NORTH CAROLINA
Turnpike Authority

Maintenance Rating Program

Triangle Expressway

May 2024

2024 First Quarter Report

Table of Contents

Figures & Tables

Appendices

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 First Quarter Assessment of the Triangle Expressway.

The overall 2024 First quarter maintenance rating of the Triangle Expressway was **91.9,** 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 First Quarter Assessment

Element	MRP Rating	Target Rating
Road Surface	96.7	85.0
Unpaved Shoulders and Ditches	95.2	85.0
Drainage	89.6	85.0
Roadside	92.6	85.0
Traffic Control Devices	87.2	85.0
Overall MRP Performance Rating	**91.9**	**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	Q2 2023 Rating	Q3 2023 Rating	Q4 2023 Rating	Q1 2024 Rating	Rolling Rating
Road Surface	98.0	98.9	98.0	96.7	97.9
Unpaved Shoulders and Ditches	97.4	96.5	97.4	95.2	96.6
Drainage	95.7	96.9	94.9	89.6	94.3
Roadside	95.9	92.0	91.3	92.6	92.9
Traffic Control Devices	95.3[1]	96.2[1]	93.5	87.2	92.8[2]
Overall MRP Performance Rating	**96.4[1]**	**96.3[1]**	**95.0**	**91.9**	**94.8[2]**

[1]Excludes concrete surface pavement markers, striping, and symbols on mainline NC-540 and asphalt surface markers on mainline NC-885.
[2]Excludes quarter ratings for elements listed above.

In addition, the report provides findings of the Green Level Historic District signs inspection. This quarter, two signs were inspected. Both signs were found to be in good physical condition. 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.

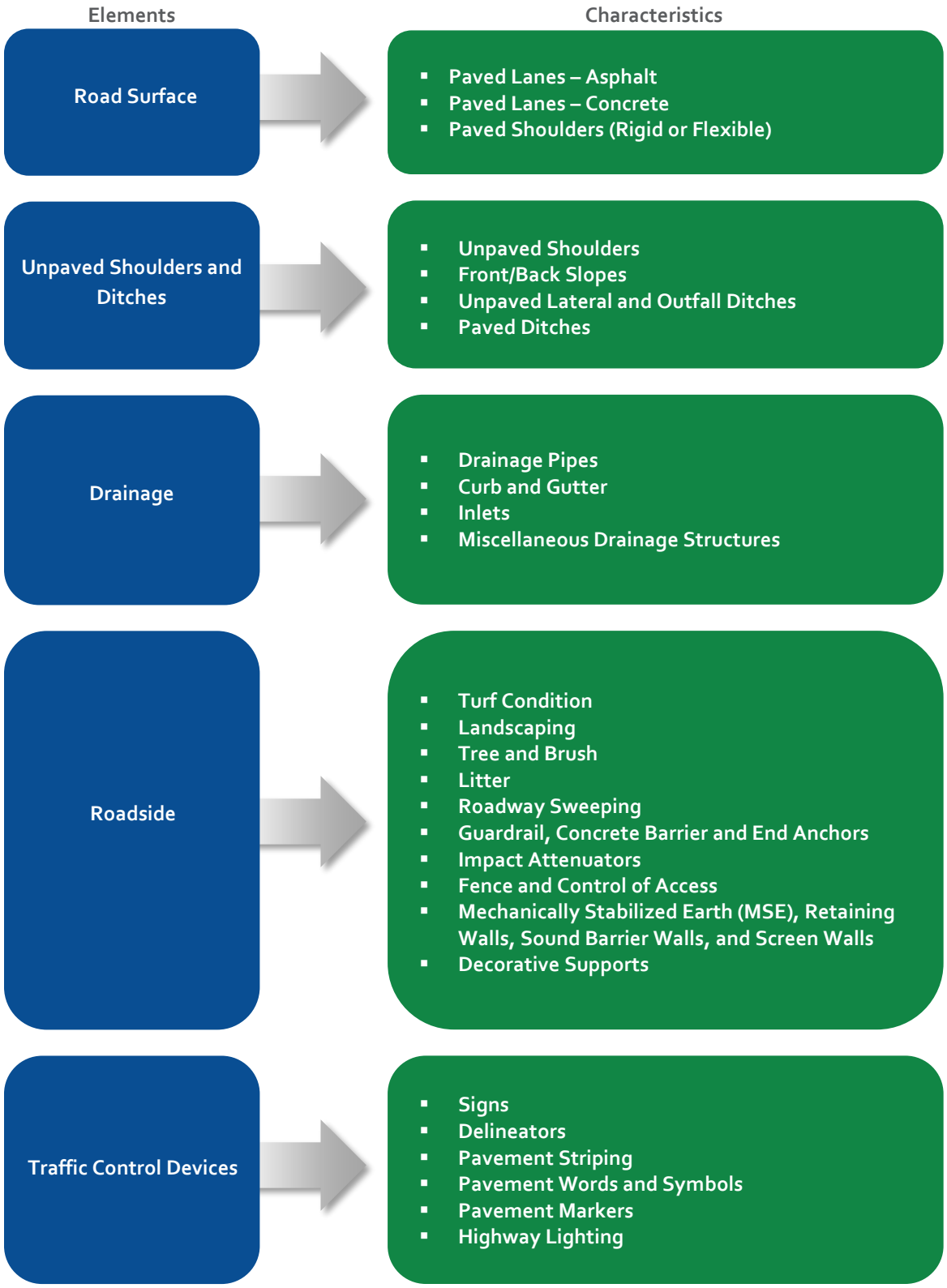
The NCTA performance standards, threshold criteria, and maintenance rating program were developed through a collaborative effort by NCTA managers, NCDOT maintenance staff, and consultants.

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 V6. 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 18.8 miles from the interchange of I-40 and Toll NC-885 in Durham to the NC-55 Bypass near Holly Springs (***Figure 2***). 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.

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 First Quarter Assessment

6.1 Quarterly Results

The overall 2024 First quarter maintenance rating of the Triangle Expressway was 91.9, 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 first 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 First quarter MRP performance ratings for elements and characteristics are presented in ***Table 4*** and ***Table 5***, respectively.

Table 4: MRP Element Results for Q1 2024

Element	MRP Rating
Road Surface	96.7
Unpaved Shoulders and Ditches	95.2
Drainage	89.6
Roadside	92.6
Traffic Control Devices	87.2
Overall MRP Performance Rating	**91.9**

Table 5: MRP Characteristics Results for Q1 2024

Road Surface	Sample Passed	Sample Total	Weighted Values	Actual Pts	Available Pts	Q1 Rating
Paved Lanes Asphalt	15	15	9	135	135	100
Paved Lanes Concrete	13	14	9	117	126	93
Paved Shoulder	31	32	5	155	160	97
Element Total				**407**	**421**	**96.7**
Unpaved Shoulders and Ditches	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q1 Rating**
Unpaved Shoulder	29	32	9	261	288	91
Front/Back Slopes	31	32	6	186	192	97
Lateral and Outfall Ditches, Unpaved	32	32	6	192	192	100
Ditches, Paved	2	2	5	10	10	100
Element Total				**649**	**682**	**95.2**
Drainage	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q1 Rating**
Drainage Pipes	28	34	7	196	238	82
Curb and Gutter	23	24	6	138	144	96
Inlets	30	32	7	210	224	94
Misc. Drainage Structure	23	26	4	92	104	88
Element Total				**636**	**710**	**89.6**
Roadside	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q1 Rating**
Turf Condition	28	33	7	196	231	85
Landscaping	21	22	4	84	88	95
Trees and Brush	28	28	4	112	112	100
Litter	29	32	4	116	128	91
Roadway Sweeping	32	32	5	160	160	100
Guardrail, Concrete Barrier, and End Anchors	31	31	9	279	279	100
Impact Attenuators	9	9	9	81	81	100
Fence, Control Access	32	39	7	224	273	82
Retaining Walls and Sound Barrier Walls	13	18	5	65	90	72
Decorative Supports	25	26	5	125	130	96
Graffiti and Stain Removal	44	44	4	176	176	100
Element Total				**1618**	**1748**	**92.6**
Traffic Control Devices	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q1 Rating**
Signs	32	35	7	224	245	91
Delineators	24	32	3	72	96	75
Pavement Striping/Marking	29	32	8	232	256	91
Words and Symbols	27	31	7	189	217	87
Pavement Markers	28	32	9	252	288	88
Highway Lighting	24	29	6	144	174	83
Element Total				**1113**	**1276**	**87.2**

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 First quarter, all elements exceeded NCTA's quarter score threshold criteria of 85.

Road Surface (96.7) experienced a 1.3-point decrease from the previous quarter's rolling rating. Paved Lanes Concrete (95) rolling rating increased by 2.0 points. All characteristics within this element continued scoring above 90 for last four quarters.

Unpaved Shoulders and Ditches (95.2) experienced a decrease in rolling rating. The rating for this element was 2.2 points lower than the previous quarter rolling rating. All characteristics within this element continued scoring above 90.

Drainage (89.6) rolling rating also decreased by 5.3 points from the previous quarter rolling rating. Curb and Gutter (96) rolling rating increased from last quarter by 3 points.

Roadside (92.6) rolling rating increased by 1.3 points from the previous quarter rolling rating. Guardrail (100) was likely the most improved characteristic with a score increase of 13.0 points from the previous quarter's rolling rating. Fences (82) experienced an increase in rating of 3 points from the previous quarter rolling rating.

Traffic Control Devices (87.2) experienced a decrease in rolling rating of 6.3 points from the previous quarter. Pavement Markers (88) experienced an increase in rolling rating of 2 points. Replacement of striping and markers for the remaining concrete sections was completed in Summer 2023.

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

Characteristics

This quarter, all but two characteristics, Retaining Walls and Sound Barrier Walls (72) and Delineators (75), 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***.

Retaining Walls and Sound Barrier Walls (72 rating – 13 of the 18 assets passed): All five of the wall sections that did not pass inspection had unsealed cracks/joints. Two of the sections that did not pass inspection are presented in ***Figure 3***.

Figure 3: Retaining Walls and Sound Barrier Walls Inspection Results Sample

Maintenance Program:

1) Walls shall be inspected during daily patrols.

2) Unwanted vegetation and graffiti (see graffiti standard) shall be scheduled for removal.

3) Minor wall or column damage shall be scheduled for repair within the annual work program.

4) Staining damage shall be scheduled for repair within the annual work program.

5) Any structural damage that poses a safety risk shall be scheduled immediately upon observation. Mitigate any safety hazard upon observation.

Maintenance and Evaluation Standards: MSE/retaining walls, sound barrier walls, and screen walls do not meet the maintenance standards when any of the following criteria is observed:

1) More than 10% of exposed surface is covered with unwanted vegetation.

2) Any single spall 1 inch deep or greater or cumulative spalls covering an area over 5 SF on any single facing.

3) More than 25% of weep holes within the sample section are not functioning properly.

4) Unsealed cracks or joints greater than 0.25 inches in width.

5) Stained areas exhibit cumulative scaling in excess of 1 SF.

Delineators (75 rating – 24 of the 32 assets passed): Each of the eight sections that did not pass had failed for missing or non-reflective delineators. Two of the sections that did not pass inspection are presented in ***Figure 3***.

Figure 4: Delineators Inspection Results Sample

Maintenance Program:

1) Object markers and delineators are inspected by routine patrols and specifically after each mowing cycle for damage.

2) Missing and non-reflective object markers are replaced within the annual work program. 3) Missing and non-reflective delineators are replaced within 14 calendar days.

Maintenance and Evaluation Standards: Object markers and delineators do not meet the maintenance standards when any of the following criteria is observed:

1) More than 10% of the post-mounted delineators are offset 4 feet plus or minus 3 inches from the shoulder break point and installed at a uniform height on interchange ramps.

2) More than 10% of the object markers or post-mounted delineators lean more than 1 inch per foot of post length.

3) More than 10% of the required markers and delineators are missing or unevenly spaced.

4) More than 10% of the required delineators are not visible during nighttime observation. (N)

5) More than 10% of the post-mounted delineators are installed facing the wrong way.

6) More than 10% of the object markers or post-mounted delineators are missing connecting hardware, nuts and bolts.

7.0 Current Rolling MRP Rating

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

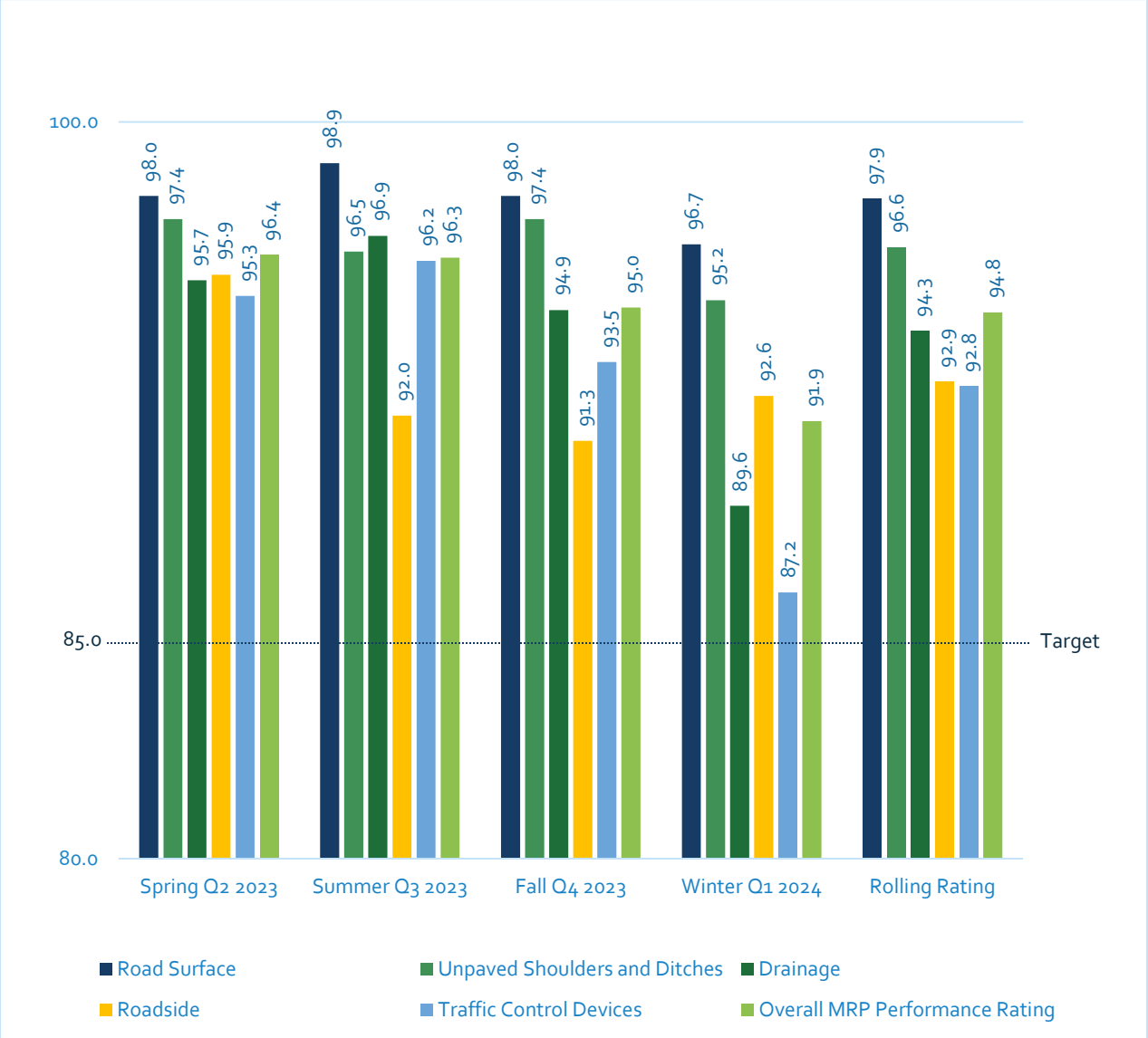


Table 6: MRP Rolling Element Results

Road Surface	Q2 2023 Rating	Q3 2023 Rating	Q4 2023 Rating	Q1 2024 Rating	Rolling Rating
Paved Lanes Asphalt	100	100	100	100	100
Paved Lanes Concrete	94	100	91	93	95
Paved Shoulder	100	97	100	97	98
Element Total	**98.0**	**98.9**	**98.0**	**96.9**	**97.9**
Unpaved Shoulders and Ditches	**Q2 2023 Rating**	**Q3 2023 Rating**	**Q4 2023 Rating**	**Q1 2024 Rating**	**Rolling Rating**
Unpaved Shoulder	94	94	94	91	93
Front/Back Slopes	100	97	100	97	98
Lateral and Outfall Ditches, Unpaved	100	100	100	100	100
Ditches, Paved	100	100	100	100	100
Element Total	**97.4**	**96.5**	**97.4**	**99.1**	**96.6**
Drainage	**Q2 2023 Rating**	**Q3 2023 Rating**	**Q4 2023 Rating**	**Q1 2024 Rating**	**Rolling Rating**
Drainage Pipes	97	97	97	82	93
Curb and Gutter	96	100	93	96	96
Inlets	97	100	97	94	97
Misc. Drainage Structure	88	84	88	88	87
Element Total	**95.7**	**96.9**	**94.9**	**89.6**	**94.3**
Roadside	**Q2 2023 Rating**	**Q3 2023 Rating**	**Q4 2023 Rating**	**Q1 2024 Rating**	**Rolling Rating**
Turf Condition	92	84	92	85	88
Landscaping	92	92	96	95	94
Trees and Brush	100	100	97	100	99
Litter	88	97	97	91	93
Roadway Sweeping	100	97	100	100	99
Guardrail, Concrete Barrier, and End Anchors	100	90	87	100	94
Impact Attenuators	100	100	89	100	97
Fence, Control Access	97	87	79	82	86
Retaining Walls and Sound Barrier Walls	78	72	72	72	74
Decorative Supports	100	100	96	96	98
Graffiti and Stain Removal	100	100	100	100	100
Element Total	**95.9**	**92.0**	**91.3**	**92.6**	**92.9**
Traffic Control Devices	**Q2 2023 Rating**	**Q3 2023 Rating**	**Q4 2023 Rating**	**Q1 2024 Rating**	**Rolling Rating**
Signs	97	93	97	91	94
Delineators	88[1]	94[1]	94	75	88
Pavement Striping/Marking	100[1]	100[1]	91	91	95[2]
Words and Symbols	96[1]	97	97	87	94[2]
Pavement Markers	100	100	86	88	92
Highway Lighting	90[1]	90[1]	100	83	91
Element Total	**95.3[1]**	**96.2[1]**	**93.5**	**87.2**	**92.8[2]**

[1] Excludes concrete surface pavement markers, striping, and symbols on mainline NC-540 and asphalt surface markers on mainline NC-885.

[2] Excludes the indicated quarter ratings for characteristics listed above.

8.0 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. The two signs included in the inspection inventory were found to be in good condition. ***Figure 4*** shows the two signs assessed.

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

9.0 Conclusion

This report presents the 2024 First 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 First quarter 2024 overall rating was **91.9** 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 First quarter assessment, all but two characteristics met or exceeded the target rating of 80. The characteristics that received a quarter score less than 80 were Retaining Walls and Sound Barriers (72) and Delineators (75).

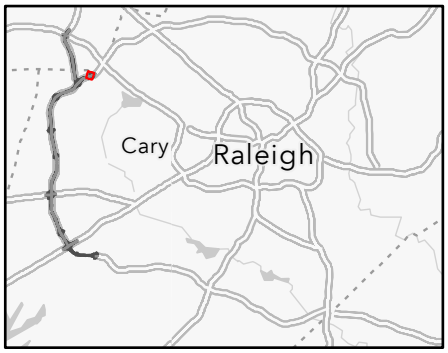
This quarter, the two Green Level Historic District signs inspected were found to be in good condition. Additionally, the landscaped areas surrounding the signs were found to be well maintained.

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

Legend

Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

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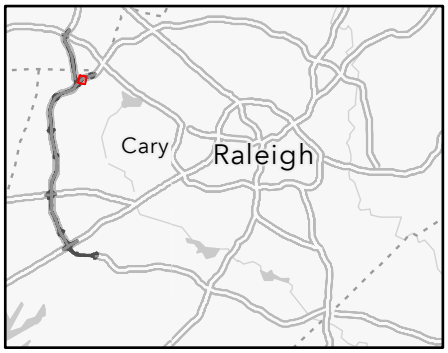

NORTH CAROLINA Turnpike Authority

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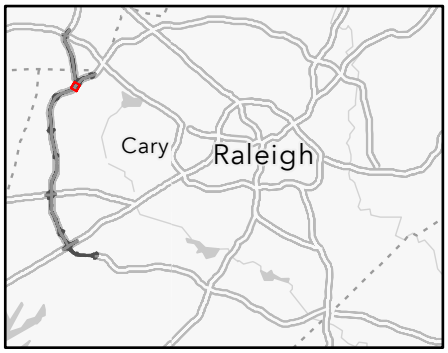

NORTH CAROLINA Turnpike Authority

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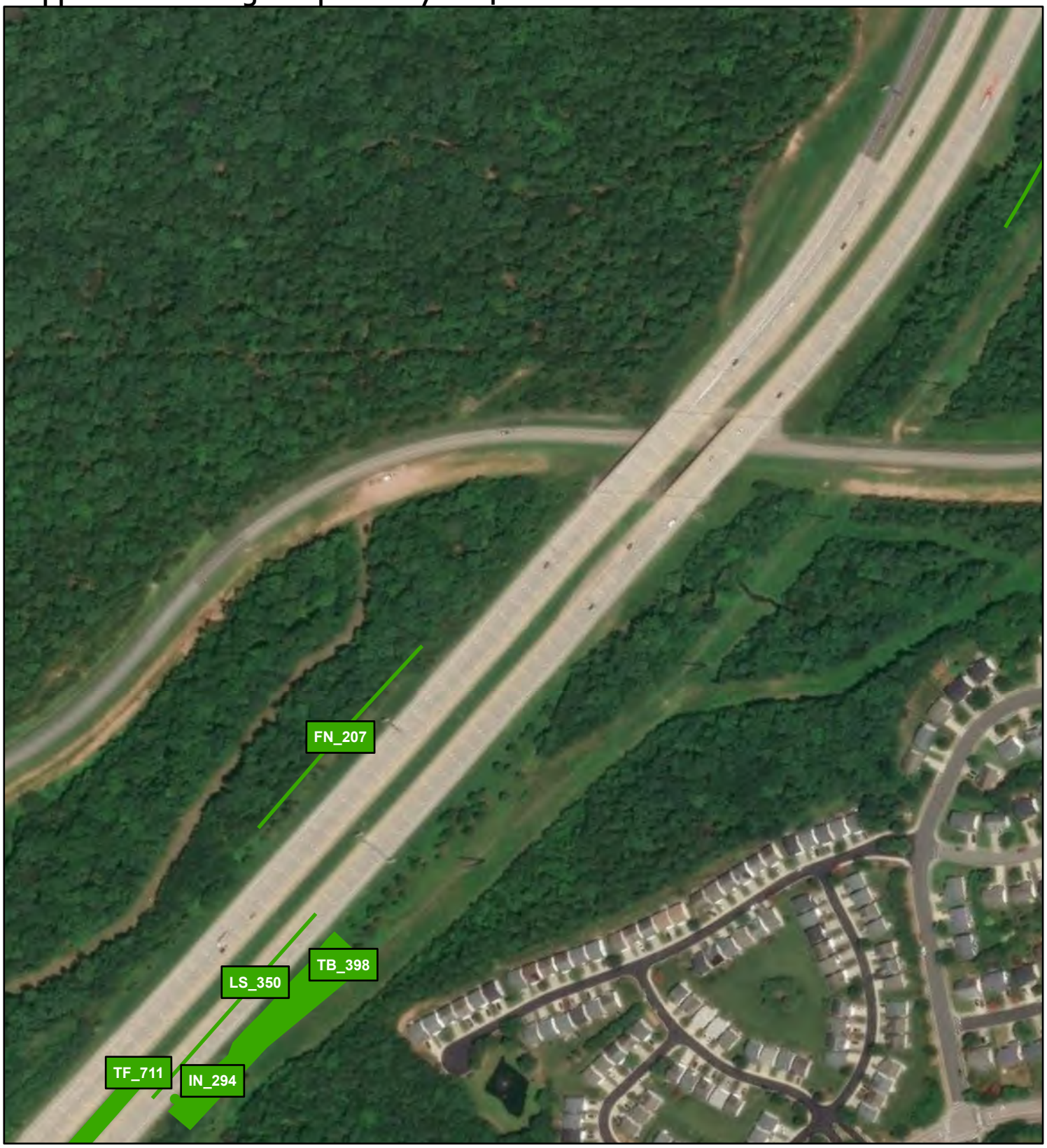

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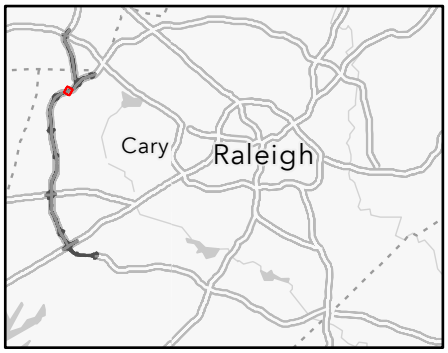

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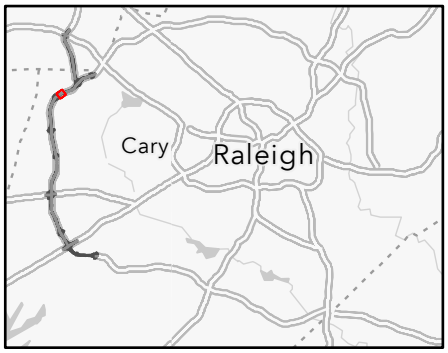

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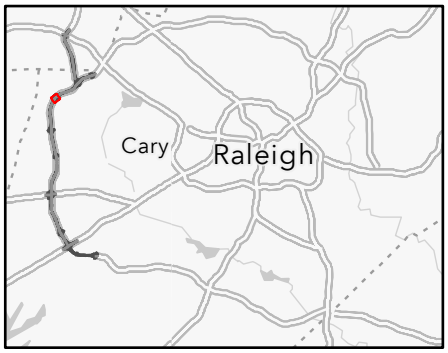

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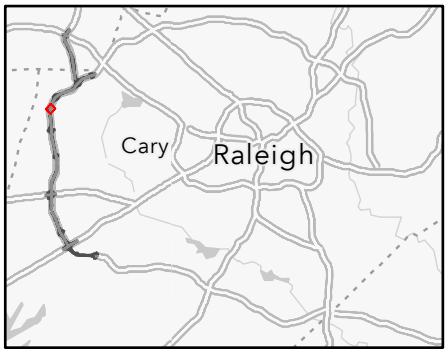

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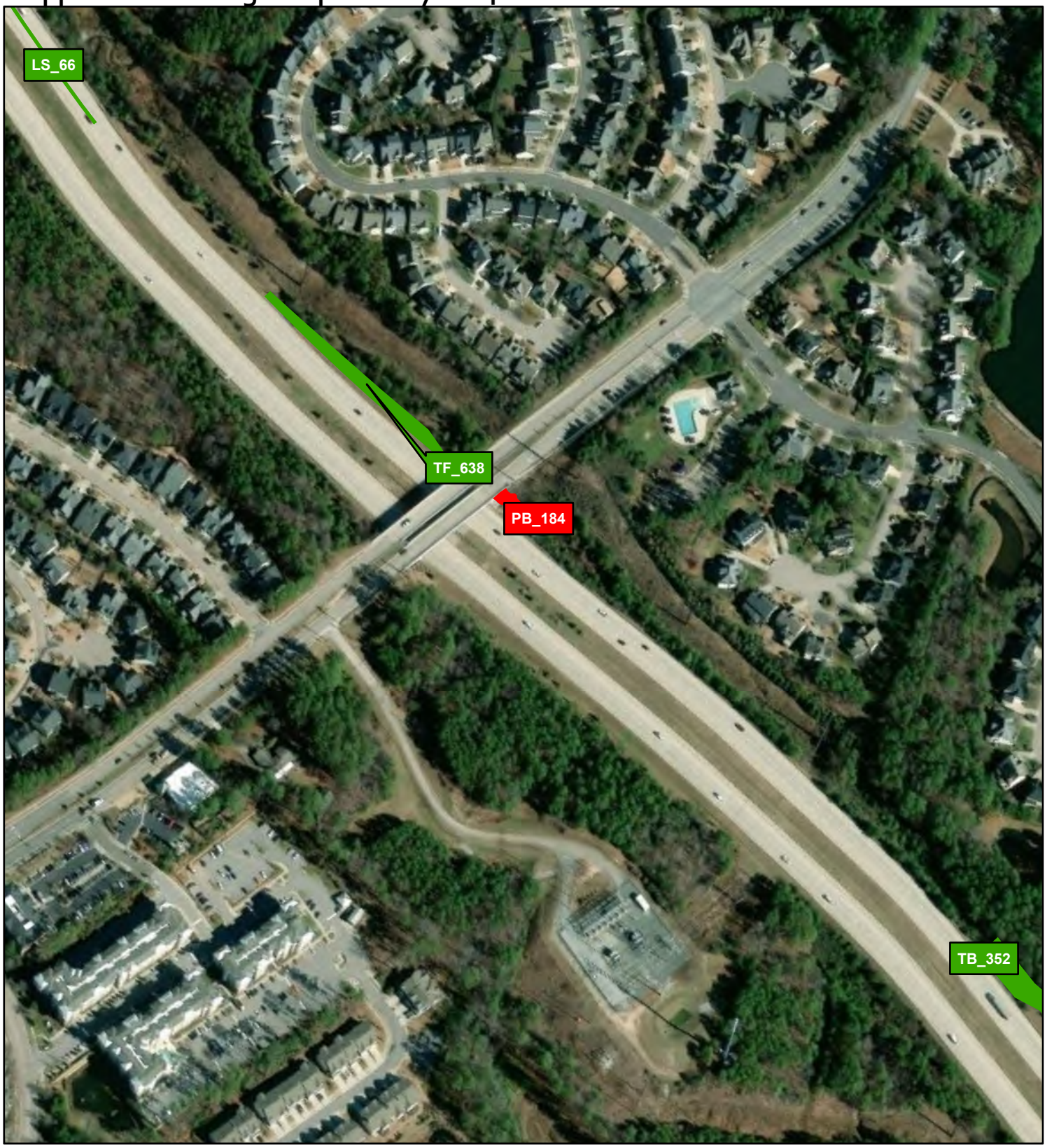

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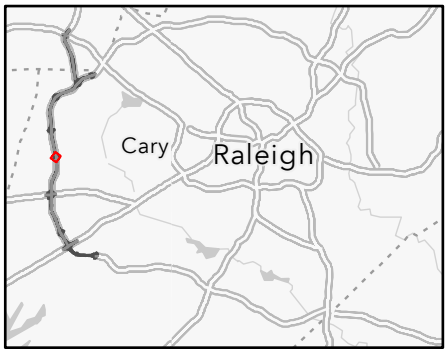

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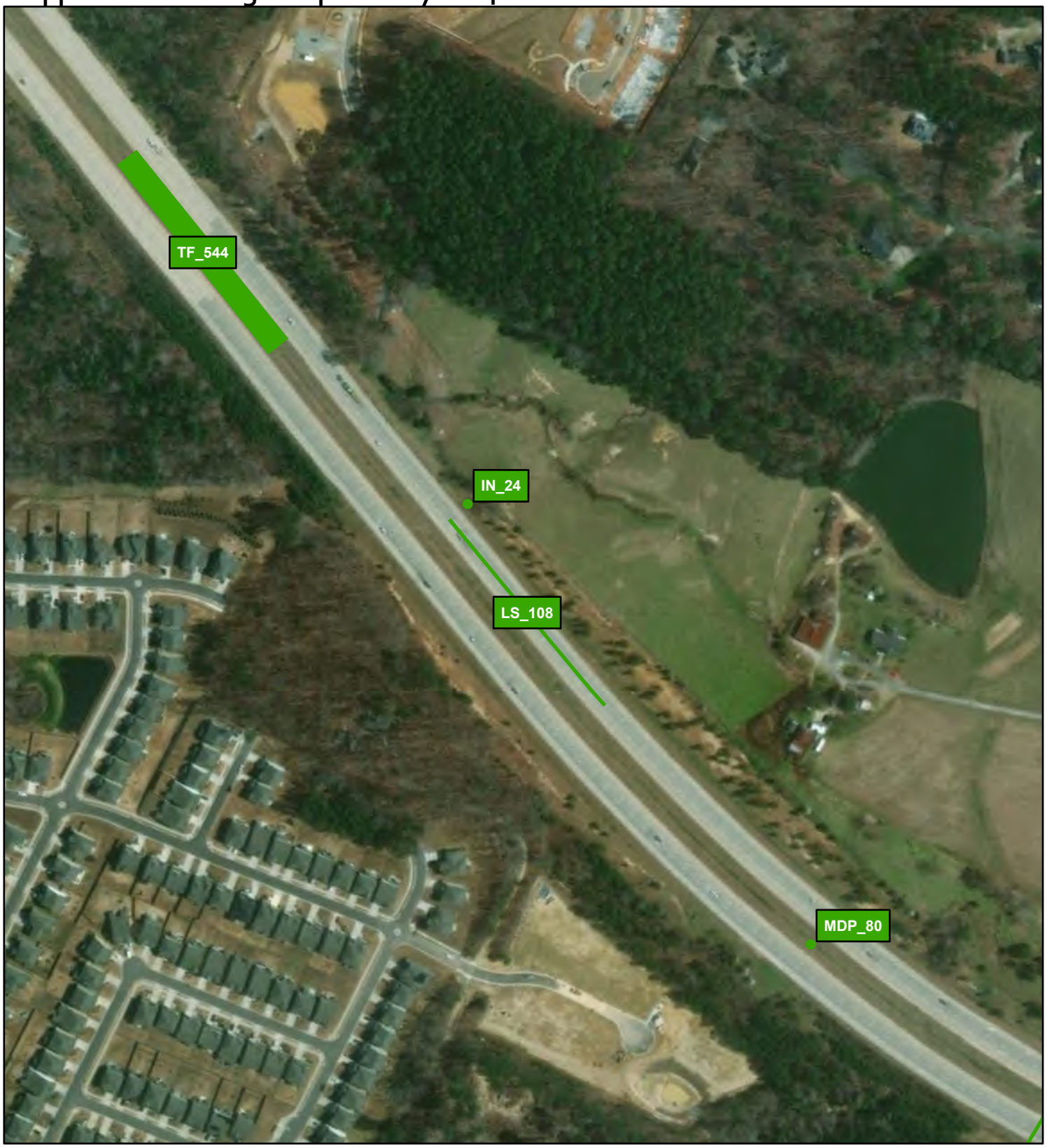

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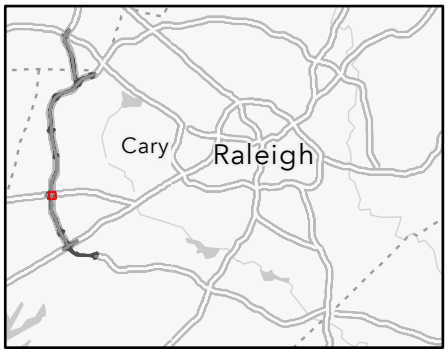

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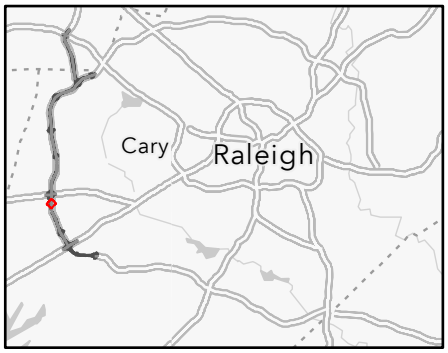


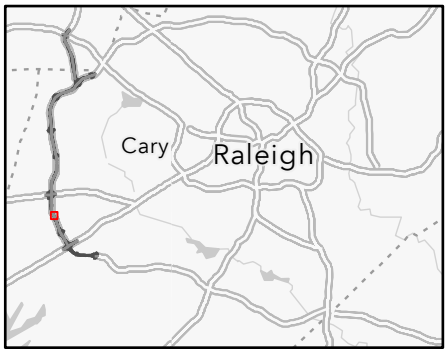
NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

Legend

Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

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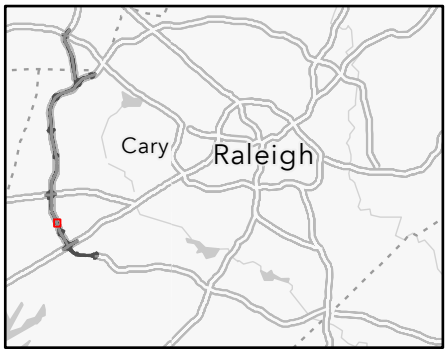

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

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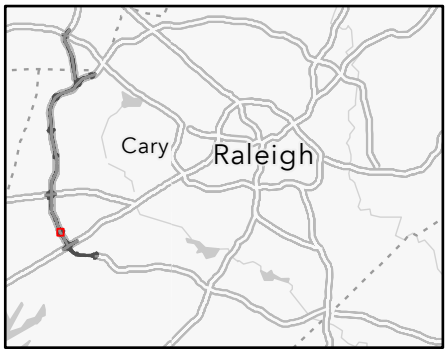

NORTH CAROLINA Turnpike Authority

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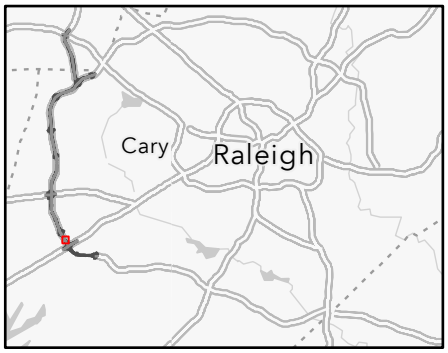

NORTH CAROLINA Turnpike Authority

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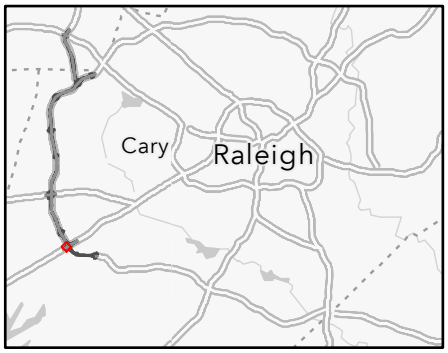

NORTH CAROLINA Turnpike Authority

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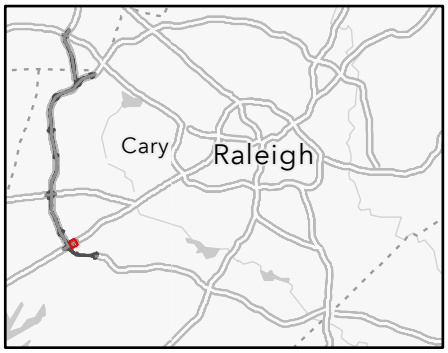

NORTH CAROLINA Turnpike Authority

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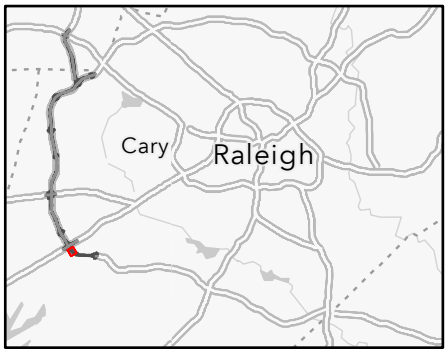

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

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Failing Asset

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NORTH CAROLINA Turnpike Authority

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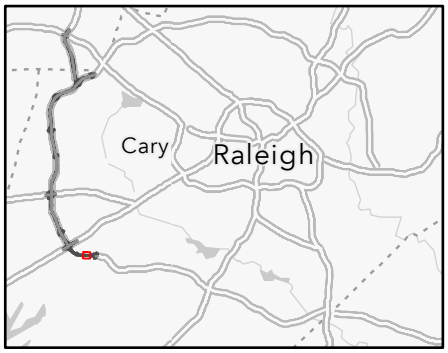

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

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Passing Asset

NORTH CAROLINA Turnpike Authority

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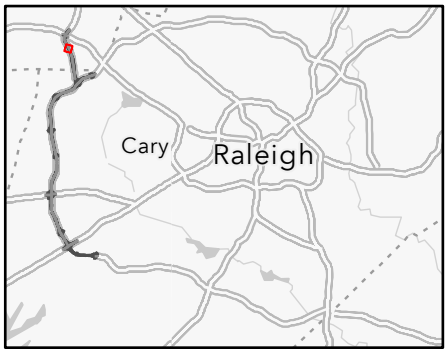

NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

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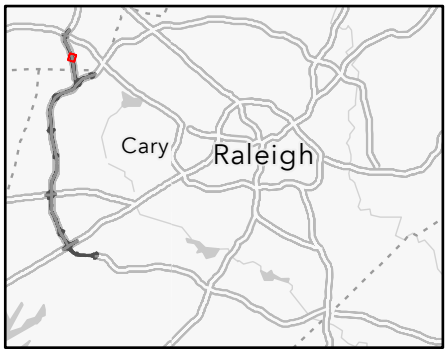
Failing Asset

Passing Asset

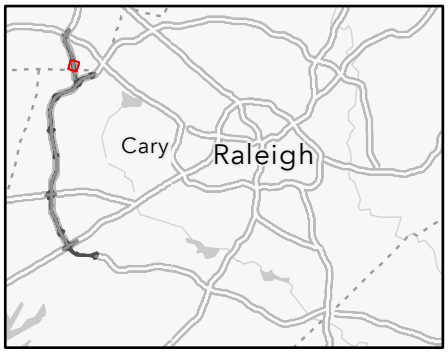


NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

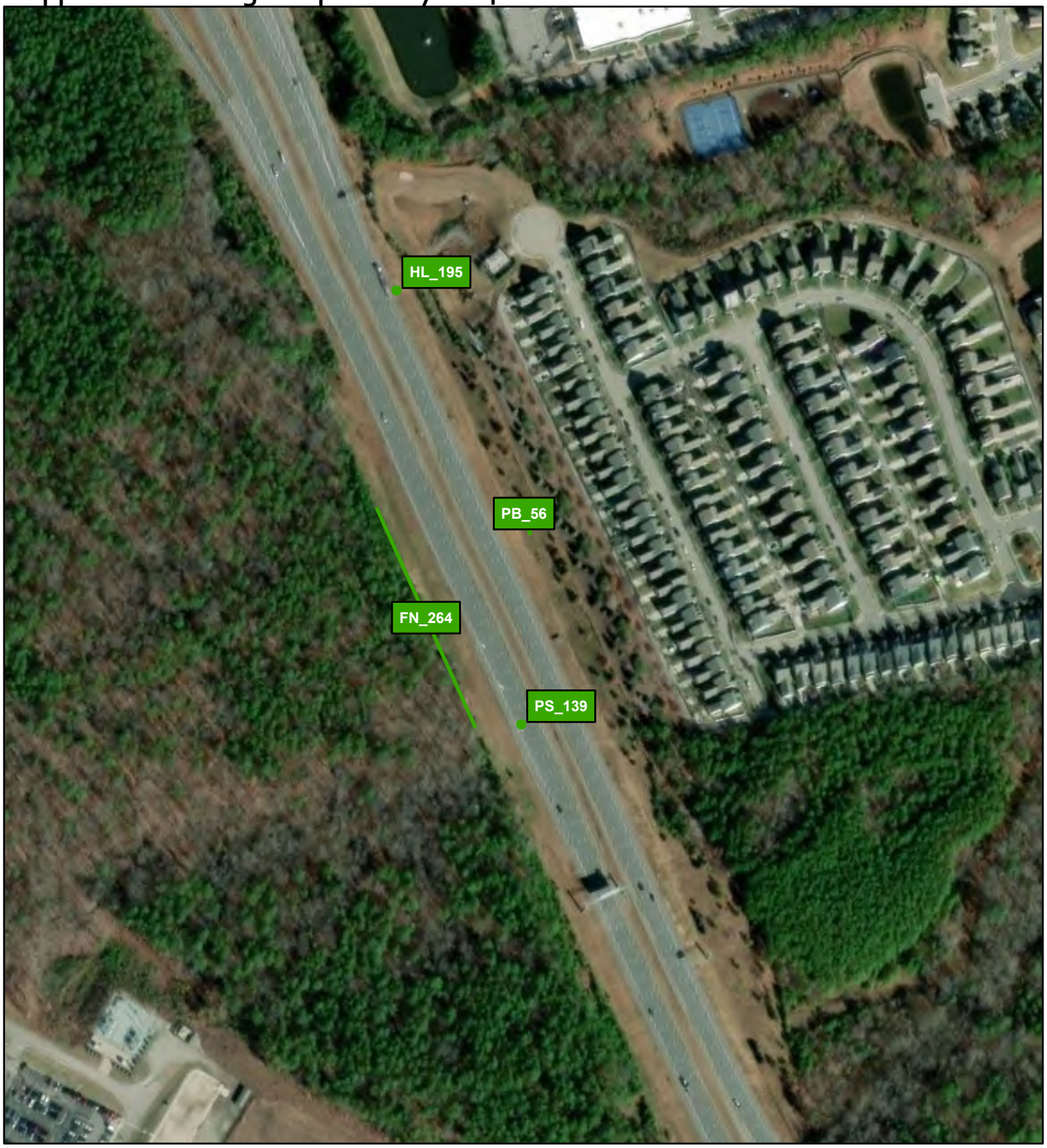
Legend

- Failing Asset
- Passing Asset



NORTH CAROLINA Turnpike Authority

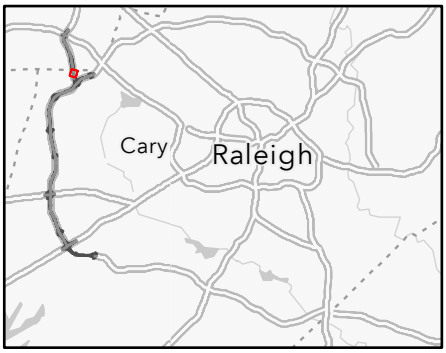
Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations



Legend

Failing Asset

Passing Asset



NORTH CAROLINA Turnpike Authority

Appendix A: Triangle Expressway 2024 First Quarter Asset Assessment Locations

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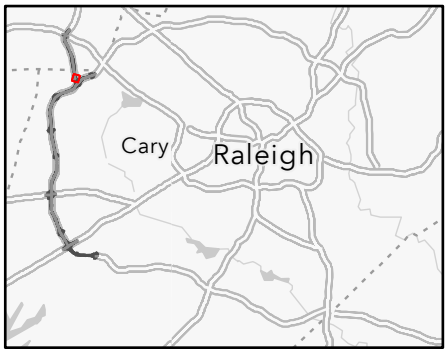


NORTH CAROLINA Turnpike Authority

Appendix B

Triangle Expressway 2024 First Quarter Table Results of Assets Failing MRP

Appendix B: Triangle Expressway 2024 First 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.

*ACZ – Assets inside Active Construction Zone

*ORA – Assets Outside Referenced Area

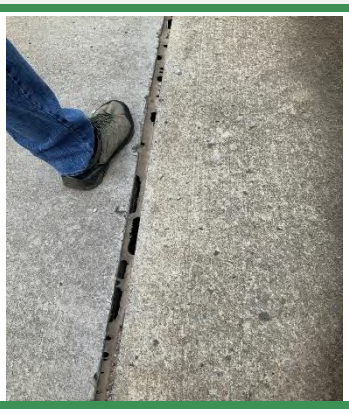
All assets and their respective prefixes are listed below:

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	Concrete	CG_54	Structural Damage		**A11**

Decorative Supports (DS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Concrete	DS_194	Spalling		**A18**

Drainage Pipes (DP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Drain	DP_24	Obstruction		**A26**
2	Drain	DP_302	Obstruction		**A6**
3	Drain	DP_344	Erosion		**A31**
4	Drain	DP_407	Obstruction		**A1**

Drainage Pipes (DP)

5	Drain	DP_786	Erosion			***ORA**
6	Drain	DP_894	Other			***ORA**

Misc. Drainage Structure (MDP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Shoulder Drain	MDP_36	Rodent Screen		**A11**
2	Shoulder Drain	MDP_156	Obstruction		**A25**
3	Shoulder Drain	MDP_232	Obstruction		**A10**

Fence and Control of Access (FN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Woven	FN_4	Hole Height		***ACZ**
2	Woven	FN_22	Hole Height		***ORA**
3	Woven	FN_124	Hole Height		**A12**
4	Woven	FN_231	Hole Height		**A5**

Fence and Control of Access (FN)

5	Woven	FN_297	Hole Height			**A30**
6	Woven	FN_395	Hole Height			**A23**
7	Woven	FN_522	Hole Height			**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	Double Roadway	HL_179	Part Damage	No Photo Provided	**A2**
2	Single Roadway	HL_255	Part Damage		**A22**
3	Single Roadway	HL_271	Rodent Screen		**A23**
4	Single Roadway	HL_337	Part Damage		***ORA**

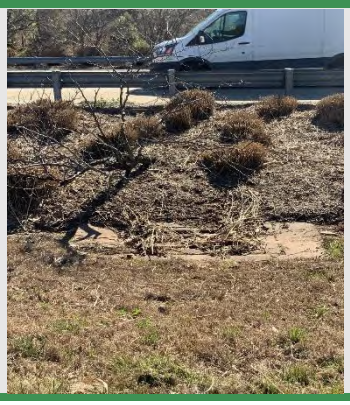
5	Single Roadway	HL_420	Part Damage			**A11**

Impact Attenuators (IA)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Inlets (IN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Drop Inlet	IN_223	Eroded Area		**A30**
2	Drop Inlet	IN_446	Obstruction		**A2**

Landscaping (PB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Plant Bed	PB_184	Health		**A8**

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)

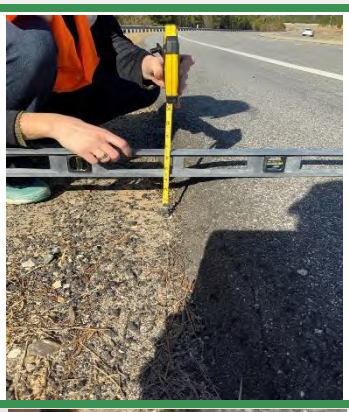
#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Paved Shoulders (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_698	Dropoff	No Photo Provided	**A24**

Unpaved Shoulders (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_193	Drop off		**A13**
2	Asphalt	LS_263	Drop off		**A28**

Paved Shoulders (LS)

3	Asphalt	LS_563	Drop off		**A17**

Front/Back Slopes (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_422	Slope Deviation		A20

Unpaved Lateral and Outfall Ditches (LS)

#	Material Type	Object 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
1	Concrete	LS_422	Litter		**A20**
2	Asphalt	LS_470	Litter		**A26**
3	Concrete	LS_594	Litter	No Photo Provided	**A5**

Roadway Sweeping (LS)

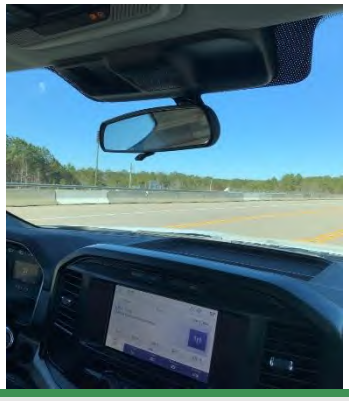
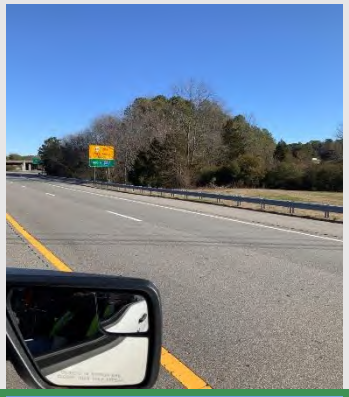
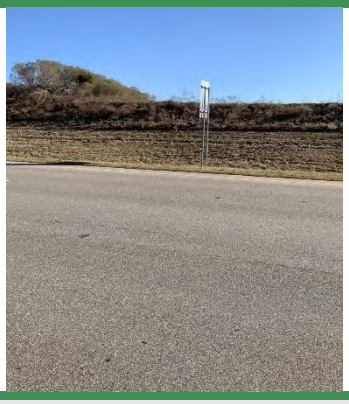
#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

Pavement Striping (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_6	Nighttime Reflectivity	No Photo Provided	**A26**
2	Asphalt	LS_519	Nighttime Reflectivity	No Photo Provided	***ORA**
3	Asphalt	LS_683	Nighttime Reflectivity	No Photo Provided	***ACZ**

Pavement Markers (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Asphalt	LS_21	Markers Missing, Nighttime Visibility		**A26**
2	Asphalt	LS_263	Markers Missing, Nighttime Visibility		**A28**
3	Asphalt	LS_302	Markers Missing, Nighttime Visibility		**A3 & A33**
4	Asphalt	LS_683	Nighttime Visibility	No Photo Provided	***ACZ**

Delineators (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Concrete	LS_150	Nighttime Reflectivity	Not available for nighttime failure	**A11**
2	Concrete	LS_422	Nighttime Reflectivity	Not available for nighttime failure	**A20**
3	Concrete	LS_539	Nighttime Reflectivity	Not available for nighttime failure	**A23**
4	Concrete	LS_563	Nighttime Reflectivity	Not available for nighttime failure	**A17**
5	Concrete	LS_744	Nighttime Reflectivity	Not available for nighttime failure	**A3**

Paved Ditches (PD)

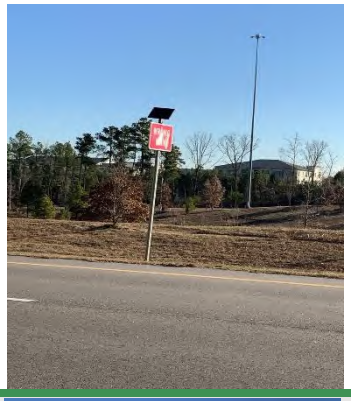
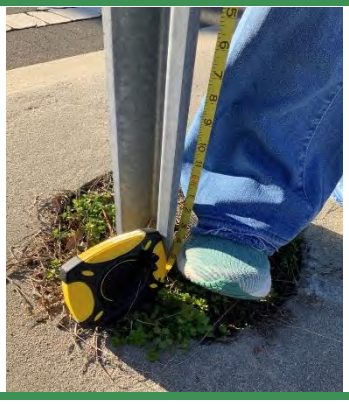
#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

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_415	Nighttime Reflectivity		**A1**
2	Left Turn	PS_433	Nighttime Reflectivity	No Photo Provided	**A6**
3	Left Turn	PS_455	Nighttime Reflectivity	No Photo Provided	**A6**
4	Thru Lane	PS_586	Nighttime Reflectivity	No Photo Provided	**A26**

Signs (SN)

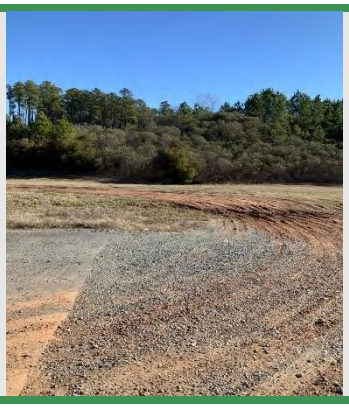
#	Sign Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Wrong Way	SN_470	Surface Damage		**A30**
2	Speed Limit	SN_700	Height		**A5**
3	Thru Traffic	SN_1033	Height		**A31**

Tree and Brush (TB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page

This asset did not produce any failures.

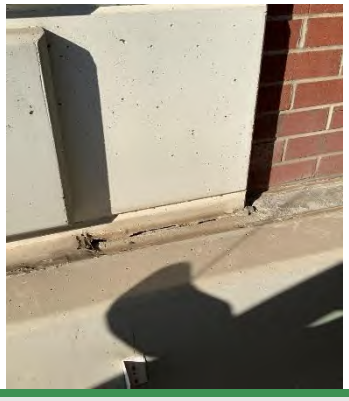
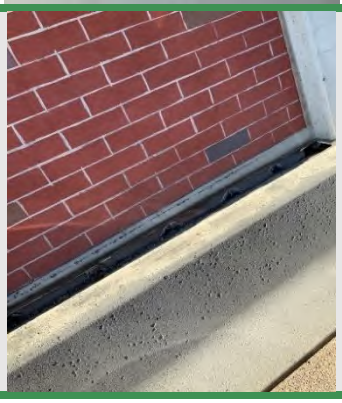
Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Turf	TF_33	Bare Ground		***ORA**
2	Turf	TF_239	Bare Ground		**A23**
3	Turf	TF_505	Bare Ground	No Photo Provided	**A17**
4	Turf	TF_841	Bare Ground		**A33**

Turf Condition (TF)

5	Turf	TF_878	Bare Ground			**A30**
6	Turf	TF_1069	Bare Ground			**A9 & A10**

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

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Sound Wall	WL_8	Unsealed Cracks/Joints		**A30 & A31**
2	Bridge Wall	WL_49	Unsealed Cracks/Joints		**A19**
3	Bridge Wall	WL_63	Unsealed Cracks/Joints		**A23**
4	Bridge Wall	WL_101	Unsealed Cracks/Joints		**A19**

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

5	Bridge Wall	WL_117	Unsealed Cracks/Joints			**A29**