

Maintenance Rating Program Monroe Expressway

Quarter 3 MRP Assessment



November 2022

CONSULTANT CERTIFICATION OF COMPLETION

October 17, 2022

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

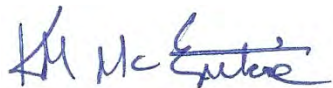
NCTA Monroe By-Pass Roadway Maintenance Performance Rating Program; Q3, FY 2022 Rating

This is to certify that I, Ken M. McEntire, 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 Monroe By-Pass 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*.

Sincerely,

Mott MacDonald I&E, LLC

A handwritten signature in blue ink, appearing to read "KM McEntire", is written over a faint rectangular stamp.

Ken M. McEntire, PE
Principal Project Manager – Operations and Maintenance

1101 Haynes Street, Suite 101
Raleigh, NC 27604

Table of Contents

1.0 Executive Summary	1
2.0 Introduction	2
3.0 MRP Survey Procedure	2
4.0 Monroe Expressway Description	5
5.0 Survey Results	6
6.0 Analysis & Recommendations	9
MRP Elements	9
MRP Characteristics	9
7.0 Current Rolling MRP Rating	11
8.0 Conclusion	13

Figures

Table 1: MRP Element Results for the 2022 Third Quarter Assessment	1
Table 2: MRP Rolling Element Results	1
Figure 1: Maintenance Elements and Characteristics	3
Figure 2: Monroe Expressway Map	5
Table 3: Element Results for Q3 2022	6
Table 4: Characteristic Results for Q3 2022	7
Table 5: MRP Rolling Element Results	12

Appendices

- A. Monroe Expressway 2022 Third Quarter Table Results of Assets Failing MRP
- B. Monroe Expressway 2022 Third Quarter Asset Assessment Locations

1.0 Executive Summary

The North Carolina Turnpike Authority (NCTA) Maintenance Rating Program (MRP) is a maintenance evaluation program for all roadway features and toll facilities on the Monroe Expressway. This report presents results from the 2022 Third Quarter Assessment of the Monroe Expressway.

The overall 2022 third quarter rating of the Monroe Expressway was 97.0. This score is above the target rating score of 90 for the overall system. 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 2022 Third Quarter Assessment

Element	MRP Rating	Target Rating
Road Surface	100.0	85.0
Unpaved Shoulders and Ditches	100.0	85.0
Drainage	98.5	85.0
Roadside	90.2	85.0
Traffic Control Devices	96.5	85.0
Overall MRP Performance Rating	97.0	90.0

This report also provides a rolling rating of the latest four quarterly inspections of the Monroe Expressway. As presented in **Table 2**, the rolling maintenance rating of the Monroe Expressway was 96.4.

Table 2: MRP Rolling Element Results

Element	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Road Surface	97.5	96.7	94.5	100.0	97.3
Unpaved Shoulders and Ditches	99.1	96.6	98.4	100.0	98.6
Drainage	94.7	100.0	98.8	98.5	98.4
Roadside	96.0	95.0	92.9	90.1	93.3
Traffic Control Devices	93.7	96.2	94.4	96.5	95.3
Overall MRP Performance Rating	95.9	96.7	95.4	97.0	96.4

All the element ratings were above the desired rating of 85, and one characteristic scored below the minimum 80 rating. It is important to note that these results are only representative of the third quarter sample, one of four quarterly surveys annually that provide an intermediate snapshot of seasonal conditions. Therefore, these results are not yet a statistically valid representation of the assets; only the total of all four quarterly inspections reported as a rolling rating, provides a 95% confidence level in statistical sampling.

2.0 Introduction

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. It is a comprehensive planning, measuring, and managing process that provides a means for communicating to managers, stakeholders, and key customers the impacts of policy and budget decisions on program service delivery.

Using outcome-based performance measures and the service level scale (0 through 100), the survey results are rated against established threshold criteria. The program analysis is accomplished by implementing sampling procedures that capture the level of service being provided for individual asset features. Over time, these ratings will 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.

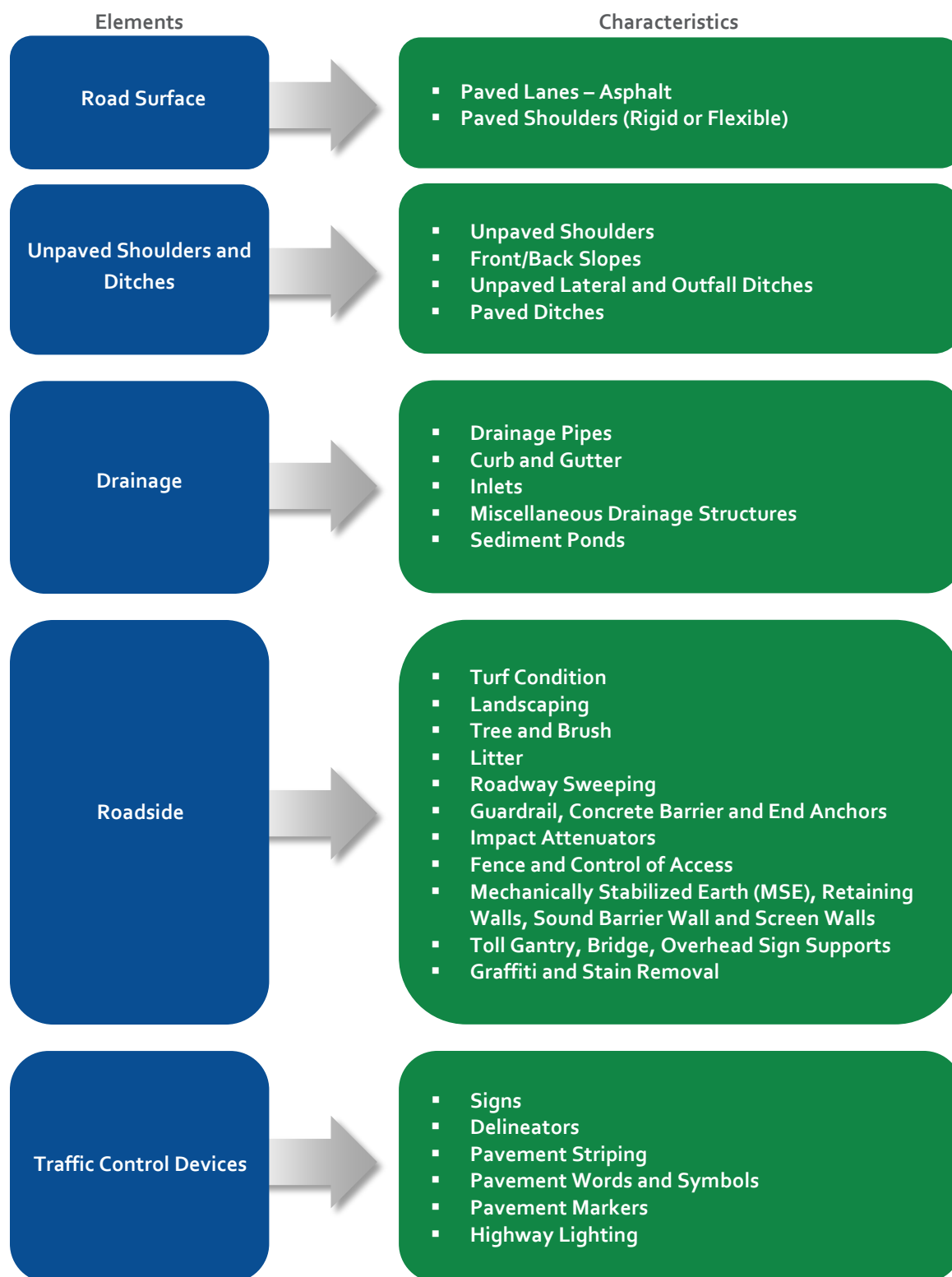
The NCTA performance standards, threshold criteria, and maintenance rating program were developed through a collaborative effort by NCTA managers, NCDOT maintenance staff, and consultants.

Using this field survey information, a maintenance matrix can be developed to show 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.

3.0 MRP Survey Procedure

Per the NCTA Roadway and Facility Maintenance Performance Standards, roadway assets on NCTA facilities have been grouped into characteristics which are categorized into 5 elements. These elements and their characteristics can be seen in *Figure 1* below:

Figure 1: Maintenance Elements and Characteristics



Because some roadway characteristics are of greater importance than others, a weighting system is applied to enable rational calculation of an overall level of service rating. Although one set of weighting factors for all characteristics could serve this purpose, a more useful system consists of two sets of weighting factors: one set that accounts for the importance of individual characteristics within a given maintenance element (1-9), and another set that accounts for the importance of the maintenance elements to the total rating (by % of score). This two-set system reveals deficiencies among characteristics and shows which maintenance elements are deficient.

The program analysis is accomplished using statistically valid, random sampling procedures that capture the level of service for individual assets with a 95% confidence level in sampling. Inspections are performed during the months of February, May, August, and November to account for dynamic changes in assets during the various seasons, such as vegetation growth. Each maintenance characteristic is evaluated and recorded according to the criteria developed by the NCTA performance standards. This inventory was completed with electronic data collection tablets and programs for accurate GPS coordinates of each transportation asset.

The evaluations are based on established "threshold" conditions that quantify the maximum defect allowed to exist for a characteristic before it is considered unacceptable. The ratings are done by comparing existing field conditions to the "threshold" value. If the characteristic meets or exceeds the "threshold", it is coded as YES to meeting the criteria. If it does not meet the criteria, it is coded as a NO. When the survey is complete, the number of YES's and NO's are totaled, and a composite number (using from 1 to 100 scale) is produced, which represents the level of maintenance currently being provided.

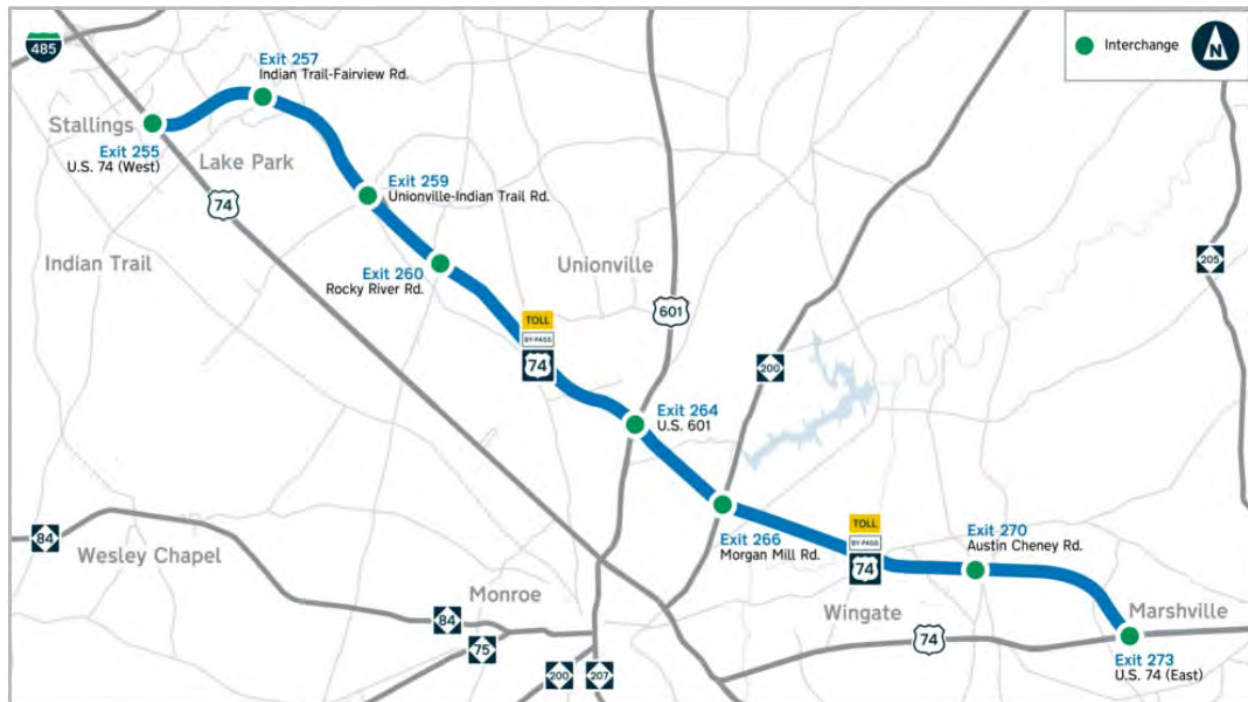
For any given asset, the number assigned as the target level of service represents the percentage of random samples in which the maintenance condition standard corresponding to the activity is to be met or exceeded. For instance, an activity with a level of service rating of 83 means that 83 percent of the sites met the condition standards.

The NCTA's overall target rating score is 90, with each element level scoring at or above 85 and every characteristic at or above 80.

4.0 Monroe Expressway Description

The Monroe Expressway extends for approximately 18.5 miles between the U.S. 74 interchange to the west and U.S. 74 near Marshville to the east. The Monroe Expressway consists of eight interchanges and seven all-electronic toll collection zones. A map of the Monroe Expressway can be seen in *Figure 2* below:

Figure 2: Monroe Expressway Map



5.0 Survey Results

The overall Q3 2022 MRP rating for the Monroe Expressway is 97.0. This score is above the target rating score of 90 for the overall system. All the element ratings were above the desired rating of 85, and one characteristic scored below the minimum 80 rating. Individual characteristic ratings will be discussed in detail in the analysis section of this report.

Appendix A shows each of the individual assets that failed the MRP criteria. **Appendix B** includes maps of each of the individual asset locations that failed to meet the criteria displayed in the tables below. The MRP rating value designated to each element and feature refers to the percentage of elements or features that pass the asset's particular threshold criteria. After developing an inventory by recording the total number of instances of a particular feature, each feature is analyzed based on threshold criteria and a pass/fail result is designated and recorded for each to determine the percentage of the sample passed. The passing samples and sample totals are then multiplied by their weighted value, which are designated to each element based on importance to determine the actual and available rating points. Lastly, an MRP Performance Rating is calculated for each asset and element group based on the ratio of the actual points over the available points.

The overall MRP Performance rating results of the survey are presented in **Tables 3 and 4**.

Table 3: Element Results for Q3 2022

Element	MRP Rating
Road Surface	100.0
Unpaved Shoulders	100.0
Drainage	98.5
Roadside	90.1
Traffic Control Devices	96.5
Overall MRP Performance Rating	97.0

The overall score is determined by summing the elements multiplied by weighted factors as follows: Road Surface (25%), Unpaved Shoulders (13%), Drainage (15%), Roadside (17%), Traffic Control Devices (30%).

Table 4: Characteristic Results for Q3 2022

Road Surface	Sample Passed	Sample Total	Weighted Values	Actual PTS	Available PTS	Quarter Rating
Paved Lanes Asphalt	34	34	9	306	306	100
Paved Shoulder	34	34	5	170	170	100
Element Total				476	476	100.0
Unpaved Shoulders & Ditches	Sample Passed	Sample Total	Weighted Values	Actual PTS	Available PTS	Quarter Rating
Unpaved Shoulder	34	34	9	306	306	100
Front/Back Slopes	34	34	6	204	204	100
Lateral and Outfall Ditches, Unpaved	34	34	6	204	204	100
Ditches, Paved	9	9	5	45	45	100
Element Total				759	759	100.0
Drainage	Sample Passed	Sample Total	Weighted Values	Actual PTS	Available PTS	Quarter Rating
Drainage Pipes	35	35	7	245	245	100
Curb and Gutter	27	27	6	162	162	100
Inlets	34	35	7	238	245	97
Misc. Drainage Structure	18	19	4	72	76	95
Sediment Pond	2	2	7	14	14	100
Element Total				731	742	98.5
Roadside	Sample Passed	Sample Total	Weighted Values	Actual PTS	Available PTS	Quarter Rating
Turf Condition	31	48	7	217	336	65
Landscaping	13	15	4	52	60	87
Trees and Brush	15	15	4	60	60	100
Litter	34	34	4	136	136	100
Roadway Sweeping	34	34	5	170	170	100

Maintenance Rating Program for the Monroe Expressway

2022 Third Quarter (July - September)

Guardrail, Concrete Barrier and End Anchors	31	33	9	279	297	94
Impact Attenuators	6	6	9	54	54	100
Fence, Control Access	35	37	7	245	259	95
Retaining Walls and Sound Barrier Walls	14	14	5	70	70	100
Toll Gantry Supports	9	9	5	45	45	100
Graffiti and Stain Removal	30	30	4	120	120	100
Element Total				1448	1607	90.1
Traffic Control Devices	Sample Passed	Sample Total	Weighted Values	Actual PTS	Available PTS	Quarter Rating
Signs	60	66	7	420	462	91
Object Markers and Delineators	34	34	3	102	102	100
Pavement Striping/Marking	34	34	8	272	272	100
Words and Symbols	33	34	7	231	238	97
Pavement Markers	34	34	9	306	306	100
Highway Lighting	3	3	6	18	18	100
Element Total				1349	1398	96.5

6.0 Analysis & Recommendations

MRP Elements

All elements exceeded the NCTA minimum threshold criteria of 85.

MRP Characteristics

Most characteristics exceeded the NCTA minimum threshold criteria of 80. This section identifies characteristics that did not achieve the minimum targeted score.

Turf

Turf scored a 65 in the survey. Deficiencies of the turf were directly related to bare ground. The MRP Maintenance and Evaluation Standards V7 are below.

Roadside Mowing – This characteristic is the control of planted or natural grasses and vegetation for protection of soil shoulders and slopes, safety, and aesthetics purposes.

Turf Condition – Turf is grass or other vegetation considered desirable for the particular roadside location. Properly maintained and desired vegetation provides a pleasing appearance but primarily presents less chance of shoulder and slope defects (ruts, washouts, wash boarding), providing a safe recovery area for motoring traffic.

Undesirable Vegetation - The presence of broadleaf weeds in roadside turfgrass can be aesthetically undesirable and can also prevent the desired turfgrass from becoming readily established.

Noxious Weeds – Noxious weeds can be any plant in any stage of development, including parasitic plants, whose presence, whether direct or indirect, is detrimental to crops or other desirable plants, livestock, land, or other property, or is injurious to the public health. The top noxious weeds are as follows:

- 1) Blessed Thistle Cornflower (Ragged Robin)
- 2) Cocklebur Texas Panicum
- 3) Spurred Anoda Bracted Plantain
- 4) Velvetleaf Buckhorn Plantain
- 5) Corn Cockle Curly Dock
- 6) Wild Radish Dodder
- 7) Purple Nutsedge Giant Foxtail
- 8) Yellow Nutsedge Horsenettle
- 9) Canada Thistle Quackgrass
- 10) Field Bindweed Wild Mustard
- 11) Hedge Bindweed

Maintenance and Evaluation Standards: Turf Grass does not meet the maintenance standards when any of the following criteria is observed:

- 1) More than 2% of the vegetation exceeds a uniform height of 12 inches. Minimum height of no less than 4 inches. (Performance standard may not apply once the mowing frequency and patterns have been established as meeting the threshold condition on a routine basis)
- 2) Noxious weeds are present.

- 3) More than 50 continuous square feet (SF) of any one area or 10% of the cumulative turf evaluation area has bare ground.

Seeding and fertilizing efforts were last performed in the Spring of 2022. Seeding and fertilizer applications are conducted biannually in both the spring and fall months. It is recommended that the maintenance provider continue with a consistent application of this schedule along with spot seeding as needed.

7.0 Current Rolling MRP Rating

The rolling maintenance rating of the Monroe Expressway was 96.4, exceeding NCTA's overall target rating of 90. All elements exceeded NCTA's rolling rating threshold criteria of 85. All but one of the characteristic rolling ratings met or exceeded the target rating of 80.

The 2021/2022 results are presented in **Exhibit 1** and **Table 5**. These results are a collection of the latest four quarterly inspections.

Exhibit 1: MRP Element Results for 2021/2022

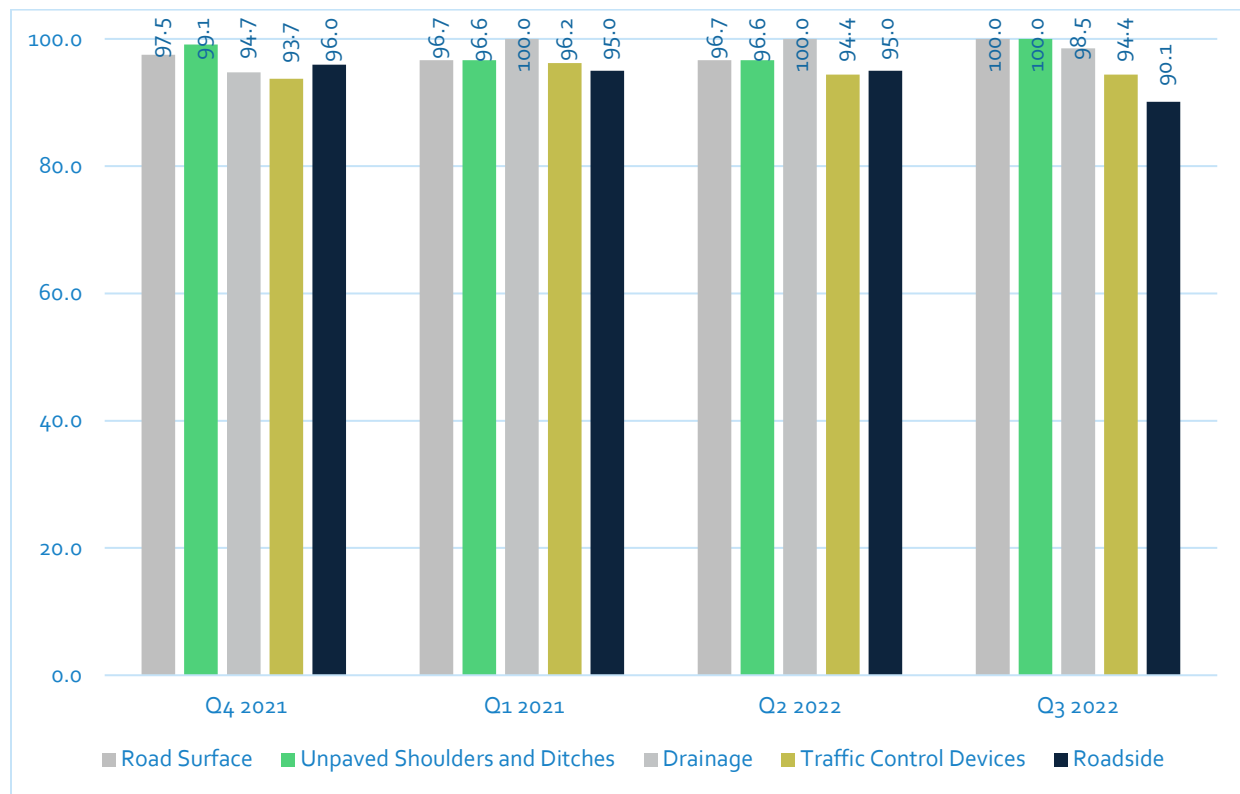


Table 5: MRP Rolling Element Results

Road Surface	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Paved Lanes Asphalt	96	97	93	100	97
Paved Shoulder	100	97	97	100	98
Element Total					97.3
Unpaved Shoulders and Ditches	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Unpaved Shoulder	100	93	100	100	97
Front/Back Slopes	100	100	97	100	99
Lateral and Outfall Ditches, Unpaved	100	100	100	100	100
Ditches, Paved	86	91	92	100	93
Element Total					98.6
Drainage	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Drainage Pipes	100	100	100	100	100
Curb and Gutter	91	100	100	100	99
Inlets	94	100	100	97	98
Sediment Basins	100	100	100	100	100
Misc. Drainage Structure	93	100	89	95	94
Element Total					98.4
Roadside	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Turf Condition	89	77	74	65	76
Landscaping	93	100	100	87	95
Trees and Brush	100	100	100	100	100
Litter	100	100	100	100	100
Roadway Sweeping	100	100	100	100	100
Guardrail, Concrete Barrier, and End Anchors	100	100	100	94	100
Impact Attenuators	100	100	100	100	100
Fence, Control Access	96	97	92	95	95
Retaining Walls and Sound Barrier Walls	92	100	86	100	94
Decorative Supports	100	100	100	100	100
Graffiti and Stain Removal	100	100	100	100	100
Element Total					93.3
Traffic Control Devices	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Signs	65	90	90	91	88
Delineators	100	100	93	100	98
Pavement Striping/Marking	100	100	93	100	98
Words and Symbols	97	97	100	97	98
Pavement Markers	100	100	97	100	99
Highway Lighting	100	100	100	100	100
Element Total					95.3

8.0 Conclusion

This report presents the 2022 third quarter assessment of the Monroe 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 2022 overall rating was **97.0** and the rolling rating was **96.4**. 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 maintenance provider is encouraged to continue using asset management principles and a performance management approach to work planning.

Appendix A

Monroe Expressway 2022 Third Quarter Table Results of Assets Failing MRP

Appendix A: Monroe Expressway 2022 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 of 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.

All assets and their respective prefixes are listed below:

Guardrail, Concrete Barrier and End Anchors (BR).....	1
Curb and Gutter (CG).....	2
Toll Gantry Supports (GN).....	3
Drainage Pipes (DP).....	4
Misc. Drainage Structure (MDD).....	5
Fence and Control of Access (FN)	6
Graffiti (GR).....	7
Highway Lighting (HL)	8
Impact Attenuators (IA).....	9
Inlets (IN).....	10
Landscaping (PB).....	11
Paved Lanes – Asphalt (LS)	12
Paved Shoulders (LS)	13
Unpaved Shoulders (LS)	14
Front/Back Slopes (LS)	15
Unpaved Lateral and Outfall Ditches (LS)	16
Litter (LS).....	17
Roadway Sweeping (LS).....	18
Pavement Striping (LS)	19
Pavement Markers (LS)	20
Delineators (LS).....	21
Paved Ditches (PD).....	22
Pavement Words and Symbols (PS)	23
Signs (SN)	24
Tree and Brush (TB)	26
Turf Condition (TF)	27
MSE/Retaining Walls, Sound Barrier Walls and Screen Walls (WL)	0
Sediment Basins(SB)	0

Guardrail, Concrete Barrier and End Anchors (BR)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Guardrail	BR_244	Damage		B4
2	Guardrail	BR_415	Twisted Post		B11

Curb and Gutter (CG)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
---	---------------	-----------	--------------	-------	--------------------

This asset did not produce any failures.

Toll Gantry Supports (GN)

#	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
---	---------------	-----------	--------------	-------	--------------------

This asset did not produce any failures.

Misc. Drainage Structure (MDD)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Concrete	MDD_98	Part Missing		B9

Fence and Control of Access (FN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Woven	FN_421	Hole		B7
2	Woven	FN_470	Hole		B22

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
---	------------------	--------------	--------------	-------	--------------------------


This asset did not produce any failures.

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	Concrete	IN_665	Blockage		B2

Landscaping (PB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Plant Bed	PB_31	Health		B11
2	Plant Bed	PB_36	Weeds		B9

Paved Lanes – Asphalt (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	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
---	---------------	-----------	--------------	-------	--------------------

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
---	---------------	-----------	--------------	-------	--------------------

This asset did not produce any failures.

Pavement Markers (LS)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
---	---------------	-----------	--------------	-------	--------------------

This asset did not produce any failures.

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	Symbol	PS_89	Visibility		B7

Signs (SN)

#	Sign Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Airport	SN_289	Leaning		B9
2	Yield	SN_466	Leaning		B9
3	Road Sign	SN_493	Sign Support		B10

Signs (SN)



#	Sign Type	Object ID	Failure Type	Photo	GIS Reference Page
4	Do Not Enter	SN_504	Sign Support & Leaning		B11
5	Road Sign	SN_535	Sign Support		B13
6	Road Sign	SN_1220	Sign Support		B25

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_113	Bare Ground		B1
2	Turf	TF_163	Bare Ground		B2
3	Turf	TF_239	Bare Ground		B4




Turf Condition (TF)



#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
4	Turf	TF_255	Bare Ground		B5
5	Turf	TF_267	Bare Ground		B7
6	Turf	TF_378	Bare Ground		B21

Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
7	Turf	TF_397	Bare Ground		B24
8	Turf	TF_407	Bare Ground		B25
9	Turf	TF_455	Bare Ground		B7

Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
10	Turf	TF_478	Bare Ground		B6
11	Turf	TF_523	Bare Ground		B8
12	Turf	TF_563	Bare Ground		B9

13	Turf	TF_624	Bare Ground		B14
14	Turf	TF_680	Bare Ground		B17
15	Turf	TF_727	Bare Ground		B19

16	Turf	TF_754	Bare Ground		B21
17	Turf	TF_811	Bare Ground		B23 & B24

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.

Sediment Basins(SB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
---	------------------	--------------	--------------	-------	--------------------------

This asset did not produce any failures.

Appendix B: Monroe Expressway Q3 2022 Assessment Locations



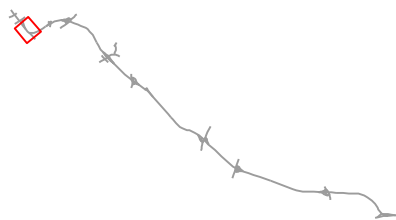
Legend



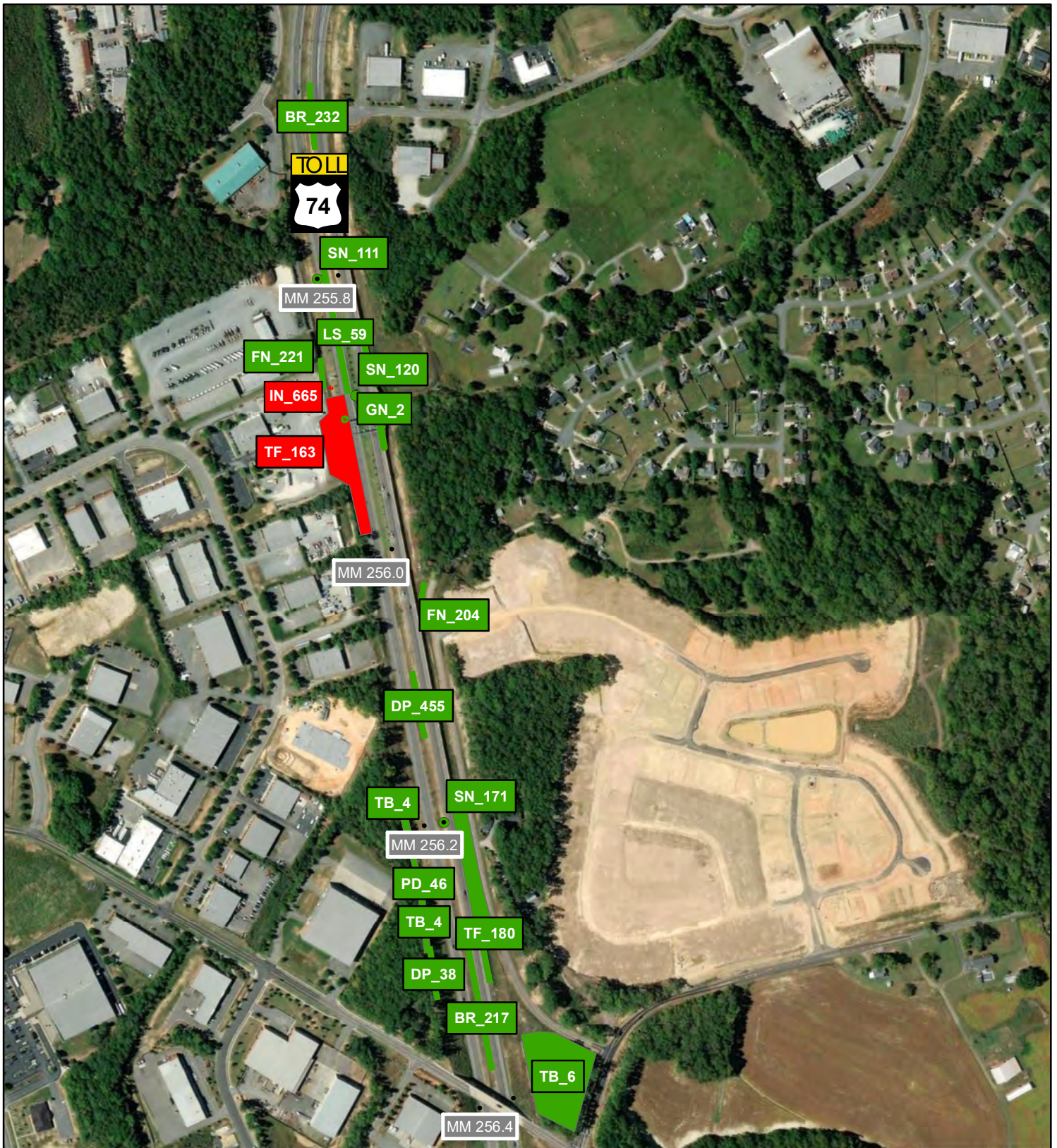
Failing Asset





Passing Asset

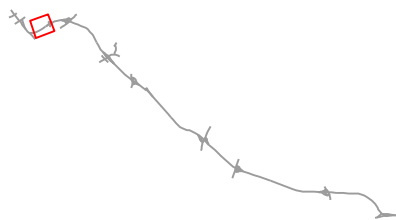


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



Legend

-  Failing Asset
-  Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



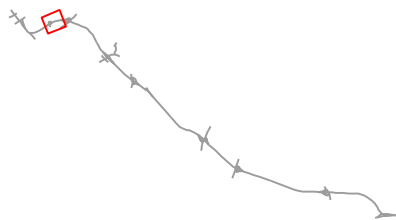
Legend



Failing Asset



Passing Asset

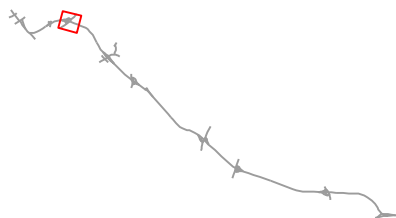


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

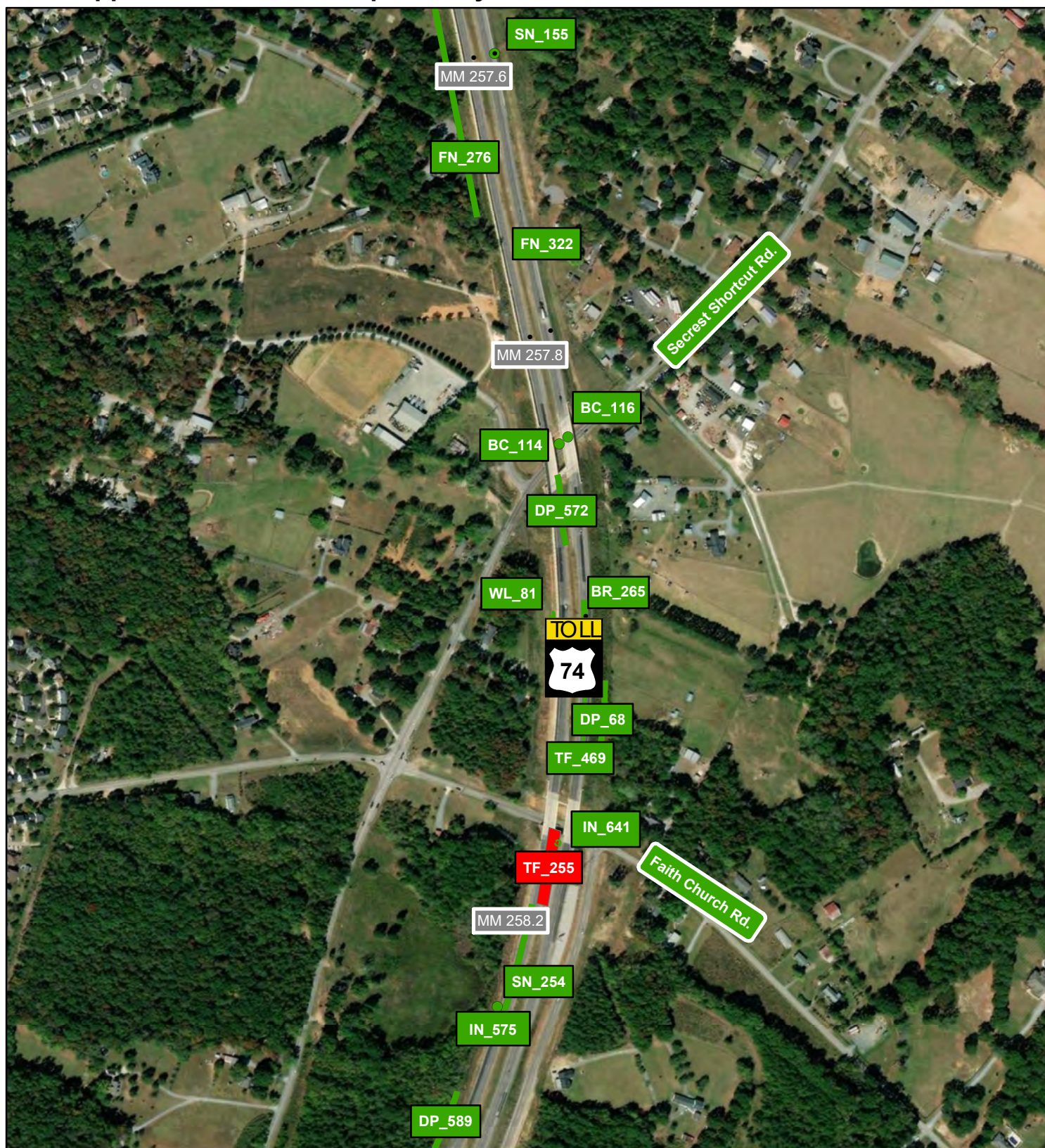


Legend

- Failing Asset
- Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



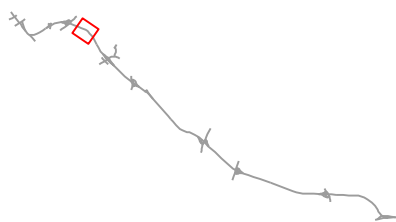
Legend



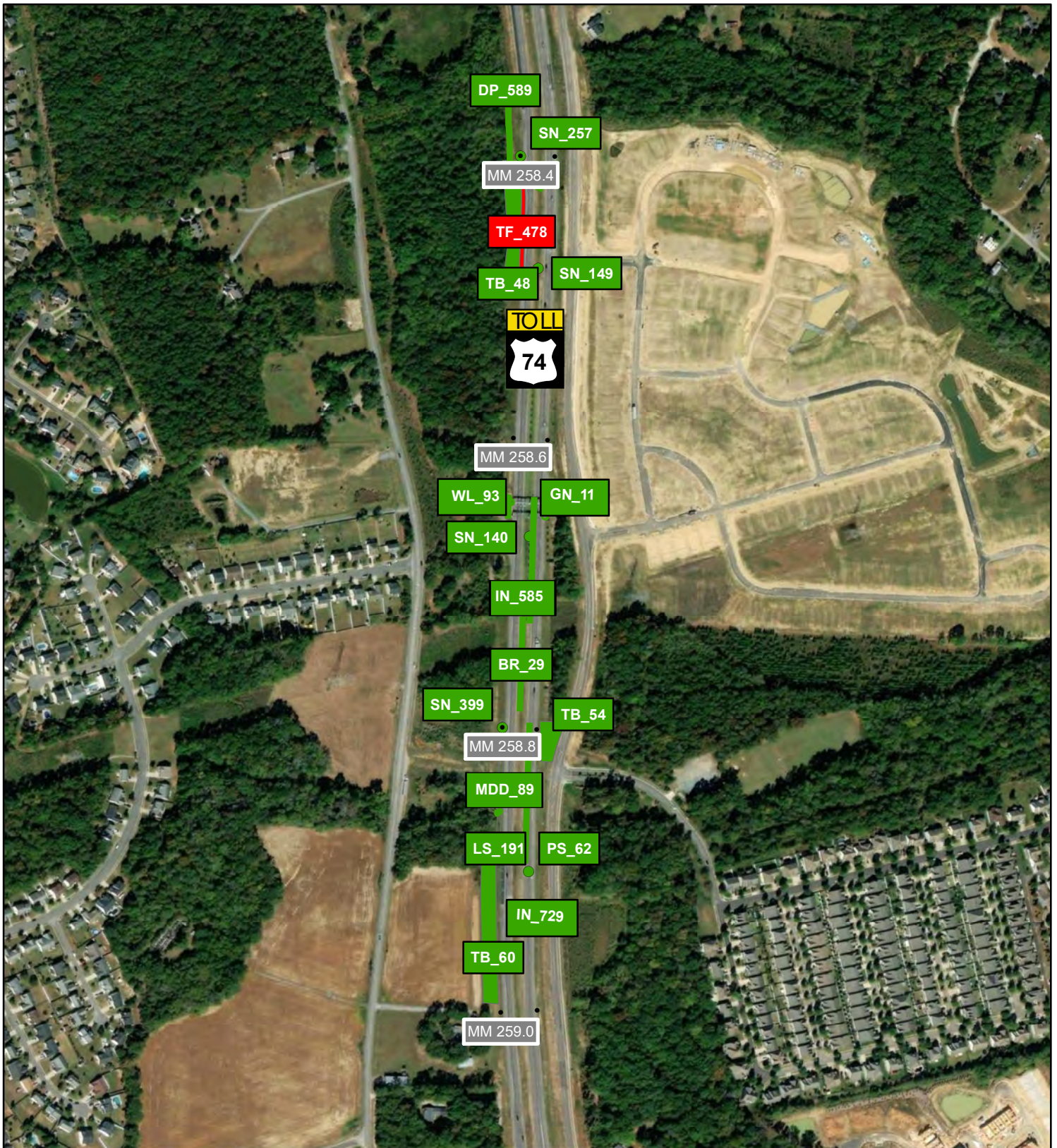
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



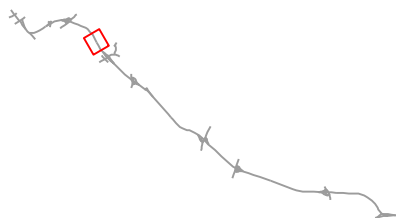
Legend



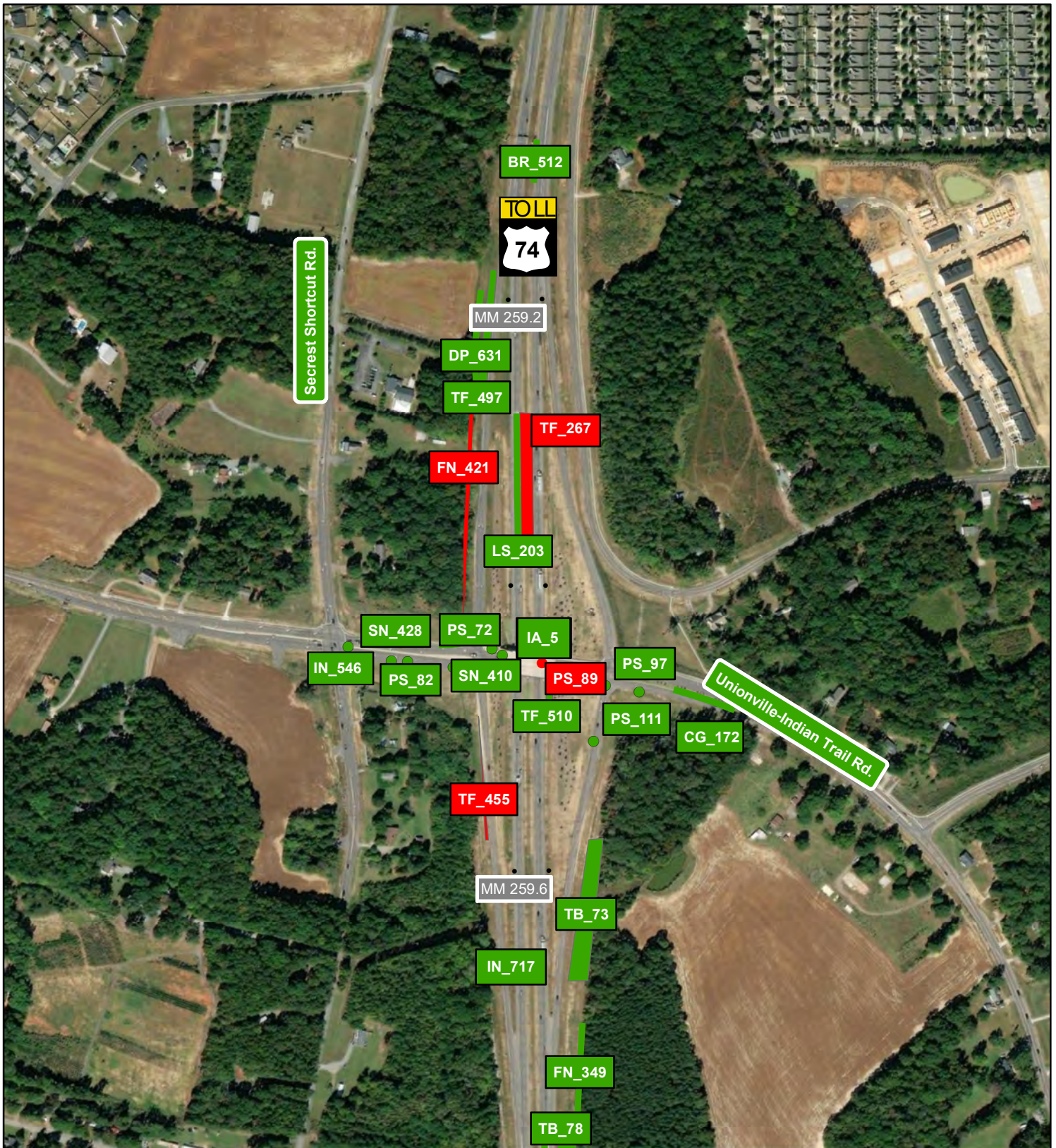
Failing Asset





Passing Asset

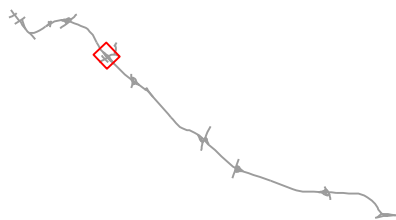


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

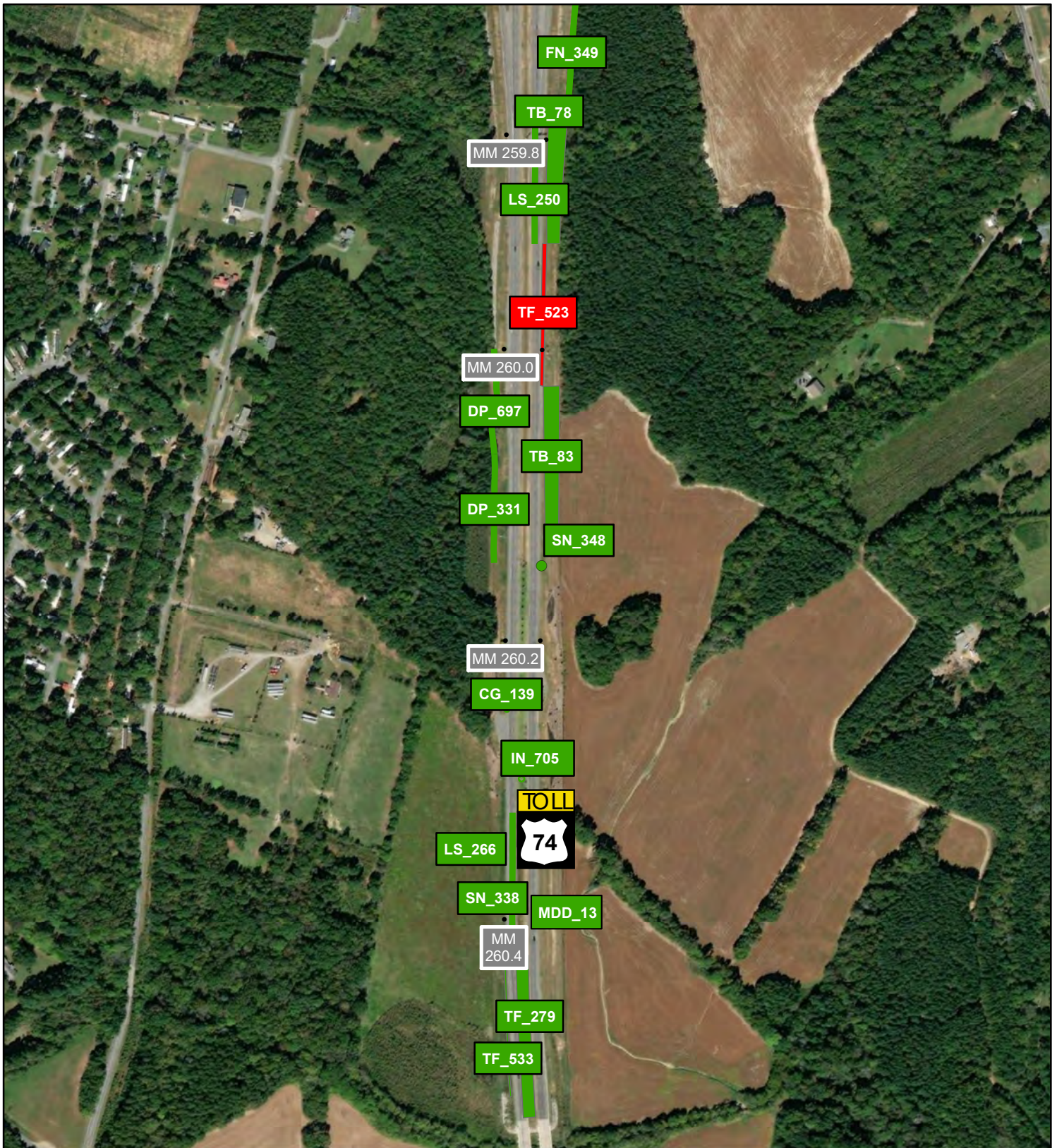


Legend

-  Failing Asset
-  Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



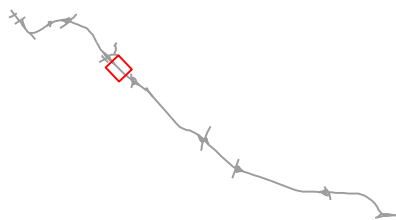
Legend



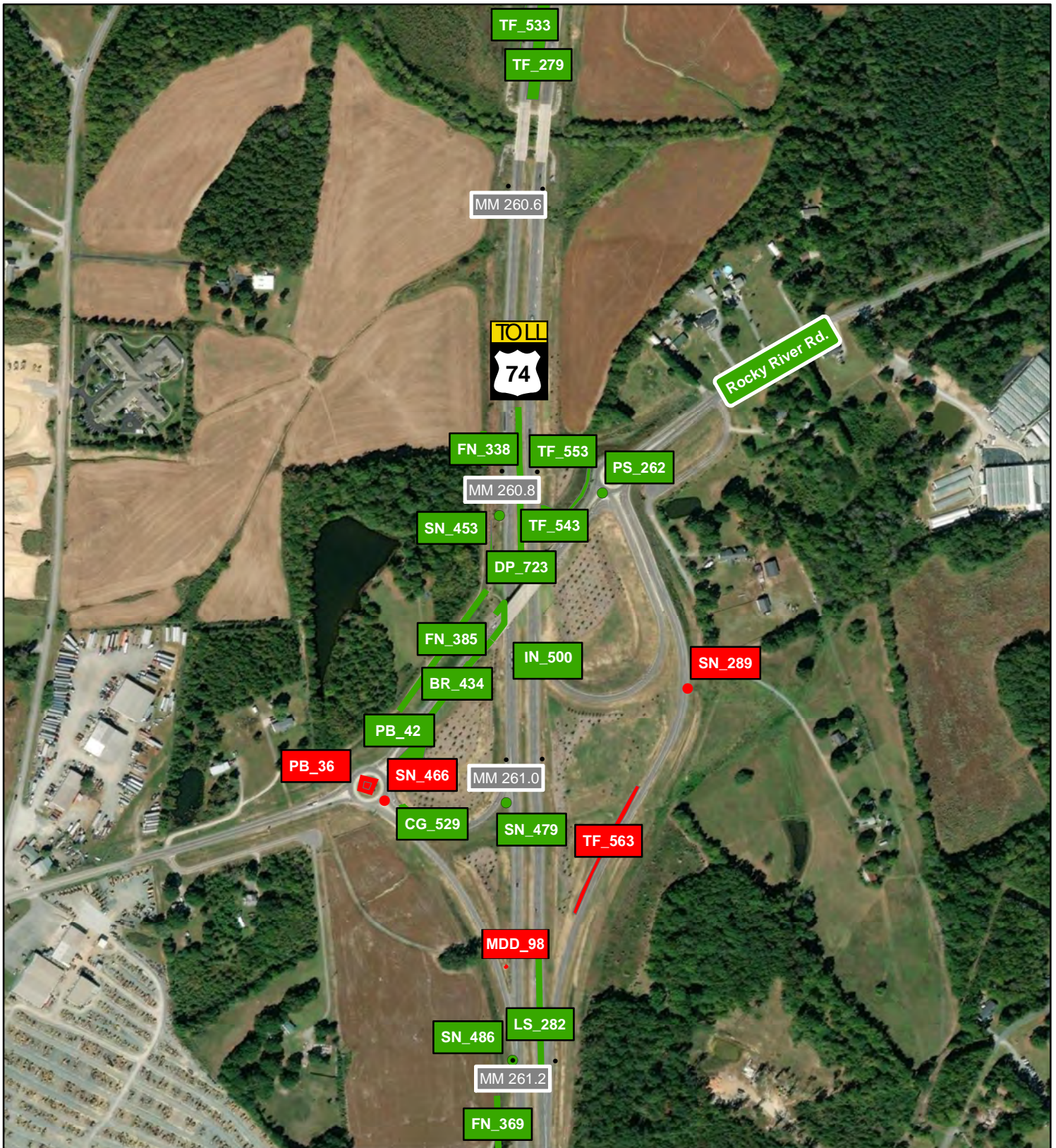
Failing Asset



Passing Asset

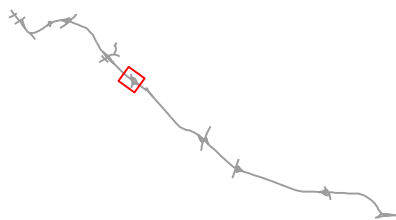


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

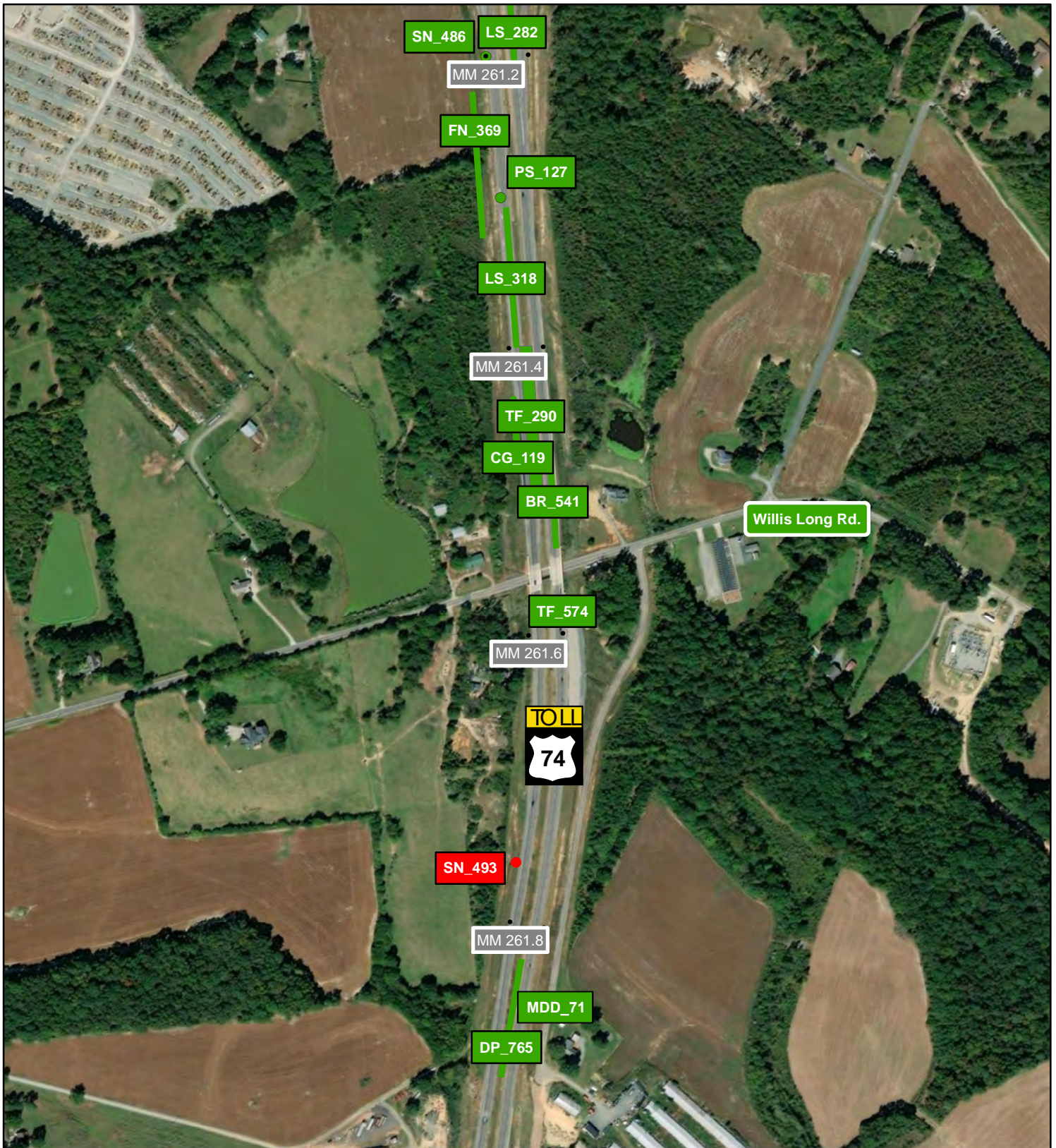


Legend

- Failing Asset
- Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



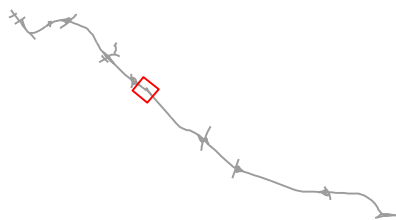
Legend



Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



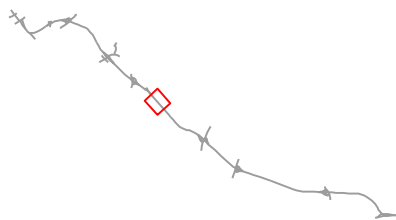
Legend



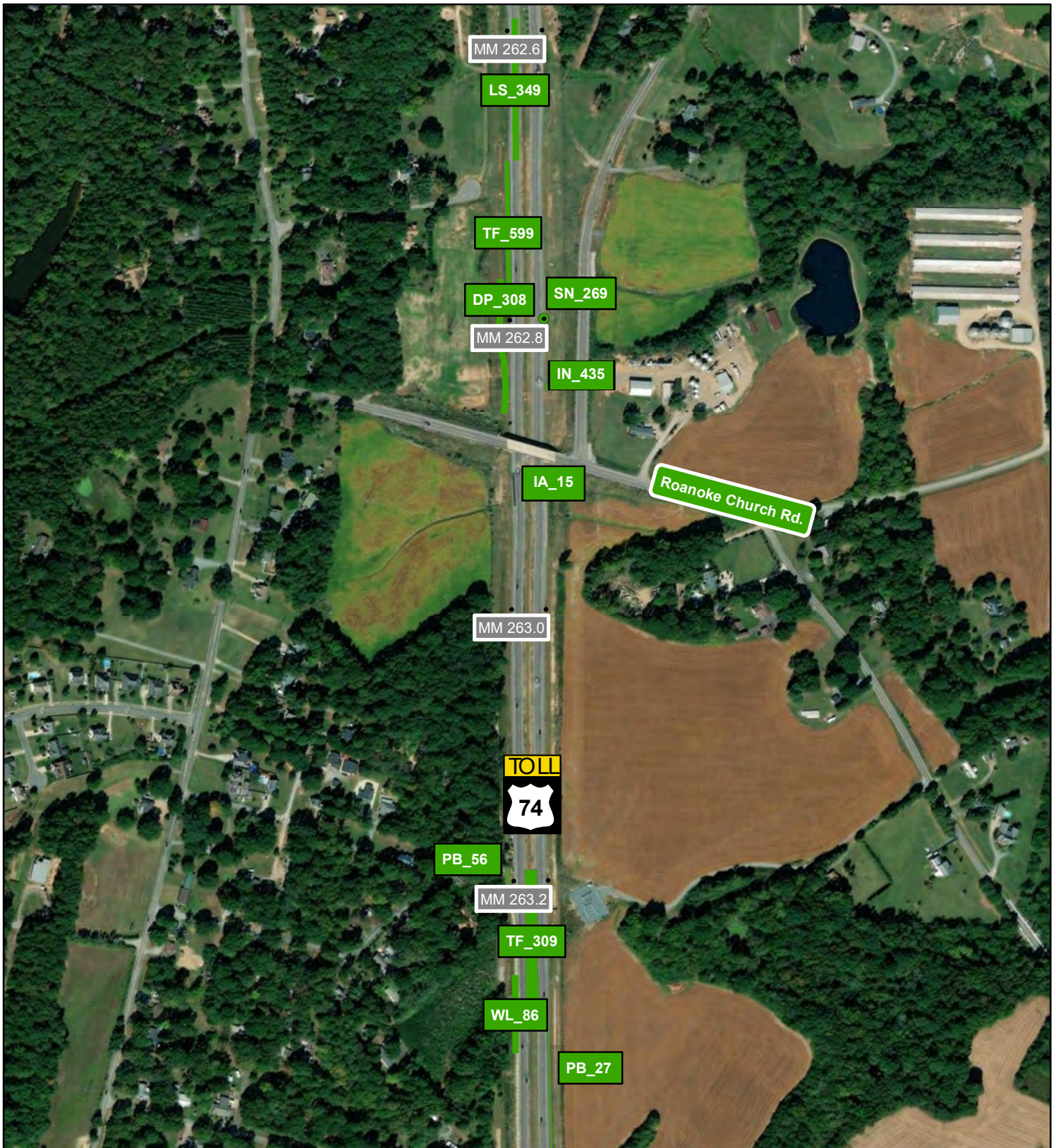
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



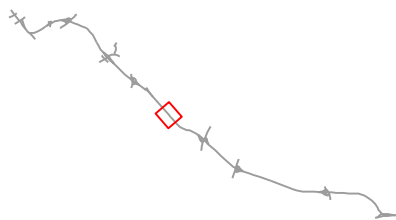
Legend



Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



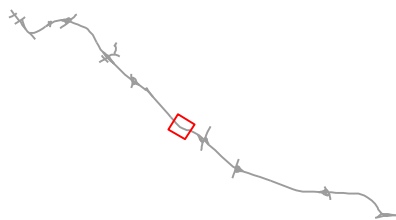
Legend



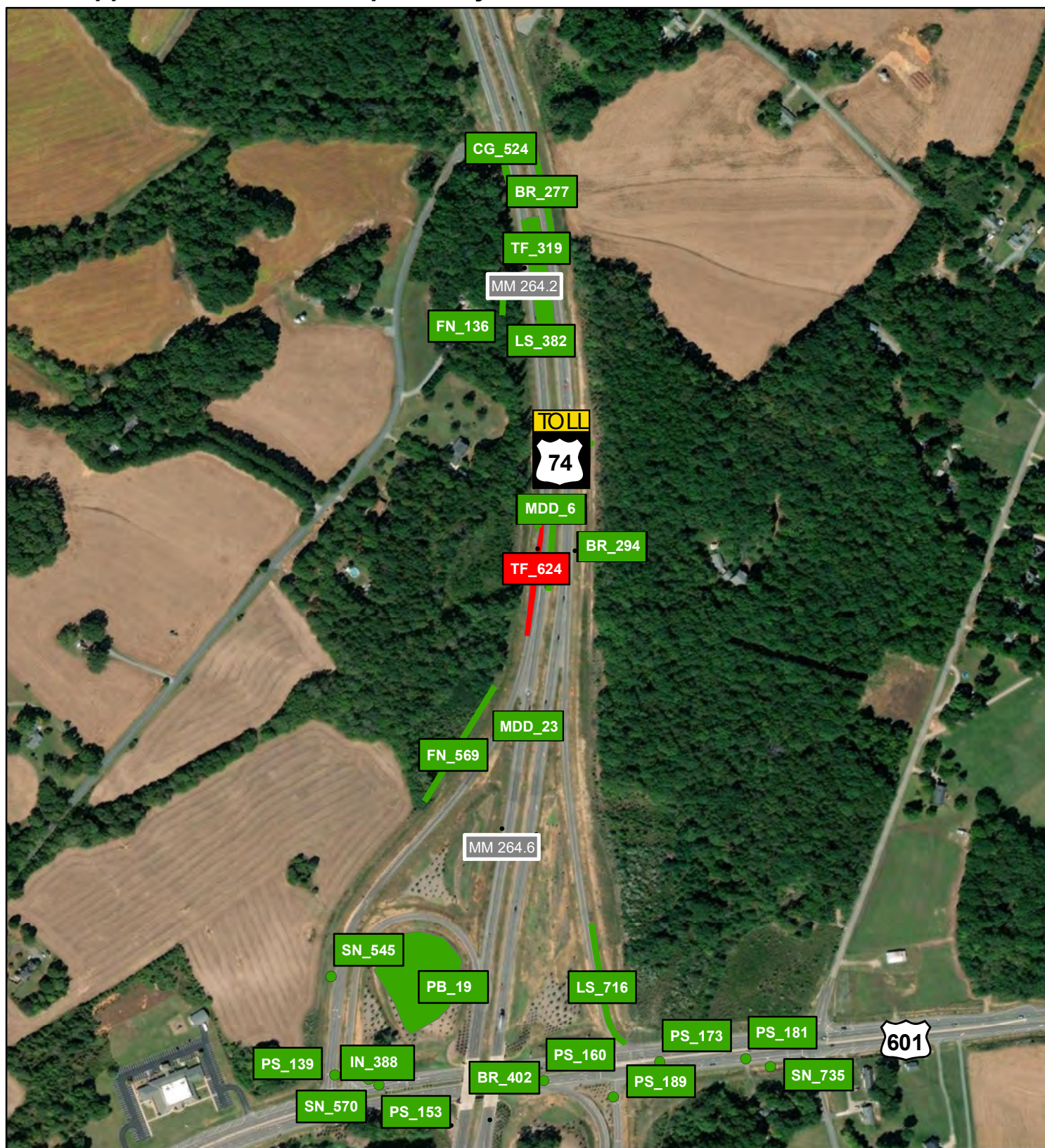
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



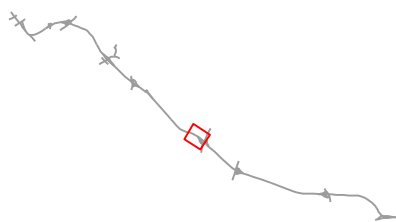
Legend



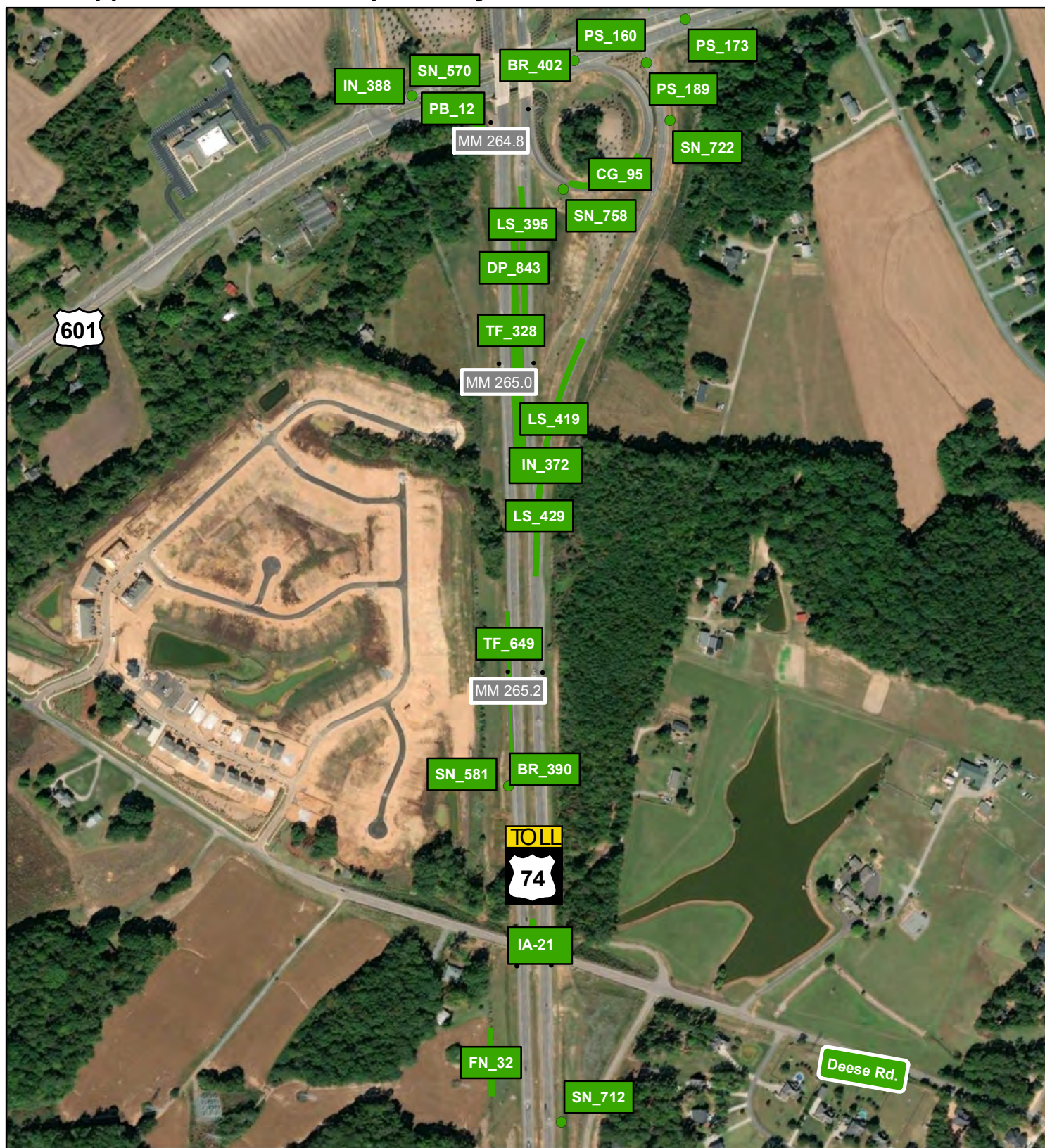
Failing Asset



Passing Asset

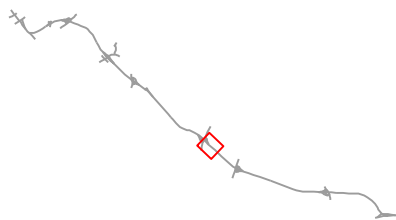


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



Legend

- Failing Asset
- Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



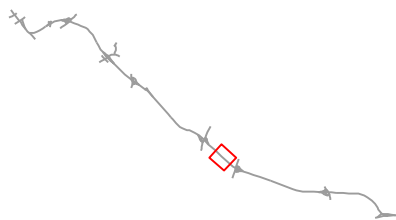
Legend



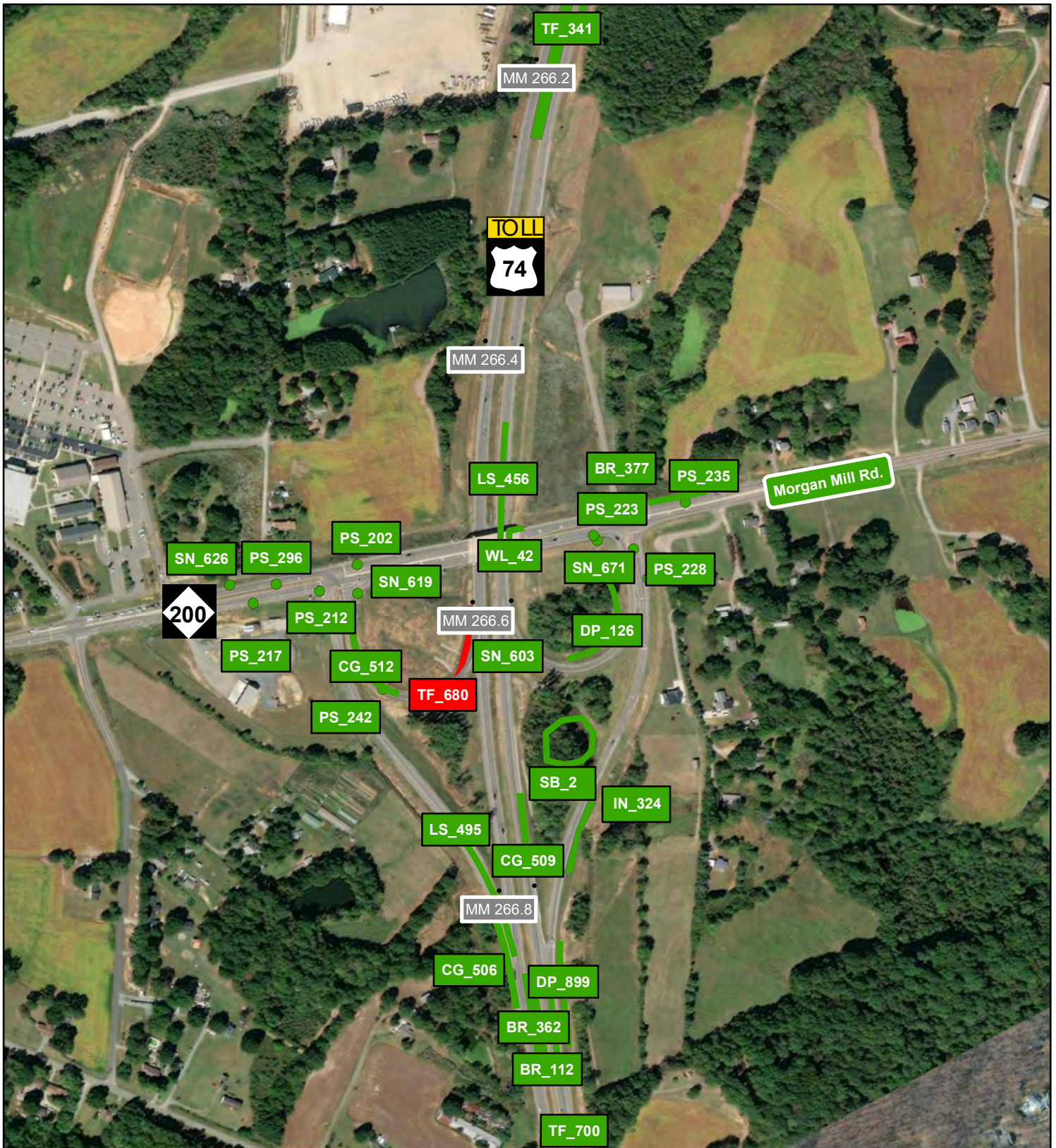
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



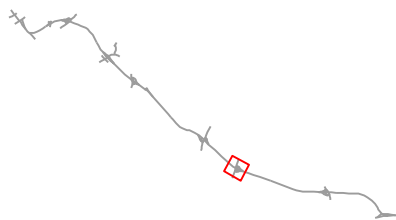
Legend



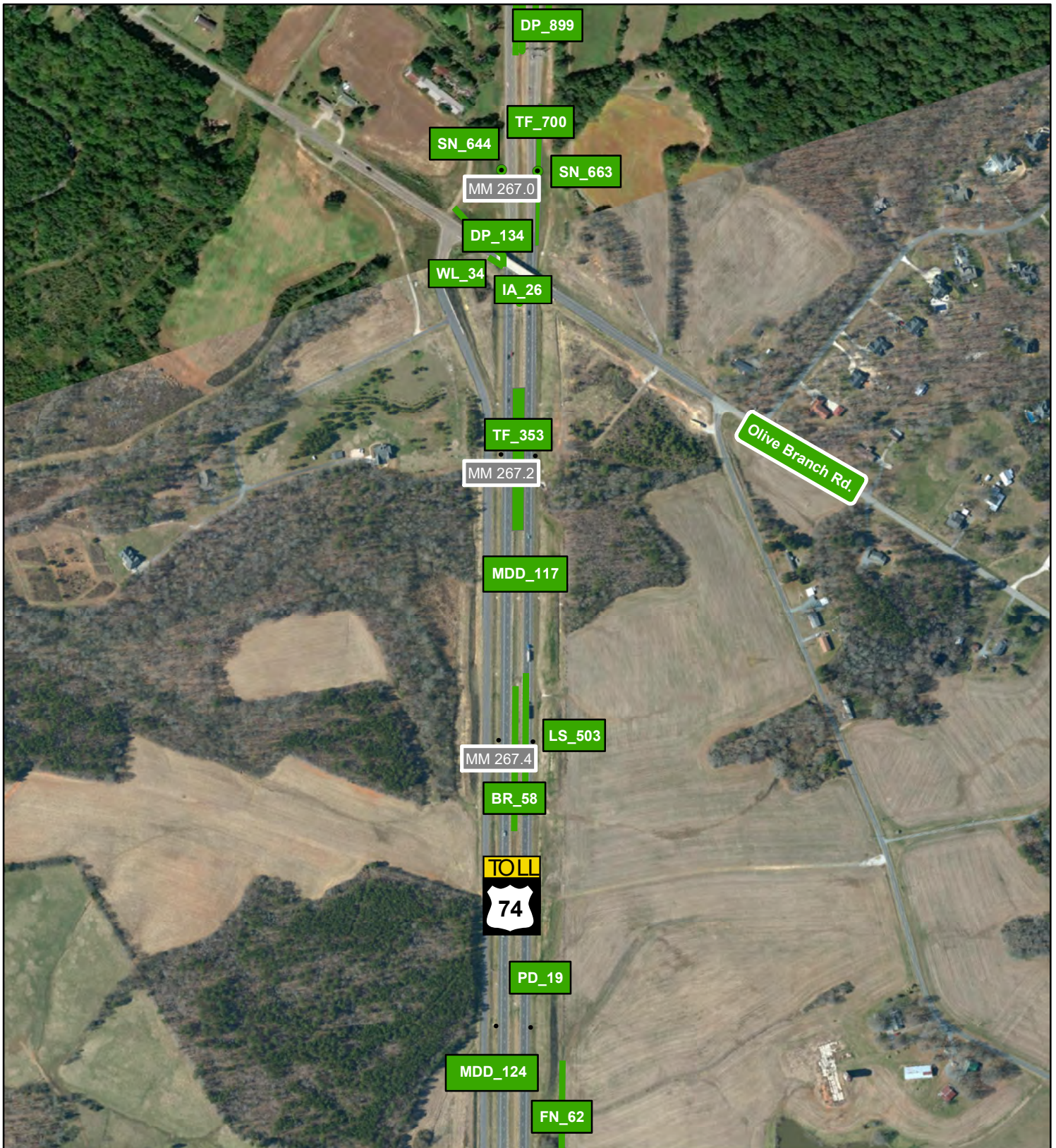
Failing Asset





Passing Asset

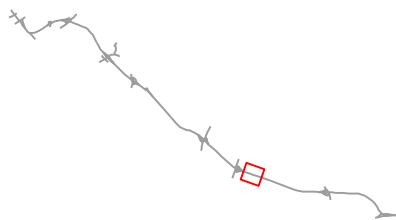


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

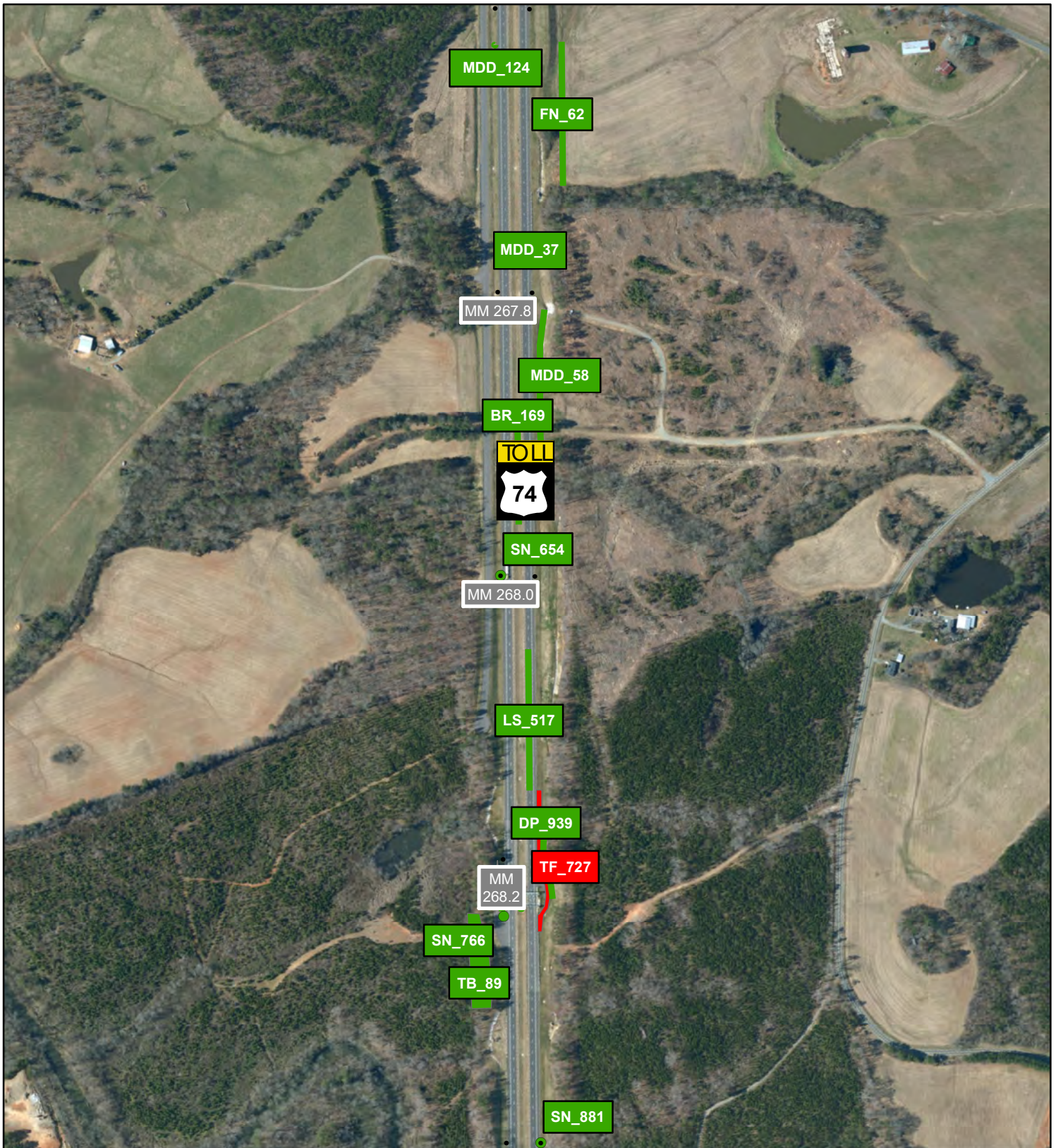


Legend



-  Failing Asset
-  Passing Asset

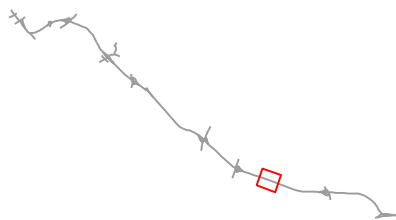


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

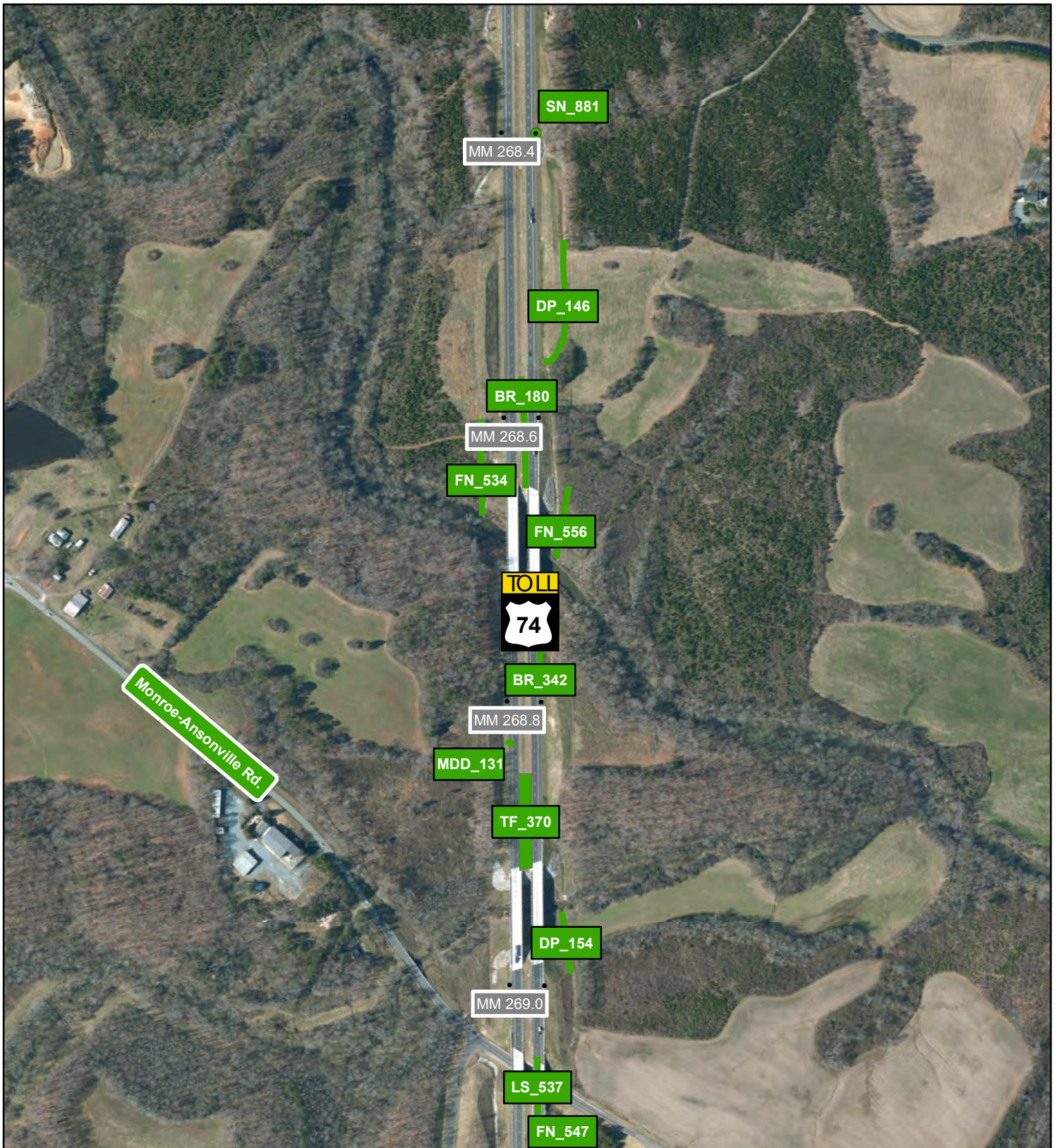


Legend

-  Failing Asset
-  Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



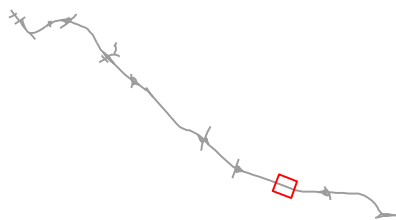
Legend



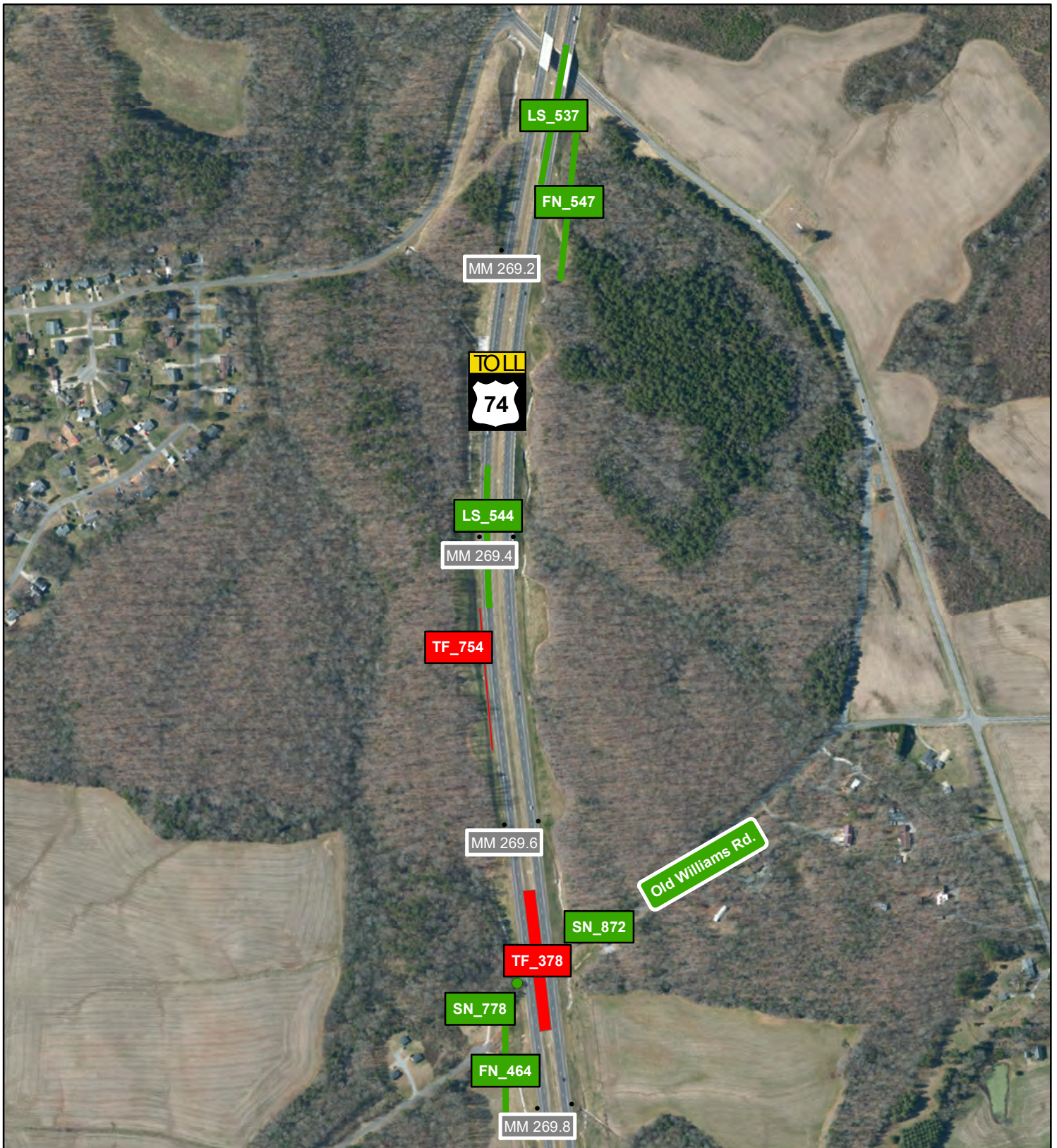
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



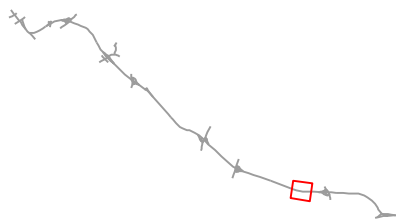
Legend



Failing Asset





Passing Asset

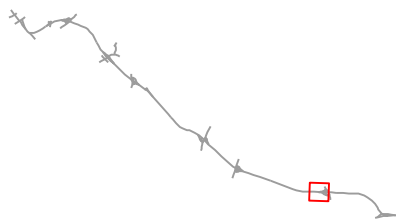


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



Legend

-  Failing Asset
-  Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



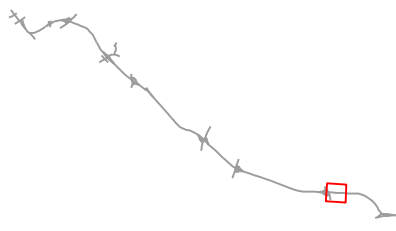
Legend



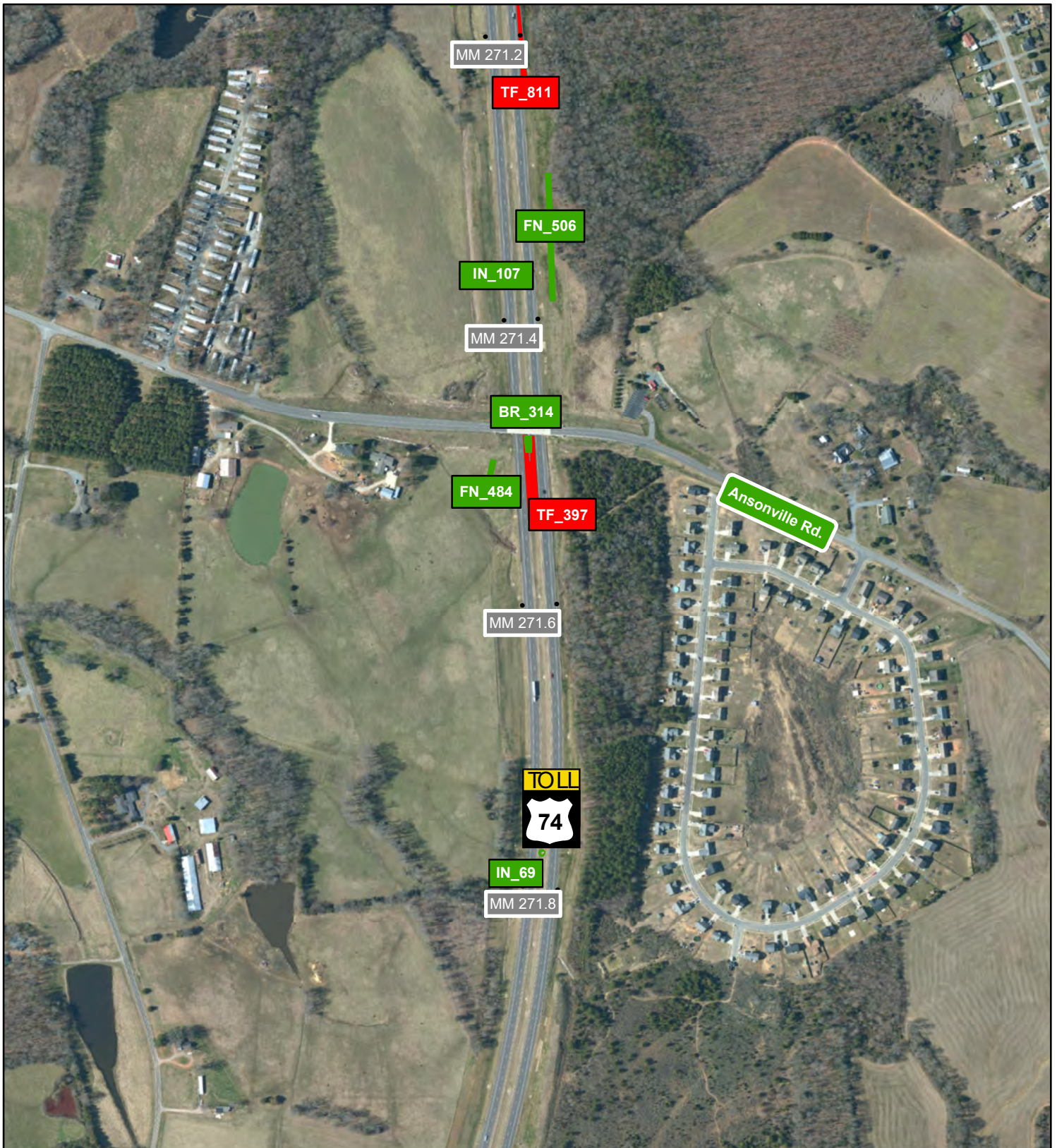
Failing Asset



Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



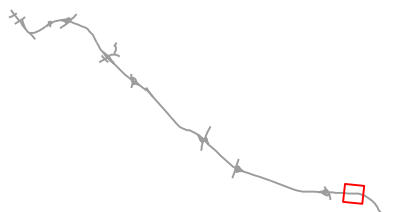
Legend



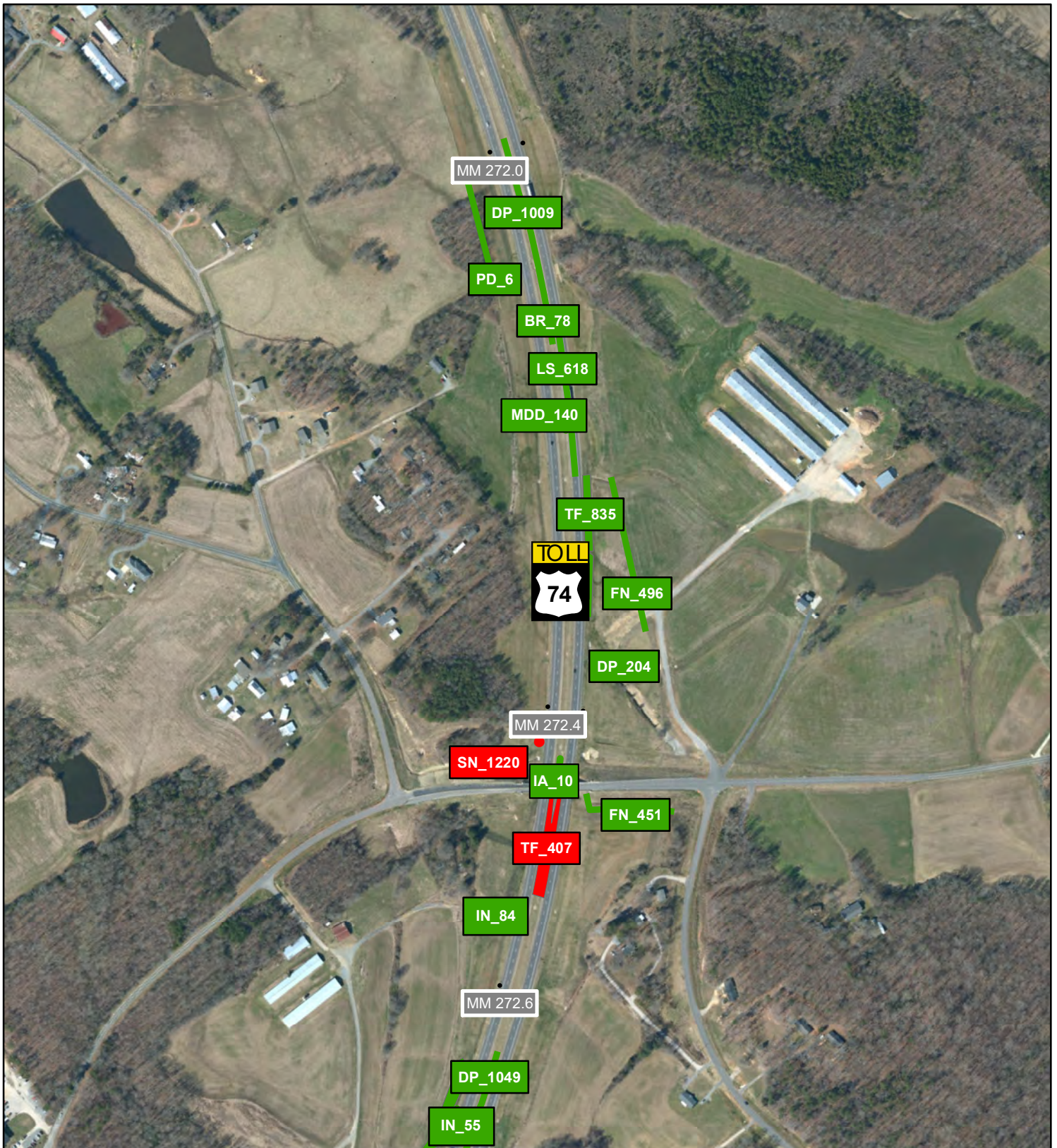
Failing Asset



Passing Asset

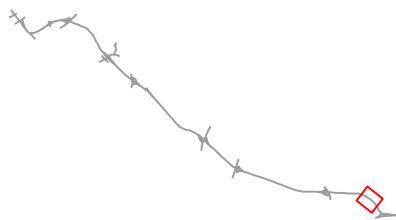


Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations

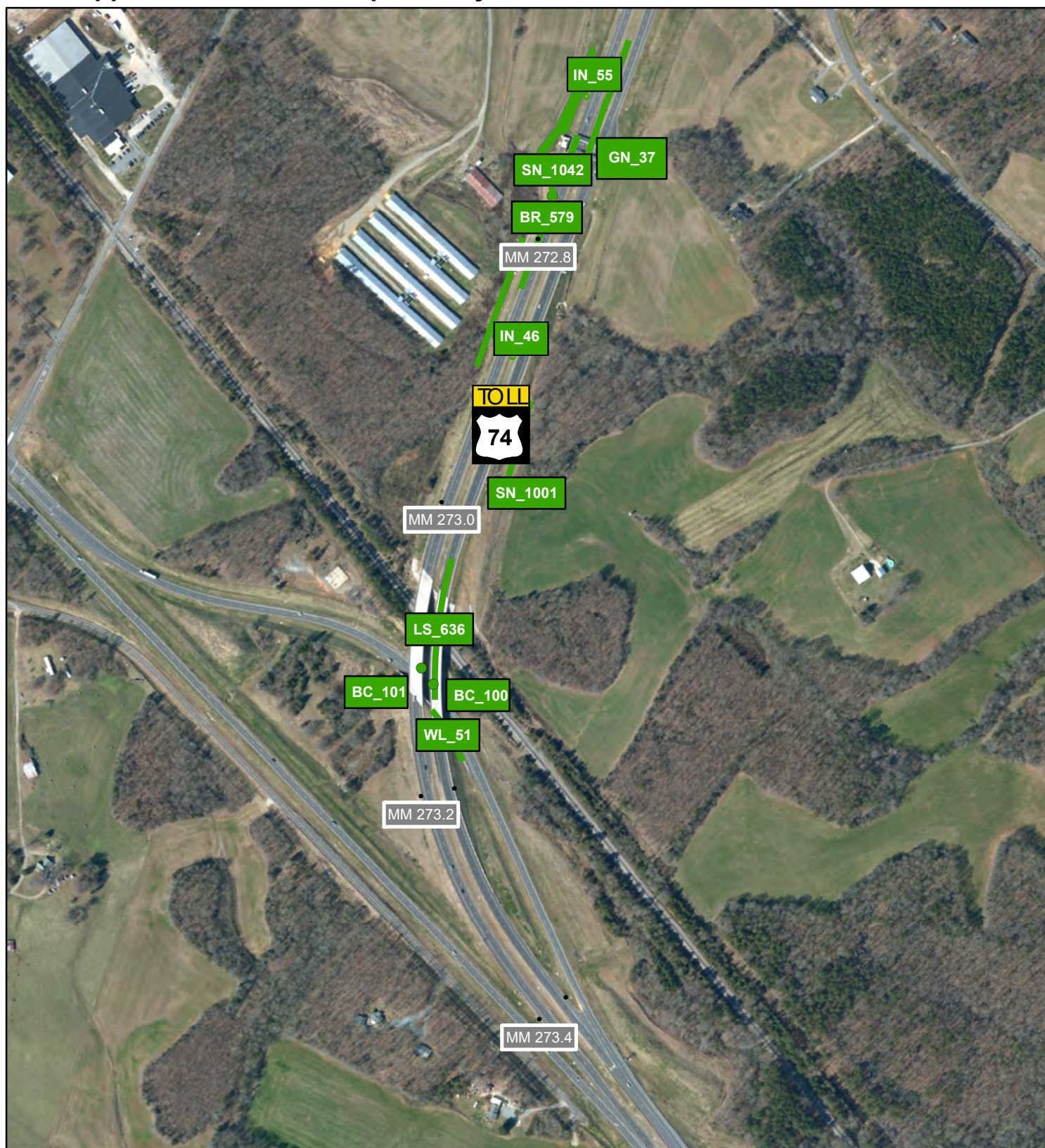


Legend

- Failing Asset
- Passing Asset



Appendix B: Monroe Expressway Q3 2022 Asset Assessment Locations



Legend



Failing Asset



Passing Asset

