

NORTH CAROLINA

**Turnpike Authority**

## **Operations Statistics Report**

Triangle Expressway

### **2015 Second Quarter Report**

April - June

1 S. Wilmington Street  
Raleigh, NC 27601



Last Updated:  
August 26, 2015

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## INTRODUCTION

### Purpose

The North Carolina Turnpike Authority (NCTA) presents the operations statistics for the Triangle Expressway during the second quarter (April – June) of 2015. The report includes data related to traffic volumes, toll system, and roadway operations and maintenance. The statistics will allow for future analysis to identify quarterly and annual trends over time, providing a quantifiable method to track performance.

### Project

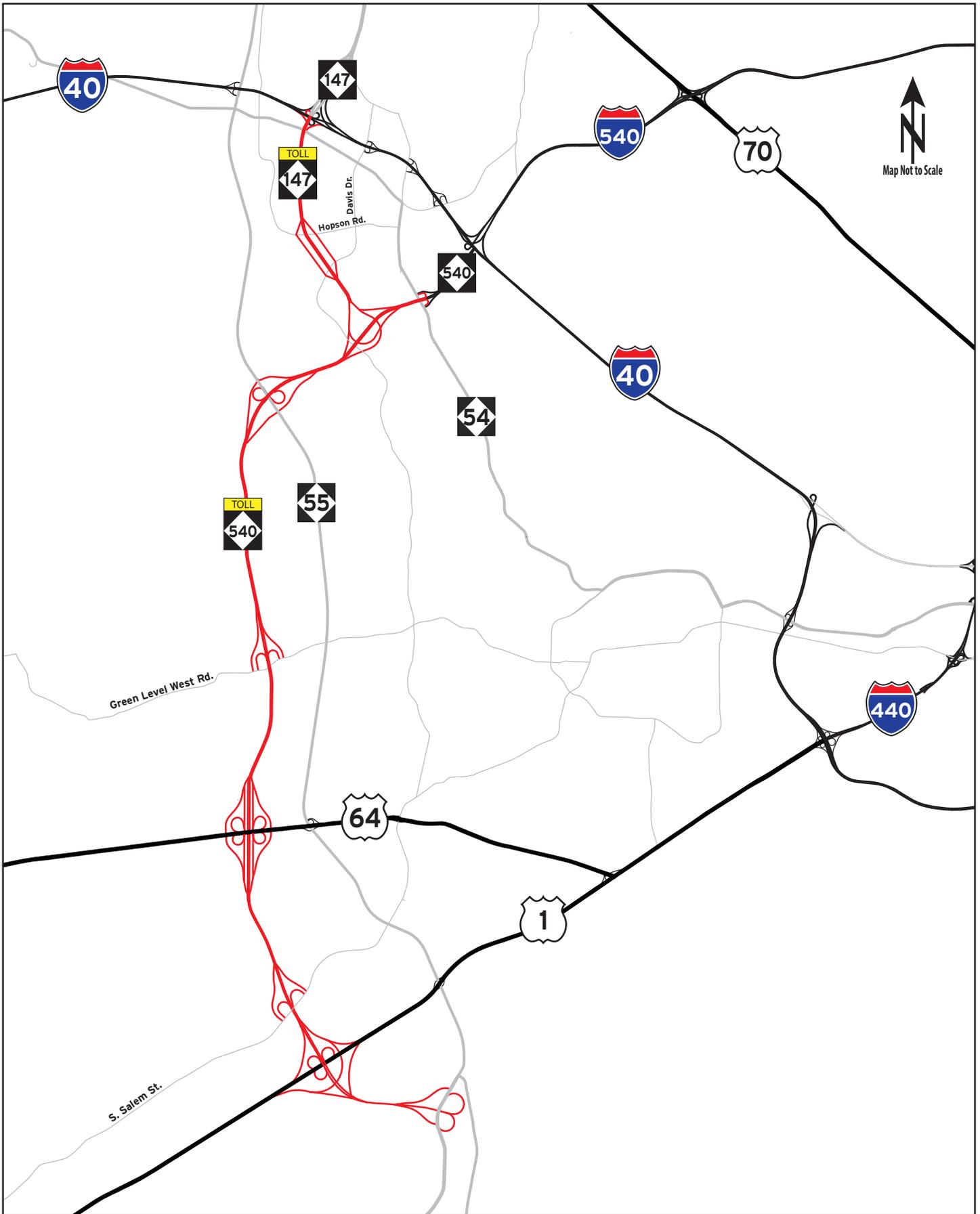
The Triangle Expressway is an 18.8-mile toll road that extends the partially complete “Outer Loop” around the greater Raleigh, North Carolina area from I-40 to NC-55 Bypass. The six-lane, controlled-access toll facility relieves congestion on NC-55, while improving access to the Research Triangle Park by reducing travel times for commuters residing to the south and east. The Triangle Expressway is currently comprised of two sections: Toll NC-147 and Toll NC-540.

Toll NC-147 includes 3.4 miles of toll road between I-40 and Toll NC-540. This section of the Triangle Expressway includes interchanges at Hopson Road, Davis Drive, and NC-540. It opened to toll-free traffic on December 8, 2011; tolling on this section began on January 3, 2012.

Toll NC-540 includes 12.6 miles of toll road between NC-55 in western Cary and the NC-55 Bypass near the Town of Holly Springs. The section from NC-55 to US-64 includes interchanges at NC-55, Green Level West Road and US-64 and opened to toll-free traffic on August 1, 2012. Tolling on this section began on August 2, 2012. The section from US-64 to NC-55 Bypass includes interchanges at S. Salem St., US-1 and NC-55 Bypass and opened to toll-free traffic on December 20, 2012. Tolling on this section began on January 2, 2013.

The Triangle Expressway utilizes an all-electronic non-stop tolling system where there are no toll plazas at which drivers stop and pay cash tolls. Instead, free-flow toll zones are employed where vehicles are detected while traveling at highway speeds. Payments are accepted through an Electronic Toll Collection (ETC) program called NC Quick Pass or a video billing program called Bill by Mail.

NCTA toll zones are located along the Triangle Expressway at mainline and interchange ramp locations. An illustration of the Triangle Expressway can be seen in *Figure 1*.



**Triangle Expressway System Map**

**Figure  
1**

# Traffic Statistics

## TRAFFIC STATISTICS

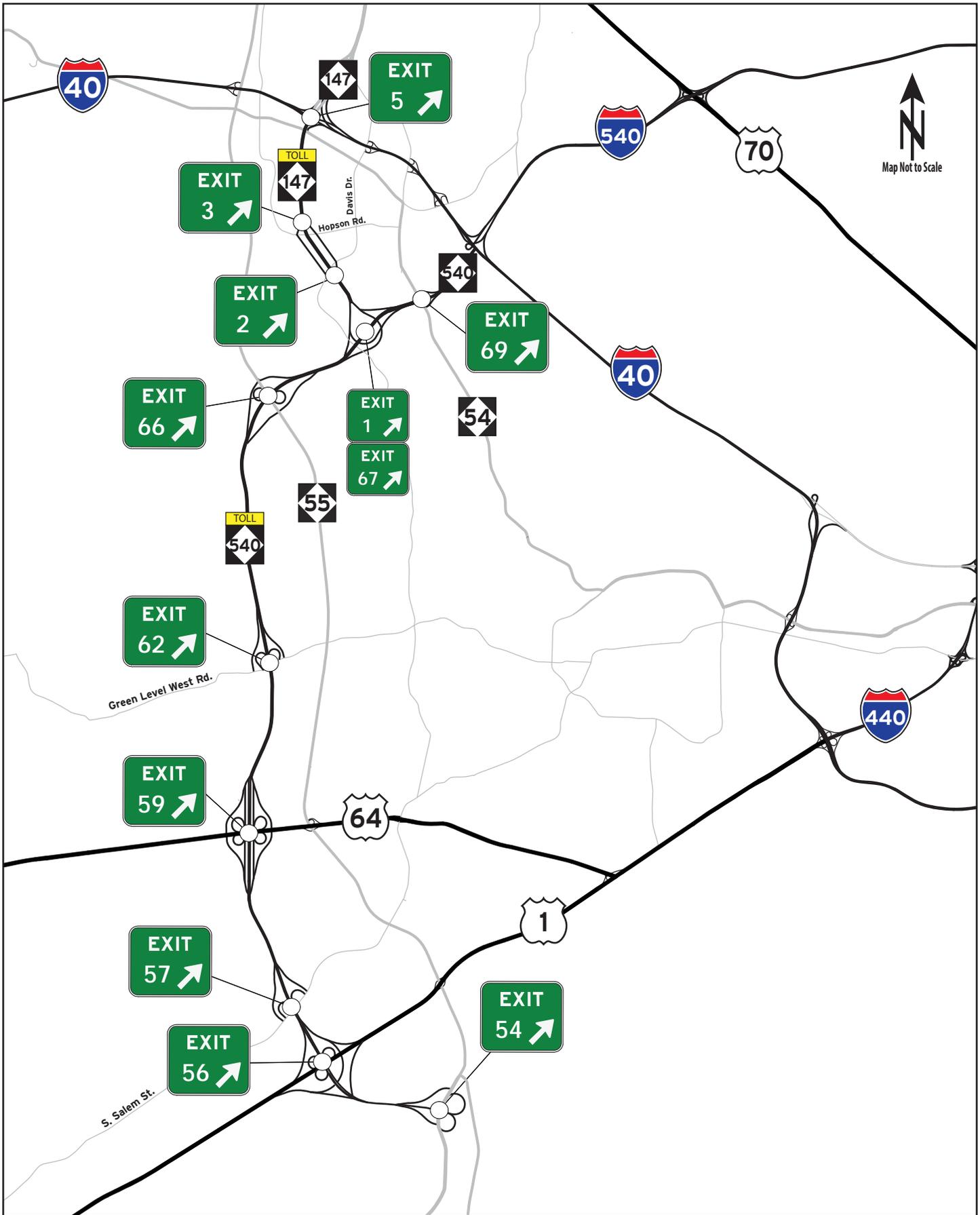
Current and historical traffic data is collected and stored through the use of roadside microwave vehicle detectors (MVD's) installed throughout the Triangle Expressway. The data provides an overview of the roadway's current utilization. The data can also be analyzed to identify trends that could more accurately predict future utilization.

It should be noted that the Triangle Expressway continues to experience a traffic pattern known as "ramp-up." During a ramp-up period, the traffic volumes on a new facility increase at a faster rate than typical growth on existing facilities. Traffic volumes increase significantly as the customers become more familiar with the facility. The ramp-up period for the Triangle Expressway is expected to continue through 2017.

### Average Weekday Traffic (AWT)

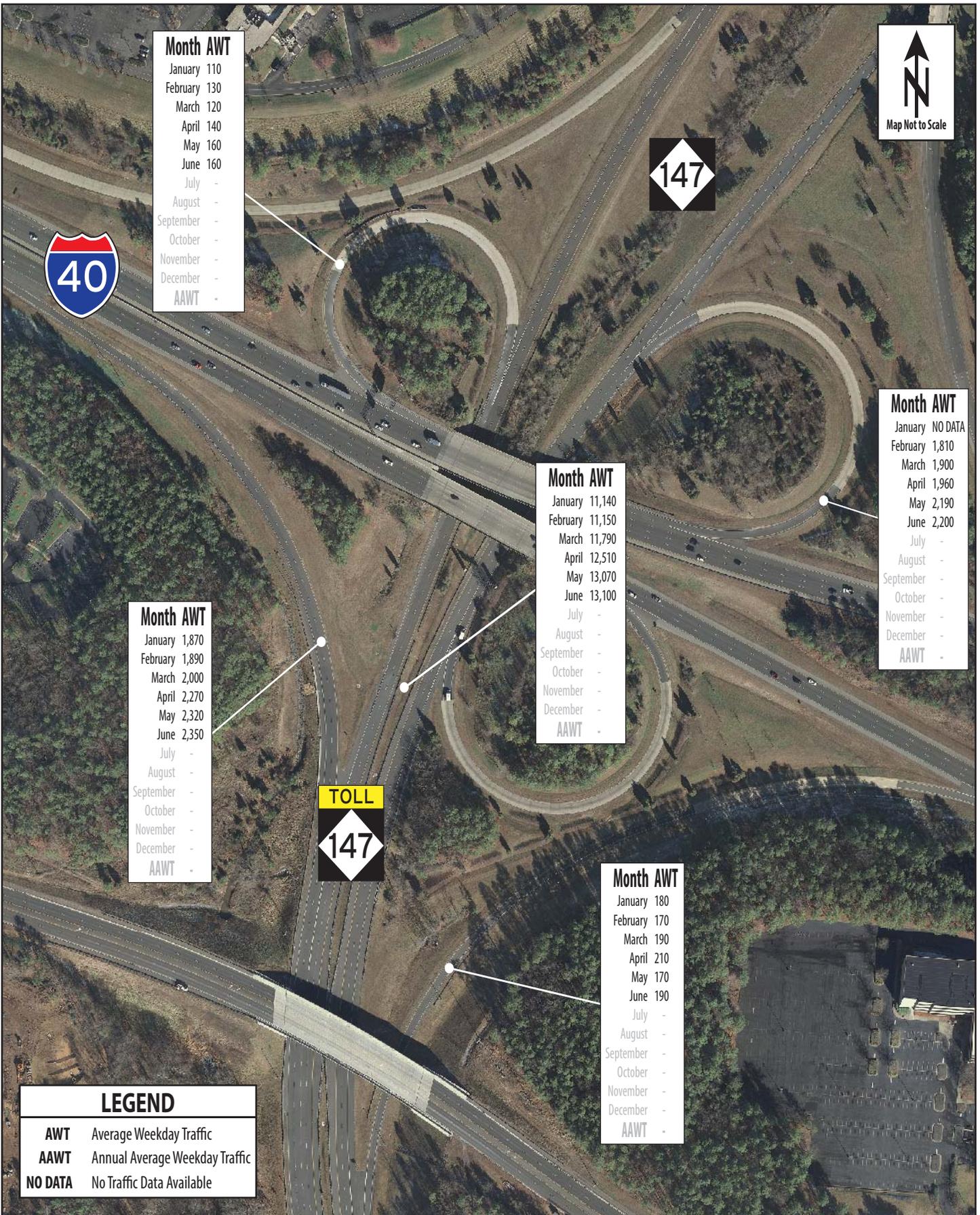
Traffic volume data is collected on all ramps and mainline segments between interchanges. The location of interchanges along the Triangle Expressway can be seen in *Figure 2*. Typically there is a large difference between peak and off-peak volumes, as well as between weekday and weekend volumes. This gap becomes significantly larger for a tolled facility because it tends to have a much higher percentage of traffic on weekdays during peak hours than non-toll facilities, as there is less of a benefit for toll users during off-peak hours. For this reason, Average Weekday Traffic (AWT) is reported instead of average daily traffic (ADT). AWT is a measure of the average daily traffic collected on a typical Monday through Friday over a designated time period.

A revision of AWT data reported in the first quarter report was conducted during this quarter to account for a minor calculation error. *Figures 3 to 13* present updated first quarter and second AWT along the facility which are representative of NCTA's MVD data. It should be noted that if there are less than five days in a month with reliable data (days during which the data recorded did not meet the established threshold) "NO DATA" is reported for that MVD.



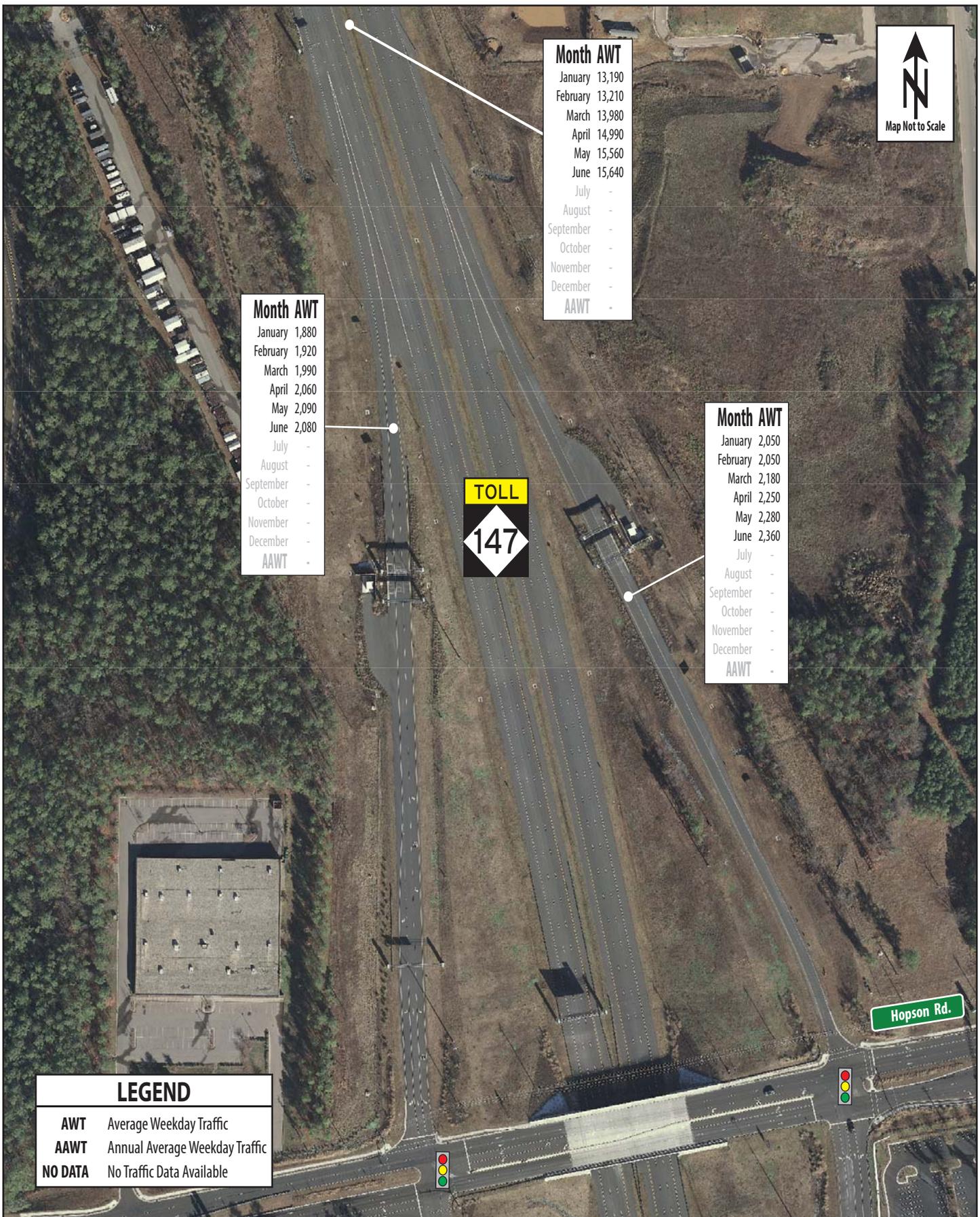
**Triangle Expressway Interchange Map**

**Figure 2**



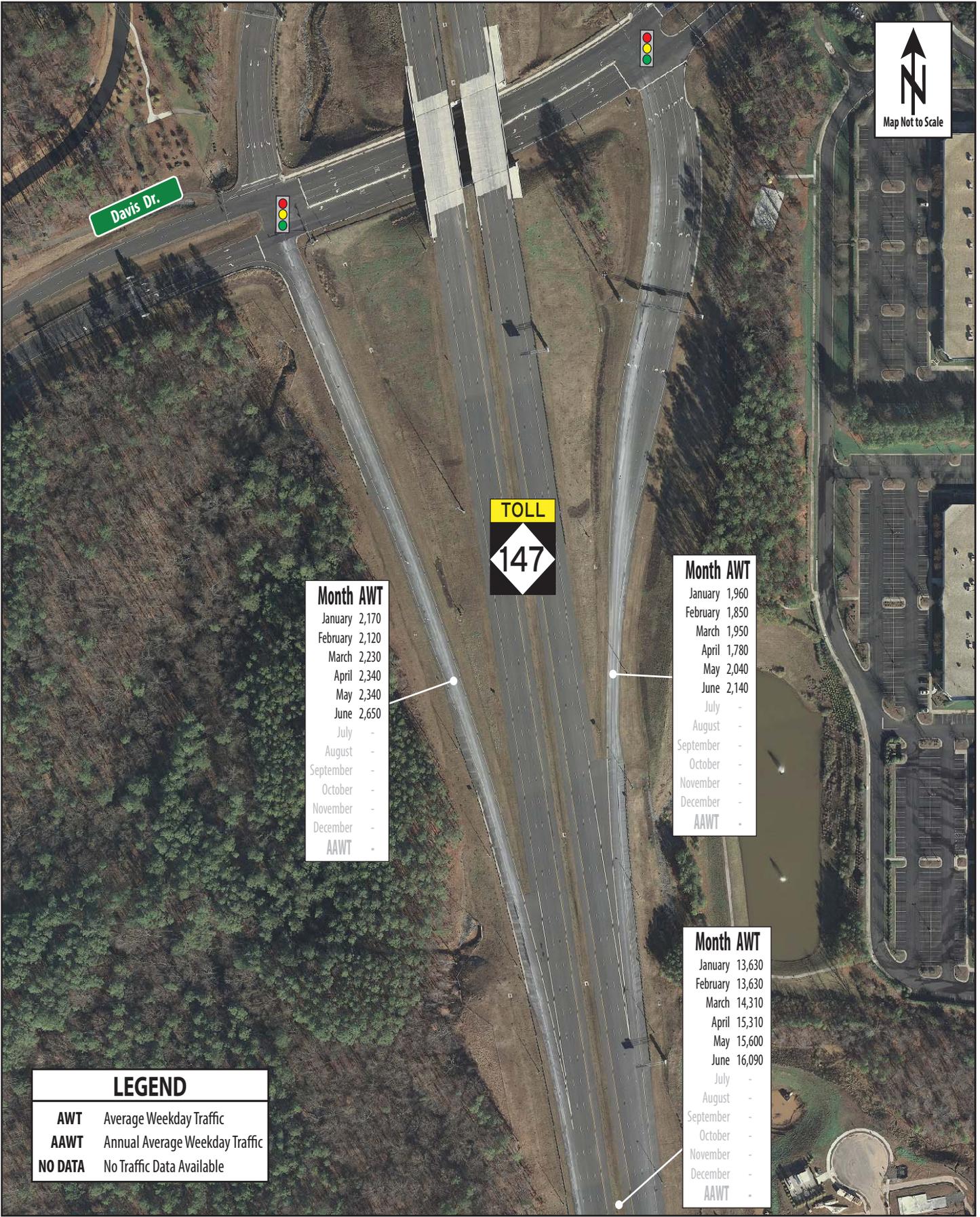
**NC-147 at I-40 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**3**



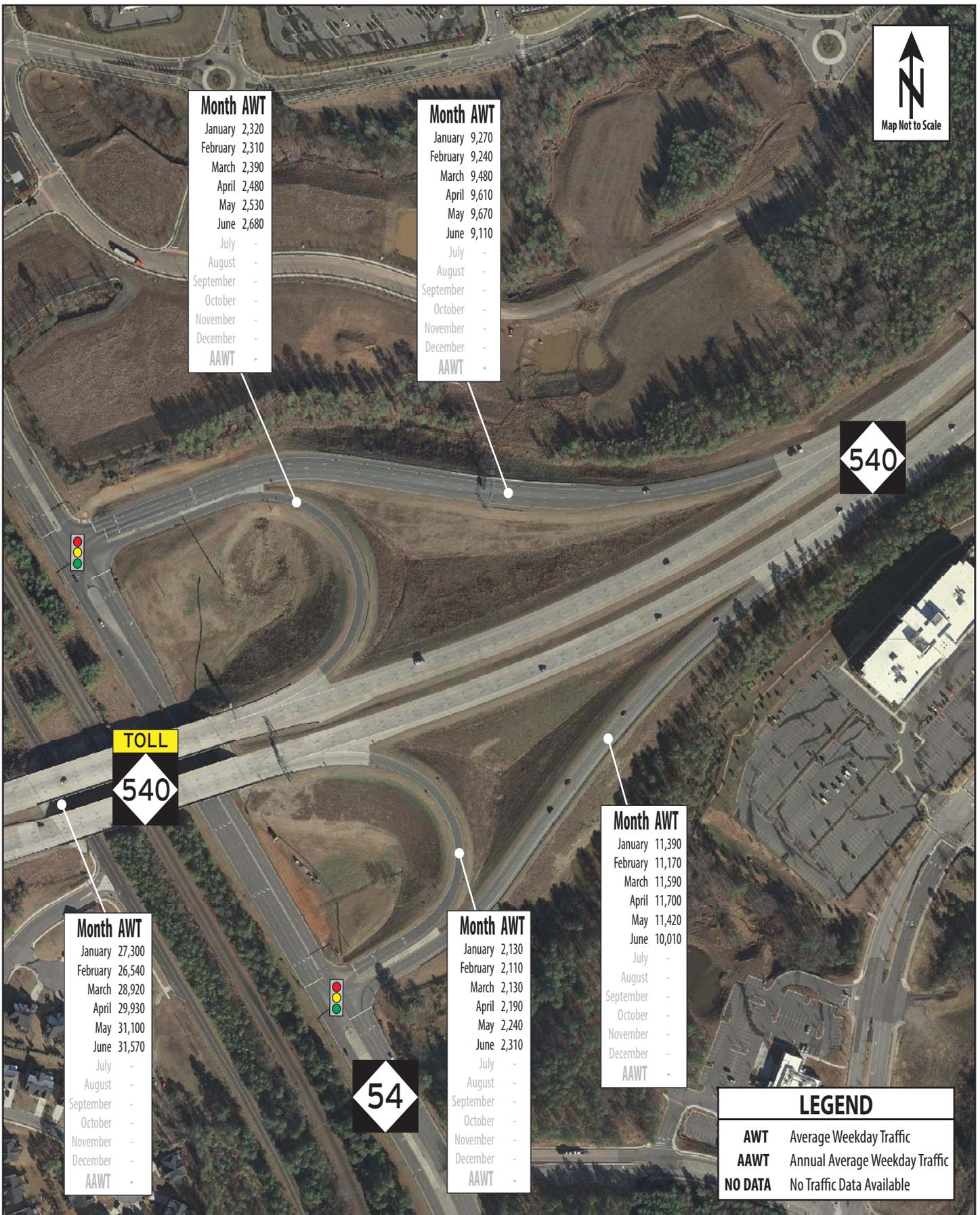
**NC-147 at Hopson Rd. Interchange**  
2015 Average Weekday Traffic

**Figure**  
**4**



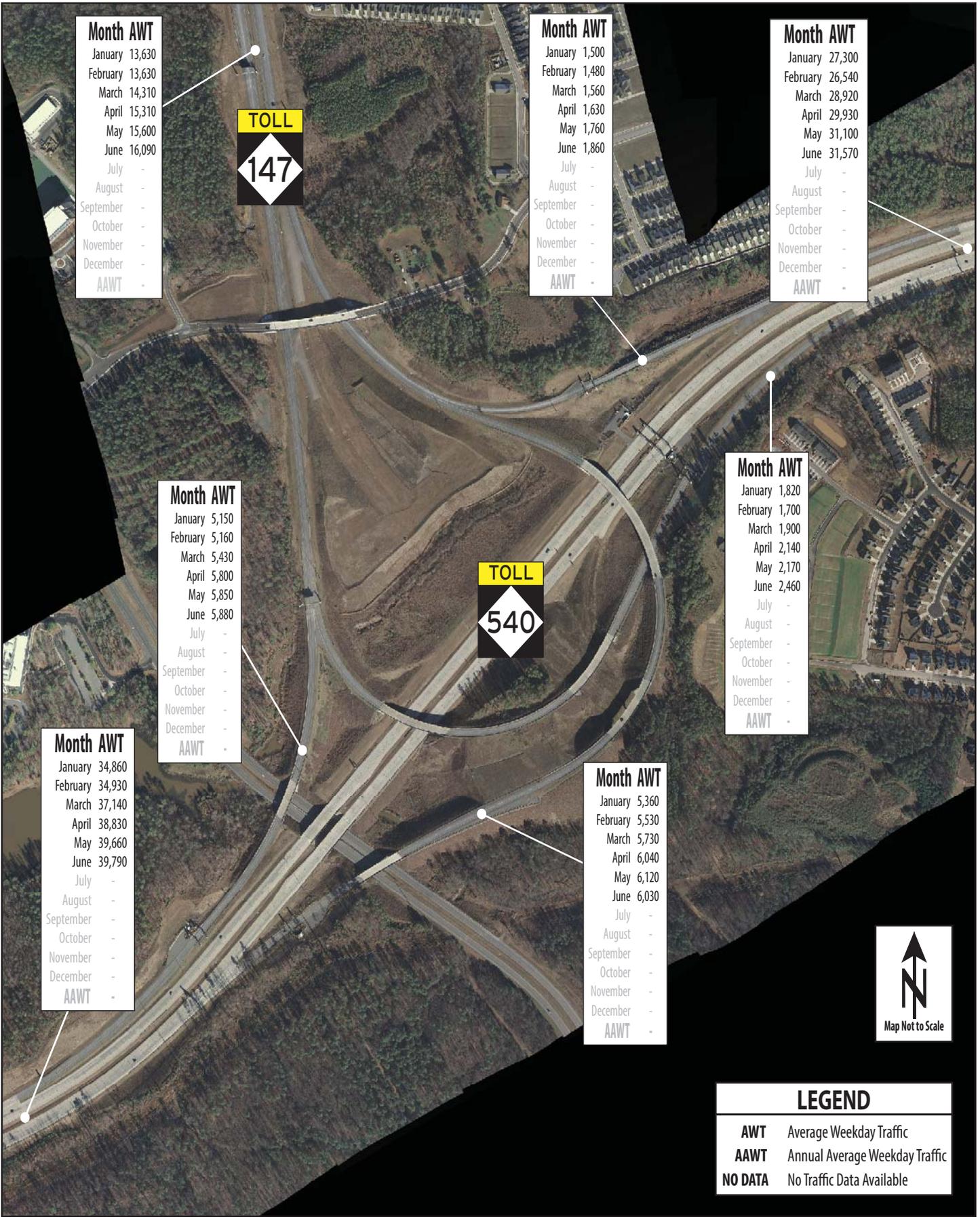
**NC-147 at Davis Dr. Interchange**  
2015 Average Weekday Traffic

**Figure**  
**5**



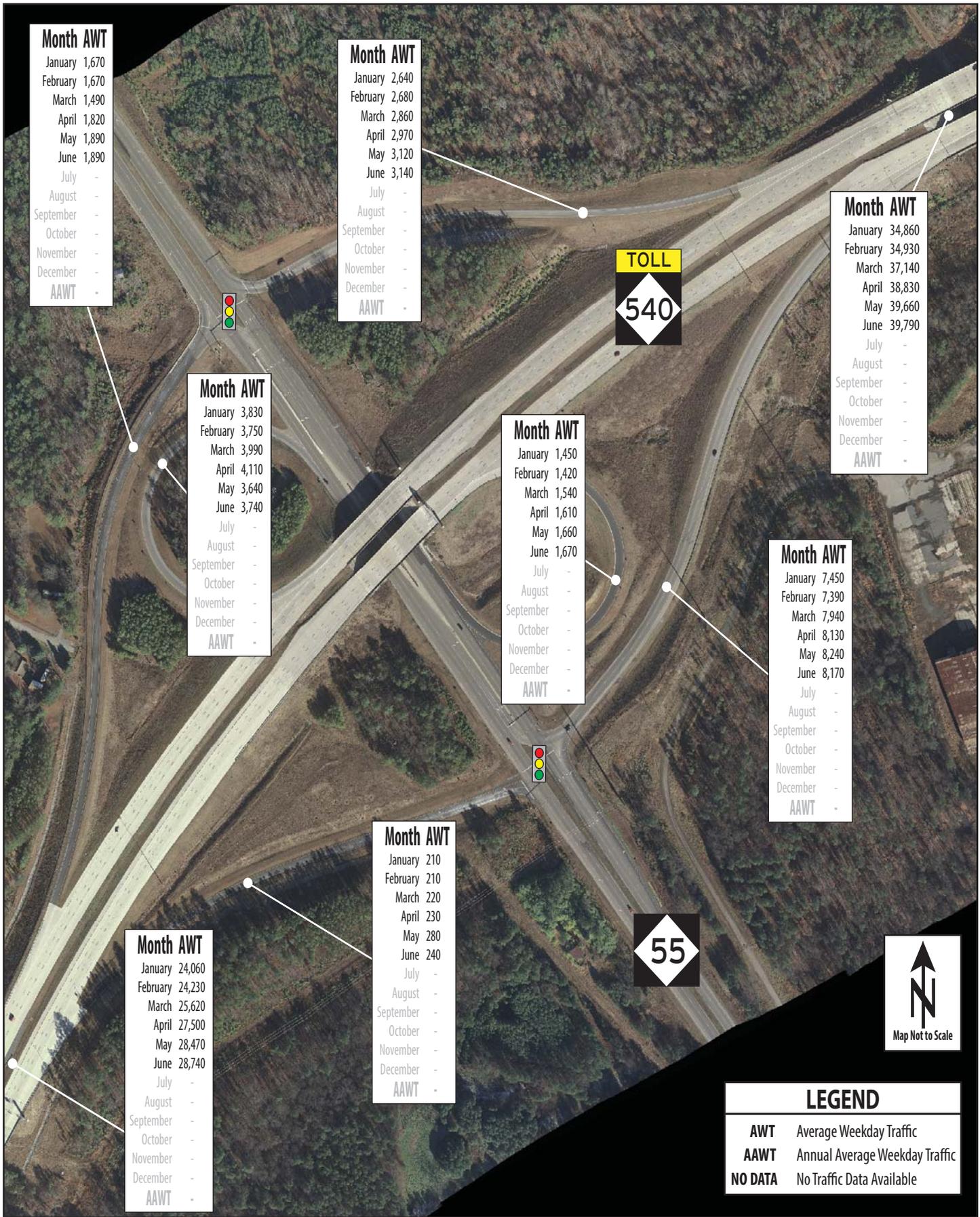
**NC-540 at NC-54 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**6**



**NC-540 at NC-147 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**7**



**NC-540 at NC-55 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**8**

Month AWT	
January	24,060
February	24,230
March	25,620
April	27,500
May	28,470
June	28,740
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-



Month AWT	
January	980
February	990
March	1,040
April	1,120
May	1,180
June	1,250
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-

Month AWT	
January	1,270
February	1,250
March	1,340
April	1,440
May	1,510
June	1,570
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-

Green Level West Rd.

Month AWT	
January	1,060
February	1,080
March	1,190
April	1,330
May	1,400
June	1,370
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-

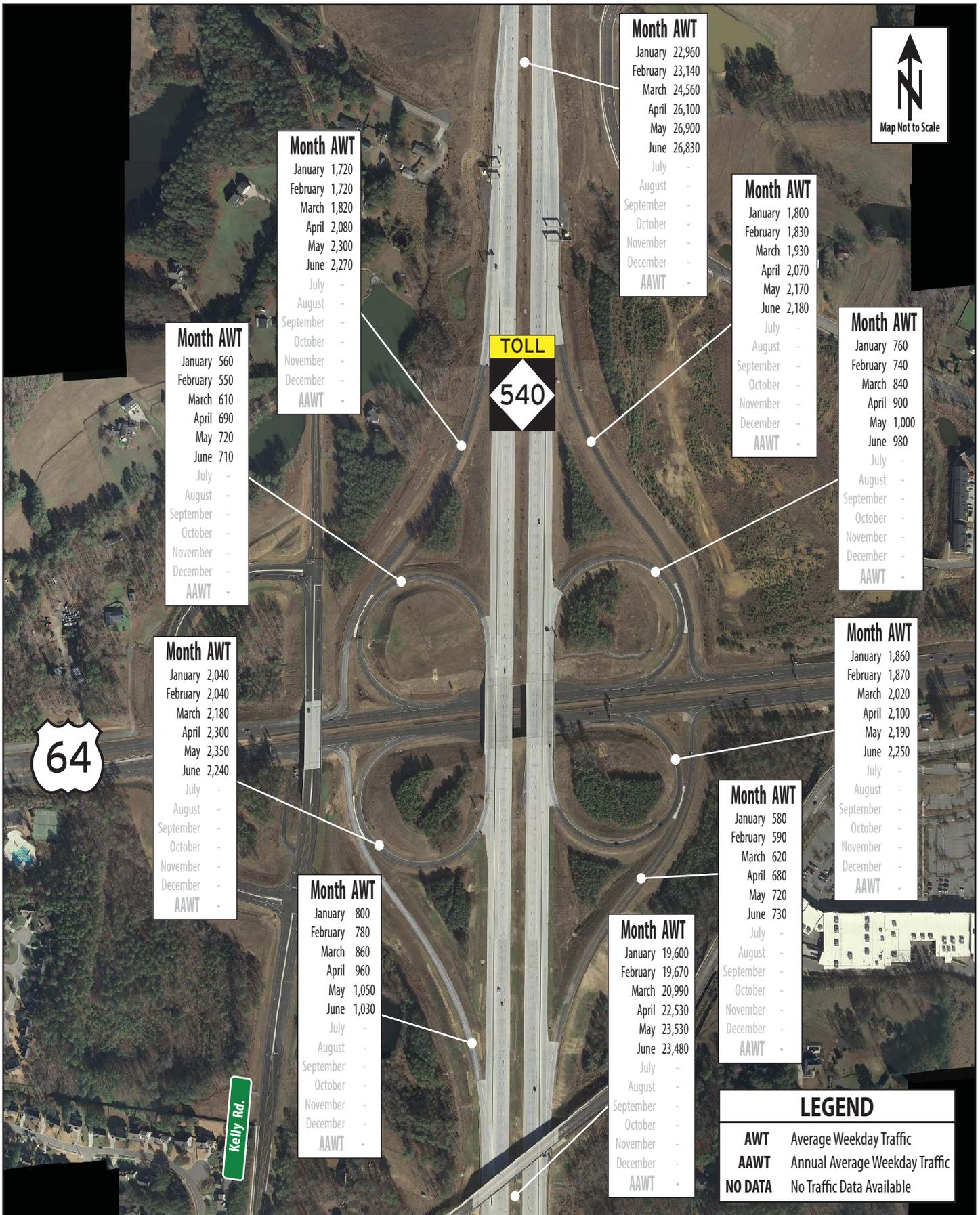
Month AWT	
January	1,060
February	1,080
March	1,180
April	1,340
May	1,450
June	1,360
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-

Month AWT	
January	22,960
February	23,140
March	24,560
April	26,100
May	26,900
June	26,830
July	-
August	-
September	-
October	-
November	-
December	-
AAWT	-

LEGEND	
AWT	Average Weekday Traffic
AAWT	Annual Average Weekday Traffic
NO DATA	No Traffic Data Available

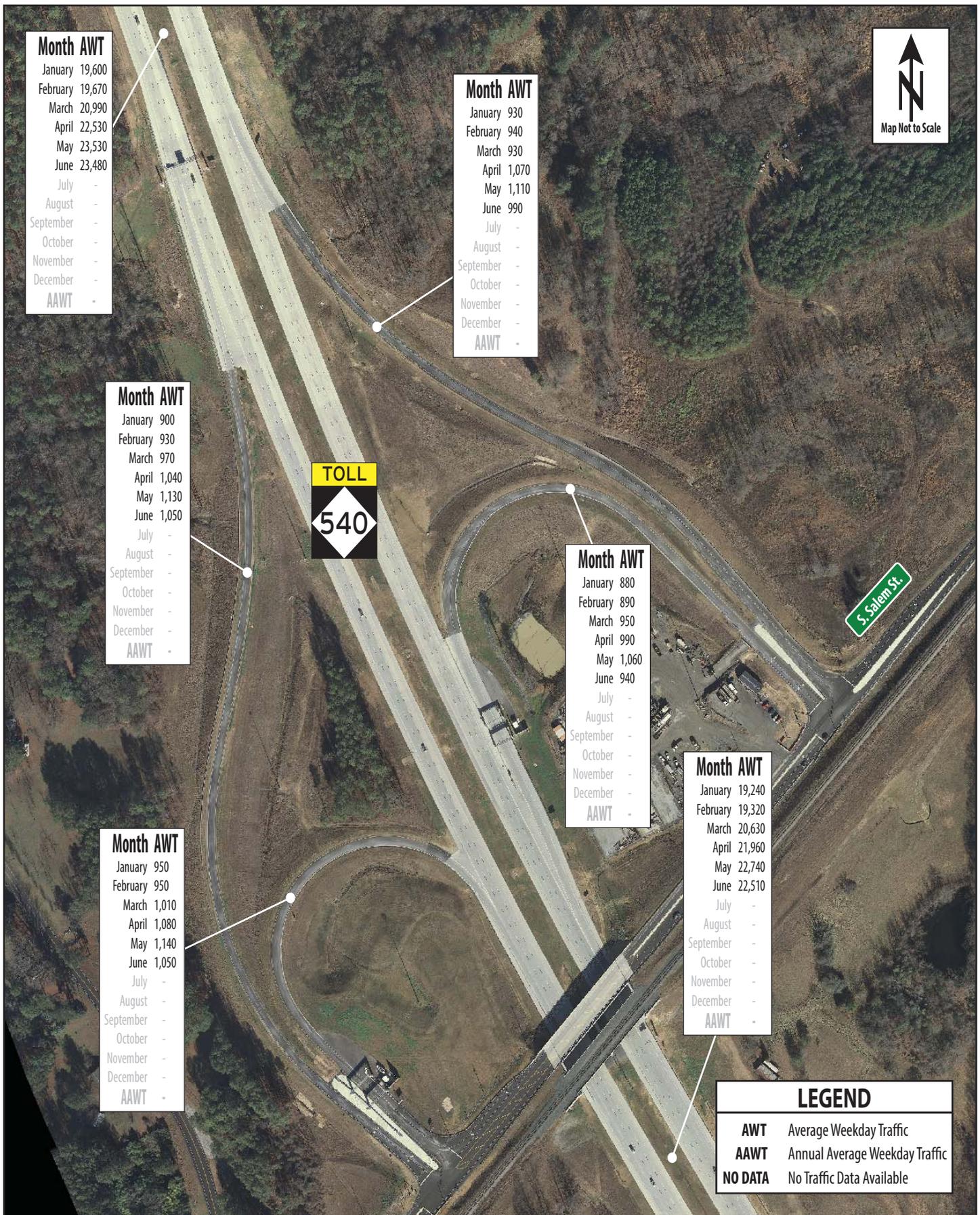
**NC-540 at Green Level West Rd. Interchange**  
2015 Average Weekday Traffic

**Figure 9**



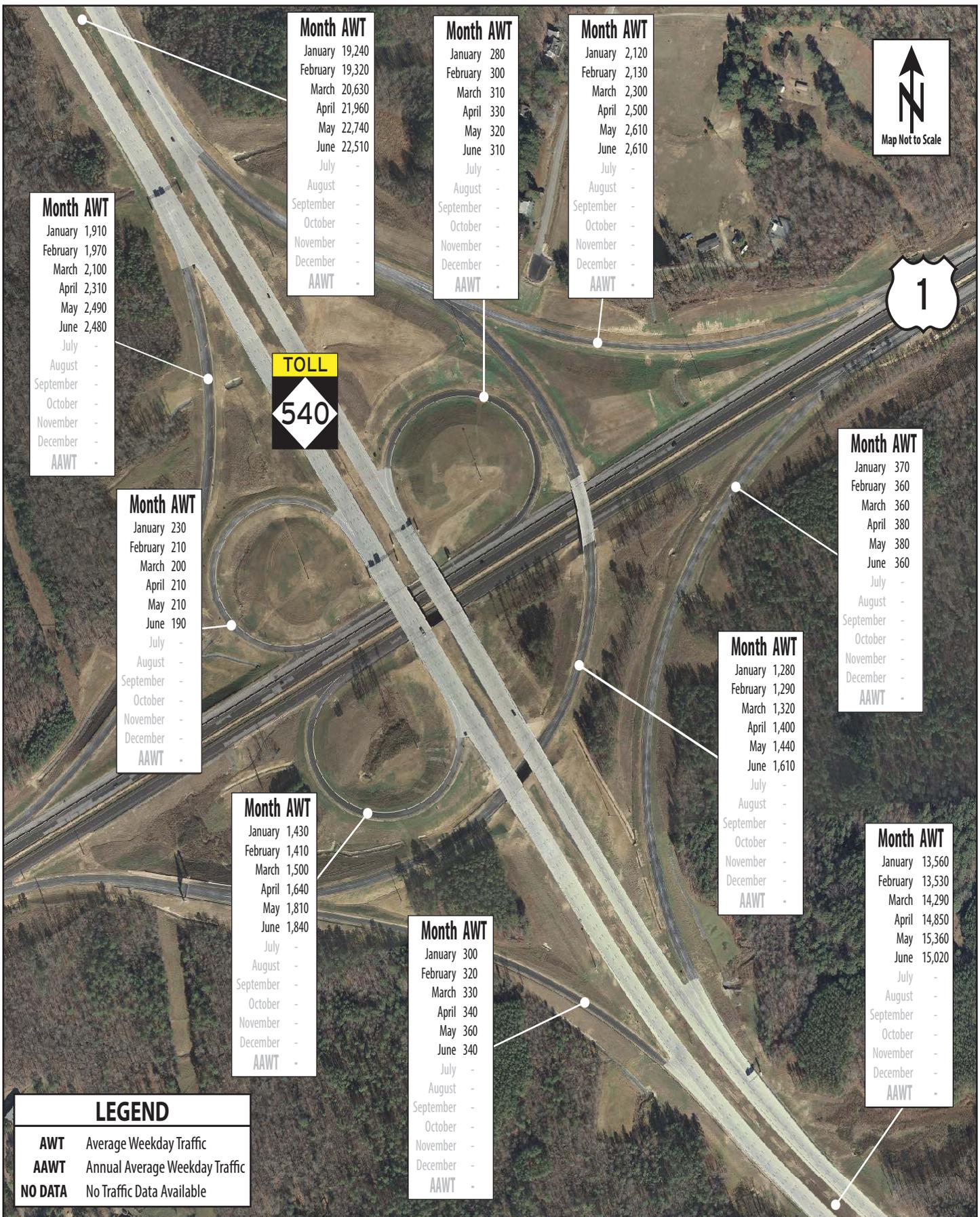
**NC-540 at US-64 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**10**



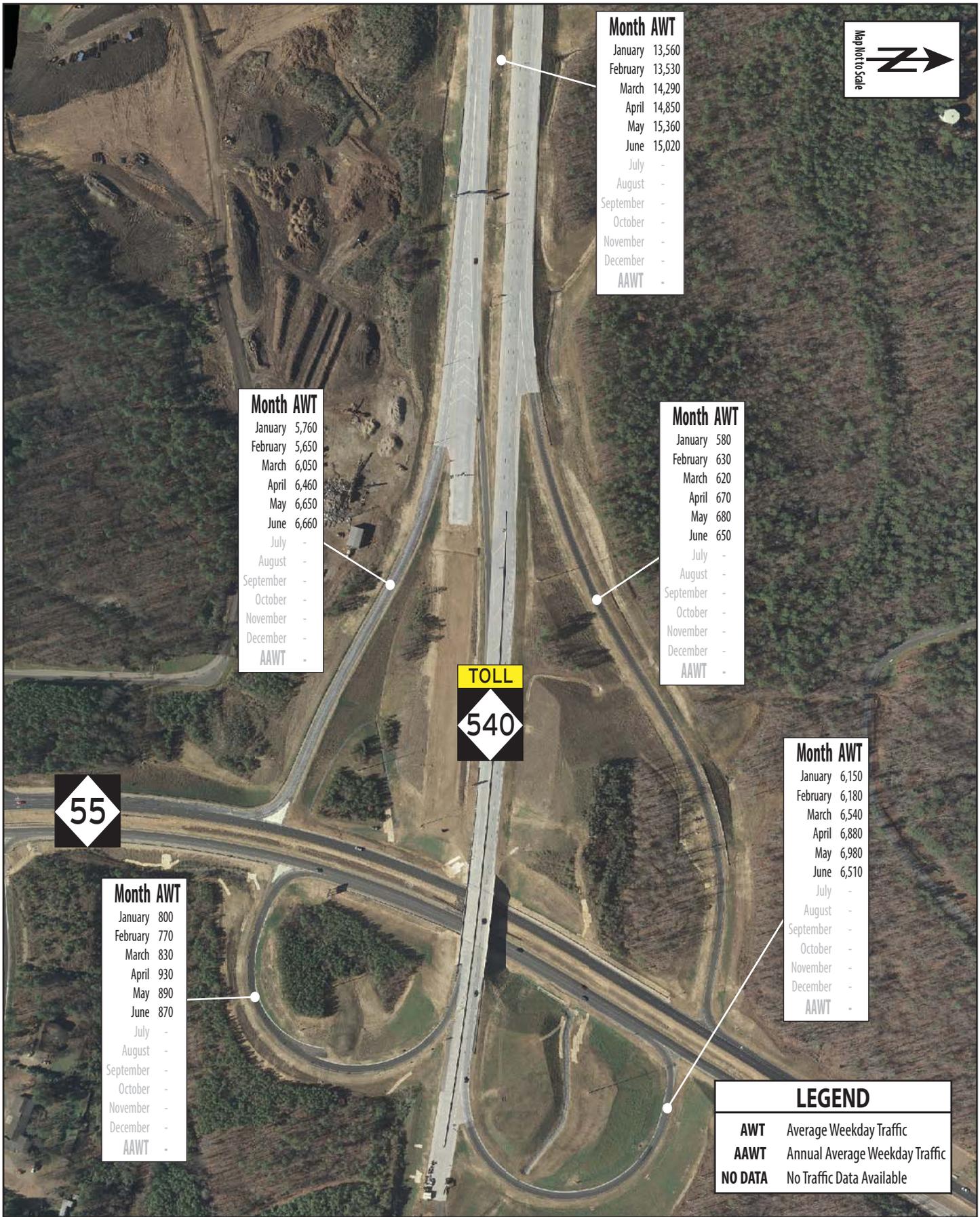
**NC-540 at S. Salem St. Interchange**  
2015 Average Weekday Traffic

**Figure**  
**11**



**NC-540 at US-1 Interchange**  
2015 Average Weekday Traffic

**Figure**  
**12**



**NC-540 at NC-55 Bypass Interchange**  
2015 Average Weekday Traffic

**Figure 13**

# Toll System Statistics

## TOLL SYSTEM STATISTICS

Current and historical toll system data is collected and reported through the NC Quick Pass Customer Service Center (CSC). The data provides an overview of the current toll operations on the facility and identifies any utilization trends. It also allows for comparison of historical and projected data. Transaction data is collected from the toll zones throughout the facility using an all-electronic tolling (AET) method. Toll gantries and the roadside toll vaults house the AET equipment.

### Weekly, Monthly and Year-to-Date (YTD) Statistics

The statistics provided in the following sections are representative of the entire Triangle Expressway facility. Weekly, monthly and year-to-date (YTD) statistics are presented in the following datasets:

- Transactions
- Classification
- Accounts
- Transponders

It should be noted that the percentages of total provided in this section might not sum to 100% due to rounding. In addition, weekly statistics are based on weeks starting Monday and ending Sunday.

**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

**Transactions**

This section presents the volume and percentage of North Carolina Quick Pass (NCQP) users compared to Bill by Mail users. NCQP users have an established account that is identified using the vehicle’s onboard transponder, whereas Bill by Mail users do not have an established account and are identified using vehicle recognition software.

Table 1 presents a summary of the total weekly transactions for NC Quick Pass and Bill by Mail users.

**Table 1: Transactions, Second Quarter by Week**

Week Ending	Transponder (NC Quick Pass)		Video (Bill by Mail)		Total
	Transactions	% of Total	Transactions	% of Total	
4/5/2015*	257,700	56%	198,974	44%	<b>456,674</b>
4/12/2015	426,140	58%	302,503	42%	<b>728,643</b>
4/19/2015	430,921	59%	303,021	41%	<b>733,942</b>
4/26/2015	434,824	58%	309,217	42%	<b>744,041</b>
5/3/2015	439,308	58%	319,784	42%	<b>759,092</b>
5/10/2015	440,287	57%	329,358	43%	<b>769,645</b>
5/17/2015	442,650	57%	328,132	43%	<b>770,782</b>
5/24/2015	429,008	57%	326,967	43%	<b>755,975</b>
5/31/2015**	391,664	56%	308,848	44%	<b>700,512</b>
6/7/2015	435,985	57%	322,593	43%	<b>758,578</b>
6/14/2015	436,299	56%	338,173	44%	<b>774,472</b>
6/21/2015	435,935	56%	342,560	44%	<b>778,495</b>
6/28/2015	432,420	56%	340,734	44%	<b>773,154</b>
6/30/2015***	141,206	58%	101,966	42%	<b>243,172</b>

\*Week ending consists of five days worth of data and includes Good Friday

\*\*Week ending includes Memorial Day

\*\*\* Week ending consists of two days worth of data

Table 2 presents a summary of the total monthly transactions for NC Quick Pass and Bill by Mail transactions.

**Table 2: Transactions, Second Quarter by Month**

Month	Transponder (NC Quick Pass)		Video (Bill by Mail)		Total
	Transactions	% of Total	Transactions	% of Total	
April	1,854,546	59%	1,310,930	41%	<b>3,165,476</b>
May	1,837,956	56%	1,415,874	44%	<b>3,253,830</b>
June	1,881,845	57%	1,446,026	43%	<b>3,327,871</b>

**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

Figure 14 presents the total monthly transactions and NC Quick Pass utilization during 2015.

**Figure 14: Transactions, YTD**

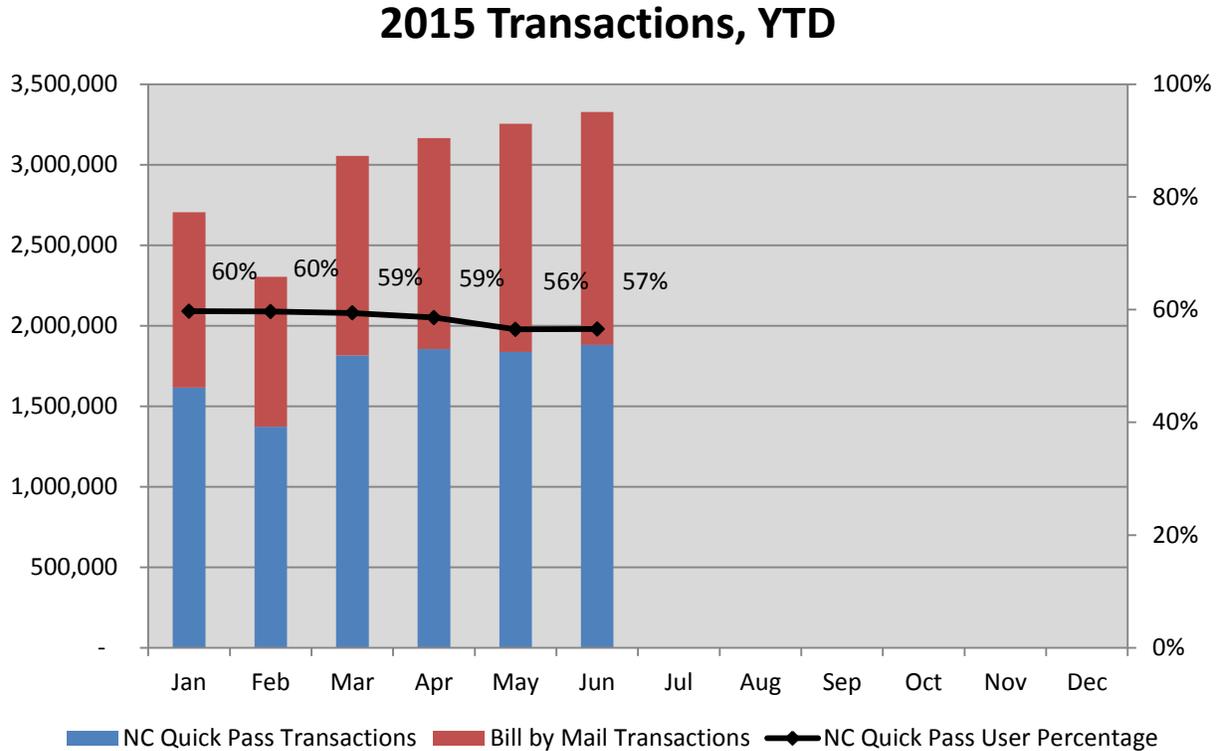


Table 3 presents a summary of the total NC Quick Pass and Bill by Mail transactions, by year. Project to date is the total number of transactions since opening the facility to toll traffic.

**Table 3: Transactions, by Year**

Year	Transponder (NC Quick Pass)		Video (Bill by Mail)		Total
	Transactions	% of Total	Transactions	% of Total	
2012	2,803,043	49%	2,892,496	51%	5,695,539
2013	13,249,972	58%	9,792,975	42%	23,042,947
2014	17,733,089	58%	12,802,237	42%	30,535,326
2015*	10,378,659	58%	7,431,990	42%	17,810,649
<b>Project to Date</b>	<b>44,164,763</b>	<b>57%</b>	<b>32,919,698</b>	<b>43%</b>	<b>77,084,461</b>

\*2015 transactions reported include six months of data (January - June).

**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

**Classification**

This section presents the volume and percentage of users based on classification. The classification system used by NCTA contains three classifications, determined by the vehicle’s number of axles.

Table 4 presents a summary of the total weekly transactions for Class 1 (2-axle), Class 2 (3-axle) and Class 3 (4+axle) vehicles.

**Table 4: Classification, Second Quarter by Week**

Week Ending	Class 1 (2-axle)		Class 2 (3-axle)		Class 3 (4+axle)	
	Transactions	% of Total	Transactions	% of Total	Transactions	% of Total
4/5/2015*	441,414	97%	5,610	1%	9,650	2%
4/12/2015	704,185	97%	8,169	1%	16,289	2%
4/19/2015	711,082	97%	7,858	1%	15,002	2%
4/26/2015	718,467	97%	8,868	1%	16,706	2%
5/3/2015	732,363	96%	9,454	1%	17,275	2%
5/10/2015	741,841	96%	9,524	1%	18,280	2%
5/17/2015	743,028	96%	9,735	1%	18,019	2%
5/24/2015	727,396	96%	9,941	1%	18,638	2%
5/31/2015**	674,833	96%	9,278	1%	16,401	2%
6/7/2015	732,857	97%	8,173	1%	17,548	2%
6/14/2015	745,965	96%	9,548	1%	18,959	2%
6/21/2015	750,885	96%	9,574	1%	18,036	2%
6/28/2015	744,306	96%	9,785	1%	19,063	2%
6/30/2015***	233,108	96%	3,307	1%	6,757	3%

\*Week ending consists of five days worth of data and includes Good Friday

\*\*Week ending includes Memorial Day

\*\*\* Week ending consists of two days worth of data

Table 5 presents a summary of the total monthly transactions by classification.

**Table 5: Classification, Second Quarter by Month**

Month	Class 1 (2-axle)		Class 2 (3-axle)		Class 3 (4+axle)	
	Transactions	% of Total	Transactions	% of Total	Transactions	% of Total
April	3,056,698	97%	37,685	1%	71,093	2%
May	3,137,911	96%	40,752	1%	75,167	2%
June	3,207,121	96%	40,387	1%	80,363	2%

**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

Figure 15 presents the total monthly percentage of transactions during 2015 for Class 1 (2-axle), Class 2 (3-axle) and Class 3 (4+axle) vehicles.

**Figure 15: Classification, Percentage YTD**

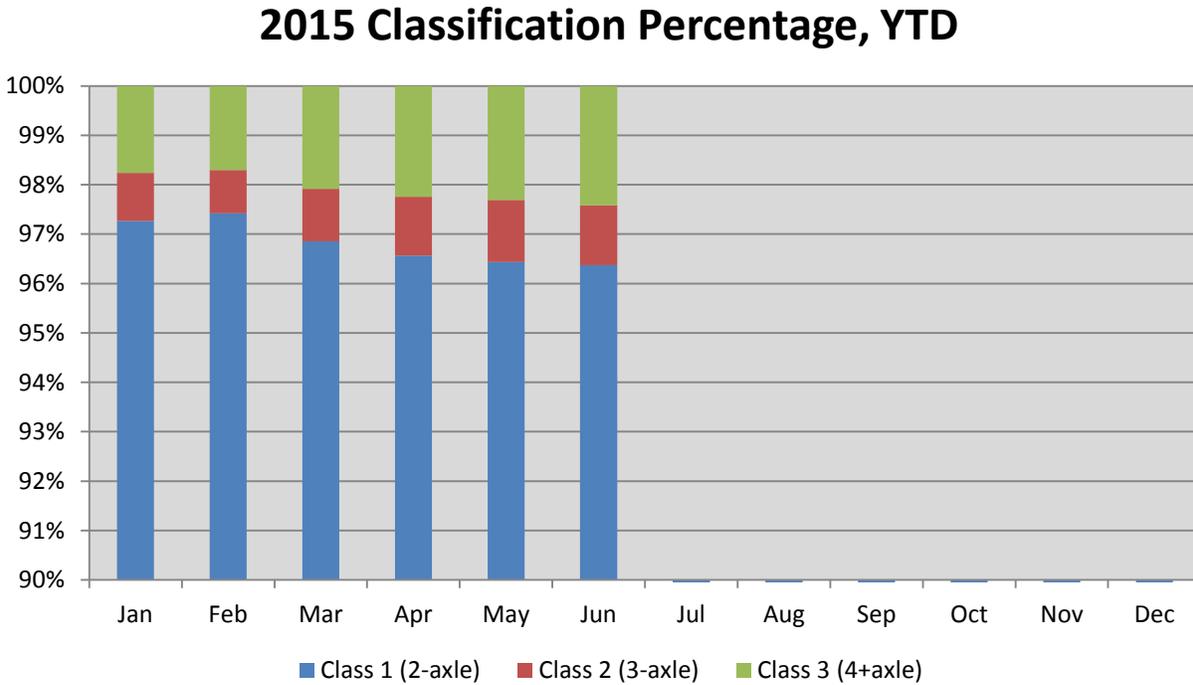


Table 6 presents a summary of the total transactions for Class 1 (2-axle), Class 2 (3-axle) and Class 3 (4+axle) vehicles, by year. Project to date is the total number of transactions since opening the facility to toll traffic.

**Table 6: Classification, by Year**

Year	Class 1 (2-axle)		Class 2 (3-axle)		Class 3 (4+axle)	
	Transactions	% of Total	Transactions	% of Total	Transactions	% of Total
2012	5,562,061	97%	46,935	1%	86,543	2%
2013	22,282,351	97%	267,558	1%	493,038	2%
2014	29,530,077	97%	355,721	1%	649,528	2%
2015*	17,235,870	97%	197,653	1%	377,126	2%
<b>Project to Date</b>	<b>74,610,359</b>	<b>97%</b>	<b>867,867</b>	<b>1%</b>	<b>1,606,235</b>	<b>2%</b>

\*2015 classification reported includes six months of data (January -June).

## Operations Statistics Report for the Triangle Expressway

Second Quarter, April – June 2015

### Accounts

The statistics provided in this section outline the volume of accounts established and managed by the NCTA CSC.

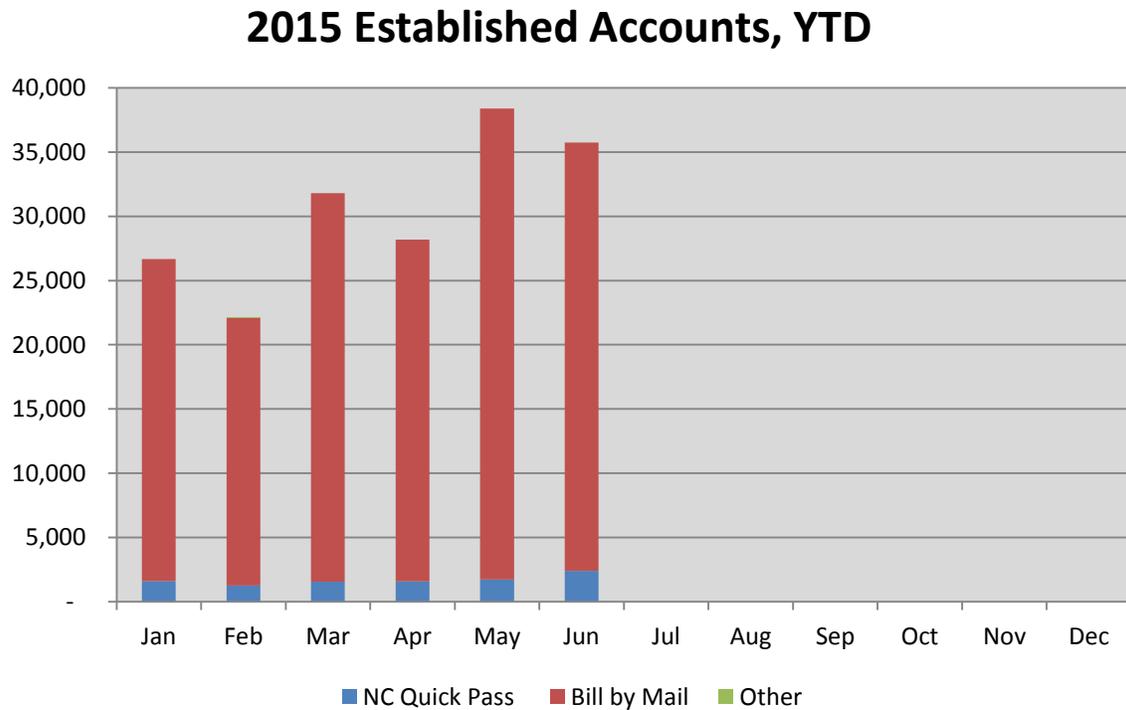
Table 7 presents a summary of the monthly established accounts being managed by the NCTA CSC. Numbers presented in parentheses represent a reduction in accounts.

**Table 7: Established Accounts, Second Quarter by Month**

Month	NC Quick Pass	Bill by Mail	Registered Video	Non-Revenue	Government	Total
April	1,594	26,580	0	0	0	<b>28,174</b>
May	1,726	36,675	0	0	0	<b>38,401</b>
June	2,394	33,339	0	0	0	<b>35,733</b>

Figure 16 presents the monthly established accounts managed by the NCTA CSC during 2015. The “Other” category includes registered video, non-revenue and government accounts.

**Figure 16: Established Accounts, YTD**



**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

Table 8 presents a summary of the total established accounts managed by the NCTA CSC, by year. Project to date is the total number of accounts established since project opening. Numbers presented in parentheses represent a reduction in accounts.

**Table 8: Established Accounts, by Year**

Year	NC Quick Pass	Bill by Mail	Registered Video	Non-Revenue	Government	Total
2012	27,179	359,431	5	38	18	386,610
2013	24,268	306,581	(1)	19	9	330,849
2014	18,652	342,476	2	13	3	361,128
2015*	10,162	172,764	0	2	0	182,926
<b>Project to Date</b>	<b>80,261</b>	<b>1,181,252</b>	<b>6</b>	<b>72</b>	<b>30</b>	<b>1,261,513</b>

\*2015 established accounts reported include six months of data (January - June).

**Transponders**

This section presents the volume of transponders sold.

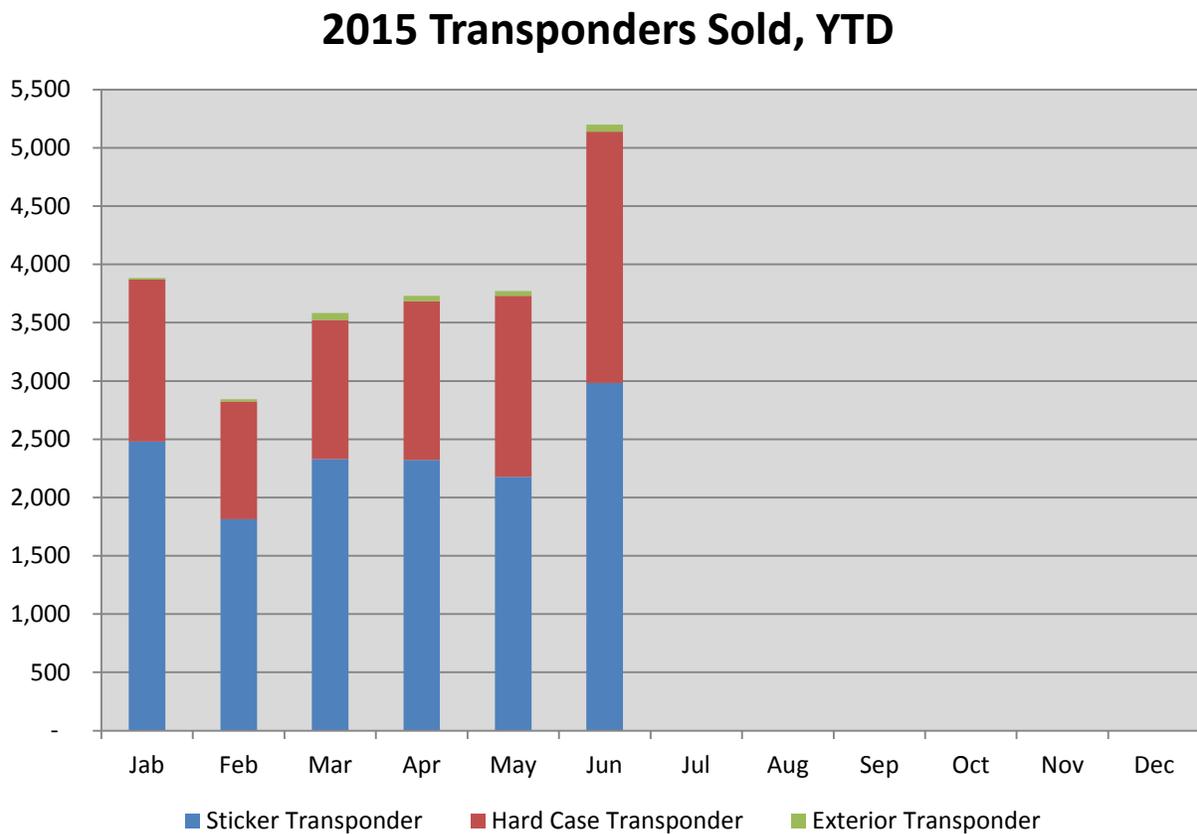
Table 9 presents a summary of the total transponders sold, by month.

**Table 9: Transponders Sold, Second Quarter by Month**

Month	Sticker Tag	Hard Case Tag	Exterior Tag	Total
April	2,321	1,364	46	<b>3,731</b>
May	2,178	1,551	41	<b>3,770</b>
June	2,983	2,155	62	<b>5,200</b>

Figure 17 presents monthly transponders sold during 2015.

**Figure 17: Transponders Sold, YTD**



**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

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*Table 10* presents a summary of the total transponders sold, by year. Transponders went on sale prior to the opening of the roadway to provide potential motorists sufficient time to establish their accounts. Project to date is the total number of transponders sold to date.

**Table 10: Transponders Sold, by Year**

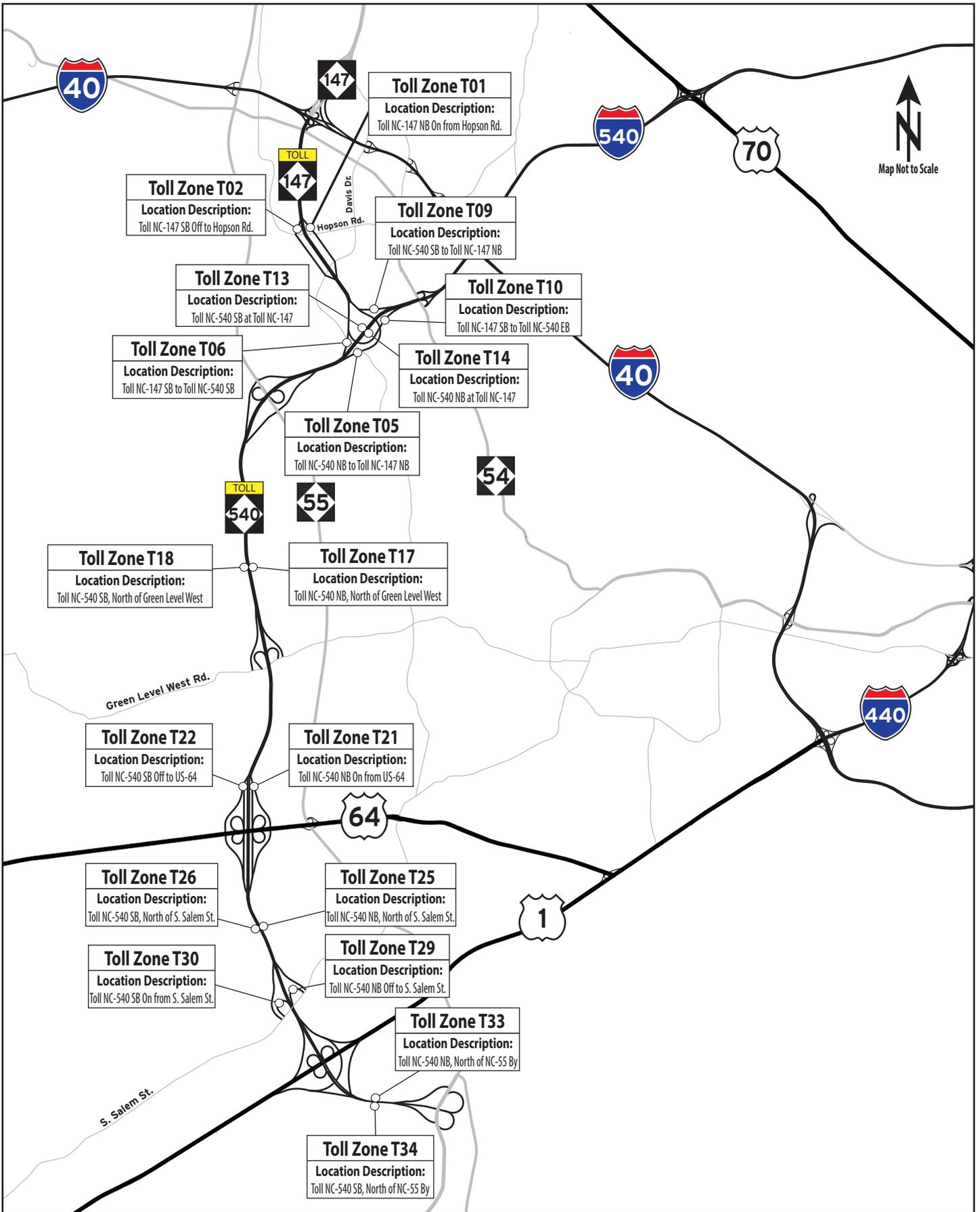
<b>Year</b>	<b>Sticker Tag</b>	<b>Hard Case Tag</b>	<b>Exterior Tag</b>	<b>Total</b>
2011	7,315	2,806	200	10,321
2012	35,338	6,861	250	42,449
2013	34,784	13,980	257	49,021
2014	26,066	14,778	221	41,065
2015*	14,106	8,661	242	23,009
<b>Project to Date</b>	<b>117,609</b>	<b>47,086</b>	<b>1,170</b>	<b>165,865</b>

\*2015 transponders sale reported include six months of data (January - June).

# Toll Zone Statistics

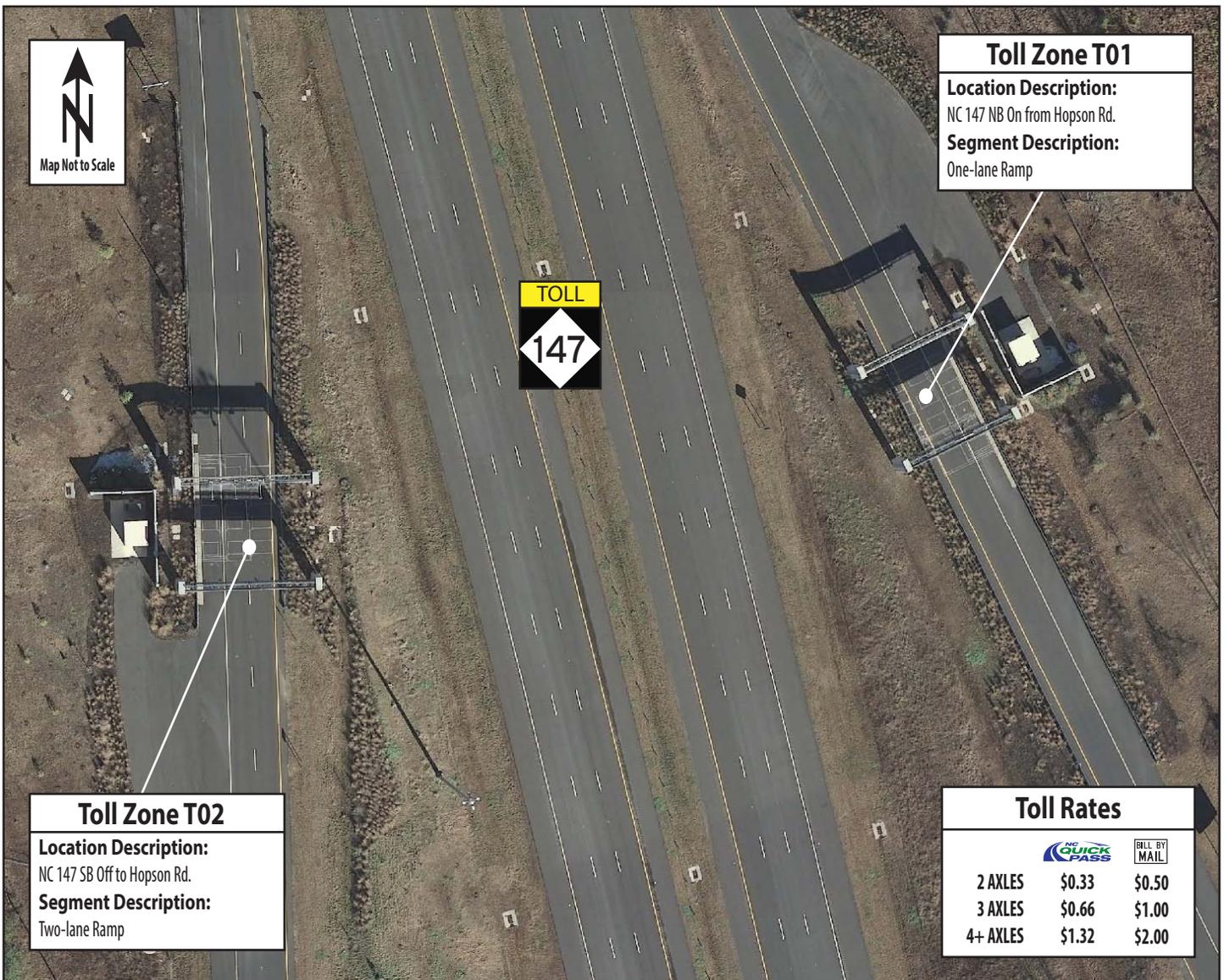
## TOLL ZONE STATISTICS

The location of the toll zones along the Triangle Expressway can be seen in *Figure 18*. *Figures 19 - 27* contain visual representations of average weekday transactions recorded at toll zones along the facility.



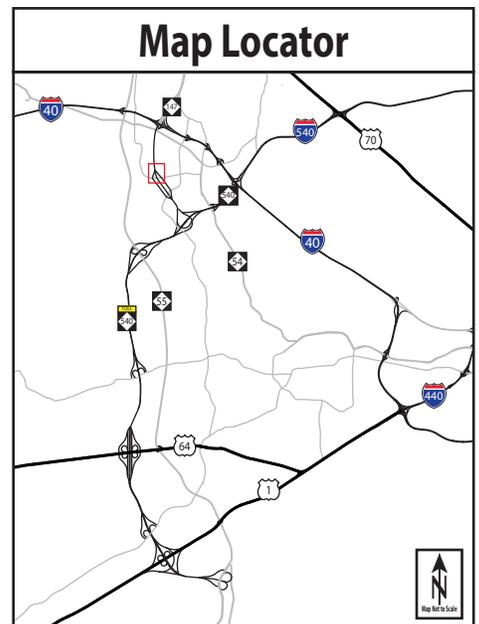
**Triangle Expressway Toll Zone Map**

**Figure 18**



Month	T01	T02
January	2,010	1,850
February	2,060	1,920
March	2,190	2,000
April	2,260	2,070
May	2,300	2,100
June	2,360	2,090
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

Month	T01	T02
January	61%	62%
February	61%	61%
March	60%	60%
April	60%	59%
May	58%	58%
June	57%	58%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**Hopson Road Ramp Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 19**



**Toll Zone T06**  
**Location Description:**  
 NC 540 SB On from NC 147 SB  
**Segment Description:**  
 Two-lane Ramp

**Toll Zone T05**  
**Location Description:**  
 NC 147 NB On from NC 540 NB  
**Segment Description:**  
 Two-lane Ramp

**Toll Rates**

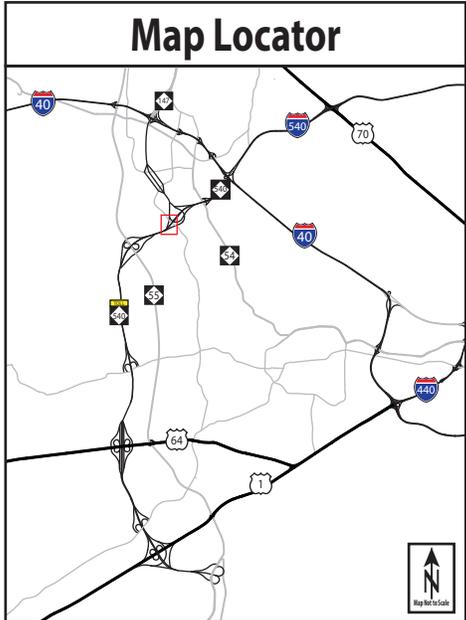
	QUICK PASS	BILL BY MAIL
2 AXLES	\$0.90	\$1.38
3 AXLES	\$1.80	\$2.76
4+ AXLES	\$3.60	\$5.52

**Transactions by Direction**

Month	T05	T06
January	5,250	5,140
February	5,480	5,220
March	5,720	5,470
April	6,090	5,850
May	6,230	5,990
June	6,270	6,050
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

**NC Quick Pass Percentage**

Month	T05	T06
January	64%	65%
February	64%	65%
March	63%	64%
April	62%	63%
May	60%	61%
June	59%	60%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-147 South Ramp Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 20**



**Toll Zone T14**  
**Location Description:**  
 NC 540 SB Mainline at NC 147  
**Segment Description:**  
 Three-lane Mainline

**Toll Zone T13**  
**Location Description:**  
 NC 540 NB Mainline at NC 147  
**Segment Description:**  
 Three-lane Mainline

**Toll Rates**

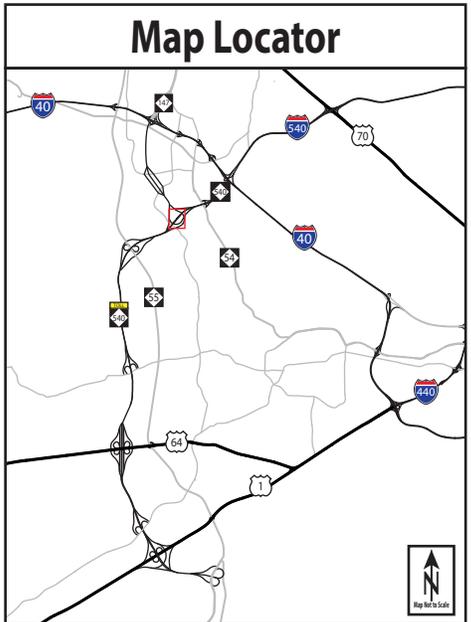
2 AXLES	\$0.58	\$0.88
3 AXLES	\$1.16	\$1.76
4+ AXLES	\$2.32	\$3.52

**Transactions by Direction**

Month	T13	T14
January	11,740	11,780
February	11,860	12,070
March	12,740	12,920
April	13,420	13,520
May	13,940	14,030
June	13,910	13,980
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

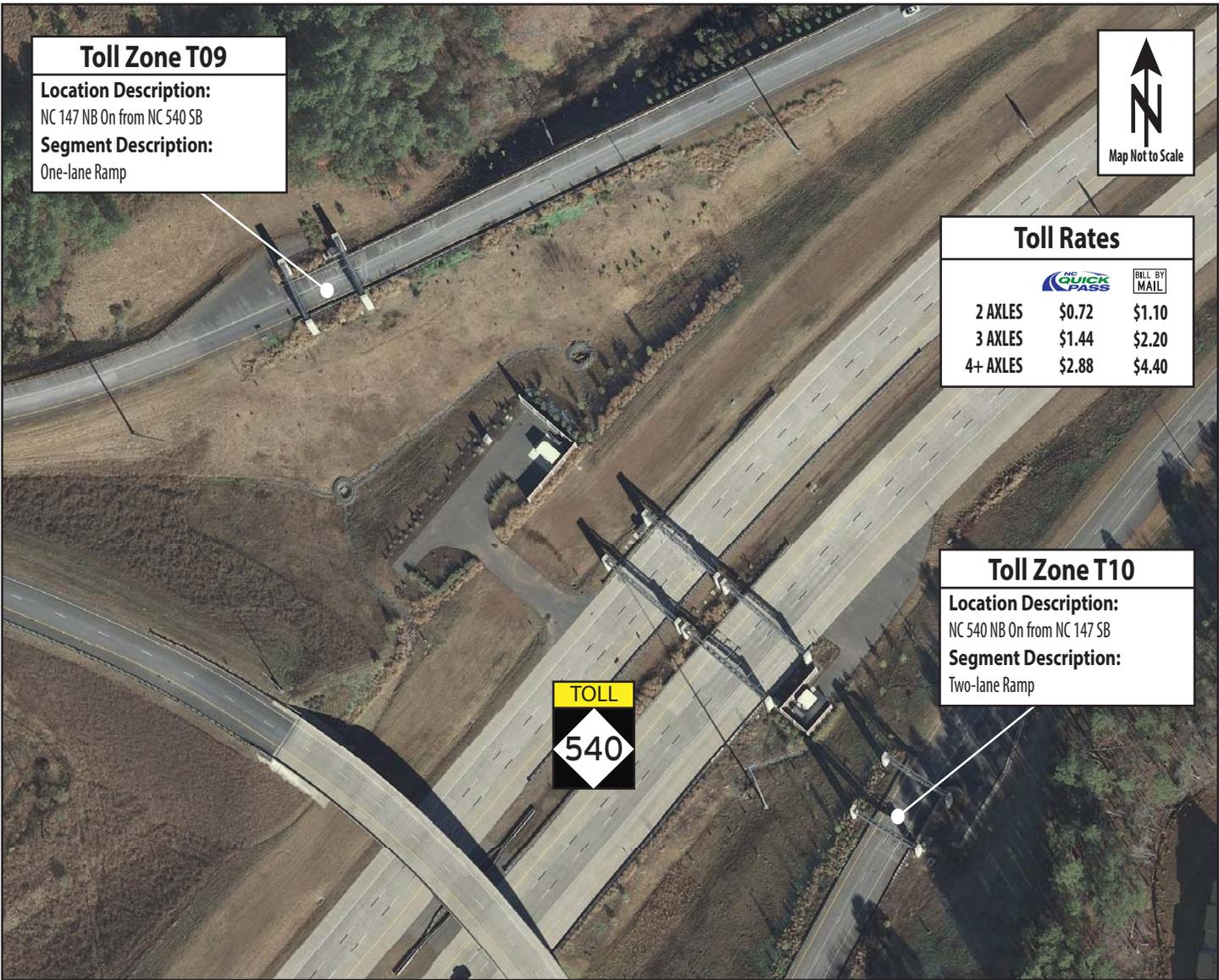
**NC Quick Pass Percentage**

Month	T13	T14
January	61%	61%
February	61%	62%
March	60%	61%
April	60%	60%
May	58%	59%
June	58%	58%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-540 Morrisville Mainline Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 21**



**Toll Zone T09**  
**Location Description:**  
 NC 147 NB On from NC 540 SB  
**Segment Description:**  
 One-lane Ramp



**Toll Rates**

	THE QUICK PASS	BILL BY MAIL
2 AXLES	\$0.72	\$1.10
3 AXLES	\$1.44	\$2.20
4+ AXLES	\$2.88	\$4.40

**Toll Zone T10**  
**Location Description:**  
 NC 540 NB On from NC 147 SB  
**Segment Description:**  
 Two-lane Ramp

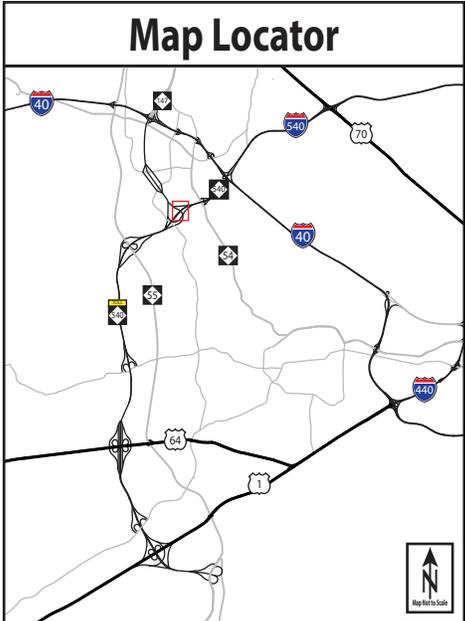


**Transactions by Direction**

Month	T09	T10
January	1,460	1,750
February	1,490	1,700
March	1,570	1,890
April	1,630	2,140
May	1,780	2,170
June	1,850	2,450
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

**NC Quick Pass Percentage**

Month	T09	T10
January	60%	61%
February	59%	61%
March	59%	59%
April	58%	56%
May	54%	56%
June	56%	54%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-147 North Ramp Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 22**



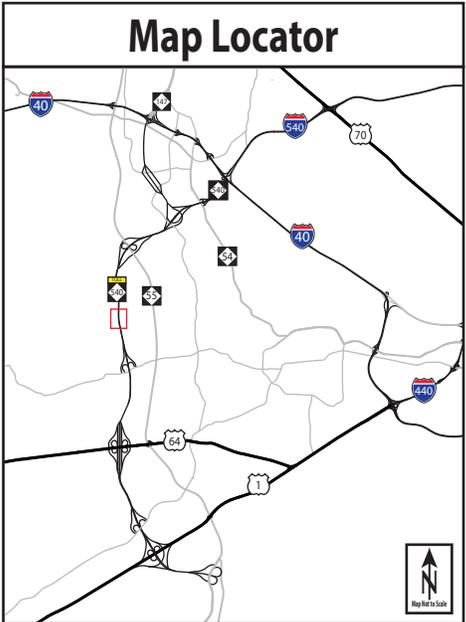
**Toll Zone T18**  
**Location Description:**  
 NC 540 SB, North of Green Level West  
**Segment Description:**  
 Three-lane Mainline

**Toll Zone T17**  
**Location Description:**  
 NC 540 NB, North of Green Level West  
**Segment Description:**  
 Three-lane Mainline

Toll Rates		
2 AXLES	\$0.72	\$1.10
3 AXLES	\$1.44	\$2.20
4+ AXLES	\$2.88	\$4.40

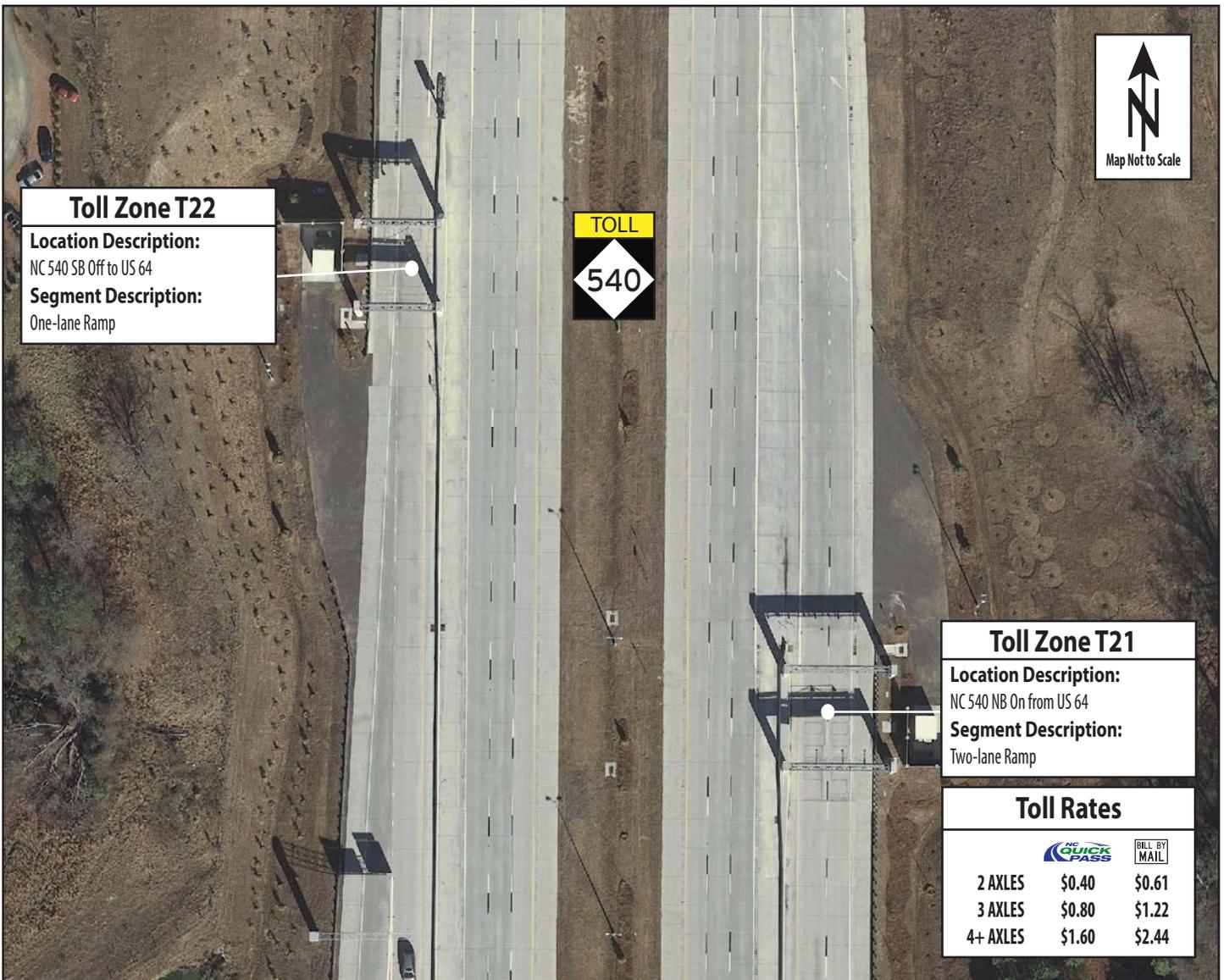
Transactions by Direction		
Month	T17	T18
January	11,630	12,040
February	11,990	12,210
March	12,700	13,040
April	13,490	13,970
May	13,990	14,500
June	14,110	14,660
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

NC Quick Pass Percentage		
Month	T17	T18
January	62%	62%
February	62%	62%
March	61%	62%
April	60%	60%
May	59%	58%
June	58%	58%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-540 Cary Mainline Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 23**



**Toll Zone T22**  
**Location Description:**  
 NC 540 SB Off to US 64  
**Segment Description:**  
 One-lane Ramp



**Toll Zone T21**  
**Location Description:**  
 NC 540 NB On from US 64  
**Segment Description:**  
 Two-lane Ramp

**Toll Rates**

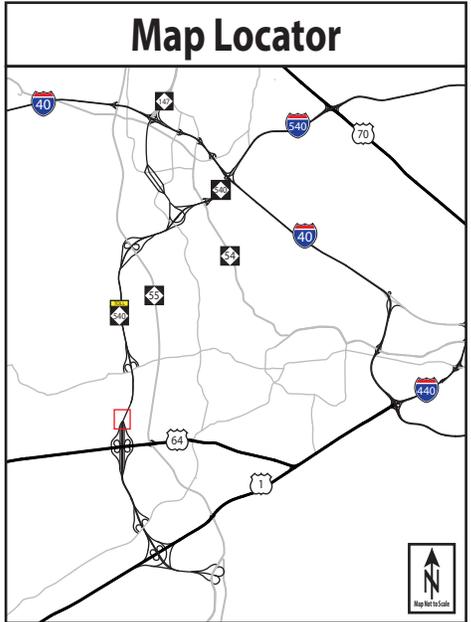
2 AXLES	\$0.40	\$0.61
3 AXLES	\$0.80	\$1.22
4+ AXLES	\$1.60	\$2.44

**Transactions by Direction**

Month	T21	T22
January	3,590	3,790
February	3,720	3,850
March	4,010	4,140
April	4,280	4,450
May	4,490	4,680
June	4,530	4,690
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

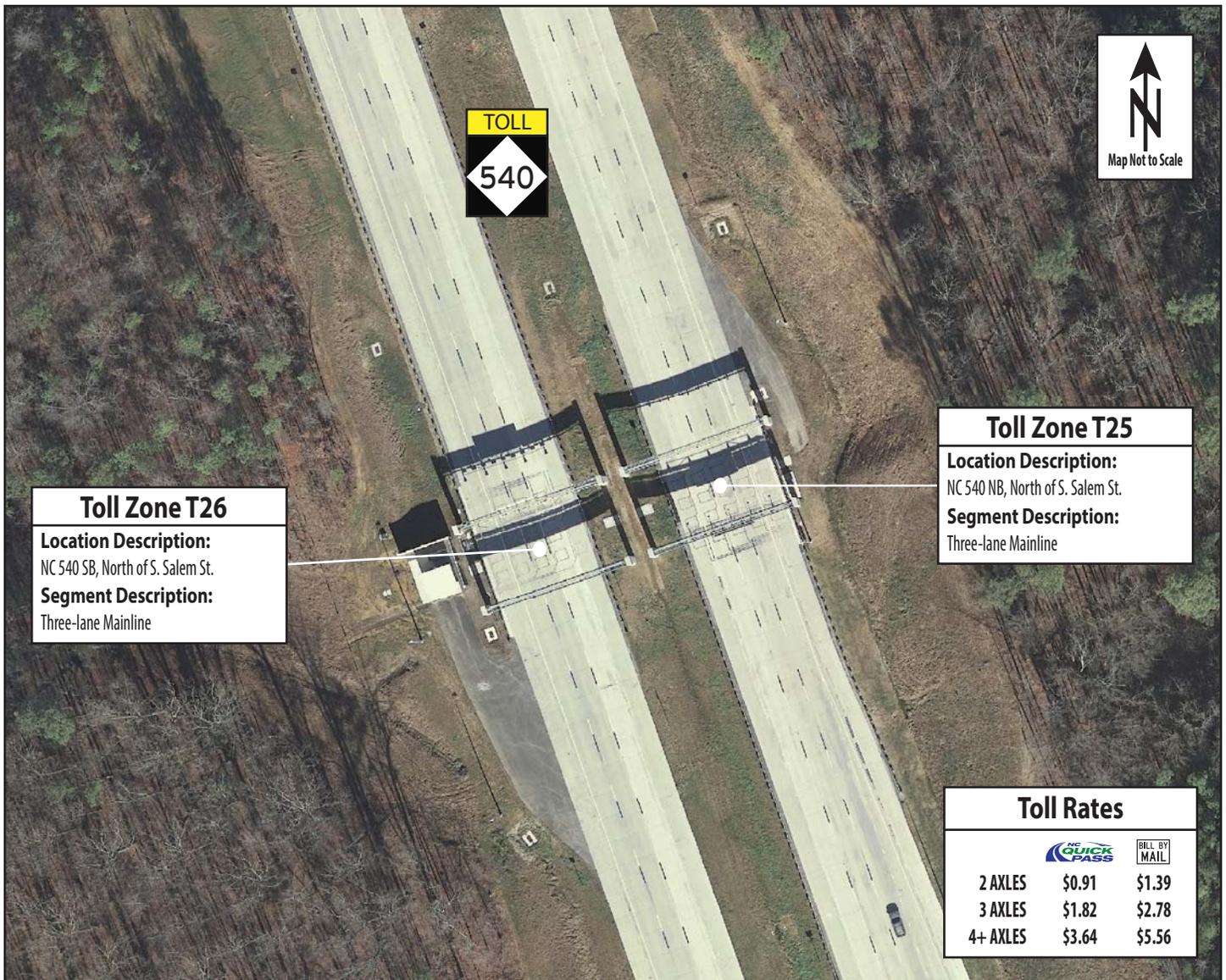
**NC Quick Pass Percentage**

Month	T21	T22
January	62%	63%
February	62%	62%
March	61%	61%
April	60%	62%
May	59%	60%
June	58%	59%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



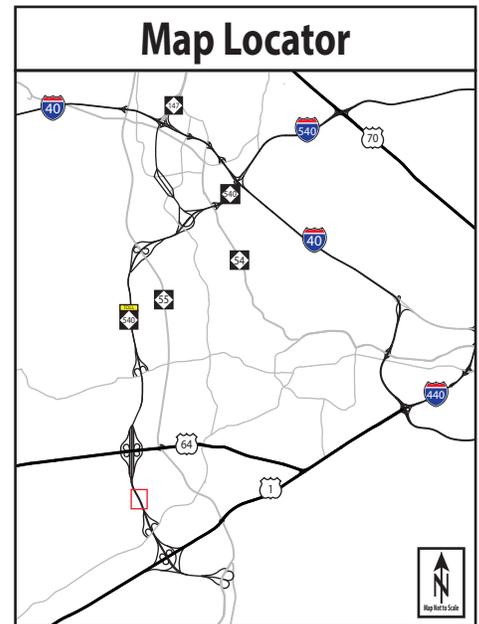
**US-64 Ramp Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 24**



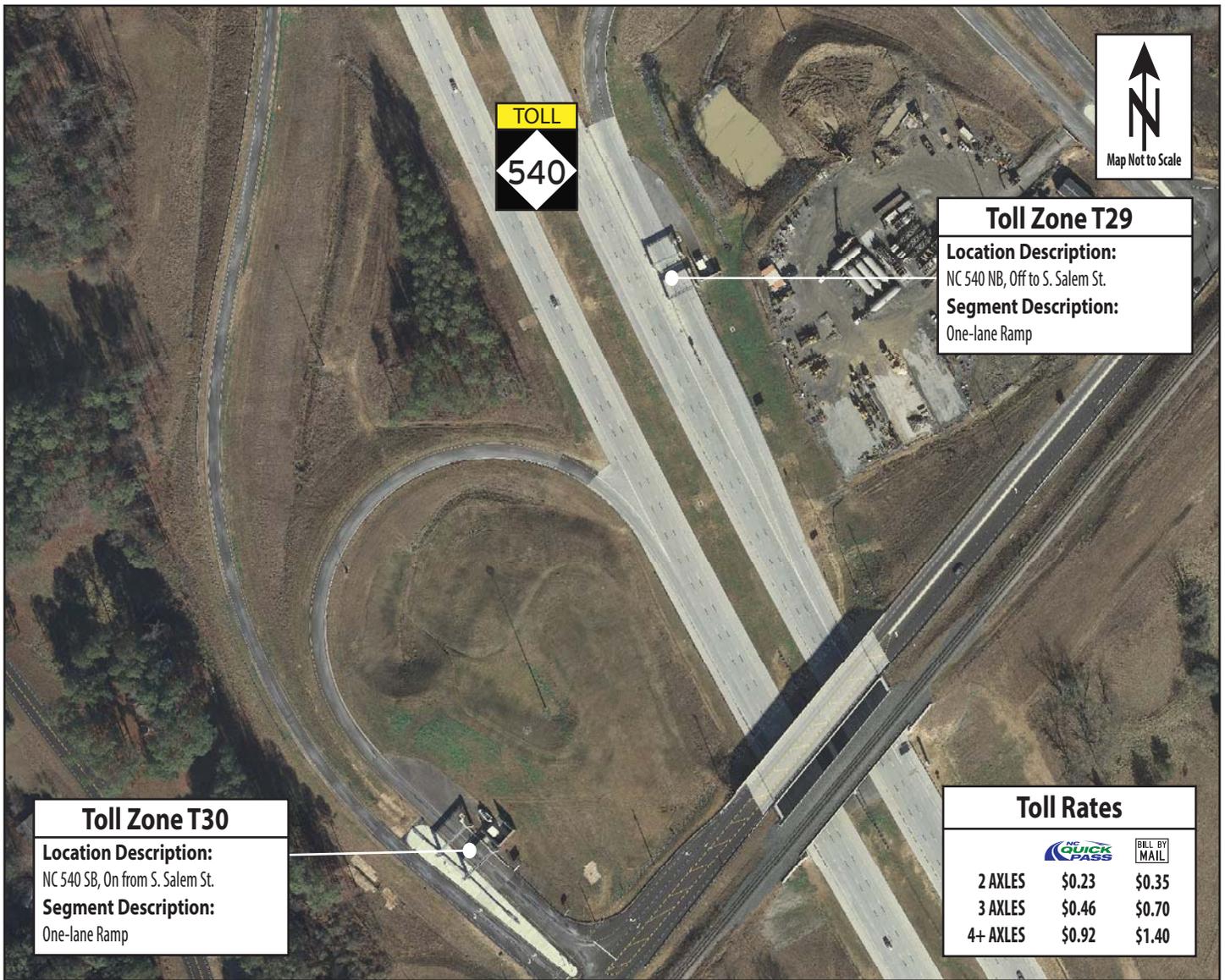
Transactions by Direction		
Month	T25	T26
January	9,500	9,340
February	9,760	9,460
March	10,370	10,160
April	11,090	11,020
May	11,580	11,480
June	11,520	11,470
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

NC Quick Pass Percentage		
Month	T25	T26
January	60%	61%
February	60%	60%
March	60%	60%
April	59%	59%
May	57%	57%
June	57%	57%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-540 Apex Mainline Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 25**



**Toll Zone T29**  
**Location Description:**  
 NC 540 NB, Off to S. Salem St.  
**Segment Description:**  
 One-lane Ramp

**Toll Zone T30**  
**Location Description:**  
 NC 540 SB, On from S. Salem St.  
**Segment Description:**  
 One-lane Ramp

**Toll Rates**

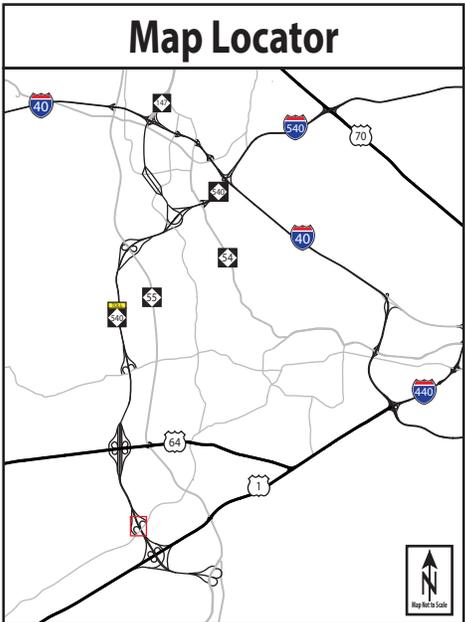
2 AXLES	\$0.23	\$0.35
3 AXLES	\$0.46	\$0.70
4+ AXLES	\$0.92	\$1.40

**Transactions by Direction**

Month	T29	T30
January	880	930
February	900	950
March	950	1,010
April	1,000	1,080
May	1,070	1,140
June	950	1,060
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

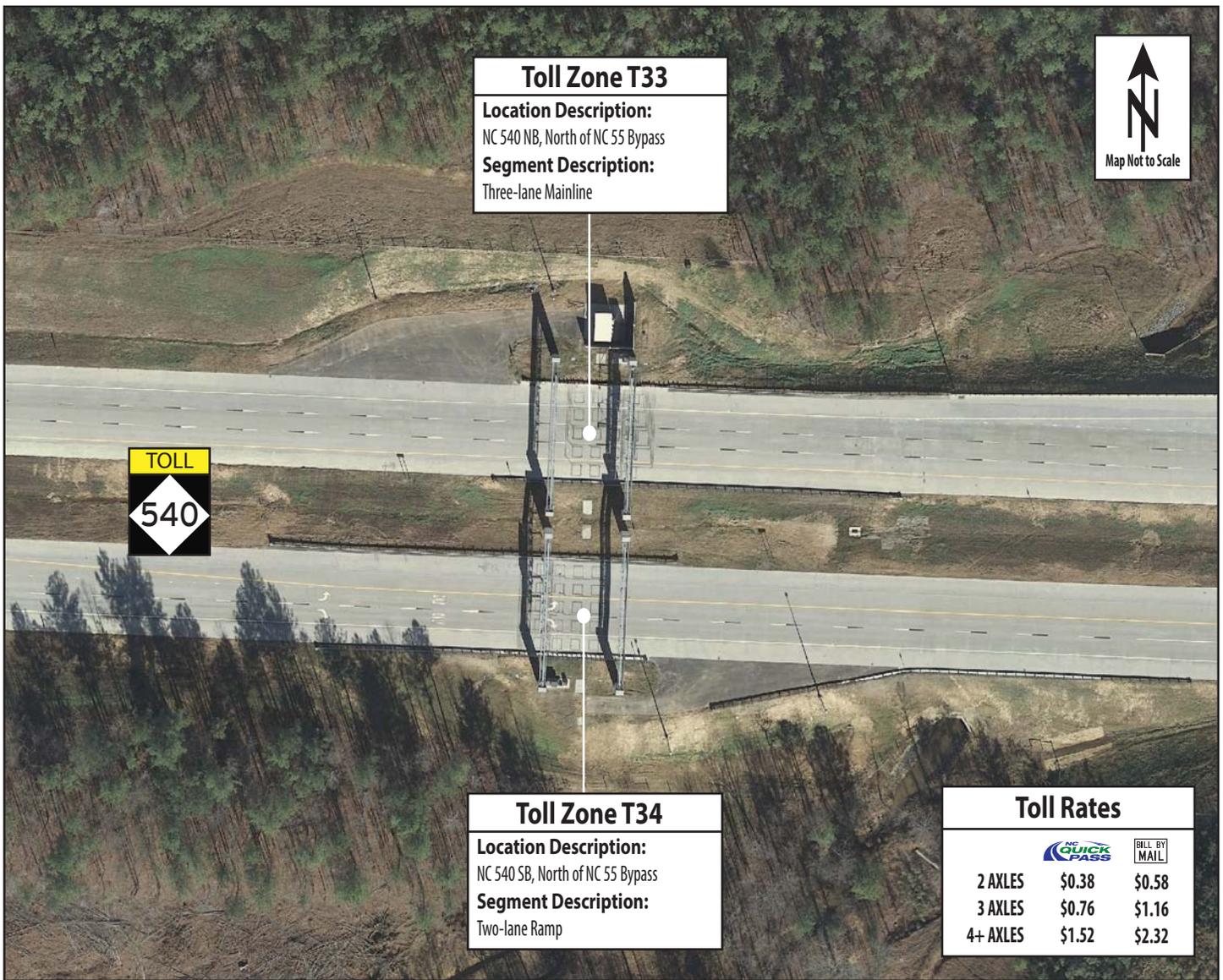
**NC Quick Pass Percentage**

Month	T29	T30
January	70%	72%
February	70%	72%
March	65%	71%
April	68%	70%
May	67%	69%
June	62%	67%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**South Salem Street Ramp Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 26**



**Toll Zone T33**  
**Location Description:**  
 NC 540 NB, North of NC 55 Bypass  
**Segment Description:**  
 Three-lane Mainline

**Toll Zone T34**  
**Location Description:**  
 NC 540 SB, North of NC 55 Bypass  
**Segment Description:**  
 Two-lane Ramp

**Toll Rates**

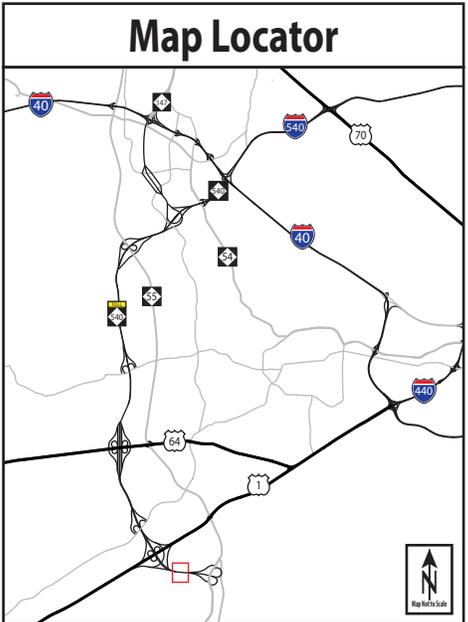
		BILL BY MAIL
2 AXLES	\$0.38	\$0.58
3 AXLES	\$0.76	\$1.16
4+ AXLES	\$1.52	\$2.32

**Transactions by Direction**

Month	T33	T34
January	6,710	6,490
February	6,910	6,500
March	7,280	6,940
April	7,670	7,440
May	7,900	7,600
June	7,800	7,580
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-

**NC Quick Pass Percentage**

Month	T33	T34
January	64%	63%
February	64%	63%
March	64%	63%
April	63%	62%
May	62%	61%
June	61%	60%
July	-	-
August	-	-
September	-	-
October	-	-
November	-	-
December	-	-



**NC-540 Holly Springs Mainline Toll Zones**  
 2015 Average Weekday Toll Transactions

**Figure 27**

# Roadway Operations Statistics

## ROADWAY OPERATIONS STATISTICS

Operations statistics are collected by State Highway Patrol (SHP) and Incident Management Assistance Patrol (IMAP) for the NCTA Toll Safety Patrol program. This program provides one Highway Patrol officer and one IMAP responder to the facility during working hours, Monday through Friday. This section also presents response times and traffic information for incidents that occurred during the second quarter of 2015.

The NCTA manages traffic and activities along the Triangle Expressway at the state-of-the-art Traffic Management Center located in the North Carolina National Guard's Joint Force Headquarters in Raleigh.

Highly trained operators monitor the entire length of the Triangle Expressway via closed-circuit TV, microwave speed detectors and interoperable 800MHz radio dispatch from local 911 and statewide Highway Patrol communications, as well as the Turnpike Authority's security cameras and Roadway Weather Information System.

More than 200 cameras are located along the Expressway to monitor traffic operations, ensure security of the toll gantries and capture license plate images used for toll collection operations. Operators monitor the roadside technology and toll facilities, and are able to quickly dispatch maintenance personnel to address any equipment issues or roadway traffic incidents.

Roadway updates are provided to motorists via 10 full-color Dynamic Message Boards (the first full-color message boards in the state), as well as through NCDOT's 511 system and Traveler Information Management System (TIMS) website.

SHP and IMAP personal can be dispatched to respond to any incidents that occur, ranging from disabled motorists and debris to major traffic wrecks that could be detrimental to both motorist safety and toll collection.

**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

Table 11 and Table 12 present State Highway Patrol operating statistics during 2015. “Chargeable Activities” are those SHP activities involving fines.

**Table 11: SHP Chargeable Activities**

Chargeable Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Speed Violations	51	22	56	33	51	79							<b>292</b>
Alcohol Violations	0	0	0	0	0	0							<b>0</b>
Seat Belt Violations	8	1	9	11	11	12							<b>52</b>
Child Restraint Violations	0	0	0	0	1	0							<b>1</b>
Other Violations	35	27	41	31	40	50							<b>224</b>
<b>Total Charges</b>	<b>94</b>	<b>50</b>	<b>106</b>	<b>75</b>	<b>103</b>	<b>141</b>							<b>569</b>

**Table 12: SHP Non-Chargeable Activities**

Non-Chargeable Activities	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Warnings	72	81	61	55	53	66							<b>388</b>
Vehicles Towed	0	0	0	0	0	0							<b>0</b>
Crashes Investigated	3	0	4	5	3	3							<b>18</b>
<b>Total</b>	<b>75</b>	<b>81</b>	<b>65</b>	<b>60</b>	<b>56</b>	<b>69</b>							<b>406</b>

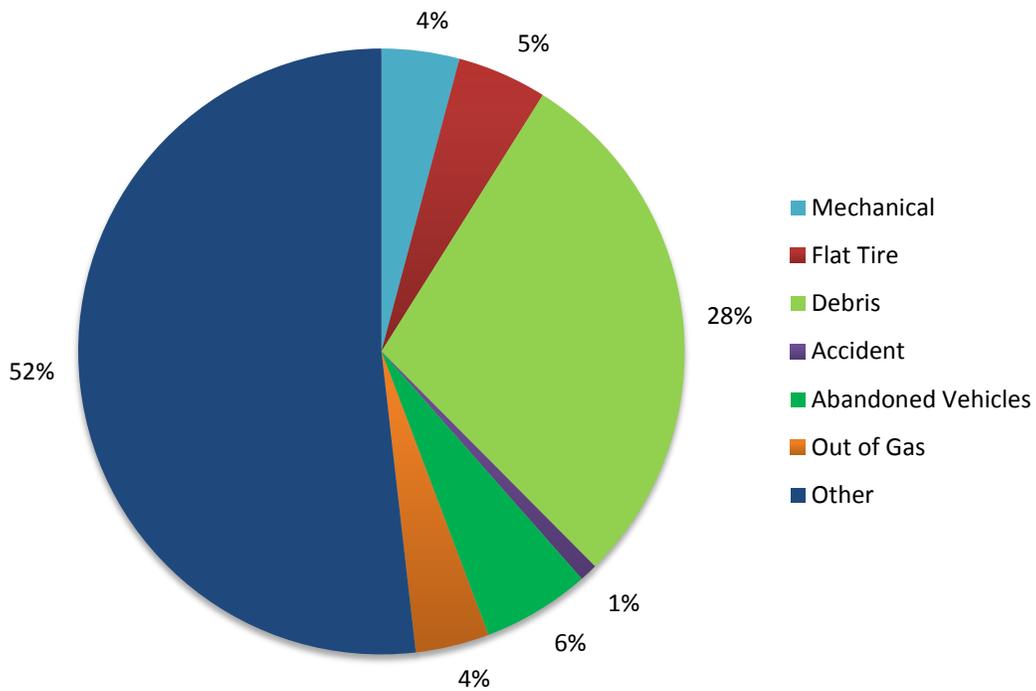
The IMAP assists with stranded motorists and incident clearance, thereby maintaining the flow of traffic along the roadway. Table 13 and Figure 28 present the monthly breakdown of IMAP assists, by type, for the Triangle Expressway during 2015. The “other” category includes the reporting categories of traffic control, unable to locate, welfare check, assist other unit, secured load, called for assistance, directions, transported motorist, and no assistance. It should be noted that welfare check data is only included in the “other” category for the months of April, May and June.

Table 13: IMAP Assistance

Assist Type	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Mechanical	3	5	9	7	8	7							39
Flat Tire	5	4	7	9	7	13							45
Debris	32	39	65	57	35	41							269
Accident	0	3	4	1	1	0							9
Abandoned Vehicles	4	8	15	11	4	12							54
Out of Gas	7	4	4	8	5	9							37
Other	82	67	37	130	114	57							487
<b>Total Assist</b>	<b>133</b>	<b>130</b>	<b>141</b>	<b>223</b>	<b>174</b>	<b>139</b>							<b>940</b>

Figure 28: 2015 YTD IMAP Assistance

### 2015 YTD IMAP Assistance by Type



**Operations Statistics Report for the Triangle Expressway**

**Second Quarter, April – June 2015**

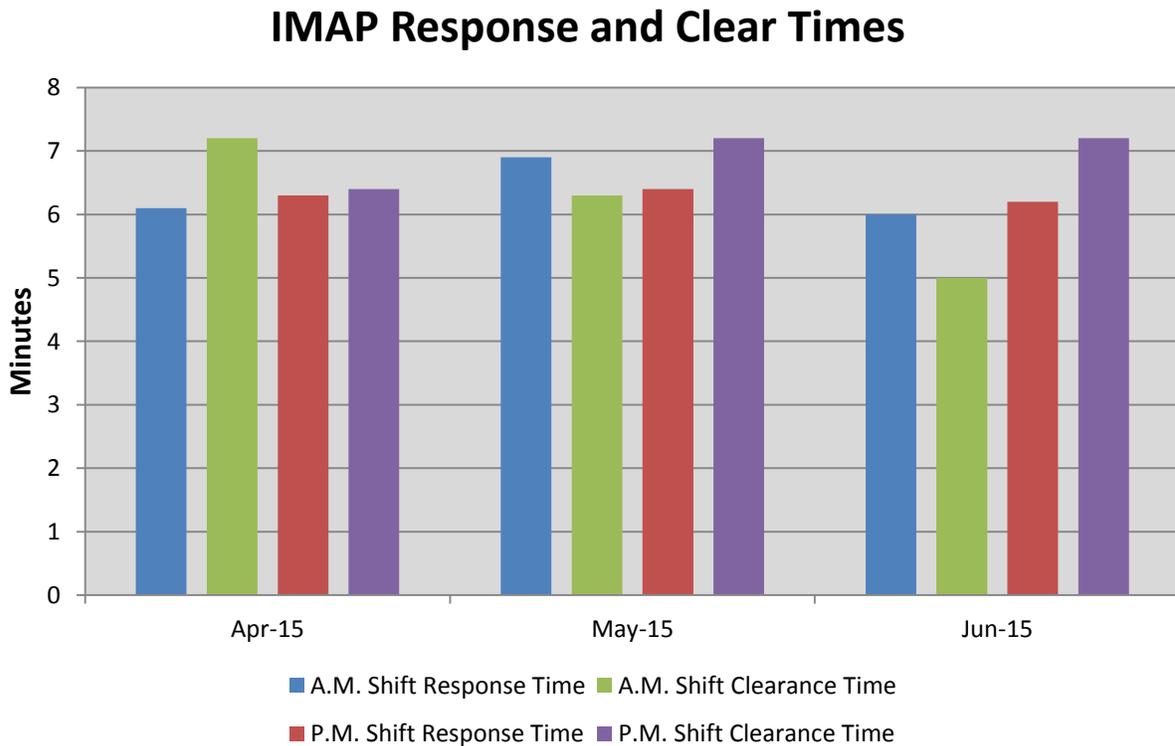
The response and clear times for all IMAP assists are logged by IMAP and provided to the NCTA. Response time is the time from which a responder receives a call to the time they arrive on the scene. Clear time is the time from which it takes the responder to clear the incident and return the roadway to normal operation. The IMAP staff’s AM shift occurs from 6AM to 2PM and the PM shift occurs from 2PM to 10PM. Shift response times may differ due to the number of drivers on duty and their coverage areas.

Table 14 and Figure 29 present the average IMAP assistance response and clear times, in minutes, for the Triangle Expressway.

**Table 14: Average IMAP Assistance Response and Clear Times (in Minutes)**

Response Type	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	2015 Average
A.M. Shift Response	19	9	8	6	7	6							9
A.M. Shift Clearance	6	6	6	7	6	5							6
P.M. Shift Response	10	9	6	6	6	6							7
P.M. Shift Clearance	9	9	6	6	7	7							7

**Figure 29: Average IMAP Assistance Response and Clear Times (in Minutes)**



# Roadway Maintenance Statistics

## ROADWAY MAINTENANCE STATISTICS

This section outlines the NCTA Maintenance Rating Program (MRP), which is a maintenance evaluation program for roadway features and toll facilities. MRP is a comprehensive planning, measuring, and managing process that provides a means for communicating to managers, stakeholders and key customers the impacts of policy and budget decisions on program service delivery.

Using outcome-based performance measures and the service level scale (0 through 100), the inspection results are rated against established threshold criteria. The program analysis is accomplished through the use of sampling procedures that capture the level of service being provided for individual asset features. Over time, these ratings will then be charted to identify work needs and subsequent necessary actions. The evaluations are based on the establishment of threshold conditions that quantify the maximum defect allowed to exist for a characteristic before it is considered unacceptable. The NCTA performance standards, threshold criteria and maintenance rating program were developed through a collaborative effort by NCTA managers, NCDOT maintenance staff, and consultants.

Using field survey information, a maintenance matrix can be developed to show the ties between maintenance activities and the characteristics of various roadway features. The purpose of this evaluation is to provide information that will be used to schedule and prioritize routine maintenance activities and provide uniform maintenance conditions that meet established objectives.

### Assessment Schedule

As part of the NCTA MRP, a “baseline” assessment was scheduled to be completed for each newly opened roadway section, soon after opening to toll collection. The baseline assessments included complete inventory data collection and assessment on 100% of the roadway assets.

After the initial baseline assessment was completed, future assessments for that segment switched over to a statistical sampling assessment. Inspections are performed during the months of February, May, August, and November to account for dynamic seasonal changes to assets. These inspections are accomplished through the use of statistically valid, random sampling procedures that capture the level of service for individual assets with a 95% confidence level in sampling.

**Assessment Results**

Table 15 presents the quarterly and 2015 Annual MRP Assessment rating. It is important to note that the Quarterly Ratings are only representative of the samples inspected during each quarter. Therefore, they are not a statistically valid representation of the assets' conditions; only the 2015 Annual Rating will provide a 95% confidence level in statistical sampling.

**Table 15: MRP Assessment Results**

Element	Q1 2015 RATING	Q2 2015 RATING	Q3 2015 RATING	Q4 2015 RATING	2015 ANNUAL RATING
Road Surface	98.8	97.6	N/A	N/A	N/A
Unpaved Shoulders	100.0	96.6	N/A	N/A	N/A
Drainage	93.0	93.4	N/A	N/A	N/A
Roadside	88.1	86.6	N/A	N/A	N/A
Traffic Control Devices	84.4	96.8	N/A	N/A	N/A
<b>Overall MRP Performance Rating</b>	<b>92.0</b>	<b>94.7</b>	<b>N/A</b>	<b>N/A</b>	<b>N/A</b>

N/A (Not Applicable) – MRP Assessment has not been conducted yet.