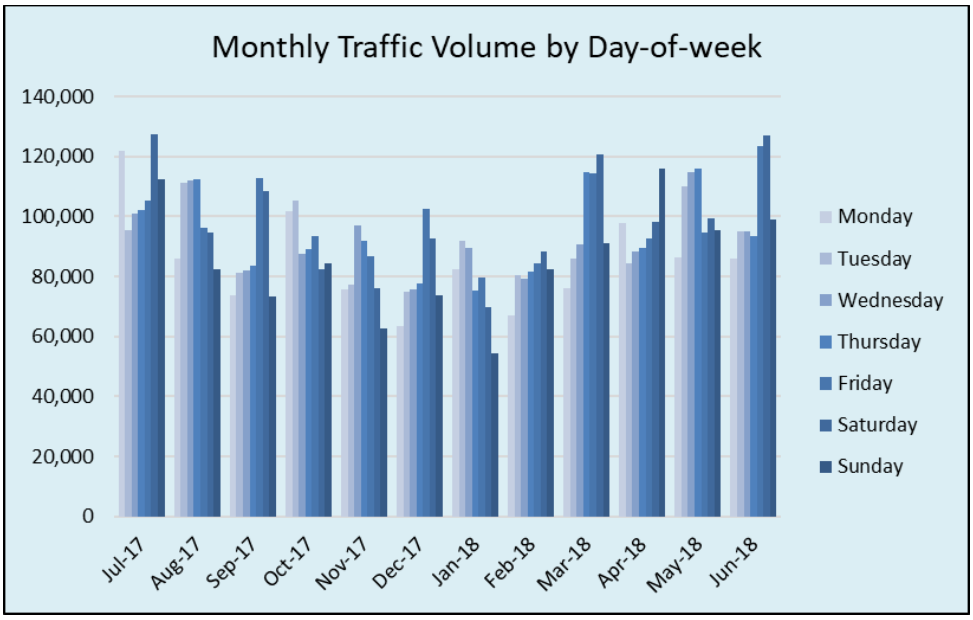

Figure 91. Monthly Traffic Volume by Day of Week,
Destin (Site #570385), Westbound

Figure 92 depicts the annual traffic volume by day of week. As shown, Sunday and Monday had the lowest annual traffic volume, after which the radar gradually expanded for weekdays. Friday and Saturday were the busiest days of the week for this site.

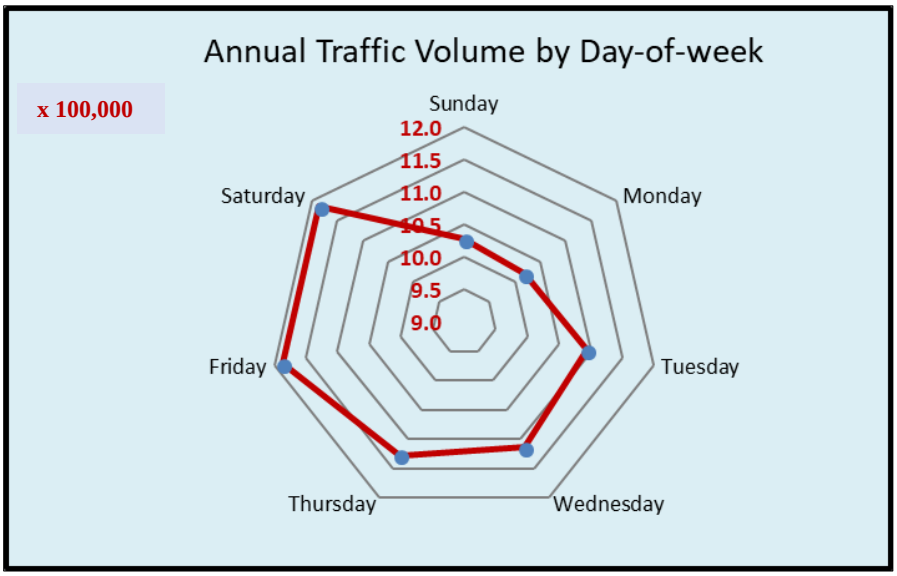

Figure 92. Annual Traffic Volume by Day of Week,
Destin (Site #570385), Westbound

4.1.5 Destin (Site #600168)

The Destin site (#600168) is a permanent count station located on US 98. Details of the location are provided in Figure 93. The count station's designated directions are eastbound and westbound.

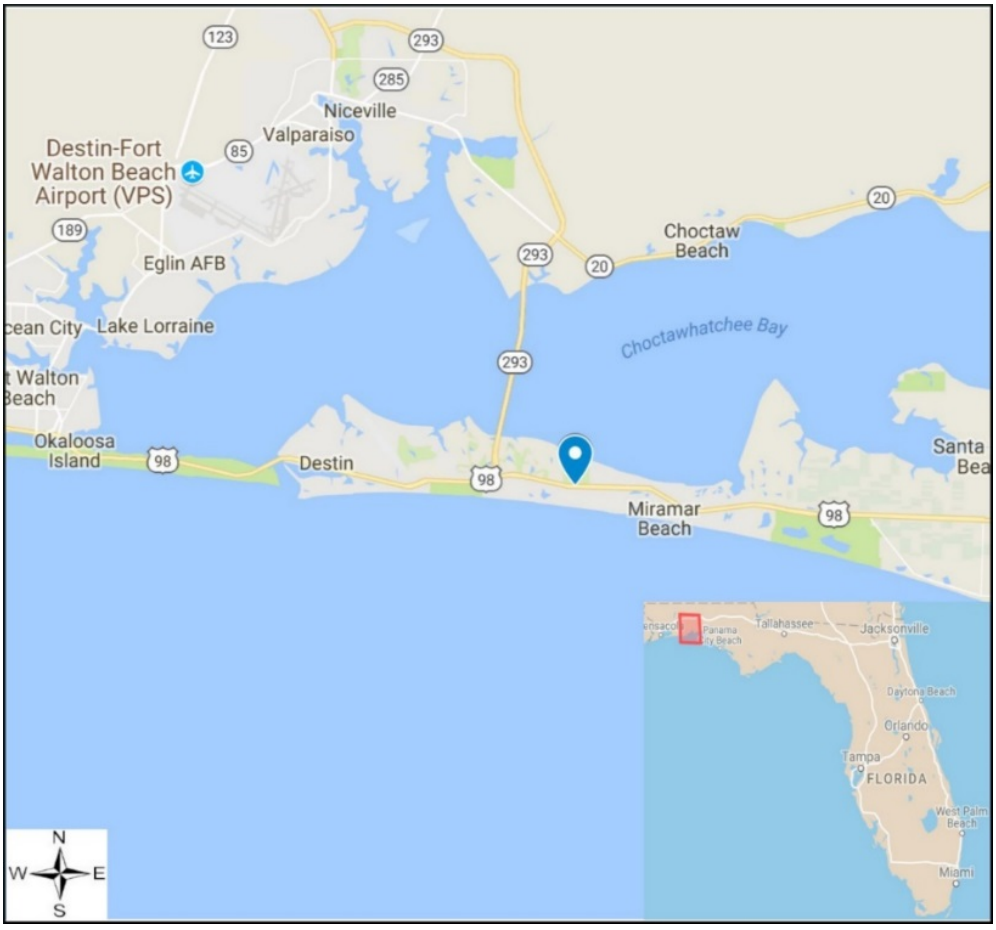

Figure 93. Destin (Site #600168)

This site went under construction from July 26, 2017, onwards; thus, data were missing for July 26–31 and for August, September, October, November, December, January, February, March, April, May, and June. These missing data were replaced by an inflated version of the previous year's data for the same period calculated by multiplying the inflation factor with the previous year's data. The computed inflation factor for this site was 0.98, which was generated by comparing the monthly traffic volume of the current year over the previous year for July 1–25. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Eastbound

Table 48 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 48. AADT, AAWDT, MADW, and MADT, Destin (Site #600168), Eastbound

AADT	AAWDT
24,809	24,337

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	26,546	28,326	28,276	29,396	30,270	30,673	29,586	29,011
Aug-17	25,954	20,341	25,285	25,597	25,917	26,539	27,748	25,340
Sep-17	24,749	19,440	22,898	24,257	24,900	24,921	27,225	24,056
Oct-17	24,431	19,005	24,180	25,395	25,913	26,700	27,957	24,797
Nov-17	21,088	16,243	22,047	22,542	22,483	21,607	25,048	21,580
Dec-17	20,074	13,711	20,875	22,988	23,460	23,462	24,245	21,259
Jan-18	19,147	15,117	20,807	22,734	22,595	22,779	22,562	20,820
Feb-18	23,084	17,962	24,087	23,735	24,558	24,920	26,207	23,508
Mar-18	25,991	19,771	25,921	27,138	26,806	27,128	28,238	25,856
Apr-18	26,326	19,984	25,321	26,360	26,731	28,072	28,944	**25,963**
May-18	27,980	22,981	25,457	27,011	27,597	28,383	29,824	**27,033**
Jun-18	29,080	23,951	28,636	28,746	29,340	28,852	30,548	**28,450**

Figure 94 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the eastbound direction, the summer season had a higher traffic volume than the winter season, with July being the busiest month of the year.

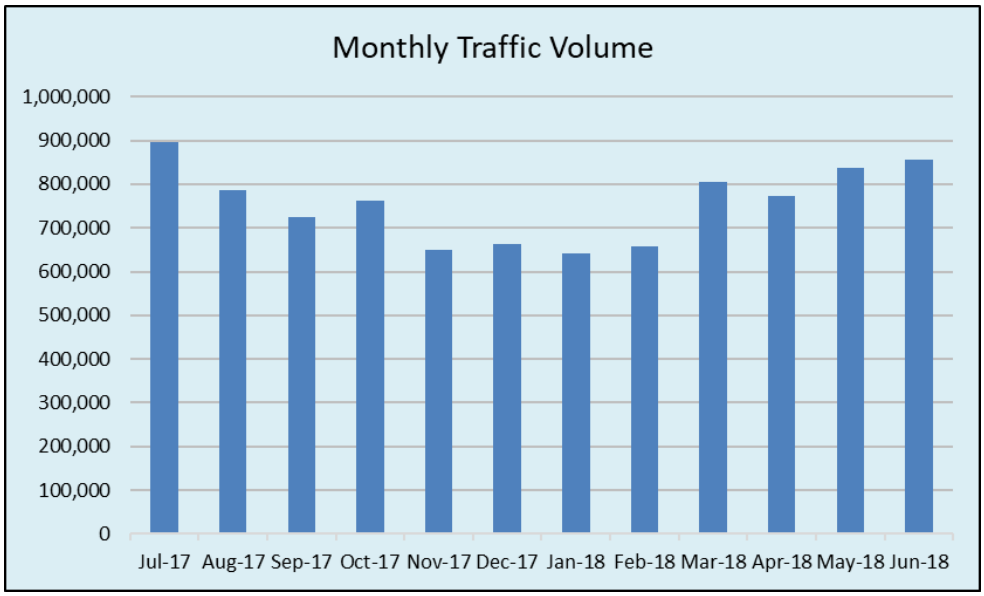

Figure 94. Monthly Traffic Volume, Destin (Site #600168), Eastbound

Figure 95 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar follows a symmetrical pattern, and traffic remained at/under 200,000 vehicles per week.

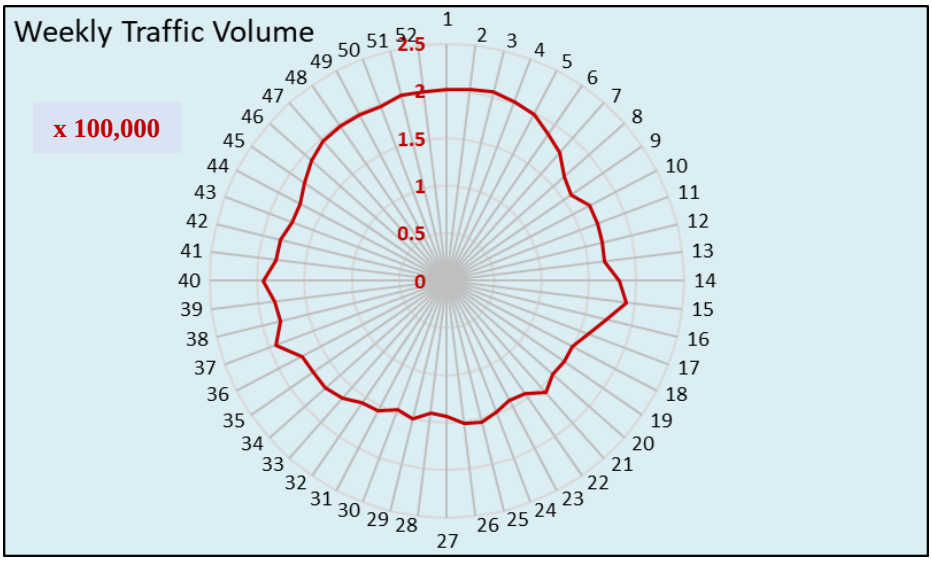

Figure 95. Weekly Traffic Volume, Destin (Site #600168), Eastbound

Figure 96 depicts traffic variation in a day of week per each month. As shown, Saturdays were busier in general than Sundays for most months in the analysis period.

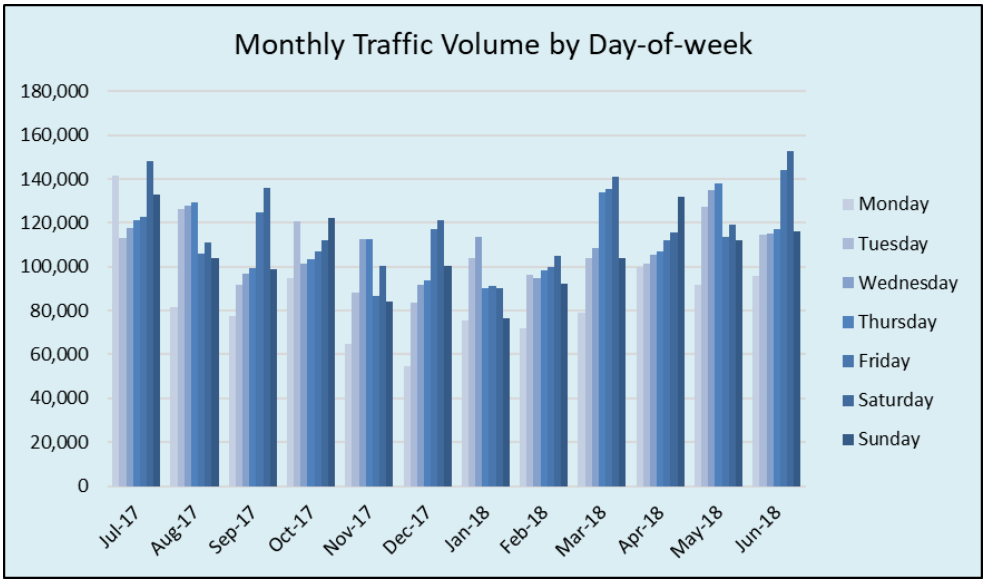

Figure 96. Monthly Traffic Volume by Day of Week, Destin (Site #600168), Eastbound

Figure 97 depicts the annual total traffic incurred by day of week. As shown, Monday had the lowest traffic volume annually, after which the radar expanded a level and remained consistent for weekdays. Saturday was the busiest day of the week for this site.

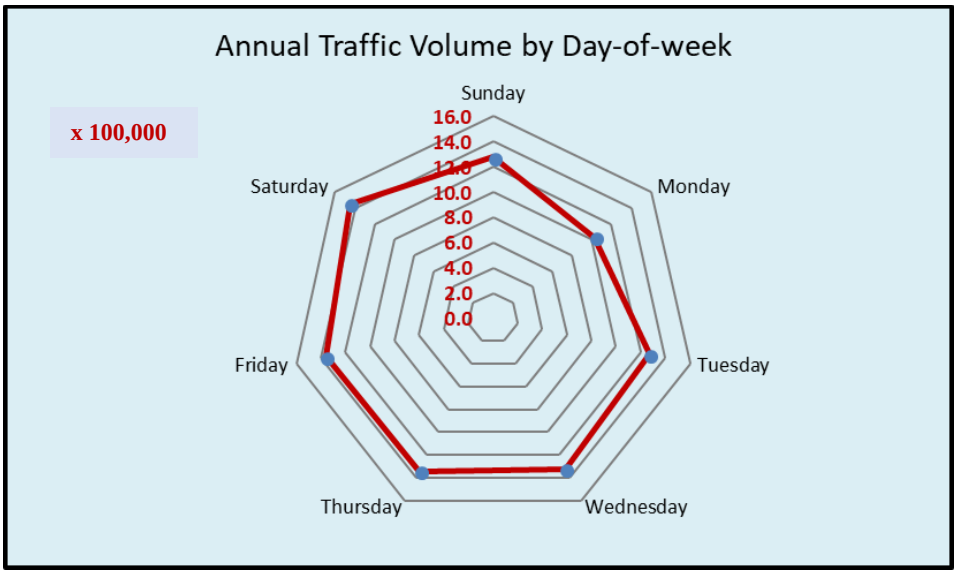

Figure 97. Annual Traffic Volume by Day of Week, Destin (Site #600168), Eastbound

Westbound

Table 49 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 49. AADT, AAWDT, MADW, and MADT, Destin (Site #600168), Westbound

AADT	AAWDT
24,148	23,708

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	26,230	27,409	27,051	28,425	29,073	29,718	29,251	28,165
Aug-17	25,798	20,781	24,663	24,139	24,882	25,650	26,898	24,687
Sep-17	23,689	20,104	23,220	23,876	24,336	24,134	25,639	23,571
Oct-17	23,944	19,561	23,707	24,801	24,970	25,514	26,803	24,186
Nov-17	20,525	17,021	21,642	21,964	21,759	20,670	24,696	21,182
Dec-17	19,556	13,557	20,196	22,343	22,886	22,923	23,712	20,739
Jan-18	18,801	15,308	20,714	22,264	22,017	22,199	21,974	20,468
Feb-18	22,665	17,956	23,457	23,118	23,888	24,281	25,358	22,960
Mar-18	25,123	20,120	24,982	25,929	25,952	25,987	27,431	25,075
Apr-18	25,974	20,793	24,815	25,614	25,697	26,667	27,403	25,280
May-18	27,124	23,369	25,161	26,037	26,561	26,824	27,962	26,148
Jun-18	28,482	23,866	27,305	26,293	27,105	27,807	29,653	27,216

Figure 98 shows the monthly traffic volume from July 2017 to June 2018. As shown, for westbound direction, the summer season had a higher traffic volume than the winter season, with July being the busiest month of the year.

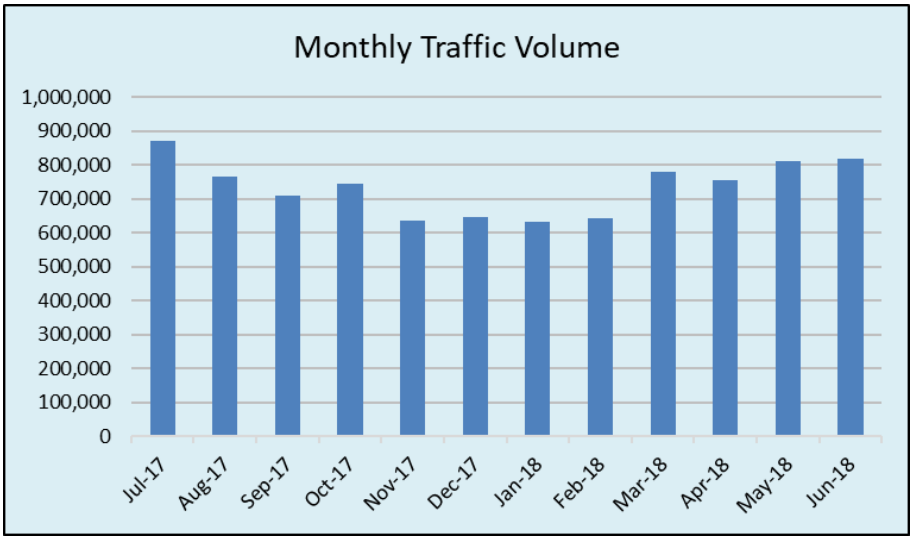

Figure 98. Monthly Traffic Volume, Destin (Site #600168), Westbound

Figure 99 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, weekly traffic remained under 200,000 vehicles per week.

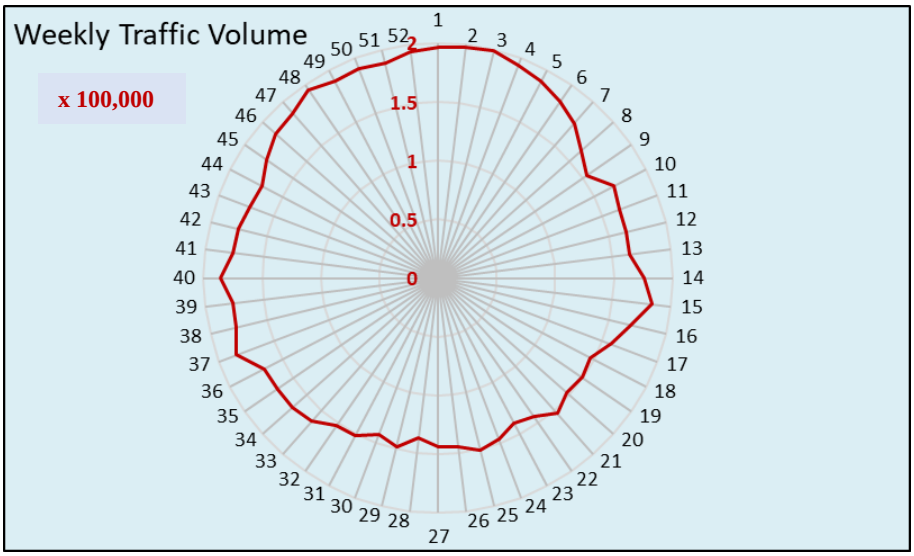

Figure 99. Weekly Traffic Volume, Destin (Site #600168), Westbound

Figure 100 depicts traffic variation by day of week per month. As shown, Saturdays had the highest peak for most months. Also, different patterns were observed across months; for instance, January had more traffic at the start of the week (Tuesday and Wednesday), whereas December experienced more traffic toward the end of the week (Friday to Sunday).

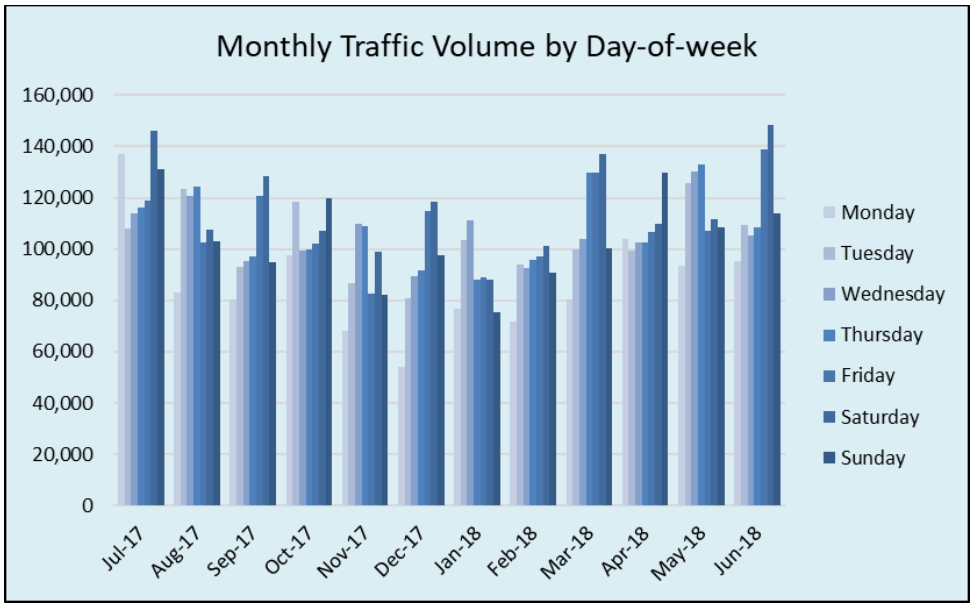

Figure 100. Monthly Traffic Volume by Day of Week, Destin (Site #600168), Westbound

Figure 101 depicts the annual traffic incurred by day of week. As shown, Monday had the lowest traffic volume annually, after which the radar gradually expanded for weekdays. Saturday was the busiest day of the week.

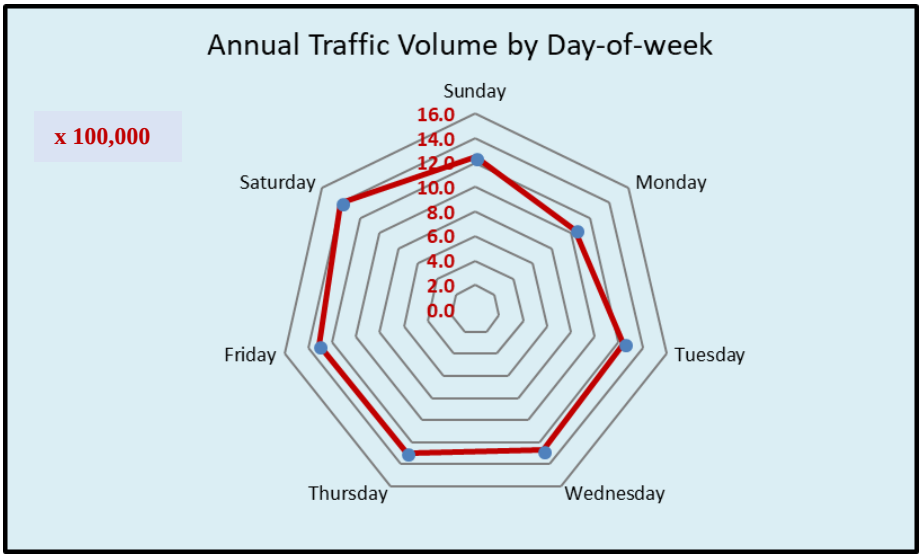

Figure 101. Annual Traffic Volume by Day of Week, Destin (Site #600168), Westbound

4.1.6 South Miami Beach (Site #870031)

The South Miami Beach site (#870031) is a permanent count station located on MacArthur Cswy. Details of the location are provided in Figure 102. The count station's designated directions are eastbound and westbound.

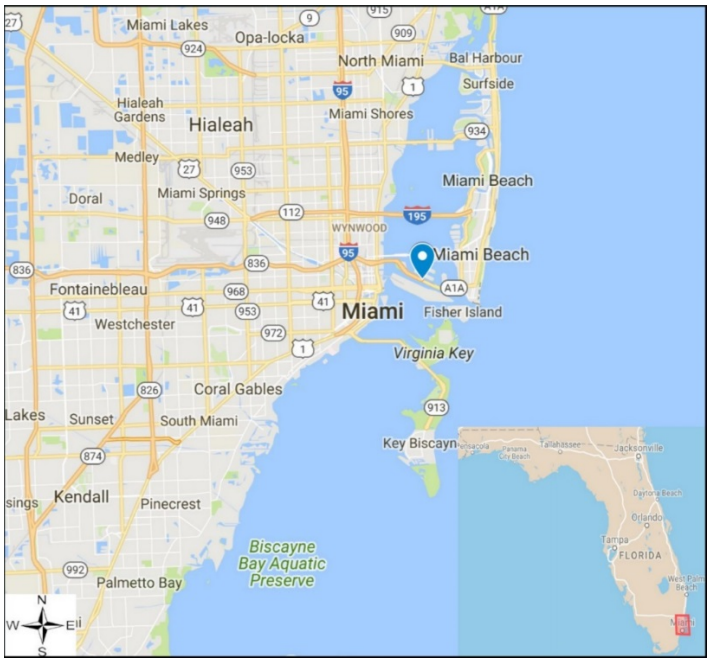

Figure 102. South Miami Beach (Site #870031)

In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.98, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Eastbound

Table 50 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 50. AADT, AAWDT, MADW, and MADT, South Miami Beach (Site #870031), Eastbound

AADT	AAWDT
45,549	45,788

	MADW: Monthly Average Days of the Week							
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	47,507	46,760	46,590	46,515	48,838	52,228	51,115	48,508
Aug-17	43,364	45,785	44,451	46,021	46,130	50,455	48,895	46,443
Sep-17	21,781	28,359	40,606	38,704	35,408	37,626	34,967	33,922
Oct-17	41,224	43,060	43,731	42,899	45,144	49,735	45,536	44,476
Nov-17	42,159	44,604	44,616	45,898	44,568	48,042	46,709	45,228
Dec-17	43,854	43,952	46,016	46,431	48,831	51,360	47,826	46,896
Jan-18	40,892	42,455	44,716	45,917	47,586	50,602	47,151	45,617
Feb-18	49,931	45,716	46,401	47,663	46,871	49,296	52,357	48,319
Mar-18	51,904	47,719	49,941	49,125	49,986	51,155	53,549	50,483
Apr-18	50,122	44,648	46,594	46,707	47,564	48,969	52,140	48,106
May-18	48,862	45,528	44,756	45,981	45,796	48,322	51,302	47,221
Jun-18	47,458	42,463	43,159	43,404	43,059	46,060	49,014	44,945

Figure 103 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the eastbound direction, a variation in traffic was observed across months, especially between February and March. September had the lowest traffic volume due to Hurricane Irma.

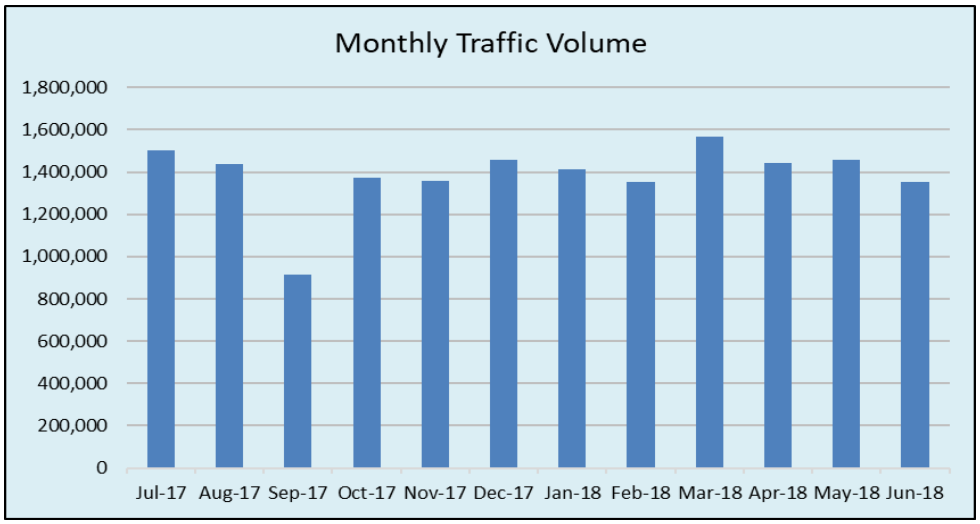

Figure 103. Monthly Traffic Volume, South Miami Beach (Site #870031), Eastbound

Figure 104 depicts the weekly variation in traffic volume from July 2017 to June 2018. As shown, the radar expanded for few weeks, and at weeks 10–12 there was a sudden drop in traffic due to Hurricane Irma. Traffic volume remained under 400,000 vehicles per week.

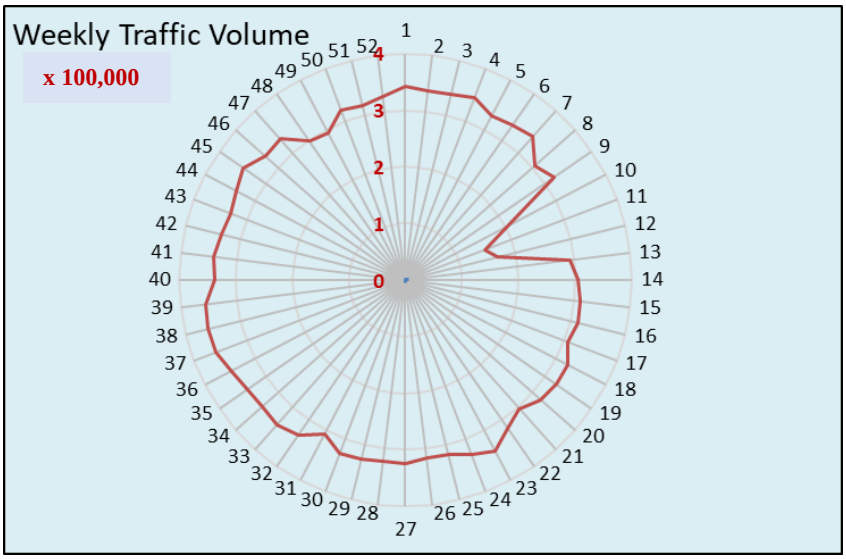

Figure 104. Weekly Traffic Volume,
South Miami Beach (Site #870031) Eastbound

Figure 105 depicts traffic variation in day of week per month. As shown, a high variance for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

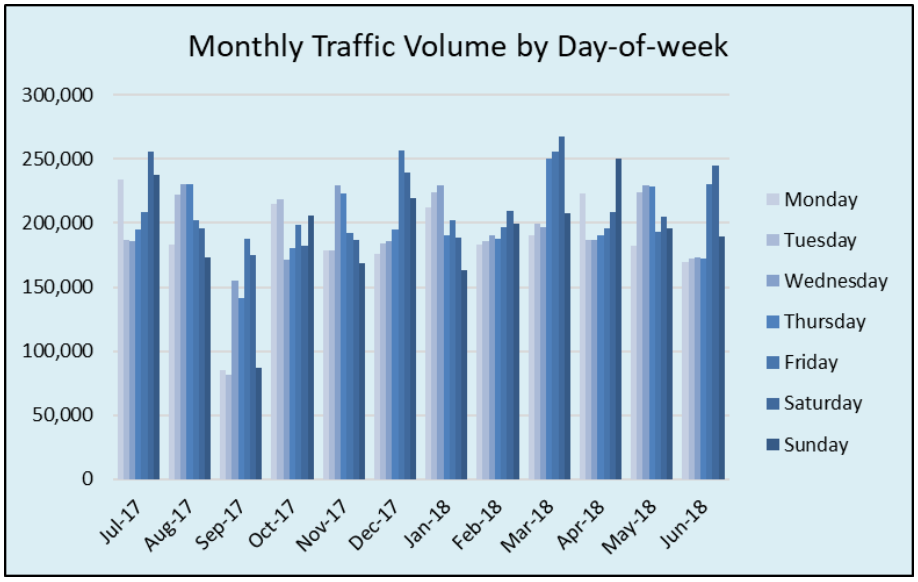

Figure 105. Monthly Traffic Volume by Day of Week,
South Miami Beach (Site #870031) Eastbound

Figure 106 depicts total traffic counts on a day of week annually. As shown, Monday had the lowest traffic volume annually after which the radar gradually expanded over each weekday until Saturday, which was the busiest day of the week.

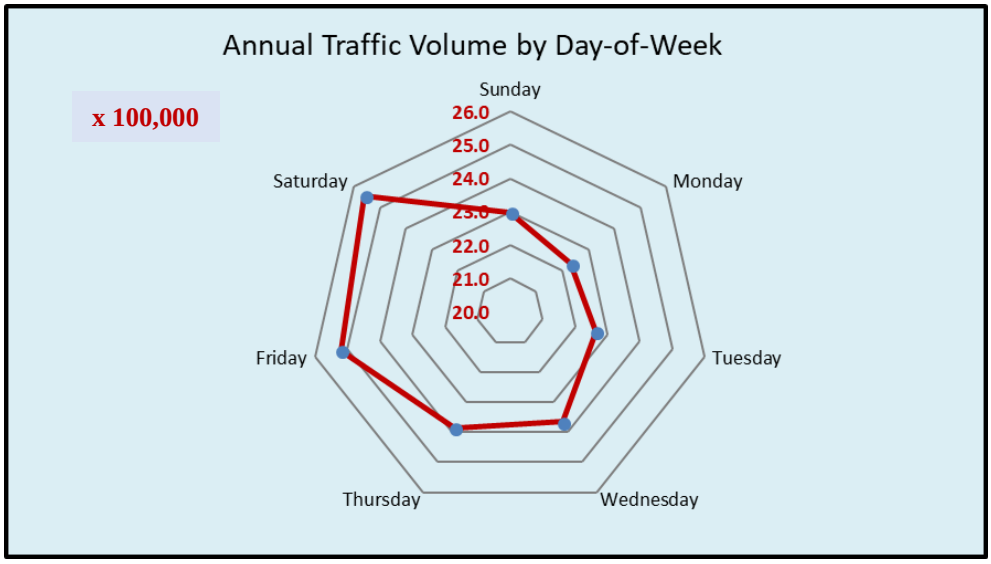

Figure 106. Annual Traffic Volume by Day of Week,
South Miami Beach (Site #870031), Eastbound

Westbound

Table 51 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 51. AADT, AAWDT, MADW, and MADT, South Miami Beach (Site #870031), Westbound

AADT	AAWDT
45,754	45,717

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	50,531	47,647	46,150	46,804	48,068	50,648	52,002	48,836
Aug-17	46,294	46,102	44,415	46,015	45,938	49,314	49,714	46,827
Sep-17	23,265	29,493	40,768	39,381	35,907	36,845	35,363	34,432
Oct-17	43,908	43,094	42,469	42,672	44,222	47,552	45,710	44,232
Nov-17	44,447	44,168	43,367	45,623	43,850	47,284	47,364	45,157
Dec-17	45,647	43,912	45,322	46,361	47,965	50,168	48,345	46,817
Jan-18	44,089	44,842	44,557	45,666	47,198	49,281	48,023	46,237
Feb-18	51,797	49,741	46,935	45,670	46,585	48,061	50,438	48,461
Mar-18	53,896	52,244	50,659	48,868	49,662	50,831	53,622	51,397
Apr-18	51,985	48,385	47,148	45,634	47,289	48,555	51,207	48,600
May-18	50,113	47,478	46,117	43,839	45,089	46,711	49,448	46,971
Jun-18	46,621	44,744	43,399	43,170	42,771	44,913	46,879	44,643

Figure 107 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the westbound direction, March was the busiest month of the year. September had the lowest traffic volume due to Hurricane Irma.

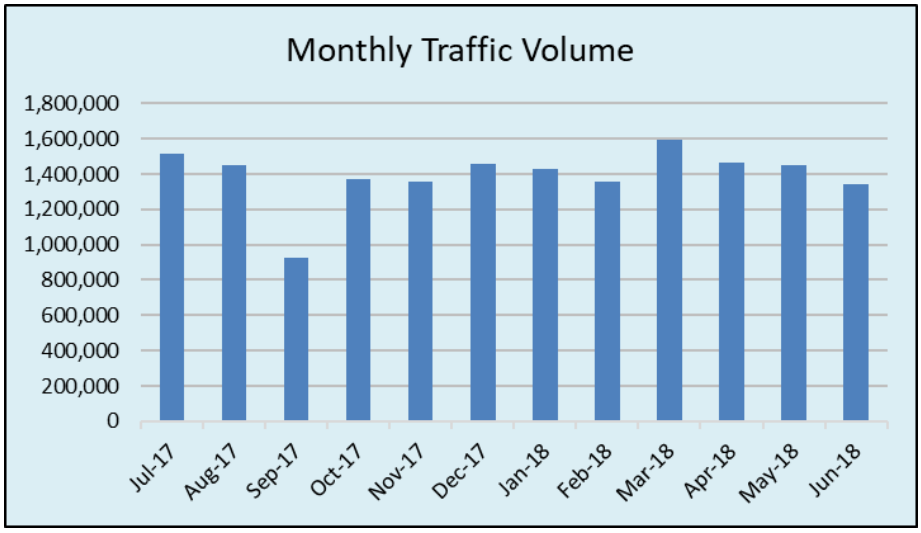

Figure 107. Monthly Traffic Volume,
South Miami Beach (Site #870031) Westbound

Figure 108 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for few weeks, and at week 11 there was a sudden drop in traffic due to Hurricane Irma. Overall, the weekly traffic remained under 400,000 vehicles.

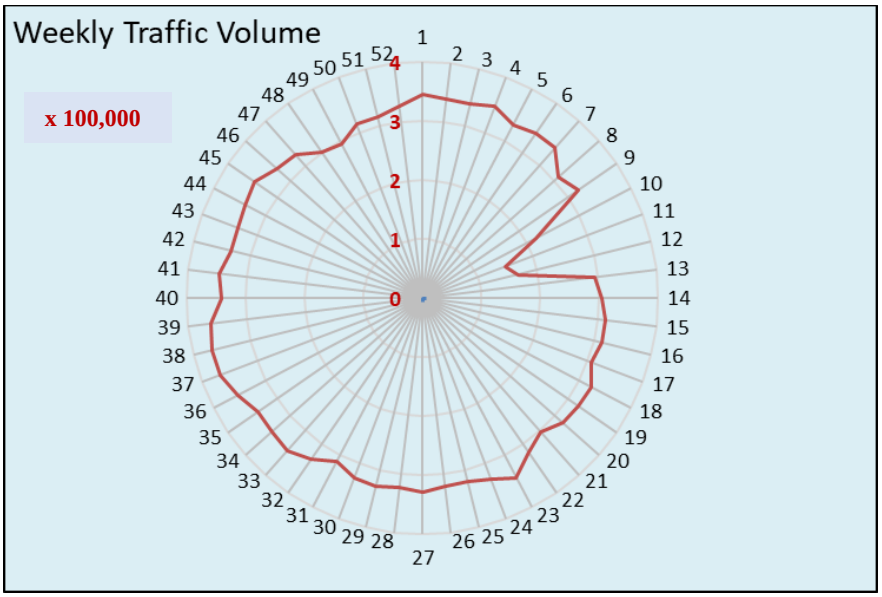

Figure 108. Weekly Traffic Volume,
South Miami Beach (Site #870031), Westbound

Figure 109 depicts traffic variation in a day of week per each month. As shown, a high variance for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

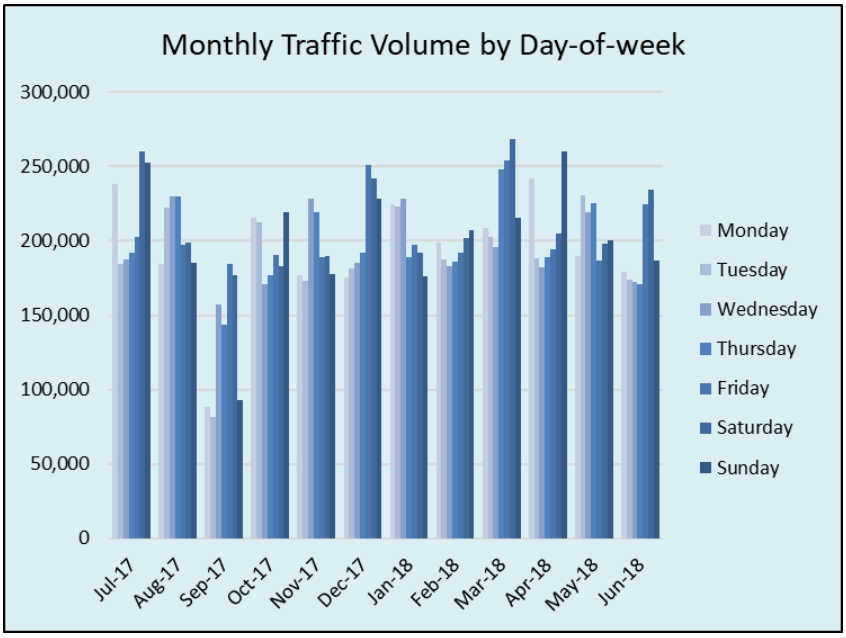

Figure 109. Monthly Traffic Volume by Day of Week,
South Miami Beach (Site #870031), Westbound

Figure 110 depicts total traffic counts on a day of week annually. As shown, Tuesday had the lowest traffic volume annually and Saturday the highest.

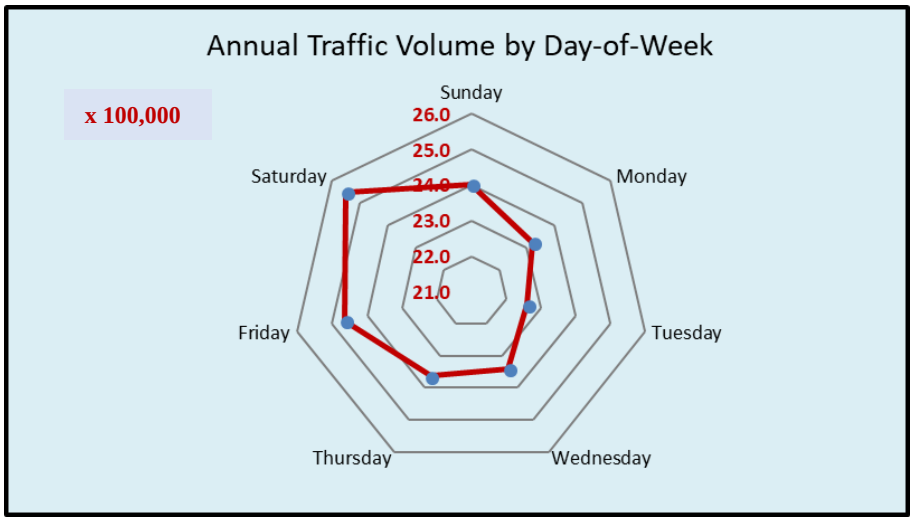

Figure 110. Annual Traffic Volume by Day of Week, South Miami Beach (Site #870031), Westbound

4.1.7 South Miami Beach (Site #870108)

The South Miami Beach site (#870108) is a permanent count station whose site-specific information is noted in Section 3.7. In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.96, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Eastbound

Table 52 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 52. AADT, AAWDT, MADW, and MADT, South Miami Beach (Site #870108), Eastbound

AADT	AAWDT
56,000	56,904

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	51,559	58,699	56,905	59,597	61,827	64,730	56,928	58,606
Aug-17	46,942	57,407	57,470	58,984	60,475	62,526	53,373	56,739
Sep-17	33,726	39,701	47,292	50,210	47,035	48,629	48,859	45,065
Oct-17	45,535	56,458	57,365	57,839	59,098	62,439	51,821	55,793
Nov-17	47,094	58,094	58,090	59,512	57,411	61,292	53,798	56,470
Dec-17	48,833	55,350	58,548	59,579	60,606	65,786	56,305	57,858
Jan-18	47,273	53,174	53,594	55,934	61,197	62,868	53,348	55,341
Feb-18	57,121	50,438	58,060	58,993	58,016	59,111	63,906	57,949
Mar-18	56,950	54,852	60,314	58,979	61,015	61,353	65,169	59,804
Apr-18	56,150	48,426	56,830	56,327	58,649	61,556	63,053	57,284
May-18	57,287	50,981	55,747	56,616	56,848	59,276	63,284	57,148
Jun-18	50,774	45,034	54,169	54,465	54,736	57,090	59,849	53,731

Figure 111 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the eastbound direction March was the busiest month of the year, and September had the lowest traffic volume due to Hurricane Irma.

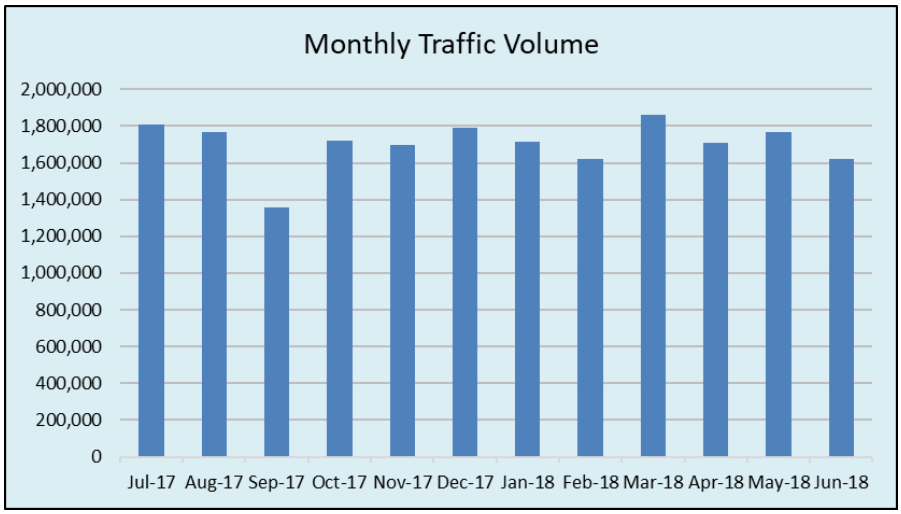

Figure 111. Monthly Traffic Volume,
South Miami Beach (Site #870108), Eastbound

Figure 112 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11 there was a sudden drop in traffic due to Hurricane Irma. Overall, weekly traffic volume remained at approximately 400,000 vehicles or under.

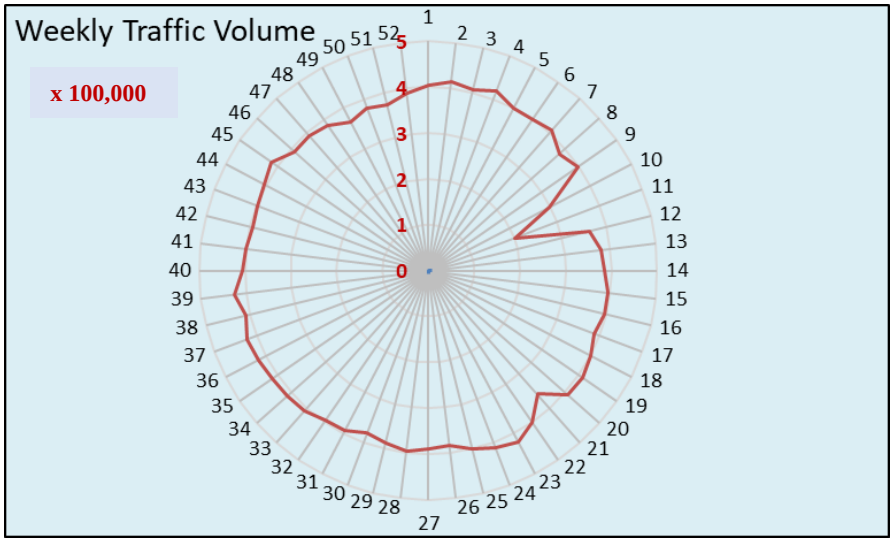

Figure 112. Weekly Traffic Volume,
South Miami Beach (Site #870108), Eastbound

Figure 113 depicts monthly traffic variation by day of week. As shown, a high variance for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

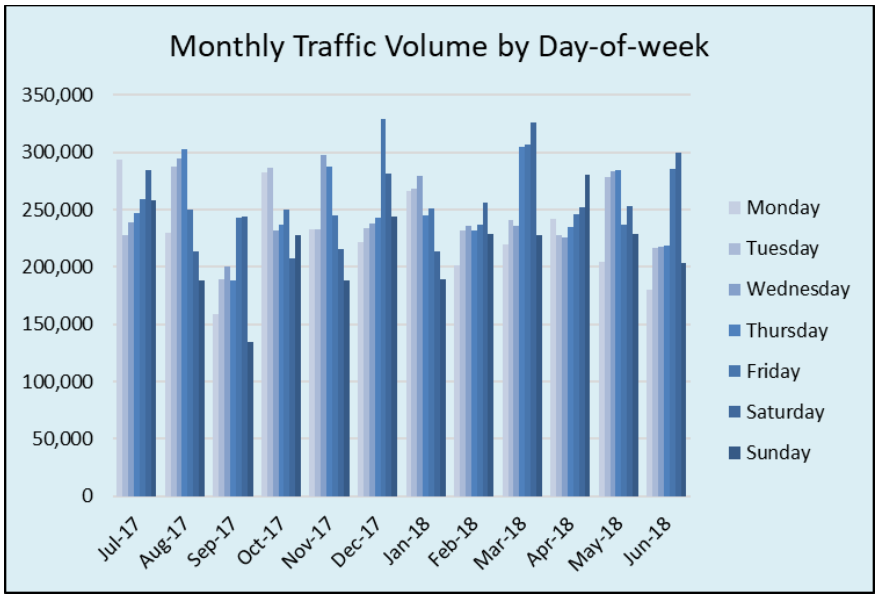

Figure 113. Monthly Traffic Volume by Day of Week, South Miami Beach (Site #870108), Eastbound

Figure 114 depicts the annual total traffic incurred by a day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar expanded a level and remained consistent for weekdays. Friday was the busiest day of the week for this site.

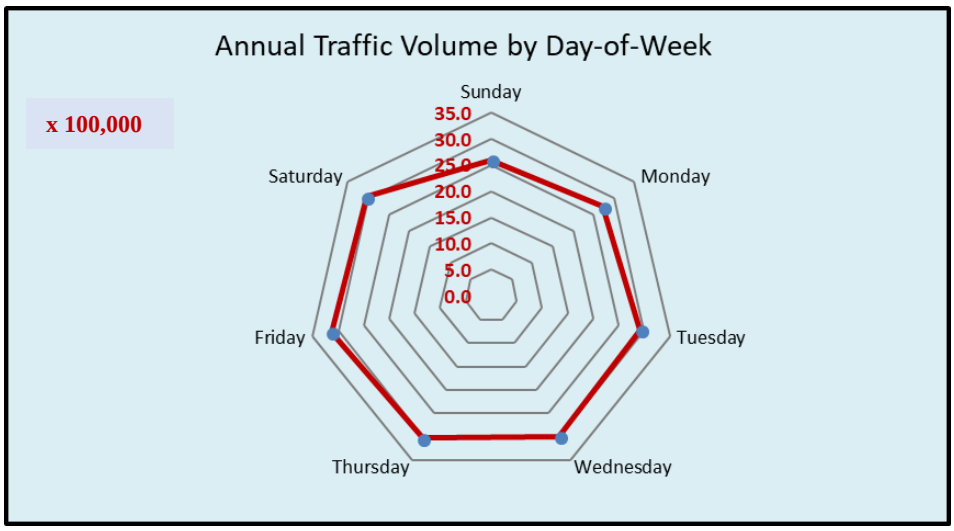

Figure 114. Annual Traffic Volume by Day of Week, South Miami Beach (Site #870108) Eastbound

Westbound

Table 53 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 53. AADT, AAWDT, MADW, and MADT, South Miami Beach (Site #870108), Westbound

AADT	AAWDT
55,282	56,754

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	**MADT**
Jul-17	51,650	58,596	56,548	59,540	60,346	62,416	53,374	57,496
Aug-17	46,532	57,243	56,627	56,903	58,533	60,305	49,708	55,122
Sep-17	33,117	39,902	46,258	49,478	47,482	47,427	36,851	42,931
Oct-17	45,950	56,789	57,101	57,344	58,280	60,746	48,793	55,000
Nov-17	48,300	59,200	58,591	59,409	56,875	58,225	51,363	55,995
Dec-17	47,806	54,850	58,101	58,188	63,517	64,735	53,952	57,307
Jan-18	50,108	55,658	58,270	58,767	61,038	62,137	51,801	56,826
Feb-18	52,770	50,788	57,567	58,131	58,500	60,110	62,065	57,133
Mar-18	56,277	53,111	59,912	59,081	60,066	61,786	63,540	59,110
Apr-18	52,638	49,723	56,989	56,615	57,911	60,077	61,333	56,470
May-18	54,543	52,537	56,014	56,570	56,771	58,639	61,089	56,595
Jun-18	49,265	47,362	54,898	54,302	54,257	56,191	56,923	53,314

Figure 115 depicts the monthly traffic volume from July 2017 to June 2018. As shown, for the westbound direction, a variation in traffic was observed across months, March was the busiest month of the year, and September had the lowest traffic volume due to Hurricane Irma.

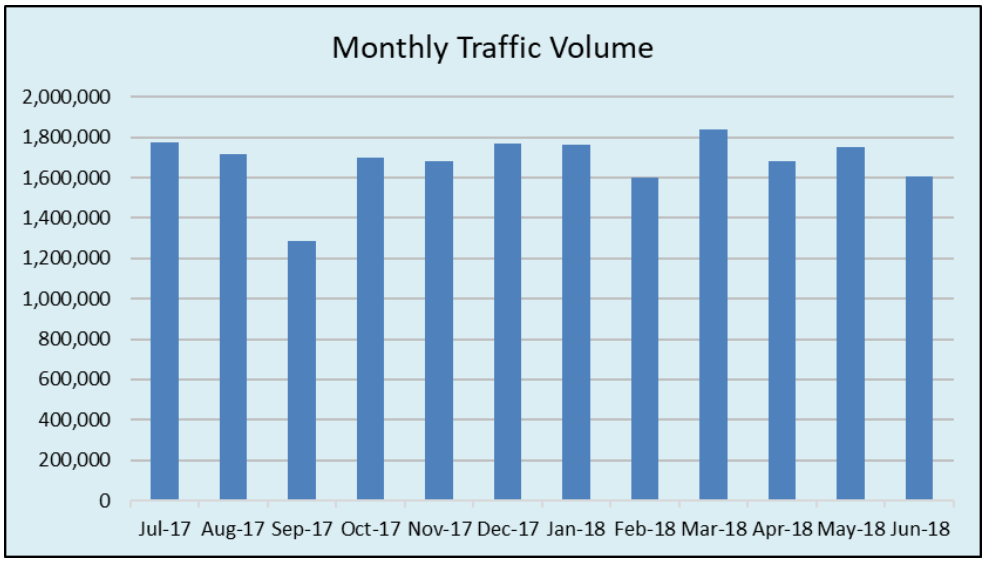

Figure 115 Monthly Traffic Volume, South Miami Beach (Site #870108), Westbound

Figure 116 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11 there was a sudden drop in traffic due to Hurricane Irma. Overall, the weekly traffic volume followed a symmetrical rise and remained at approximately 400,000 vehicles or less.

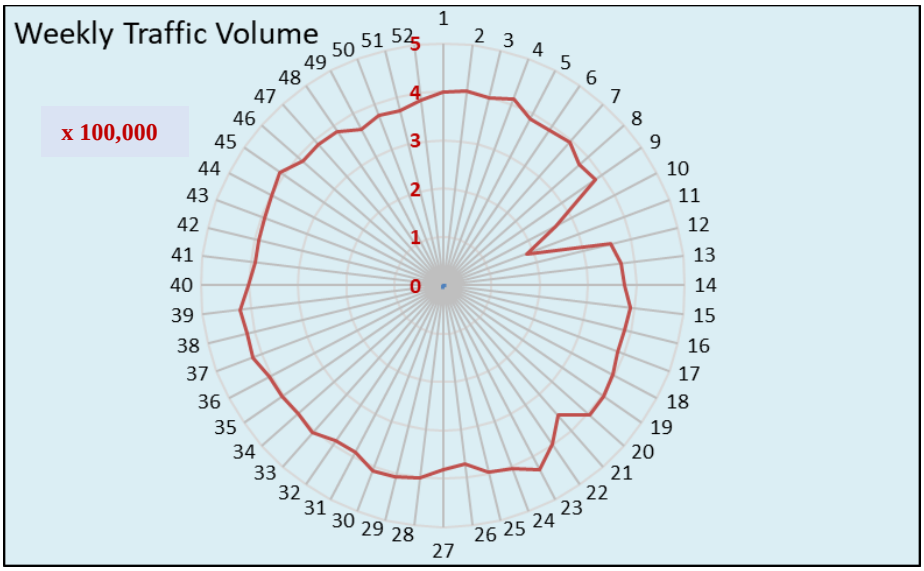

Figure 116. Weekly Traffic Volume, South Miami Beach (Site #870108), Westbound

Figure 117 depicts traffic variation by day of week per month. As shown, a high variance in traffic was observed. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week (Thursday to Saturday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

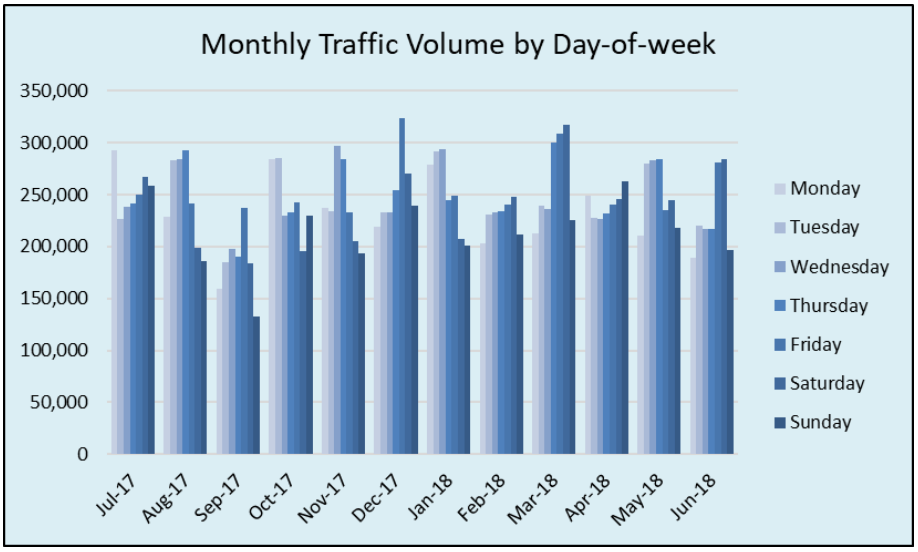

Figure 117. Monthly Traffic Volume by Day of Week,
South Miami Beach (Site #870108), Westbound

Figure 118 depicts the annual total traffic incurred by day of week. As shown, Sunday had the lowest annual traffic volume, after which the radar expanded a level and remained consistent for weekdays. Friday was the busiest day of the week for this site.

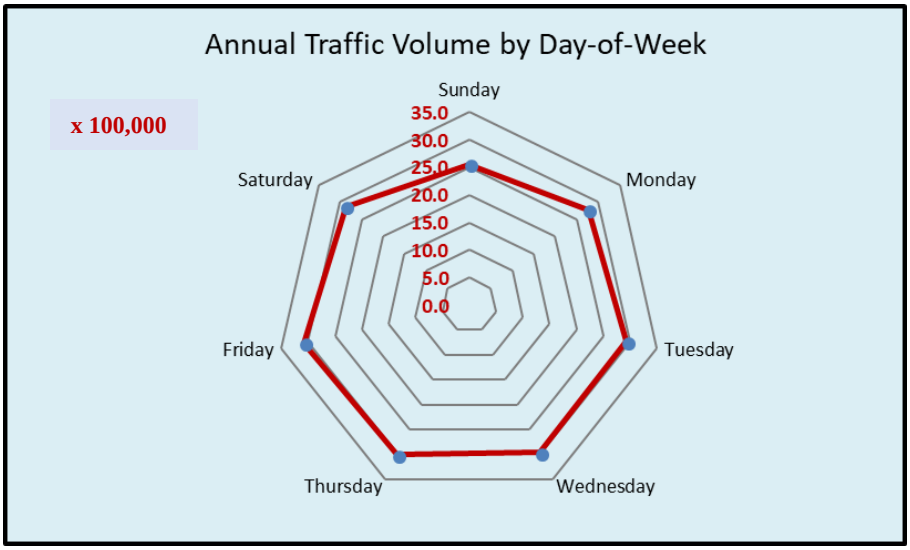

Figure 118. Annual Traffic Volume by Day of Week, South Miami Beach (Site #870108), Westbound

4.1.8 Key Largo (Site #900164)

The Key Largo site (#900164) is a permanent count station; its site-specific information is provided in Section 3.5. In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.96, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Northbound

Table 54 shows the AADT, AAWDT, MADW, and MADT for the northbound direction.

Table 54. AADT, AAWDT, MADW, and MADT, Key Largo (Site #900164), Northbound

AADT	AAWDT
14,179	13,999

	MADW: Monthly Average Days of the Week							
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	20,671	15,622	14,417	15,275	14,764	16,170	17,660	16,368
Aug-17	18,640	14,060	13,260	13,429	13,630	14,602	15,536	14,737
Sep-17	9,106	11,008	11,746	12,731	10,667	10,309	9,192	10,680
Oct-17	12,966	12,498	12,374	12,436	12,777	13,689	12,371	12,730
Nov-17	14,223	13,479	13,239	13,380	12,644	14,099	13,981	13,578
Dec-17	12,183	12,258	13,408	14,056	14,523	15,153	14,001	13,654
Jan-18	13,688	14,273	13,727	13,674	14,103	14,783	13,998	14,035
Feb-18	15,381	16,542	14,931	14,235	13,706	13,761	15,033	14,798
Mar-18	16,360	17,492	14,328	14,211	14,795	14,930	15,795	15,416
Apr-18	16,275	17,898	14,143	13,610	13,938	14,533	15,617	15,145
May-18	14,912	19,487	16,240	13,251	12,971	13,133	13,883	14,840
Jun-18	14,917	18,189	13,562	12,576	12,646	13,240	14,229	14,194

Figure 119 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the northbound direction was observed, with the summer season having higher traffic volume than the winter season. September had the lowest traffic volume due to Hurricane Irma.

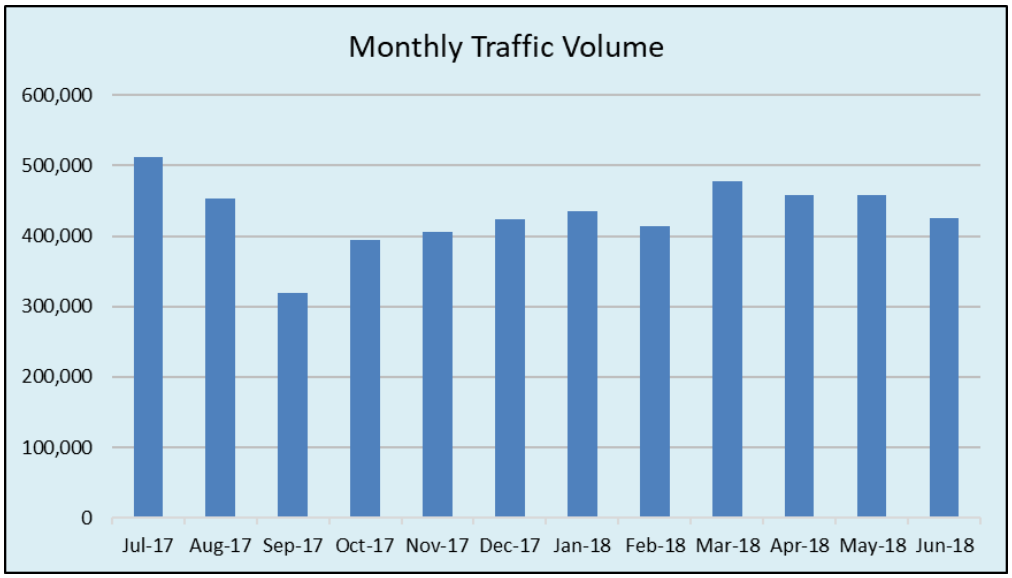

Figure 119. Monthly Traffic Volume, Key Largo (Site #900164), Northbound

Figure 120 shows the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11 there was a sudden drop in traffic due to Hurricane Irma. Overall, weekly traffic volume remained under 120,000.

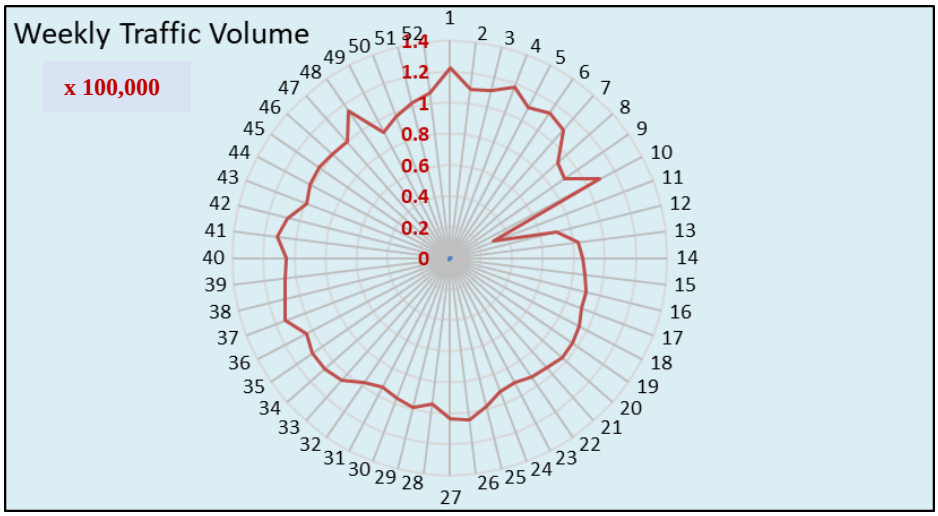

Figure 120. Weekly Traffic Volume, Key Largo (Site #900164), Northbound

Figure 121 depicts traffic variation in a day of week per each month. As shown, Saturday and Sunday were the busiest days of the week throughout the year. Also, different patterns were observed across months; for instance, December incurred more traffic toward the end of the week, (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

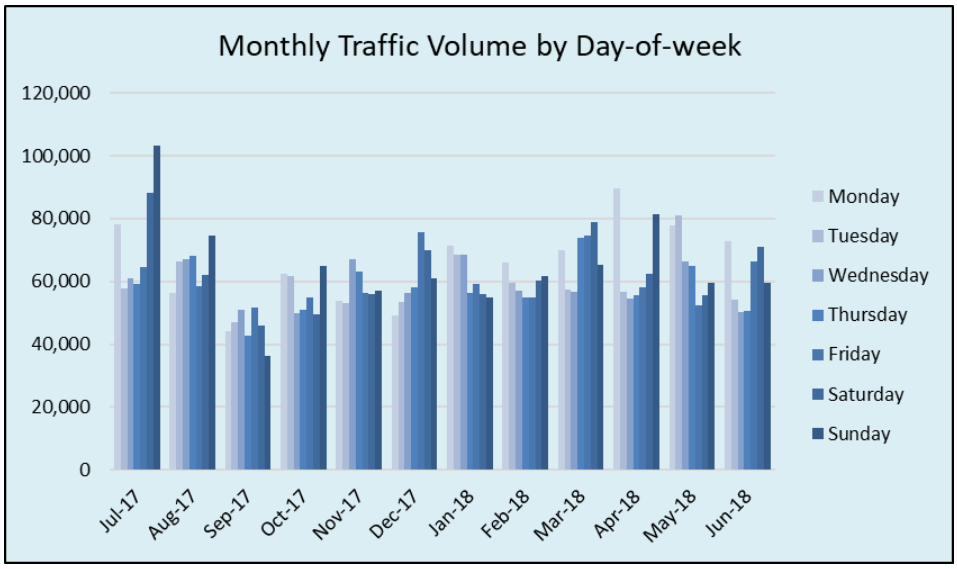

Figure 121. Monthly Traffic Volume by Day of Week,
Key Largo (Site #900164) Northbound

Figure 122 depicts the annual total traffic incurred by day of week. As shown, Monday was the busiest day of the week.

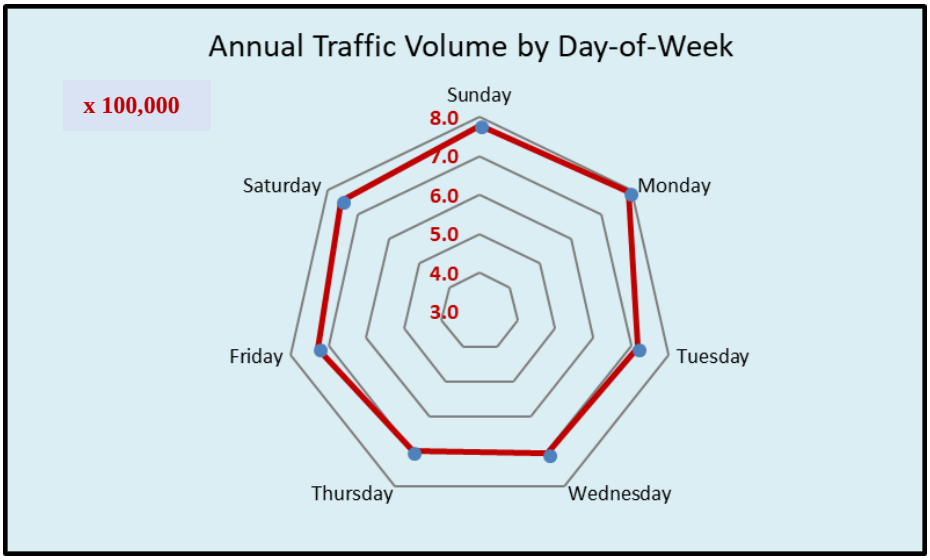

Figure 122. Annual Traffic Volume by Day of Week,
Key Largo (Site #900164) Northbound

Southbound

Table 55 shows the AADT, AAWDT, MADW, and MADT for the southbound direction.

Table 55. AADT, AAWDT, MADW, and MADT, Key Largo (Site #900164), Southbound

AADT	AAWDT
14,196	13,810

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	15,448	14,949	14,224	14,512	15,325	19,139	20,423	16,289
Aug-17	12,670	13,152	13,129	13,490	14,583	18,029	17,235	14,613
Sep-17	9,366	9,205	12,155	10,561	9,106	12,018	11,153	10,509
Oct-17	10,910	12,860	12,666	12,809	13,338	15,047	12,747	12,911
Nov-17	11,711	13,518	13,371	13,597	13,377	15,614	14,308	13,642
Dec-17	11,291	12,726	14,301	14,645	15,052	15,813	14,617	14,063
Jan-18	11,768	12,819	13,640	13,699	14,398	15,687	14,852	13,837
Feb-18	16,932	13,905	14,397	14,069	13,924	14,406	16,727	14,909
Mar-18	17,571	14,323	14,609	14,210	14,743	15,074	17,134	15,381
Apr-18	17,307	13,261	13,911	13,609	14,053	15,186	17,957	15,040
May-18	17,908	14,836	12,794	12,750	13,086	14,460	18,619	14,922
Jun-18	16,885	12,827	12,978	12,492	12,802	14,234	18,129	14,335

Figure 123 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the southbound direction was observed, with the summer season having a higher traffic volume than the winter season. September had the lowest traffic volume due to Hurricane Irma.

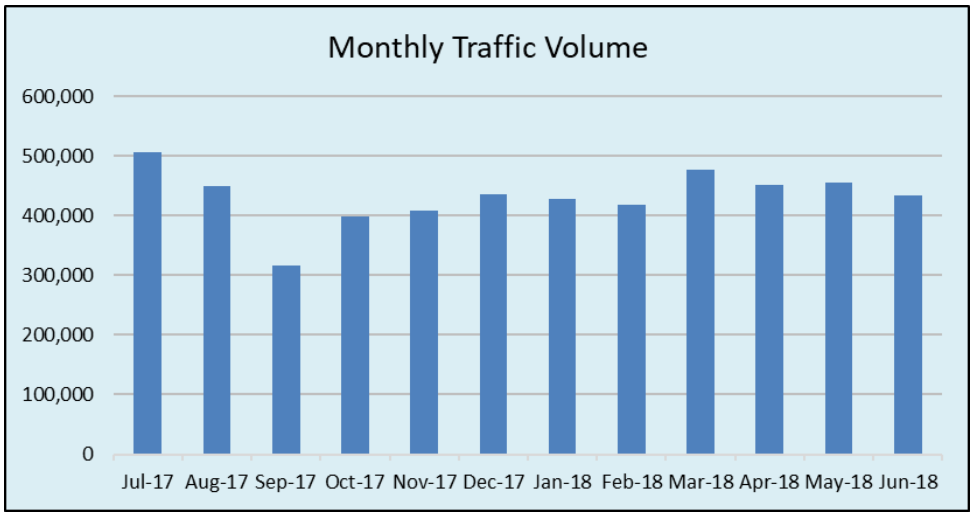

Figure 123. Monthly Traffic Volume, Key Largo (Site #900164), Southbound

Figure 124 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11 a sudden drop was seen in traffic volume due to Hurricane Irma. The overall traffic volume remained under 120,000 vehicles per week.

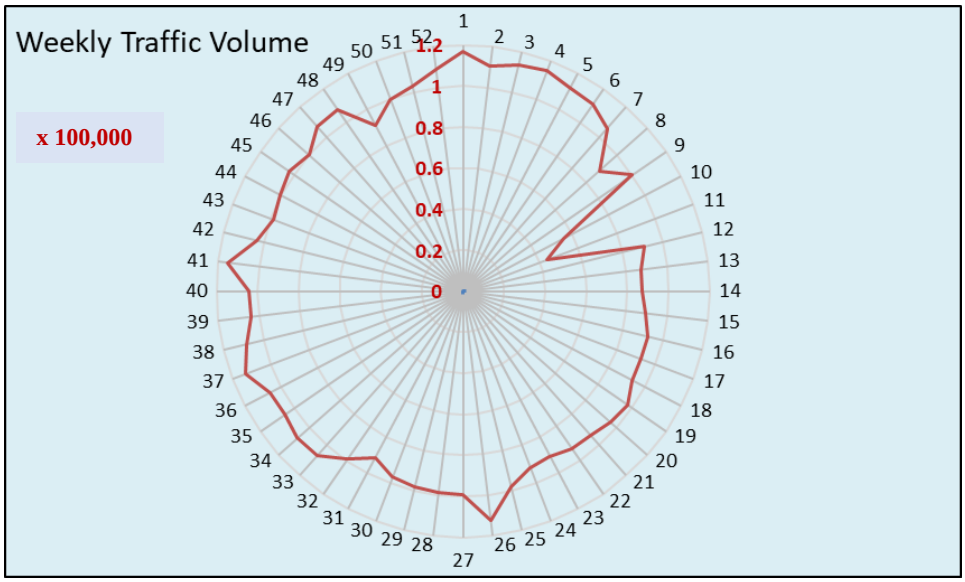

Figure 124. Weekly Traffic Volume, Key Largo (Site #900164), Southbound

Figure 125 depicts the traffic variation by day of week per month. As shown, weekend (Friday-Sunday) traffic volume was higher in general throughout the year.

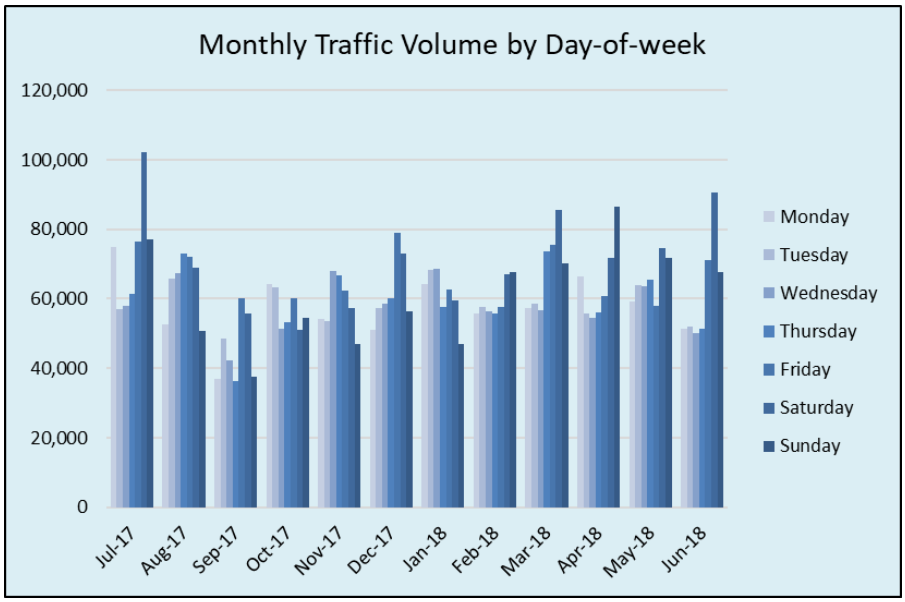

Figure 125. Monthly Traffic Volume by Day of Week, Key Largo (Site #900164), Southbound

Figure 126 depicts the annual total traffic incurred by day of week. As shown, Monday had the lowest traffic volume annually, after which the radar gradually expanded until Saturday, which was the busiest day of the week for this site.

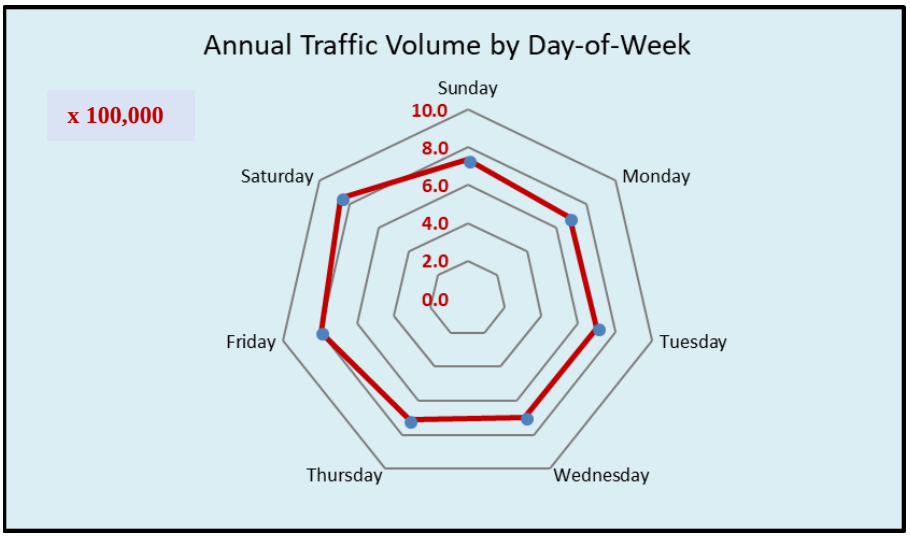

Figure 126. Annual Traffic Volume by Day of Week, Key Largo (Site #900164), Southbound

4.1.9 Jacksonville Beach (Site #720062)

The Jacksonville Beach site (#720062) is a permanent count station whose site-specific information is mentioned in Section 3.8. In the analysis period from July 2017 to June 2018, data for January 29–31 and for February, March, April, May, and June were not available and were replaced by an inflated version of the previous-year data calculated by multiplying the inflation factor with these previous-year data. The computed inflation factor for this site was 0.97, which was generated by comparing the monthly traffic volume of the current year over the previous year for July, August, September, October, November, and December and for January 1–28. Once this data replacement was completed, the following results were developed for data visualization purposes for each direction.

Eastbound

Table 56 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 56. AADT, AAWDT, MADW, and MADT Jacksonville Beach (Site #720062), Eastbound

AADT	AAWDT
21,148	21,596

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	17,985	21,519	22,650	22,497	23,436	25,172	23,634	22,413
Aug-17	17,880	21,292	22,603	22,533	23,049	24,901	22,383	22,091
Sep-17	1,852	14,715	21,756	23,079	22,525	23,918	19,039	18,126
Oct-17	17,412	20,971	22,510	22,490	23,235	25,338	21,587	21,934
Nov-17	15,652	21,131	22,025	22,120	20,229	21,591	19,088	20,262
Dec-17	15,547	18,331	21,205	21,285	20,473	22,340	19,092	19,753
Jan-18	15,036	16,664	19,960	20,059	21,895	22,300	19,497	19,344
Feb-18	21,144	18,989	20,787	22,431	21,376	22,234	23,778	21,534
Mar-18	21,675	18,218	20,437	22,302	22,921	22,345	23,989	21,698
Apr-18	23,948	19,447	21,513	22,553	23,281	23,537	25,249	22,790
May-18	22,075	19,068	21,047	22,951	22,568	23,277	25,355	22,334
Jun-18	22,750	18,284	19,657	20,720	21,458	22,473	24,192	21,362

Figure 127 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the eastbound direction was observed, with the summer season having a higher traffic volume than the winter season. September had the lowest traffic volume due to Hurricane Irma.

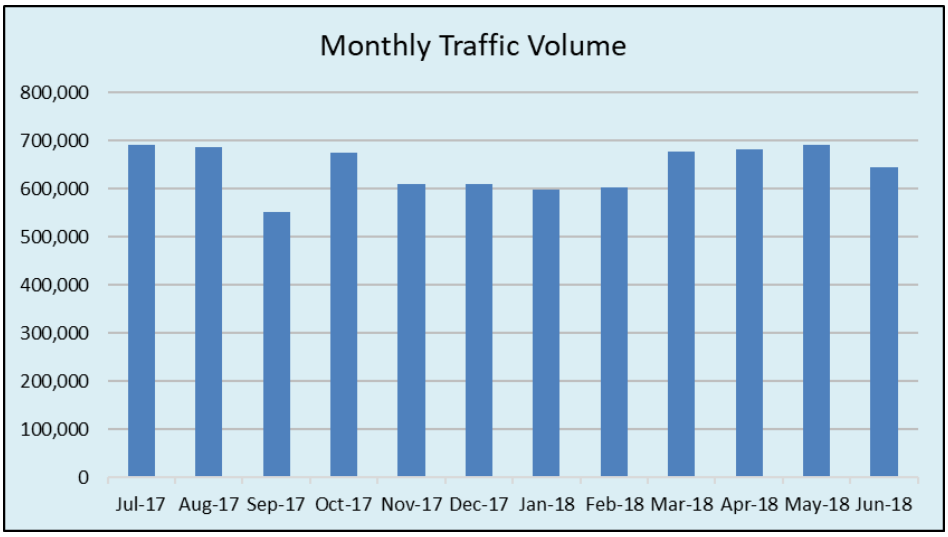

Figure 127. Monthly Traffic Volume, Jacksonville Beach (Site #720062), Eastbound

Figure 128 shows the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for few weeks, and then around week 11 dropped due to Hurricane Irma. In addition, during weeks 26 and 27, a dip in traffic was observed with the onset of colder-than-normal days in December. Traffic volume remained under 160,000 vehicles per week.

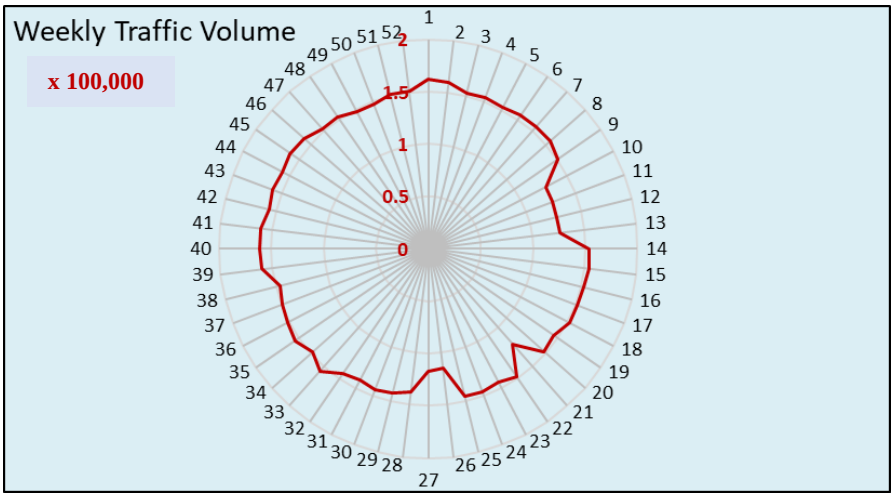

Figure 128. Weekly Traffic Volume,
Jacksonville Beach (Site #720062), Eastbound

Figure 129 depicts traffic variation by day of week per month. As shown, weekend (Friday-Sunday) traffic volume was higher in general throughout the year.

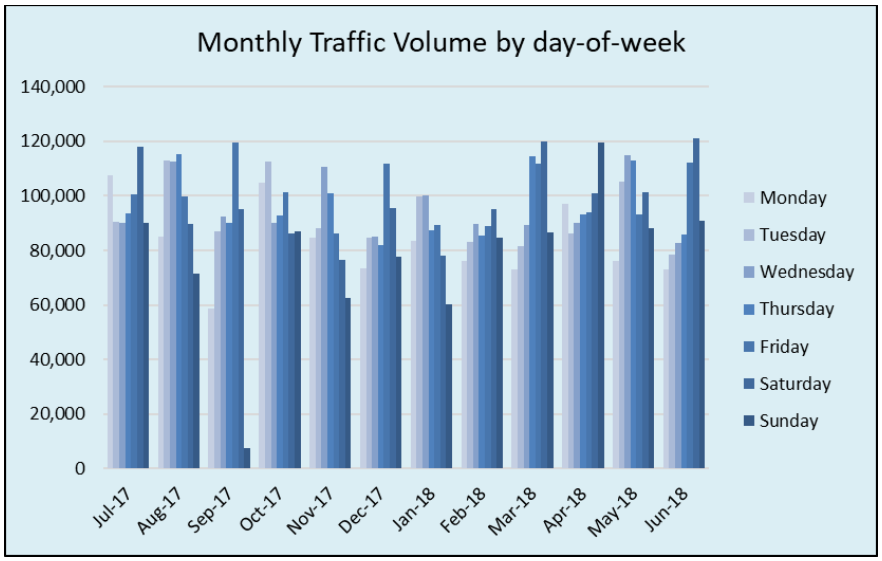

Figure 129. Monthly Traffic Volume by Day of Week, Jacksonville Beach (Site #720062), Eastbound

Figure 130 depicts the annual total traffic incurred by day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar gradually increased until Friday, which was the busiest day of the week for this site.

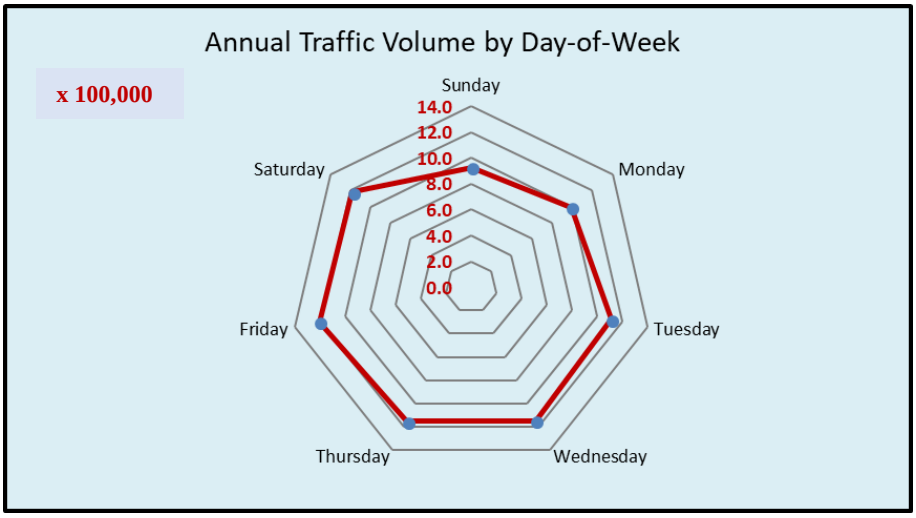

Figure 130. Annual Traffic Volume by Day of Week, Jacksonville Beach (Site #720062), Eastbound

Westbound

Table 57 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 57. AADT, AAWDT, MADW, and MADT Jacksonville Beach (Site #720062), Westbound

AADT	AAWDT
20,585	20,939

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	18,072	20,538	22,015	21,787	22,671	24,724	22,656	21,780
Aug-17	17,930	20,845	21,696	21,651	22,226	23,718	21,637	21,386
Sep-17	14,092	15,889	20,842	21,856	22,463	22,210	17,647	19,285
Oct-17	16,398	20,649	22,016	22,068	22,518	23,926	20,917	21,213
Nov-17	15,388	20,543	21,269	21,670	19,590	20,551	18,200	19,601
Dec-17	15,442	17,936	20,220	20,573	20,139	21,378	18,424	19,159
Jan-18	14,795	16,397	19,346	19,757	20,579	21,390	18,470	18,676
Feb-18	20,168	17,371	20,364	21,773	21,089	21,499	22,573	20,691
Mar-18	20,802	18,108	20,022	21,664	22,136	21,571	22,737	21,006
Apr-18	22,942	19,582	21,023	21,809	22,525	22,711	24,007	22,085
May-18	21,351	18,801	20,742	21,941	21,713	22,388	23,804	21,534
Jun-18	21,640	18,806	19,442	19,923	20,786	21,098	22,970	20,667

Figure 131 depicts the monthly traffic volume from July 2017 to June 2018. As shown, a seasonal pattern for the eastbound direction was observed, with the summer season having higher traffic volume than the winter season.

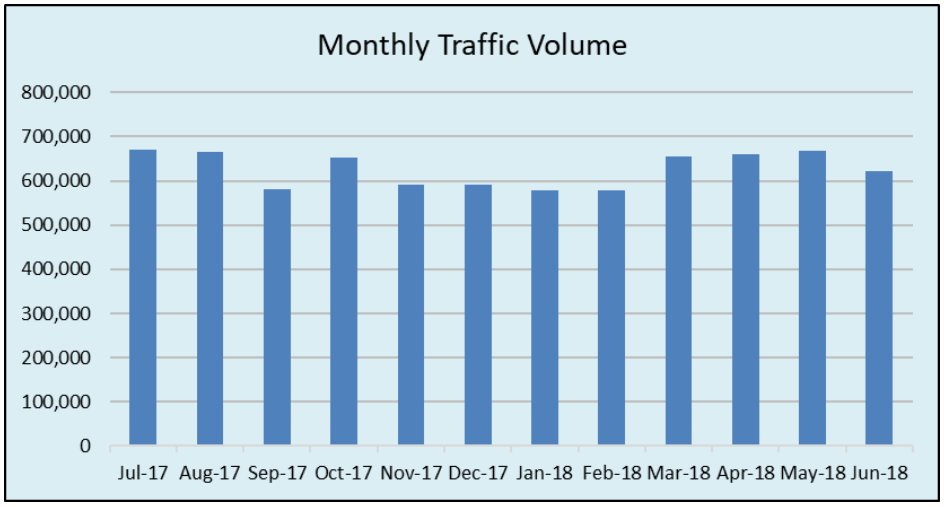

Figure 131. Monthly Traffic Volume, Jacksonville Beach (Site #720062), Westbound

Figure 132 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, the radar expanded for a few weeks, and at week 11 there was a sudden drop in traffic due to Hurricane Irma. In addition, during weeks 26 and 27, a dip in traffic was observed with the onset of colder-than-normal days in December. Traffic volume remained under 160,000 vehicles per week.

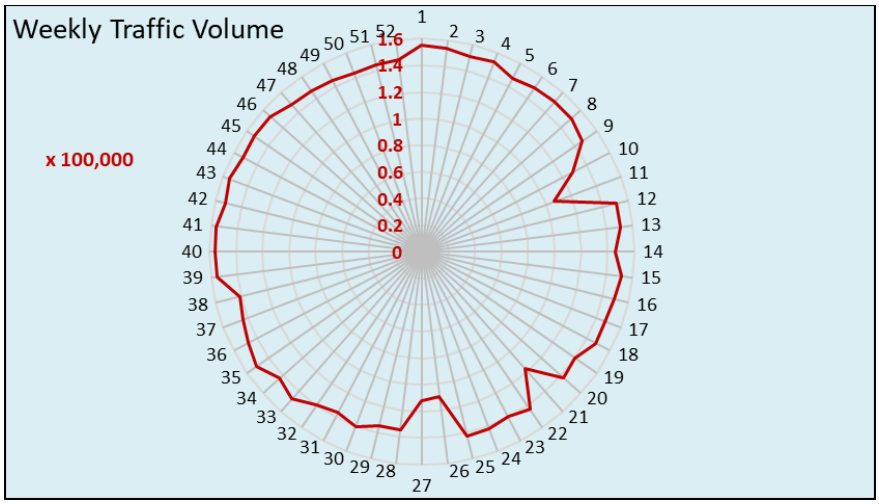

Figure 132. Weekly Traffic Volume, Jacksonville Beach (Site #720062), Westbound

Figure 133 depicts traffic variation by day of week per month. As shown, a high variance in traffic was observed across the days of the week, and different patterns were observed across different months.

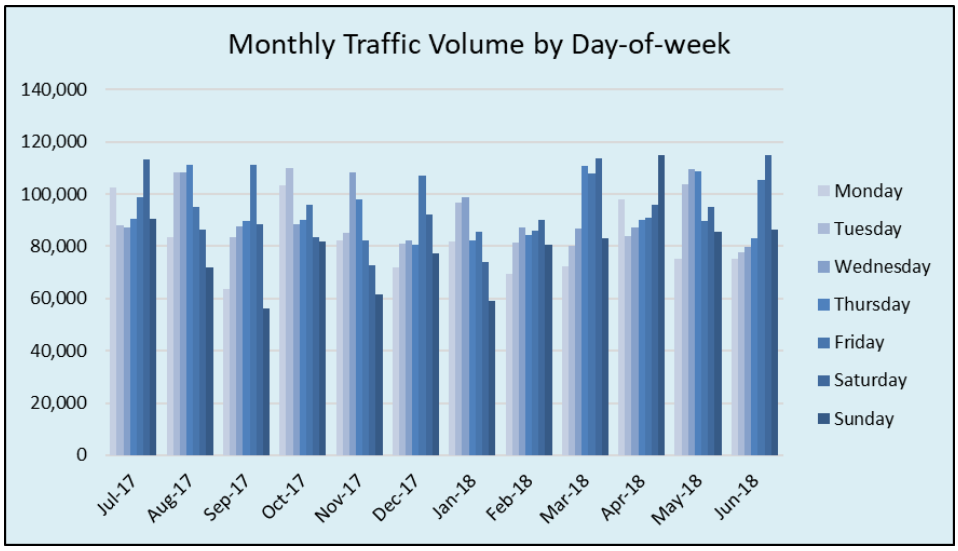

Figure 133. Monthly Traffic Volume by Day of Week, Jacksonville Beach (Site #720062), Westbound

Figure 134 depicts the annual total traffic incurred by day of week. As shown, Sunday had the lowest traffic volume annually, after which the radar gradually increased until Friday, which was the busiest day of the week for this site.

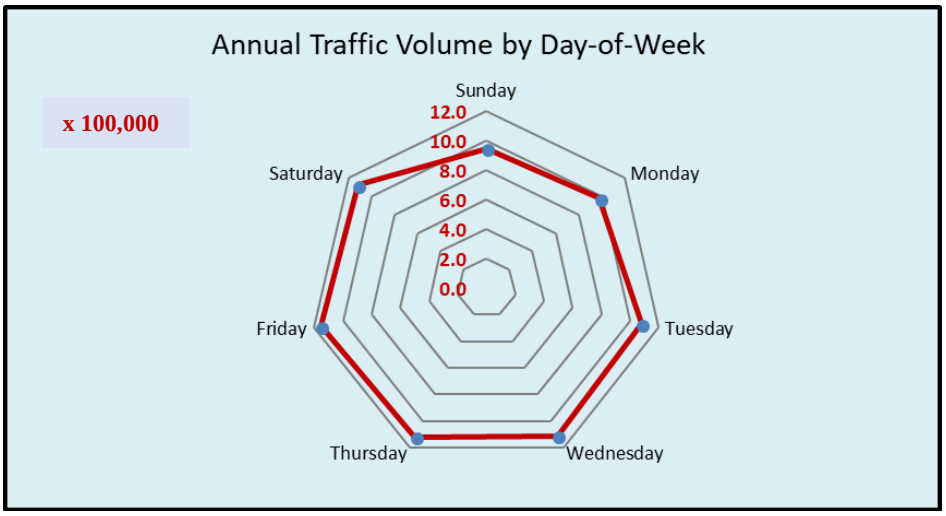

Figure 134. Annual Traffic Volume by Day of Week, Jacksonville Beach (Site #720062), Westbound

4.2 Temporary Sites

Temporary sites do not have permanent counters like permanent sites, and the counters need to be installed temporarily on a requirement basis and monitored accordingly at these sites. For the purposes of this study, three temporary count stations, shown in Table 58, were selected, for which FDOT recorded traffic counts for 7–10 days per month for financial feasibility. This short duration data per month was provided to CUTR for each month of the analysis period from July 2017 to June 2018 in spreadsheet format. The data provided for the temporary sites were quarter-hour data, where traffic volume was given for every 15 minutes. These data were transformed to achieve an hourly traffic volume similar to the permanent site data.

Table 58. Temporary Count Station Sites

Station #	Count Station Location	Count Station #	Count Station Type
1	Sarasota	170011	Temporary
2	Madeira Beach	150031	Temporary
3	Destin	600123	Temporary

Since for a given month only 7–10 days of hourly volume were available, for the remaining days of a month, an average hourly volume for a day of the week in a given direction was calculated through some assumptions, as explained in Figure 135. For example, if hourly data were not available for Monday, July 31, 2017, for a site in the northbound direction, hourly data of each of the 24 hours of that day were replaced. Focusing only on the first hour of this day, for the sake of simplicity, the first hour's data for all Mondays (for which data were available) in the northbound direction were extracted and an average taken.

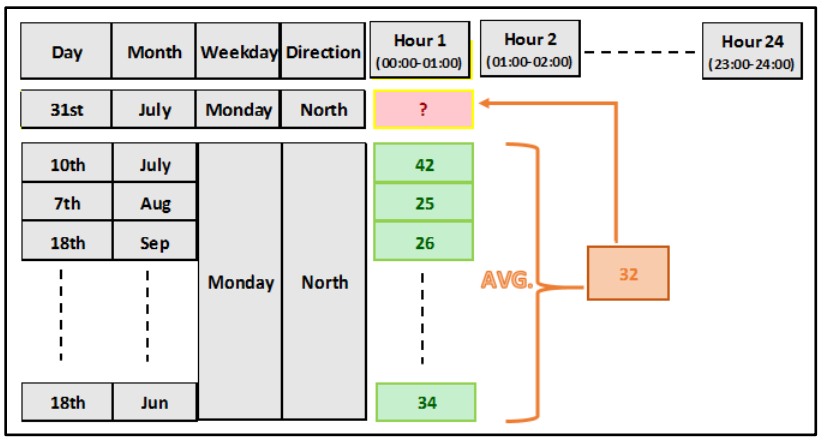

Figure 135. Calculation Steps for Handling Missing Data of a Temporary Site

The following subsections provide site-specific information for the three temporary count station sites, their detailed data processing methods, and analysis results for each direction as follows: (1) table depicting AADT, AAWDT, MADW, and MADT for the analysis period, (2) bar chart plotting total monthly traffic volume, 3) radar chart plotting total weekly traffic volume, (4) clustered bar chart showing total traffic volume for each day of the week in a month, and (5) radar chart depicting total traffic volume for day of week.

4.2.1 Destin (Site #600123)

The Destin site (#600123) is a temporary count station; its site-specific information is provided in Section 3.3. In the analysis period from July 2017 to June 2017, data were available for July 10–16, August 7–13, September 16–22, October 9–15, November 13–19, December 11–17, January 8–14, February 5–11, May 14–20, and June 11–17. Missing data were replaced by an hourly average on a day of week in a direction as described previously.

Northbound

Table 59 shows the AADT, AAWDT, MADW, and MADT for the northbound direction.

Table 59. AADT, AAWDT, MADW, and MADT, Destin (Site #600123), Northbound

AADT	AAWDT
9,875	10,224

	MADW: Monthly Average Days of the Week							
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	8,428	10,142	9,997	10,230	10,645	11,307	11,013	10,252
Aug-17	8,319	10,188	9,885	10,061	10,415	11,013	10,310	10,027
Sep-17	8,054	9,826	9,686	9,924	10,368	10,960	9,504	9,760
Oct-17	8,597	10,051	9,842	10,222	10,702	11,211	10,280	10,129
Nov-17	7,677	9,994	9,725	9,937	10,292	10,768	9,215	9,658
Dec-17	7,594	9,952	9,605	9,752	10,123	10,659	9,349	9,576
Jan-18	7,421	9,580	9,587	9,802	10,089	10,432	8,972	9,412
Feb-18	7,250	9,712	9,617	9,631	10,113	10,569	9,100	9,427
Mar-18	8,083	9,983	9,790	10,002	10,394	10,949	9,926	9,875
Apr-18	8,083	9,983	9,790	10,002	10,394	10,949	9,926	9,875
May-18	8,708	10,240	9,932	10,183	10,545	11,254	10,158	10,146
Jun-18	8,687	10,191	10,005	10,287	10,630	11,302	11,054	10,308

Figure 136 depicts the monthly traffic volume from July 2017 to June 2018. As shown, there was little seasonal variation in the traffic, as the monthly volume stayed fairly consistent throughout the year. February had the lowest traffic volume in the analysis period.

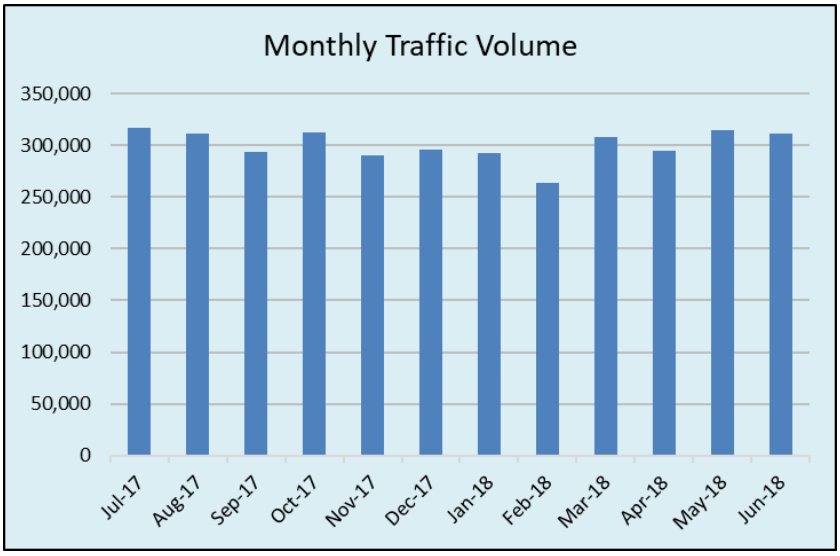

Figure 136. Monthly Traffic Volume, Destin (Site #600123), Northbound

Figure 137 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall traffic was consistent and remained under 80,000 vehicles per week.

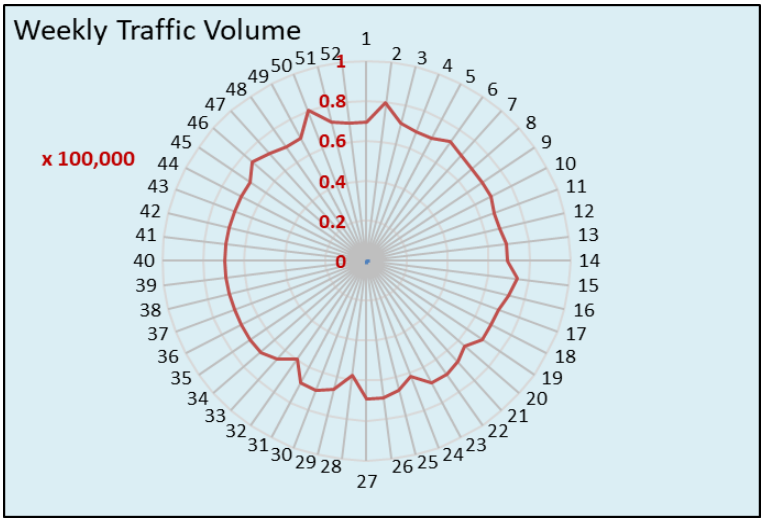

Figure 137. Weekly Traffic Volume, Destin (Site #600123), Northbound

Figure 138 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed, but overall, Thursday, Friday, and Saturday experienced more traffic across all months compared to the rest of the weekdays.

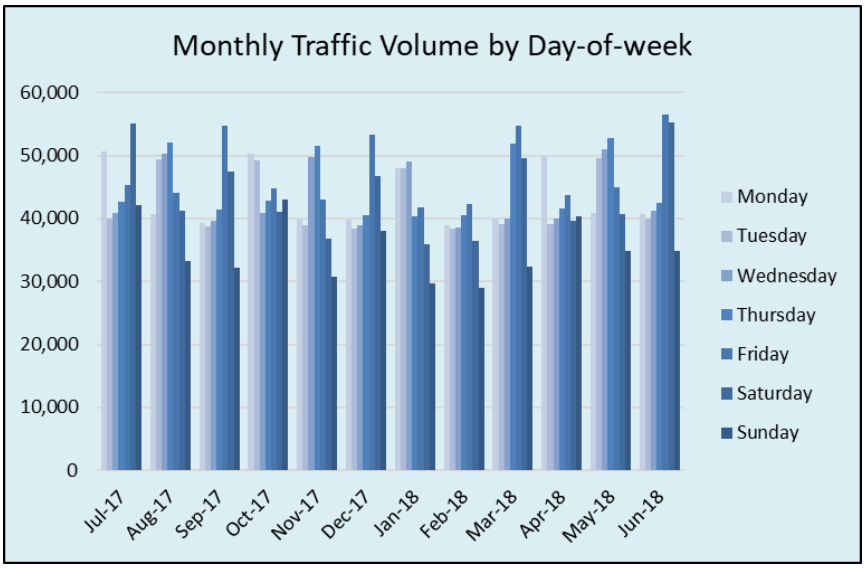

Figure 138. Monthly Traffic Volume by Day of Week, Destin (Site #600123), Northbound

Figure 139 depicts total traffic counts on a day of week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

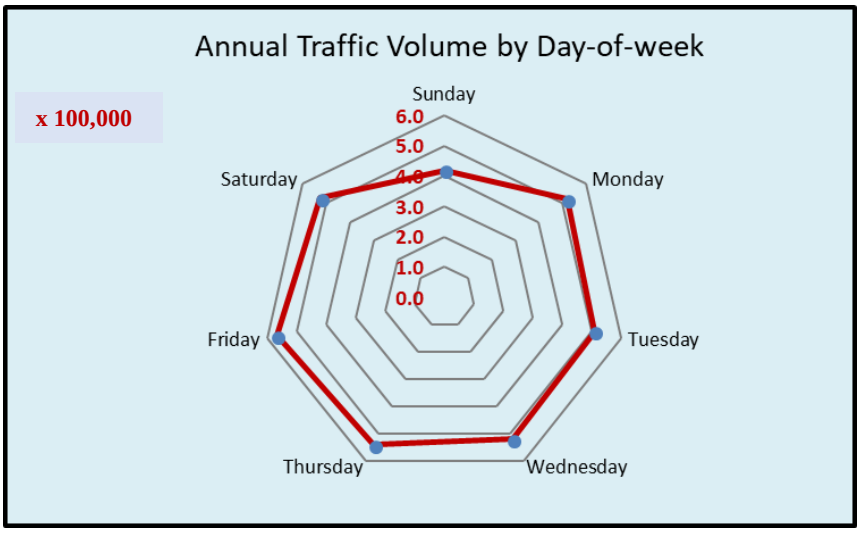

Figure 139. Annual Traffic Volume by Day of Week, Destin (Site #600123), Northbound

Southbound

Table 60 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 60. AADT, AAWDT, MADW and MADT for Destin (Site #600123) Southbound

AADT	AAWDT
9,821	10,295

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	7,215	10,033	9,838	10,315	10,879	11,448	11,734	10,209
Aug-17	6,944	9,903	9,695	10,078	10,615	11,338	10,434	9,858
Sep-17	6,775	9,739	9,567	9,927	10,576	11,236	10,087	9,701
Oct-17	6,915	9,943	9,761	10,407	10,807	11,368	10,217	9,917
Nov-17	6,837	9,766	9,560	9,974	10,454	11,105	9,981	9,668
Dec-17	6,583	9,894	9,509	9,898	10,325	11,002	9,804	9,573
Jan-18	6,347	9,484	9,463	9,886	10,413	11,001	9,381	9,425
Feb-18	6,166	9,659	9,510	9,659	10,349	10,882	9,511	9,391
Mar-18	6,848	9,859	9,658	10,083	10,623	11,254	10,408	9,819
Apr-18	6,848	9,859	9,658	10,083	10,623	11,254	10,408	9,819
May-18	7,185	10,112	9,800	10,300	10,915	11,740	10,799	10,122
Jun-18	7,466	10,085	9,860	10,411	10,868	11,440	11,705	10,262

Figure 140 shows the monthly traffic volume from July 2017 to June 2018. As shown, there was little seasonal variation in the traffic, as the monthly traffic volume was consistent throughout the year except for February, which had the lowest traffic volume.

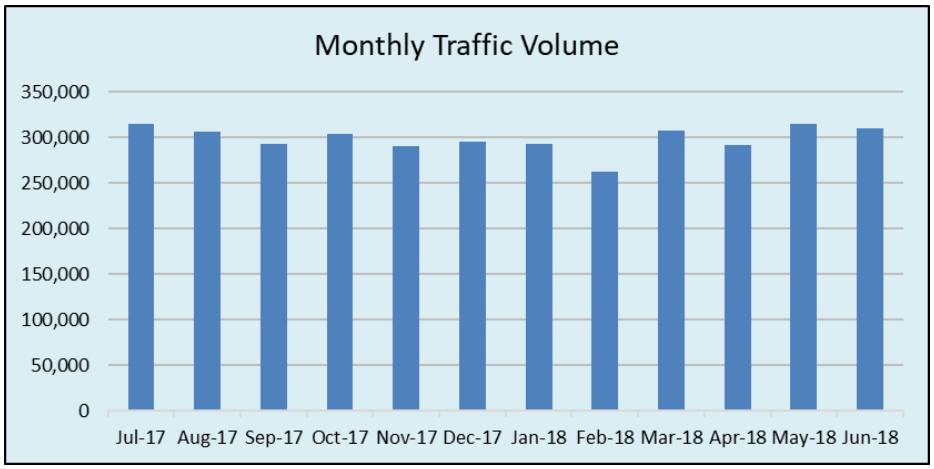

Figure 140. Monthly Traffic Volume, Destin (Site #600123), Southbound

Figure 141 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall traffic was consistent and remained under 80,000 vehicles per week.

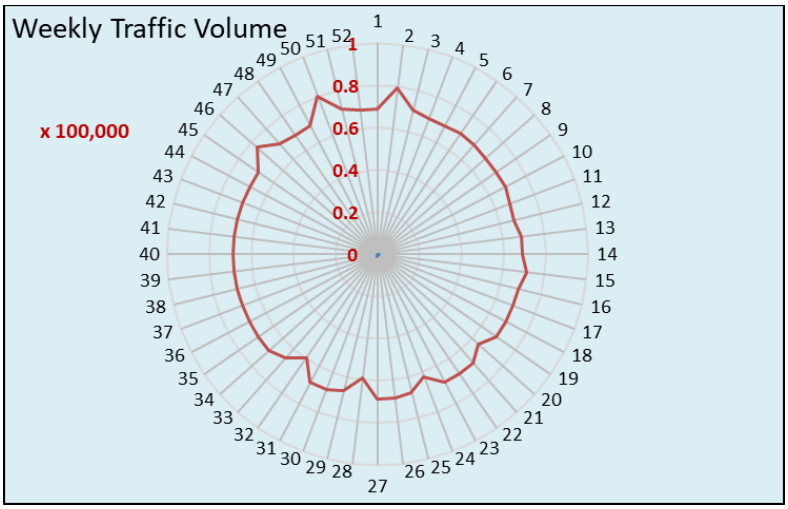

Figure 141. Weekly Traffic Volume, Destin (Site #600123), Southbound

Figure 142 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed but, overall, Thursday, Friday, and Saturday experienced more traffic compared to rest of the week across most months in the analysis period.

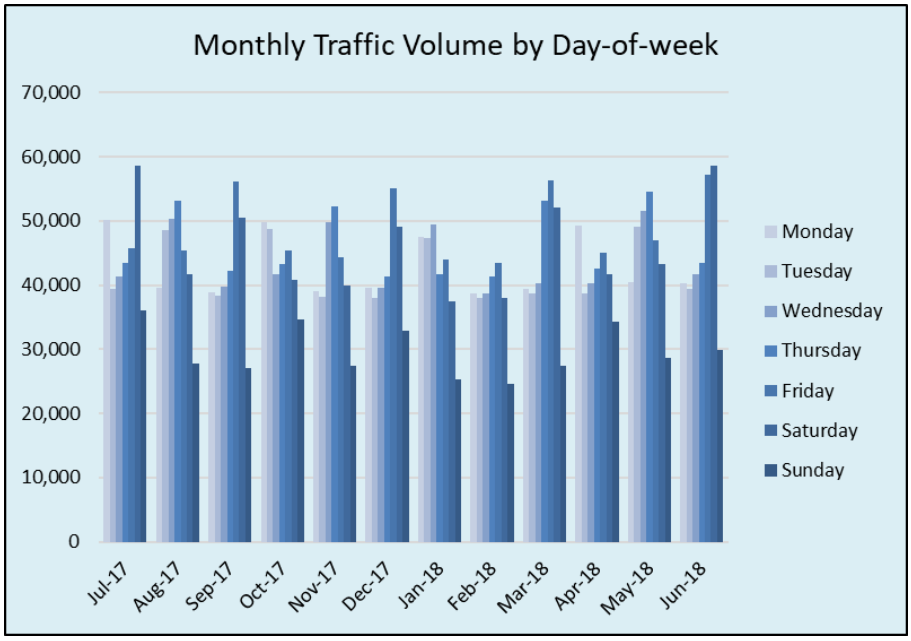

Figure 142. Monthly Traffic Volume by Day of Week, Destin (Site #600123), Southbound

Figure 143 depicts total traffic counts on a day of week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

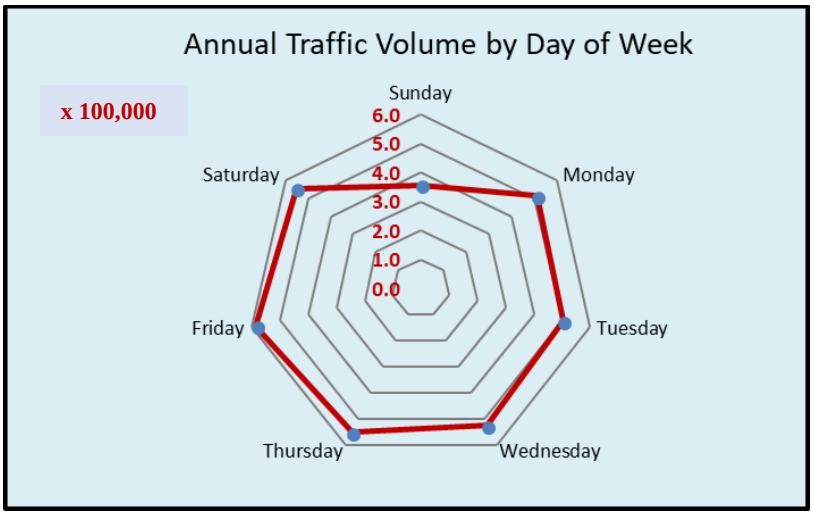

Figure 143. Annual Traffic Volume by Day of Week, Destin (Site #600123), Southbound

4.2.2 Sarasota (Site #170011)

The Sarasota site (#170011) is a temporary count station; its site-specific information is provided in Section 3.6. In the analysis period from July 2017 to June 2017, data were available for July 10–16, August 7–13, September 16–22, October 9–15, November 13–19, December 11–17, January 8–14, February 5–11, May 14–20, and June 11–17. Missing data were replaced by an hourly average on a day of the week in a direction as described previously.

Eastbound

Table 61 shows the AADT, AAWDT, MADW, and MADT for the eastbound direction.

Table 61. AADT, AAWDT, MADW, and MADT Sarasota (Site #170011), Eastbound

AADT	AAWDT
16,945	17,596

	MADW: Monthly Average Days of the Week							
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	14,610	16,820	17,058	17,593	18,393	18,367	17,031	17,124
Aug-17	14,401	16,847	17,076	17,285	18,623	17,421	16,608	16,894
Sep-17	14,309	16,951	17,300	17,777	18,623	18,436	16,784	17,168
Oct-17	14,144	16,682	17,071	17,497	18,341	18,248	16,747	16,961
Nov-17	14,235	17,334	12,975	16,941	18,655	18,551	16,776	16,495
Dec-17	14,195	16,751	17,160	17,590	18,378	18,398	16,585	17,008
Jan-18	14,429	16,981	17,371	17,862	18,617	18,484	17,079	17,260
Feb-18	10,732	17,743	18,659	19,135	19,772	19,792	14,418	17,178
Mar-18	14,309	16,951	17,300	17,777	18,623	18,436	16,784	17,168
Apr-18	14,309	16,951	17,300	17,777	18,623	18,436	16,784	17,168
May-18	13,838	16,358	17,037	14,231	15,239	18,376	16,519	15,942
Jun-18	14,613	16,803	17,130	17,576	18,196	18,325	16,889	17,076

Figure 144 depicts the monthly traffic volume from July 2017 to June 2018. As shown, there was little seasonal variation in the traffic, as the monthly traffic volume was consistent throughout the year. February had the lowest traffic volume.

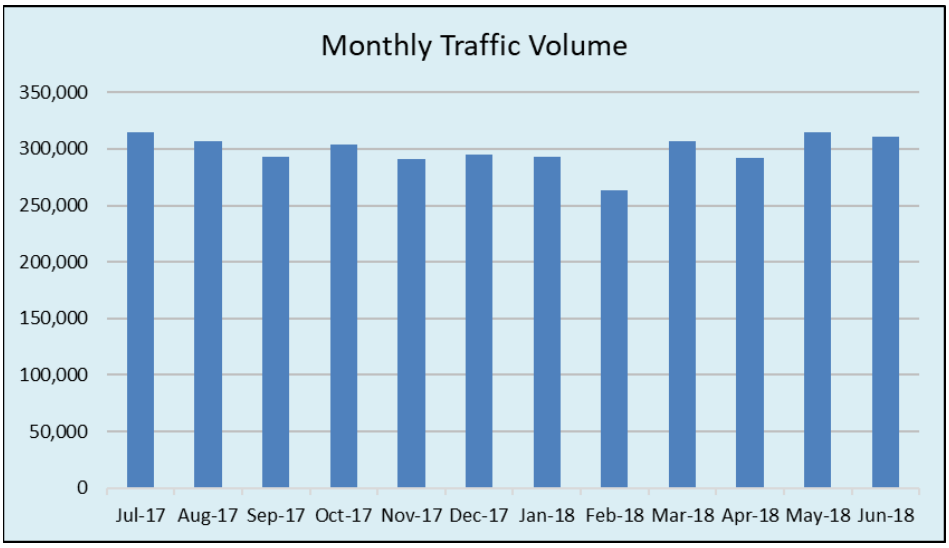

Figure 144. Monthly Traffic Volume, Sarasota (Site #170011), Eastbound

Figure 145 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall, traffic was consistent and remained around 120,000 vehicles per week.

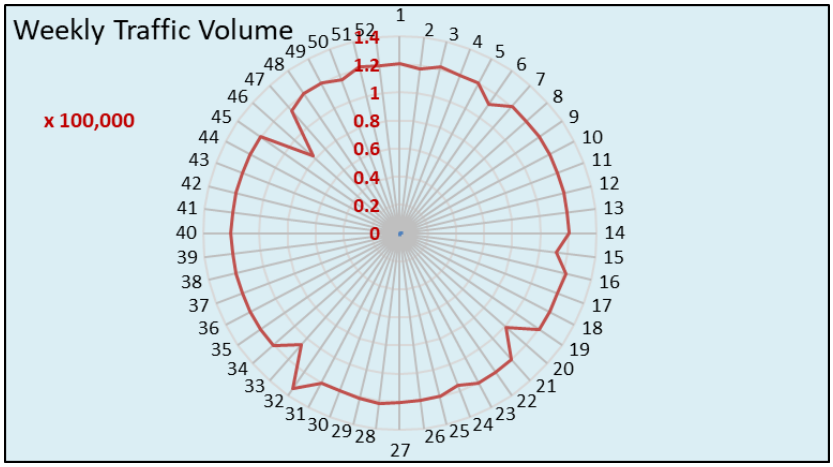

Figure 145. Weekly Traffic Volume, Sarasota (Site #170011), Eastbound

Figure 146 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic towards the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

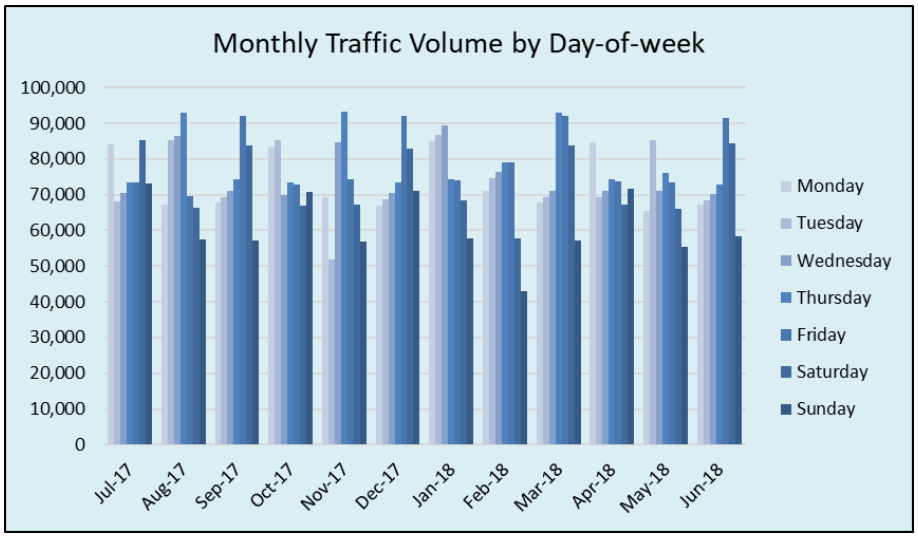

Figure 146. Monthly Traffic Volume by Day of Week, Sarasota (Site #170011), Eastbound

Figure 147 depicts total traffic counts on a day of the week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

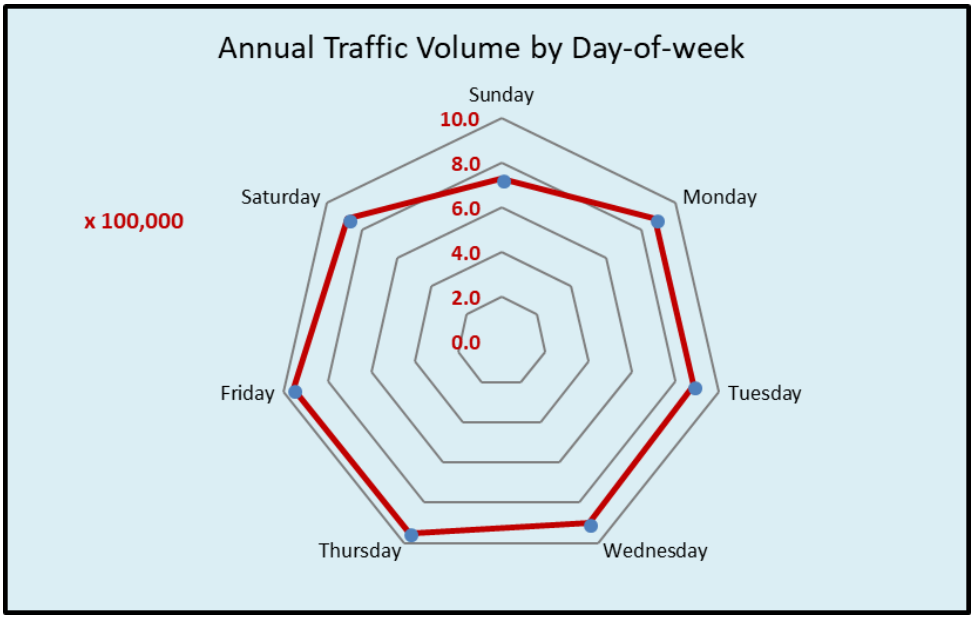

Figure 147. Annual Traffic Volume by Day of Week, Sarasota (Site #170011), Eastbound

Westbound

Table 62 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 62. AADT, AAWDT, MADW, and MADT Sarasota (Site #170011), Westbound

AADT	AAWDT
16,830	17,210

MADW: Monthly Average Days of the Week								
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	14,657	16,148	16,879	17,062	17,766	18,116	17,468	16,871
Aug-17	14,361	16,037	16,869	16,952	17,763	16,866	16,983	16,547
Sep-17	14,497	16,278	17,052	17,239	17,763	18,135	17,253	16,888
Oct-17	14,391	16,109	16,877	17,074	17,579	17,864	17,007	16,700
Nov-17	14,306	16,497	17,280	17,365	17,821	18,318	17,207	16,971
Dec-17	14,287	16,207	16,940	17,138	17,662	18,174	17,004	16,773
Jan-18	14,480	16,299	17,111	17,391	18,420	18,356	17,053	17,016
Feb-18	15,601	16,981	17,912	17,783	16,510	19,129	18,461	17,482
Mar-18	14,497	16,278	17,052	17,239	17,763	18,135	17,253	16,888
Apr-18	14,497	16,278	17,052	17,239	17,763	18,135	17,253	16,888
May-18	13,867	15,794	16,795	14,092	17,545	18,194	16,820	16,158
Jun-18	14,557	16,284	16,944	17,152	17,589	18,181	17,275	16,855

Figure 148 depicts the monthly traffic volume from July 2017 to June 2018. As shown, there was no seasonal variation observed in the traffic volume.

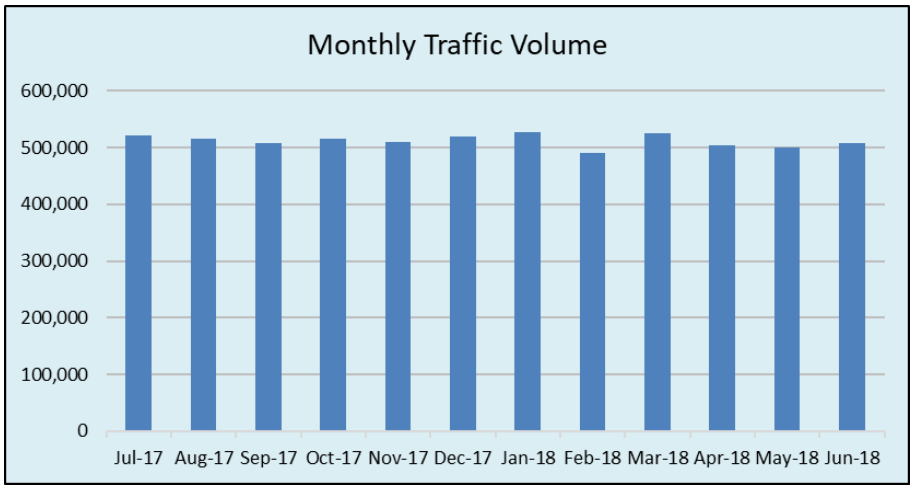

Figure 148. Monthly Traffic Volume, Sarasota (Site #170011), Westbound

Figure 149 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall, traffic was consistent and remained around 120,000 vehicles per week.

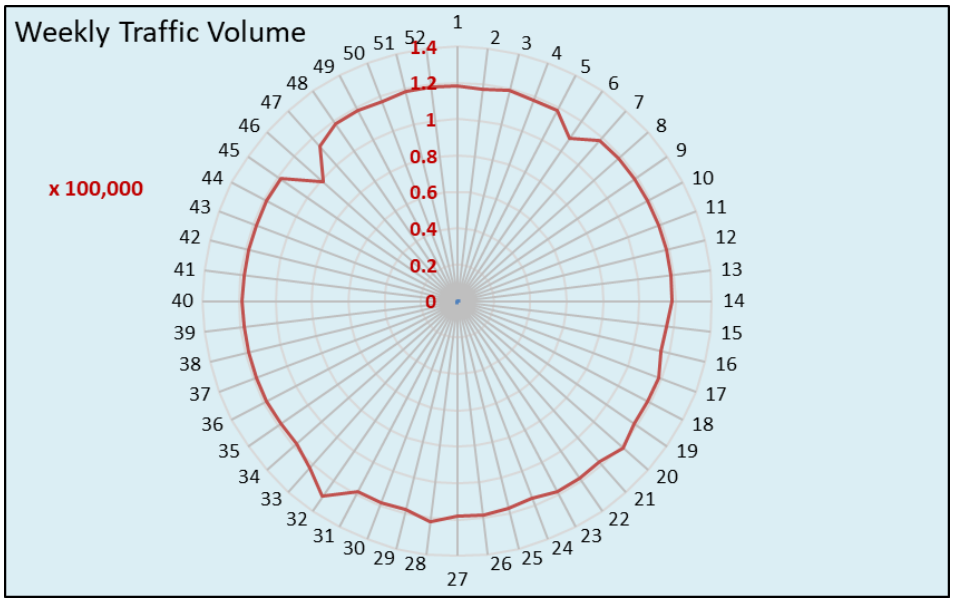

Figure 149. Weekly Traffic Volume, Sarasota (Site #170011), Westbound

Figure 150 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed. Also, different patterns were observed across months; for instance, December incurred more traffic towards the end of the week (Friday to Sunday), whereas January incurred more traffic at the start of the week (Monday to Wednesday).

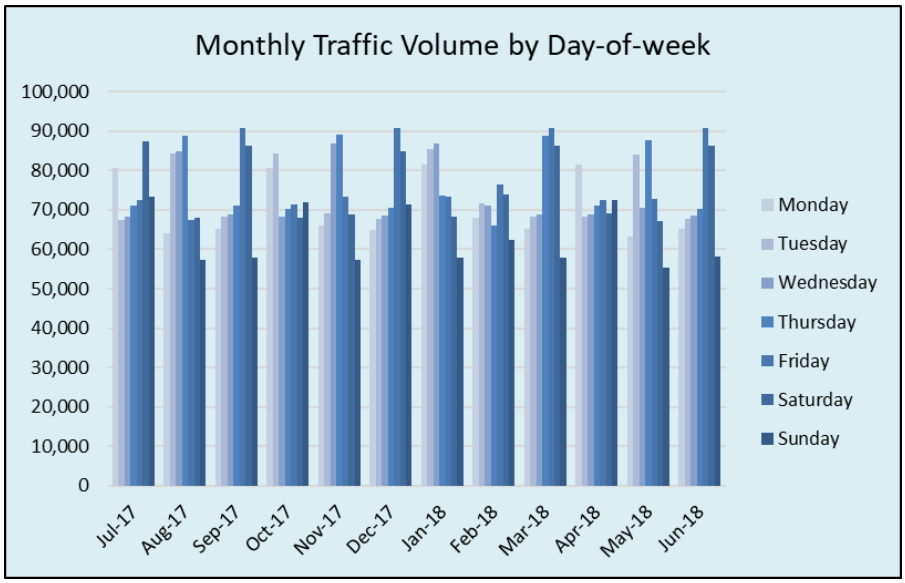

Figure 150. Monthly Traffic Volume by Day of Week, Sarasota (Site #170011), Westbound

Figure 151 depicts total traffic counts on day of week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

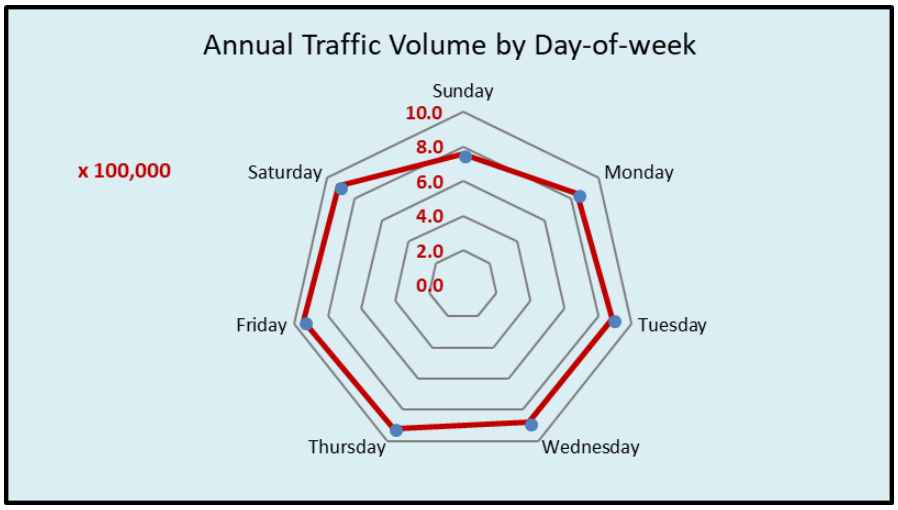

Figure 151. Annual Traffic Volume by Day of Week, Sarasota (Site #170011), Westbound

4.2.3 Madeira Beach (Site #150031)

The Madeira Beach site (#150031) is a temporary count station; its site-specific information is provided in Section 3.9. In the analysis period from July 2017 to June 2017, data were available for July 10–16, August 7–13, September 16–22, October 9–15, November 13–19, December 11–17, January 8–14, February 5–11, May 14–20, and June 11–17. Missing data were replaced by an hourly average on a day of week in a direction as described previously.

Northbound

Table 63 shows the AADT, AAWDT, MADW, and MADT for the northbound direction.

Table 63. AADT, AAWDT, MADW, and MADT, Madeira Beach (Site #150031), Northbound

AADT	AAWDT
13,984	14,108

MADW: Monthly Average Days of the Week								
	Sunday	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**MADT**
Jul-17	12,790	13,565	13,460	13,836	13,309	13,480	14,436	13,554
Aug-17	12,844	13,598	13,480	13,846	13,934	15,318	14,668	13,955
Sep-17	12,602	13,534	13,398	13,947	14,008	15,652	14,731	13,982
Oct-17	12,602	13,534	13,398	13,947	14,008	15,652	14,731	13,982
Nov-17	11,682	12,948	12,945	13,676	14,020	15,022	14,434	13,532
Dec-17	12,240	13,311	13,267	13,677	13,816	15,209	14,037	13,651
Jan-18	11,955	13,479	13,427	13,895	13,917	14,689	13,671	13,576
Feb-18	12,753	13,631	13,746	14,185	14,225	19,815	14,969	14,761
Mar-18	13,760	14,007	13,398	14,374	14,403	15,742	15,173	14,408
Apr-18	12,567	13,935	13,338	14,215	14,355	16,206	15,710	14,332
May-18	12,344	13,242	13,373	13,885	13,929	15,520	14,814	13,873
Jun-18	13,133	13,534	13,527	13,998	14,109	15,618	15,370	14,184

Figure 152 depicts the monthly traffic volume from July 2017 to June 2018. As shown, there was no seasonal variation observed in the traffic volume.

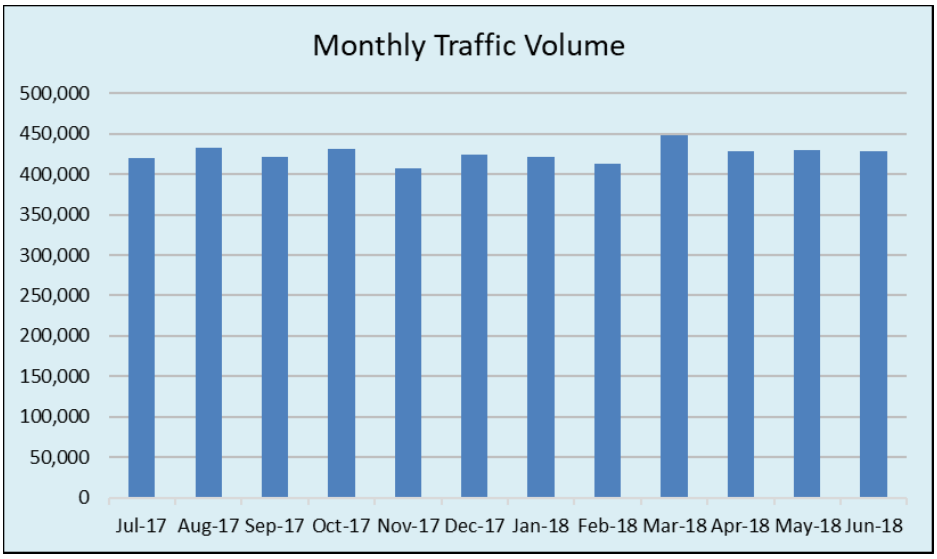

Figure 152. Monthly Traffic Volume, Madeira Beach (Site #150031), Northbound

Figure 153 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall, traffic was consistent and remained around 100,000 vehicles per week.

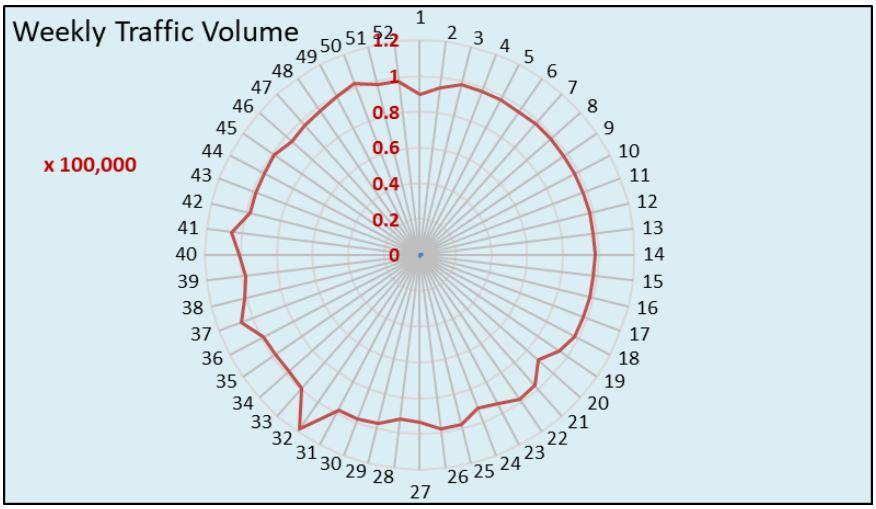

Figure 153. Weekly Traffic Volume, Madeira Beach (Site #150031), Northbound

Figure 154 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed.

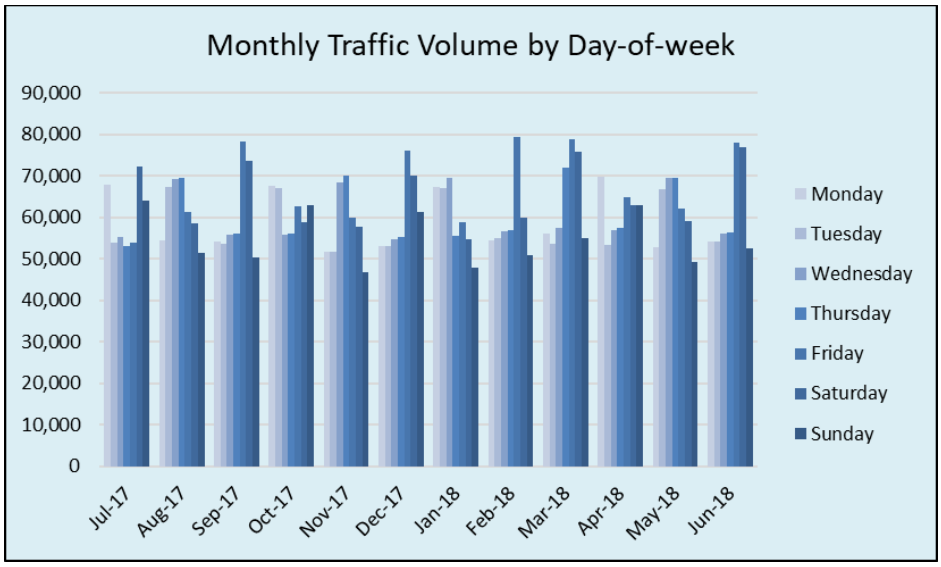

Figure 154. Monthly Traffic Volume by Day of Week, Madeira Beach (Site #150031), Northbound

Figure 155 depicts total traffic counts on day of week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

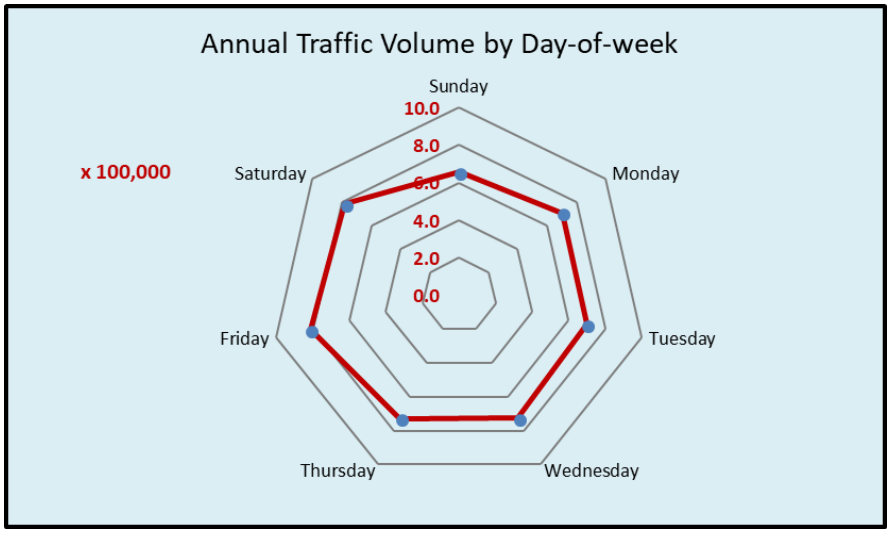

Figure 155. Annual Traffic Volume by Day of Week, Madeira Beach (Site #150031), Northbound

Southbound

Table 64 shows the AADT, AAWDT, MADW, and MADT for the westbound direction.

Table 64. AADT, AAWDT, MADW, and MADT, Madeira Beach (Site #150031), Southbound

AADT	AAWDT
14,111	14,348

	MADW: Monthly Average Days of the Week							
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	MADT
Jul-17	12,540	13,711	13,702	14,106	13,502	13,540	14,465	13,652
Aug-17	12,326	13,679	13,707	14,088	14,148	15,646	14,728	14,046
Sep-17	12,277	13,686	13,691	14,202	14,199	15,960	14,750	14,109
Oct-17	12,277	13,686	13,691	14,202	14,199	15,960	14,750	14,109
Nov-17	11,717	13,511	13,650	14,111	14,205	15,395	14,657	13,892
Dec-17	11,947	13,418	13,480	13,912	14,010	15,596	14,163	13,789
Jan-18	11,698	13,614	13,672	14,123	14,083	14,986	13,777	13,708
Feb-18	12,328	13,757	13,982	14,407	14,390	20,126	14,813	14,829
Mar-18	13,388	14,112	13,691	14,596	14,620	16,065	15,114	14,512
Apr-18	12,205	14,005	13,588	14,430	14,563	16,506	15,516	14,402
May-18	11,940	13,301	13,643	14,117	14,123	15,874	14,778	13,968
Jun-18	12,712	13,686	13,812	14,218	14,273	15,939	15,439	14,297

Figure 156 depicts the monthly traffic volume from July 2017 to June 2018. As shown, there was no seasonal variation observed in the traffic volume.

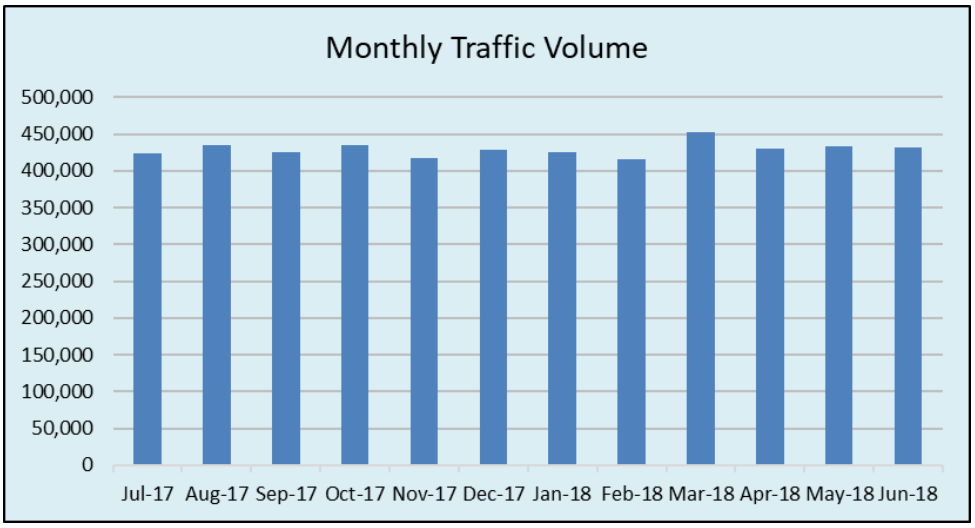

Figure 156. Monthly Traffic Volume, Madeira Beach (Site #150031), Southbound

Figure 157 depicts the weekly variation in traffic from July 2017 to June 2018. As shown, overall, traffic was consistent at around 100,000 vehicles per week.

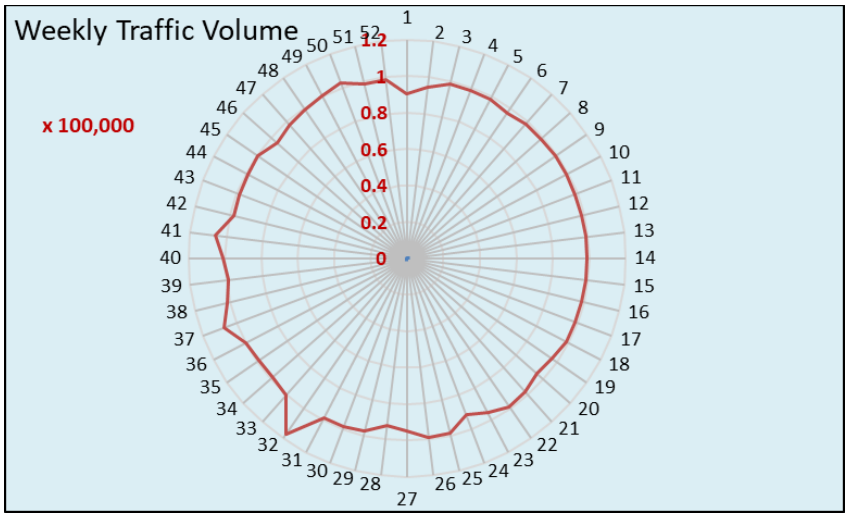

Figure 157. Weekly Traffic Volume, Madeira Beach (Site #150031), Southbound

Figure 158 depicts monthly traffic volume by day of week. As shown, a high variance in traffic for each day of the week was observed.

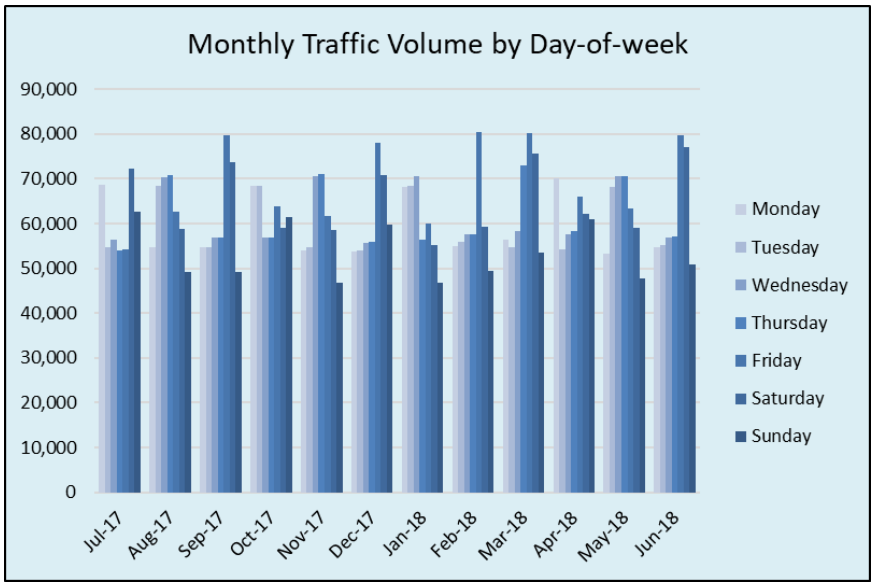

Figure 158. Monthly Traffic Volume by Day of Week, Madeira Beach (Site #150031), Southbound

Figure 159 depicts total traffic counts on day of week annually. As shown, Sunday had the lowest annual traffic volume, after which the radar gradually expanded until Friday, which experienced the highest annual traffic volume.

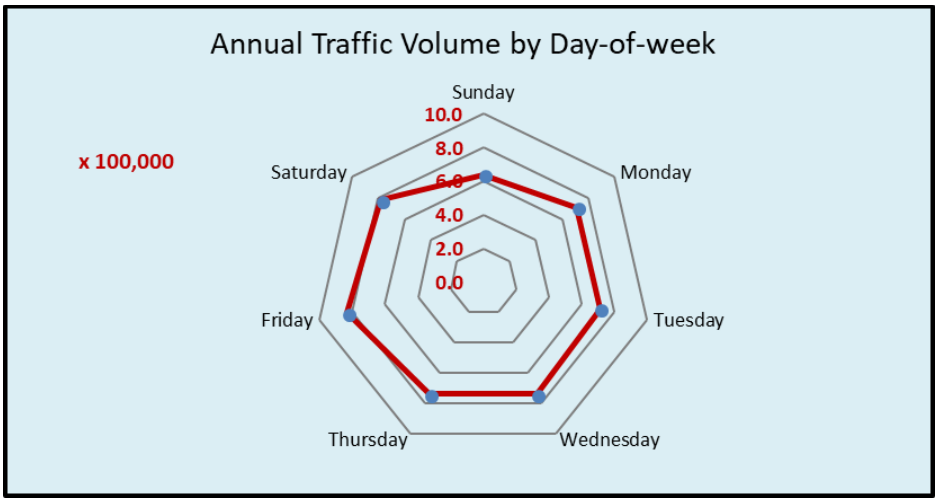

Figure 159. Annual Traffic Volume by Day of Week, Madeira Beach (Site #150031), Southbound

4.3 Conclusion on Data Processing and Analysis

Overall analysis of the traffic count data reflects a correlation between weather conditions and traffic volume at the coastal sites, as in the spring and summer seasons during March, April, May, June, and July, these sites were observed to experience heavier traffic volumes in general. In addition, there were low traffic volumes observed for September 2017 due to Hurricane Irma. In the winter season, drops in traffic volumes were observed. For days of the week, Sundays were typically the lowest volume days at most sites, Fridays and Saturdays were generally the busiest among most sites, and traffic volumes were found to increase as the week progressed from Monday to Saturday.

5 Traffic Adjustment Factors

This section discusses monthly adjustment factors calculated using data provided by FDOT for 12 Florida count station sites. The results obtained for each site for a 12-month period are highlighted. As noted, the data were provided to CUTR by FDOT on a monthly basis, from July 2017 to June 2018, in spreadsheet format for 12 count station sites. Before computing the monthly adjustment factors, as discussed in the previous section, data were first carefully processed to account for missing and erroneous data and later analyzed using data visualization tools/charts to gain insights about traffic trends at the study tourist/beach locations. For each count location site, three types of adjustment factors were calculated, as described below:

1. **K Factor** – percentage of traffic volume at a selected highest hour of the year over AADT of the site. This factor helps in the planning and analysis of the site. Three K factors were computed for each site:
    - **K30 Factor** – percentage of share that the 30th hour of the year contributed towards AADT of a site.
    - **K100 Factor** – percentage of share that the 100th hour of the year contributed towards AADT of a site.
    - **K200 Factor** – percentage of share that the 200th hour of the year contributed towards AADT of a site.
2. **D Factor** (Direction Distribution Factor) – percentage of total traffic at a site to which the peak direction of the site contributed. For a given site, the D factor helps in understanding the distribution of traffic between two directions; a high distribution factor means a larger imbalance in traffic volume between two directions at a selected hour of interest. Three D factors were computed for each site:
    - **D30 Factor** – percentage of total traffic to which the traffic traveling in peak direction contributed at 30th highest hour of the year.
    - **D100 Factor** – percentage of total traffic to which the traffic traveling in peak direction contributed at 100th highest hour of the year.
    - **D200 Factor** – percentage of total traffic to which the traffic traveling in peak direction contributed at 200th highest hour of the year.
3. **Monthly Traffic Adjustment Factor** – ratio of AADT to MADT for a direction of the site. This ratio describes variations in monthly daily traffic compared to annual average daily traffic. Twelve monthly seasonal factors were computed for each direction of the site as well as the site as a whole.

The eight analysis sites (12 count stations total) selected for this study were split into two types of count stations, permanent and temporary. The following subsections discuss the adjustment factors calculated for each site.

5.1 Permanent Sites

In this section, traffic adjustment factors of nine permanent count station sites (discussed in detail in section 4.1) are shown as (1) table depicting three K factors K30, K100 and K200, (2) table depicting three D factors D30, D100 and D200, and 3) table depicting site specific 12 monthly traffic adjustment factor as well as 24 monthly traffic adjustment factors (12 for each direction of the site).

5.1.1 Bradenton Beach (Site #134004)

K Factors

Table 65 shows the K30, K100, and K200 factors for the Bradenton Beach site (#134004). Per the numbers highlighted in bold, all three K factors are close to 10% and fall in an acceptable range of 8–12%.

Table 65. K30, K100, and K200 Factors, Bradenton Beach Site #134004

Hour of Year	Traffic Volume	AADT	K Factor
30th	1,273	11,811	**10.8%**
100th	1,220		**10.3%**
200th	1,180		**10.0%**

D Factors

Table 66 shows the D30, D100, and D200 factors for the Bradenton Beach site (#134004). Per the numbers highlighted in bold, all three D factors are close to 50% except D200; thus, it was inferred that there was a close to even distribution of traffic between directions at this site.

Table 66. D30, D100, and D200 Factors, Bradenton Beach Site #134004

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Northbound	662	662	1,273	**52.0%**
	Southbound	611			
100th	Northbound	598	622	1,220	**51.0%**
	Southbound	622			
200th	Northbound	677	677	1,180	**57.4%**
	Southbound	503			

Monthly Traffic Adjustment Factors

Table 67 shows the monthly traffic adjustment factors for Bradenton Beach Site #134004.

Table 67. Monthly Traffic Adjustment Factors, Bradenton Beach Site #134004

Month	Northbound			Southbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	6,302	5,937	**0.942**	6,343	5,874	**0.926**	**0.934**
August	5,492		**1.081**	5,336		**1.101**	**1.091**
September	4,334		**1.370**	4,258		**1.380**	**1.375**
October	5,358		**1.108**	5,350		**1.098**	**1.103**
November	5,657		**1.049**	5,611		**1.047**	**1.048**
December	5,602		**1.060**	5,545		**1.059**	**1.060**
January	6,107		**0.972**	5,914		**0.993**	**0.983**
February	6,783		**0.875**	6,664		**0.881**	**0.878**
March	6,937		**0.856**	7,064		**0.832**	**0.844**
April	6,897		**0.861**	6,425		**0.914**	**0.887**
May	6,063		**0.979**	6,262		**0.938**	**0.958**
June	5,877		**1.010**	5,843		**1.005**	**1.008**

5.1.2 Bradenton Beach (Site #134111

K Factors

Table 68 shows the K30, K100, and K200 factors for the Bradenton Beach site (#134111). Per the numbers highlighted in bold, all three K factors are close to 9% and fall in an acceptable range of 8–12%.

Table 68. K30, K100, and K200 Factors, Bradenton Beach Site #134111

Hour of Year	Traffic Volume	AADT	K Factor
30th	1,834	18,633	**9.8%**
100th	1,763		**9.5%**
200th	1,704		**9.1%**

D Factors

Table 69 shows the D30, D100, and D200 factors for the Bradenton Beach site (#134111). Per the numbers highlighted in bold, all three D factors are close to 50%; thus, it was inferred that there was a close to even distribution of traffic between directions at the site.

Table 69. D30, D100, and D200 Factors, Bradenton Beach Site #134111

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Northbound	944	944	1,834	**51.5%**
	Southbound	890			
100th	Northbound	972	972	1,763	**55.1%**
	Southbound	791			
200th	Northbound	851	852	1,704	**50.0%**
	Southbound	852			

Monthly Traffic Adjustment Factors

Table 70 shows the monthly traffic adjustment factors for the Bradenton Beach site (#134111).

Table 70. Monthly Traffic Adjustment Factors, Bradenton Beach Site #134111

Month	Northbound			Southbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	8,331	9,288	**1.115**	8,588	9,345	**1.088**	**1.101**
August	8,525		**1.090**	8,638		**1.082**	**1.086**
September	7,950		**1.168**	7,928		**1.179**	**1.174**
October	9,100		**1.021**	9,159		**1.020**	**1.020**
November	9,417		**0.986**	9,415		**0.993**	**0.989**
December	9,562		**0.971**	9,565		**0.977**	**0.974**
January	9,846		**0.943**	9,806		**0.953**	**0.948**
February	10,617		**0.875**	10,625		**0.880**	**0.877**
March	10,622		**0.874**	10,700		**0.873**	**0.874**
April	10,098		**0.920**	10,141		**0.921**	**0.921**
May	9,144		**1.016**	9,210		**1.015**	**1.015**
June	8,409		**1.105**	8,505		**1.099**	**1.102**

5.1.3 Cocoa Beach (Site #700113)

K Factors

Table 71 shows the K30, K100, and K200 factors for the Cocoa Beach site (# 700113). Per the numbers highlighted in bold, all three K factors are close to 9% and falls in an acceptable range of 8–12%.

Table 71. K30, K100, and K200 Factors, Cocoa Beach (Site #700113)

Hour of Year	Traffic Volume	AADT	K Factor
30th	4,140	44,510	**9.3%**
100th	4,026		**9.0%**
200th	3,924		**8.8%**

D Factors

Table 72 shows the D30, D100, and D200 factors for the Cocoa Beach site (#700113). Per the numbers highlighted in bold, all three D factors are close to 50%; thus, it was inferred that there was a close to an even distribution of traffic between directions at the site.

Table 72. D30, D100, and D200 Factors, Cocoa Beach (Site #700113)

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	2,033	2,107	4,140	**50.9%**
	Westbound	2,107			
100th	Eastbound	1,883	2,143	4,026	**53.2%**
	Westbound	2,143			
200th	Eastbound	1,933	1,991	3,924	**50.7%**
	Westbound	1,991			

Monthly Traffic Adjustment Factors

Table 73 shows the monthly traffic adjustment factors for the Cocoa Beach site (#700113).

Table 73. Monthly Traffic Adjustment Factors, Cocoa Beach (Site #700113)

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	20,929	21,228	**1.014**	22,998	23,283	**1.012**	**1.013**
August	21,171		**1.003**	23,206		**1.003**	**1.003**
September	18,560		**1.144**	20,553		**1.133**	**1.138**
October	21,809		**0.973**	23,824		**0.977**	**0.975**
November	21,283		**0.997**	23,343		**0.997**	**0.997**
December	21,769		**0.975**	23,873		**0.975**	**0.975**
January	20,561		**1.032**	22,427		**1.038**	**1.035**
February	22,142		**0.959**	24,150		**0.964**	**0.962**
March	22,689		**0.936**	24,835		**0.937**	**0.937**
April	21,822		**0.973**	23,934		**0.973**	**0.973**
May	21,426		**0.991**	23,559		**0.988**	**0.989**
June	20,660		**1.027**	22,765		**1.023**	**1.025**

5.1.4 Destin (Site #570385)

K Factors

Table 74 shows the K30, K100, and K200 factors for the Destin site (#570385). Per the numbers highlighted in bold, all three K factors are close to 8% and falls in an acceptable range of 8–12%.

Table 74. K30, K100, and K200 Factors, Destin Site #570385

Hour of Year	Traffic Volume	AADT	K Factor
30th	3,711	42,400	**8.8%**
100th	3,614		**8.5%**
200th	3,509		**8.3%**

D Factors

Table 75 shows the D30, D100, and D200 factors for the Destin site (#570385). Per the numbers highlighted in bold, all three D factors are close to 50%; thus, it was inferred that there was an even distribution of traffic between directions at the site.

Table 75. D30, D100, and D200 Factors, Destin Site #570385

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	1,834	1,877	3,711	**50.6%**
	Westbound	1,877			
100th	Eastbound	1,742	1,872	3,614	**51.8%**
	Westbound	1,872			
200th	Eastbound	1,756	1,756	3,509	**50.0%**
	Westbound	1,753			

Monthly Traffic Adjustment Factors

Table 76 shows the monthly traffic adjustment factors for the Destin site (#570385).

Table 76. Monthly Traffic Adjustment Factors, Destin Site #570385

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	24,887	21,157	**0.850**	24,785	21,243	**0.857**	**0.854**
August	22,173		**0.954**	22,424		**0.947**	**0.951**
September	20,322		**1.041**	20,400		**1.041**	**1.041**
October	20,755		**1.019**	20,936		**1.015**	**1.017**
November	18,773		**1.127**	18,933		**1.122**	**1.124**
December	18,132		**1.167**	18,103		**1.173**	**1.170**
January	17,269		**1.225**	17,496		**1.214**	**1.220**
February	20,006		**1.058**	20,133		**1.055**	**1.056**
March	22,140		**0.956**	22,272		**0.954**	**0.955**
April	22,196		**0.953**	22,294		**0.953**	**0.953**
May	23,164		**0.913**	23,167		**0.917**	**0.915**
June	24,024		**0.881**	23,912		**0.888**	**0.885**

5.1.5 Destin (Site #600168)

K Factors

Table 77 shows the K30, K100, and K200 factors for the Destin site (#600168). Per the numbers highlighted in bold, all three K factors are close to 8% and fall in an acceptable range of 8–12%.

Table 77. K30, K100, and K200 Factors, Destin Site #600168

Hour of Year	Traffic Volume	AADT	K Factor
30th	4,182	48,957	**8.5%**
100th	4,080		**8.3%**
200th	4,011		**8.2%**

D Factors

Table 78 shows the D30, D100, and D200 factors for the Destin site (#600168). Per the numbers highlighted in bold, all three D factors are close to 50%; thus, it was inferred that there was a close to an even distribution of traffic between directions at the site.

Table 78. D30, D100, and D200 Factors, Destin Site #600168

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	2,073	2,109	4,182	**50.4%**
	Westbound	2,109			
100th	Eastbound	1,978	2,102	4,080	**51.5%**
	Westbound	2,102			
200th	Eastbound	2,048	2,048	4,011	**51.1%**
	Westbound	1,963			

Monthly Traffic Adjustment Factors

Table 79 shows the monthly traffic adjustment factors for the Destin site (#600168).

Table 79. Monthly Traffic Adjustment Factors, Destin Site #600168

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	29,011	24,809	**0.855**	28,165	24,148	**0.857**	**0.856**
August	25,340		**0.979**	24,687		**0.978**	**0.979**
September	24,056		**1.031**	23,571		**1.024**	**1.028**
October	24,797		**1.000**	24,186		**0.998**	**0.999**
November	21,580		**1.150**	21,182		**1.140**	**1.145**
December	21,259		**1.167**	20,739		**1.164**	**1.166**
January	20,820		**1.192**	20,468		**1.180**	**1.186**
February	23,508		**1.055**	22,960		**1.052**	**1.054**
March	25,856		**0.960**	25,075		**0.963**	**0.961**
April	25,963		**0.956**	25,280		**0.955**	**0.955**
May	27,033		**0.918**	26,148		**0.924**	**0.921**
June	28,450		**0.872**	27,216		**0.887**	**0.879**

5.1.6 South Miami Beach (Site #870031)

K Factors

Table 80 shows the K30, K100, and K200 factors for the South Miami Beach site (#870031). Per the numbers highlighted in bold, all three K factors were found to be close to 7%.

Table 80. K30, K100, and K200 Factors, South Miami Beach Site #870031

Hour of Year	Traffic Volume	AADT	K Factor
30th	6,277	91,303	**6.9%**
100th	6,158		**6.7%**
200th	6,056		**6.6%**

D Factors

Table 81 shows the D30, D100, and D200 factors for the South Miami Beach site (#870031). Per the numbers highlighted in bold, all three D factors are close to 50%; thus, it was inferred that there was a close to an even distribution of traffic between directions at the site.

Table 81. D30, D100, and D200 Factors, South Miami Beach Site #870031

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	2,924	3,353	6,277	**53.4%**
	Westbound	3,353			
100th	Eastbound	2,914	3,245	6,158	**52.7%**
	Westbound	3,245			
200th	Eastbound	2,861	3,196	6,056	**52.8%**
	Westbound	3,196			

Monthly Traffic Adjustment Factors

Table 82 shows the monthly traffic adjustment factors for the South Miami Beach site (#870031).

Table 82. Monthly Traffic Adjustment Factors, South Miami Beach Site #870031

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	48,508	45,549	**0.939**	48,836	45,754	**0.937**	**0.938**
August	46,443		**0.981**	46,827		**0.977**	**0.979**
September	33,922		**1.343**	34,432		**1.329**	**1.336**
October	44,476		**1.024**	44,232		**1.034**	**1.029**
November	45,228		**1.007**	45,157		**1.013**	**1.010**
December	46,896		**0.971**	46,817		**0.977**	**0.974**
January	45,617		**0.999**	46,237		**0.990**	**0.994**
February	48,319		**0.943**	48,461		**0.944**	**0.943**
March	50,483		**0.902**	51,397		**0.890**	**0.896**
April	48,106		**0.947**	48,600		**0.941**	**0.944**
May	47,221		**0.965**	46,971		**0.974**	**0.969**
June	44,945		**1.013**	44,643		**1.025**	**1.019**

5.1.7 South Miami Beach (Site #870108)

K Factors

Table 83 shows the K30, K100, and K200 factors for the South Miami Beach site (#870108). Per the numbers highlighted in bold, all three K factors were found to be close to 7%.

Table 83. K30, K100, and K200 Factors, South Miami Beach Site #870108

Hour of Year	Traffic Volume	AADT	K Factor
30th	8,367	111,281	**7.5%**
100th	8,167		**7.3%**
200th	8,054		**7.2%**

D Factors

Table 84 shows the D30, D100, and D200 factors for the South Miami Beach site (#870108). Per the numbers highlighted in bold, all three D factors are higher than 50%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 84. D30, D100, and D200 Factors, South Miami Beach Site #870108

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	3,825	4,542	8,367	**54.3%**
	Westbound	4,542			
100th	Eastbound	4,583	4,583	8,167	**56.1%**
	Westbound	3,584			
200th	Eastbound	3,277	4,777	8,054	**59.3%**
	Westbound	4,777			

Monthly Traffic Adjustment Factors

Table 85 shows the monthly traffic adjustment factors for the South Miami Beach site (#870108).

Table 85. Monthly Traffic Adjustment Factors, South Miami Beach Site #870108

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	58,606	56,000	**0.956**	57,496	55,282	**0.961**	**0.958**
August	56,739		**0.987**	55,122		**1.003**	**0.995**
September	45,065		**1.243**	42,931		**1.288**	**1.265**
October	55,793		**1.004**	55,000		**1.005**	**1.004**
November	56,470		**0.992**	55,995		**0.987**	**0.989**
December	57,858		**0.968**	57,307		**0.965**	**0.966**
January	55,341		**1.012**	56,826		**0.973**	**0.992**
February	57,949		**0.966**	57,133		**0.968**	**0.967**
March	59,804		**0.936**	59,110		**0.935**	**0.936**
April	57,284		**0.978**	56,470		**0.979**	**0.978**
May	57,148		**0.980**	56,595		**0.977**	**0.978**
June	53,731		**1.042**	53,314		**1.037**	**1.040**

5.1.8 Key Largo (Site #900164)

K Factors

Table 86 shows the K30, K100, and K200 factors for the Key Largo site (#900164). Per the numbers highlighted in bold, all three K factors are 9–10% and fall in an acceptable range of 8–12%.

Table 86. K30, K100, and K200 Factors, Key Largo Site #900164

Hour of Year	Traffic Volume	AADT	K Factor
30th	2,801	28,375	**9.9%**
100th	2,679		**9.4%**
200th	2,543		**9.0%**

D Factors

Table 87 shows the D30, D100, and D200 factors for the Key Largo site (#900164). Per the numbers highlighted in bold, D factors are a little higher than 50%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 87. D30, D100, and D200 Factors, Key Largo Site #900164

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Northbound	1,221	1,580	2,801	**56.4%**
	Southbound	1,580			
100th	Northbound	1,320	1,359	2,679	**50.7%**
	Southbound	1,359			
200th	Northbound	1,070	1,473	2,543	**57.9%**
	Southbound	1,473			

Monthly Traffic Adjustment Factors

Table 88 shows the monthly traffic adjustment factors for the Key Largo site (#900164).

Table 88. Monthly Traffic Adjustment Factors, Key Largo Site #900164

Month	Northbound			Southbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	16,368	14,179	**0.866**	16,289	14,196	**0.872**	**0.869**
August	14,737		**0.962**	14,613		**0.972**	**0.967**
September	10,680		**1.328**	10,509		**1.351**	**1.339**
October	12,730		**1.114**	12,911		**1.100**	**1.107**
November	13,578		**1.044**	13,642		**1.041**	**1.042**
December	13,654		**1.038**	14,063		**1.009**	**1.024**
January	14,035		**1.010**	13,837		**1.026**	**1.018**
February	14,798		**0.958**	14,909		**0.952**	**0.955**
March	15,416		**0.920**	15,381		**0.923**	**0.921**
April	15,145		**0.936**	15,040		**0.944**	**0.940**
May	14,840		**0.955**	14,922		**0.951**	**0.953**
June	14,194		**0.999**	14,335		**0.990**	**0.995**

5.1.9 Jacksonville Beach (Site #720062)

K Factors

Table 89 shows the K30, K100, and K200 factors for the Jacksonville Beach site (#720062). Per the numbers highlighted in bold, all three K factors are 8–9% and fall in an acceptable range of 8–12%.

Table 89. K30, K100, and K200 Factors, Jacksonville Beach Site #720062

Hour of Year	Traffic Volume	AADT	K Factor
30th	3,752	41,733	**9.0%**
100th	3,612		**8.7%**
200th	3,519		**8.4%**

D Factors

Table 90 shows the D30, D100, and D200 factors for the Jacksonville Beach site (#720062). Per the figures highlighted in bold, all three D factors are higher than 50%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 90. D30, D100, and D200 Factors, Jacksonville Beach Site #720062

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	2,131	2,131	3,752	**56.8%**
	Westbound	1,621			
100th	Eastbound	2,008	2,008	3,612	**55.6%**
	Westbound	1,604			
200th	Eastbound	1,931	1,931	3,519	**54.9%**
	Westbound	1,588			

Monthly Traffic Adjustment Factors

Table 91 shows the monthly traffic adjustment factors for the Jacksonville Beach site (#720062).

Table 91. Monthly Traffic Adjustment Factors, Jacksonville Beach Site #720062

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	22,413	21,148	**0.944**	21,780	20,585	**0.945**	**0.944**
August	22,091		**0.957**	21,386		**0.963**	**0.960**
September	18,126		**1.167**	19,285		**1.067**	**1.116**
October	21,934		**0.964**	21,213		**0.970**	**0.967**
November	20,262		**1.044**	19,601		**1.050**	**1.047**
December	19,753		**1.071**	19,159		**1.074**	**1.072**
January	19,344		**1.093**	18,676		**1.102**	**1.098**
February	21,534		**0.982**	20,691		**0.995**	**0.988**
March	21,698		**0.975**	21,006		**0.980**	**0.977**
April	22,790		**0.928**	22,085		**0.932**	**0.930**
May	22,334		**0.947**	21,534		**0.956**	**0.951**
June	21,362		**0.990**	20,667		**0.996**	**0.993**

5.2 Temporary Sites

Temporary sites do not have permanent counters, so counters are installed temporarily on a requirement basis and monitored accordingly at these sites. For the purposes of this study, three temporary count stations, as shown in Table 29, were selected, for which FDOT recorded traffic counts for 7–10 days per month for financial and operational feasibility reasons. These data were provided to CUTR for each month of the analysis period from July 2017 to June 2018 in spreadsheet format. The data provided for the temporary sites were quarter-hour data, with traffic volume given for every 15 minutes. These data were transformed to achieve an hourly traffic volume similar to the permanent site data.

Since for a given month 7–10 days of hourly volume were available, for the remaining days of a month, an average hourly volume for a day of the week in a given direction was calculated as described in previous sections of this report. Subsequent subsections provide site-specific information for all temporary count station sites and their monthly traffic adjustment factors as follows: (1) table depicting three K factors K30, K100 and K200, (2) table depicting three D factors D30, D100 and D200, and 3) table depicting site specific 12 monthly traffic adjustment factors as well as 24 monthly traffic adjustment factors (12 for each direction of the site).

5.2.1 Destin (Site #600123)

K Factors

Table 92 shows the K30, K100, and K200 factors for the Destin site (#600123). Per the numbers highlighted in bold, all three K factors are close to 9% and fall in an acceptable range of 8–12%.

Table 92. K30, K100, and K200 Factors, Destin Site #600123

Hour of Year	Traffic Volume	AADT	K Factor
30th	1,898	19,696	**9.6%**
100th	1,815		**9.2%**
200th	1,757		**8.9%**

D Factors

Table 93 shows the D30, D100, and D200 factors for the Destin site (#600123). Per the numbers highlighted in bold, all three D factors were above 60%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 93. D30, D100, and D200 Factors, Destin Site #600123

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Northbound	1,172	1,172	1,898	**61.7%**
	Southbound	726			
100th	Northbound	1,130	1,130	1,815	**62.3%**
	Southbound	685			
200th	Northbound	435	1,322	1,757	**75.3%**
	Southbound	1,322			

Monthly Traffic Adjustment Factors

Table 94 shows the monthly traffic adjustment factors for the Destin site (#600123).

Table 94. Monthly Traffic Adjustment Factors, Destin Site #600123

Month	Northbound			Southbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	10,252	9,875	**0.963**	10,209	9,821	**0.962**	**0.963**
August	10,027		**0.985**	9,858		**0.996**	**0.990**
September	9,760		**1.012**	9,701		**1.012**	**1.012**
October	10,129		**0.975**	9,917		**0.990**	**0.983**
November	9,658		**1.022**	9,668		**1.016**	**1.019**
December	9,576		**1.031**	9,573		**1.026**	**1.029**
January	9,412		**1.049**	9,425		**1.042**	**1.046**
February	9,427		**1.048**	9,391		**1.046**	**1.047**
March	9,875		**1.000**	9,819		**1.000**	**1.000**
April	9,875		**1.000**	9,819		**1.000**	**1.000**
May	10,146		**0.973**	10,122		**0.970**	**0.972**
June	10,308		**0.958**	10,262		**0.957**	**0.958**

5.2.2 Sarasota (Site #170011)

K Factors

Table 95 shows the K30, K100, and K200 factors for the Sarasota site (#170011). Per the numbers highlighted in bold, all three K factors are between 9 – 10% and fall in an acceptable range of 8–12%.

Table 95. K30, K100, and K200 Factors, Sarasota Site #170011

Hour of Year	Traffic Volume	AADT	K Factor
30th	3,336	33,775	**9.9%**
100th	2,980		**8.8%**
200th	2,905		**8.6%**

D Factors

Table 96 shows the D30, D100, and D200 factors for the Sarasota site (#170011). Per the numbers highlighted in bold, all three D factors were above 50%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 96. D30, D100, and D200 Factors, Sarasota Site #170011

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Eastbound	1,346	1,990	3,336	**59.7%**
	Westbound	1,990			
100th	Eastbound	1,684	1,684	2,980	**56.5%**
	Westbound	1,296			
200th	Eastbound	1,684	1,684	2,905	**58.0%**
	Westbound	1,221			

Monthly Seasonal Factors

Table 97 shows the monthly traffic adjustment factors for the Sarasota site (#170011).

Table 97. Monthly Traffic Adjustment Factors, Sarasota Site #170011

Month	Eastbound			Westbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	17,124	16,945	**0.990**	16,871	16,830	**0.998**	**0.994**
August	16,894		**1.003**	16,547		**1.017**	**1.010**
September	17,168		**0.987**	16,888		**0.997**	**0.992**
October	16,961		**0.999**	16,700		**1.008**	**1.003**
November	16,495		**1.027**	16,971		**0.992**	**1.009**
December	17,008		**0.996**	16,773		**1.003**	**1.000**
January	17,260		**0.982**	17,016		**0.989**	**0.985**
February	17,178		**0.986**	17,482		**0.963**	**0.974**
March	17,168		**0.987**	16,888		**0.997**	**0.992**
April	17,168		**0.987**	16,888		**0.997**	**0.992**
May	15,942		**1.063**	16,158		**1.042**	**1.052**
June	17,076		**0.992**	16,855		**0.999**	**0.995**

5.2.3 Madeira Beach (Site #150031)

K Factors

Table 98 shows the K30, K100, and K200 factors for the Madeira Beach site (#150031). Per the numbers highlighted in bold, all three K factors are above 8% and fall in an acceptable range of 8–12%.

Table 98. K30, K100, and K200 Factors, Madeira Beach Site #150031

Hour of Year	Traffic Volume	AADT	K Factor
30th	2,443	28,095	**8.7%**
100th	2,377		**8.5%**
200th	2,306		**8.2%**

D Factors

Table 99 shows the D30, D100, and D200 factors for the Madeira Beach site (#150031). Per the numbers highlighted in bold, all three D factors are a little over 50%; thus, it was inferred that there was an uneven distribution of traffic between directions at the site.

Table 99. D30, D100, and D200 Factors, Madeira Beach Site #150031

Hour of Year	Traffic Volume				D Factor
	Direction	*Hourly*	*Peak*	*Total*	
30th	Northbound	1,044	1,399	2,443	**57.3%**
	Southbound	1,399			
100th	Northbound	1,131	1,246	2,377	**52.4%**
	Southbound	1,246			
200th	Northbound	1,199	1,199	2,306	**52.0%**
	Southbound	1,107			

Monthly Traffic Adjustment Factors

Table 100 shows the monthly traffic adjustment factors for the Madeira Beach site (#150031).

Table 100. Monthly Traffic Adjustment Factors, Madeira Beach Site #150031

Month	Northbound			Southbound			Site
	MADT	*AADT*	*Monthly Traffic Adjustment Factor*	*MADT*	*AADT*	*Monthly Traffic Adjustment Factor*	*Monthly Traffic Adjustment Factor*
July	13,554	13,984	**1.032**	13,652	14,111	**1.034**	**1.033**
August	13,955		**1.002**	14,046		**1.005**	**1.003**
September	13,982		**1.000**	14,109		**1.000**	**1.000**
October	13,982		**1.000**	14,109		**1.000**	**1.000**
November	13,532		**1.033**	13,892		**1.016**	**1.024**
December	13,651		**1.024**	13,789		**1.023**	**1.024**
January	13,576		**1.030**	13,708		**1.029**	**1.030**
February	14,761		**0.947**	14,829		**0.952**	**0.949**
March	14,408		**0.971**	14,512		**0.972**	**0.971**
April	14,332		**0.976**	14,402		**0.980**	**0.978**
May	13,873		**1.008**	13,968		**1.010**	**1.009**
June	14,184		**0.986**	14,297		**0.987**	**0.986**

6 Comparison of Results

K, D and monthly traffic adjustment factors as depicted in Section 5 were compared against the factors available online on the FDOT website at https://tdaappsprod.dot.state.fl.us/fto/. It should be noted that FDOT uses Standard K for planning and official K Factor purposes.

6.1 Comparison of K Factors and D Factors

The K30 and D30 factors posted on FDOT website for January 2017 to December 2017 were compared against the K30 and D30 factors calculated by the CUTR research team for July 2017 to June 2018. Table 101 depicts this comparison, where absolute difference between values of factors indicate mostly acceptable minor deviations with a couple of exceptions that may need to be examined in a future follow-up study. Although the total time period over which factors are computed is a year, the time frame used by CUTR (July 2017–June 2018) and FDOT (January 2017–December 2017) differed, which might be the cause of some of the larger deviations observed, as the data for those specific sites may be sensitive to this time difference. Data for the few count station sites that were inaccessible on the website are denoted as "NA" in Table 101, indicating the unavailability of data for comparison purposes.

In general, it should be noted that an average absolute difference of 0.61 for K30 factor and an average absolute difference of 2.39% for D30 factor were observed; both can be considered minor deviations between the FDOT and CUTR values calculated.

Table 101. Comparison of K30 and D30 Factors

Station Location	Count Station	K30 Factors			D30 Factors		
		FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
Bradenton Beach	134004	9.0	10.8	**1.80**	52.7	52.0	**0.70**
Bradenton Beach	134111	9.0	9.8	**0.80**	52.4	51.5	**0.90**
Cocoa Beach	700113	NA	9.3	**NA**	NA	50.9	**NA**
Destin	570385	9.0	8.8	**0.20**	52.3	50.6	**1.70**
Destin	600168	9.0	8.5	**0.50**	51.1	50.4	**0.70**
South Miami Beach	870031	NA	6.9	**NA**	NA	53.4	**NA**
South Miami Beach	870108	NA	7.5	**NA**	NA	54.3	**NA**
Key Largo	900164	9.0	9.9	**0.90**	54.4	56.4	**2.00**
Jacksonville Beach	720062	9.0	9.0	**0.00**	55.0	56.8	**1.80**
Sarasota	170011	9.5	9.6	**0.10**	65.2	61.7	**3.50**
Madeira Beach	150031	9.0	9.9	**0.90**	52.3	59.7	**7.40**
Destin	600123	9.0	8.7	**0.30**	54.5	57.3	**2.80**
		Average Absolute Difference K Factor		**0.61**	***Average Absolute Difference D Factor***		**2.39**

6.2 Comparison of Monthly Traffic Adjustment Factors

Monthly traffic adjustment factors were compared for the count station sites from July 2017 to December 2017, which is the overlapping time fame between the FDOT website (as highlighted in Section 3) time frame of January 2017–December 2017 and current study time frame of July 2017–June 2018. AADT and MADT figures for each count station site were obtained from the FDOT website, and a ratio of AADT to MADT was used to represent monthly traffic adjustment factors of FDOT in the following tables. Among

the 12 count stations sites considered in this study, 3 permanent count station site data were found to be inaccessible and the other 3 temporary count station sites did not have MADT as available data on the FDOT website. Such sites were excluded from this comparison/validation due to unavailability of data, and the remaining six permanent count station sites are discussed in the following subsections.

6.2.1 Bradenton Beach (Site #134004)

Per the monthly traffic adjustment factors calculated (July 2017–December 2017) by the CUTR research team and per the FDOT website, negligible absolute differences that fall in a range of 0.002–0.019 were observed, as shown in Table 102.

Table 102. Comparison of Traffic Adjustment Factors, Bradenton Beach (Site #134004)

Month	Northbound			Southbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	0.940	0.942	0.002	0.939	0.926	0.013
August	1.078	1.081	0.003	1.116	1.101	0.015
September	1.366	1.370	0.004	1.399	1.380	0.019
October	1.105	1.108	0.003	1.113	1.098	0.015
November	1.047	1.049	0.002	1.061	1.047	0.014
December	1.057	1.060	0.003	1.074	1.059	0.015
	Average Absolute Difference Monthly Adjustment Factor		0.003	*Average Absolute Difference Monthly Adjustment Factor*		0.015

6.2.2 Bradenton Beach (Site #134111)

Per the monthly traffic adjustment factors calculated (July 2017–December 2017) by the CUTR research team and per the FDOT website, negligible absolute differences that fall in a range of 0.001–0.008 were observed, as shown in Table 103.

Table 103. Comparison of Traffic Adjustment Factors, Bradenton Beach (Site #134111)

Month	Northbound			Southbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	1.123	1.115	0.008	1.096	1.088	0.008
August	1.097	1.090	0.007	1.089	1.082	0.007
September	1.172	1.168	0.004	1.180	1.179	0.001
October	1.028	1.021	0.007	1.027	1.020	0.007
November	0.993	0.986	0.007	1.000	0.993	0.007
December	0.978	0.971	0.006	0.984	0.977	0.007
	Average Absolute Difference Monthly Adjustment Factor		0.007	*Average Absolute Difference Monthly Adjustment Factor*		0.006

6.2.3 Destin (Site #570385)

Per the monthly traffic adjustment factors calculated (July 2017–December 2017) by the CUTR research team and per the FDOT website, negligible absolute differences that fall in a range of 0.001–0.002 were observed, as shown in Table 104.

Table 104. Comparison of Traffic Adjustment Factors, Destin (Site #570385)

Month	Eastbound			Westbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	0.851	0.850	0.001	0.859	0.857	0.002
August	0.956	0.954	0.002	0.949	0.947	0.002
September	1.043	1.041	0.002	1.043	1.041	0.002
October	1.021	1.019	0.002	1.016	1.015	0.001
November	1.129	1.127	0.002	1.124	1.122	0.002
December	1.169	1.167	0.002	1.175	1.173	0.002
	Average Absolute Difference Monthly Adjustment Factor		0.002	*Average Absolute Difference Monthly Adjustment Factor*		0.002

6.2.4 Destin (Site #600168)

Destin count station site 600168 went under construction at the end of July 2017; therefore, only July 2017 monthly traffic adjustment factor comparison was available. The differences for this month were found to be 0.036 and 0.038, as depicted in Table 105; however, it should be noted that this is only one data point, unlike the other comparisons in this section, which are 6 data points per count station.

Table 105. Comparison of Traffic Adjustment Factors, Destin (Site #600168)

Month	Northbound			Southbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	0.893	0.855	0.038	0.893	0.857	0.036

6.2.5 Key Largo (Site #900164)

Per the monthly traffic adjustment factors calculated (July 2017–December 2017) by the CUTR research team and per the FDOT website, negligible absolute differences that fall in a range of 0.019–0.030 were observed, as shown in Table 106.

Table 106. Comparison of Traffic Adjustment Factors, Key Largo (Site #900164)

Month	Northbound			Southbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	0.885	0.866	0.019	0.891	0.872	0.019
August	0.983	0.962	0.021	0.993	0.972	0.021
September	1.356	1.328	0.028	1.381	1.351	0.030
October	1.138	1.114	0.024	1.124	1.100	0.024
November	1.067	1.044	0.023	1.064	1.041	0.023
December	1.061	1.038	0.023	1.032	1.009	0.023
	Average Absolute Difference Monthly Adjustment Factor		0.023	*Average Absolute Difference Monthly Adjustment Factor*		0.024

6.2.6 Jacksonville Beach (Site #720062)

Per the monthly traffic adjustment factors calculated (July 2017–December 2017) by the CUTR research team and per the FDOT website, negligible absolute differences that fall in a range of 0.016–0.020 were observed, as shown in Table 107.

Table 107. Comparison of Traffic Adjustment Factors, Jacksonville Beach (Site #720062)

Month	Eastbound			Westbound		
	FDOT	*CUTR*	*Absolute Difference*	*FDOT*	*CUTR*	*Absolute Difference*
July	0.960	0.944	0.016	0.962	0.945	0.017
August	0.974	0.957	0.017	0.980	0.963	0.017
September	1.187	1.167	0.020	1.086	1.067	0.019
October	0.981	0.964	0.017	0.988	0.970	0.018
November	1.062	1.044	0.018	1.069	1.050	0.019
December	1.090	1.071	0.019	1.094	1.074	0.020
	Average Absolute Difference Monthly Adjustment Factor		0.018	*Average Absolute Difference Monthly Adjustment Factor*		0.018

7 Conclusions

The objective of the project—computing and comparing traffic adjustment factors of roadways leading to major tourist/beach attraction areas in Florida—was achieved through the process summarized in this report. K, D, and monthly traffic adjustment factors for each site and each direction computed by the USF research team were found mostly in close agreement with the adjustment factors posted on the FDOT website for the conditions/site data that were available. However, it should be noted that where data were not available for specific sites, assumptions were made, as highlighted in this report, to fill in that data for analysis purposes.

It should also be noted the USF research team was able to determine that both permanent and temporary count stations undercount vehicles once bumper-to-bumper traffic on these counters was observed at roadways leading to high tourist/beach activity sites. It is recommended that traffic volume adjustment/ inflation factors be developed for these specific high-tourist areas and potentially other areas via a follow-up study, where specific traffic volume multiplier factors can be applied to peak hour volumes to adjust and account for this phenomenon for accuracy purposes. These multiplier factors will result in an increase in overall traffic volumes that are currently observed throughout the count stations in these high-tourist activity and other congested areas.

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Appendix A – Glossary of Terms

(compiled using FDOT's *Traffic Monitoring Handbook* and FHWA's *Traffic Monitoring Guide*)

Annual Average Daily Traffic (AADT) – identifies average volume of traffic for one-day (24-hour period) during data reporting year.

Annual Average Weekday Traffic (AAWDT) – estimate of typical traffic during weekday (Monday through Friday) calculated from data measured at continuous monitoring sites.

Automated Traffic Recorder (ATR) Site – location of automated traffic recorder (permanent station) used for collecting traffic volume data; now termed CMS (see below).

Average Daily Traffic (ADT) – total traffic volume during given time period (more than a day and less than a year) divided by number of days in that time period; NOT adjusted for seasonal variations in traffic.

Axle Correction Factor (AF or ACF) – can be applied at either point or system level, i.e., can be developed either from specific vehicle classification counts at specific locations or from combination of vehicle classification counts averaged together to represent entire system of roads.

Axle Counts – volumes obtained by equipment that counts axles and divides by 2 to estimate total number of vehicles; ignores that many vehicles have more than 2 axles.

Classification Count – traffic survey that counts number of vehicles in each vehicle classification category.

Continuous Monitoring Site (CMS) – traffic counters permanently placed at specific locations throughout the state to record distribution and variation of traffic flow by hour of day, day of week, and month of year, from year to year, and transmit data to the TDA Office via wireless modems; sites record traffic volumes 24 hours per day, 7 days per week.

Count – data collected as a result of measuring and recording traffic characteristics such as vehicle volume, classification, speed, weight, or combination of these characteristics.

Counter – any device that collects traffic characteristics data. FDOT uses Continuous Counters, Classification and Weigh-In-Motion (WIM) Counters, Portable Axle Counters, and Portable Vehicle Counters.

Coverage Count – special temporary count taken on a 24–48-hour basis for a specific segment of road, usually associated with HPMS sections.

D Factor (Directional Distribution Factor) (see also Factor and Directional Distribution) – proportion of traffic traveling in peak direction during a selected hour, usually expressed as a percentage. Roads near center of urban area often has D near 50% with traffic volumes equal for both directions. Rural arterials may exhibit significantly higher imbalance because traffic travels toward urban areas in morning and away from urban areas in evening. In Florida, values for D range between 50% and 80%. Unless otherwise stated, D is the percentage of traffic traveling in the highest direction of travel during the 30th highest hour of the year as measured at continuous monitoring sites. Most commonly-used D factors are:

- **D30** – proportion of traffic in the 30th highest hour of the year traveling in the peak direction; used for design year capacity analysis.
- **D100** – proportion of traffic in the 100th highest hour of the year traveling in the peak direction; often used in calculating LOS for a roadway.
- **D200** – proportion of traffic in the 200th highest hour of the year traveling in the peak direction.

Another D factor is used for pavement design, the 24-hour loading factor. The value of the directional load distribution factor is 50% for two-way highways and 100% for one-way roads.

Daily Truck Volume (DTV) – total volume of trucks on a highway segment in a day.

Directional Distribution (D) – percentage of total, two-way peak hour traffic that occurs in the peak direction.

Factor – number that represents a ratio of one number to another. The factors used to adjust traffic volumes are K, D, T Design Hour Factor, Peak Hour Factor, and Seasonal Factor. The Load Equivalency Factor adjusts pavement damage calculations. A proportion, usually expressed as a percentage. Factors described in detail in this report are K, D, T, Axle Factor, and Seasonal Factor. See *FDOT Project Traffic Forecasting Handbook* for more information regarding all traffic adjustment factors.

Federal Highway Administration (FHWA) – federal agency that oversees federal highways and federal aid transportation projects.

FHWA Classification Scheme F – method of counting, identifying, and classifying different types of vehicles into categories. Classes 1–3 are motorcycles, automobiles, and light trucks; Classes 4–13 are Trucks and Buses (referred to as T or T24).

Functional Classification – assignment of roads into a system of categories according to the character of service they provide in relation to the total road network; a two-digit number represents each category.

- Rural:
  - 01 Principal Arterial – Interstate
  - 02 Principal Arterial – Freeways and Expressways
  - 04 Rural Principal Arterial – Other
  - 06 Minor Arterial
  - 07 Major Collector
  - 08 Minor Collector
  - 09 Local
- Urban:
  - 11 Principal Arterial – Interstate
  - 12 Principal Arterial – Freeways and Expressways
  - 14 Principal Arterial – Other
  - 16 Urban Minor Arterial
  - 17 Urban Major Collector
  - 18 Urban Minor Collector
  - 19 Urban Local

Geographical Information System (GIS) – mechanism for storing and utilizing data. GIS are being adopted by many transportation agencies to allow for easier sharing of data, which is vital to implementation of ITS.

Global Positioning System (GPS) – method of locating a point on Earth's surface by triangulating between satellites to determine latitude and longitude; also used to describe the equipment that is used to obtain the measurements.

Highway Performance Monitoring System (HPMS) – data collection system developed for reporting traffic data to FHWA. Has evolved into a combination of a universal count program that includes all NHS roadways (on-system and off-system), all principal arterials (State roadways), and a statistical sample for the remaining highway systems (off-system), all of which must be counted at least once every three years. Volume data for off-system roads are very important to local governments because they are used to apportion federal-aid funds.

Inductive Loop – sensor usually consisting of 3 or 4 turns of 12–14 gauge wire embedded in a rectangular (often 6' x 6') pattern sawn into the pavement. The Loop is connected to a detector that places an electrical charge through the loop wire, thus generating an inductive (magnetic) field. When a vehicle travels through the inductive field, it causes the field to change its inductance, and is then counted by the traffic counter.

Intelligent Transportation Systems (ITS) – system that applies a broad range of diverse modern electronic and communications technologies to the business of moving people and goods. Most ITS applications involve the collection, analysis, and use of traffic flow/ speed data to improve safety, efficiency, and reliability of travel. A major emphasis of FHWA is implementation of national ITS. Traffic data must be of good quality and must meet diverse needs of users, and traffic monitoring efforts must be coordinated and shared between state and other roadway agencies.

K Factor (K) – factor used for design and analysis of traffic flow on highways. Unless otherwise stated, is proportion of AADT occurring in 30th highest hour of year. K factors can be calculated only at continuous count stations that have a full year of data. K factors can be found in *200 Highest Hours Report* published by FDOT Central Office. FDOT uses standard K for planning purposes.

- **K30** – proportion of AADT occurring during 30th highest hour of design year; commonly known as Design Hour Factor. K30 factor is critical in project traffic forecasting and has three general characteristics:
    - Generally decreases as AADT increases
    - Generally decreases as development density increases
    - Generally is highest on recreational facilities, next highest on rural suburban, and lowest on urban
- **K100** – proportion of AADT occurring during 100th highest hour of design year; commonly known as Planning Analysis Hour Factor.
- **K200** – proportion of AADT occurring during 200th highest hour of design year.

Monthly Average Daily Traffic (MADT) – for a CMS site that operates 365 days per year without failure, MADT can be computed by adding daily volumes during any given month and dividing by number of days in month.

National Highway System (NHS) – network of nationally-significant highways approved by Congress in National Highway System Designation Act of 1995 and redefined by MAP-21; includes Interstate System, other roads, and connectors to major intermodal terminals. NHS roadways are eligible for federal funds.

Peak Hour – hour during which the most vehicles travel across a point on a highway. Survey Processing Software (SPS) evaluates hourly traffic flow every 15 minutes, determines Peak Hour, and prints Peak Hour information in the Synopsis Report. To meet current FDOT requirements, SPS is programmed to report volume of traffic occurring at 1700 hours (from 5:00–6:00 PM).

Piezoelectric Axle Sensor (piezo) – sensor consisting of a length of piezoelectric material encased within some type of housing; installed across roadway and used to detect axles. When vehicle axles run over the sensor, pressure on the piezoelectric material is converted into electronic signal that can be detected by the traffic counter.

Portable Automatic Vehicle Classifier (PAVC) – portable (non-permanent) traffic data collection device capable of classifying vehicles into 13 FHWA Scheme types.

Portable Traffic Monitoring Site (PTMS) – traffic monitoring site that has loops and/or axle sensors in the roadway with leads running back into a cabinet located on the shoulder. When a traffic count is desired, a portable counter connected to sensor leads and placed in the cabinet. After the count is collected, the counter is removed and placed at another count site. The site is not portable, only the counter.

Roadway Section – State-owned or off-system roadways for which information is collected and databases are maintained, identified by eight-digit code—first 2 digits ID county, next 6 digits ID roadway. Each roadway section is defined by beginning and ending milepoint.

Seasonal Factor (SF) – parameters used to adjust short-duration counts that consider travel behavior fluctuations by day of week and month of year. Use in Florida is determined by interpolation between two consecutive monthly factors to create one SF for each week of the year.

Sensors – devices that detect presence of traffic and transmit survey data to counters.

Short Duration Count – generally taken on a 24–48 hour basis for roadway segment-specific locations; may be used in special studies.

Short-Term Monitoring Site – locations where portable traffic counters are temporarily placed to record distribution and variation of traffic flow.

State Highway System (SHS) – roads owned and maintained by the State of Florida.

State Road Numbering System – Florida roads numbered as Interstates, US Routes, State Roads, or County Roads. Interstates and US Routes are also assigned State Road Numbers. Odd numbers are

assigned to north/south routes with low number beginning on east coast and progressing higher toward the west coast. Even numbers are assigned to east/west routes with low number beginning at north end of state and progressing higher toward the south end of the state.

T Factor (T24) – Truck Factor; percentage of truck traffic in AADT (includes class 4-B, buses and trucks).

Transportation Data and Analytics (TDA) – FDOT Central Office in Tallahassee that monitors and reports statistical traffic information for the State Highway System.

Vehicle – Assembly of one or more units coupled for travel on a highway; vehicles include one powered unit and may include one or more unpowered full-trailer or semi-trailer units.

Vehicle Axle – axle oriented transversely to nominal direction of vehicle motion and extending full width of vehicle; wheel(s) at both ends rotate.

Vehicle Axle Spacing – for each vehicle axle, horizontal distance between center of that axle and that of preceding axle; axle spacing for vehicle's front axles assumed to be zero.

Vehicle Classification – FHWA vehicle typology separating vehicles into categories, or classes, depending on whether they carry passengers or commodities; there are 13 vehicle classes identified by FHWA.

Vehicle Counts – activity of measuring and recording traffic characteristics such as vehicle volume, classification, speed, weight, or combination of these characteristics.

Vehicle Length – overall length of vehicle measured from front bumper to rear bumper.

Weigh In Motion (WIM) – measure of vertical forces applied by axles to sensors in the roadway; used to measure weight carried by trucks to determine appropriate design for thickness and composition of pavement sections.