NORTH CAROLINA
Turnpike Authority

Maintenance Rating Program

Triangle Expressway

November 2024

2024 Third Quarter Report

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1.0 Executive Summary

The North Carolina Turnpike Authority (NCTA) Maintenance Rating Program (MRP) is a maintenance evaluation program for roadway features and toll facilities on the NCTA system. This report presents results from the 2024 Third Quarter Assessment of the Triangle Expressway.

The overall 2024 third quarter maintenance rating of the Triangle Expressway was **94.6,** above the NCTA target rating of 90. As shown in ***Table 1,*** all five elements assessed achieved a rating greater than the target rating of 85.

Table 1: MRP Element Results for the 2024 Third Quarter Assessment

Element	MRP Rating	Target Rating
Road Surface	100.0	85.0
Unpaved Shoulders and Ditches	100.0	85.0
Drainage	92.5	85.0
Roadside	96.7	85.0
Traffic Control Devices	87.8	85.0
Overall MRP Performance Rating	**94.6**	**90.0**

This report also provides a rolling rating of the latest four quarterly inspections of the Triangle Expressway. As presented in ***Table 2,*** the rolling maintenance rating of the Triangle Expressway was **94.8**.

Table 2: MRP Rolling Element Results

Element	Q4 2023 Rating	Q1 2024 Rating	Q2 2024 Rating	Q3 2024 Rating	Rolling Rating
Road Surface	98.0	96.7	98.9	100.0	98.2
Unpaved Shoulders and	97.4	95.2	98.8	100.0	97.2
Drainage	94.9	89.6	93.9	92.5	93.9
Roadside	91.3	92.6	94.4	96.7	92.7
Traffic Control Devices	93.5	87.2	93.3	87.8	92.6
Overall MRP Performance	**95.0**	**91.9**	**95.7**	**94.6**	**94.8**

In addition, the report provides findings of the Green Level Historic District signs inspection. This quarter, two signs were inspected. One of the signs was in good physical condition, while the other has been struck

and is down. The landscaped area around the two signs was maintained in accordance with NCTA MRP standards.

2.0 Introduction

The NCTA MRP is a comprehensive planning, measuring, and managing process that provides a means for communicating to managers, stakeholders, and 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 using sampling procedures that capture the level of service being provided for individual assets. The evaluation procedure is based on the establishment of threshold conditions that quantify the maximum defect allowed on assets. Over time, the results can be charted to identify work needs and subsequent necessary actions.

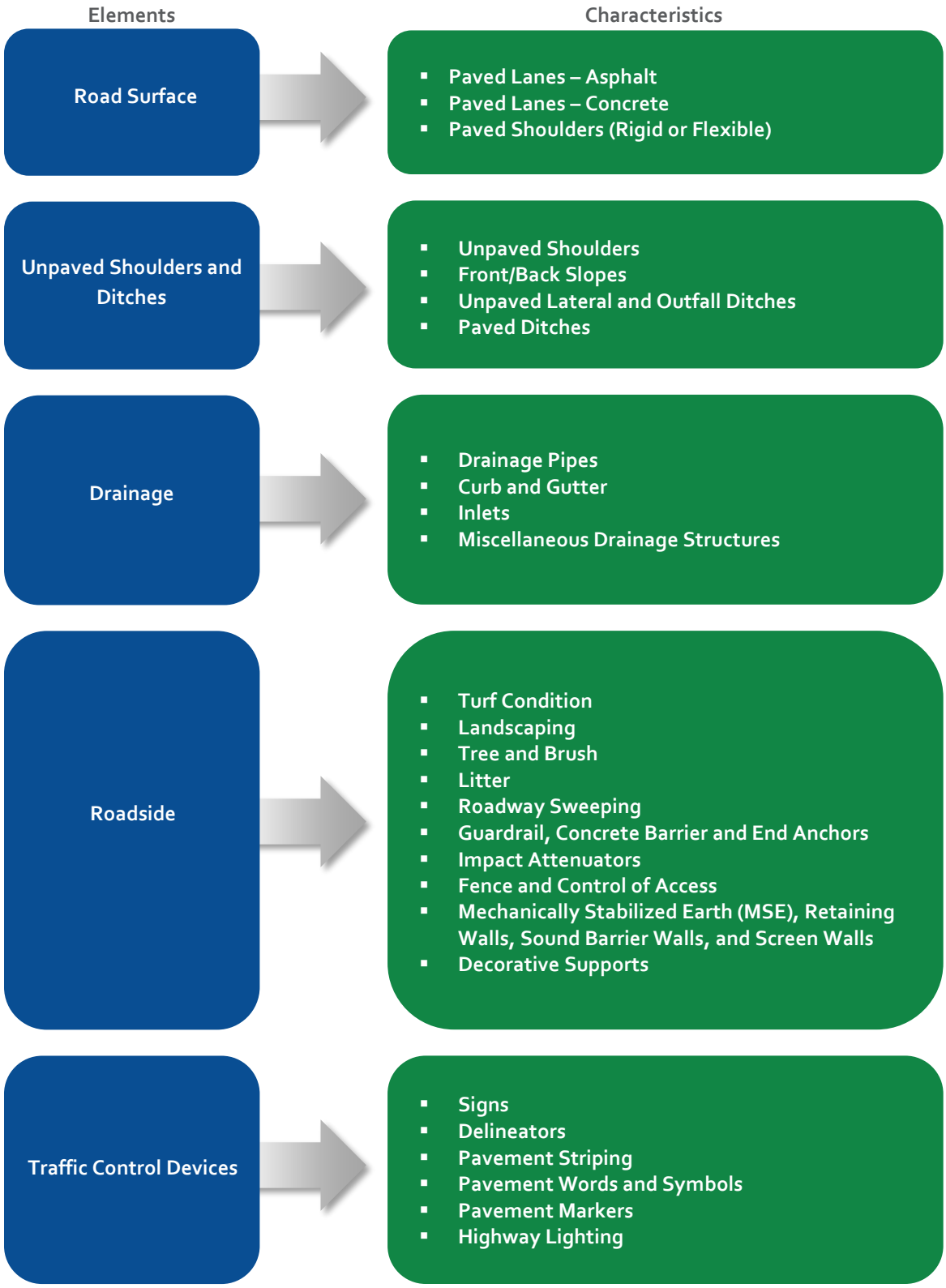
The NCTA performance standards, threshold criteria, and maintenance rating program were developed through a collaborative effort by NCTA managers, NCDOT maintenance staff, and consultants.

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 can be used to schedule and prioritize routine maintenance activities and provide uniform maintenance conditions that meet established objectives.

3.0 MRP Procedure

Per the *NCTA Roadway and Facility Maintenance Performance Standards V7*, roadway assets or characteristics on NCTA facilities have been grouped into elements. These elements and corresponding characteristics are shown in ***Figure 1:***

Figure 1: Maintenance Elements and Characteristics



A weighting system has been established to identify the importance of each element and characteristic. This system consists of two weighting factors: one that accounts for the importance of individual characteristics within a given maintenance element (1-9), and one that accounts for the importance of the maintenance elements to the total rating (by % of score). This two-factor system reveals deficiencies among characteristics and elements.

The program analysis is accomplished using statistically valid, random sampling procedures that capture the level of service for individual characteristics, with a 95% confidence level in sampling. The sample characteristics selected are evaluated during quarterly inspections, which are performed during the months of February, May, August, and November to account for dynamic changes in assets during the various seasons. The evaluation process is completed using electronic data collection tablets and is based on established threshold conditions described in the NCTA Roadway and Facility Maintenance Standards V7. Those characteristics that meet or exceed the threshold are coded as PASSING; those that do not meet the threshold are coded as NOT PASSING.

When the evaluation process is completed, the number of PASSING samples and total sample are multiplied by the weighted values (1-9) to determine the actual and possible rating points for characteristics and elements. MRP ratings for elements and characteristics are then calculated as the ratio of the actual rating points to possible rating points. The MRP ratings represent the maintenance level of service currently being provided, as they define the percent of characteristics and elements that meet the maintenance condition standard. For instance, an MRP rating of 83 signifies that 83 percent of the inspected elements/characteristics met the standard.

The overall MRP rating is determined by calculating the sum of the elements' ratings multiplied by the following weighted factors:

Road Surface =	**25%**
Unpaved Shoulders =	**13%**
Drainage =	**15%**
Roadside =	**17%**
Traffic Control Devices =	**30%**
Total	**100%**

The NCTA's overall target rating is 90, with elements scoring 85 or higher, and characteristics 80 or higher. In addition to quarterly ratings, the cumulative rolling annual rating is calculated each quarter. This rating is obtained by adding the ratings of the latest four quarterly inspections to compensate for the likelihood of uneven sample sizes.

4.0 Triangle Expressway Description

The Triangle Expressway extends for approximately 37 miles from the interchange of I-40 and Toll NC-885 in Durham to an easternly connection with I-40 / U.S. 70 near Garner. It includes a one-mile segment on Toll NC-540 extending north from the Toll NC-540 / Toll NC-885 interchange to the NC-54 interchange. The Triangle Expressway consists of twelve interchanges and twenty-two all-electronic toll collection zones. The newest section from N.C. 55 Bypass to I-40/US 70 near Garner opened to traffic and started toll collection on September 25, 2024. This section includes interchanges at Holly Springs Road, Bells Lake Road, U.S. 401, Old Stage Road, and N.C. 50 before connecting with I-40 and U.S. 70. While the newly opened extension is now open to traffic, this report will only summarize the data for the pre-existing roadway. (***Figure 2***).

Figure 2: Triangle Expressway Map

5.0 Triangle Expressway Asset Inventory Update

Through normal day-to-day maintenance activities and the construction of special projects, roadside assets are continuously being added or modified on the roadway. NCTA coordinates closely with NCDOT Division 5 Maintenance and conducts routine field visits to maintain an accurate asset inventory and ensure the validity of the MRP survey.

During this quarter assets on Toll NC 540 exit ramps to and from NC-55 Bypass were removed from the inventory due to the Complete 540 construction project. ***Table 3*** presents the updated number of assets that are currently available for inspections.

Table 3: Asset Inventory

Assets	Total Inventory	2024 Eligible Inventory
Barriers	801	616
Curb and Gutter	428	391
Decorative Supports	305	298
Drainage	1179	1127
Misc. Drainage	218	202
Fences	508	483
Highway Lighting	435	430
Impact Attenuators	48	46
Inlets	1129	1075
Linear Segments	795	755
Plant Beds	266	257
Paved Ditches	2	2
Pavement Symbols	652	591
Signs	1224	1168
Tree and Brush	603	567
Turf	1074	1011
Walls	88	84

6.0 MRP Third Quarter Assessment

6.1 Quarterly Results

The overall 2024 Third quarter maintenance rating of the Triangle Expressway was 94.6, above NCTA's target overall rating of 90. All elements assessed achieved quarter ratings above the target rating of 85 established for element groups.

It is important to note that these results are only representative of the third quarter sample, one of the four surveys to provide an intermediate snapshot of seasonal conditions. Therefore, they are not a statistically valid representation of the assets; only the total of all four quarterly inspections, reported as the rolling rating, provides a 95% confidence level in statistical sampling. The Third quarter MRP performance ratings for elements and characteristics are presented in ***Table 4*** and ***Table 5***, respectively.

Table 4: MRP Element Results for Q3 2024

Element	MRP Rating
Road Surface	100.0
Unpaved Shoulders and Ditches	100.0
Drainage	92.5
Roadside	96.7
Traffic Control Devices	87.8
Overall MRP Performance Rating	**94.6**

Table 5: MRP Characteristics Results for Q3 2024

Road Surface	Sample Passed	Sample Total	Weighted Values	Actual Pts	Available Pts	Q3 Rating
Paved Lanes Asphalt	8	8	9	72	72	100
Paved Lanes Concrete	23	23	9	207	207	100
Paved Shoulder	32	32	5	160	160	100
Element Total				**439**	**439**	**100.0**
Unpaved Shoulders and Ditches	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Unpaved Shoulder	32	32	9	288	288	100
Front/Back Slopes	32	32	6	192	192	100
Lateral and Outfall Ditches, Unpaved	32	32	6	192	192	100
Ditches, Paved	2	2	5	10	10	100
Element Total				**682**	**682**	**100.0**
Drainage	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Drainage Pipes	40	41	7	280	287	98
Curb and Gutter	28	29	6	168	174	97
Inlets	29	34	7	203	238	85
Misc. Drainage Structure	22	25	4	88	100	88
Element Total				**739**	**799**	**92.5**
Roadside	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Turf Condition	30	33	7	210	231	91
Landscaping	25	25	4	100	100	100
Trees and Brush	37	37	4	148	148	100
Litter	32	32	4	128	128	100
Roadway Sweeping	32	32	5	160	160	100
Guardrail, Concrete Barrier, and End Anchors	31	31	9	279	279	100
Impact Attenuators	9	10	9	81	90	90
Fence, Control Access	28	32	7	196	224	88
Retaining Walls and Sound Barrier Walls	18	18	5	90	90	100
Decorative Supports	26	26	5	130	130	100
Graffiti and Stain Removal	44	44	4	176	176	100
Element Total				**1698**	**1756**	**96.7**
Traffic Control Devices	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Signs	39	44	7	273	308	89
Delineators	32	32	3	96	96	100
Pavement Striping/Marking	31	32	8	248	256	97
Words and Symbols	31	35	7	217	245	89
Pavement Markers	31	32	9	279	288	97
Highway Lighting	32	49	6	192	294	65
Element Total				**1305**	**1487**	**87.8**

Additionally, ***Appendix A*** includes maps that present the location of all assets assessed during the first quarter. ***Appendix B*** includes a list of the individual assets that did not achieve their target ratings.

6.2 Quarterly Analysis and Recommendations

Elements

During the Third quarter, all elements exceeded NCTA's quarter score threshold criteria of 85.

Road Surface (100.0) experienced a 1.1-point increase from the previous quarter's rolling rating. Paved Lanes Asphalt (100.0) quarter rating increased by 5 points. All characteristics within this element continued scoring above 90 for last four quarters.

Unpaved Shoulders and Ditches (100.0) experienced an increase in rolling rating. The rating for this element was 1.2 points higher than the previous quarter's rolling rating. All characteristics within this element continued scoring above 90.

Drainage (92.5) rolling rating also decreased by 1.4 points from the previous quarter rolling rating. Curb and Gutter (97) rolling rating increased by 1 point from last quarter.

Roadside (96.7) rolling rating increased by 2.3 points from the previous quarter rolling rating. Retaining Walls and Sound Barriers (100) was an improved characteristic with a score increase of 22.0 points from the previous quarter's rolling rating. Guardrail (100) experienced great improvement also with an increase in rating of 10 points from the previous quarter rolling rating.

Traffic Control Devices (87.8) experienced a decrease in rolling rating of 5.5 points from the previous quarter. Highway Lighting (65) will require the most attention with a decrease in rolling rating of 18 points.

Recommendations to improve specific critical characteristic ratings are provided in the following sections.

Characteristics

This quarter, all but one characteristic, Highway Lighting (65), met the NCTA target threshold criteria of 80. A description of the characteristic's conditions and future work planning recommendations are provided below. Pictures of all characteristic failures are included in ***Appendix B***.

Highway Lighting (65 rating – 32 of the 49 assets passed): Each of the highway lights that did not pass inspection either were not functioning properly (out at night) or were damaged/completely down.

To maintain/improve the condition ratings, it is recommended that highway lighting be regularly inspected for functionality after dark, and maintenance completed as planned in the capital budget. Solar and battery powered backup may help cover temporary down time between repairs.

Maintenance Program:

1) Perform night patrol once a month and identify any outages. A monthly "Lighting Outage Report" shall be submitted by the maintenance provider to the NCTA by the 30th of each month. All bulb outages must be replaced within 48 hours.
2) Perform cleaning of glassware at the same time as any routine maintenance function or diagnostic action is performed.
3) Replace any light poles damaged by traffic within 5 days or within 14 days if any foundations needed pouring.

Maintenance and Evaluation Standards: Highway and Sign Lighting do not meet the maintenance standards when any of the following criteria is observed:

1) Any electrical inspection plate, access panel cover, exposed electrical wire or pull box cover are not properly secured in place.
2) The luminaries are not functioning during nighttime observation. (N)
3) Any pole is damaged, leaning or missing.
4) Rodent screen protection is not in place, where applicable.

7.1 Annual Results

The 2024 annual rolling maintenance rating of the Triangle Expressway was **94.8**, exceeding NCTA's target overall rating of 90. All elements exceeded NCTA's rolling rating threshold criteria of 85. Twenty-seven of the twenty-eight characteristic ratings met or exceeded the target rating of 80.

The 2024 results are presented in ***Exhibit 1*** and ***Table 6***. These results are a collection of the four quarterly inspections conducted in the last year.

Exhibit 1: MRP Element Results for 2024

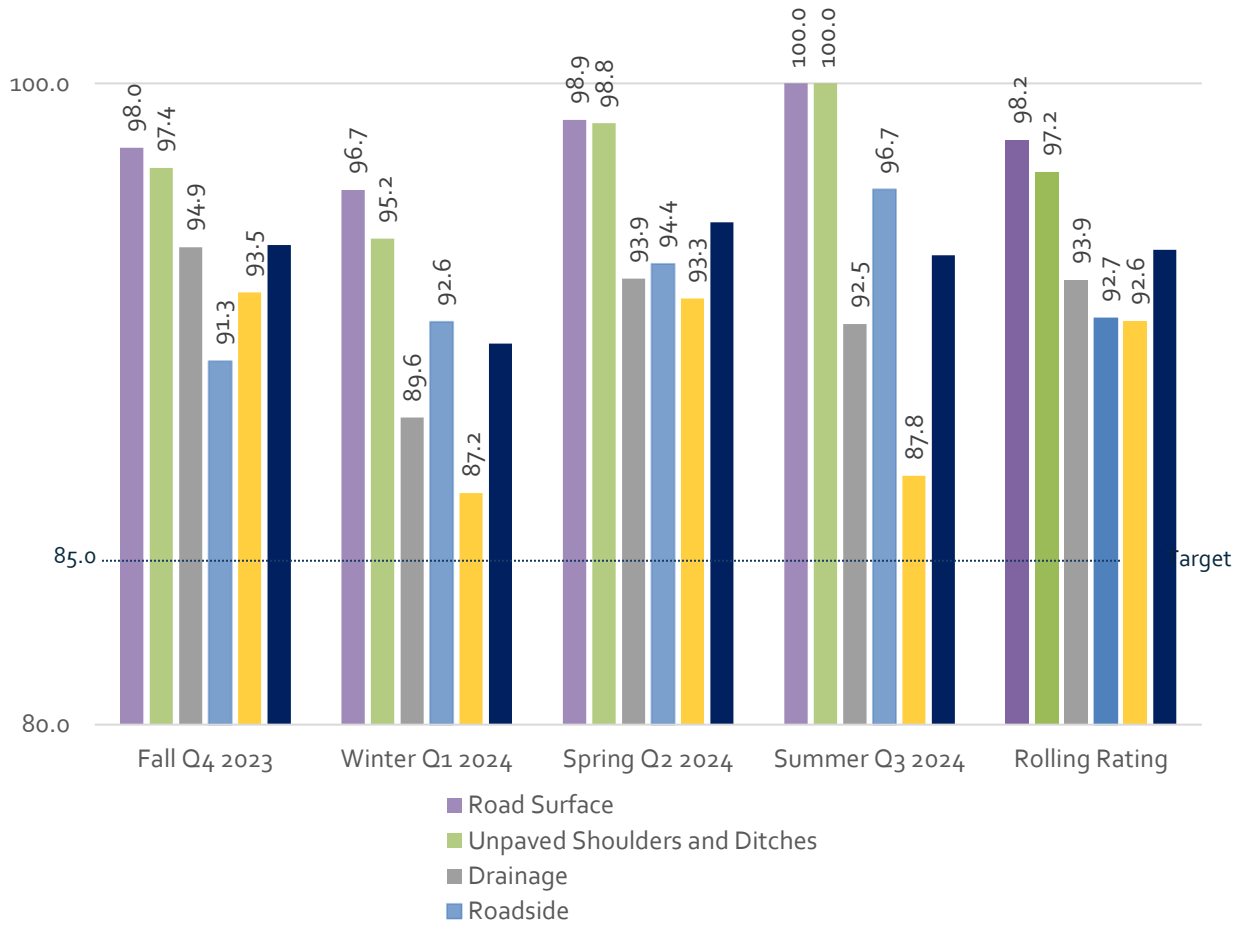


Table 6: MRP Rolling Element Results

Road Surface	Q4 2023 Rating	Q1 2024 Rating	Q2 2024 Rating	Q3 2024 Rating	Rolling Rating
Paved Lanes Asphalt	100	100	95	100	99
Paved Lanes Concrete	91	93	100	100	98
Paved Shoulder	100	97	100	100	99
Element Total	**98.0**	**96.7**	**98.9**	**100.0**	**98.2**
Unpaved Shoulders and Ditches	**Q4 2023 Rating**	**Q1 2024 Rating**	**Q2 2024 Rating**	**Q3 2024 Rating**	**Rolling Rating**
Unpaved Shoulder	94	91	98	100	95
Front/Back Slopes	100	97	100	100	99
Lateral and Outfall Ditches, Unpaved	100	100	98	100	99
Ditches, Paved	100	100	100	100	100
Element Total	**97.4**	**95.2**	**98.8**	**100.0**	**97.2**
Drainage	**Q4 2023 Rating**	**Q1 2024 Rating**	**Q2 2024 Rating**	**Q3 2024 Rating**	**Rolling Rating**
Drainage Pipes	97	82	92	98	92
Curb and Gutter	93	96	96	97	96
Inlets	97	94	97	85	97
Misc. Drainage Structure	88	88	88	88	87
Element Total	**94.9**	**89.6**	**93.9**	**92.5**	**93.9**
Roadside	**Q4 2023 Rating**	**Q1 2024 Rating**	**Q2 2024 Rating**	**Q3 2024 Rating**	**Rolling Rating**
Turf Condition	92	85	90	91	88
Landscaping	96	95	96	100	95
Trees and Brush	97	100	94	100	98
Litter	97	91	100	100	97
Roadway Sweeping	100	100	100	100	99
Guardrail, Concrete Barrier, and End Anchors	87	100	90	100	92
Impact Attenuators	89	100	100	90	97
Fence, Control Access	79	82	91	88	85
Retaining Walls and Sound Barrier Walls	72	72	78	100	74
Decorative Supports	96	96	100	100	98
Graffiti and Stain Removal	100	100	100	100	100
Element Total	**91.3**	**92.6**	**94.4**	**96.7**	**92.7**
Traffic Control Devices	**Q4 2023 Rating**	**Q1 2024 Rating**	**Q2 2024 Rating**	**Q3 2024 Rating**	**Rolling Rating**
Signs	97	91	98	89	95
Delineators	94	75	96	100	91
Pavement Striping/Marking	91	91	96	97	95
Words and Symbols	97	87	88	89	92
Pavement Markers	86	88	95	97	93
Highway Lighting	100	83	83	65	88
Element Total	**93.5**	**87.2**	**93.3**	**87.8**	**92.6**

7.0 Green Level Historic District Signs

Green Level Historic District signs and surrounding landscaped areas were installed as part of the Triangle Expressway construction project. Currently, NCDOT is maintaining the Green Level Historic District Signs and the Town of Cary is providing maintenance to the landscaped areas surrounding these signs.

8.1 Analysis and Recommendations

As part of each quarterly inspection, an assessment team visits the two remaining Green Level Historic District signs to conduct a visual inspection of each sign and ensure they are in good standing. One of the two signs included in the inspection inventory was found to be in good condition, while the other has been stuck, damaged and in need of repair. ***Figure 4*** shows the two signs assessed.

Figure 4: Green Level West Historic District Signs, Landscape Areas

8.0 Conclusion

This report presents the 2024 third quarter assessment of the Triangle Expressway. The NCTA's target ratings are 90 for the rolling rating, 90 for the overall quarter rating, 85 for elements, and 80 for characteristics. The Third quarter 2024 overall rating was **94.6** and the rolling rating was **94.8** , both ratings met the target rating of 90.

All element ratings were above the target ratings for the quarter and rolling assessment. During the Third quarter assessment, all but one characteristic met or exceeded the target rating of 80. The characteristic that received a quarter score less than 80 was Highway Lighting (65). To maintain/improve the condition ratings, it is recommended that highway lighting be regularly inspected for functionality after dark along with routine maintenance being completed as planned in the capital budget.

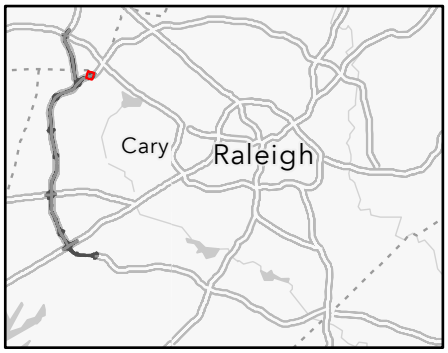
This quarter, one of the two Green Level Historic District signs inspected was found to be in good condition, and the other will need to be repaired. The landscaped areas surrounding the signs were found to be well maintained.

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

Legend

Failing Asset

Passing Asset



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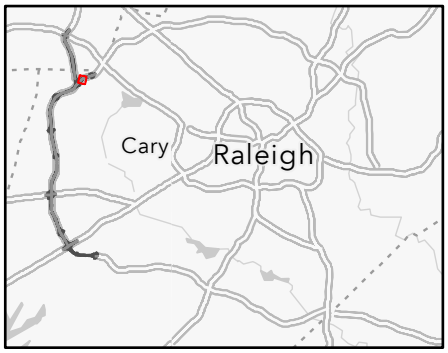

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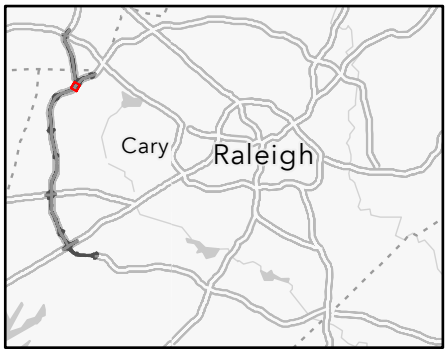

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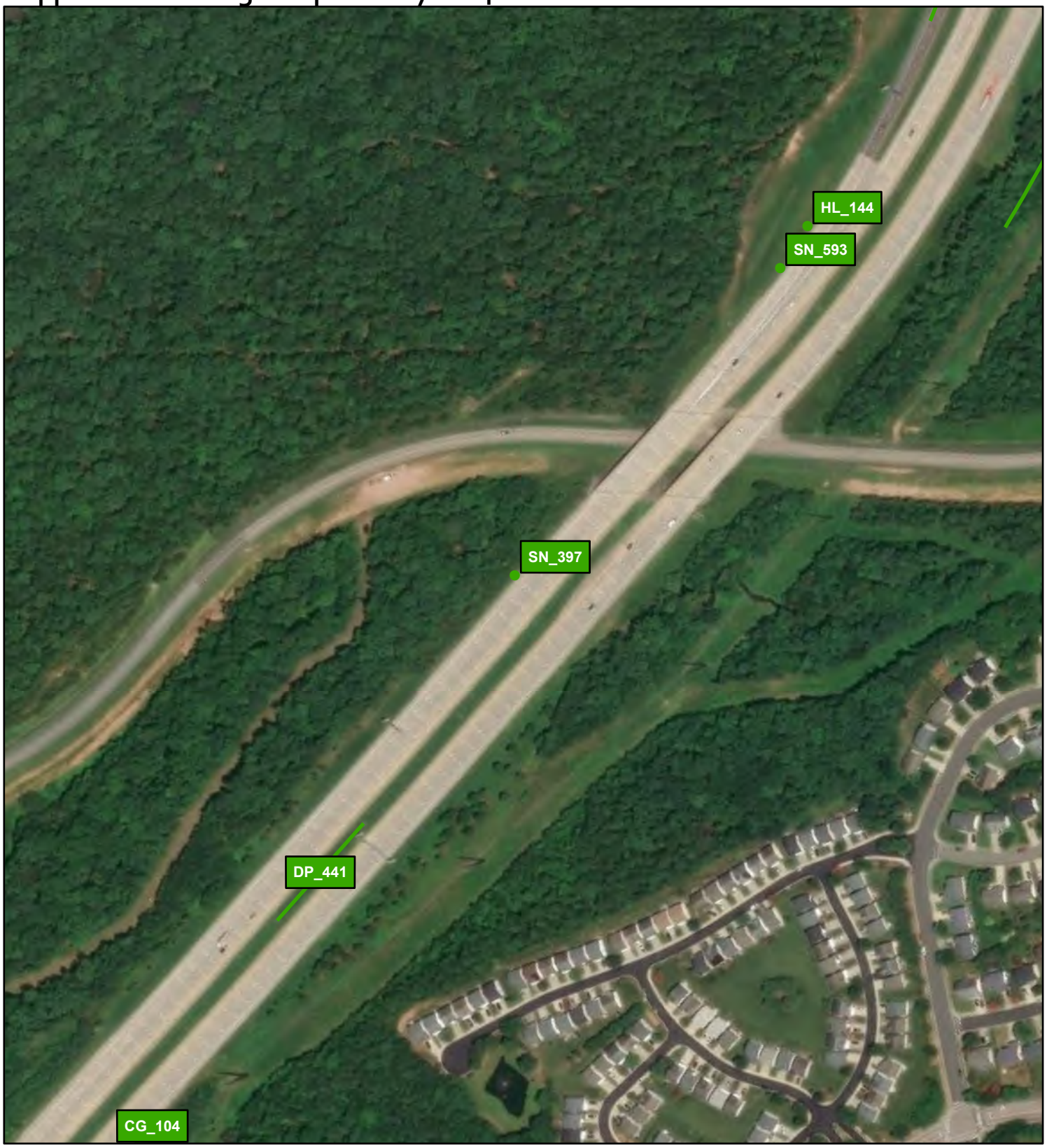

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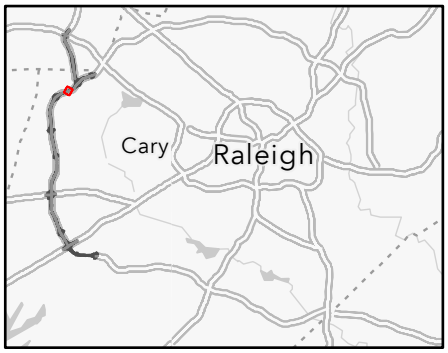

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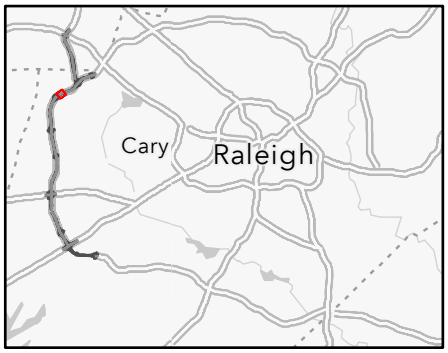

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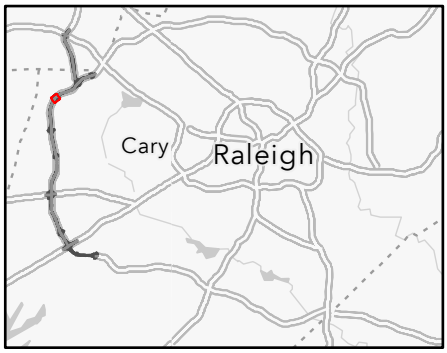

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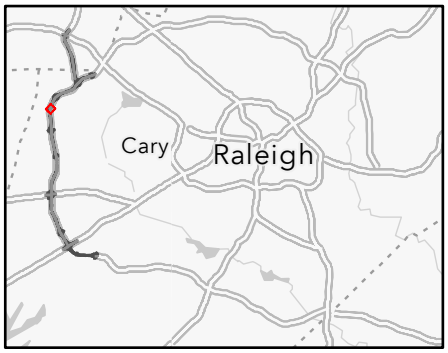

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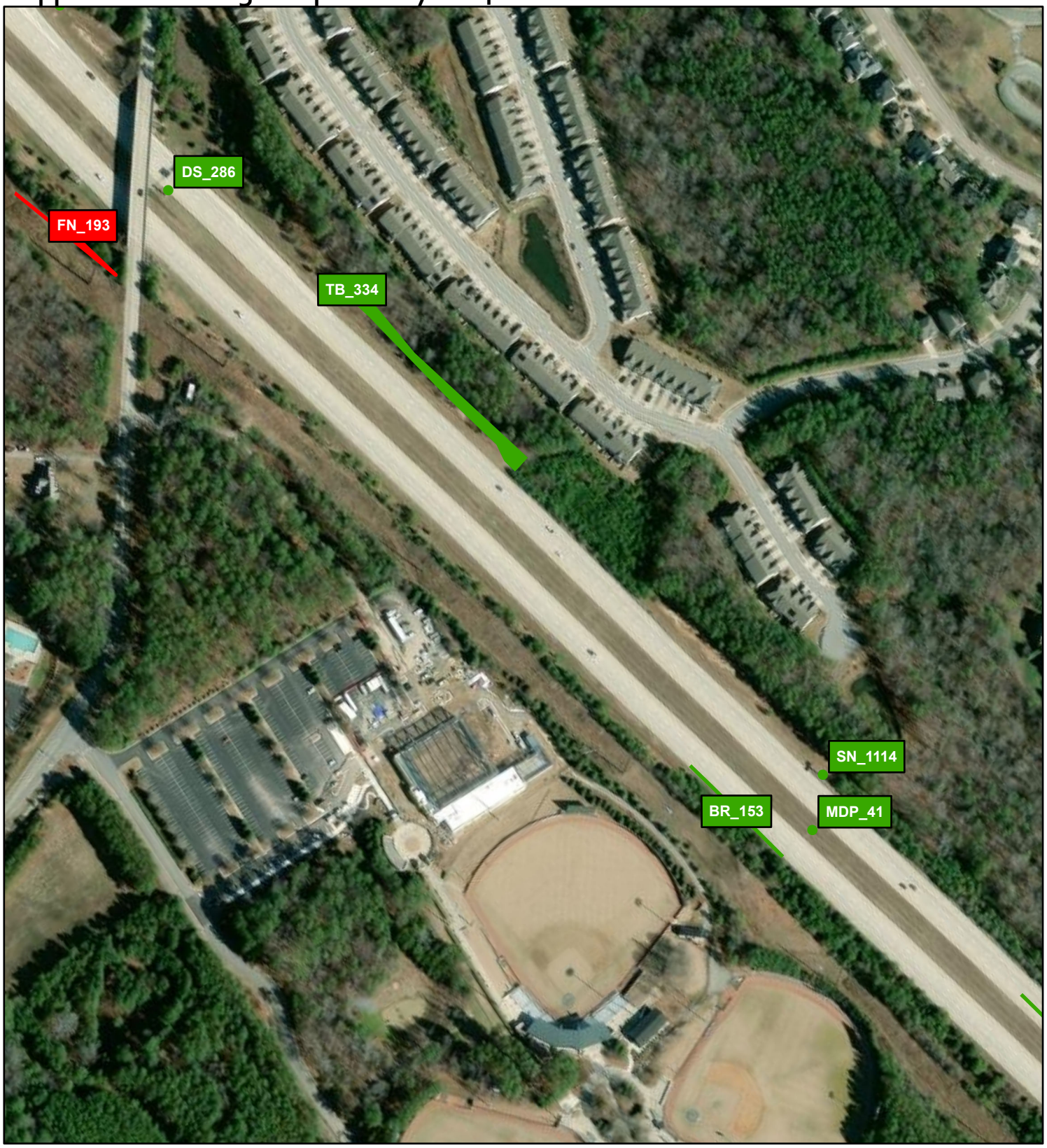

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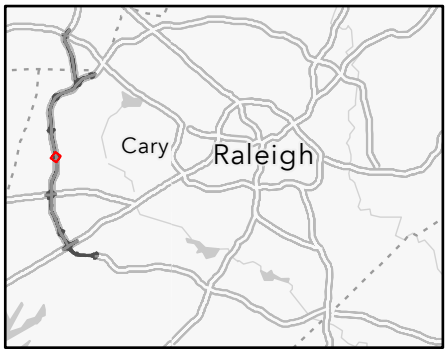

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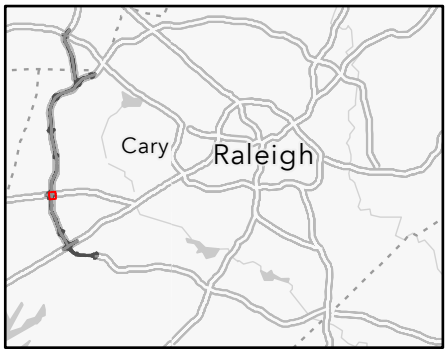

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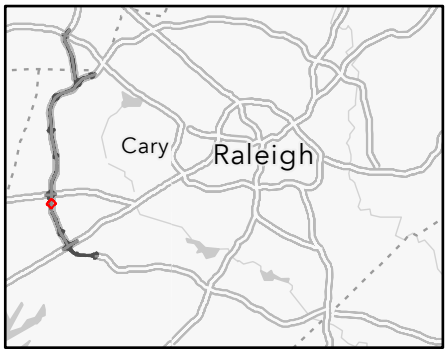

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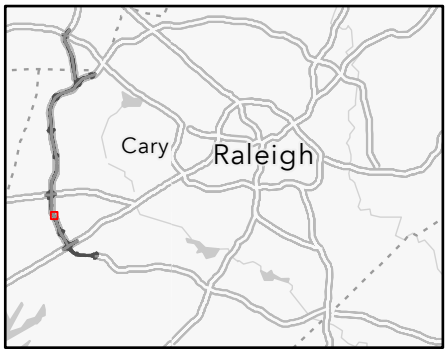

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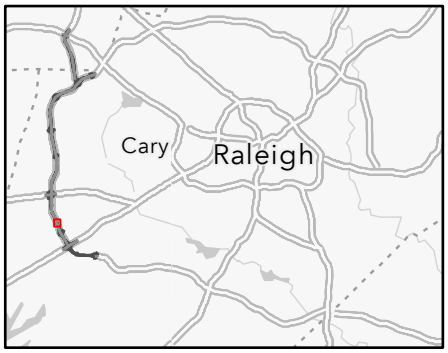

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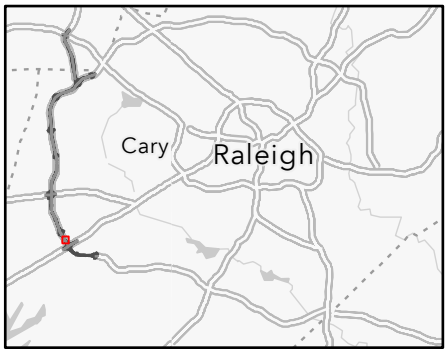


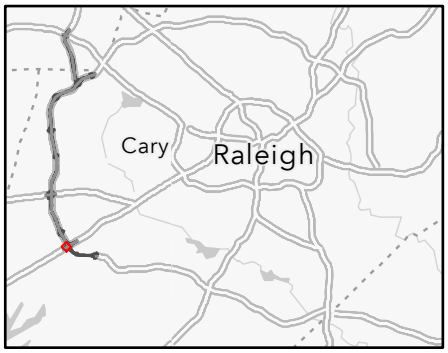
NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

Legend

Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

Legend

- Failing Asset
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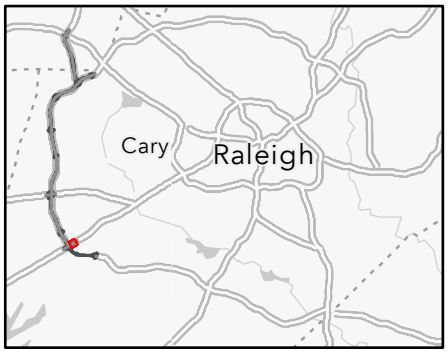
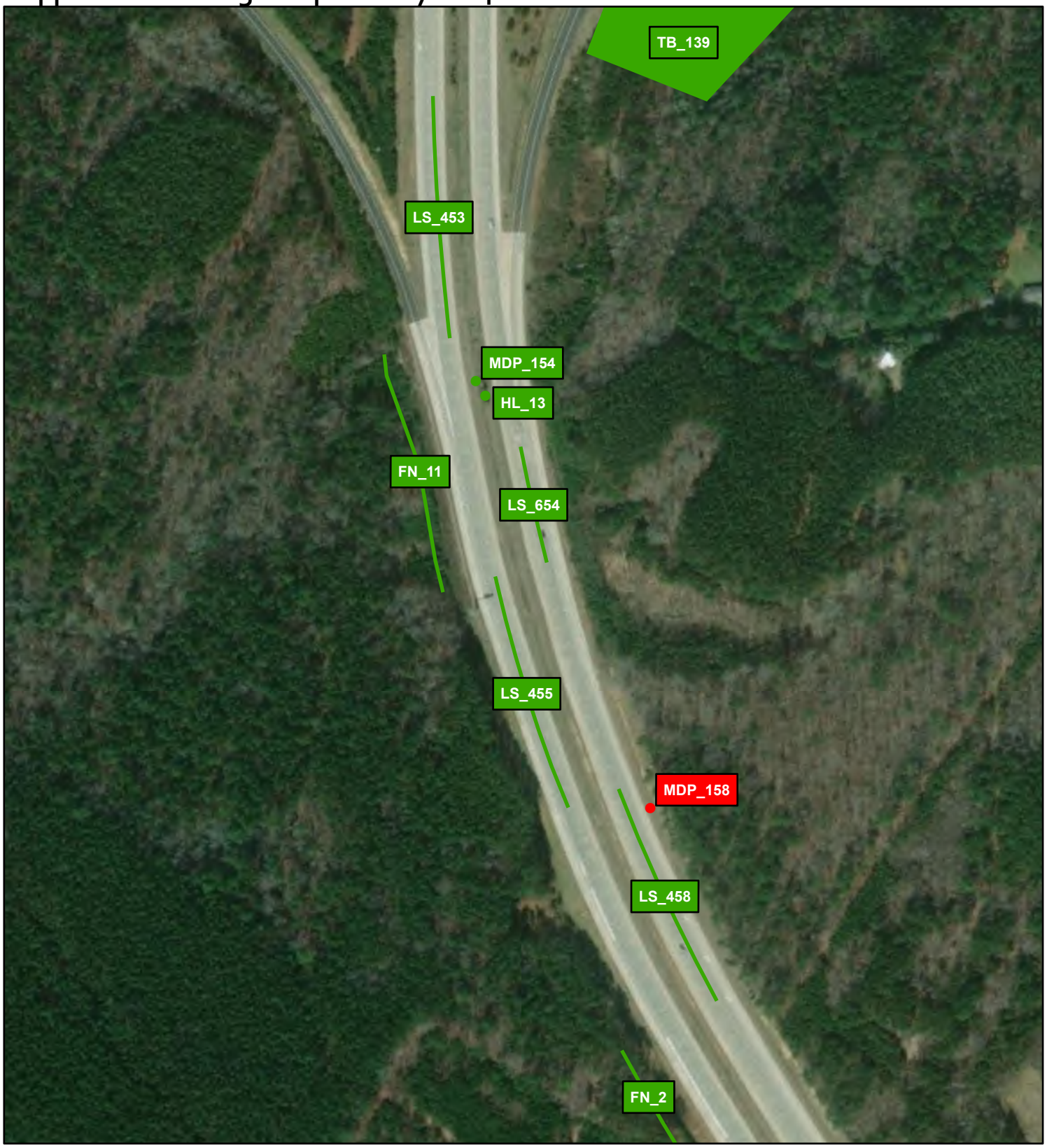


NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations



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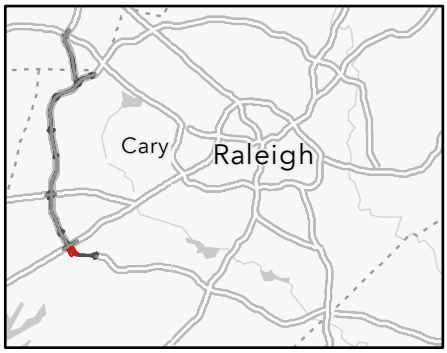
Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

Legend

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NORTH CAROLINA Turnpike Authority

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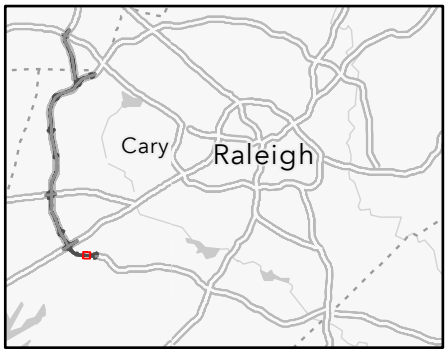
Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

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Failing Asset

Passing Asset

NORTH CAROLINA Turnpike Authority

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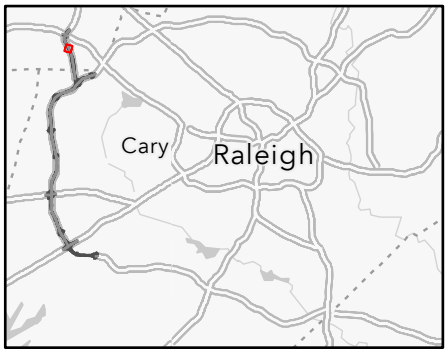

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

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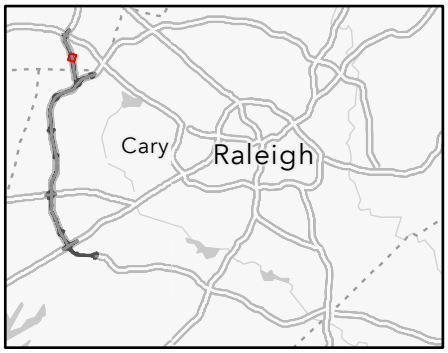
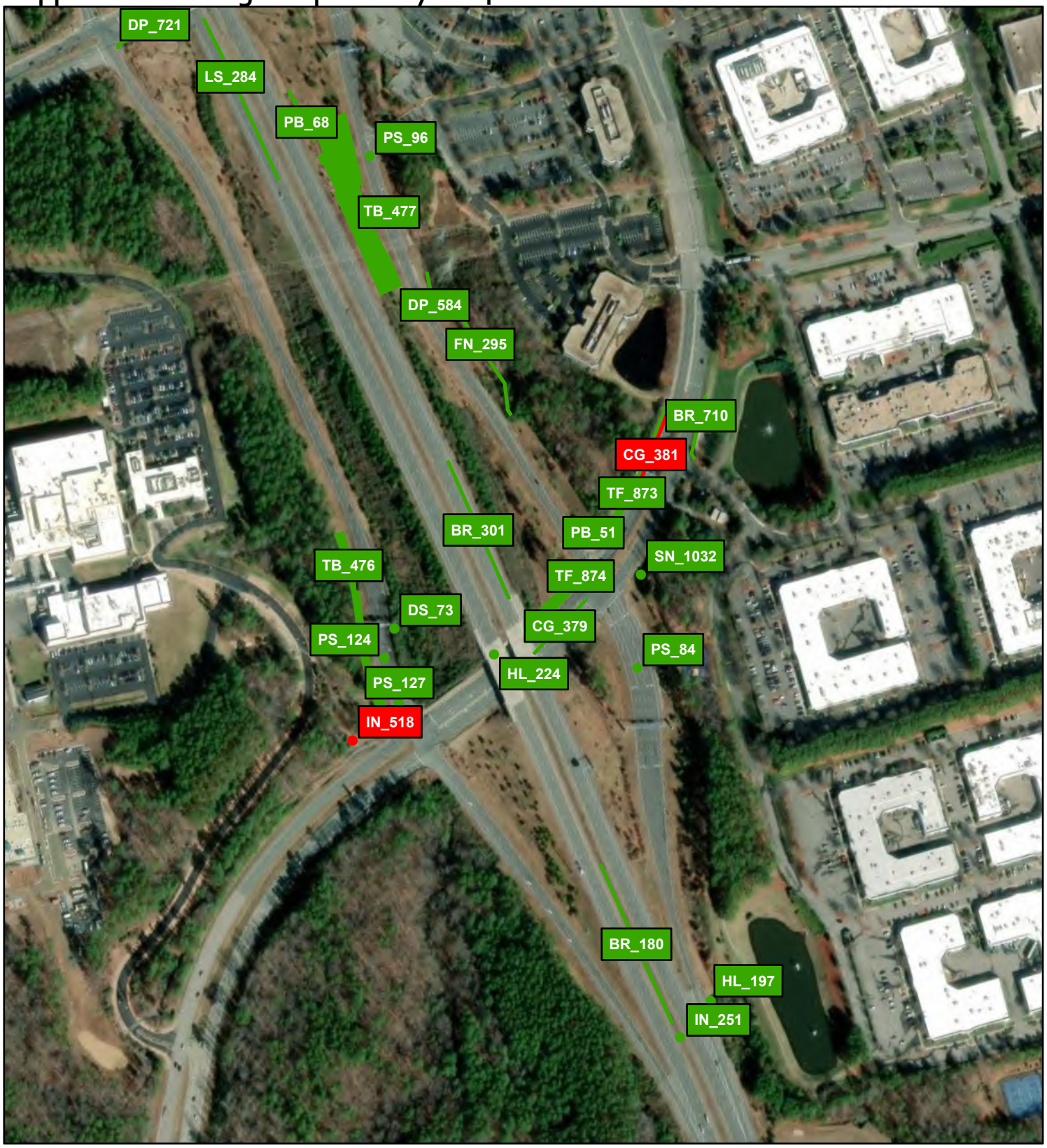


NORTH CAROLINA Turnpike Authority

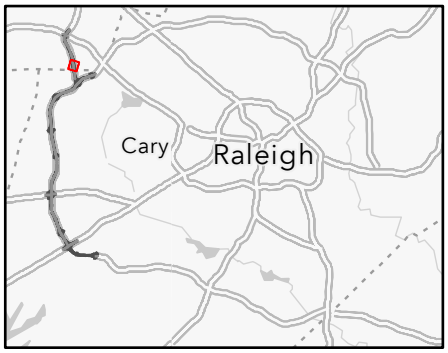
Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations



Legend

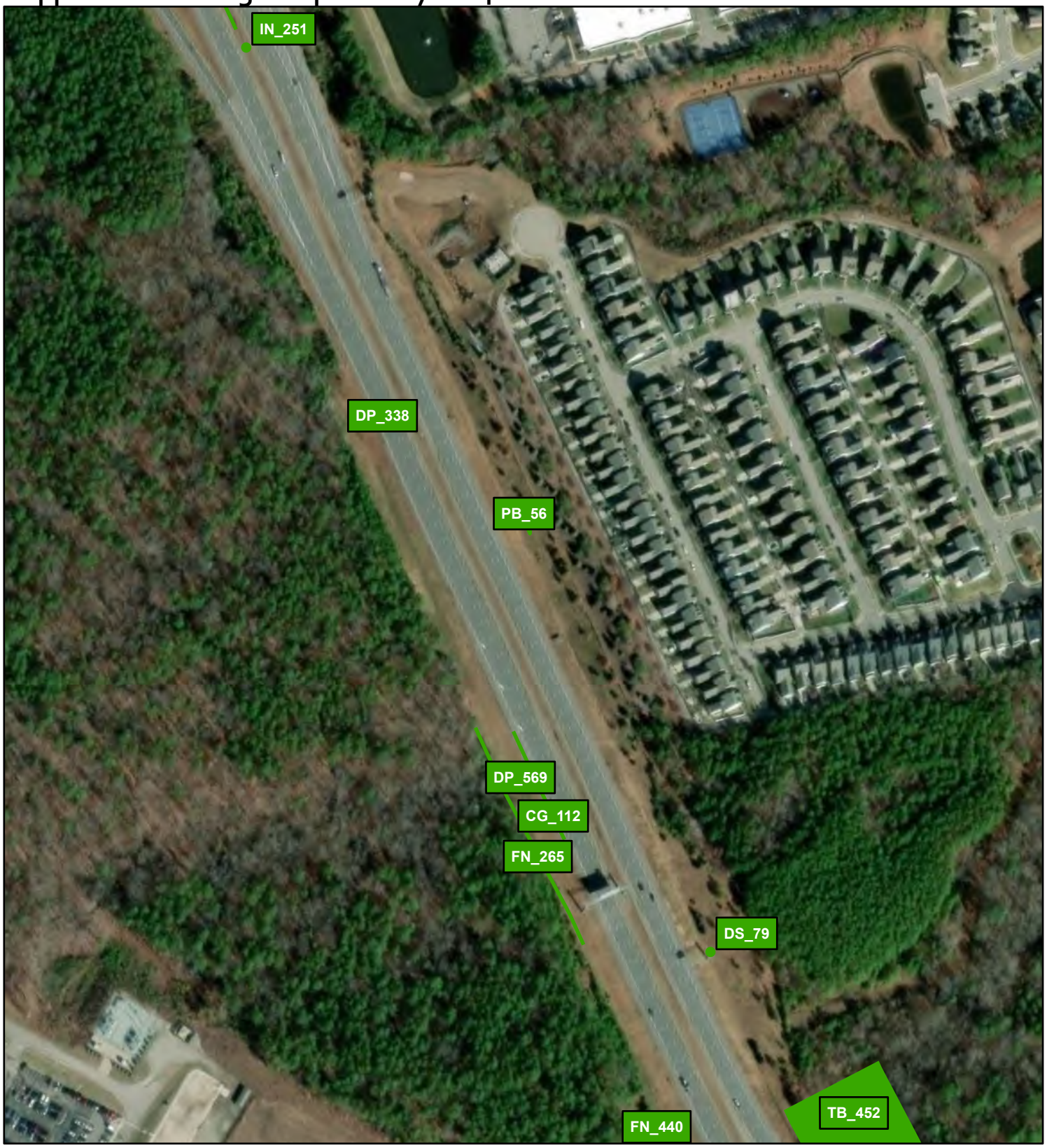
Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations



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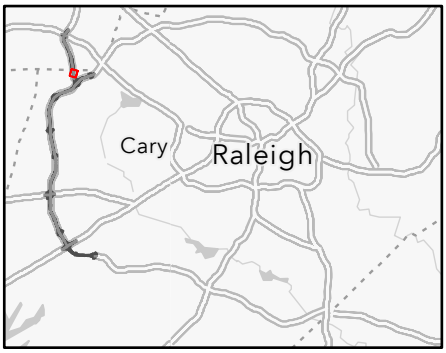
Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

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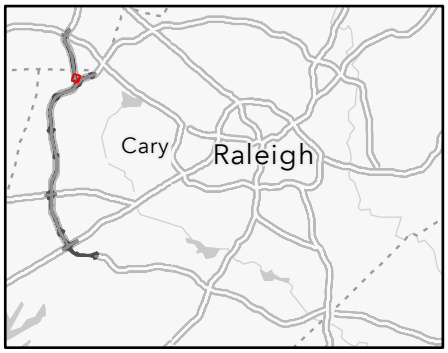

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 Third Quarter Asset Assessment Locations

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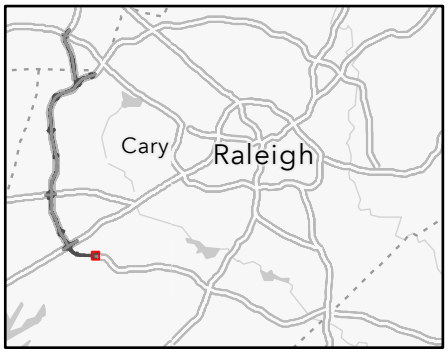


NORTH CAROLINA Turnpike Authority

Appendix B

Triangle Expressway 2024 Third Quarter Table Results of Assets Failing MRP

Provided below are a series of tables outlining the existing failures that occurred throughout the facility. Assets are defined by an Inventory ID, which is a unique identifier given to each individual asset. The components that make up the Inventory ID are an asset specific prefix along with a number, such as LS_1. The Inventory ID and GIS Reference Page number correspond to the provided map packets and allow for quick location of particular asset failures. Photos of failures were provided when applicable.

*ORA – Outside Recorded Area

All assets and their respective prefixes are listed below:

Guardrail, Concrete Barrier, and End Anchors (BR)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Curb and Gutter (CG)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Curb	CG_348	Settlement		**A3**

Decorative Supports (DS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Drainage Pipes (DP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Drain	DP_440	Obstruction		**A4**

Misc. Drainage Structure (MDP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Shoulder Drain	MDP_113	Rodent Screen		**A20**
2	Shoulder Drain	MDP_158	Rodent Screen		**A25**
3	Shoulder Drain	MDP_225	Obstruction		**A10**

Fence and Control of Access (FN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Woven	FN_193	Hole Height		**A11**
2	Woven	FN_362	Fence Hole		***ORA**
3	Woven	FN_522	Fence Hole		**A10**

Graffiti (GR)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Highway Lighting (HL)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	High Mast	HL_1	Functional Damage (Out at Night)	No Photo Provided	**A34**
2	Double Roadway	HL_5	Functional Damage (Out at Night)	No Photo Provided	**A27**
3	High Mast	HL_46	Functional Damage (Out at Night)	No Photo Provided	**A6**
4	Single Roadway	HL_54	Functional Damage (Out at Night)	No Photo Provided	**A6**
5	Double Roadway	HL_63	Functional Damage (Down/Removed)	No Photo Provided	**A12**
6	Single Roadway	HL_75	Functional Damage (Out at Night)	No Photo Provided	**A13**
7	Single Roadway	HL_77	Functional Damage (Out at Night)	No Photo Provided	**A13**
8	Single Roadway	HL_167	Functional Damage (Out at Night)	No Photo Provided	**A2**
9	Single Roadway	HL_169	Functional Damage (Out at Night)	No Photo Provided	**A2**
10	Double Roadway	HL_179	Functional Damage (Down/Removed)	No Photo Provided	**A2**
11	Single Roadway	HL_236	Functional Damage (Out at Night)	No Photo Provided	**A5**
12	Single Roadway	HL_263	Functional Damage (Out at Night)	No Photo Provided	**A20**
13	High Mast	HL_283	Functional Damage (Out at Night)	No Photo Provided	**A23**

14	Single Roadway	HL_312	Functional Damage (Out at Night)	No Photo Provided	**A18**
15	Single Roadway	HL_325	Functional Damage (Out at Night)	No Photo Provided	**A17**
16	Single Roadway	HL_326	Functional Damage (Out at Night)	No Photo Provided	**A17**
17	Single Roadway	HL_424	Functional Damage (Out at Night)	No Photo Provided	**A10**

Impact Attenuators (IA)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Gating Attenuator	IA_14	Nighttime Reflectivity	No Photo Provided	**A3**

Inlets (IN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Drop Inlet	IN_459	Eroded Area		**A2**
2	Drop Inlet	IN_481	Obstruction		**A1**
3	Drop Inlet	IN_518	Eroded Area		**A31**

Inlets (IN)

4	Drop Inlet	IN_575	Obstruction			***ORA**
5	Drop Inlet	IN_848	Obstruction			**A17**

Landscaping (PB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Paved Lanes – Asphalt (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Paved Lanes – Concrete (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Paved Shoulders (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Unpaved Shoulders (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Front/Back Slopes (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Unpaved Lateral and Outfall Ditches (LS)

#	Material Type	Objec t ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Litter (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Roadway Sweeping (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Pavement Striping (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_18	Nighttime Reflectivity	Not available for nighttime failure	***ORA**

Pavement Markers (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_18	Nighttime Visibility	Not available for nighttime failure	***ORA**

Delineators (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

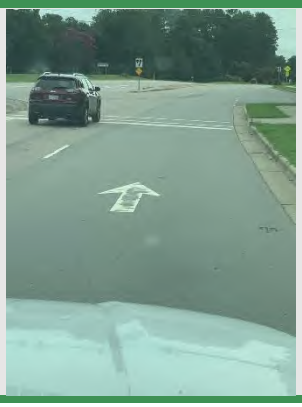
This asset did not produce any failures.

Paved Ditches (PD)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Pavement Words and Symbols (PS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Left Turn	PS_423	Daytime Assessment / Nighttime Reflectivity		***ORA**
2	Only	PS_425	Daytime Assessment / Nighttime Reflectivity	No Photo Provided	***ORA**
3	Left Turn	PS_585	Nighttime Reflectivity		**A26**
4	Thru Lane	PS_625	Daytime Assessment / Nighttime Reflectivity		**A13**

Signs (SN)

#	Sign Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Authorized Vehicles	SN_291	Missing / Removed	No Photo Provided	**A16**
2	Exit	SN_383	Missing / Removed	No Photo Provided	**A5**
3	Exit	SN_859	Missing / Removed	No Photo Provided	**A16**
4	NC Route	SN_986	Night Reflectivity		**A1**
5	Other	SN_1006	Sign Support		**A2**

Tree and Brush (TB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Turf	TF_330	Bare Ground		**A26**
2	Turf	TF_379	Bare Ground		**A23**

MSE/Retaining Walls, Sound Barrier Walls, and Screen Walls (WL)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

CONSULTANT CERTIFICATION OF COMPLETION

November 12, 2024

Alan Shapiro, P.E.
Director of Highway Operations, NCTA
1 South Wilmington Street
Raleigh, NC 27601

NCTA Triangle Expressway Roadway Maintenance Performance Rating Program; Q3, 2024 Rating

This is to certify that I, Caroline Dickey, PE, am an authorized official representative of the company Mott MacDonald I&E, LLC, a subconsultant to HNTB North Carolina, P.C. Collaboratively; we are working as the NCTA Roadway and Facility Maintenance Performance Rating Program Consultants.

I know of my own personal knowledge, and do hereby certify, that the work of the contract described above has been independently performed in accordance with, and in conformity to, the *NCTA Roadway and Facility Maintenance Performance Standards v.7.1*.

Sincerely,

Mott MacDonald I&E, LLC

Caroline Dickey, PE
Asset Management Engineer

1101 Haynes Street, Suite 101
Raleigh, NC 27604