



NORTH CAROLINA

**Turnpike Authority**

## **Operations Statistics Report**

Triangle Expressway

### **2017 First Quarter Report**

January - March

1 S. Wilmington Street  
Raleigh, NC 27601



**Last Updated:  
May 2, 2017**

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## INTRODUCTION

### Purpose

The North Carolina Turnpike Authority (NCTA) presents the operations statistics for the Triangle Expressway during the first quarter (January – March) of 2017. The report includes data related to traffic volumes, customer service center operations, 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

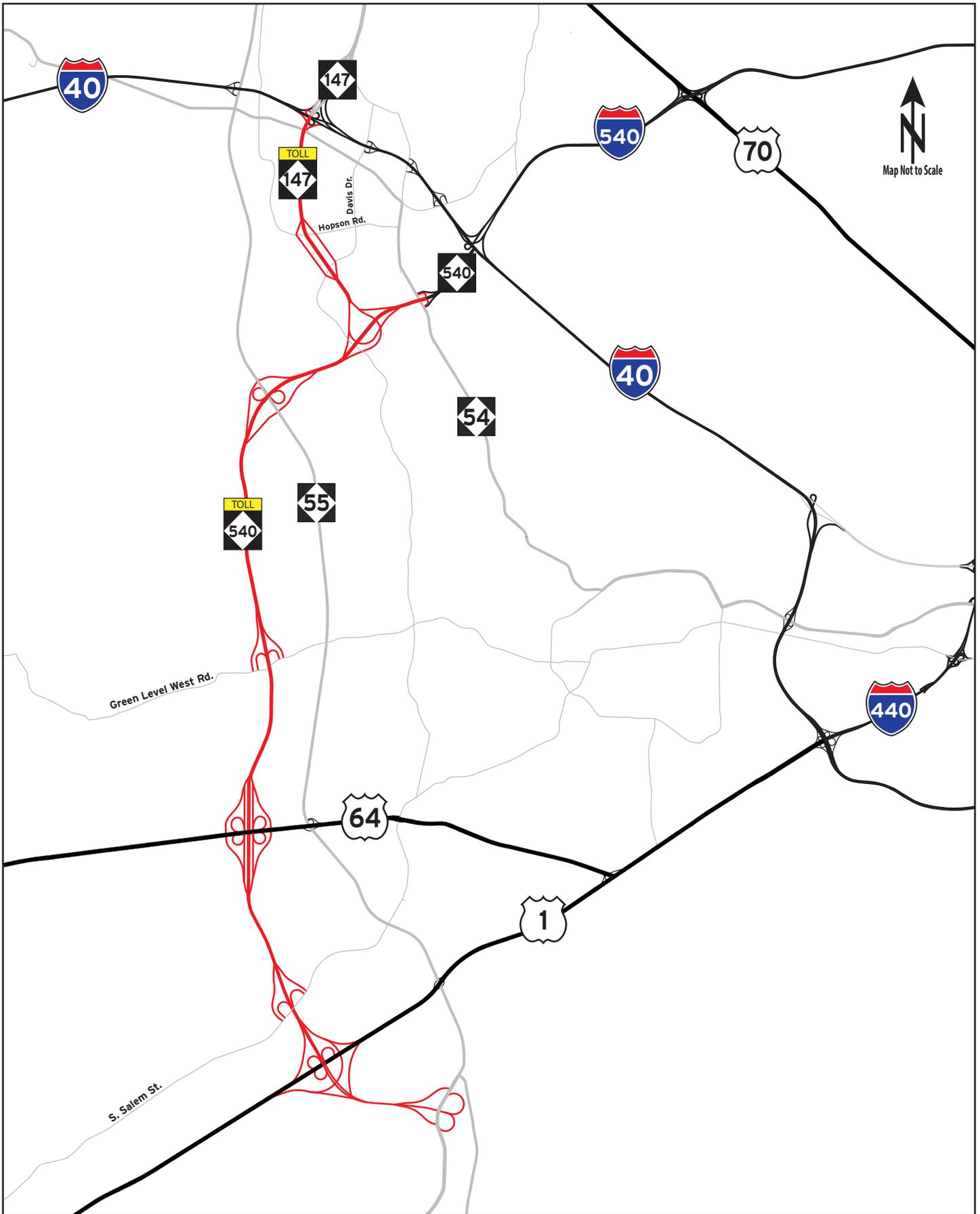
The Triangle Expressway is an 18.8-mile toll road that extends the partially complete “Outer Loop” around the greater Raleigh, North Carolina area from I-40 to NC-55 Bypass. The six-lane, controlled-access toll facility relieves congestion on NC-55, while improving access to the Research Triangle Park 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 15.4 miles of toll road between NC-54 in western Cary and the NC-55 Bypass near the Town of Holly Springs. The section from NC-54 to US-64 includes interchanges at NC-54, 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

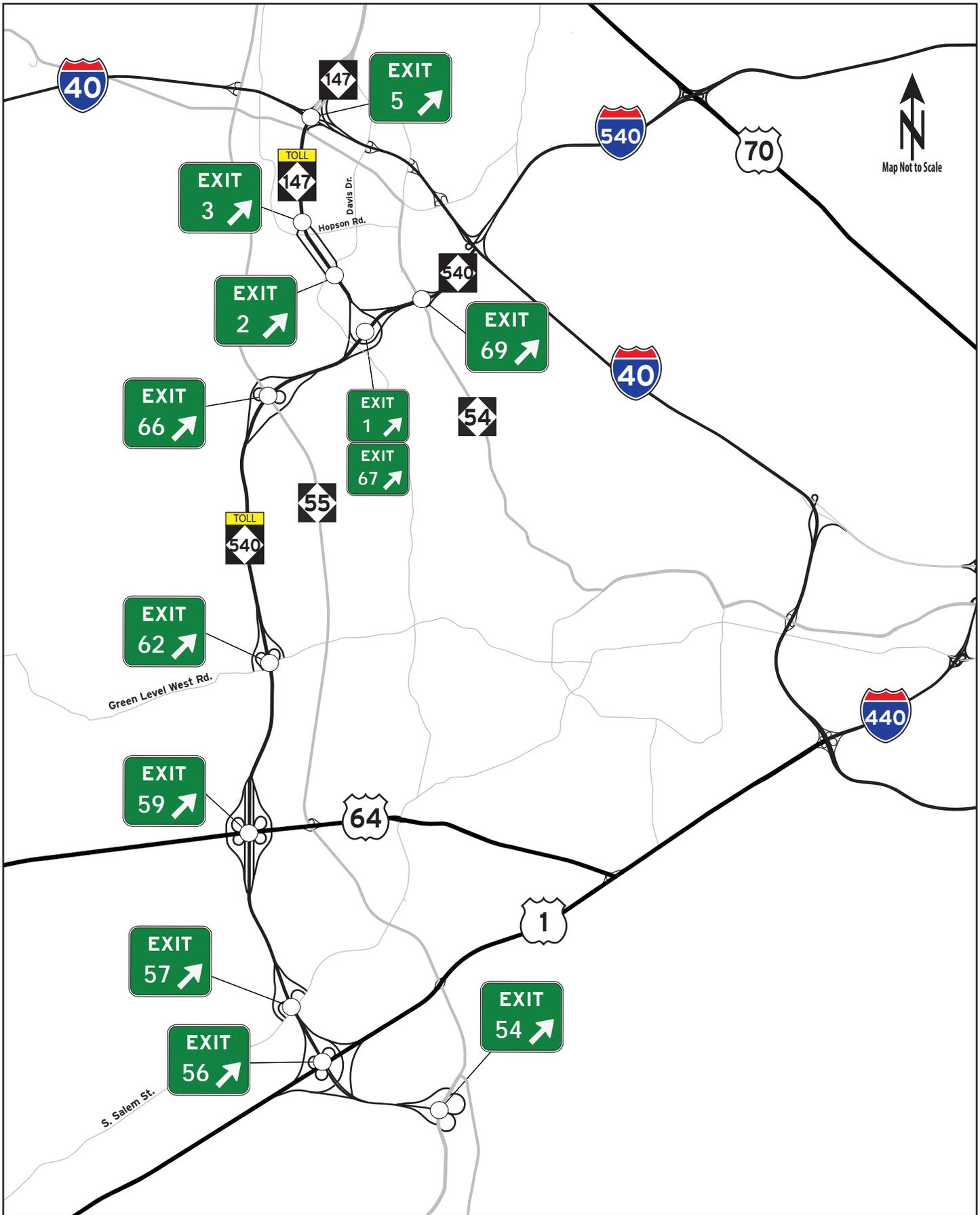
Current and historical traffic data is collected and stored through the use of roadside microwave vehicle detectors (MVD's) installed throughout the Triangle Expressway. The data provides an overview of the roadway's current utilization. The data can also be analyzed to identify trends that could more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

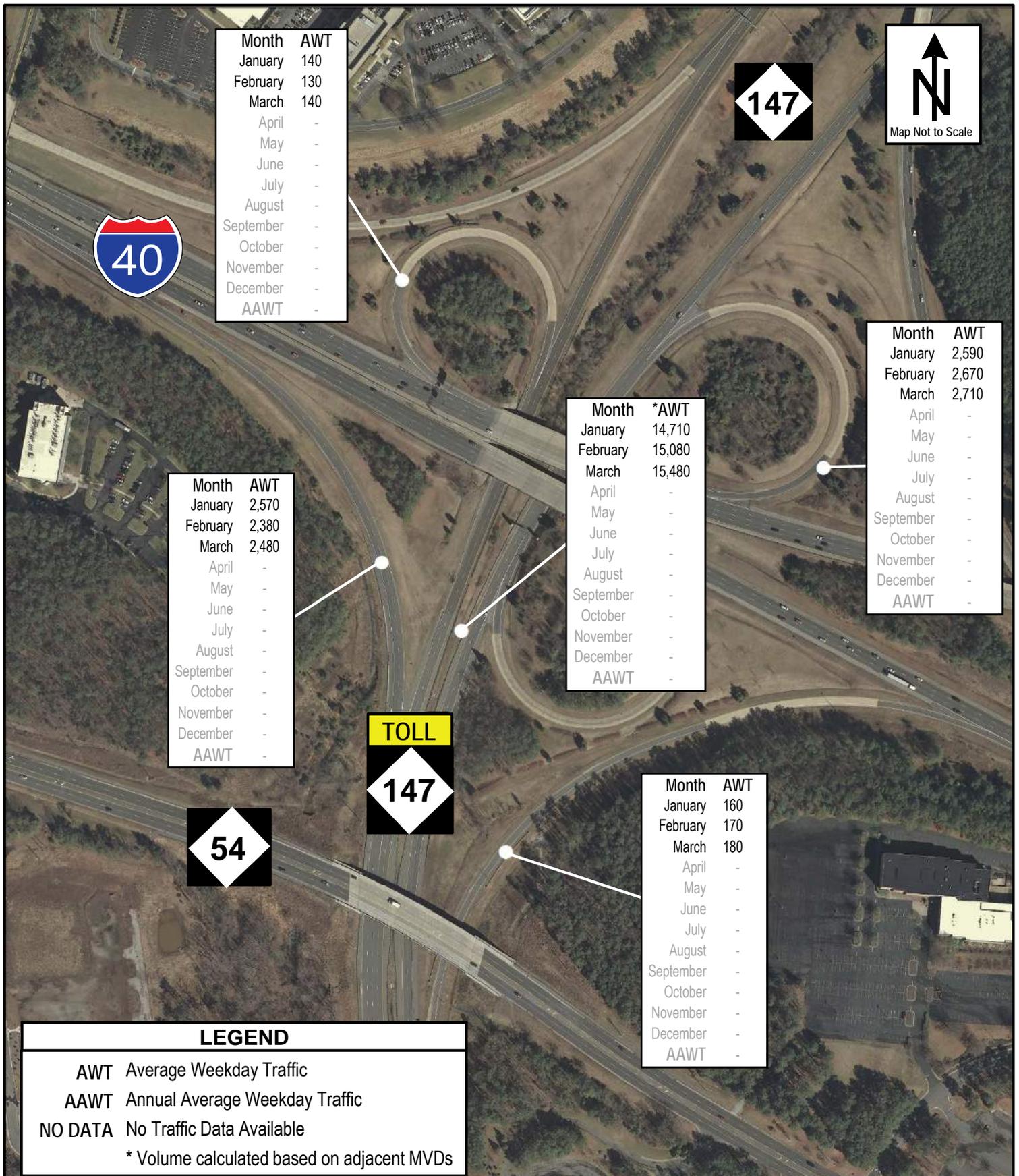
Traffic volume data is collected on all ramps and mainline segments between interchanges. The location of interchanges along the Triangle Expressway can be seen in *Figure 2*. Typically there is a large difference between peak and off-peak volumes, as well as between weekday and weekend volumes. This 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.

*Figures 3 to 13* contain visual representations of AWT along the facility which are representative of NCTA's MVD data. It should be noted that if an MVD fails to provide reliable data (meeting the established threshold) for at least five days in a month then "NO DATA" is reported for that MVD.



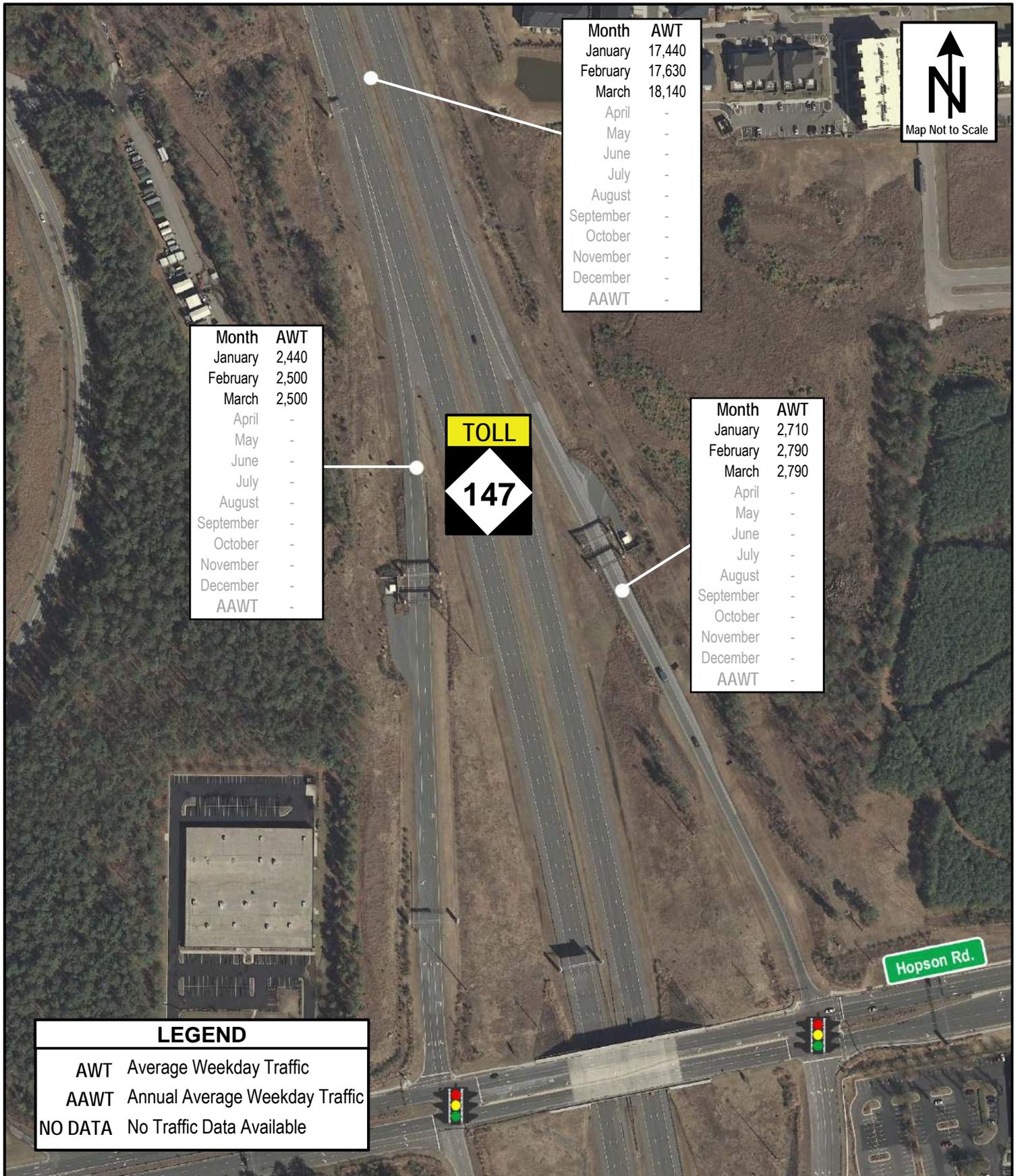
**Triangle Expressway Interchange Map**

**Figure 2**



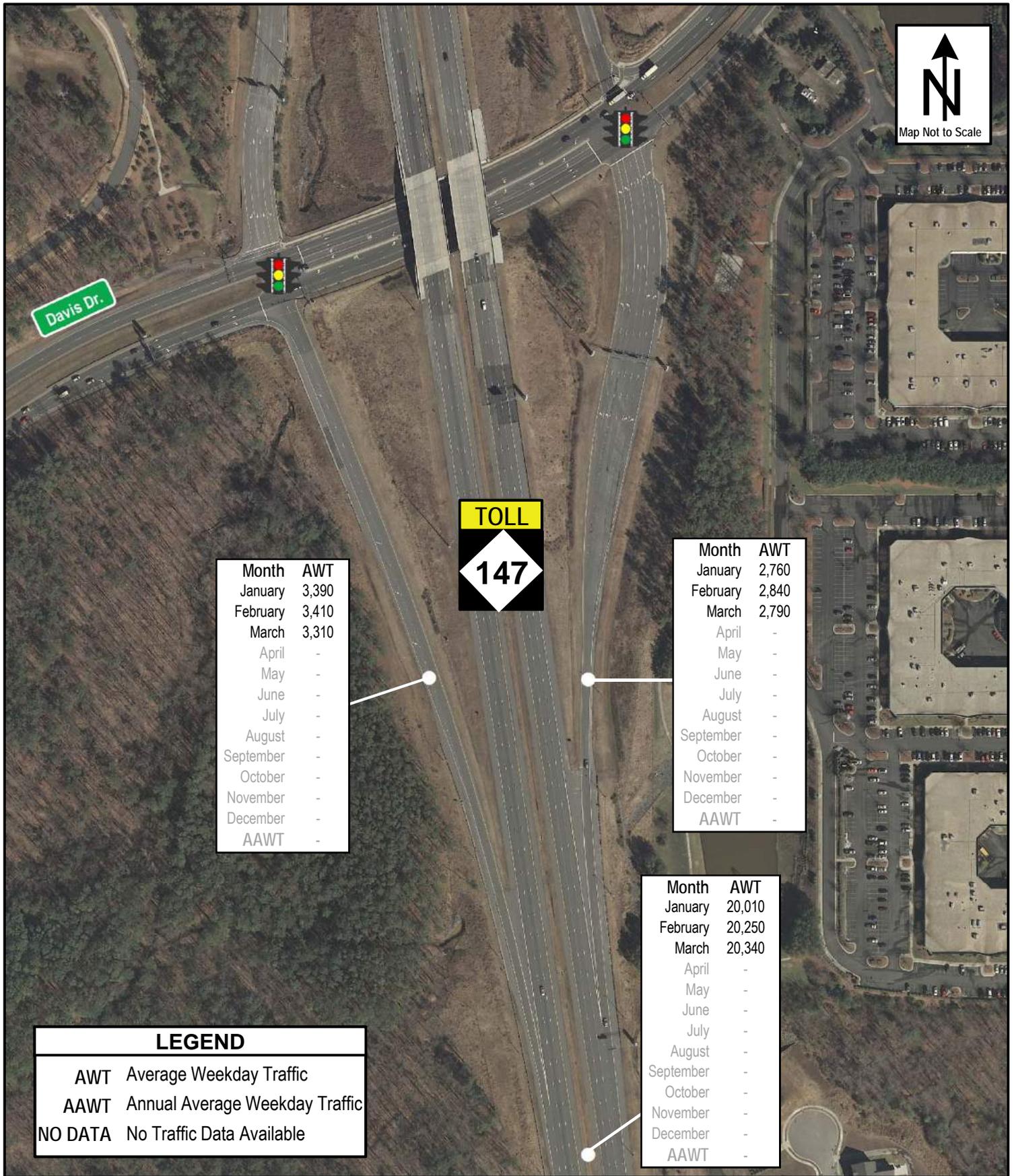
**NC-147 at I-40 Interchange**  
 2017 Average Weekday Traffic

**Figure**  
**3**



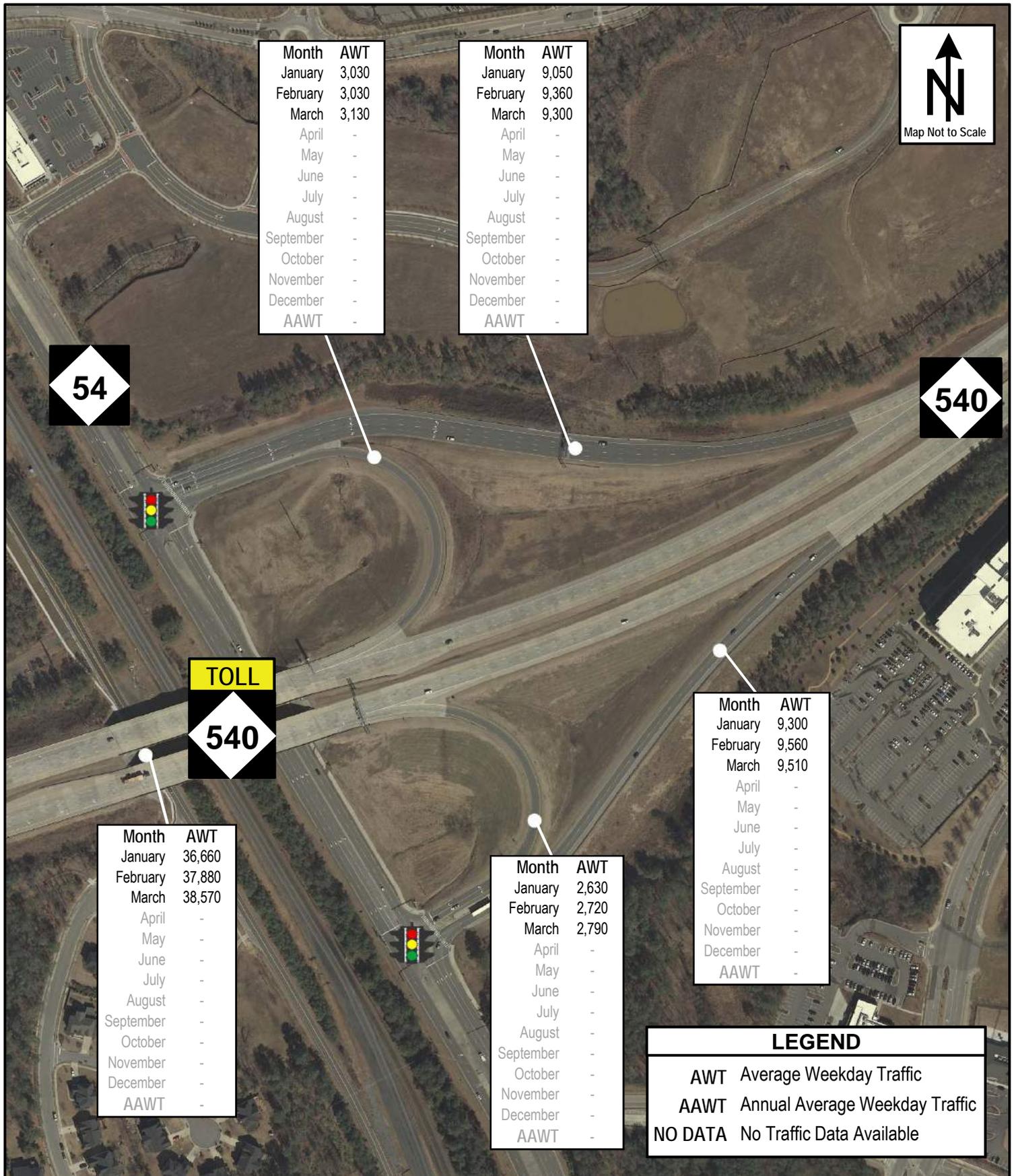
**NC-147 at Hopson Rd. Interchange**  
2017 Average Weekday Traffic

**Figure**  
**4**



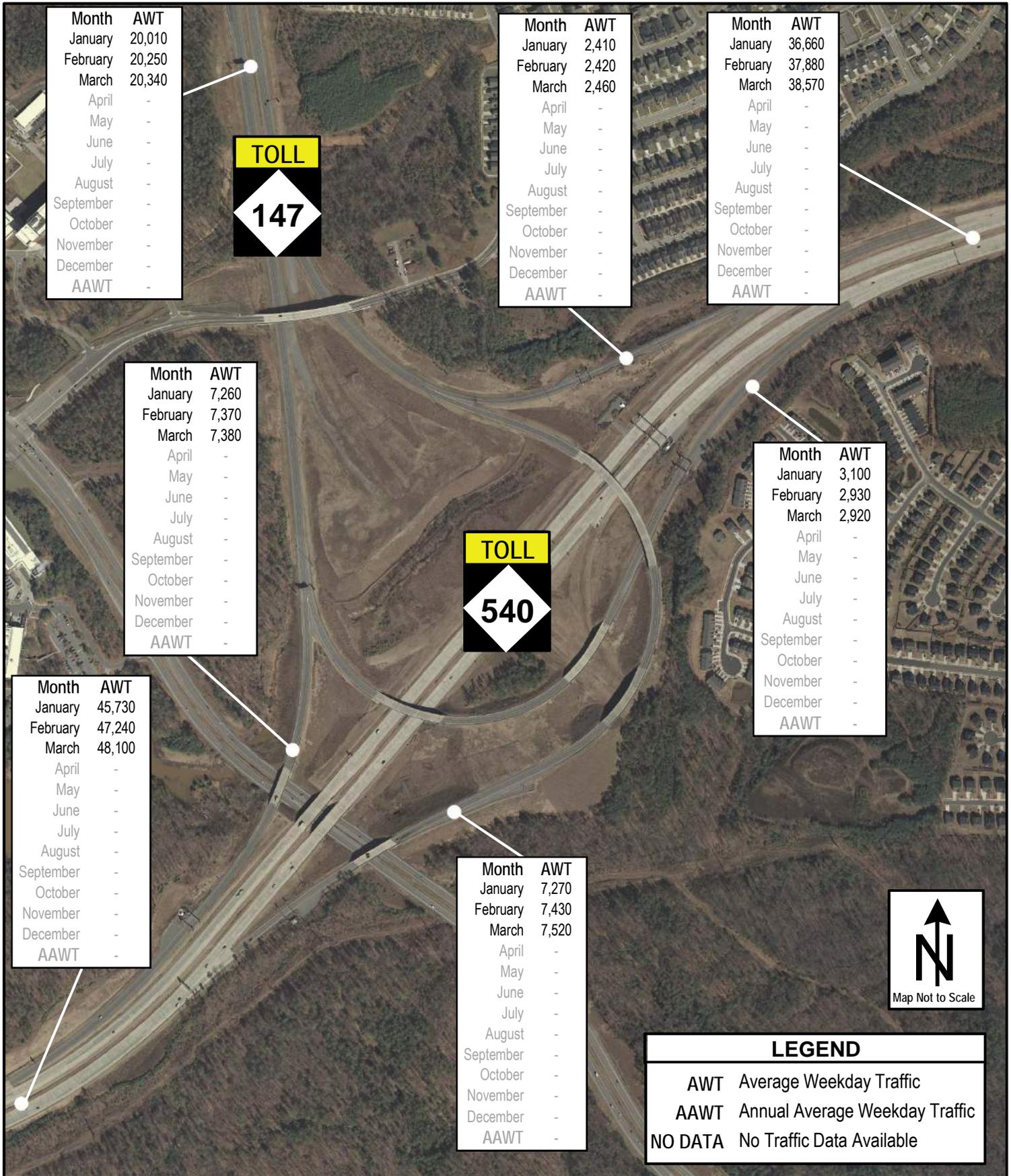
**NC-147 at Davis Dr. Interchange**  
2017 Average Weekday Traffic

**Figure**  
**5**



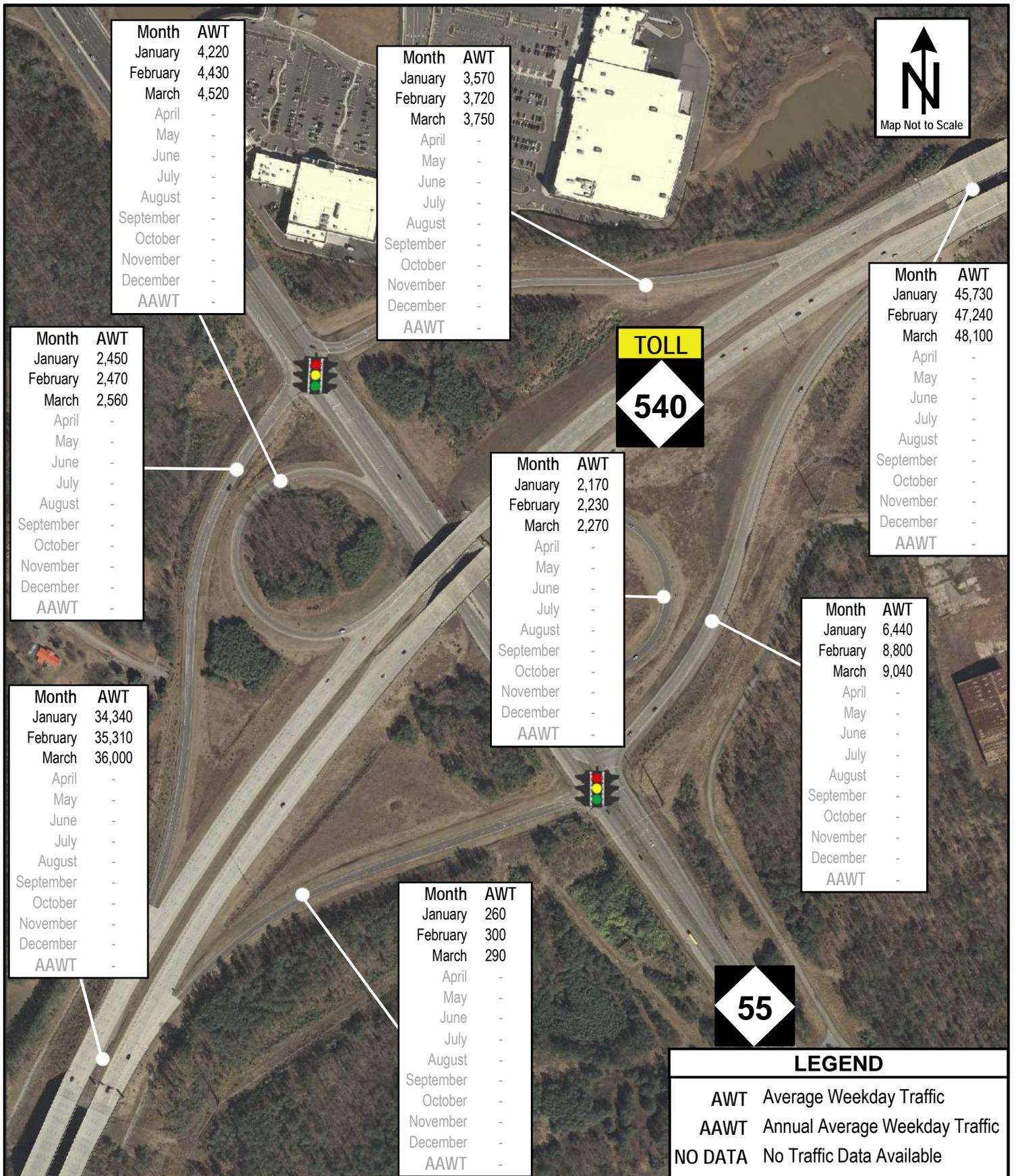
**NC-540 at NC-54 Interchange**  
2017 Average Weekday Traffic

**Figure**  
**6**



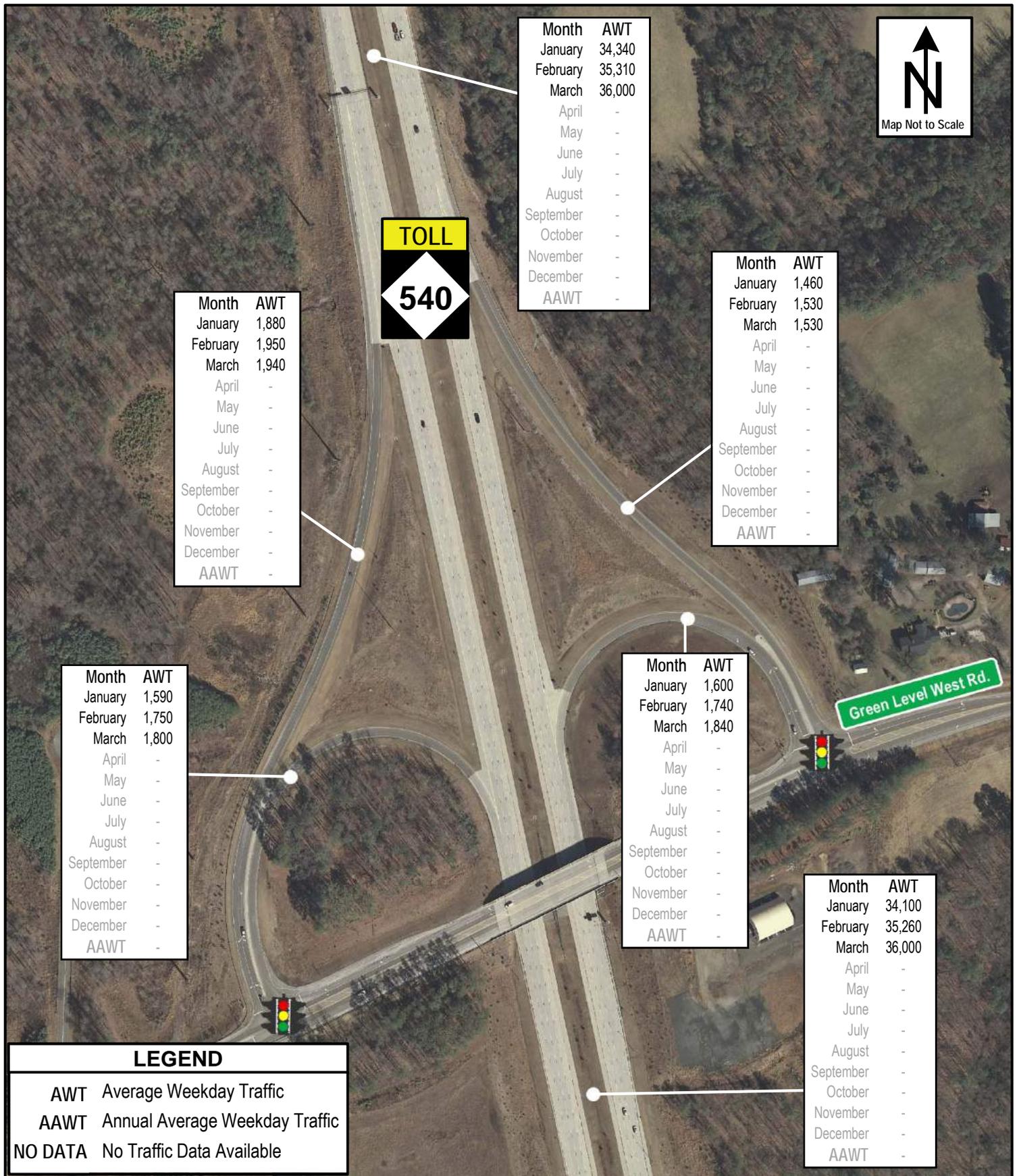
**NC-540 at NC-147 Interchange**  
2017 Average Weekday Traffic

**Figure**  
**7**



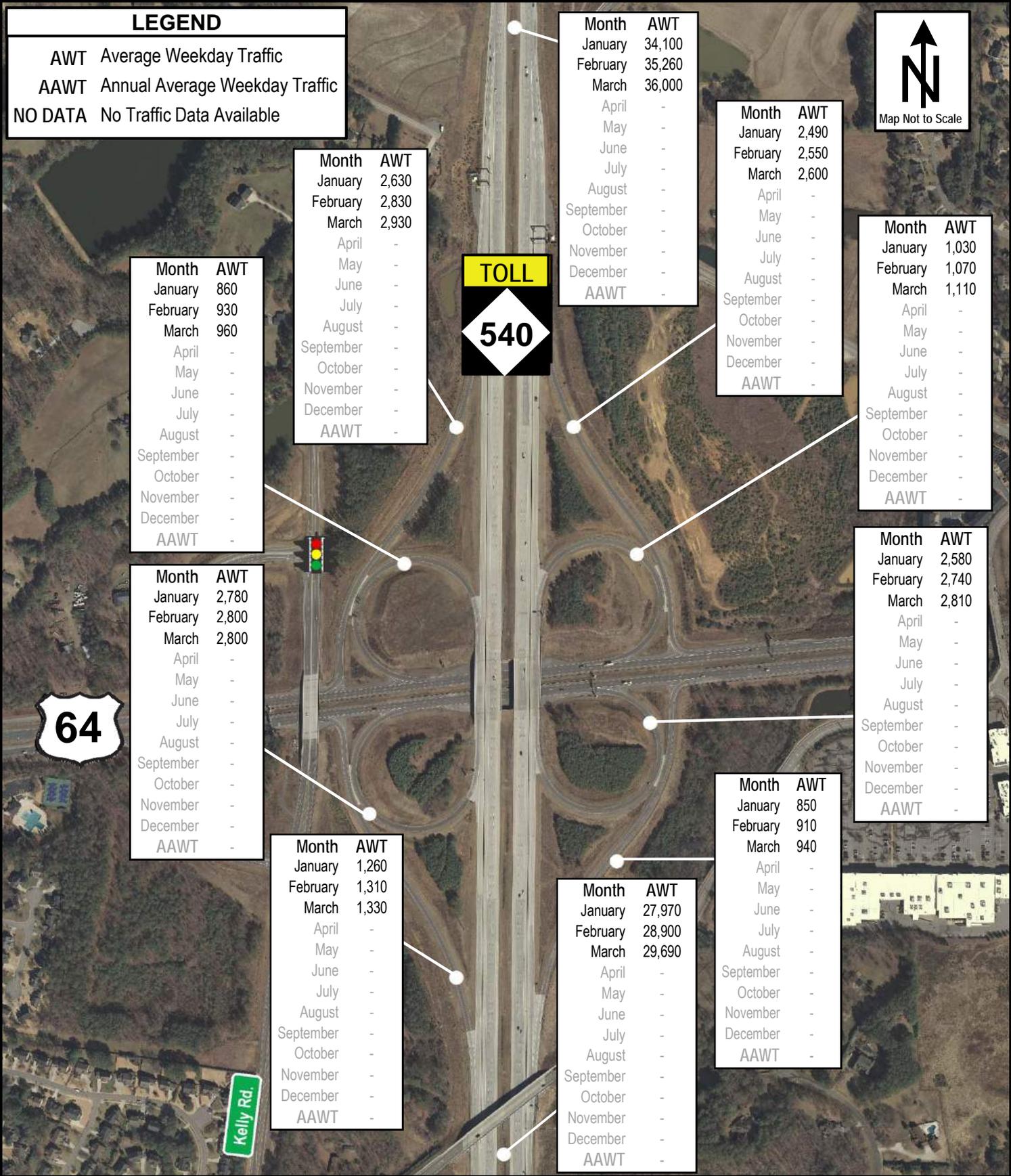
**NC-540 at NC-55 Interchange**  
 2017 Average Weekday Traffic

**Figure**  
**8**



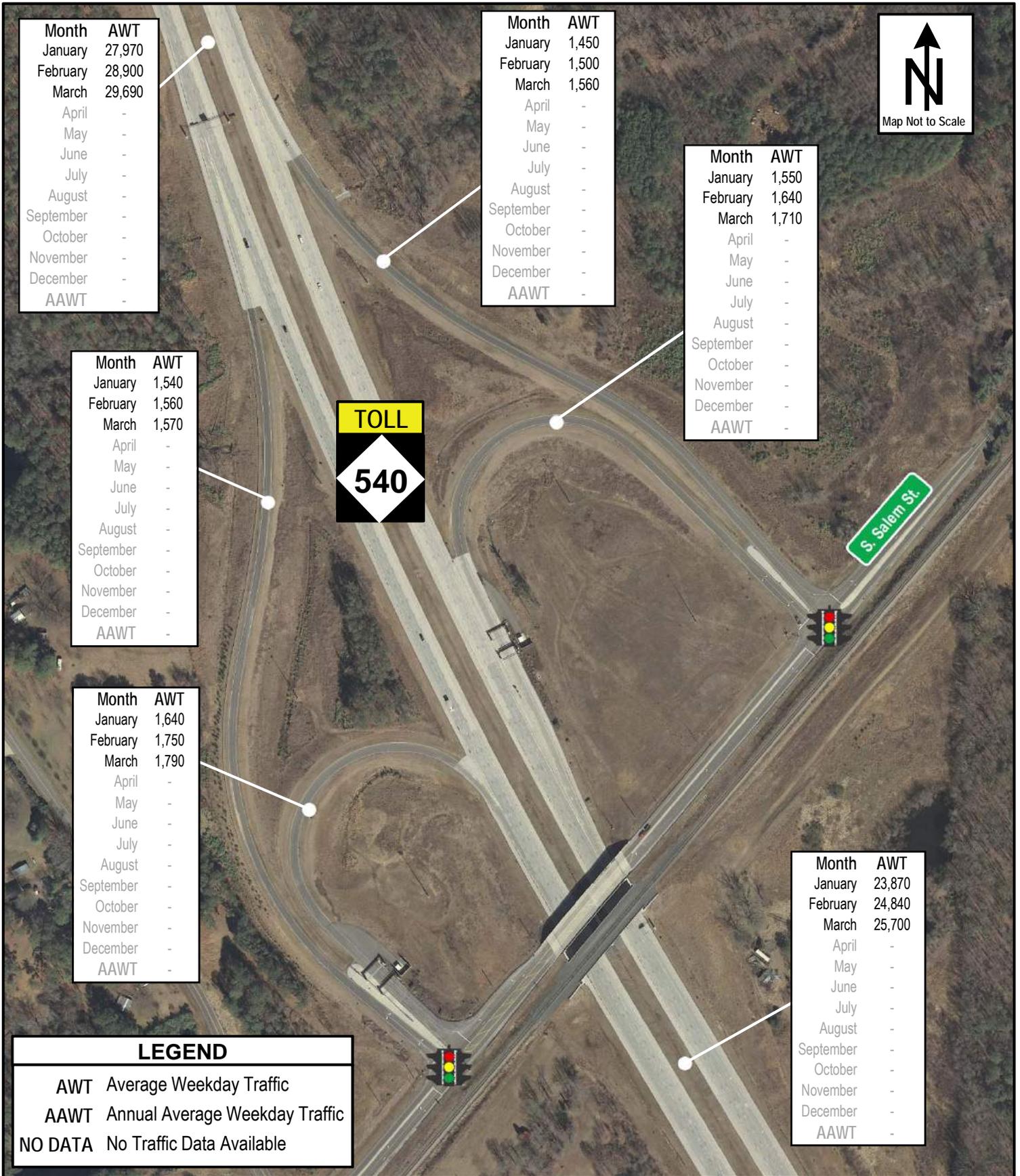
**NC-540 at Green Level West Rd. Interchange**  
 2017 Average Weekday Traffic

**Figure**  
**9**



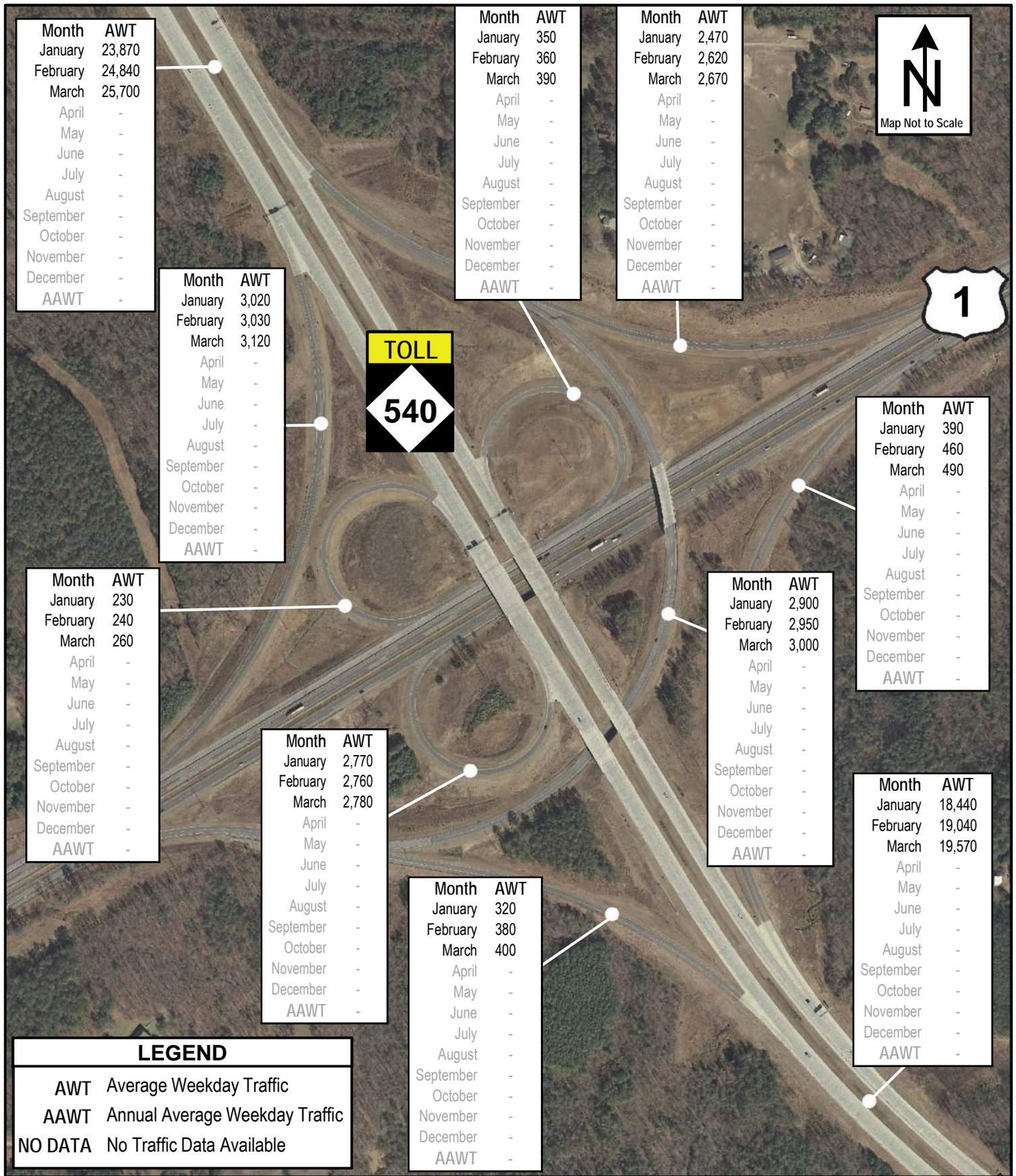
**NC-540 at US-64 Interchange**  
2017 Average Weekday Traffic

**Figure**  
**10**



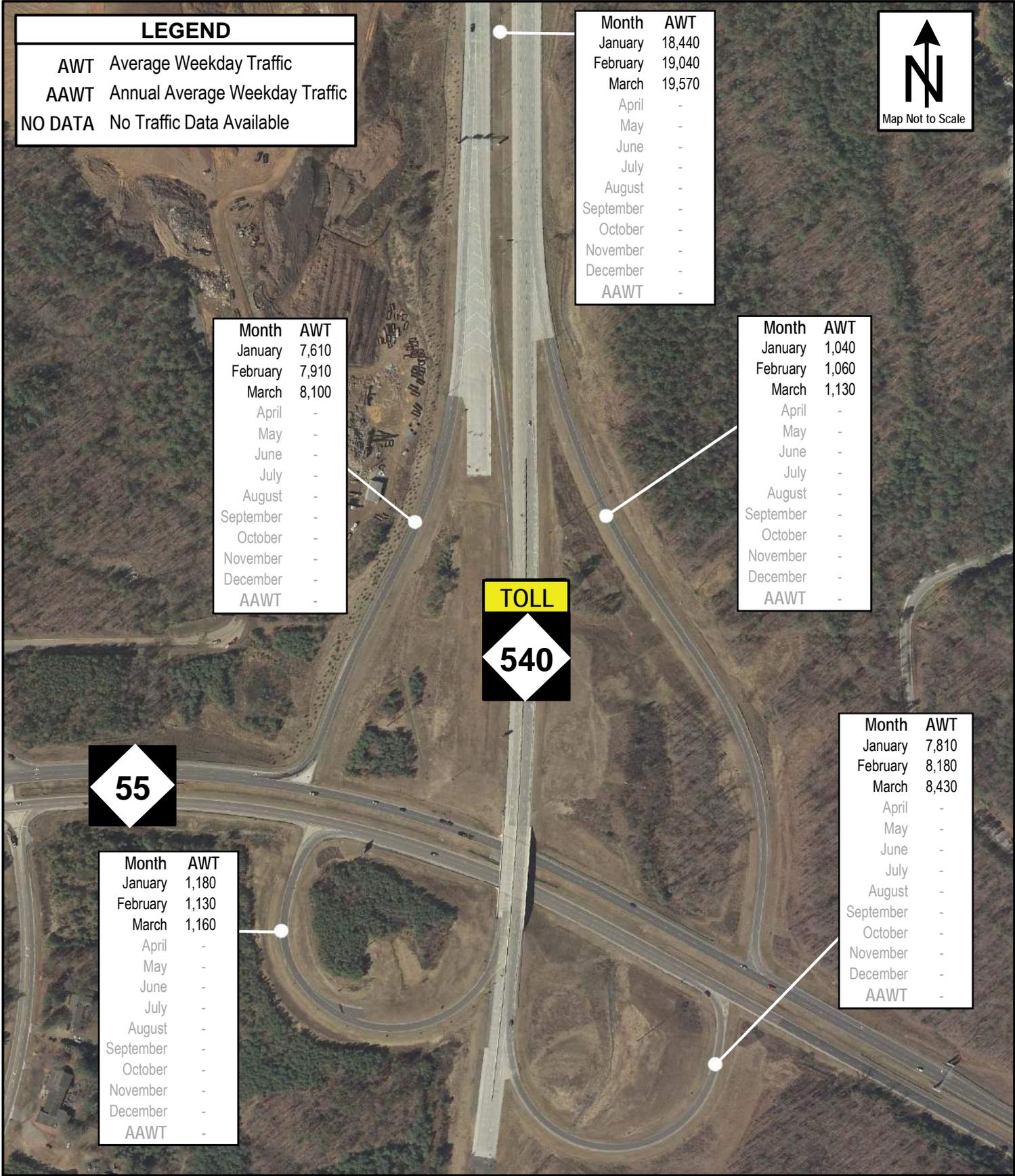
**NC-540 at S. Salem St. Interchange**  
 2017 Average Weekday Traffic

**Figure**  
**11**



**NC-540 at US-1 Interchange**  
2017 Average Weekday Traffic

**Figure**  
**12**



**NC-540 at NC-55 Bypass Interchange**  
2017 Average Weekday Traffic

**Figure 13**

# **Customer Service Center Operations Statistics**

## CUSTOMER SERVICE CENTER OPERATIONS STATISTICS

The function of the Customer Service Center (CSC) is to provide customer-facing activities such as account management services and customer call and walk-in services. The CSC also provides support services such as mail room, transponder inventory management and fulfillment, financial/banking, accounting and reconciliation, Bill by Mail document quality control (QC), video image review and processing services, and interoperability/reciprocity management with E-ZPass®, SunPass®, and PeachPass®.

Current and historical Triangle Expressway customer service statistics are collected and reported through the NC Quick Pass® CSC, located in Morrisville, NC. These statistics provide 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 all-electronic tolling (AET); 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 section are representative of the entire Triangle Expressway facility. Weekly, monthly, and/or year-to-date (YTD) statistics are presented in the following datasets:

- Customer Calls by Reason
- Payments Processed
- Walk-in Customers
- 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**

**First Quarter, January – March 2017**

**Customer Calls by Reason**

This section presents the number of calls handled by customer service representatives (CSRs) from the NC Quick Pass® CSC. The number of calls presented in this section are broken down by pre-determined calling reason categories including Bill by Mail Payment, Bill by Mail Inquiry, NC Quick Pass® Inquiry, Registration Hold Inquiry, Vehicle/Account Information Update, and License Plate Mismatch Dispute. The Other category encompasses calling reasons other than the pre-determined categories.

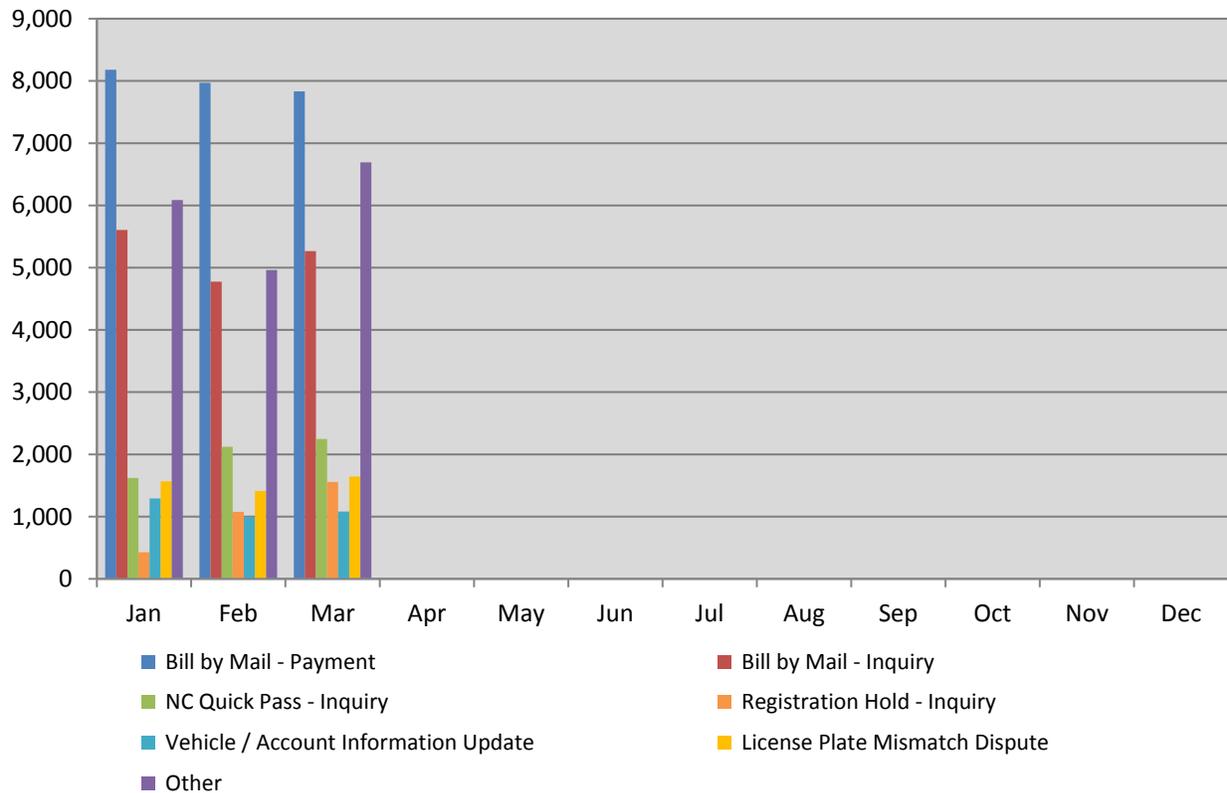
Table 1 presents a summary of the total monthly number of customer calls handled by CSRs, by reason.

**Table 1: NC Quick Pass® CSC Calls by Reason, First Quarter by Month**

| Month    | Bill by Mail - Payment | Bill by Mail - Inquiry | NC Quick Pass® - Inquiry | Registration Hold - Inquiry | Vehicle / Account Information Update | License Plate Mismatch Dispute | Other | Total         |
|----------|------------------------|------------------------|--------------------------|-----------------------------|--------------------------------------|--------------------------------|-------|---------------|
| January  | 8,181                  | 5,605                  | 1,622                    | 427                         | 1,290                                | 1,566                          | 6,087 | <b>24,778</b> |
| February | 7,969                  | 4,774                  | 2,121                    | 1,077                       | 993                                  | 1,411                          | 4,962 | <b>23,307</b> |
| March    | 7,831                  | 5,266                  | 2,248                    | 1,557                       | 1,082                                | 1,643                          | 6,693 | <b>26,320</b> |

Figure 14 presents the total monthly number of customer calls handled by CSRs during 2017, by reason.

**Figure 14: 2017 NC Quick Pass® CSC Calls by Reason, YTD**



**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Payments Processed**

This section presents the volume of payments processed by the NC Quick Pass® CSC by payment channel. Payment channels considered in this section include the Web, Call Center, Mail, Interactive Voice Response (IVR), and Walk-in. The Back Office System (BOS) records payment volume based on the number of different revenue types and invoices paid during a given period. For example, if a Bill by Mail invoice including two tolls and one Processing Fee is paid the BOS counts that as two payments, one for tolls and one for Processing Fee, even though only a single payment was received and processed.

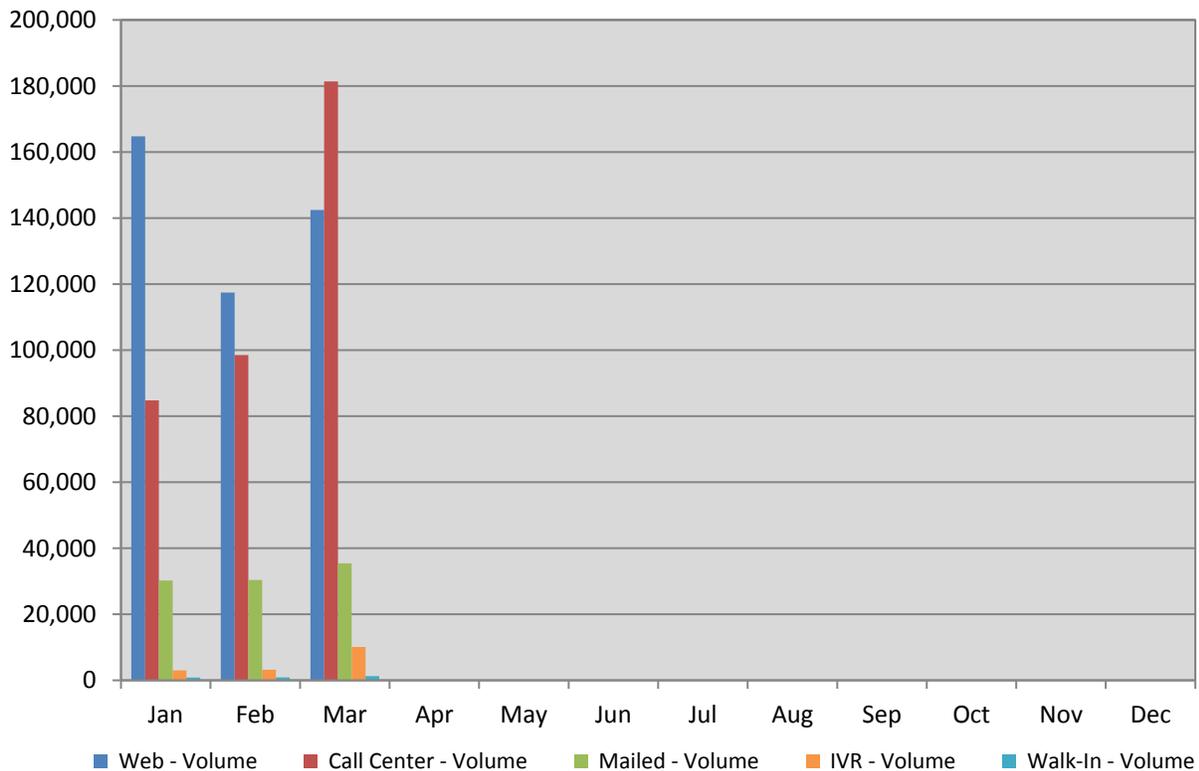
Table 2 presents a summary of the total monthly payments processed by the NC Quick Pass® CSC, by payment channel.

**Table 2: NC Quick Pass® CSC Payments Processed, First Quarter by Month**

| Month    | Web Volume | Call Center Volume | Mailed Volume | IVR Volume | Walk-In Volume | Total          |
|----------|------------|--------------------|---------------|------------|----------------|----------------|
| January  | 164,760    | 84,755             | 30,235        | 2,986      | 852            | <b>283,588</b> |
| February | 117,434    | 98,512             | 30,383        | 3,222      | 866            | <b>250,417</b> |
| March    | 142,472    | 181,379            | 35,446        | 10,098     | 1,271          | <b>370,666</b> |

Figure 15 presents the total monthly payments processed by the NC Quick Pass® CSC during 2017, by payment channel.

**Figure 15: 2017 NC Quick Pass® CSC Payments Processed by Channel, YTD**



**Walk-in Customers**

This section presents the number of customers who visited the NC Quick Pass® CSC Walk-In Center.

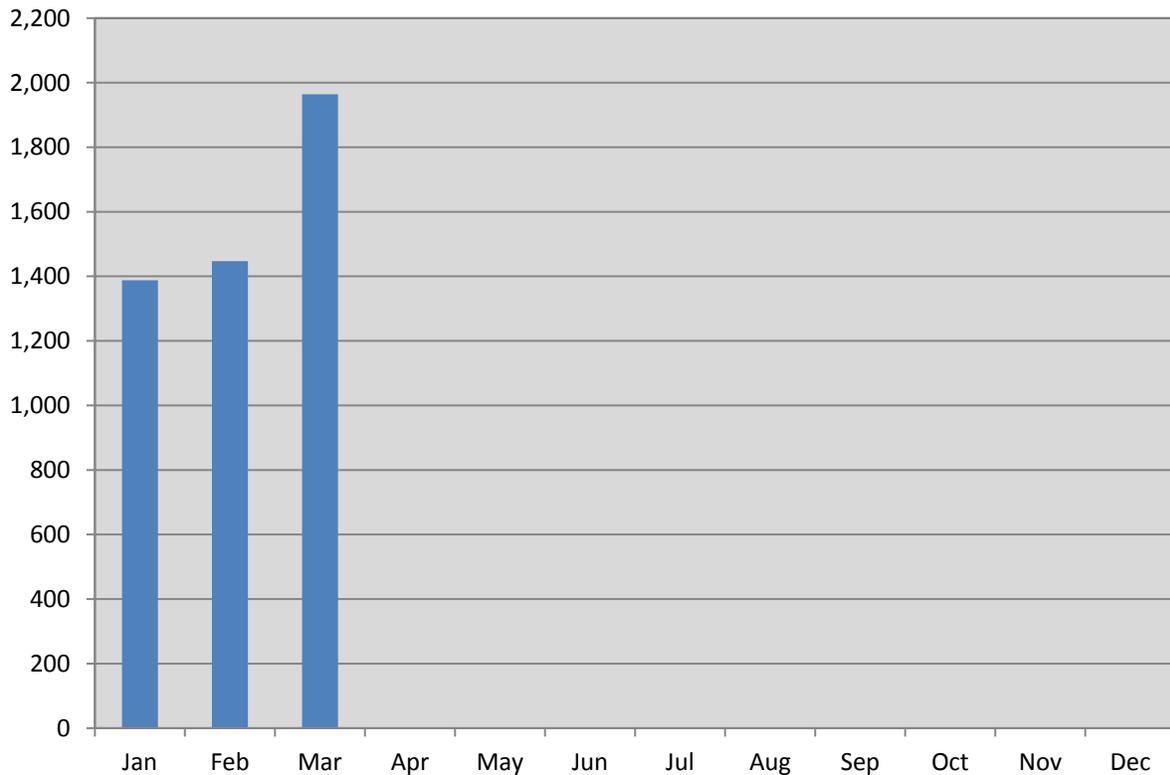
Table 3 presents a summary of the total monthly number of walk-in customers serviced in the NC Quick Pass® CSC Walk-In Center.

**Table 3: NC Quick Pass® CSC Walk-In Customers, First Quarter by Month**

| Month    | Number of Walk-In Customers |
|----------|-----------------------------|
| January  | 1,388                       |
| February | 1,447                       |
| March    | 1,964                       |

Figure 16 depicts the number of walk-in customers that were serviced in the NC Quick Pass® CSC Walk-In Center during 2017.

**Figure 16: 2017 NC Quick Pass® CSC Walk-in Customers, YTD**



**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Transactions**

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

Table 4 presents a summary of the total weekly transactions for NC Quick Pass® and Bill by Mail users.

**Table 4: Transactions, First Quarter by Week**

| Week Ending             | Transponder<br>(NC Quick Pass®) |            | Video<br>(Bill by Mail) |            | Total          |
|-------------------------|---------------------------------|------------|-------------------------|------------|----------------|
|                         | Transactions                    | % of Total | Transactions            | % of Total |                |
| 1/1/2017 <sup>1</sup>   | 24,359                          | 50.1%      | 24,275                  | 49.9%      | <b>48,634</b>  |
| 1/8/2017                | 411,646                         | 60.8%      | 265,038                 | 39.2%      | <b>676,684</b> |
| 1/15/2017               | 465,858                         | 59.5%      | 317,180                 | 40.5%      | <b>783,038</b> |
| 1/22/2017 <sup>2</sup>  | 526,369                         | 60.2%      | 348,555                 | 39.8%      | <b>874,924</b> |
| 1/29/2017               | 560,153                         | 60.7%      | 362,668                 | 39.3%      | <b>922,821</b> |
| 2/5/2017                | 553,001                         | 60.4%      | 362,467                 | 39.6%      | <b>915,468</b> |
| 2/12/2017               | 555,537                         | 60.4%      | 363,554                 | 39.6%      | <b>919,091</b> |
| 2/19/2017               | 552,143                         | 59.6%      | 374,329                 | 40.4%      | <b>926,472</b> |
| 2/26/2017 <sup>3</sup>  | 543,323                         | 58.9%      | 379,186                 | 41.1%      | <b>922,509</b> |
| 3/5/2017                | 561,864                         | 59.3%      | 385,843                 | 40.7%      | <b>947,707</b> |
| 3/12/2017*              | 558,685                         | 59.5%      | 380,343                 | 40.5%      | <b>939,028</b> |
| 3/19/2017*              | 550,276                         | 60.1%      | 365,649                 | 39.9%      | <b>915,925</b> |
| 3/26/2017*              | 574,728                         | 59.2%      | 396,004                 | 40.8%      | <b>970,732</b> |
| 3/31/2017 <sup>4*</sup> | 485,672                         | 61.1%      | 309,299                 | 38.9%      | <b>794,971</b> |

<sup>1</sup> Week ending consists of one day of data and includes New Year’s Day

<sup>2</sup> Week ending includes Martin Luther King’s Day

<sup>3</sup> Week ending includes President’s Day

<sup>4</sup> Week ending consists of five days of data

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

Table 5 presents a summary of the total monthly transactions for NC Quick Pass® and Bill by Mail users.

**Table 5: Transactions, First Quarter by Month**

| Month    | Transponder<br>(NC Quick Pass®) |            | Video<br>(Bill by Mail) |            | Total            |
|----------|---------------------------------|------------|-------------------------|------------|------------------|
|          | Transactions                    | % of Total | Transactions            | % of Total |                  |
| January  | 2,177,942                       | 60.3%      | 1,432,172               | 39.7%      | <b>3,610,114</b> |
| February | 2,202,628                       | 59.8%      | 1,483,452               | 40.2%      | <b>3,686,080</b> |
| March*   | 2,543,044                       | 59.7%      | 1,718,766               | 40.3%      | <b>4,261,810</b> |

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

Figure 17 presents the total monthly transactions and NC Quick Pass® utilization during 2017. It should be noted that the total transactions and NC Quick Pass® utilization reported during the month of March exclude construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Figure 17: 2017 Transactions, YTD**

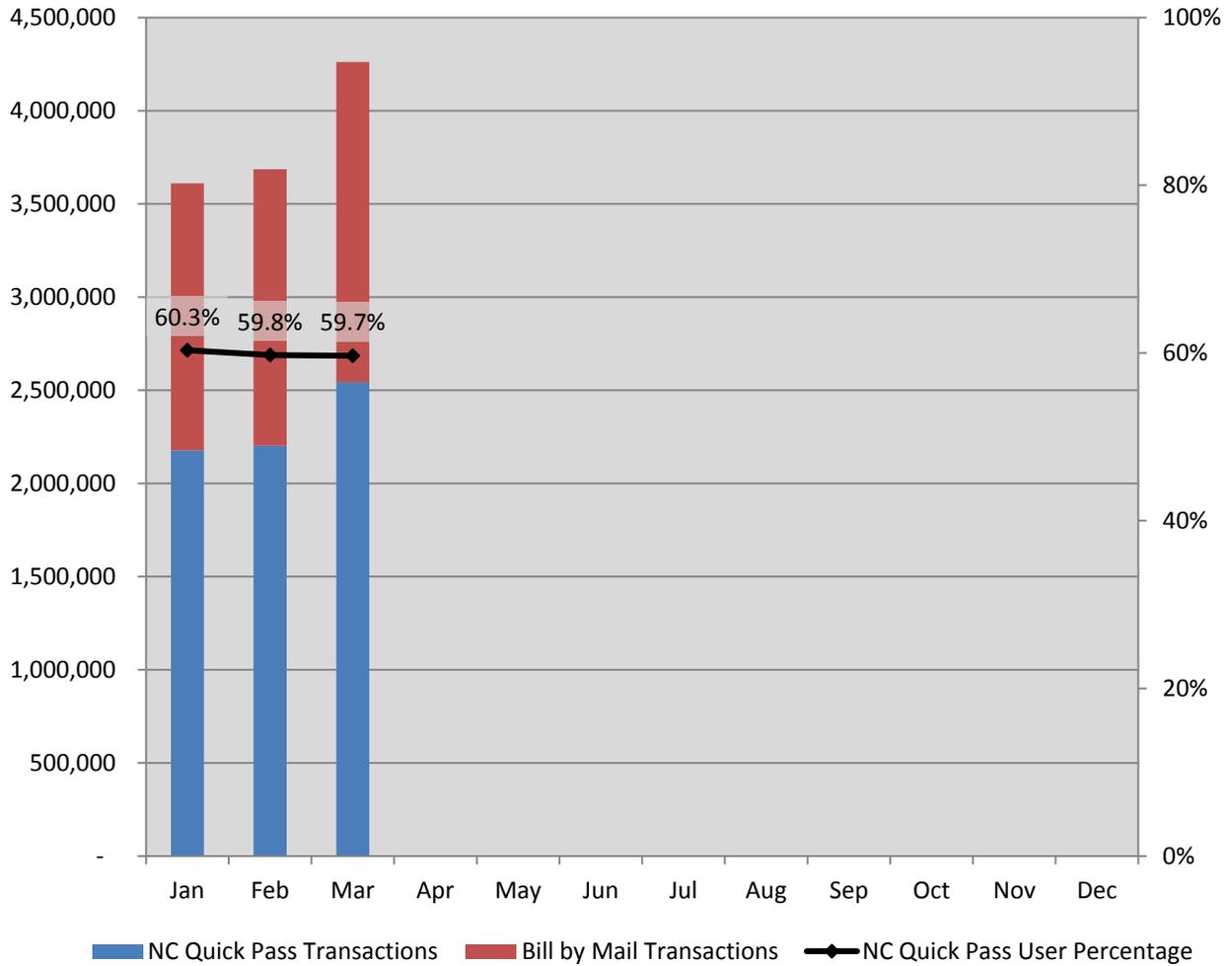


Table 6 presents a summary of the total NC Quick Pass® and Bill by Mail transactions, by year. Project to date is the total number of transactions since opening the facility to toll traffic.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Table 6: Transactions, by Year**

| Year                    | Transponder<br>(NC Quick Pass®) |              | Video<br>(Bill by Mail) |              | Total              |
|-------------------------|---------------------------------|--------------|-------------------------|--------------|--------------------|
|                         | Transactions                    | % of Total   | Transactions            | % of Total   |                    |
| 2012                    | 2,803,043                       | 49.2%        | 2,892,496               | 50.8%        | 5,695,539          |
| 2013                    | 13,249,972                      | 57.5%        | 9,792,975               | 42.5%        | 23,042,947         |
| 2014                    | 17,733,089                      | 58.1%        | 12,802,237              | 41.9%        | 30,535,326         |
| 2015                    | 22,083,270                      | 57.6%        | 16,235,360              | 42.4%        | 38,318,630         |
| 2016                    | 26,360,672                      | 58.3%        | 18,883,195              | 41.7%        | 45,243,867         |
| 2017 <sup>1*</sup>      | 6,923,614                       | 59.9%        | 4,634,390               | 40.1%        | 11,558,004         |
| <b>Project to Date*</b> | <b>89,153,660</b>               | <b>57.7%</b> | <b>65,240,653</b>       | <b>42.3%</b> | <b>154,394,313</b> |

<sup>1</sup>2017 transactions reported include three months of data (January – March).

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Classification**

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

Table 7 presents a summary of the total weekly transactions for Class 1 (2-axle), Class 2 (3-axle), and Class 3 (4+axle) vehicles.

**Table 7: Classification, First Quarter by Week**

| Week Ending             | Class 1<br>(2-axle) |            | Class 2<br>(3-axle) |            | Class 3<br>(4+axle) |            |
|-------------------------|---------------------|------------|---------------------|------------|---------------------|------------|
|                         | Transactions        | % of Total | Transactions        | % of Total | Transactions        | % of Total |
| 1/1/2017 <sup>1</sup>   | 48,354              | 99.4%      | 90                  | 0.2%       | 190                 | 0.4%       |
| 1/8/2017                | 654,060             | 96.7%      | 7,439               | 1.1%       | 15,185              | 2.2%       |
| 1/15/2017               | 761,725             | 97.3%      | 6,709               | 0.9%       | 14,604              | 1.9%       |
| 1/22/2017 <sup>2</sup>  | 842,255             | 96.3%      | 10,879              | 1.2%       | 21,790              | 2.5%       |
| 1/29/2017               | 890,650             | 96.5%      | 10,456              | 1.1%       | 21,715              | 2.4%       |
| 2/5/2017                | 881,140             | 96.3%      | 11,276              | 1.2%       | 23,052              | 2.5%       |
| 2/12/2017               | 882,641             | 96.0%      | 11,994              | 1.3%       | 24,456              | 2.7%       |
| 2/19/2017               | 892,717             | 96.4%      | 11,389              | 1.2%       | 22,366              | 2.4%       |
| 2/26/2017 <sup>3</sup>  | 883,018             | 95.7%      | 13,683              | 1.5%       | 25,808              | 2.8%       |
| 3/5/2017                | 909,348             | 96.0%      | 12,478              | 1.3%       | 25,881              | 2.7%       |
| 3/12/2017*              | 900,017             | 95.8%      | 13,124              | 1.4%       | 25,887              | 2.8%       |
| 3/19/2017*              | 880,962             | 96.2%      | 11,921              | 1.3%       | 23,042              | 2.5%       |
| 3/26/2017*              | 925,987             | 95.4%      | 15,524              | 1.6%       | 29,221              | 3.0%       |
| 3/31/2017 <sup>4*</sup> | 759,552             | 95.5%      | 11,941              | 1.5%       | 23,478              | 3.0%       |

<sup>1</sup> Week ending consists of one day of data and includes New Year’s Day

<sup>2</sup> Week ending includes Martin Luther King’s Day

<sup>3</sup> Week ending includes President’s Day

<sup>4</sup> Week ending consists of five days of data

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

Table 8 presents a summary of the total monthly transactions by classification.

**Table 8: Classification, First Quarter by Month**

| Month    | Class 1<br>(2-axle) |            | Class 2<br>(3-axle) |            | Class 3<br>(4+axle) |            |
|----------|---------------------|------------|---------------------|------------|---------------------|------------|
|          | Transactions        | % of Total | Transactions        | % of Total | Transactions        | % of Total |
| January  | 3,488,295           | 96.6%      | 39,618              | 1.1%       | 82,201              | 2.3%       |
| February | 3,540,070           | 96.0%      | 48,913              | 1.3%       | 97,097              | 2.6%       |
| March*   | 4,084,061           | 95.8%      | 60,372              | 1.4%       | 117,377             | 2.8%       |

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

Figure 18 presents the total monthly percentage of transactions during 2017 for Class 1 (2-axle), Class 2 (3-axle), and Class 3 (4+axle) vehicles. It should be noted that the total transactions reported during the month of March exclude construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Figure 18: 2017 Classification, Percentage YTD**

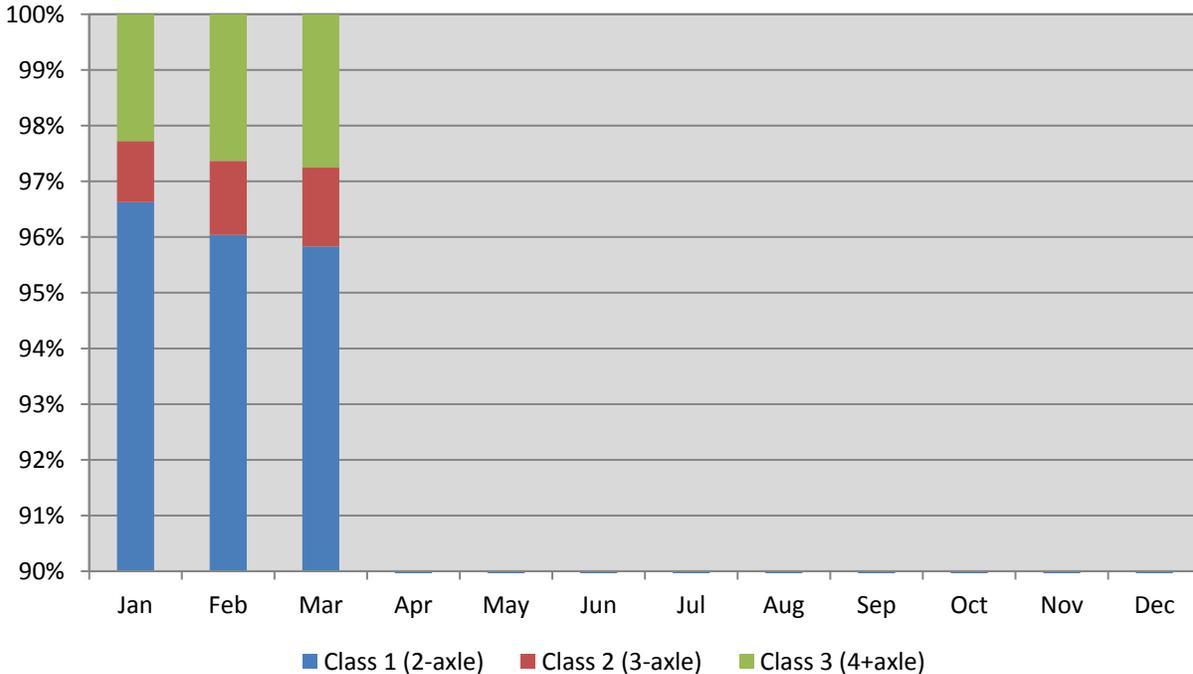


Table 9 presents a summary of the total transactions for Class 1 (2-axle), Class 2 (3-axle), and Class 3 (4+axle) vehicles, by year. Project to date is the total number of transactions since opening the facility to toll traffic.

**Table 9: 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          | 97.7%        | 46,935           | 0.8%        | 86,543           | 1.5%        |
| 2013                    | 22,282,351         | 96.7%        | 267,558          | 1.2%        | 493,038          | 2.1%        |
| 2014                    | 29,530,077         | 96.7%        | 355,721          | 1.2%        | 649,528          | 2.1%        |
| 2015                    | 37,050,375         | 96.7%        | 426,656          | 1.1%        | 841,599          | 2.2%        |
| 2016                    | 43,567,844         | 96.3%        | 566,221          | 1.3%        | 1,109,803        | 2.5%        |
| 2017 <sup>1*</sup>      | 11,112,426         | 96.1%        | 148,903          | 1.3%        | 296,675          | 2.6%        |
| <b>Project to Date*</b> | <b>149,105,134</b> | <b>96.6%</b> | <b>1,811,994</b> | <b>1.2%</b> | <b>3,477,186</b> | <b>2.3%</b> |

<sup>1</sup>2017 transactions reported include three months of data (January – March).

\*Excludes construction work related transactions recorded at the toll zones of the new Veridea Parkway Interchange.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Accounts**

The statistics provided in this section outline the volume of accounts established and managed by the NC Quick Pass® CSC.

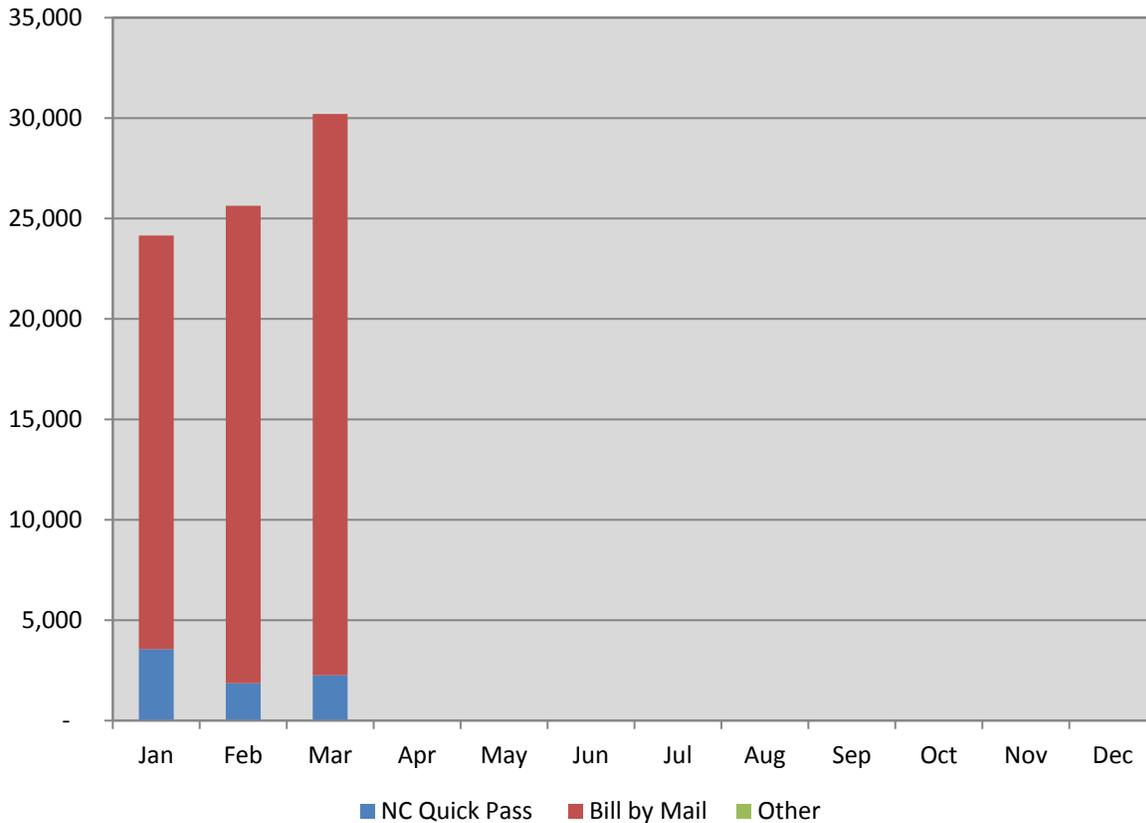
Table 10 presents a summary of the monthly established accounts being managed by the NC Quick Pass® CSC. Numbers presented in parentheses represent a reduction in accounts.

**Table 10: Established Accounts, First Quarter by Month**

| Month    | NC Quick Pass® | Bill by Mail | Registered Video | Non-Revenue | Government | Total  |
|----------|----------------|--------------|------------------|-------------|------------|--------|
| January  | 3,556          | 20,594       | 0                | 0           | 0          | 24,150 |
| February | 1,864          | 23,770       | 1                | 0           | 0          | 25,635 |
| March    | 2,259          | 27,947       | 0                | 3           | 0          | 30,209 |

Figure 19 presents the monthly established accounts managed by the NC Quick Pass® CSC during 2017. The “Other” category includes registered video, non-revenue, and government accounts.

**Figure 19: 2017 Established Accounts, YTD**



**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

*Table 11* presents a summary of the total established accounts managed by the NC Quick Pass® 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 11: Established Accounts, by Year**

| <b>Year</b>            | <b>NC Quick Pass®</b> | <b>Bill by Mail</b> | <b>Registered Video</b> | <b>Non-Revenue</b> | <b>Government</b> | <b>Total</b>     |
|------------------------|-----------------------|---------------------|-------------------------|--------------------|-------------------|------------------|
| 2012                   | 27,179                | 359,431             | 5                       | 38                 | 18                | 386,671          |
| 2013                   | 24,268                | 306,581             | (1)                     | 19                 | 9                 | 330,876          |
| 2014                   | 18,652                | 342,476             | 2                       | 13                 | 3                 | 361,146          |
| 2015                   | 24,222                | 380,897             | 0                       | 4                  | 0                 | 405,123          |
| 2016                   | 31,358                | 348,654             | 1                       | 4                  | 0                 | 380,017          |
| 2017 <sup>1</sup>      | 7,679                 | 72,311              | 1                       | 3                  | 0                 | 79,994           |
| <b>Project to Date</b> | <b>133,358</b>        | <b>1,810,350</b>    | <b>8</b>                | <b>81</b>          | <b>30</b>         | <b>1,943,827</b> |

<sup>1</sup>2017 established accounts reported include three months of data (January – March).

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Transponders**

This section presents the volume of transponders sold.

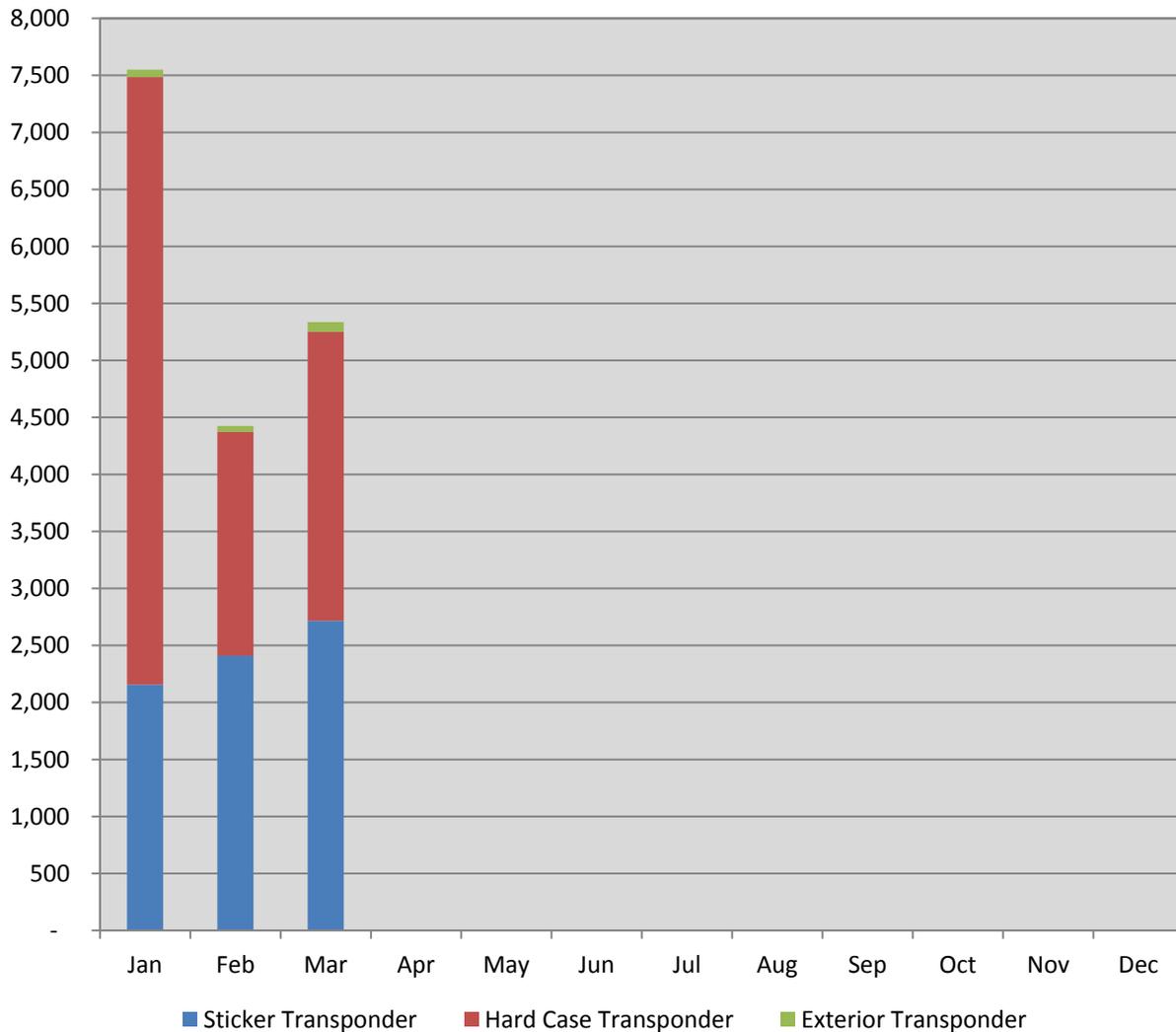
Table 12 presents a summary of the total transponders sold, by month.

**Table 12: Transponders Sold, First Quarter by Month**

| Month    | Sticker Transponder | Hard Case Transponder | Exterior Transponder | Total        |
|----------|---------------------|-----------------------|----------------------|--------------|
| January  | 2,156               | 5,330                 | 64                   | <b>7,550</b> |
| February | 2,410               | 1,962                 | 53                   | <b>4,425</b> |
| March    | 2,717               | 2,533                 | 86                   | <b>5,336</b> |

Figure 20 presents monthly transponders sold during 2017.

**Figure 20: 2017 Transponders Sold, YTD**



## Operations Statistics Report for the Triangle Expressway

First Quarter, January – March 2017

Table 13 presents a summary of the total transponders sold, by year. In October 2011, 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 13: Transponders Sold, by Year**

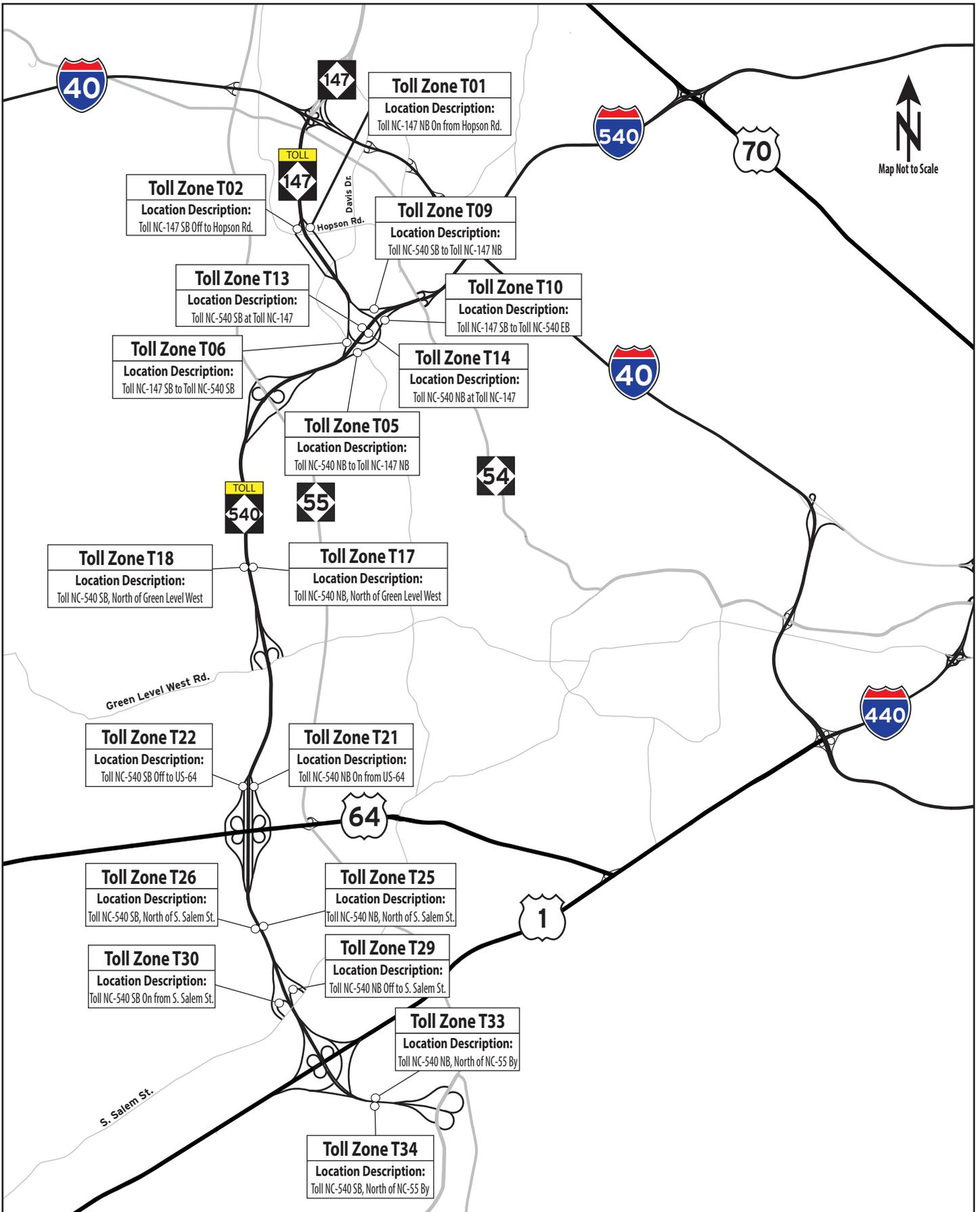
| Year                   | Sticker Tag    | Hard Case Tag  | Exterior Tag | Total          |
|------------------------|----------------|----------------|--------------|----------------|
| 2011                   | 7,315          | 2,806          | 200          | 10,321         |
| 2012                   | 35,338         | 6,861          | 250          | 42,449         |
| 2013                   | 34,784         | 13,980         | 257          | 49,021         |
| 2014                   | 26,066         | 14,778         | 221          | 41,065         |
| 2015                   | 31,866         | 20,047         | 588          | 52,501         |
| 2016                   | 29,287         | 36,969         | 822          | 67,078         |
| 2017 <sup>1</sup>      | 7,283          | 9,825          | 203          | 17,311         |
| <b>Project to Date</b> | <b>171,939</b> | <b>105,266</b> | <b>2,541</b> | <b>279,746</b> |

<sup>1</sup>2017 transponders sold reported include three months of data (January – March).

# Toll Zone Statistics

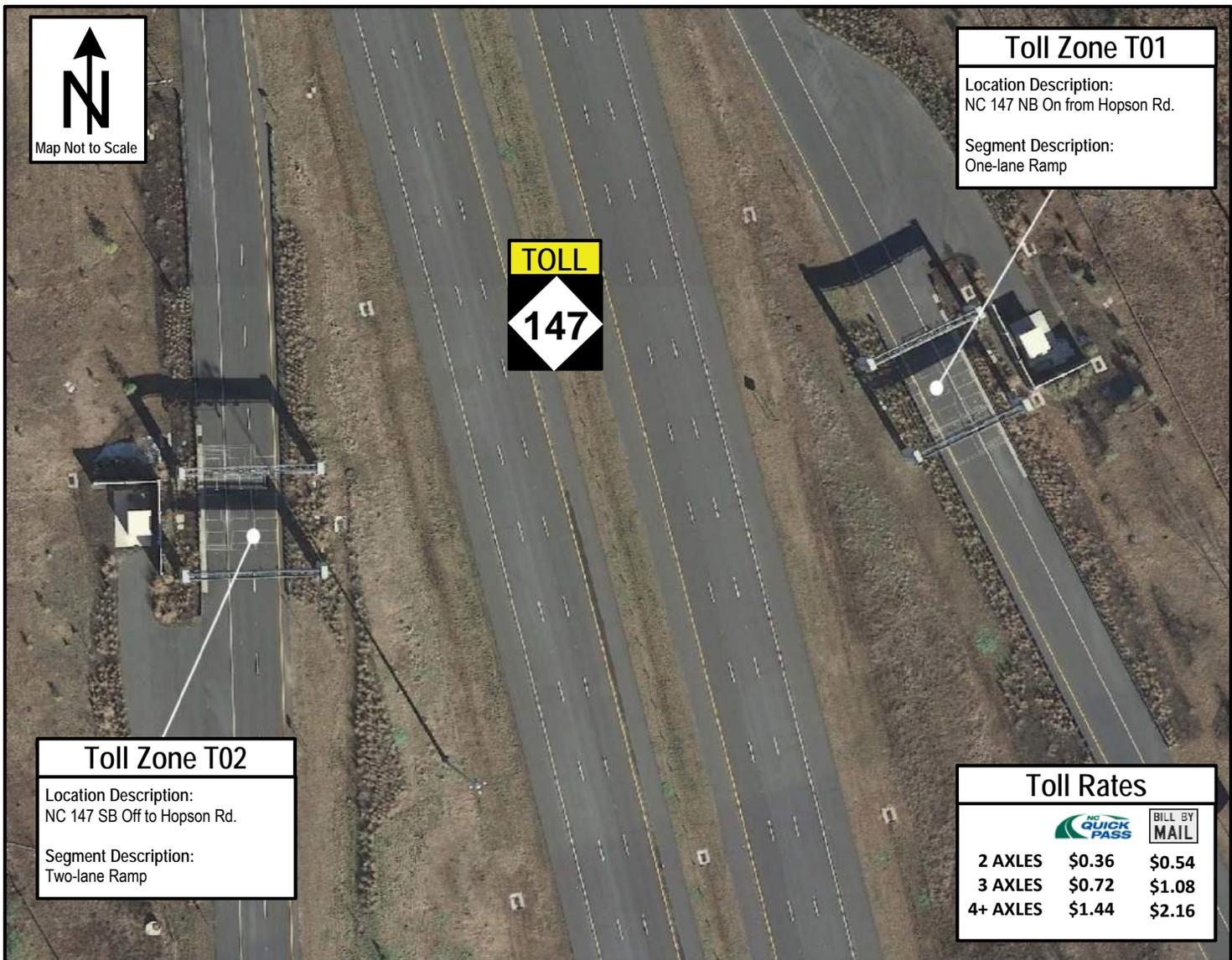
## TOLL ZONE STATISTICS

The location of the toll zones along the Triangle Expressway can be seen in *Figure 21*. *Figures 22 - 30* present the average weekday transactions (excludes holidays and days of inclement weather conditions) recorded at toll zones along the facility. It should also be noted that the total weekday transactions reported during the month of March exclude work zone transactions recorded at the new Veridea Parkway Interchange toll zones (T31 and T32).



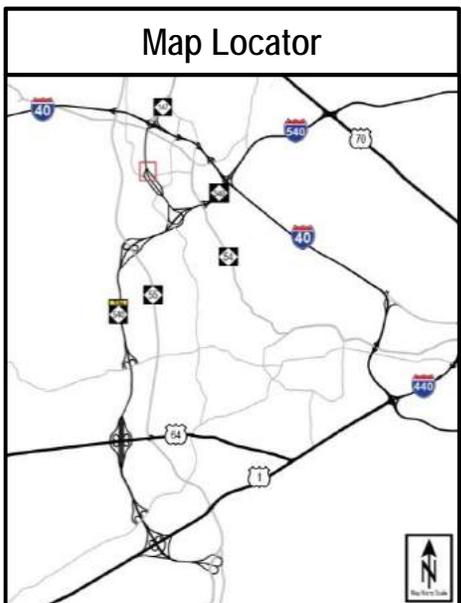
**Triangle Expressway Toll Zone Map**

**Figure 21**



| Transactions by Direction |       |       |
|---------------------------|-------|-------|
| Month                     | T01   | T02   |
| January                   | 2,640 | 2,460 |
| February                  | 2,700 | 2,510 |
| March                     | 2,710 | 2,520 |
| April                     | -     | -     |
| May                       | -     | -     |
| June                      | -     | -     |
| July                      | -     | -     |
| August                    | -     | -     |
| September                 | -     | -     |
| October                   | -     | -     |
| November                  | -     | -     |
| December                  | -     | -     |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T01 | T02 |
| January                  | 61% | 63% |
| February                 | 62% | 63% |
| March                    | 61% | 62% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



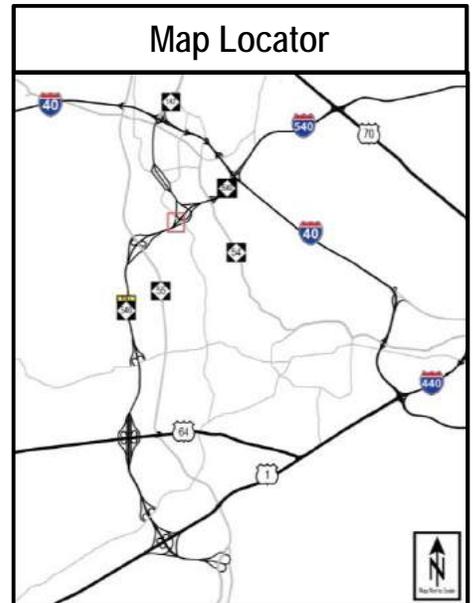
**Hopson Road Ramp Toll Zones**  
2017 Average Weekday Toll Transactions

**Figure**  
**22**



| Transactions by Direction |       |       |
|---------------------------|-------|-------|
| Month                     | T05   | T06   |
| January                   | 7,370 | 7,360 |
| February                  | 7,500 | 7,450 |
| March                     | 7,600 | 7,470 |
| April                     | -     | -     |
| May                       | -     | -     |
| June                      | -     | -     |
| July                      | -     | -     |
| August                    | -     | -     |
| September                 | -     | -     |
| October                   | -     | -     |
| November                  | -     | -     |
| December                  | -     | -     |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T05 | T06 |
| January                  | 62% | 64% |
| February                 | 62% | 64% |
| March                    | 62% | 64% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



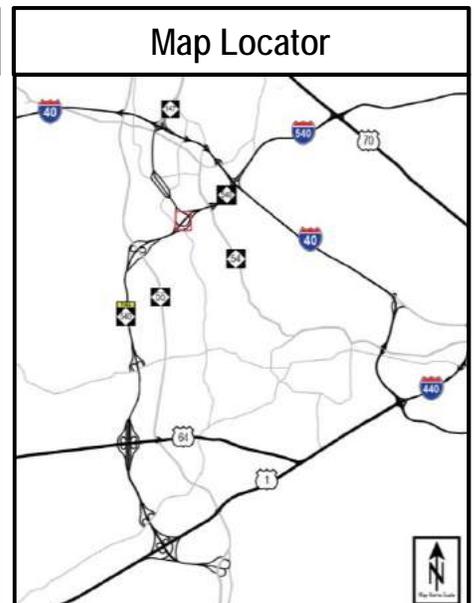
**NC-147 South Ramp Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 23**



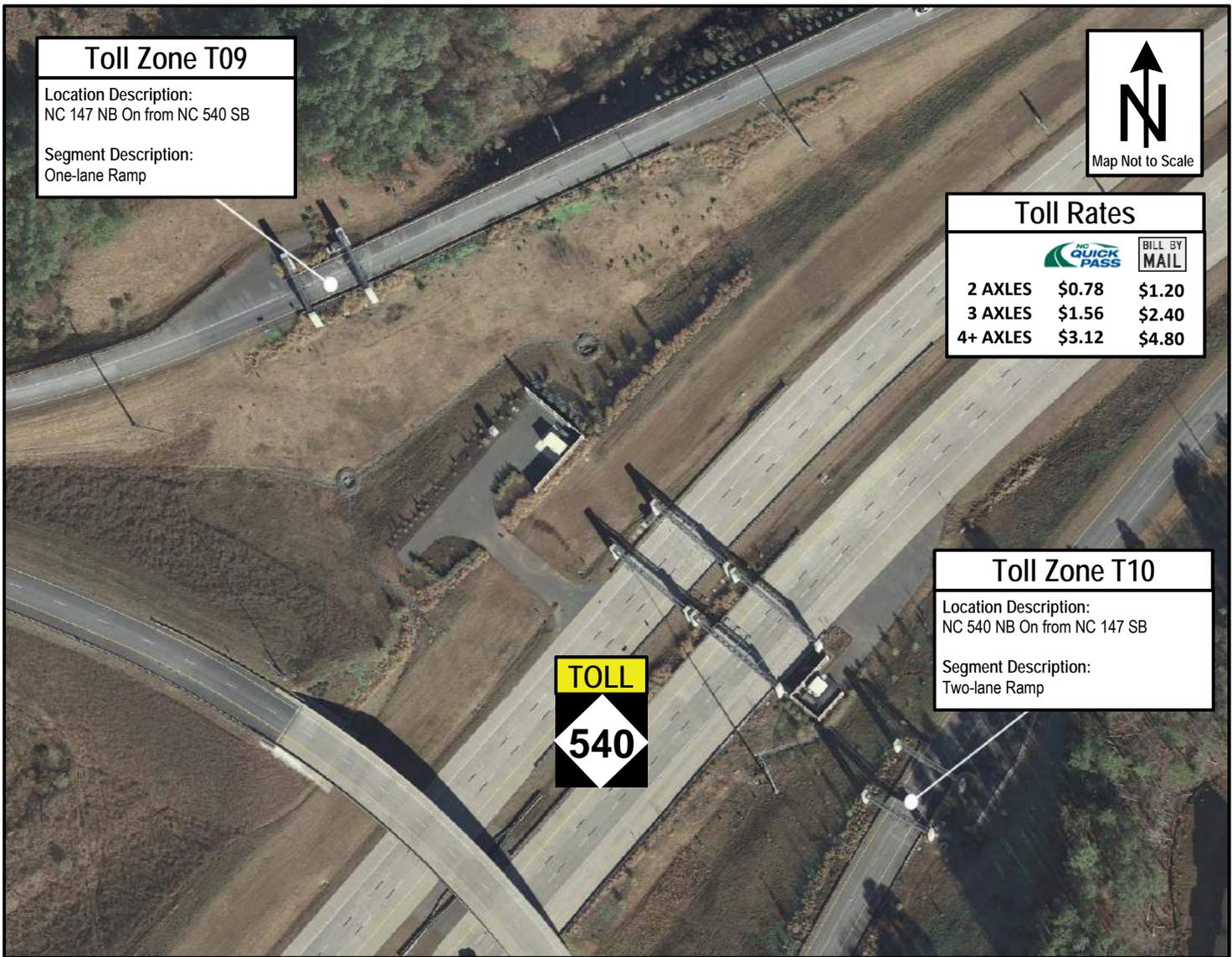
| Transactions by Direction |        |        |
|---------------------------|--------|--------|
| Month                     | T13    | T14    |
| January                   | 15,800 | 15,510 |
| February                  | 16,310 | 16,110 |
| March                     | 16,650 | 16,470 |
| April                     | -      | -      |
| May                       | -      | -      |
| June                      | -      | -      |
| July                      | -      | -      |
| August                    | -      | -      |
| September                 | -      | -      |
| October                   | -      | -      |
| November                  | -      | -      |
| December                  | -      | -      |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T13 | T14 |
| January                  | 61% | 63% |
| February                 | 59% | 62% |
| March                    | 60% | 61% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



**NC-540 Morrisville Mainline Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 24**



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



**Toll Rates**

|          |        |                     |
|----------|--------|---------------------|
|          |        | <b>BILL BY MAIL</b> |
| 2 AXLES  | \$0.78 | \$1.20              |
| 3 AXLES  | \$1.56 | \$2.40              |
| 4+ AXLES | \$3.12 | \$4.80              |

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

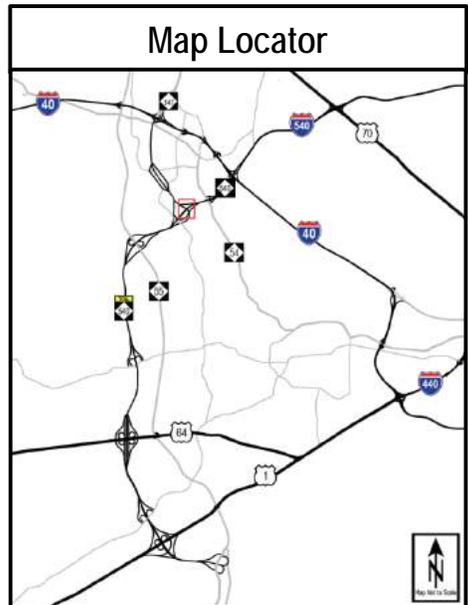


**Transactions by Direction**

| Month     | T09   | T10   |
|-----------|-------|-------|
| January   | 2,430 | 3,140 |
| February  | 2,440 | 2,930 |
| March     | 2,450 | 2,930 |
| April     | -     | -     |
| May       | -     | -     |
| June      | -     | -     |
| July      | -     | -     |
| August    | -     | -     |
| September | -     | -     |
| October   | -     | -     |
| November  | -     | -     |
| December  | -     | -     |

**NC Quick Pass Percentage**

| Month     | T09 | T10 |
|-----------|-----|-----|
| January   | 57% | 58% |
| February  | 58% | 61% |
| March     | 58% | 60% |
| April     | -   | -   |
| May       | -   | -   |
| June      | -   | -   |
| July      | -   | -   |
| August    | -   | -   |
| September | -   | -   |
| October   | -   | -   |
| November  | -   | -   |
| December  | -   | -   |



**NC-147 North Ramp Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 25**



**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**

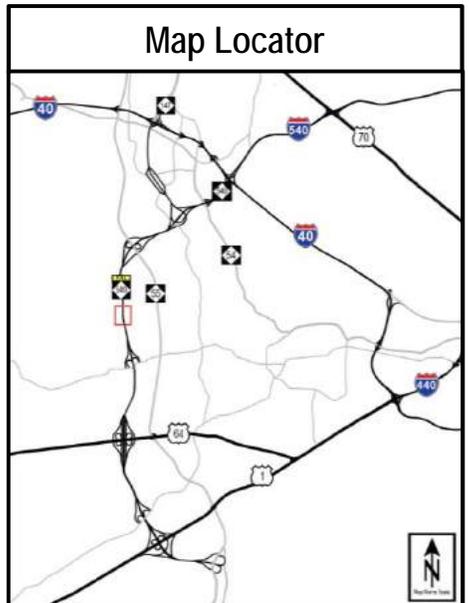
|          |        | BILL BY MAIL |
|----------|--------|--------------|
| 2 AXLES  | \$0.78 | \$1.20       |
| 3 AXLES  | \$1.56 | \$2.40       |
| 4+ AXLES | \$3.12 | \$4.80       |

**Transactions by Direction**

| Month     | T17    | T18    |
|-----------|--------|--------|
| January   | 16,760 | 17,820 |
| February  | 17,230 | 18,130 |
| March     | 17,670 | 18,420 |
| April     | -      | -      |
| May       | -      | -      |
| June      | -      | -      |
| July      | -      | -      |
| August    | -      | -      |
| September | -      | -      |
| October   | -      | -      |
| November  | -      | -      |
| December  | -      | -      |

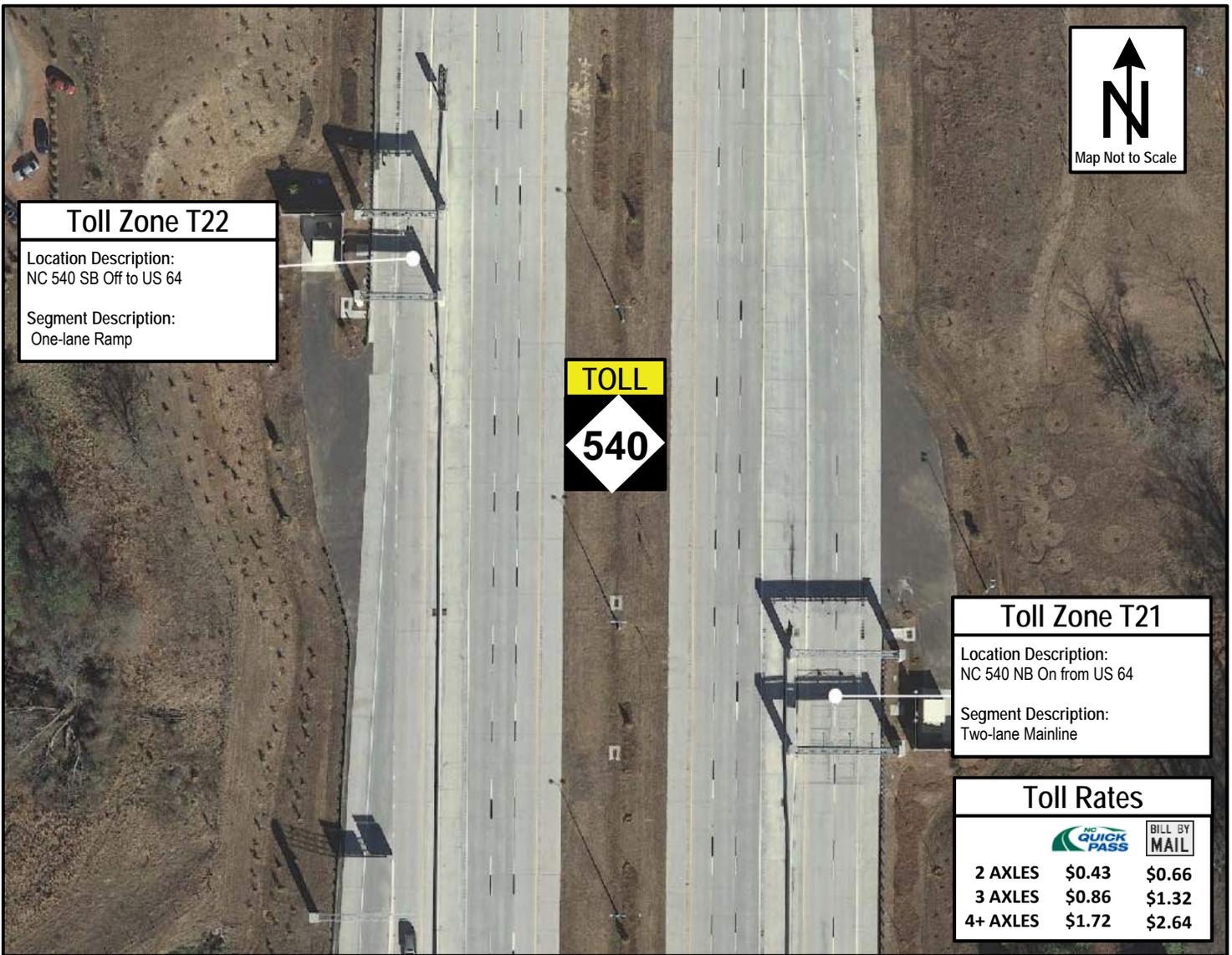
**NC Quick Pass Percentage**

| Month     | T17 | T18 |
|-----------|-----|-----|
| January   | 62% | 62% |
| February  | 60% | 62% |
| March     | 60% | 61% |
| April     | -   | -   |
| May       | -   | -   |
| June      | -   | -   |
| July      | -   | -   |
| August    | -   | -   |
| September | -   | -   |
| October   | -   | -   |
| November  | -   | -   |
| December  | -   | -   |



**NC-540 Cary Mainline Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 26**



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

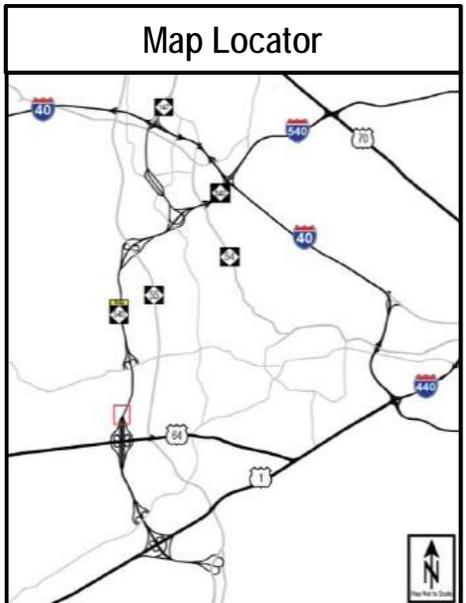
**Toll Zone T21**  
 Location Description:  
 NC 540 NB On from US 64  
 Segment Description:  
 Two-lane Mainline

**Toll Rates**

|          | NC QUICK PASS | BILL BY MAIL |
|----------|---------------|--------------|
| 2 AXLES  | \$0.43        | \$0.66       |
| 3 AXLES  | \$0.86        | \$1.32       |
| 4+ AXLES | \$1.72        | \$2.64       |

| Transactions by Direction |       |       |
|---------------------------|-------|-------|
| Month                     | T21   | T22   |
| January                   | 5,150 | 5,420 |
| February                  | 5,370 | 5,660 |
| March                     | 5,480 | 5,750 |
| April                     | -     | -     |
| May                       | -     | -     |
| June                      | -     | -     |
| July                      | -     | -     |
| August                    | -     | -     |
| September                 | -     | -     |
| October                   | -     | -     |
| November                  | -     | -     |
| December                  | -     | -     |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T21 | T22 |
| January                  | 62% | 63% |
| February                 | 62% | 63% |
| March                    | 61% | 62% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



**US-64 Ramp Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 27**



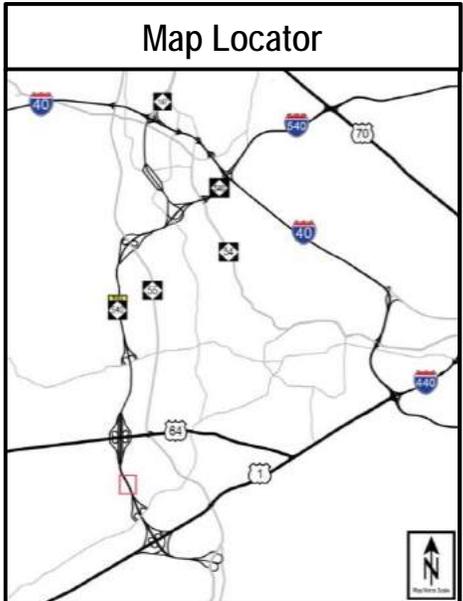
**Toll Zone T26**  
 Location Description:  
 NC 540 SB, North of S. Salem St.  
 Segment Description:  
 Three-lane Mainline

**Toll Zone T25**  
 Location Description:  
 NC 540 NB, North of S. Salem St.  
 Segment Description:  
 Three-lane Mainline

| Toll Rates |        |        |
|------------|--------|--------|
|            |        |        |
| 2 AXLES    | \$0.97 | \$1.49 |
| 3 AXLES    | \$1.94 | \$2.98 |
| 4+ AXLES   | \$3.88 | \$5.96 |

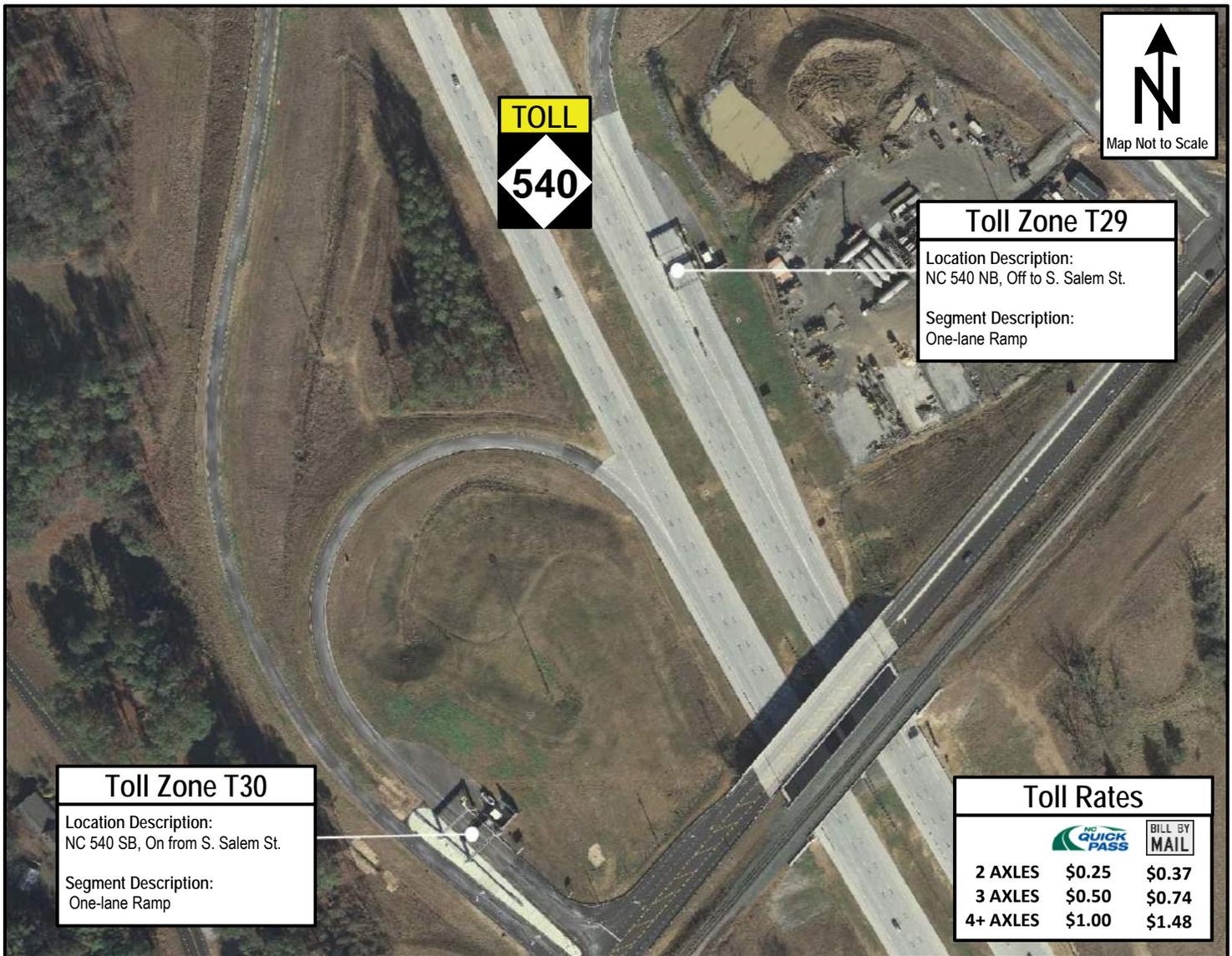
| Transactions by Direction |        |        |
|---------------------------|--------|--------|
| Month                     | T25    | T26    |
| January                   | 13,850 | 14,100 |
| February                  | 14,330 | 14,440 |
| March                     | 14,750 | 14,710 |
| April                     | -      | -      |
| May                       | -      | -      |
| June                      | -      | -      |
| July                      | -      | -      |
| August                    | -      | -      |
| September                 | -      | -      |
| October                   | -      | -      |
| November                  | -      | -      |
| December                  | -      | -      |

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



**NC-540 Apex Mainline Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 28**



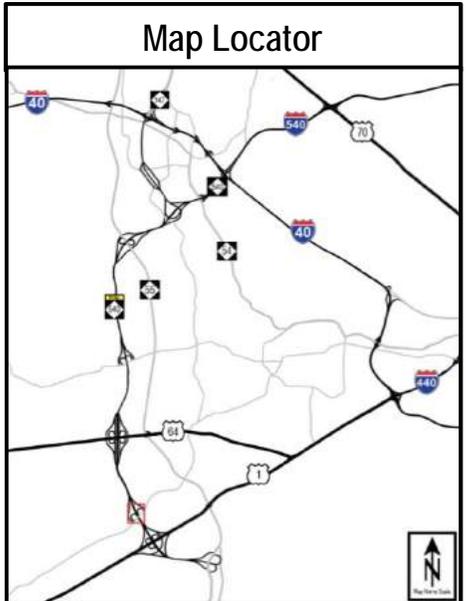
**Toll Zone T30**  
 Location Description:  
 NC 540 SB, On from S. Salem St.  
 Segment Description:  
 One-lane Ramp

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

| Toll Rates |        |        |
|------------|--------|--------|
|            |        |        |
| 2 AXLES    | \$0.25 | \$0.37 |
| 3 AXLES    | \$0.50 | \$0.74 |
| 4+ AXLES   | \$1.00 | \$1.48 |

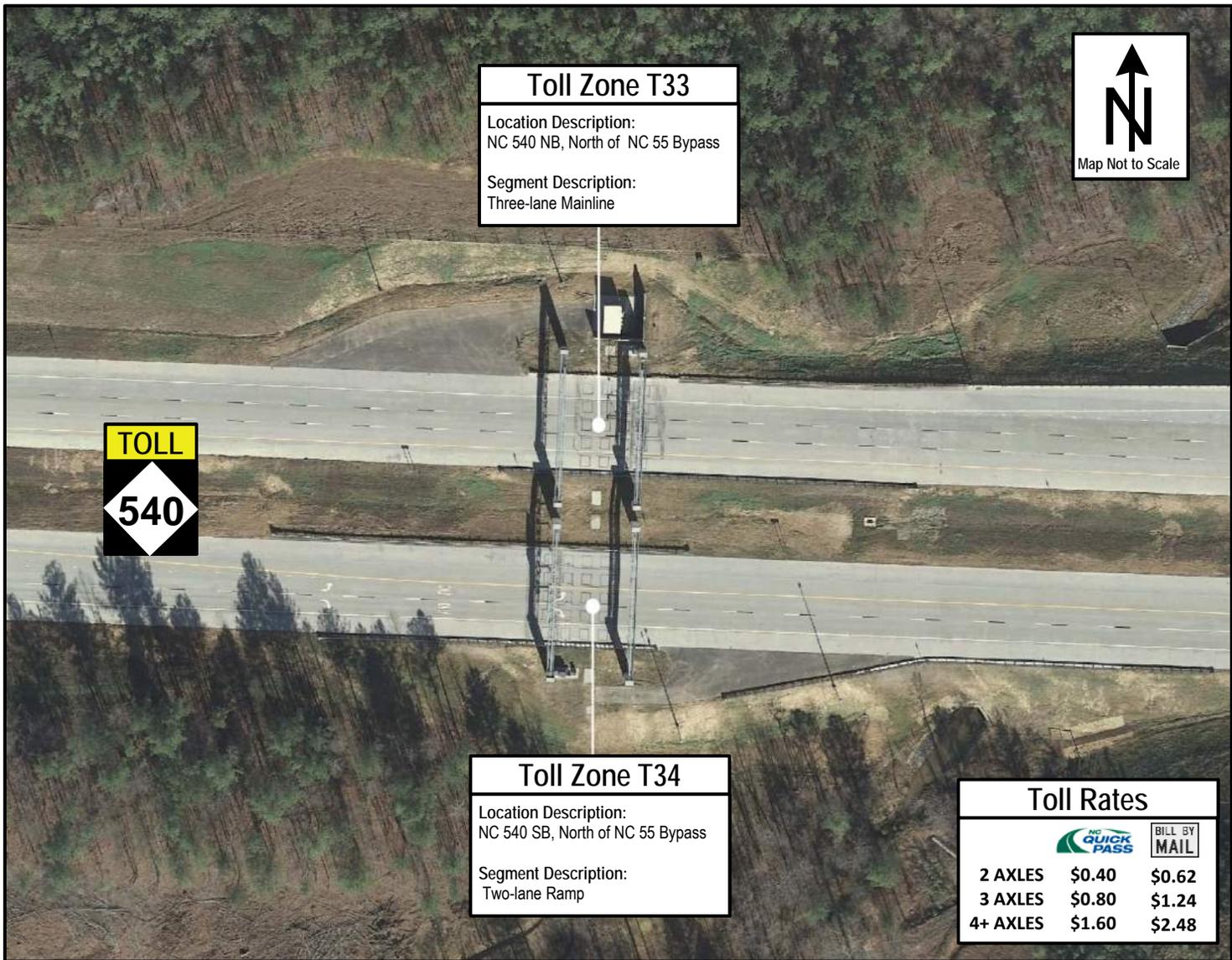
| Transactions by Direction |       |       |
|---------------------------|-------|-------|
| Month                     | T29   | T30   |
| January                   | 1,590 | 1,650 |
| February                  | 1,660 | 1,750 |
| March                     | 1,740 | 1,800 |
| April                     | -     | -     |
| May                       | -     | -     |
| June                      | -     | -     |
| July                      | -     | -     |
| August                    | -     | -     |
| September                 | -     | -     |
| October                   | -     | -     |
| November                  | -     | -     |
| December                  | -     | -     |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T29 | T30 |
| January                  | 67% | 69% |
| February                 | 67% | 69% |
| March                    | 66% | 68% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



**South Salem Street Ramp Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 29**



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

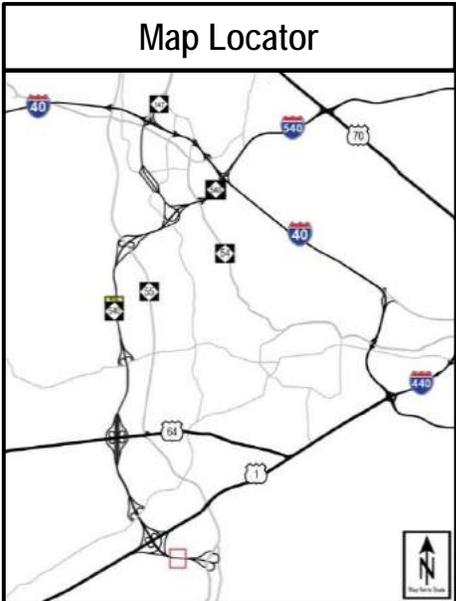


**Toll Zone T34**  
 Location Description:  
 NC 540 SB, North of NC 55 Bypass  
 Segment Description:  
 Two-lane Ramp

| Toll Rates |        |        |
|------------|--------|--------|
|            |        |        |
| 2 AXLES    | \$0.40 | \$0.62 |
| 3 AXLES    | \$0.80 | \$1.24 |
| 4+ AXLES   | \$1.60 | \$2.48 |

| Transactions by Direction |       |       |
|---------------------------|-------|-------|
| Month                     | T33   | T34   |
| January                   | 9,000 | 8,910 |
| February                  | 9,310 | 9,090 |
| March                     | 9,690 | 9,390 |
| April                     | -     | -     |
| May                       | -     | -     |
| June                      | -     | -     |
| July                      | -     | -     |
| August                    | -     | -     |
| September                 | -     | -     |
| October                   | -     | -     |
| November                  | -     | -     |
| December                  | -     | -     |

| NC Quick Pass Percentage |     |     |
|--------------------------|-----|-----|
| Month                    | T33 | T34 |
| January                  | 64% | 63% |
| February                 | 64% | 63% |
| March                    | 63% | 63% |
| April                    | -   | -   |
| May                      | -   | -   |
| June                     | -   | -   |
| July                     | -   | -   |
| August                   | -   | -   |
| September                | -   | -   |
| October                  | -   | -   |
| November                 | -   | -   |
| December                 | -   | -   |



**NC-540 Holly Springs Mainline Toll Zones**  
 2017 Average Weekday Toll Transactions

**Figure 30**

# Roadway Safety Statistics

## ROADWAY SAFETY STATISTICS

Traffic crashes are often related to deficiencies in the safety and capacity characteristics of a transportation facility. In an effort to identify these deficiencies early, and therefore reduce the likelihood of crashes on the Triangle Expressway, NCTA monitors safety conditions on the facility through quarterly crash analyses. These analyses involve the use of the Traffic Engineering Accident Analysis System (TEAAS) to collect monthly crash data along the facility, separated into four (4) segments:

- NC 147, from I 40 to NC 540
- NC 540, from I 40 to NC 55
- NC 540, from NC 55 to US 64
- NC 540, from US 64 to NC 55 Bypass

The data collected includes total crashes and the number of fatal and injury crashes reported along each segment. This data is analyzed over a rolling three-year period to determine the Total Crash Rate of each of the four segments selected, as well as for the entire facility. These crash rates can then be compared to the Critical Crash Rates.

Total Crash Rates are a function of the length of roadway, average daily traffic, and number of reported crashes along a route during a specific time frame. These rates are expressed in crashes per 100 million vehicle miles traveled (MVMT). In the crash analysis conducted during the first quarter, the Total Crash Rates of the four segments selected and the entire facility were calculated based on the roadway segment length, the average annual daily traffic (AADT) and the number of crashes recorded from March 2014 through February 2017 for each segment. The AADT used for this quarter analysis was collected from the NCDOT 2015 Wake County AADT Map. The Statewide Crash Rate (97.32 crashes per 100 MVMT) used for comparison purposes in this analysis was collected from the 2013-2015 NCDOT Statewide Total Crash Rates for freeway facilities, as the Triangle Expressway operates more similar to a freeway or interstate than a state route.

Critical Crash Rates are crash rates that have been statistically adjusted with a 95% level of confidence to remove the elements of chance and randomness. They are used as a reference to determine if the Total Crash Rate, at a particular location, is significantly higher than a predetermined average rate for locations with similar characteristics.

*Table 14* provides a summary of the crash data collected and the results of the first quarter analysis.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Table 14: Safety Statistics, March 2014 - February 2017**

| <b>Segment</b>                     | <b>Length</b> | <b>AADT <sup>1</sup></b> | <b>Total Crashes</b> | <b>Vehicle Exposure (MVMT)</b> | <b>Total Crash Rate</b> | <b>Statewide Crash Rate <sup>2</sup></b> | <b>Critical Crash Rate</b> |
|------------------------------------|---------------|--------------------------|----------------------|--------------------------------|-------------------------|--|----------------------------|
| NC 147<br>I 40 to NC 540           | 3.1           | 13,000                   | 39                   | 44.22                          | 88.20                   | 97.32                                    | 99.77                      |
| NC 540<br>I 40 to NC 55            | 2.8           | 31,500                   | 68                   | 96.41                          | 70.53                   | 97.32                                    | 98.98                      |
| NC 540<br>NC 55 to US 64           | 6.7           | 23,600                   | 83                   | 172.60                         | 48.09                   | 97.32                                    | 98.56                      |
| NC 540<br>US 64 to NC 55<br>Bypass | 5.9           | 17,400                   | 44                   | 111.67                         | 39.40                   | 97.32                                    | 98.86                      |
| <b>Triangle Expressway</b>         | <b>18.4</b>   | <b>21,100</b>            | <b>234</b>           | <b>426.08</b>                  | <b>54.92</b>            | <b>97.32</b>                             | <b>98.11</b>               |

<sup>1</sup> AADT provided from NCDOT 2015 AADT Maps, Wake County

<sup>2</sup> Statewide Crash Rate for Interstate Facilities Applied

# Roadway Operations Statistics

## ROADWAY OPERATIONS STATISTICS

Highly trained NCTA operators monitor and manage traffic operations, and coordinate incident response and maintenance/construction work along the Triangle Expressway. These operators work at the Traffic Management Center (TMC) located in the North Carolina National Guard's Joint Force Headquarters in Raleigh. They are responsible for monitoring the facility 24-hours a day, 7-days a week, and 365-days a year using closed-circuit TV (CCTV) cameras, microwave vehicle detectors (MVD), toll zone security cameras, and Roadway Weather Information System (RWIS). Additionally, they monitor roadside technology and toll facilities.

Operators can communicate travel conditions and emergencies to customers via 10 full-color Dynamic Message Signs (DMS), NCDOT's 511 system, and Traveler Information Management System (TIMS) website. They can also quickly dispatch toll technology technicians to address equipment failures via the Maintenance Online Management Software (MOMS). Additionally, in the event of incidents on the facility they can use interoperable 800MHz radio frequency dispatch from local 911 and statewide Highway Patrol communications to dispatch State Highway Patrol (SHP) and Incident Management Assistance Patrol (IMAP).

The NCTA Toll Safety Patrol program consists of dedicated SHP and IMAP services provided on Triangle Expressway. This program provides one SHP officer and one IMAP responder to the facility during working hours, Monday through Friday. During this time, the assigned SHP officer and IMAP driver are responsible for patrolling the facility and responding to incidents reported by operators.

This section presents operations statistics reported by SHP and IMAP during the first quarter of 2017. It includes driver violations and warnings placed by SHP and total IMAP assistance recorded, as well as average monthly IMAP response and clearance time.

*Table 15* and *Table 16* present SHP operation statistics during 2017. "Chargeable Activities" are SHP activities involving fines. It should be noted that the "Other Violations" category includes chargeable activities such as load and equipment violations, driver's license violations, vehicle registration violations, and littering.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Table 15: SHP Chargeable Activities**

| Chargeable Activities      | Jan       | Feb        | Mar        | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total      |
|----------------------------|-----------|------------|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| Speed Violations           | 50        | 67         | 60         |     |     |     |     |     |     |     |     |     | <b>177</b> |
| Alcohol Violations         | 0         | 0          | 0          |     |     |     |     |     |     |     |     |     | <b>0</b>   |
| Seat Belt Violations       | 1         | 6          | 23         |     |     |     |     |     |     |     |     |     | <b>30</b>  |
| Child Restraint Violations | 0         | 0          | 0          |     |     |     |     |     |     |     |     |     | <b>0</b>   |
| Reckless Driving           | 4         | 1          | 2          |     |     |     |     |     |     |     |     |     | <b>7</b>   |
| Drug Violations            | 0         | 0          | 0          |     |     |     |     |     |     |     |     |     | <b>0</b>   |
| Other Violations           | 36        | 27         | 37         |     |     |     |     |     |     |     |     |     | <b>100</b> |
| <b>Total Charges</b>       | <b>91</b> | <b>101</b> | <b>122</b> |     |     |     |     |     |     |     |     |     | <b>314</b> |

**Table 16: SHP Non-Chargeable Activities**

| Non-Chargeable Activities | Jan       | Feb       | Mar       | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total      |
|---------------------------|-----------|-----------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| Warnings                  | 52        | 78        | 48        |     |     |     |     |     |     |     |     |     | <b>178</b> |
| Vehicles Towed            | 0         | 0         | 0         |     |     |     |     |     |     |     |     |     | <b>0</b>   |
| Crashes Investigated      | 6         | 8         | 5         |     |     |     |     |     |     |     |     |     | <b>19</b>  |
| <b>Total</b>              | <b>58</b> | <b>86</b> | <b>53</b> |     |     |     |     |     |     |     |     |     | <b>197</b> |

The IMAP assists with stranded motorists and incident clearance, thereby maintaining the flow of traffic along the roadway. *Table 17* and *Figure 31* present the monthly breakdown of IMAP assists, by type, for the Triangle Expressway during 2017. The “other” category includes the reporting categories of assist other unit, secured load, called for assistance, directions, and transported motorist.

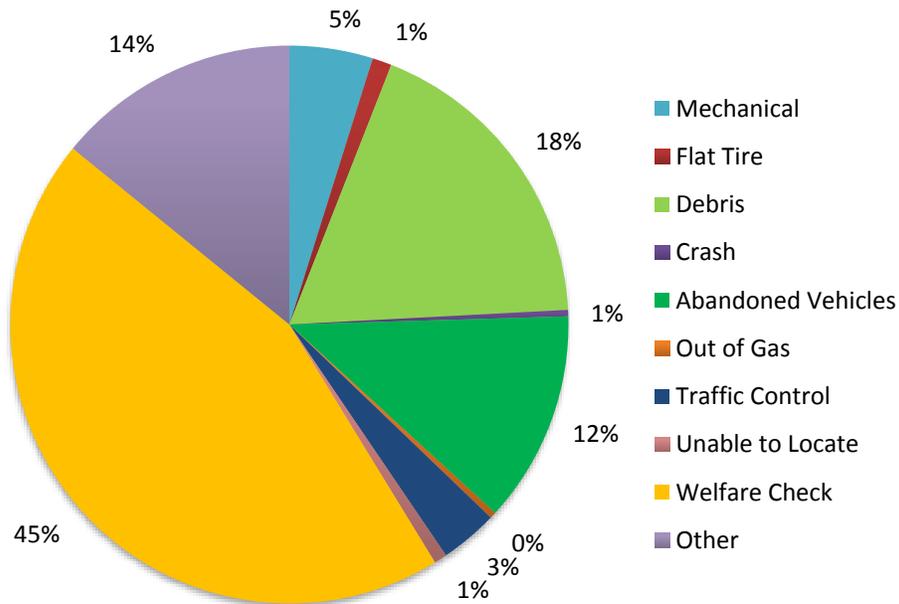
**Operations Statistics Report for the Triangle Expressway**

First Quarter, January – March 2017

**Table 17: IMAP Assistance**

| Assist Type         | Jan        | Feb       | Mar       | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Total      |
|---------------------|------------|-----------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------------|
| Mechanical          | 9          | 0         | 4         |     |     |     |     |     |     |     |     |     | 13         |
| Flat Tire           | 1          | 2         | 0         |     |     |     |     |     |     |     |     |     | 3          |
| Debris              | 15         | 14        | 20        |     |     |     |     |     |     |     |     |     | 49         |
| Crash               | 1          | 0         | 0         |     |     |     |     |     |     |     |     |     | 1          |
| Abandoned Vehicles  | 14         | 8         | 11        |     |     |     |     |     |     |     |     |     | 33         |
| Out of Gas          | 1          | 0         | 0         |     |     |     |     |     |     |     |     |     | 1          |
| Traffic Control     | 0          | 2         | 7         |     |     |     |     |     |     |     |     |     | 9          |
| Unable to Locate    | 1          | 1         | 0         |     |     |     |     |     |     |     |     |     | 2          |
| Welfare Check       | 49         | 38        | 33        |     |     |     |     |     |     |     |     |     | 120        |
| Other               | 9          | 15        | 14        |     |     |     |     |     |     |     |     |     | 38         |
| <b>Total Assist</b> | <b>100</b> | <b>80</b> | <b>89</b> |     |     |     |     |     |     |     |     |     | <b>269</b> |

**Figure 31: 2017 IMAP Assistance by Type, YTD**



**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

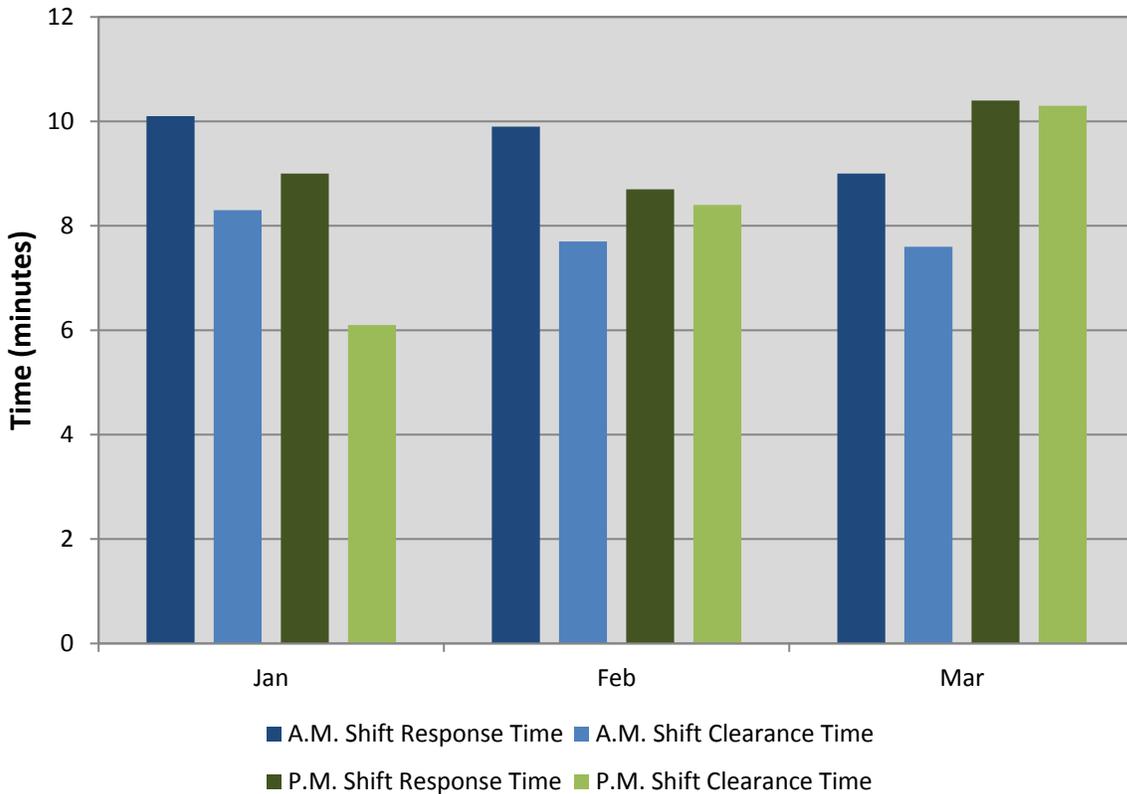
The response and clearance times for all IMAP assists are logged by IMAP and provided to the NCTA. Response time is the time from which a responder receives a call to the time they arrive on the scene. Clearance time is the time it takes the responder to clear the incident and return the roadway to normal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

Table 18 and Figure 32 present the average IMAP assistance response and clearance times, in minutes, for the Triangle Expressway.

**Table 18: Average IMAP Assistance Response and Clearance Times (in Minutes)**

| Response Type        | Jan | Feb | Mar | Apr | May | June | July | Aug | Sep | Oct | Nov | Dec | 2017 Average |
|----------------------|-----|-----|-----|-----|-----|------|------|-----|-----|-----|-----|-----|--------------|
| A.M. Shift Response  | 10  | 10  | 9   |     |     |      |      |     |     |     |     |     | <b>10</b>    |
| A.M. Shift Clearance | 8   | 8   | 8   |     |     |      |      |     |     |     |     |     | <b>8</b>     |
| P.M. Shift Response  | 9   | 9   | 10  |     |     |      |      |     |     |     |     |     | <b>9</b>     |
| P.M. Shift Clearance | 6   | 8   | 10  |     |     |      |      |     |     |     |     |     | <b>8</b>     |

**Figure 32: Average IMAP Assistance Response and Clearance 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.

**Operations Statistics Report for the Triangle Expressway**

**First Quarter, January – March 2017**

**Assessment Results**

Table 19 presents the 2017 quarterly and 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 annual rating will provide a 95% confidence level in statistical sampling.

**Table 19: MRP Assessment Results**

| <b>Element</b>                        | <b>Q1 2017 Rating</b> | <b>Q2 2017 Rating</b> | <b>Q3 2017 Rating</b> | <b>Q4 2017 Rating</b> | <b>2017 Annual Rating</b> |
|---------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|---------------------------|
| <b>Road Surface</b>                   | 97.8                  | N/A                   | N/A                   | N/A                   | N/A                       |
| <b>Unpaved Shoulders and Ditches</b>  | 95.6                  | N/A                   | N/A                   | N/A                   | N/A                       |
| <b>Drainage</b>                       | 86.7                  | N/A                   | N/A                   | N/A                   | N/A                       |
| <b>Roadside</b>                       | 90.3                  | N/A                   | N/A                   | N/A                   | N/A                       |
| <b>Traffic Control Devices</b>        | 91.4                  | N/A                   | N/A                   | N/A                   | N/A                       |
| <b>Overall MRP Performance Rating</b> | <b>92.7</b>           | <b>N/A</b>            | <b>N/A</b>            | <b>N/A</b>            | <b>N/A</b>                |

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