



NORTH CAROLINA

Turnpike Authority

2012 Operations Statistics Report

Triangle Expressway

1 S. Wilmington Street
Raleigh, NC 27601



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INTRODUCTION

Purpose

The purpose of this report is to provide various North Carolina Turnpike Authority (NCTA) operations related performance metrics of the Triangle Expressway for 2012. The summarized data will provide a general overview of traffic statistics, toll system statistics, roadway operations and maintenance operations for the entire facility. Future reports will compare monthly and annual statistical trends over time to show the progression of the roadway.

Project

The Triangle Expressway

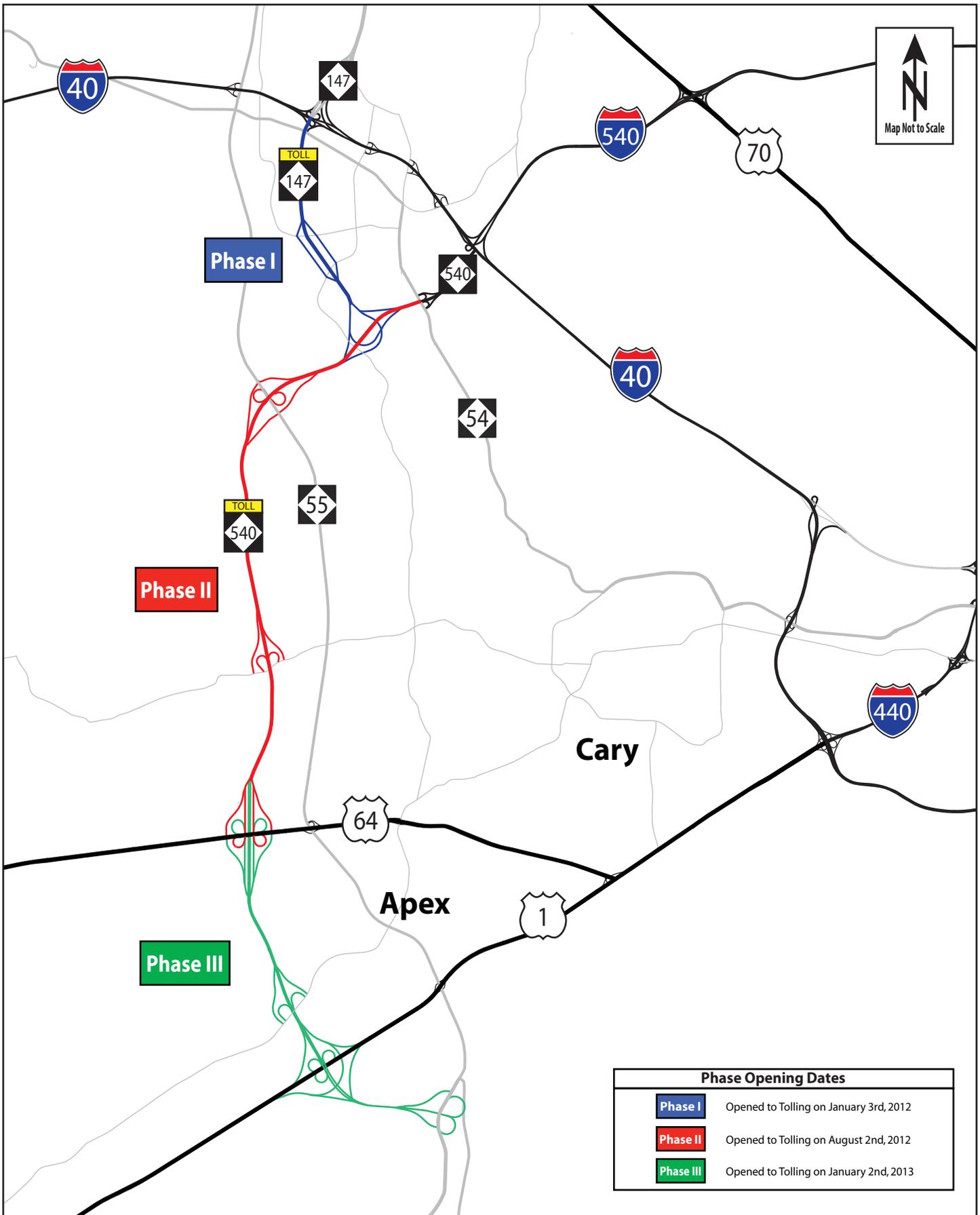
The Triangle Expressway is an 18.8 mile toll road that extends the partially complete “Outer Loop” around the greater Raleigh, North Carolina area from I-40 to the NC-55 Bypass in Apex. The controlled access, six-lane toll facility relieves congestion on the paralleling NC-55 facility, while improving 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 elements; the Triangle Parkway and the Western Wake Freeway

The Triangle Parkway includes 3.4 miles of new construction between the existing interchange of NC-147 and I-40 and existing NC-540. This section of the Triangle Expressway (Phase I) includes interchanges at Hopson Road, Davis Drive, and NC-540 and opened to toll-free traffic on December 8, 2011. Tolling on this section began on January 3, 2012.

The Western Wake Freeway includes 12.6 miles of new construction between NC-55 in western Cary and the NC-55 Bypass near the Town of Holly Springs. Phase II of the Triangle Expressway, from NC-55 to US 64, opened on August 1, 2012 (tolling began August 2, 2012) and includes interchanges at NC-55, Green Level West Road, and US 64. The segment of NC-540 between NC-55 and NC-54, herein referred to as 540P, was opened in 2007 as a toll-free facility and is 2.8 miles in length. As part of the Triangle Expressway project, 540P began operating as a tolled facility with the opening of Phase II (August 2, 2012). The final phase, Phase III, opened to traffic from U.S. 64 to NC-55 Bypass on December 20th, 2012, with tolling beginning on January 2, 2013. This phase includes interchanges at S. Salem St., US 1, and NC-55 Bypass.

The Triangle Expressway utilizes an all-electronic, non-stop, open road tolling system where there are no typical 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 video billing program called Bill-by-Mail.

NCTA toll zones are located along the Triangle Expressway at mainline and interchange ramp locations to ensure that there are no non-tolled trips. An illustration of the designated phases for the Triangle Expressway can be seen in Figure 1 on the following page.



Triangle Expressway Phase Map

**Figure
1**

Traffic Statistics

TRAFFIC STATISTICS

Current and historical traffic data is collected through the use of roadside microwave vehicle detectors (MVD's) installed throughout the Triangle Expressway facility. The data gives an overview of the current utilization of the roadway. The data can also be analyzed to identify trends that could be used to determine a more accurate estimate of the future utilization of these facilities.

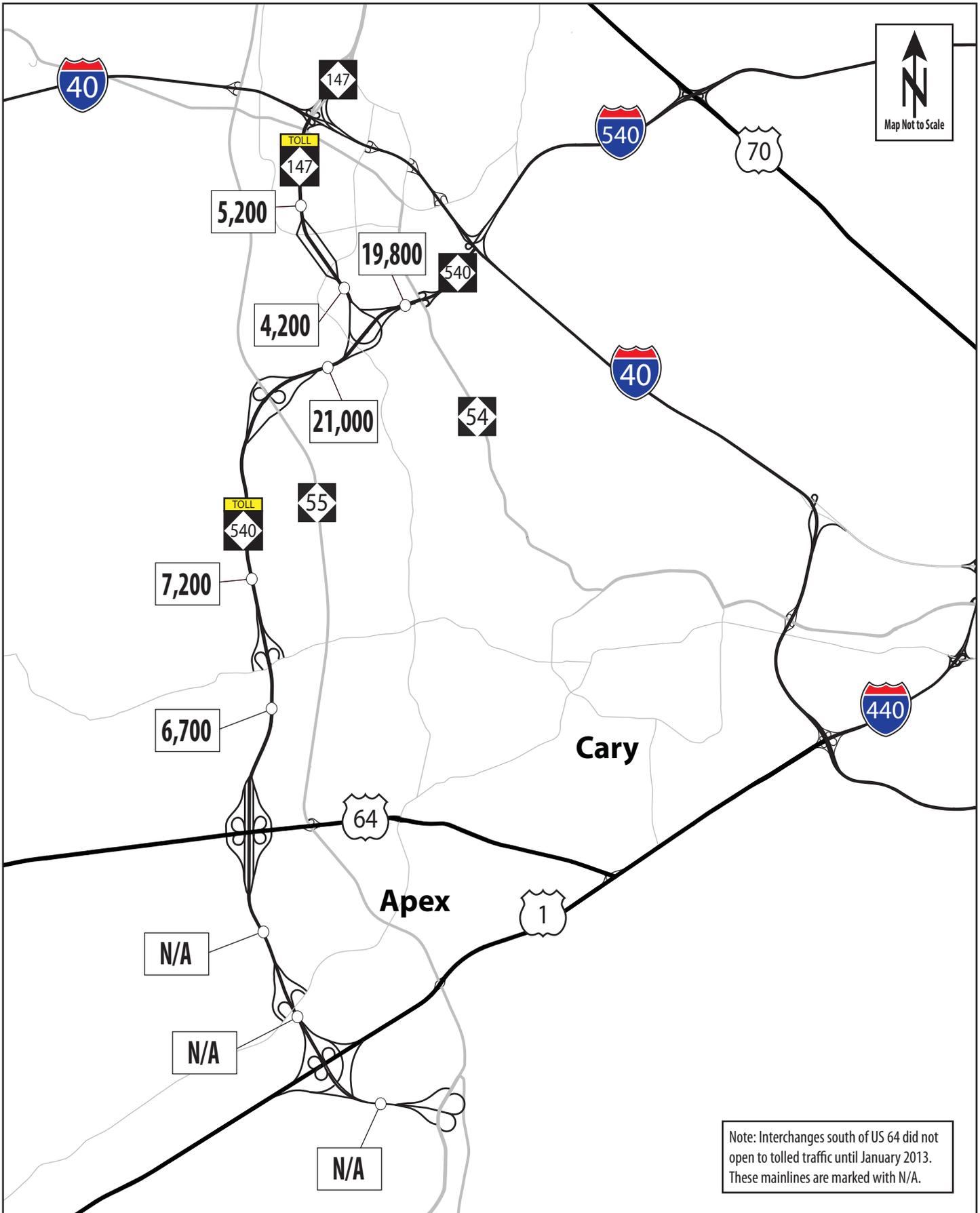
It should be noted that due to the recent completion of the Triangle Expressway that the facility is currently experiencing a traffic pattern known as "ramp-up". During a ramp-up period, the traffic volumes on a new facility increase at a faster rate than an existing facility. The growth rates increase as the customers become more familiar with the facility. The ramp-up period is expected to continue through 2014.

Annual Average Weekday Traffic

Traffic volume data is collected on all mainline segments between interchanges and on all ramp locations. Typically there is a large difference between peak and off-peak volumes, as well as between weekday and weekend volumes. However, this gap becomes even larger for a tolled facility. This is due to the fact that toll roads tend to have a much higher percentage of traffic occurring during peak hours when compared to a normal roadway, as there is less of a benefit for toll users during off peak hours. For these reasons, 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. Annual average weekday traffic (AAWT) is a measure of the average daily volumes collected on a typical Monday through Friday over an entire year. Adjustment factors for raw AWT data were calculated monthly, based on the ratio of weekday to weekend traffic, and applied to the monthly averages to calculate the annual average weekday traffic. It is necessary to normalize the variations in monthly traffic to allow for a valid comparison between counts taken at different times of the year. This allows the normalized monthly values to be combined together to form a single AAWT for each location.

The following page contains a visual representation of AAWT for all mainline segments for the entire facility in Figure 2. For this report, data south of US 64 is not included due to the recent completion of Phase III and data for these sections are marked as "N/A."



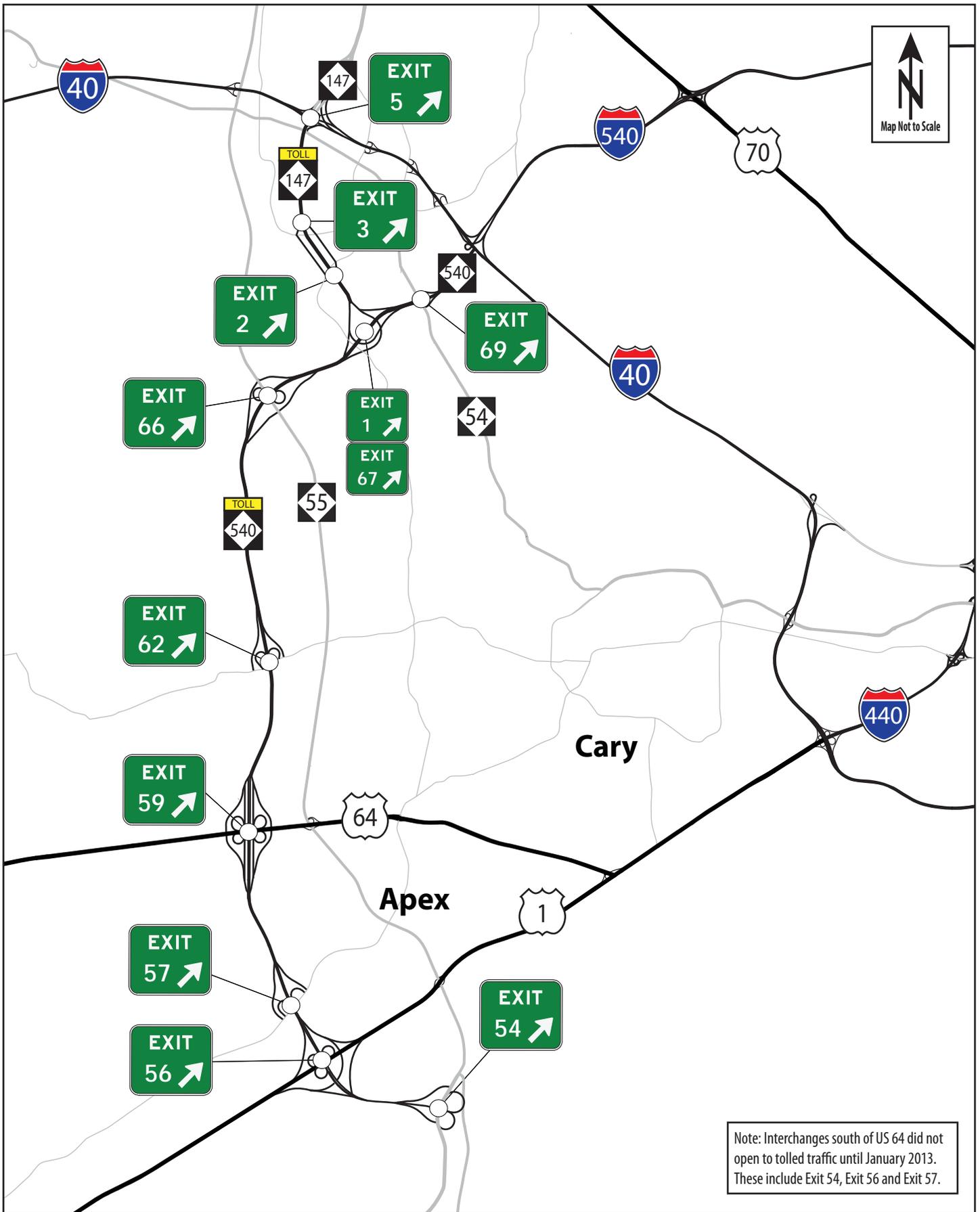
Triangle Expressway AAWT Map

**Figure
2**

Interchange Statistics

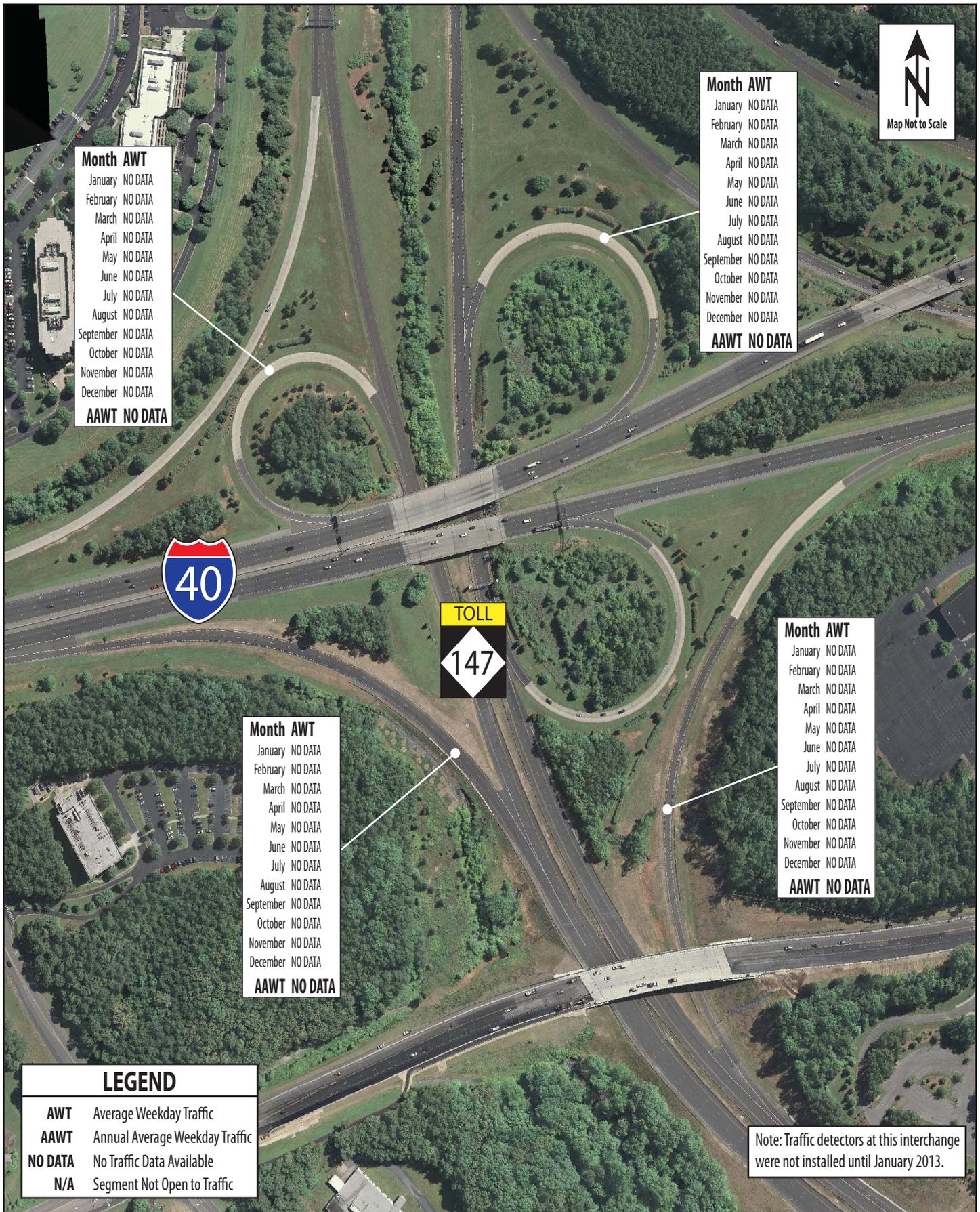
The following pages contain visual representations of AWT and AAWT for all interchanges along the facility and are representative of NCTA's MVD data. The location of the interchanges in relation to the entire expressway can be seen on the following page in Figure 3.

For the newly constructed segments of the Expressway, data could not be considered reliable until the MVD units could be tested under normal traffic conditions. This calibration and testing period concluded no later than 60 days after the road in question opened to traffic and can begin with the opening of the phase. All MVD data has been screened, and any unreliable data has been removed from use in the AWT and AAWT calculations. If there are not enough reliable days (5) for a particular month to report an AWT, then that MVD will report "NO DATA." If there is no data available due to the phase being unopened then that MVD will report "N/A" for the particular time period.



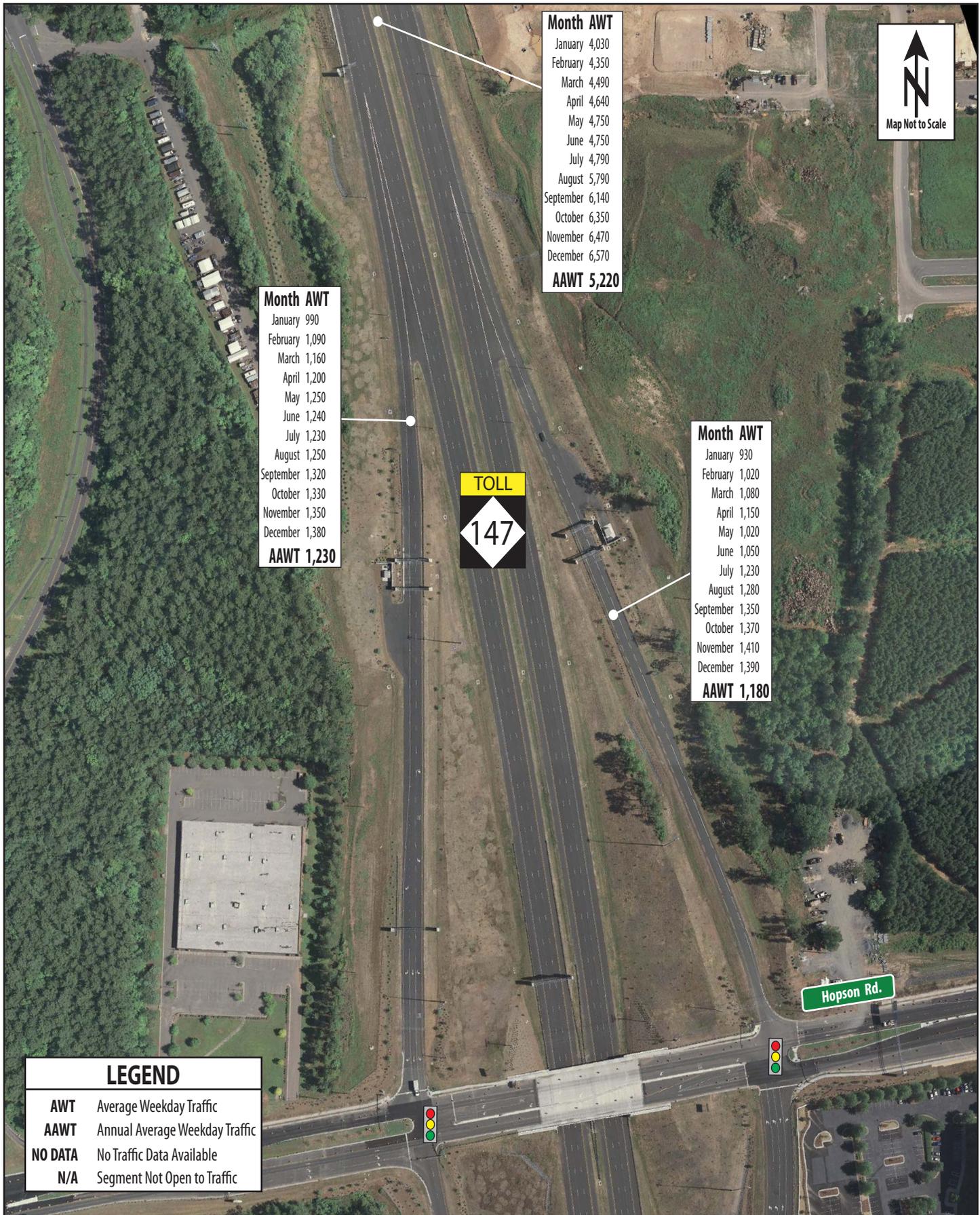
Triangle Expressway Interchange Map

**Figure
3**



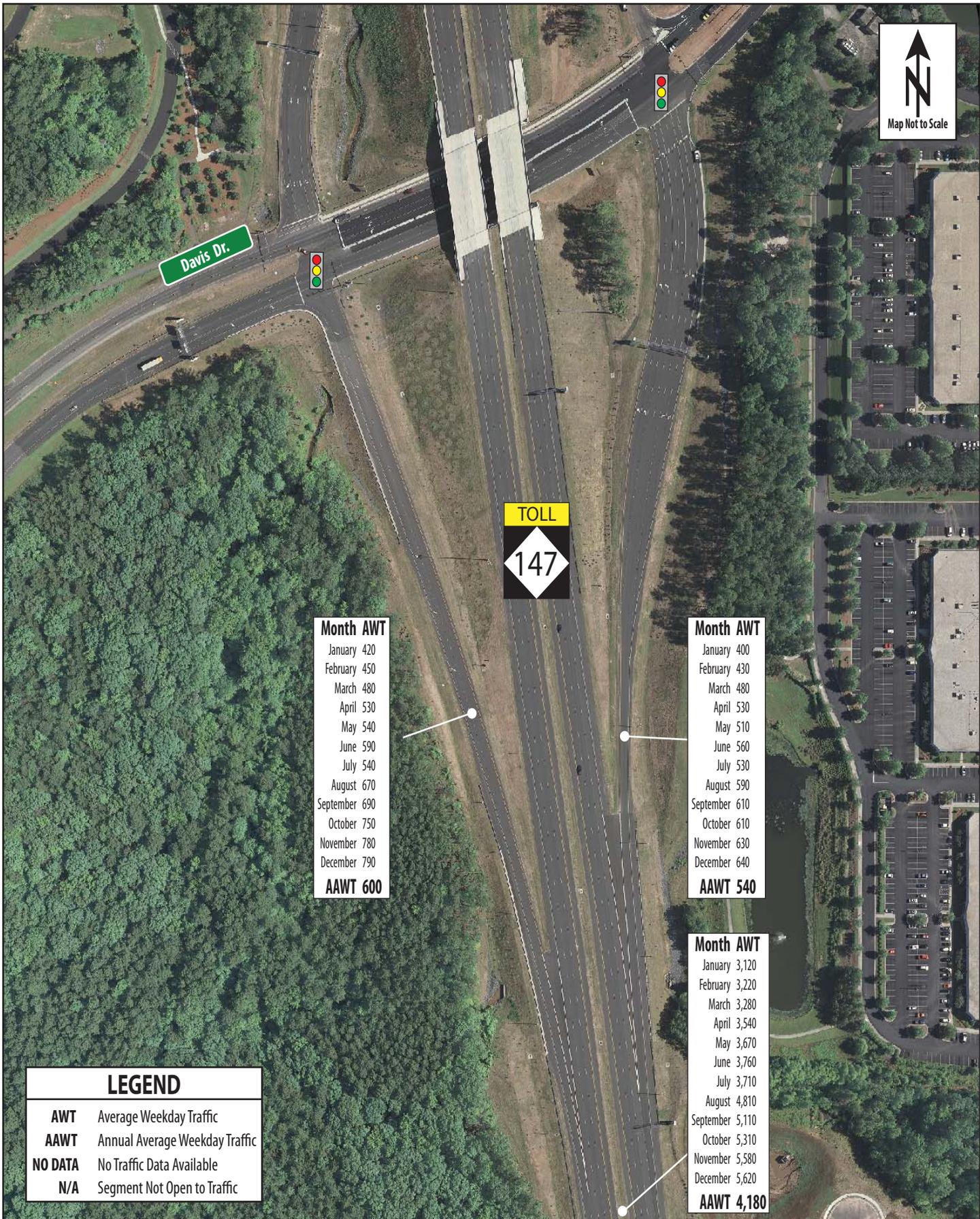
NC 147 at I-40 Interchange
 2012 Average Weekday Traffic

Figure
4



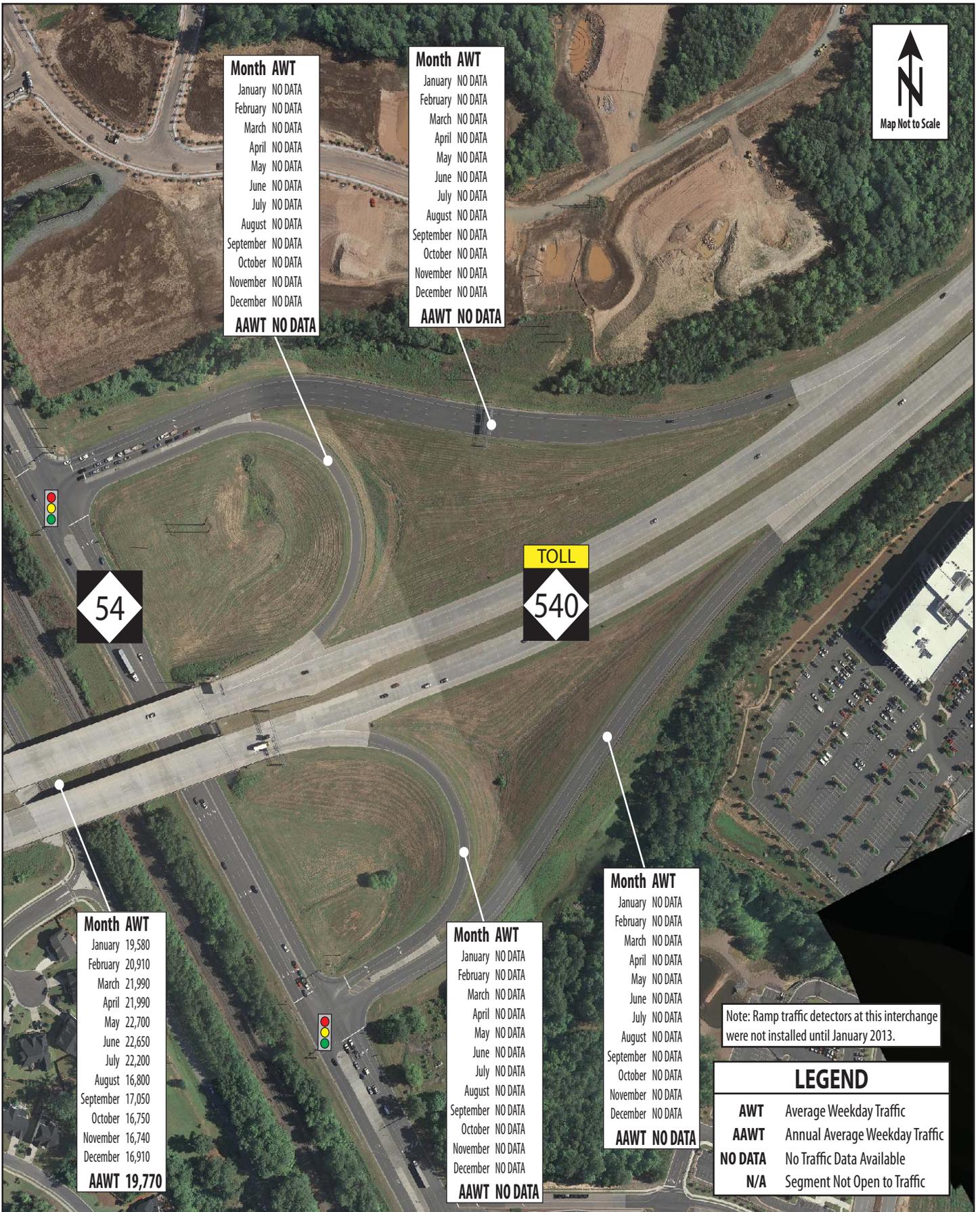
NC 147 at Hopson Rd. Interchange
2012 Average Weekday Traffic

Figure
5



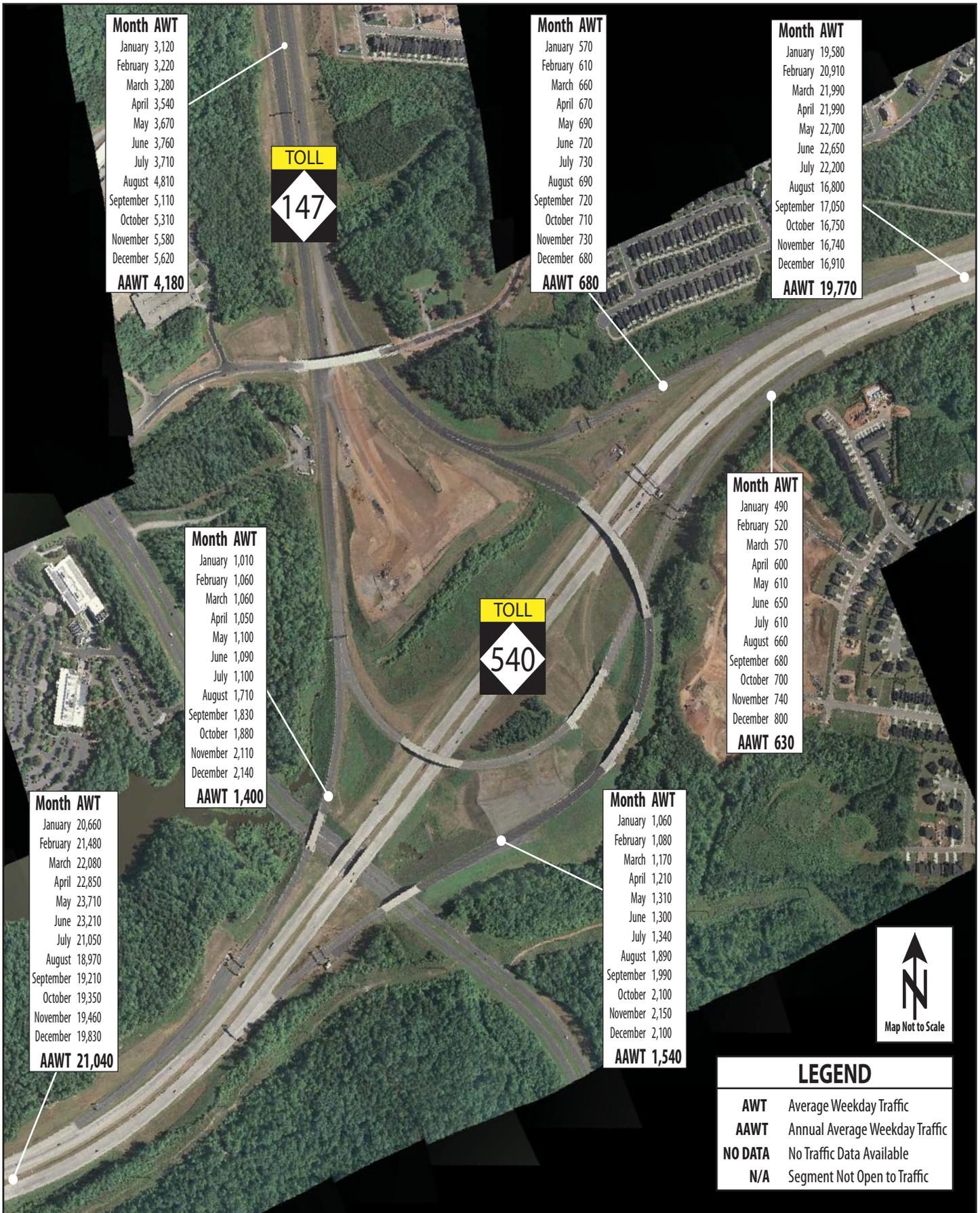
NC 147 at Davis Dr. Interchange
2012 Average Weekday Traffic

Figure
6



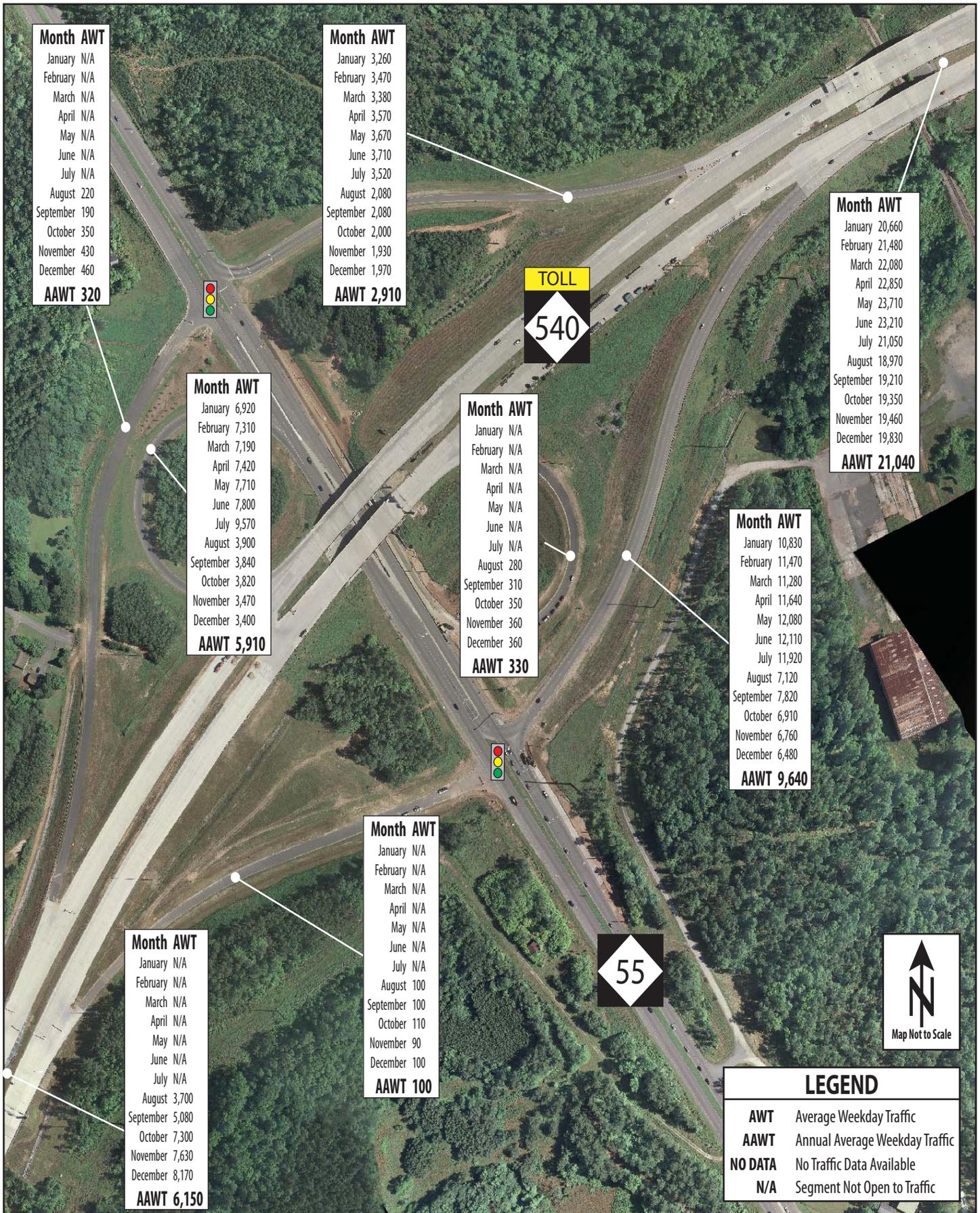
NC 540 at NC 54 Interchange
2012 Average Weekday Traffic

Figure
7



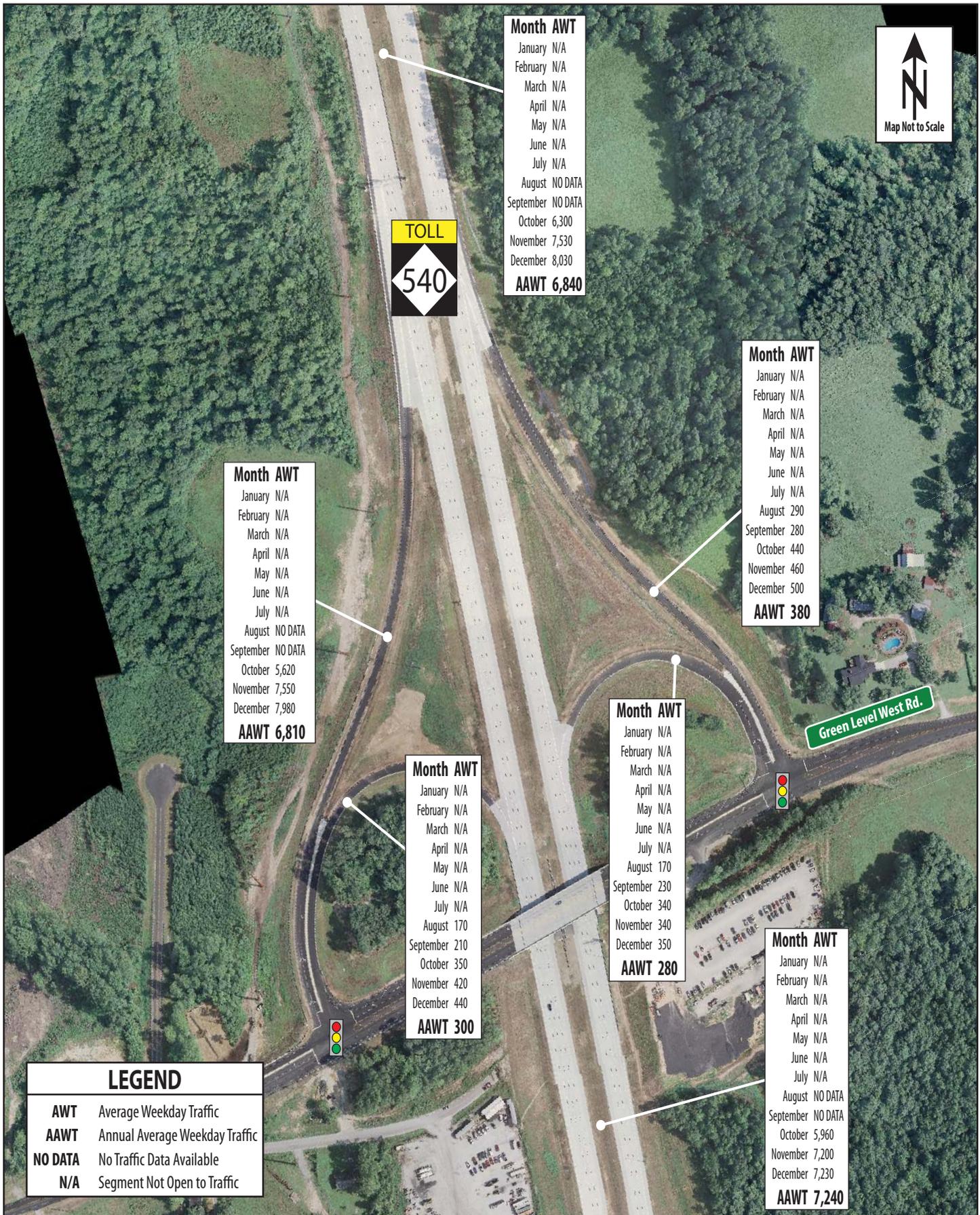
NC 540 at NC 147 Interchange
2012 Average Weekday Traffic

Figure
8



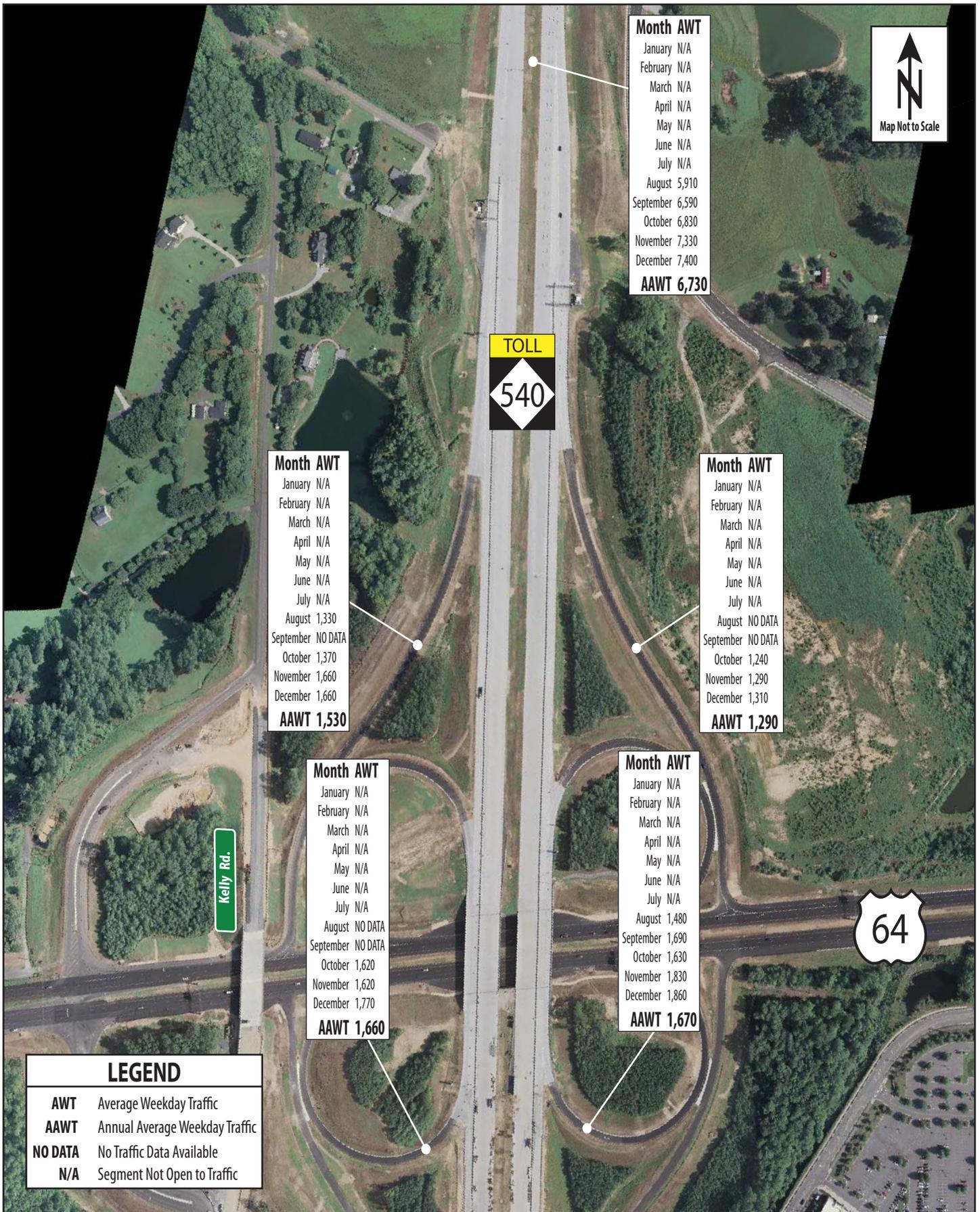
NC 540 at NC 55 Interchange
2012 Average Weekday Traffic

Figure
9



NC 540 at Green Level West Rd. Interchange
2012 Average Weekday Traffic

Figure
10



NC 540 at US 64 Interchange
2012 Average Weekday Traffic

Figure
11

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 placed throughout the facility using an all-electronic tolling (AET) method. Toll gantries are the roadside structures that house the AET equipment.

Monthly Statistics

The statistics provided in the following section combines roadway and customer service data and reflects the overall Triangle Expressway facility. An overview of the data provided on the following pages is provided below:

- Total Monthly Transactions
- Total Monthly Transactions by Percentage
- Total Monthly Classification
- Cumulative Monthly Accounts Established NC Quick Pass Accounts
- Total Monthly Transponders Sold by Type

Table 1 presents a summary of the total monthly transactions for NC Quick Pass and Bill by Mail payment methods.

Table 1: Total Monthly Transactions

Week Ending	Transponder (NC Quick Pass)	Video (Bill by Mail)	Total
January	54,442	62,088	116,530
February	64,321	60,841	125,162
March	71,995	73,533	145,528
April	70,093	72,342	142,435
May	79,543	77,697	157,240
June	75,229	78,489	153,718
July	75,751	77,586	153,337
August	399,514	537,321	936,835
September	423,577	457,605	881,182
October	520,854	486,277	1,007,131
November	487,173	424,700	911,873
December	480,551	484,017	964,568
Total	2,803,043	2,892,496	5,695,539

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

Table 2: Total Monthly Transactions by Percentage

Month	Transponder (NC Quick Pass)	Video (Bill by Mail)
January	47%	53%
February	51%	49%
March	49%	51%
April	49%	51%
May	51%	49%
June	49%	51%
July	49%	51%
August	43%	57%
September	48%	52%
October	52%	48%
November	53%	47%
December	50%	50%
Total	49%	51%

Figure 12 presents a visual summary of the total monthly transactions for NC Quick Pass and Bill by Mail transactions.

Figure 12: Total Monthly Transactions

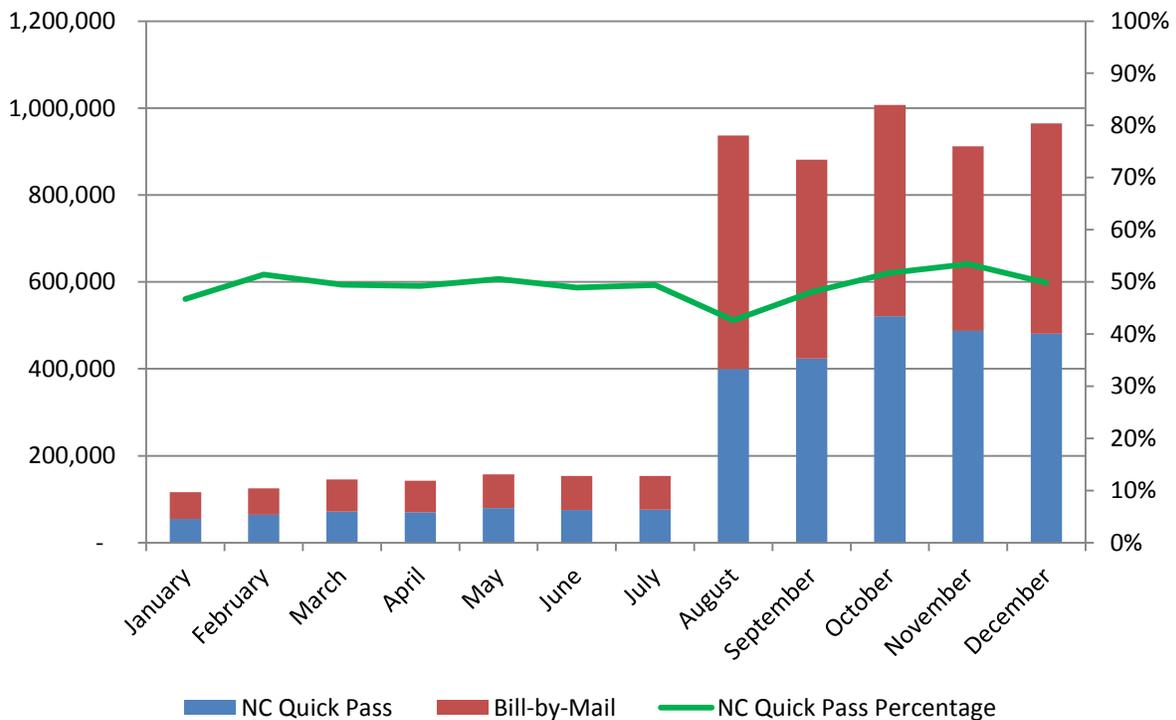


Table 3 presents a summary of the total monthly classification for Class 1 (2-axle), Class 2 (3-axle) and Class 3 (4+axle) vehicles.

Table 3: Total Monthly Classification

Month	Class 1 (2-axle)	Class 2 (3-axle)	Class 3 (4+axle)	Total
January	115,111	590	829	116,530
February	123,668	625	869	125,162
March	143,544	797	1,187	145,528
April	140,470	774	1,191	142,435
May	154,976	805	1,459	157,240
June	151,141	809	1,768	153,718
July	151,228	790	1,319	153,337
August	911,762	8,227	16,846	936,835
September	855,368	8,932	16,882	881,182
October	982,342	8,726	16,063	1,007,131
November	890,046	7,884	13,943	911,873
December	942,405	7,976	14,187	964,568
Total	5,562,061	46,935	86,543	5,695,539

Figure 13 represents a summary of the total monthly transactions for Class 1 (2-axle) vehicles.

Figure 13: Monthly Class 1 Classification by Percentage

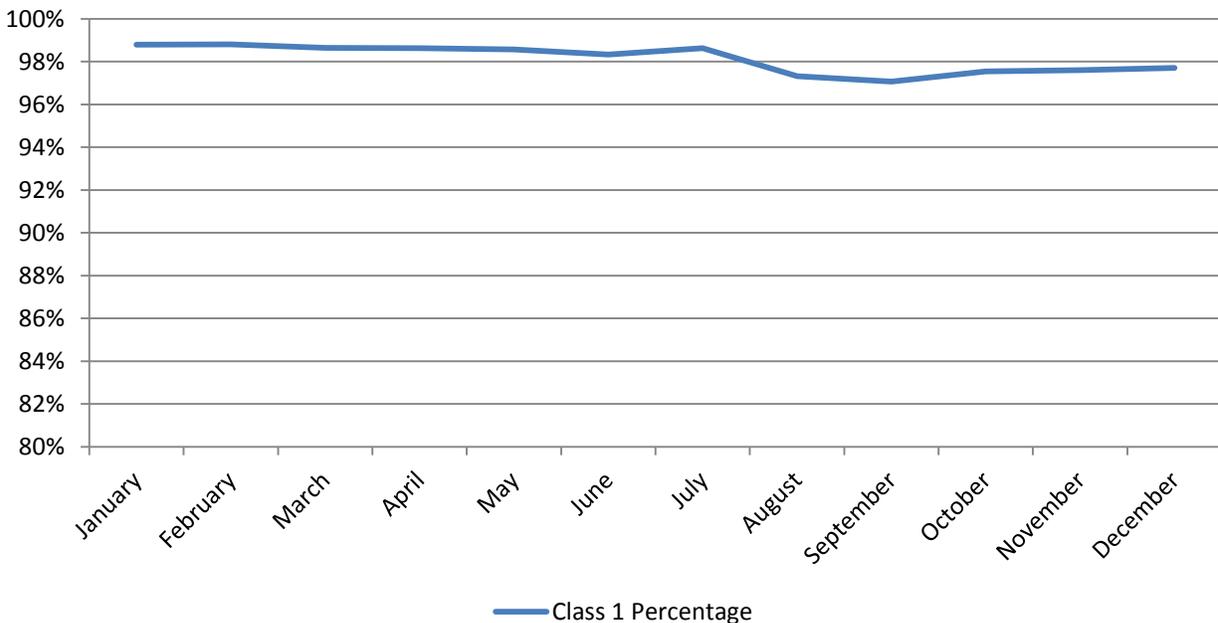


Table 4 presents a summary of the cumulative monthly established accounts being managed by NC Quick Pass. The accounts provided and a quick description of each are provided below:

- Transponder (NC Quick Pass) – Transaction processed from a valid pre-paid NC Quick Pass account.
- Unregistered Video (Bill by Mail) – Transaction processed as a post-paid unregistered account.
- Registered Video – Transaction processed as a pre-paid registered video account.
- Non-Revenue – Transaction processed as account registered to law enforcement, emergency fire and rescue or emergency medical services.
- Government – Transaction processed as a post-paid governmental agency.

Table 4: Cumulative Monthly Established NC Quick Pass Accounts by Type

Month	Transponder (NC Quick Pass)	Unregistered Video	Registered Video	Non-Revenue	Government	Total
January	7,238	66,513	3	19	8	73,781
February	8,079	86,240	4	24	13	94,360
March	8,763	138,349	4	25	13	147,154
April	9,433	166,813	4	25	13	176,288
May	10,004	195,564	5	27	13	205,613
June	10,573	224,988	5	28	17	235,611
July	13,625	249,976	4	28	17	263,650
August	17,747	272,939	5	31	17	290,739
September	20,336	293,306	5	34	18	313,699
October	22,789	314,849	5	35	18	337,696
November	24,543	333,890	5	37	18	358,493
December	27,179	359,431	5	38	18	386,671

Figure 14 presents a visual summary of the cumulative monthly established accounts being managed by NC Quick Pass.

Figure 14: Cumulative Monthly Established NC Quick Pass Accounts

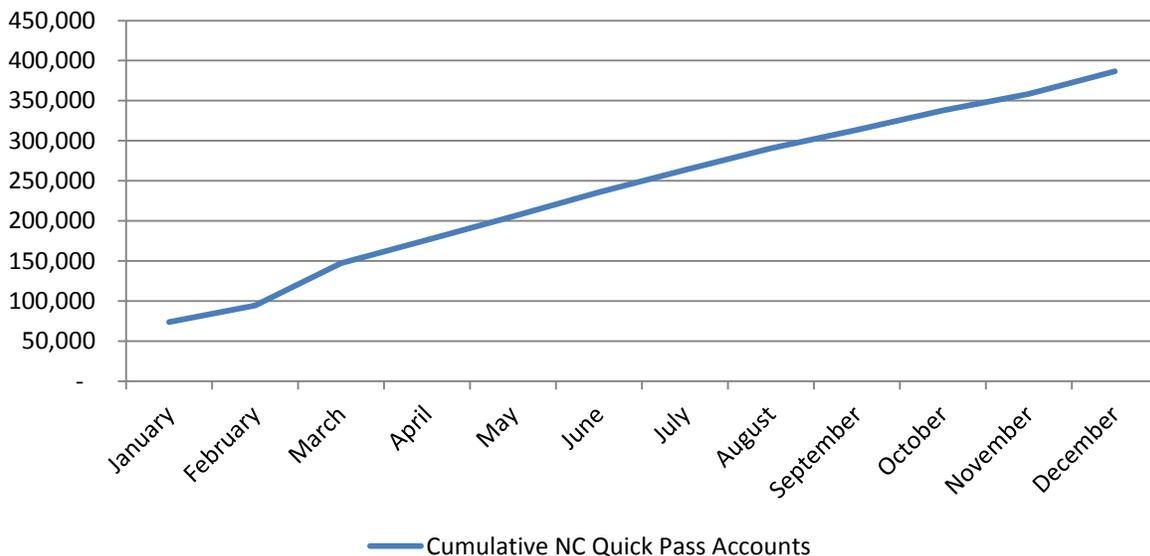


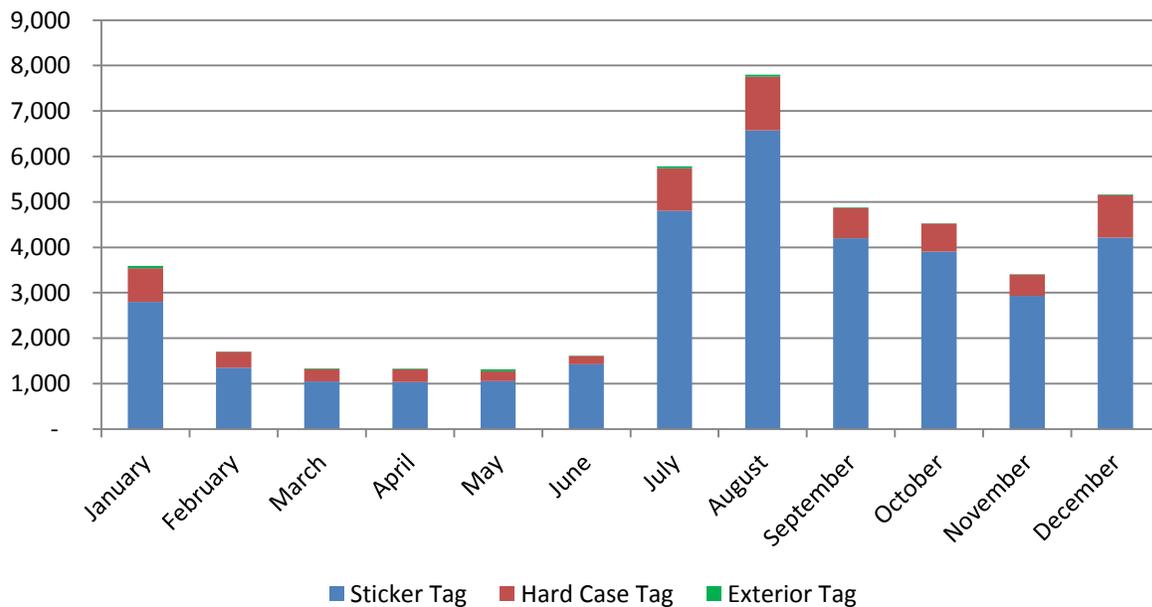
Table 5 presents a summary of the total transponder types sold, by month.

Table 5: Total Monthly Transponders Sold by Type

Week Ending	Sticker Tag	Hard Case Tag	Exterior Tag	Total
January	2,796	746	49	3,591
February	1,352	346	11	1,709
March	1,048	274	13	1,335
April	1,031	286	8	1,325
May	1,058	216	38	1,312
June	1,423	187	8	1,618
July	4,805	938	39	5,782
August	6,577	1,181	40	7,798
September	4,200	666	15	4,881
October	3,907	614	9	4,530
November	2,930	468	6	3,404
December	4,211	939	14	5,164
Total	35,338	6,861	250	42,449

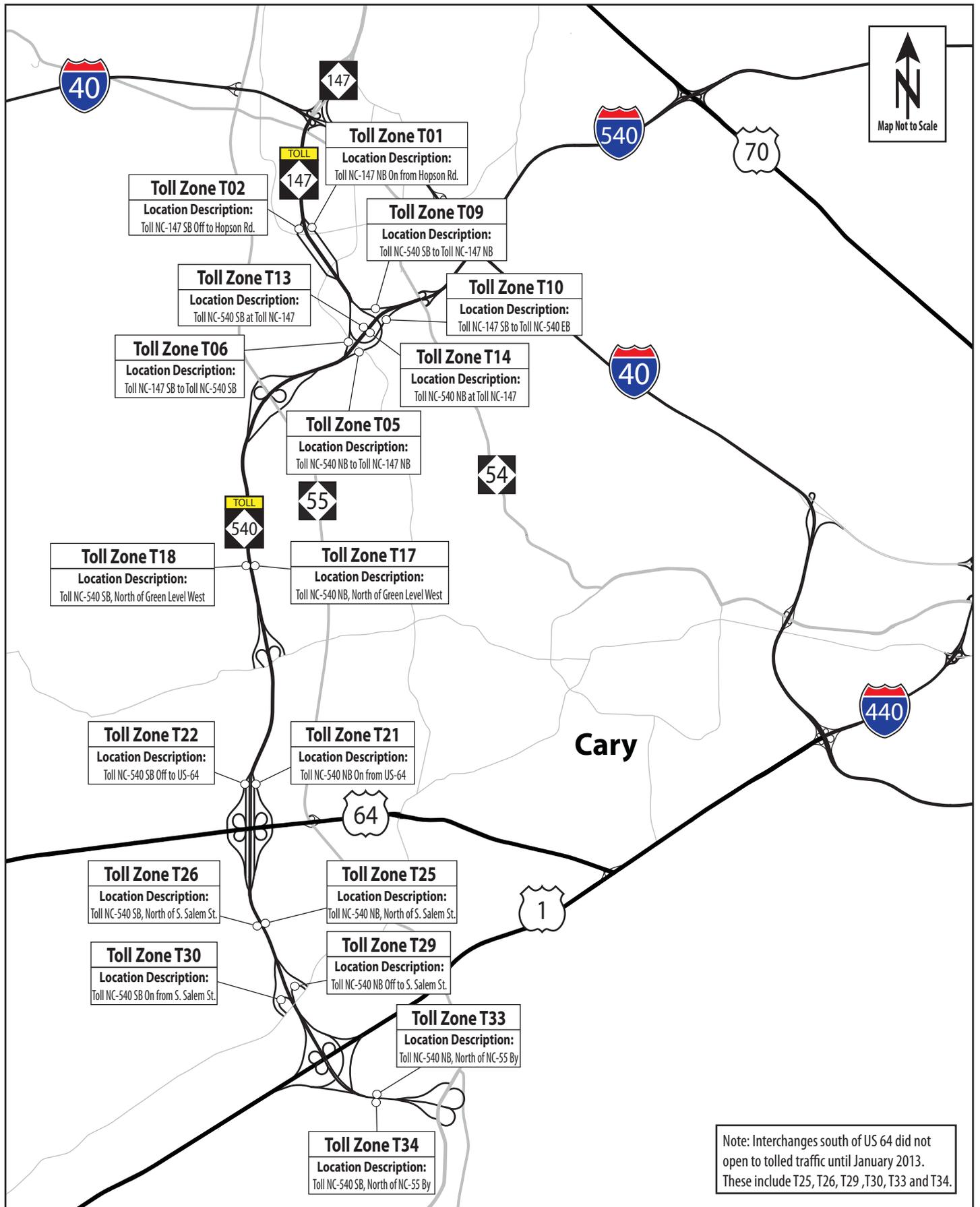
Figure 15 presents a summary of the monthly transponders sold.

Figure 15: Monthly Transponders Sold by Type



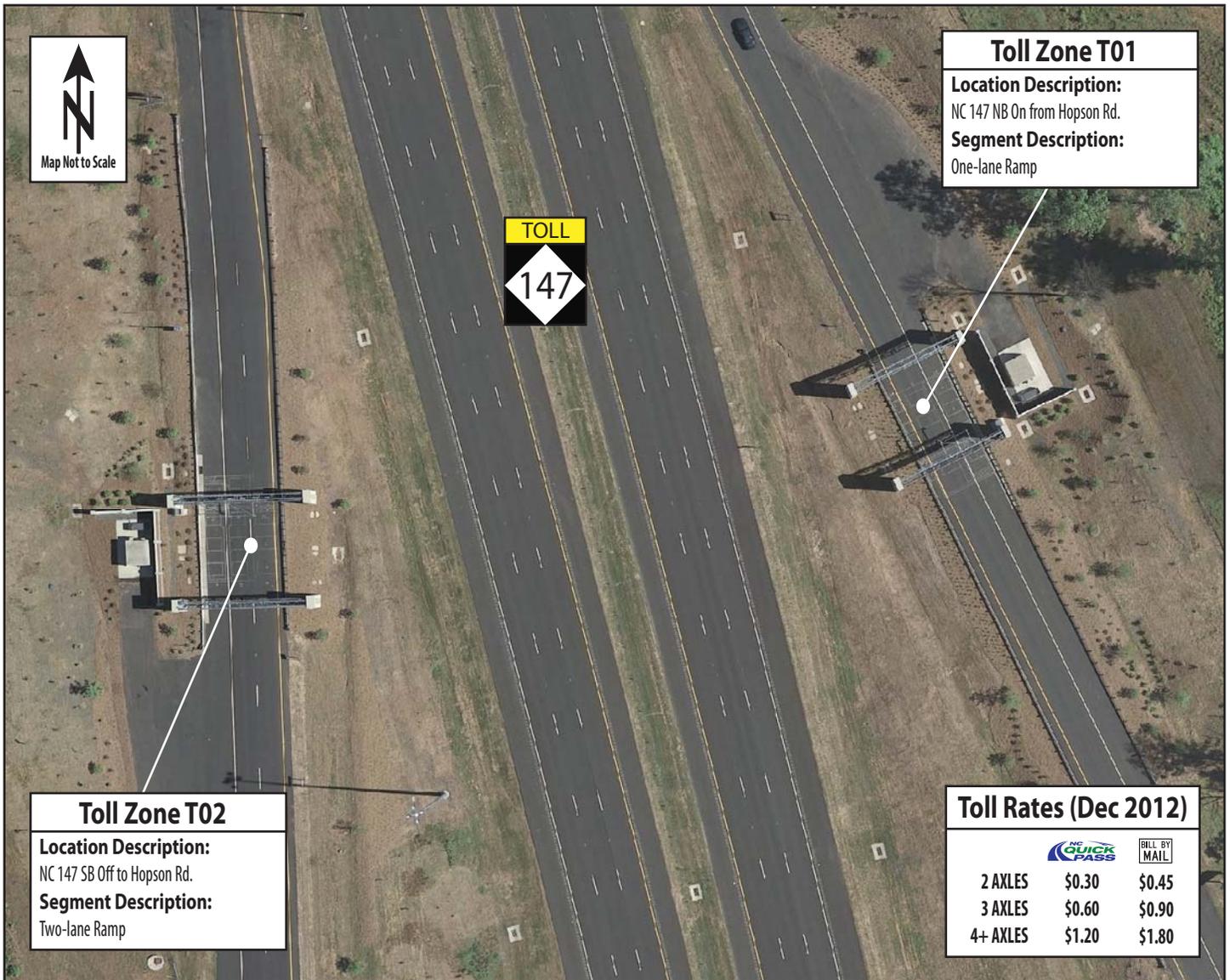
Toll Zone Statistics

The following pages contain visual representations of transactions that have occurred for all toll zones along the facility. The location of the toll zones in relation to the entire Triangle Expressway can be seen on the following page in Figure 16. If there is no data available due to the phase being unopened then that toll zone will report “N/A” for the particular time period.



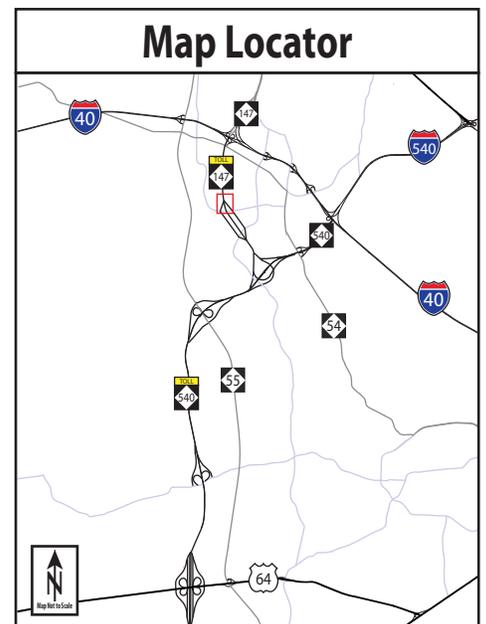
Triangle Expressway Toll Zone Map

Figure 16



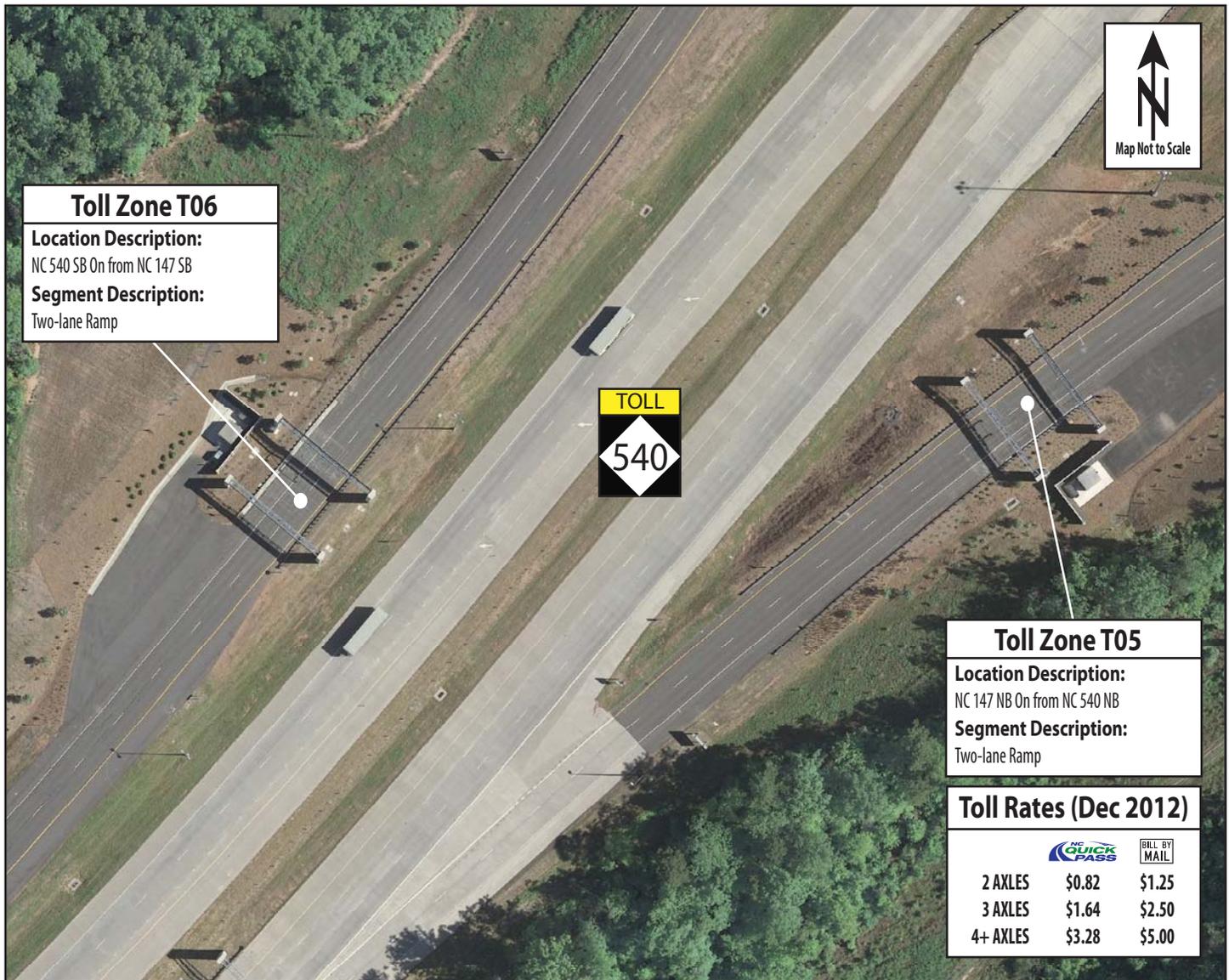
Month	T01	T02
January	930	1,020
February	1,020	1,100
March	1,120	1,190
April	1,160	1,210
May	1,210	1,260
June	1,220	1,250
July	1,280	1,290
August	1,280	1,260
September	1,360	1,330
October	1,390	1,340
November	1,390	1,330
December	1,440	1,420

Month	T01	T02
January	48%	46%
February	53%	52%
March	51%	51%
April	52%	51%
May	53%	52%
June	51%	50%
July	52%	52%
August	55%	54%
September	57%	57%
October	57%	57%
November	58%	58%
December	60%	59%



Hopson Road Ramp Toll Zones
 2012 Average Weekday Toll Transactions

Figure
17



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 (Dec 2012)

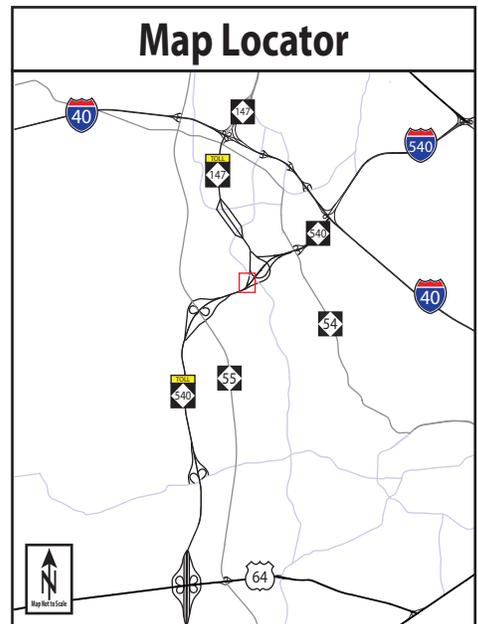
		BILL BY MAIL
2 AXLES	\$0.82	\$1.25
3 AXLES	\$1.64	\$2.50
4+ AXLES	\$3.28	\$5.00

Transactions by Direction

Month	T05	T06
January	1,000	950
February	1,080	1,010
March	1,170	1,030
April	1,200	1,070
May	1,260	1,120
June	1,260	1,130
July	1,310	1,150
August	1,810	1,730
September	1,920	1,850
October	2,030	1,910
November	2,090	1,930
December	2,140	2,120

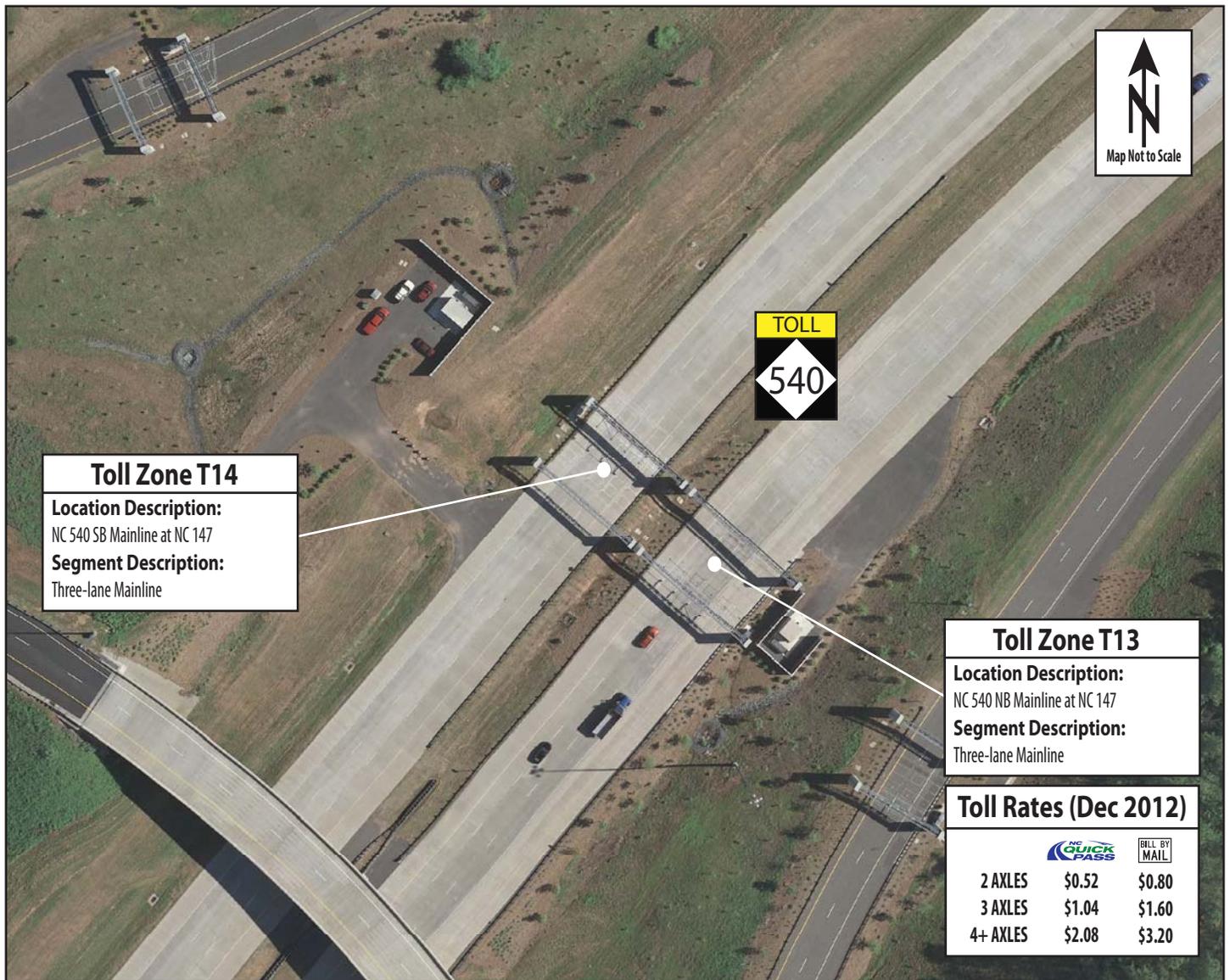
NC Quick Pass Percentage

Month	T05	T06
January	56%	55%
February	59%	59%
March	57%	60%
April	57%	59%
May	57%	59%
June	56%	58%
July	55%	58%
August	56%	58%
September	61%	63%
October	63%	64%
November	65%	66%
December	65%	66%



NC 147 South Ramp Toll Zones
 2012 Average Weekday Toll Transactions

Figure 18



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 (Dec 2012)

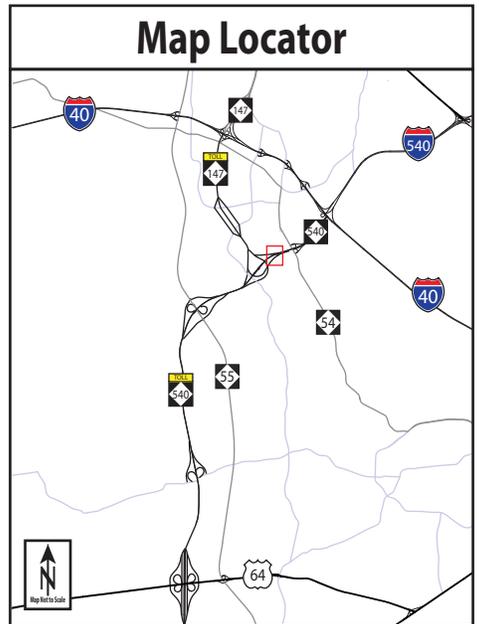
	NC QUICK PASS	BILL BY MAIL
2 AXLES	\$0.52	\$0.80
3 AXLES	\$1.04	\$1.60
4+ AXLES	\$2.08	\$3.20

Transactions by Direction

Month	T13	T14
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	7,420	7,950
September	7,540	8,060
October	7,370	7,930
November	7,190	7,800
December	7,720	8,120

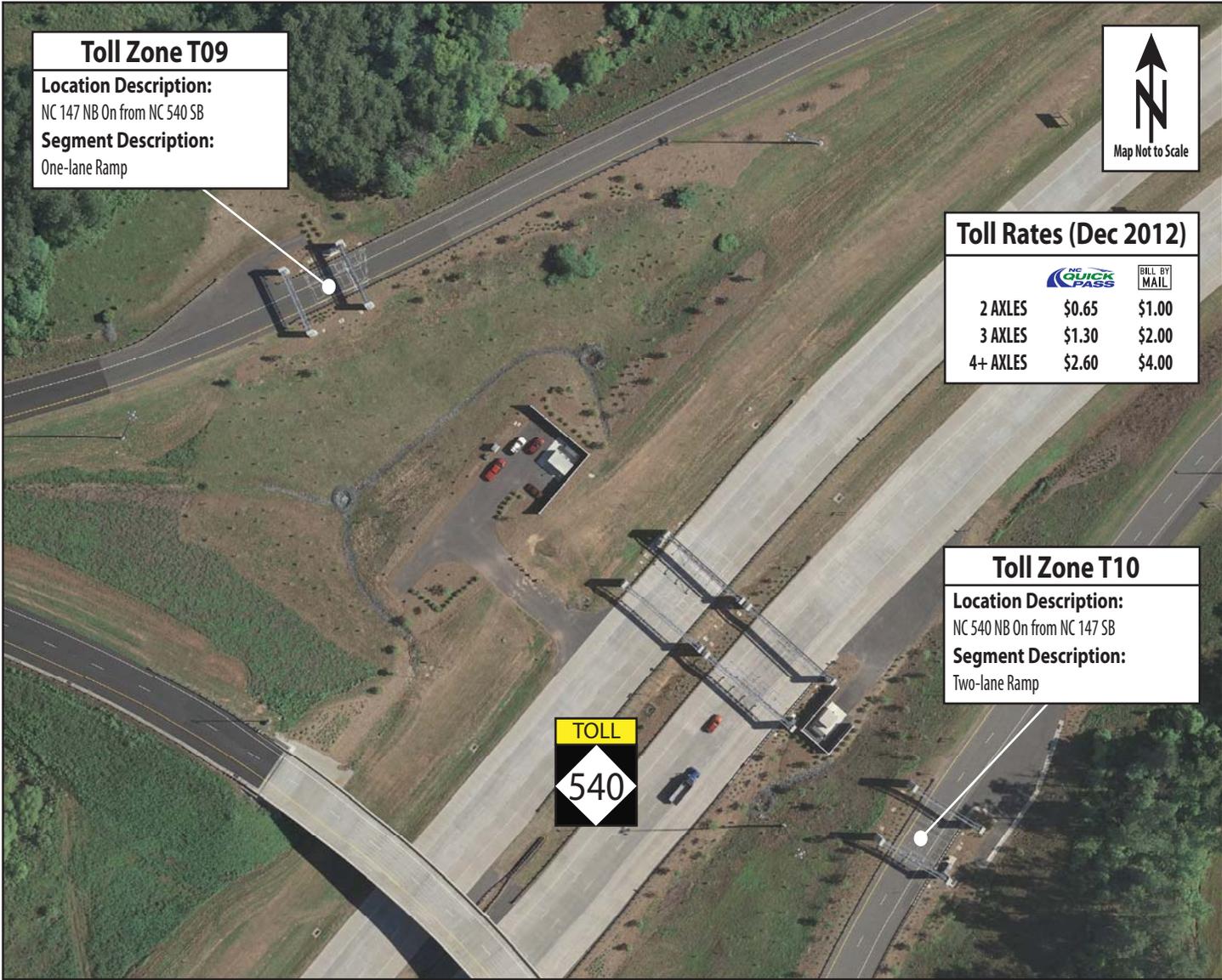
NC Quick Pass Percentage

Month	T13	T14
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	38%	39%
September	46%	46%
October	50%	50%
November	52%	53%
December	53%	54%



NC 540 Mainline Toll Zones
 2012 Average Weekday Toll Transactions

Figure 19



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

Toll Rates (Dec 2012)

	NC QUICK PASS	BILL BY MAIL
2 AXLES	\$0.65	\$1.00
3 AXLES	\$1.30	\$2.00
4+ AXLES	\$2.60	\$4.00

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

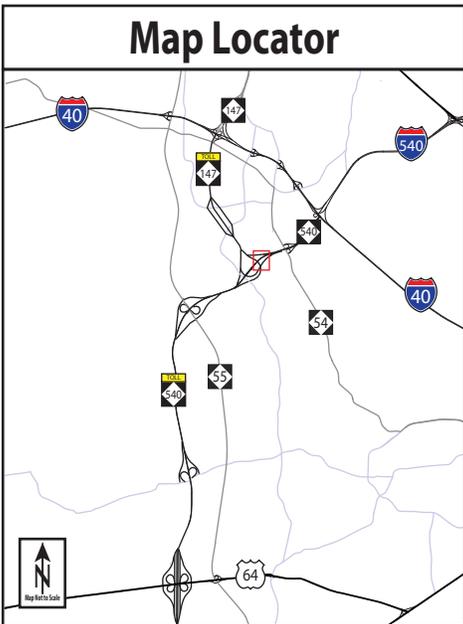


Transactions by Direction

Month	T09	T10
January	580	510
February	610	520
March	640	580
April	670	610
May	690	630
June	720	680
July	750	700
August	690	680
September	710	710
October	710	730
November	730	730
December	730	800

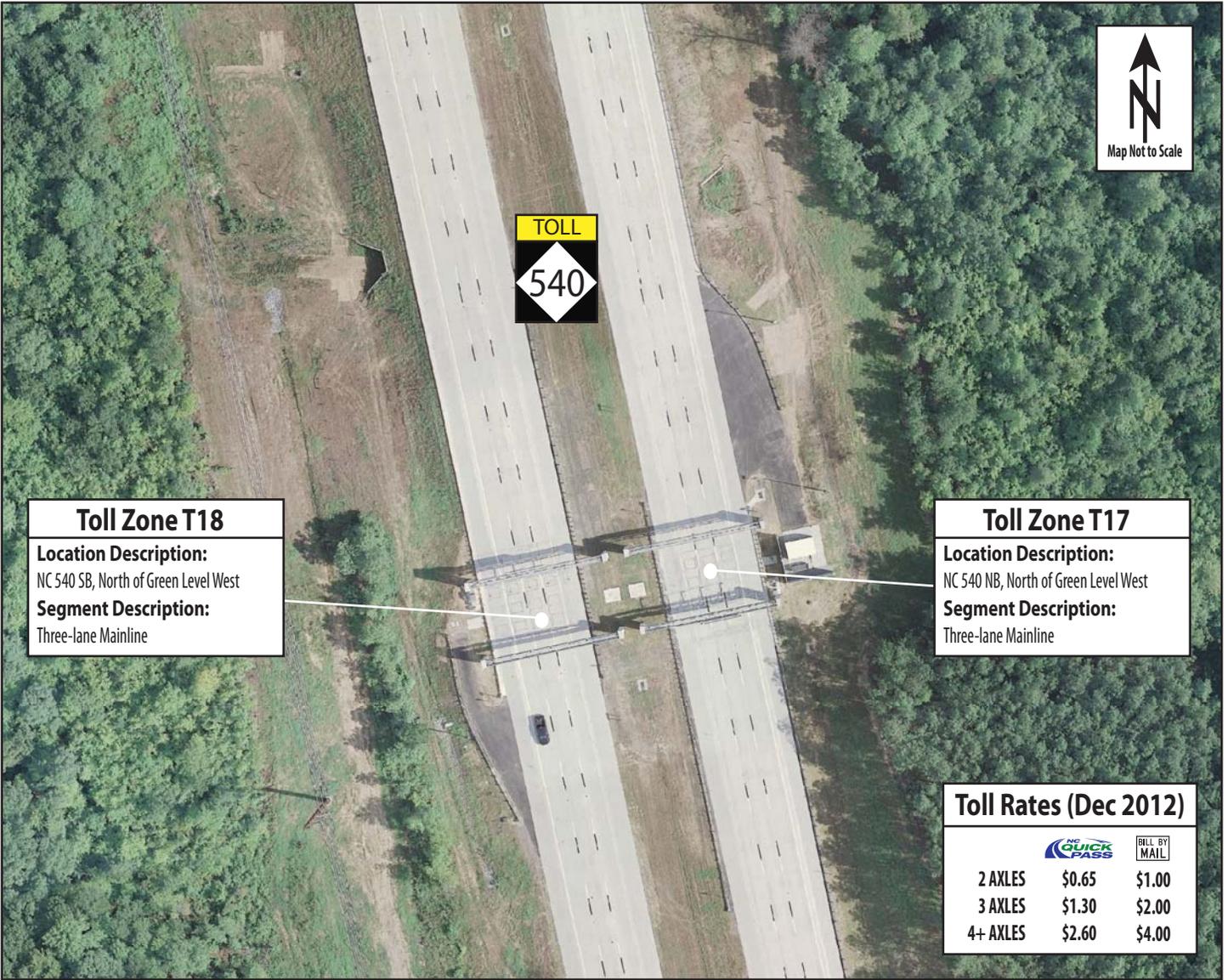
NC Quick Pass Percentage

Month	T09	T10
January	36%	44%
February	39%	48%
March	39%	47%
April	40%	48%
May	42%	49%
June	40%	47%
July	40%	49%
August	45%	51%
September	47%	52%
October	52%	54%
November	52%	55%
December	53%	56%



NC 147 North Ramp Toll Zones
 2012 Average Weekday Toll Transactions

Figure 20



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 (Dec 2012)

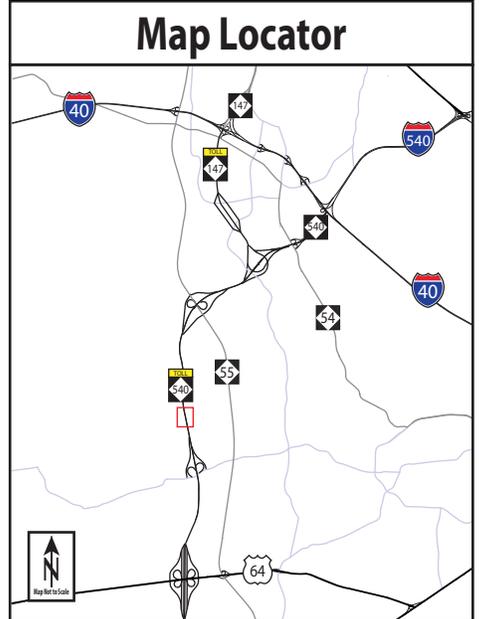
	NC QUICK PASS	BILL BY MAIL
2 AXLES	\$0.65	\$1.00
3 AXLES	\$1.30	\$2.00
4+ AXLES	\$2.60	\$4.00

Transactions by Direction

Month	T17	T18
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	2,860	3,440
September	3,190	3,590
October	3,500	3,770
November	3,590	3,850
December	4,080	4,430

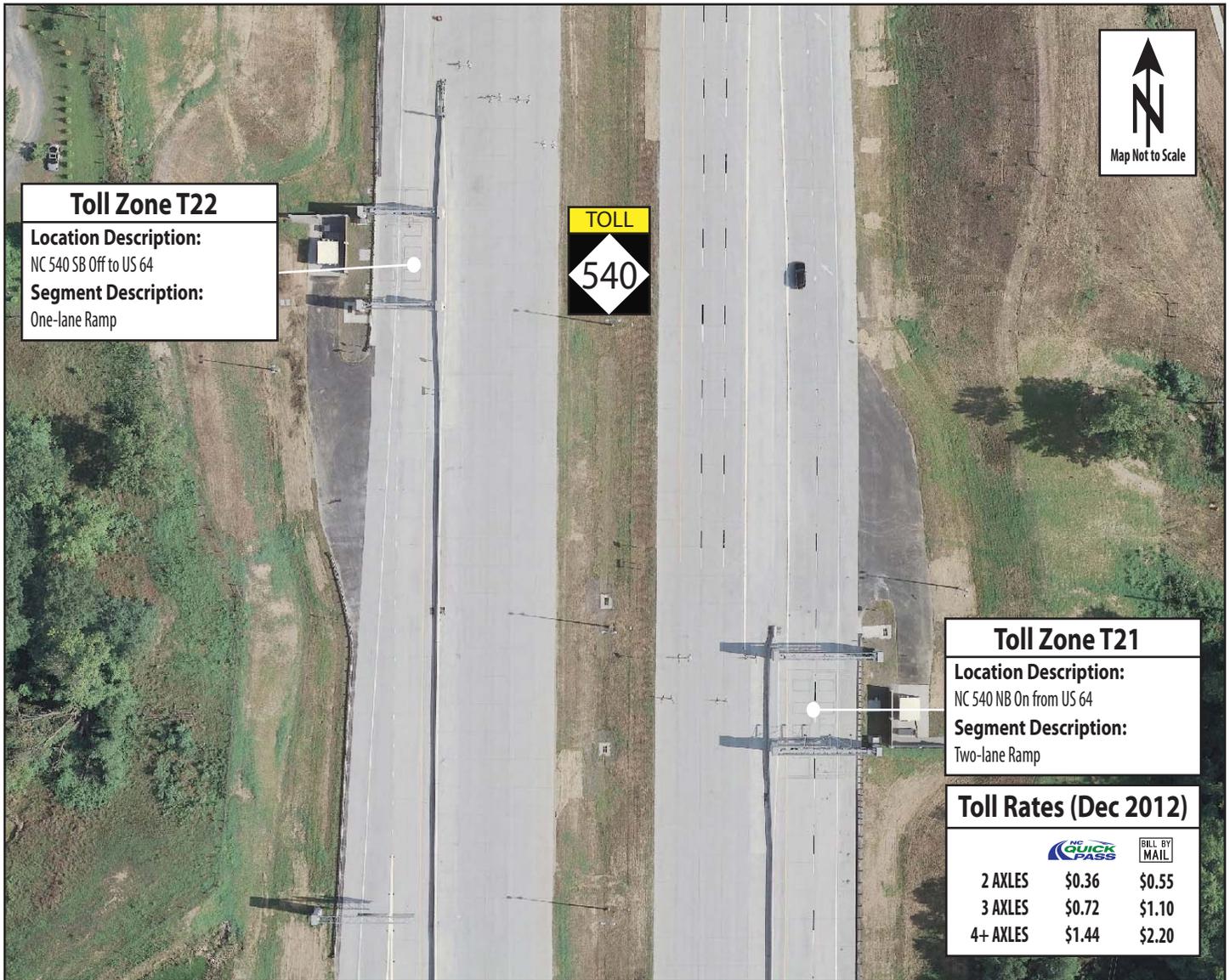
NC Quick Pass Percentage

Month	T17	T18
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	48%	47%
September	53%	53%
October	55%	56%
November	58%	58%
December	57%	58%



NC 540 Mainline Toll Zones
 2012 Average Weekday Toll Transactions

Figure 21



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 (Dec 2012)

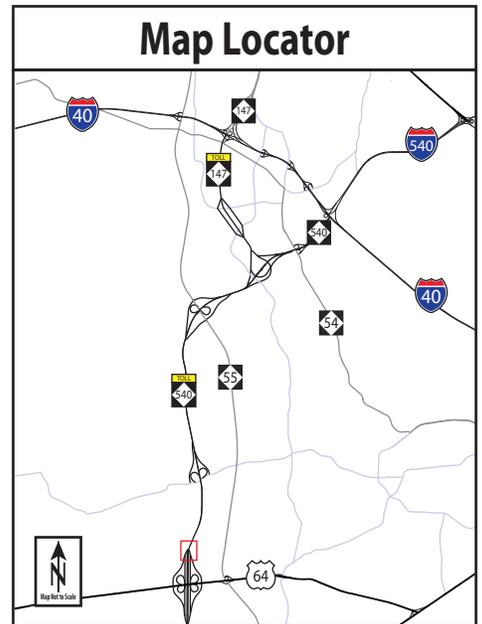
2 AXLES	\$0.36	\$0.55
3 AXLES	\$0.72	\$1.10
4+ AXLES	\$1.44	\$2.20

Transactions by Direction

Month	T21	T22
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	2,650	3,040
September	2,980	3,290
October	3,240	3,450
November	3,330	3,520
December	3,530	3,770

NC Quick Pass Percentage

Month	T21	T22
January	N/A	N/A
February	N/A	N/A
March	N/A	N/A
April	N/A	N/A
May	N/A	N/A
June	N/A	N/A
July	N/A	N/A
August	49%	47%
September	56%	54%
October	57%	56%
November	60%	58%
December	61%	54%



US 64 Ramp Toll Zones
 2012 Average Weekday Toll Transactions

Figure 22

Roadway Operations

ROADWAY OPERATIONS

Operations statistics are collected by NCTA State Highway Patrol (SHP) and Incident Management Assistance Patrol (IMAP) for the NCTA Toll Safety Patrol program. This program consists of dedicated State Highway Patrol and Incident Management Assistance Patrol, which provides one patrolman and one IMAP responder to the facility at all times from Monday through Friday. This section also presents response and traffic information for incidents that occurred during 2012.

The Turnpike Authority manages traffic and activities along the Triangle Expressway at the recently opened, 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 collect license plate images used for Bill-by-Mail toll collection. 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.

The Triangle Expressway also has contracted Highway Patrol officers and a dedicated Incident Management Assistance Patrol (IMAP) that 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.

State Highway Patrol and Incident Management Assistance Patrol Statistics

Table 6 presents operating statistics for the State Highway Patrol and Incident Management Assistance Patrol.

Table 6: State Highway Patrol and Incident Management Assistance Patrol Statistics

Charge	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
Speed Violations	59	72	87	92	91	68	76	138	87	105	72	105	1,052
Alcohol Violations	0	0	0	0	2	0	0	0	0	0	0	1	3
Seat Belt Violations	14	6	14	7	10	18	14	9	9	17	6	3	127
Child Restraint Violations	0	0	1	2	2	0	0	1	1	0	0	0	7
Other Violations	72	73	68	61	77	57	103	71	41	63	90	50	826
Total Charges	145	151	170	162	182	143	193	219	138	185	168	159	2,015
Warnings	146	160	127	77	108	90	85	124	133	112	129	124	1,415
Vehicles Towed	0	0	0	0	0	0	0	0	0	0	0	0	0
Crashes Investigated	3	4	2	6	6	1	2	2	5	4	11	4	50

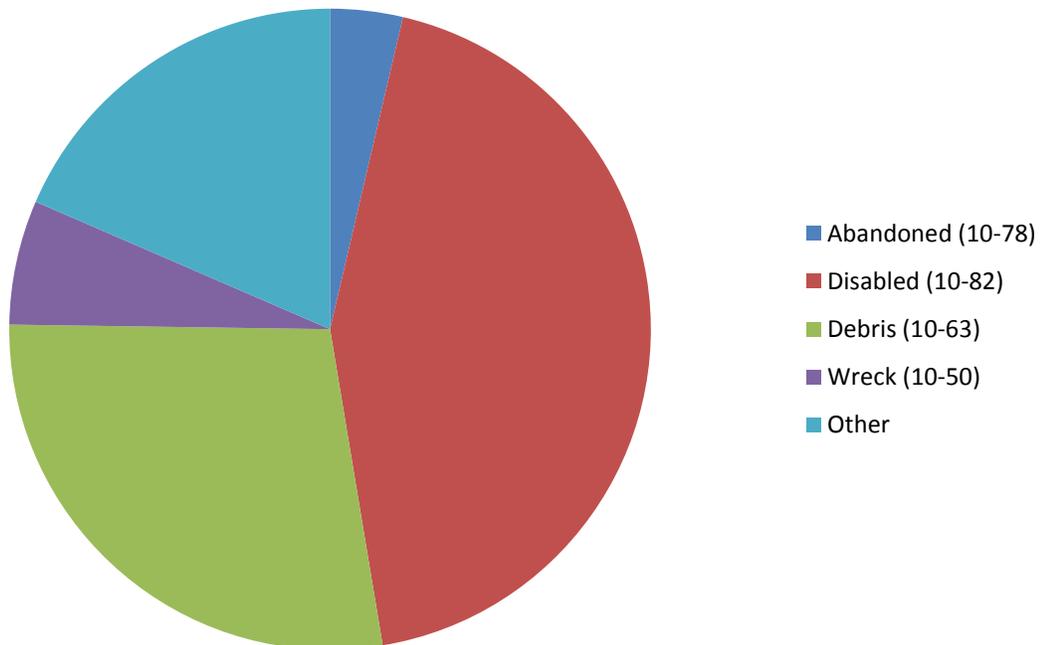
The IMAP assists with stranded motorists and incident clearance, thereby maintaining the flow of traffic along the roadway. IMAP drivers patrol the Triangle Expressway and had a total of 876 assists in 2012. Table 7 and Figure 23 present the monthly IMAP assists, by type, for the Triangle Expressway. The “other” category includes the reporting categories of traffic control, assist other unit, secured load, called for assistance, directions, transported, unable to locate and no assistance.

Table 7: Monthly IMAP Assistance by Type

Assist Type	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Total
Abandoned Vehicle	3	5	2	2	3	2	2	5	2	1	3	2	32
Disabled	47	24	42	44	38	43	32	48	42	7	11	5	383
Debris	27	7	13	20	21	27	15	30	22	21	26	15	244
Wreck	1	1	3	6	11	10	4	5	5	3	4	2	55
Other	1	0	2	8	1	0	10	2	2	47	40	49	162
Total Assists	79	37	62	80	74	82	63	90	73	79	84	73	876

Figure 23: IMAP Assistance by Type and 10-Code

IMAP Assistance by Type for 2012



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.

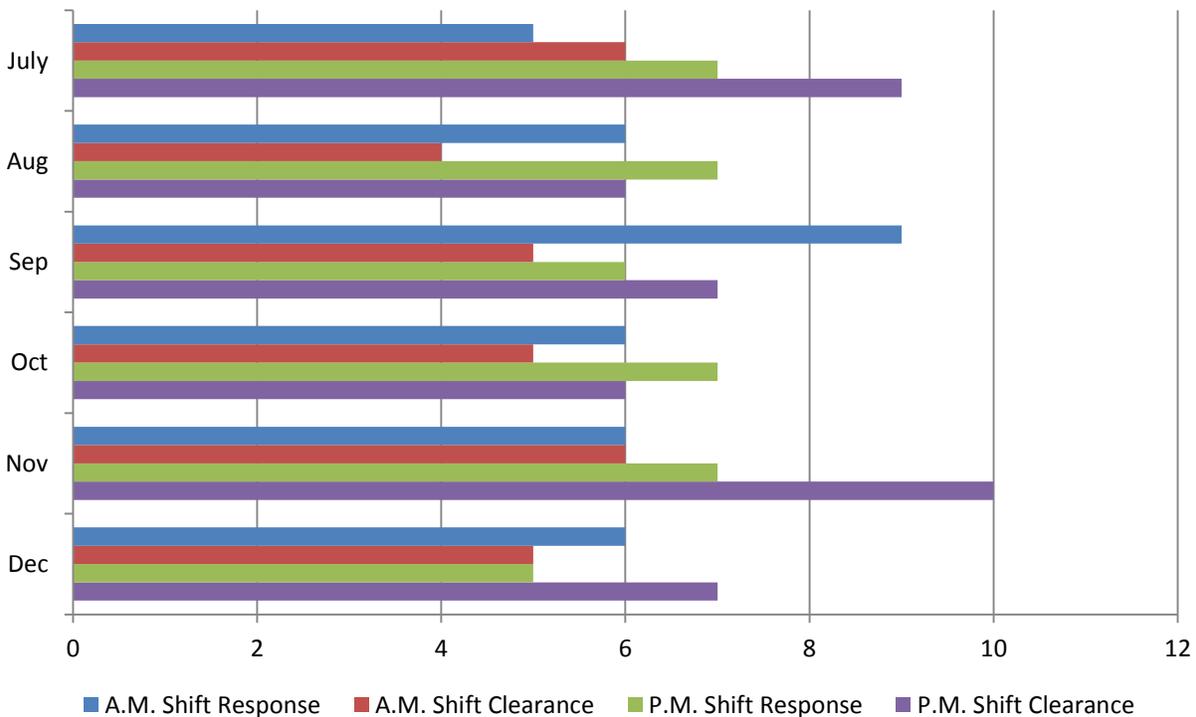
Clear time is the time from which it takes the responder to clear the incident and return the roadway to normal operation. The IMAP staff AM shift occurs from 6AM to 2PM and the PM shift occurs from 2PM to 10PM. Shift response times may differ due to the number of drivers on duty and their coverage areas.

Table 8 and Figure 24 present the average IMAP assistance response and clear times, in minutes, for the Triangle Expressway. This data was not recorded by the TMC until July 2012. N/A has been entered for months that did not record data.

Table 8: Monthly Average IMAP Assistance Response and Clear Times (in Minutes)

Response Type	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	2012
A.M. Shift Response	N/A	N/A	N/A	N/A	N/A	N/A	5	6	9	6	6	6	6
A.M. Shift Clearance	N/A	N/A	N/A	N/A	N/A	N/A	6	4	5	5	6	5	5
P.M. Shift Response	N/A	N/A	N/A	N/A	N/A	N/A	7	7	6	7	7	5	7
P.M. Shift Clearance	N/A	N/A	N/A	N/A	N/A	N/A	9	6	7	6	10	7	8

Figure 24: Average IMAP Assistance Response and Clear Times (in Minutes)



Roadway Maintenance

ROADWAY MAINTENANCE

This section outlines the NCTA Maintenance Rating Program (MRP), which is a maintenance evaluation program for roadway features and toll facilities on the NCTA system. 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 survey 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 relationship 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 Limits

The first segment for maintenance analysis of the Triangle Expressway (Segment A) consists of Toll NC 147 and Toll NC 540 from NC 54 to NC 55. Toll NC 147 opened to traffic on December 8, 2011 and toll collection began on January 3, 2012. Toll NC 540 from NC 54 to NC 55 (Cary) has been open to traffic under the NCDOT since July of 2007. NCTA began operating this segment on December 8, 2011, and toll collection began on August 2, 2012. Assessments coincided with the opening of the roadway to traffic, rather than the opening of the roadway to tolling, which is why Segment A differs from Phase I. The Toll NC 540 portion between NC 54 and NC 55 opened to tolling in August 2012 and is included in Phase I, but not in Segment A.

Segment B consists of Toll NC 540 from NC 55 to US 64. This segment opened to traffic and to toll collection on August 2, 2012. The Toll NC 540 portion between NC 54 and NC 55 opened to tolling in August 2012 and is included in Segment B, but not in Phase II.

Segment C consists of Toll NC 540 from US 64 to NC 55 (Holly Springs). It is expected to open to traffic in December of 2012, with toll collection beginning January 2, 2013. Segment C and Phase III consist of the same limits.

Assessment Schedule

As part of the NCTA MRP, a "baseline" assessment is scheduled to be completed for each newly opened roadway, soon after opening to toll collection. The baseline assessments include complete inventory data collection and assessment on 100% of the roadway assets. Once the initial baseline assessment is completed, future assessments for that segment will switch over to a statistical sampling assessment, currently scheduled for the months of February, May, August, and November. The schedule is provided on the following page in Table 9.

Table 9: MRP Assessment Schedule

	Operational Turnover Date	Baseline Assessment	February 2013 Statistical Assessment	May 2013 Statistical Assessment	August 2013 Statistical Assessment	November 2013 Statistical Assessment
Segment A	Completed January, 2012	Completed July, 2012	Scheduled	Scheduled	Scheduled	Scheduled
Segment B	Completed August, 2012	Completed September, 2012				
Segment C	Scheduled January, 2013	Scheduled February, 2013				

Assessment Results

A table consisting of the results from the 2012 MRP Assessments is provided below in Table 10.

Table 10: MRP Assessment Results

Element	Segment A Baseline Assessment Rating	Segment B Baseline Assessment Rating
Road Surface	99.4	99.0
Unpaved Shoulders	97.8	98.5
Drainage	92.8	93.6
Roadside	91.9	98.7
Traffic Control Devices	87.2	94.4
Overall MRP Performance Rating	93.3	96.7