NORTH CAROLINA
Turnpike Authority

Maintenance Rating Program

Triangle Expressway

November 2022

2022 Third 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 2022 Third Quarter Assessment of the Triangle Expressway.

The overall 2022 third quarter maintenance rating of the Triangle Expressway was **94.7,** 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 2022 Third Quarter Assessment

Element	MRP Rating	Target Rating
Road Surface	100.0	85.0
Unpaved Shoulders and Ditches	94.7	85.0
Drainage	92.1	85.0
Roadside	93.3	85.0
Traffic Control Devices	92.5	85.0
Overall MRP Performance Rating	**94.7**	**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 **94.2**.

Table 2: MRP Rolling Element Results

Element	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Road Surface	98.4	95.7	98.9	100.0	98.3
Unpaved Shoulders and Ditches	98.9	98.7	96.0	94.7	97.2
Drainage	91.7	92.0	94.2	92.1	92.5
Roadside	92.4	94.0	92.4	93.3	93.0
Traffic Control Devices	87.8	92.1[1]	93.4[1]	92.5[1]	91.0[2]
Overall MRP Performance Rating	**93.3**	**94.2[1]**	**95.1[1]**	**94.7[1]**	**94.2[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 one of 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.

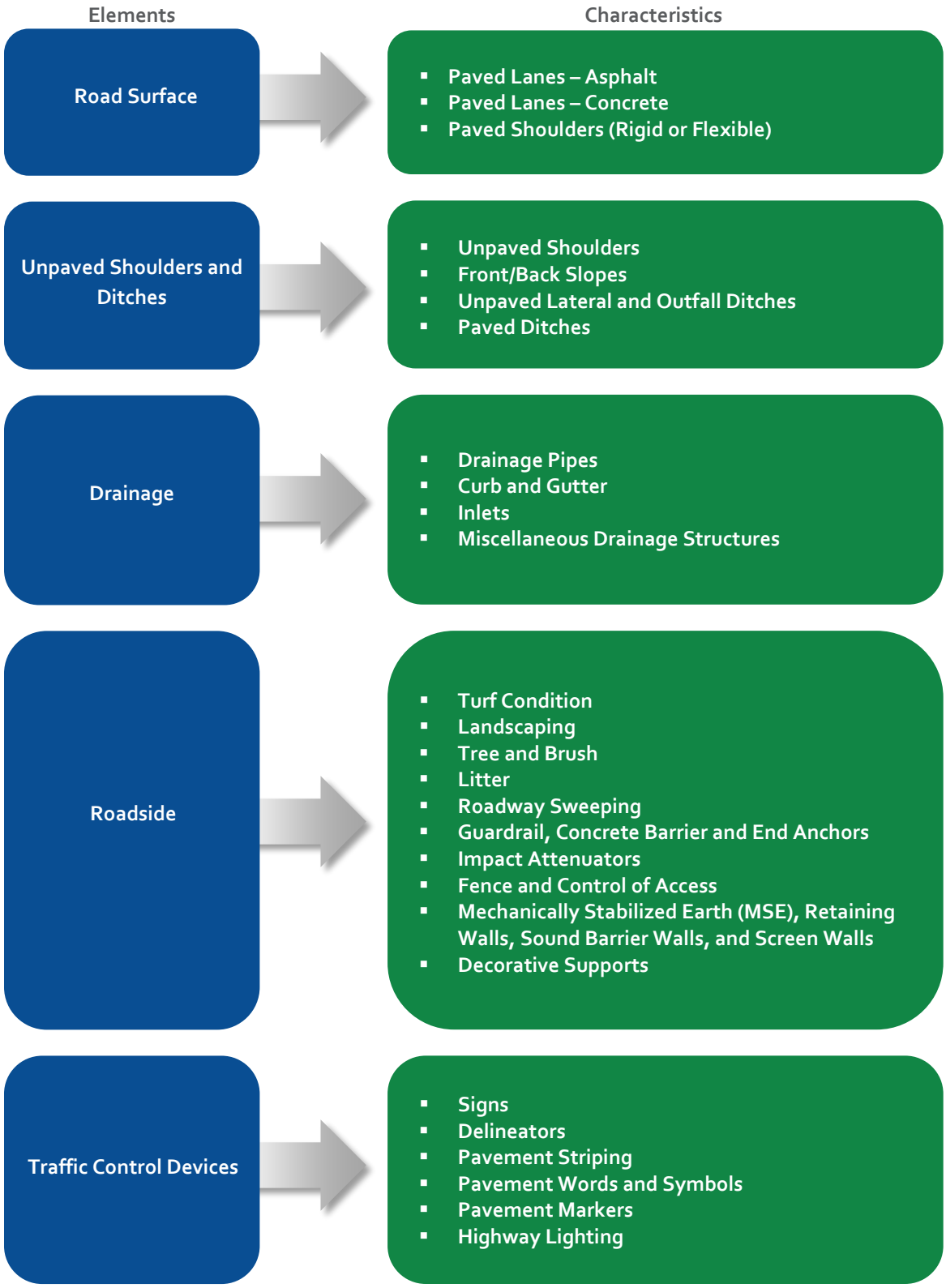
The NCTA performance standards, threshold criteria, and maintenance rating program were developed through a collaborative effort by NCTA managers, NCDOT maintenance staff, and consultants.

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	2022 Eligible Inventory
Barriers	799	627
Curb and Gutter	428	397
Decorative Supports	305	298
Drainage	1179	1131
Misc. Drainage	211	200
Fences	508	484
Highway Lighting	435	431
Impact Attenuators	47	45
Inlets	1126	1080
Linear Segments	795	737
Plant Beds	266	261
Paved Ditches	2	2
Pavement Symbols	652	593
Signs	1221	1169
Tree and Brush	603	569
Turf	1074	978
Walls	88	84

6.0 MRP Third Quarter Assessment

6.1 Quarterly Results

The overall 2022 third quarter maintenance rating of the Triangle Expressway was 94.7, 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, provide 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 2022

Element	MRP Rating
Road Surface	100.0
Unpaved Shoulders and Ditches	94.7
Drainage	92.1
Roadside	93.3
Traffic Control Devices	92.5
Overall MRP Performance Rating	**94.7**

Table 5: MRP Characteristics Results for Q3 2022

Road Surface	Sample Passed	Sample Total	Weighted Values	Actual Pts	Available Pts	Q3 Rating
Paved Lanes Asphalt	10	10	9	90	90	100
Paved Lanes Concrete	22	22	9	198	198	100
Paved Shoulder	32	32	5	160	160	100
Element Total				**448**	**448**	**100.0**
Unpaved Shoulders and Ditches	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Unpaved Shoulder	28	32	9	252	288	88
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				**646**	**682**	**94.7**
Drainage	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Drainage Pipes	34	34	7	238	238	100
Curb and Gutter	26	28	6	156	168	93
Inlets	30	34	7	210	238	88
Misc. Drainage Structure	23	28	4	92	112	82
Element Total				**696**	**756**	**92.1**
Roadside	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Turf Condition	43	49	7	301	343	88
Landscaping	23	25	4	92	100	92
Trees and Brush	30	32	4	120	128	94
Litter	31	32	4	124	128	97
Roadway Sweeping	32	32	5	160	160	100
Guardrail, Concrete Barrier, and End Anchors	28	30	9	252	270	93
Impact Attenuators	8	9	9	72	81	89
Fence, Control Access	33	35	7	231	245	94
Retaining Walls and Sound Barrier Walls	12	16	5	60	80	75
Decorative Supports	26	26	5	130	130	100
Graffiti and Stain Removal	44	44	4	176	176	100
Element Total				**1718**	**1841**	**93.3**
Traffic Control Devices	**Sample Passed**	**Sample Total**	**Weighted Values**	**Actual Pts**	**Available Pts**	**Q3 Rating**
Signs	31	34	7	217	238	91
Delineators	32	32	3	96	96	100
Pavement Striping/Marking	10	11	8	80	88	91
Words and Symbols	25	30	7	175	210	83
Pavement Markers	11	11	9	99	99	100
Highway Lighting	33	34	6	198	204	97
Element Total				**865**	**935**	**92.5**

Additionally, ***Appendix A*** includes maps that present the location of all assets assessed during the thirdd 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. All elements received a quarter score above 90.

Road Surface (100.0) experienced no change to the previous quarter's rolling rating. Asphalt resurfacing was completed in September of 2021.

Unpaved Shoulders and Ditches (94.7) experienced a decrease in rolling rating. The rating for this element was 0.4 points lower than the previous quarter rolling rating. All characteristics within this element continued scoring above 90.

Drainage (92.1) rolling rating stayed consistent with the previous quarter rolling rating. Misc. Drainage Pipes (90) rolling rating increased from last quarter by 0.6 points, continuing to score above the target rating.

Roadside (93.3) increased 0.4 points from the previous quarter's rolling rating. Turf Condition (88) experienced an increase in rolling ratings from last quarter by 3.7 points. Retaining Walls and Sound Barrier Walls (75) experienced an increase in rolling rating of 1.6 points.

Traffic Control Devices (92.5) experienced an increase in rolling rating of 1.5 points from the previous quarter. Pavement Striping/Marking (91) experienced an increase in rolling rating of 5.0 points. A portion of concrete striping replacement was performed in Summer 2022. Replacement of striping and markers for the remaining concrete sections is scheduled to start in 2023.

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

Characteristics

This quarter, all but one characteristic, Retaining Walls and Sound Barrier Walls (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 (75 rating –12 of the 16 assets passed): The four wall sections that did not pass inspection had unsealed 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.

7.0 Current Rolling MRP Rating

The rolling maintenance rating of the Triangle Expressway was **94.2,** exceeding NCTA's target overall rating of 90. All elements exceeded NCTA's rolling rating threshold criteria of 85. All characteristic ratings met or exceeded the target rating of 80.

The 2021/2022 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 2021/2022

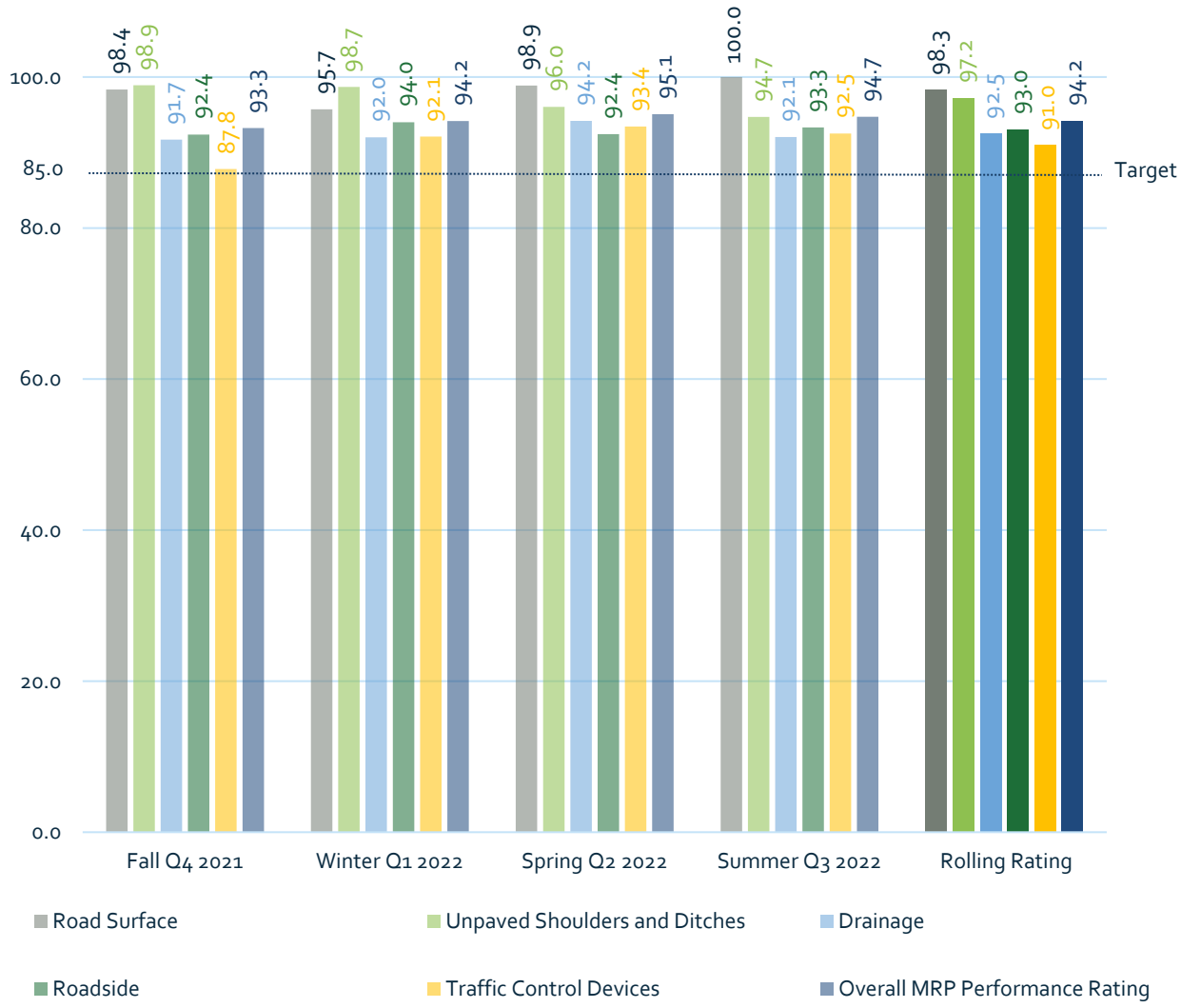


Table 6: MRP Rolling Element Results

Road Surface	Q4 2021 Rating	Q1 2022 Rating	Q2 2022 Rating	Q3 2022 Rating	Rolling Rating
Paved Lanes Asphalt	93	94	100	100	96
Paved Lanes Concrete	100	92	100	100	99
Paved Shoulder	100	100	97	100	99
Element Total	**98.4**	**95.7**	**98.9**	**100.0**	**98.3**
Unpaved Shoulders and Ditches	**Q4 2021 Rating**	**Q1 2022 Rating**	**Q2 2022 Rating**	**Q3 2022 Rating**	**Rolling Rating**
Unpaved Shoulder	97	97	91	88	93
Front/Back Slopes	100	100	100	100	100
Lateral and Outfall Ditches, Unpaved	100	100	100	100	100
Ditches, Paved	100	100	100	100	100
Element Total	**98.9**	**98.7**	**96.0**	**94.7**	**97.2**
Drainage	**Q4 2021 Rating**	**Q1 2022 Rating**	**Q2 2022 Rating**	**Q3 2022 Rating**	**Rolling Rating**
Drainage Pipes	91	88	97	100	94
Curb and Gutter	100	92	93	93	94
Inlets	89	97	94	88	92
Misc. Drainage Structure	86	90	90	82	87
Element Total	**91.7**	**92.0**	**94.2**	**92.1**	**92.5**
Roadside	**Q4 2021 Rating**	**Q1 2022 Rating**	**Q2 2022 Rating**	**Q3 2022 Rating**	**Rolling Rating**
Turf Condition	88	94	84	88	88
Landscaping	100	100	100	92	98
Trees and Brush	97	100	100	94	98
Litter	92	97	100	97	96
Roadway Sweeping	97	97	100	100	99
Guardrail, Concrete Barrier, and End Anchors	94	88	88	93	90
Impact Attenuators	89	100	100	89	94
Fence, Control Access	84	91	88	94	90
Retaining Walls and Sound Barrier Walls	81	75	75	75	77
Decorative Supports	100	100	100	100	100
Graffiti and Stain Removal	100	98	100	100	99
Element Total	**92.4**	**94.0**	**92.4**	**93.3**	**93.0**
Traffic Control Devices	**Q4 2021 Rating**	**Q1 2022 Rating**	**Q2 2022 Rating**	**Q3 2022 Rating**	**Rolling Rating**
Signs	97	91	97	91	94
Delineators	77	81	94	100	87
Pavement Striping/Marking	69	95[1]	100[1]	91[1]	84[2]
Words and Symbols	90	97[1]	87[1]	83[1]	90[2]
Pavement Markers	100	82[1]	85[1]	100[1]	94[2]
Highway Lighting	88	97	97	97	94
Element Total	**87.8**	**92.1[1]**	**93.4[1]**	**92.5[1]**	**91.0[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. Of the two landscaped areas, one was well maintained while the other was overgrown and partially obstructed the sign text. ***Figure 5*** shows the two signs assessed.

Figure 5: Green Level West Historic District Signs, Landscape Areas

9.0 Conclusion

This report presents the 2022 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 2022 overall rating was **94.7** and the rolling rating was **94.2** , 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 Retaining Walls and Sound Barrier Walls (75).

To maintain/improve the condition ratings, it is recommended that the pavement striping/marking replacement cycles are completed as planned in the capital budget. Replacement of pavement striping, and marking is scheduled for 2023.

This quarter, the two Green Level Historic District signs inspected were found to be in good condition. The landscaped area surrounding one of the two signs was found to be overgrown and in need of maintenance. The landscape area around the other sign on Green Level Church Road was found to be well maintained.

Appendix A

Triangle Expressway 2022 Third Quarter Asset Assessment Locations

Appendix A: Triangle Expressway 2022 Third Quarter Asset Assessment Locations

Provided below are a series of maps outlining the assets that were a part of this quarter's sample and their corresponding result. 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. All assets and their respective prefixes are listed below:

- Guardrail, Concrete Barrier and End Anchors – BR
- Curb and Gutter – CG
- Decorative Supports – DS
- Drainage Pipes – DP
- Misc. Drainage Structures – MDP
- Fence and Control of Access – FN
- Graffiti – GR
- Highway Lighting – HL
- Impact Attenutators – IA
- Inlets – IN
- Landscaping – PB
- Linear Samples – LS
    - Paved Lanes – Asphalt
    - Paved Lanes – Concrete
    - Paved Shoulders
    - Unpaved Shoulders
    - Front/Back Slopes
    - Unpaved Lateral and Outfall Ditches
    - Litter
    - Roadway Sweeping
    - Pavement Striping/Markings
    - Pavement Markers
    - Delineators
- Paved Ditches – PD
- Pavement Words and Symbols – PS
- Signs – SN
- Tree and Brush – TB
- Turf Condition – TF
- MSE/Retaining Walls, Sound Barrier Walls, and Screen Walls – WL

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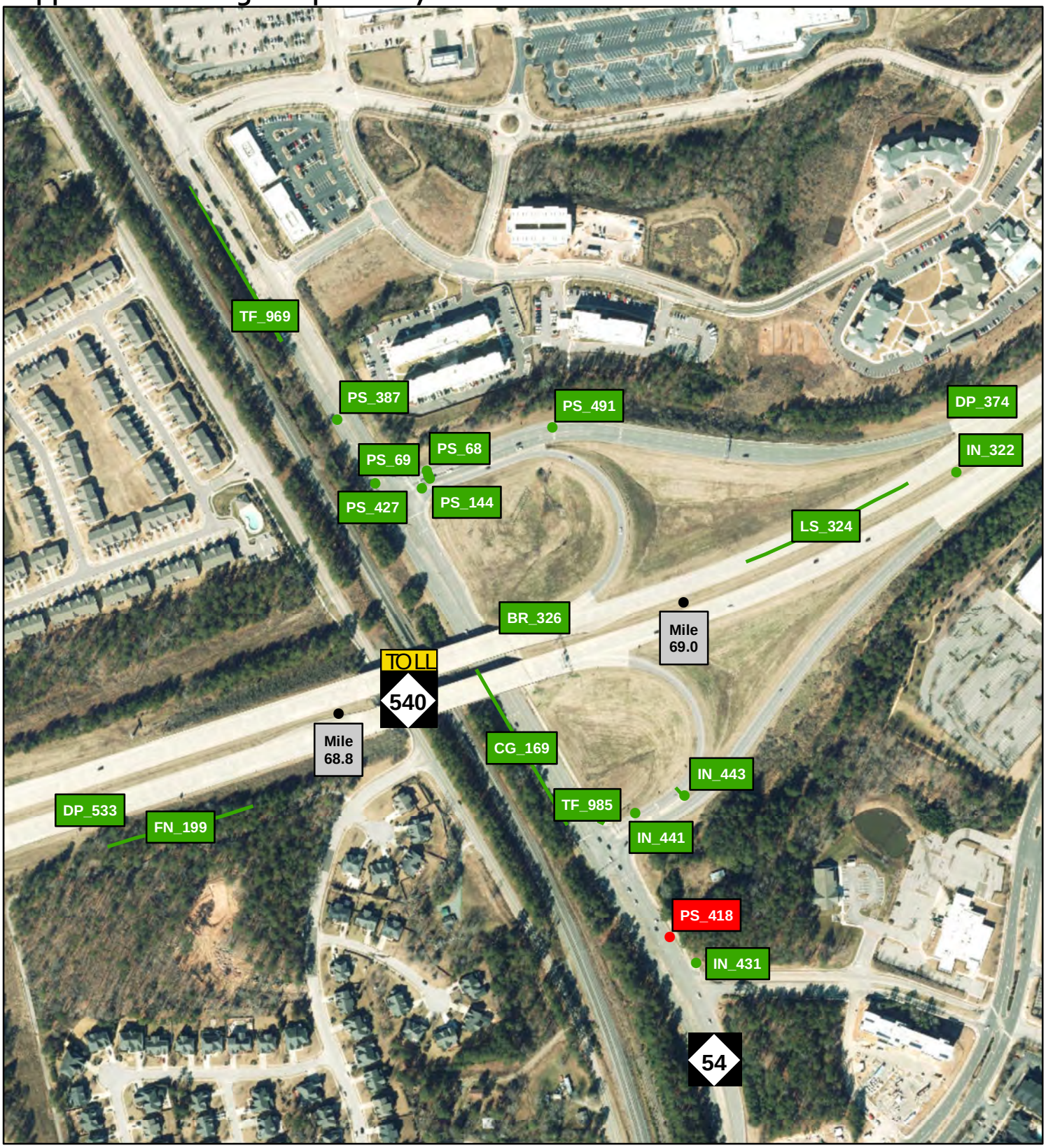

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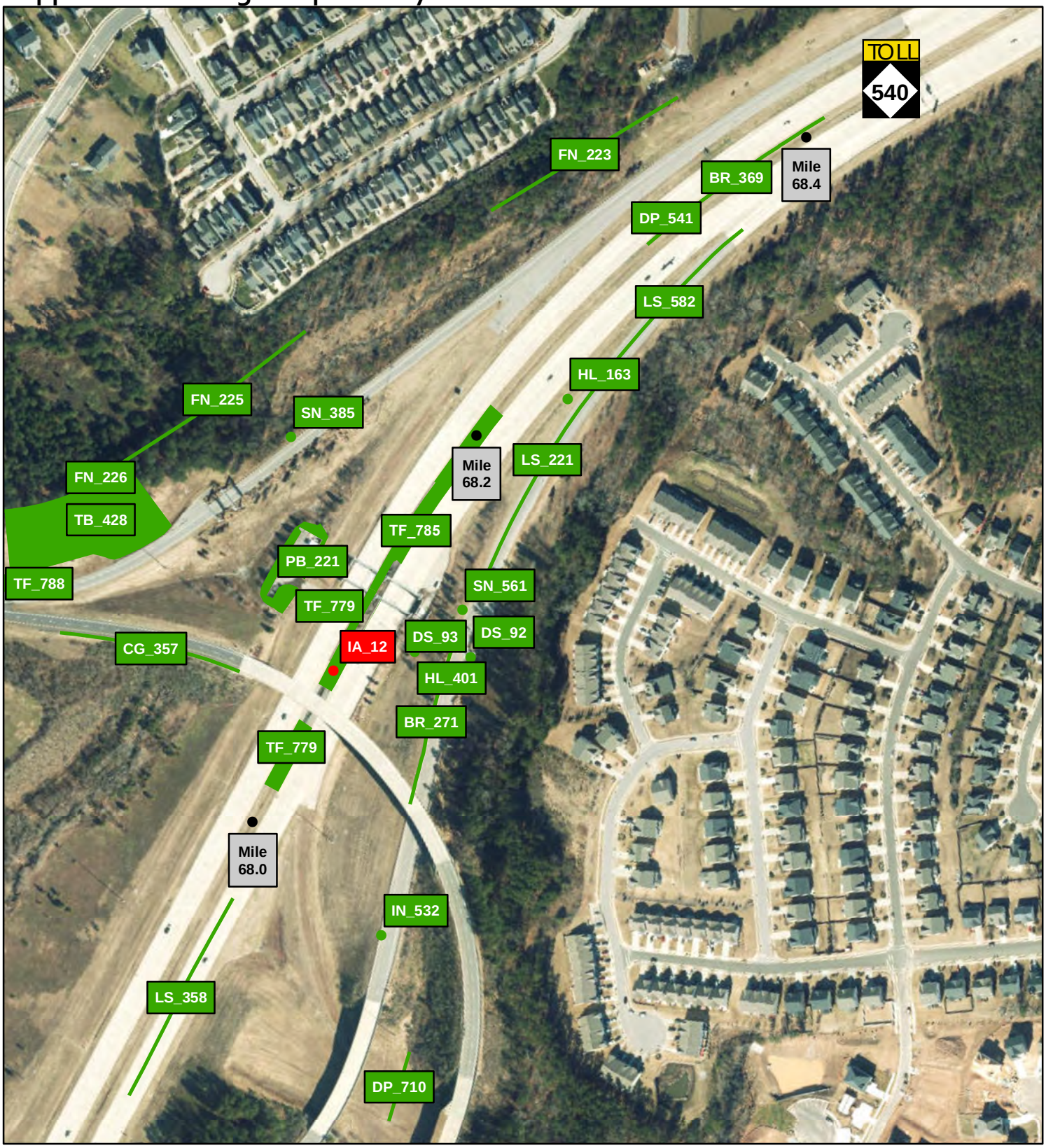

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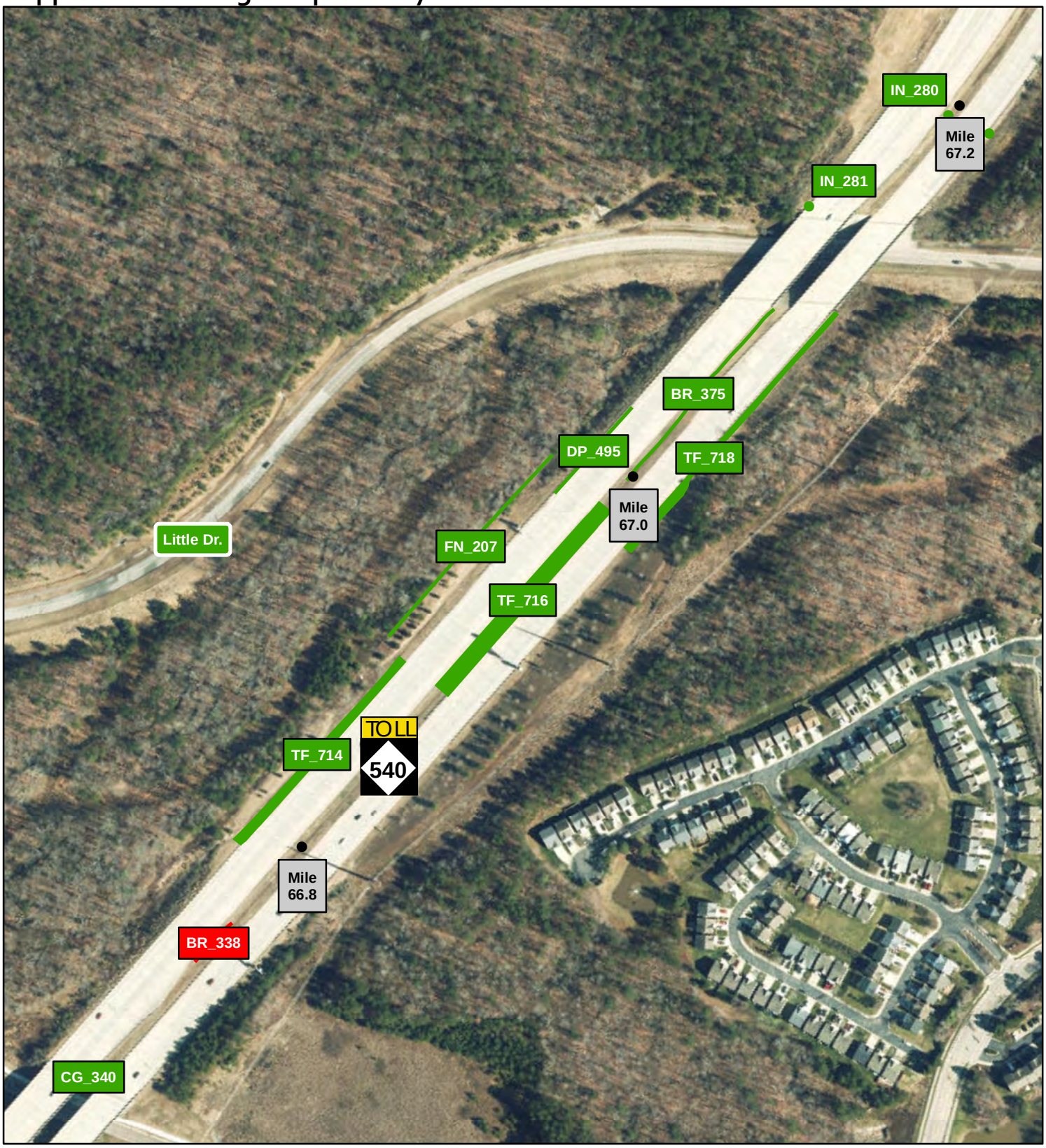

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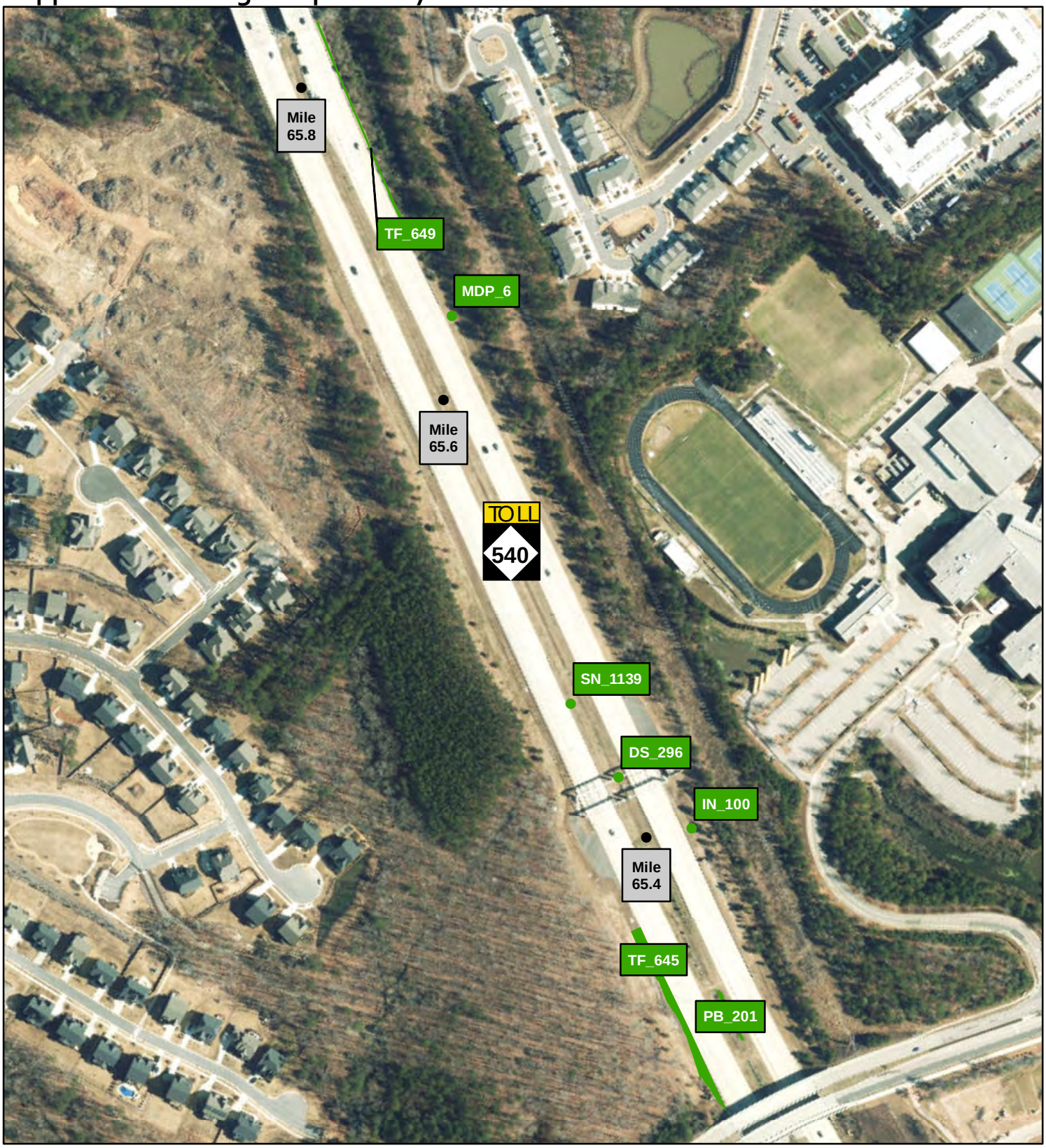

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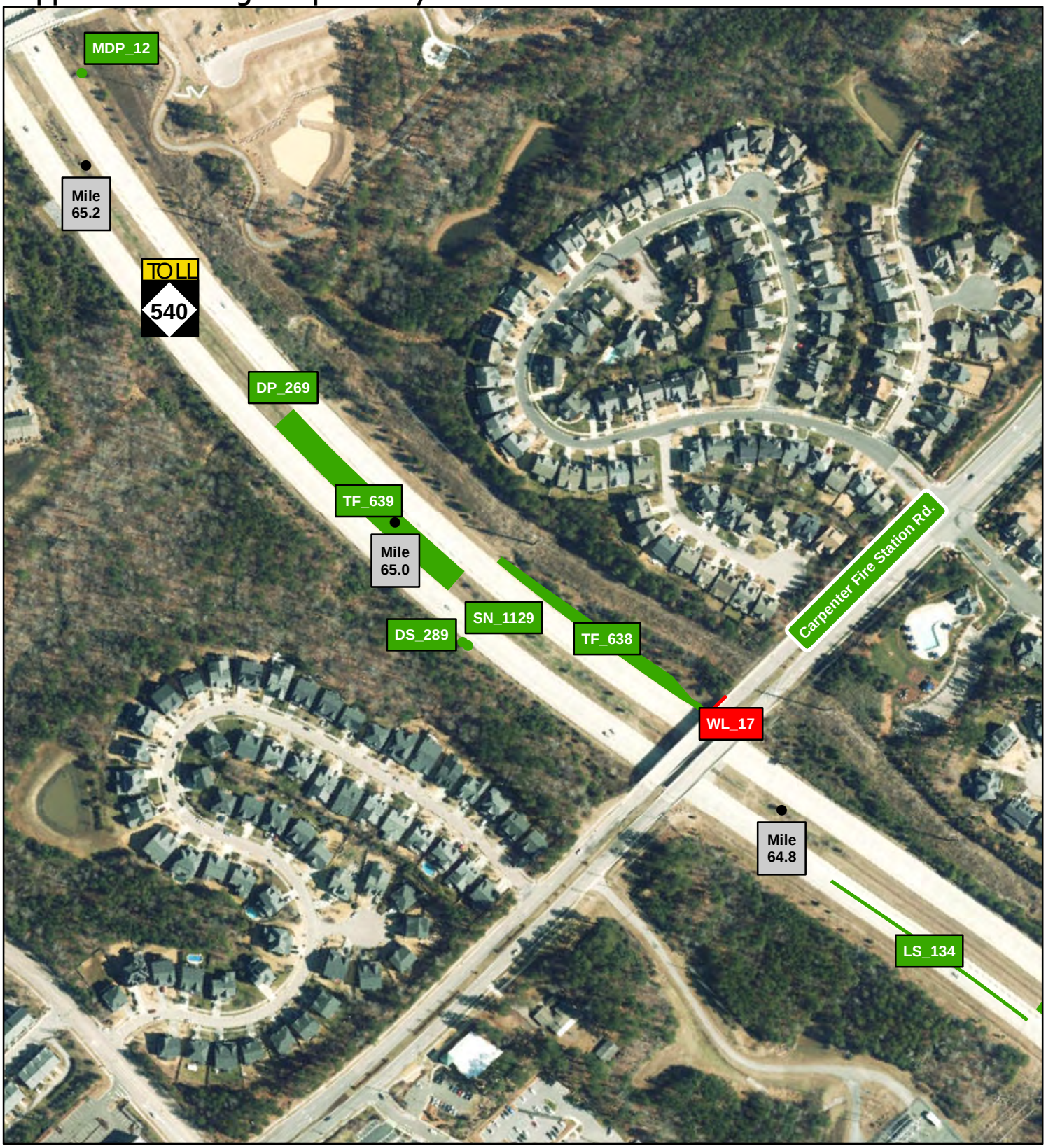

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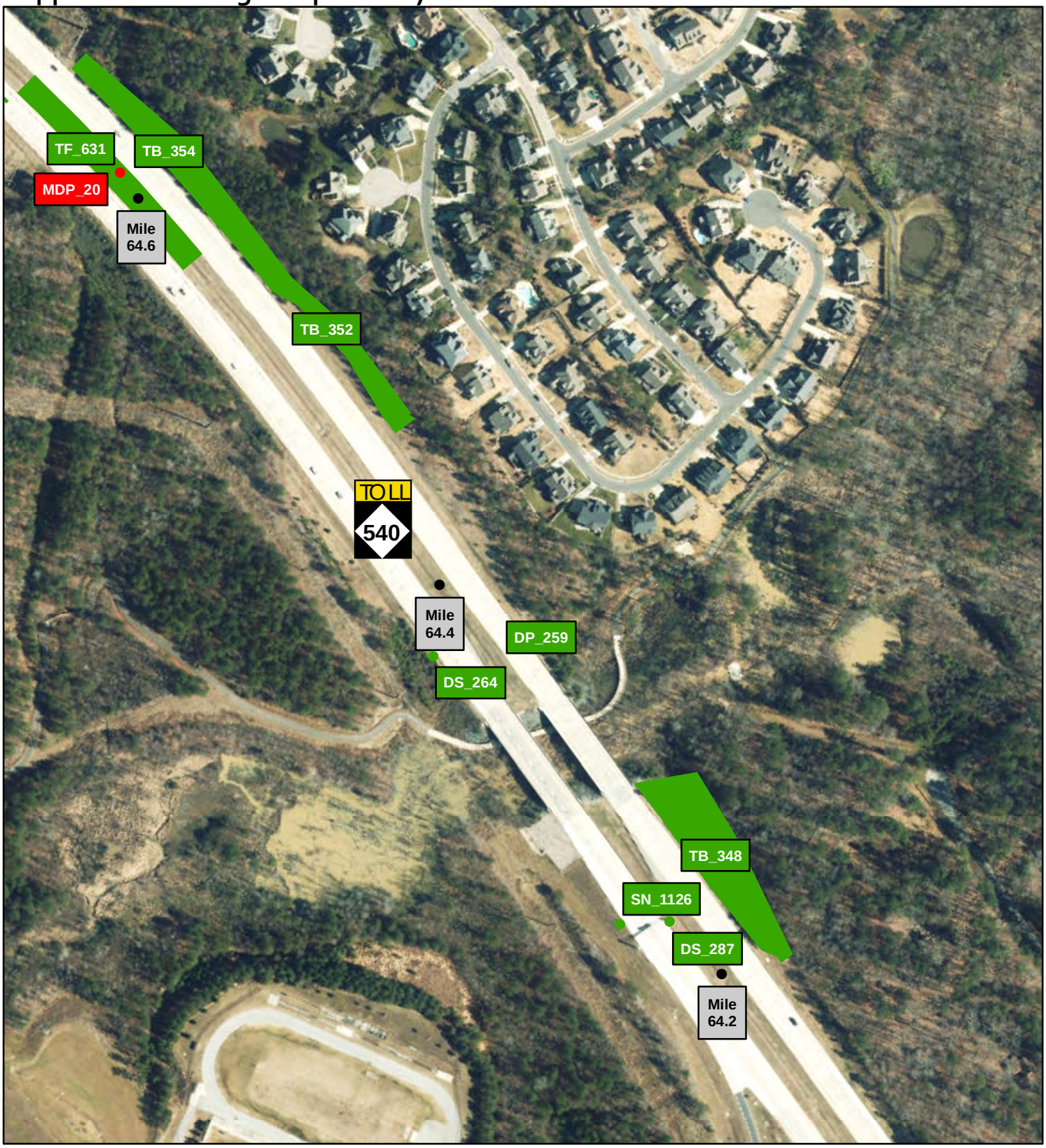

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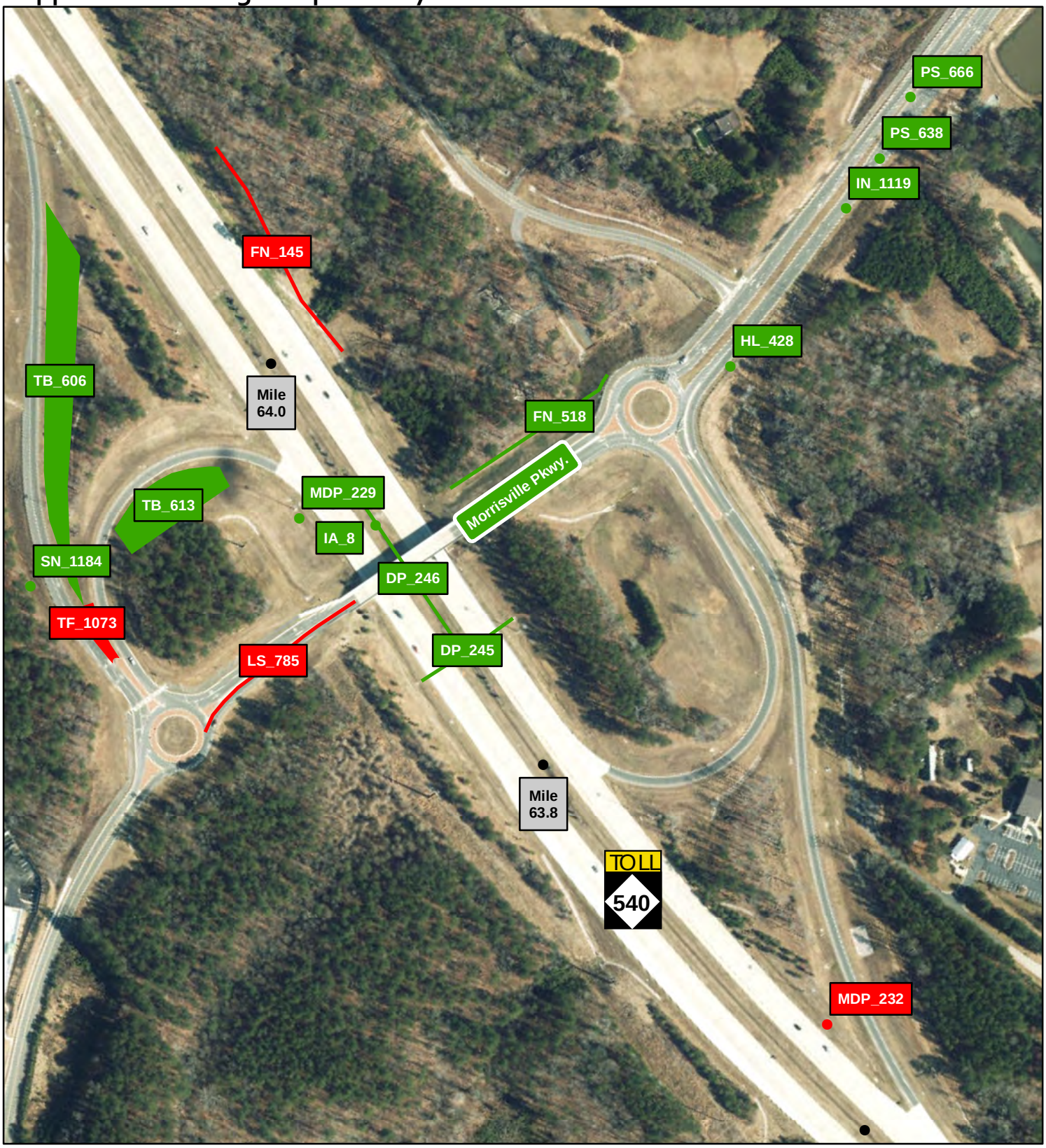

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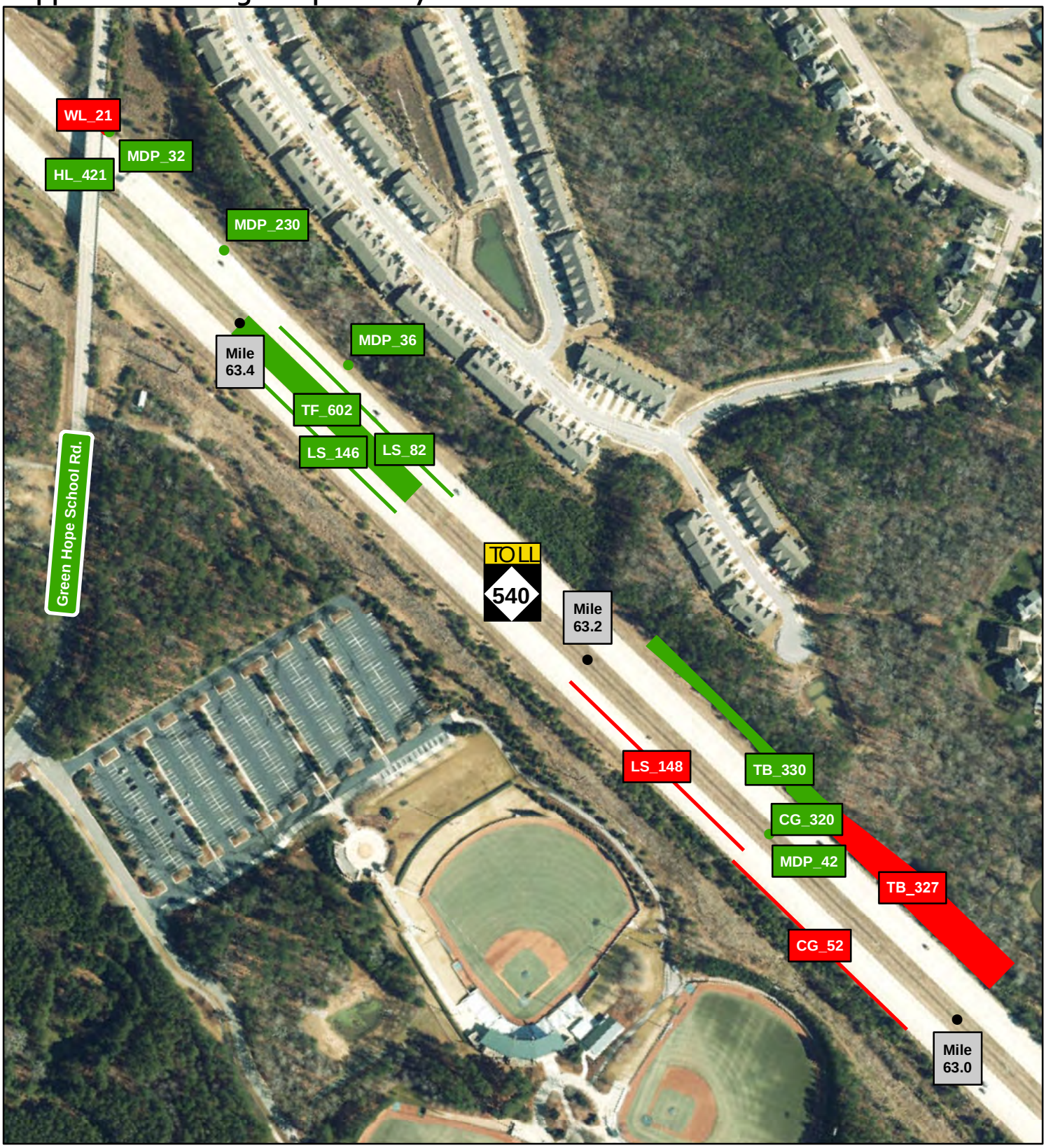

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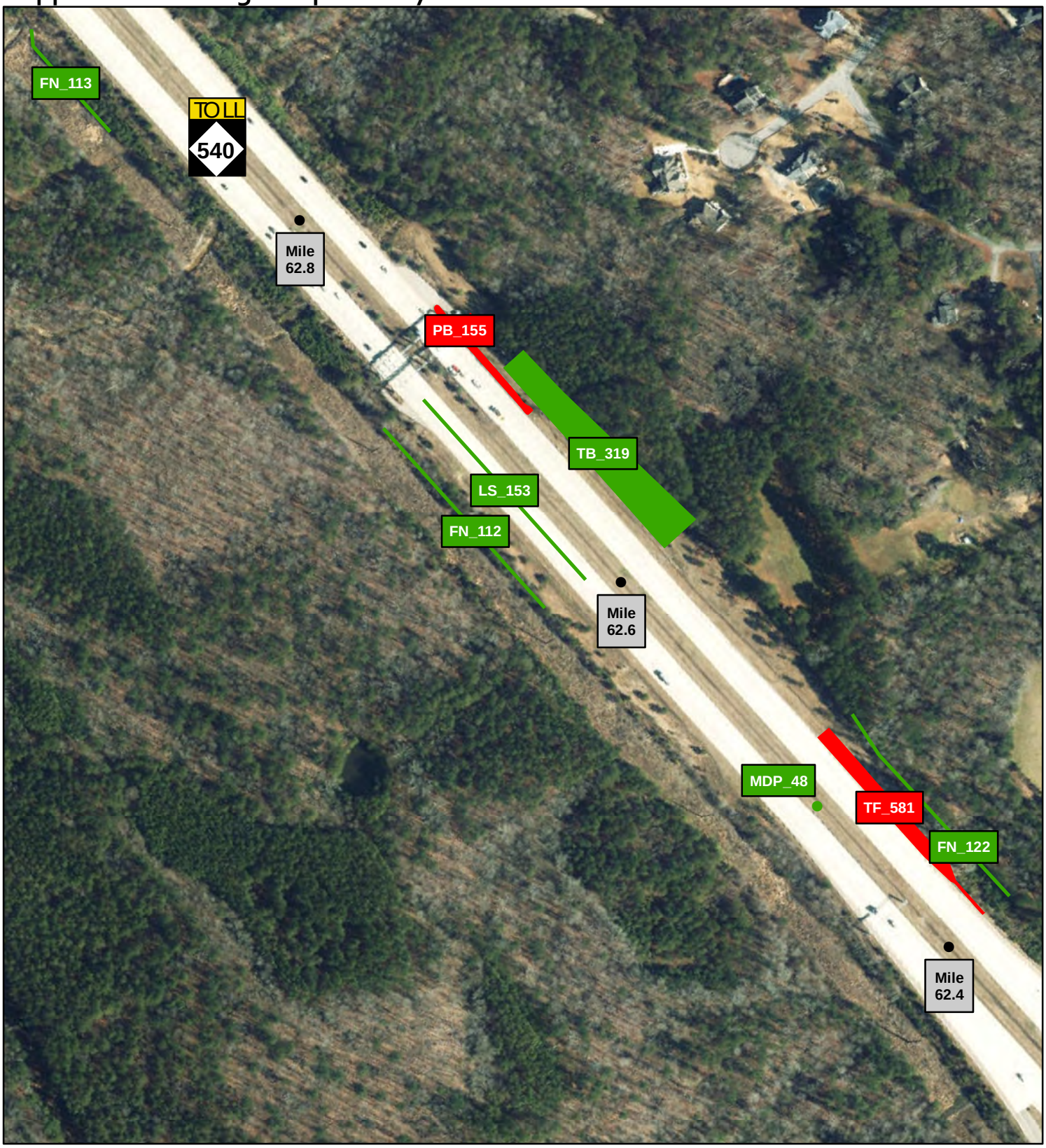

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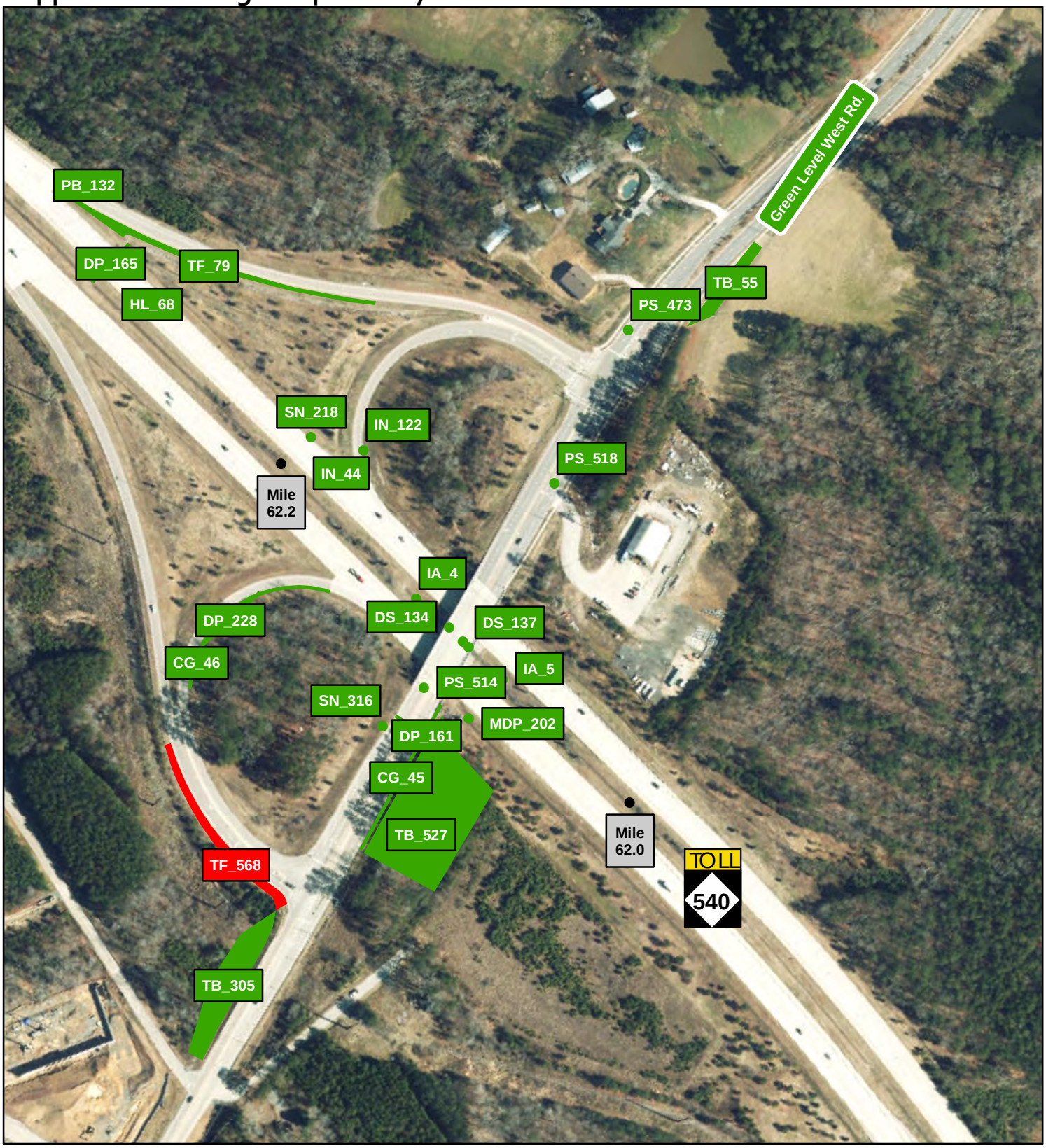

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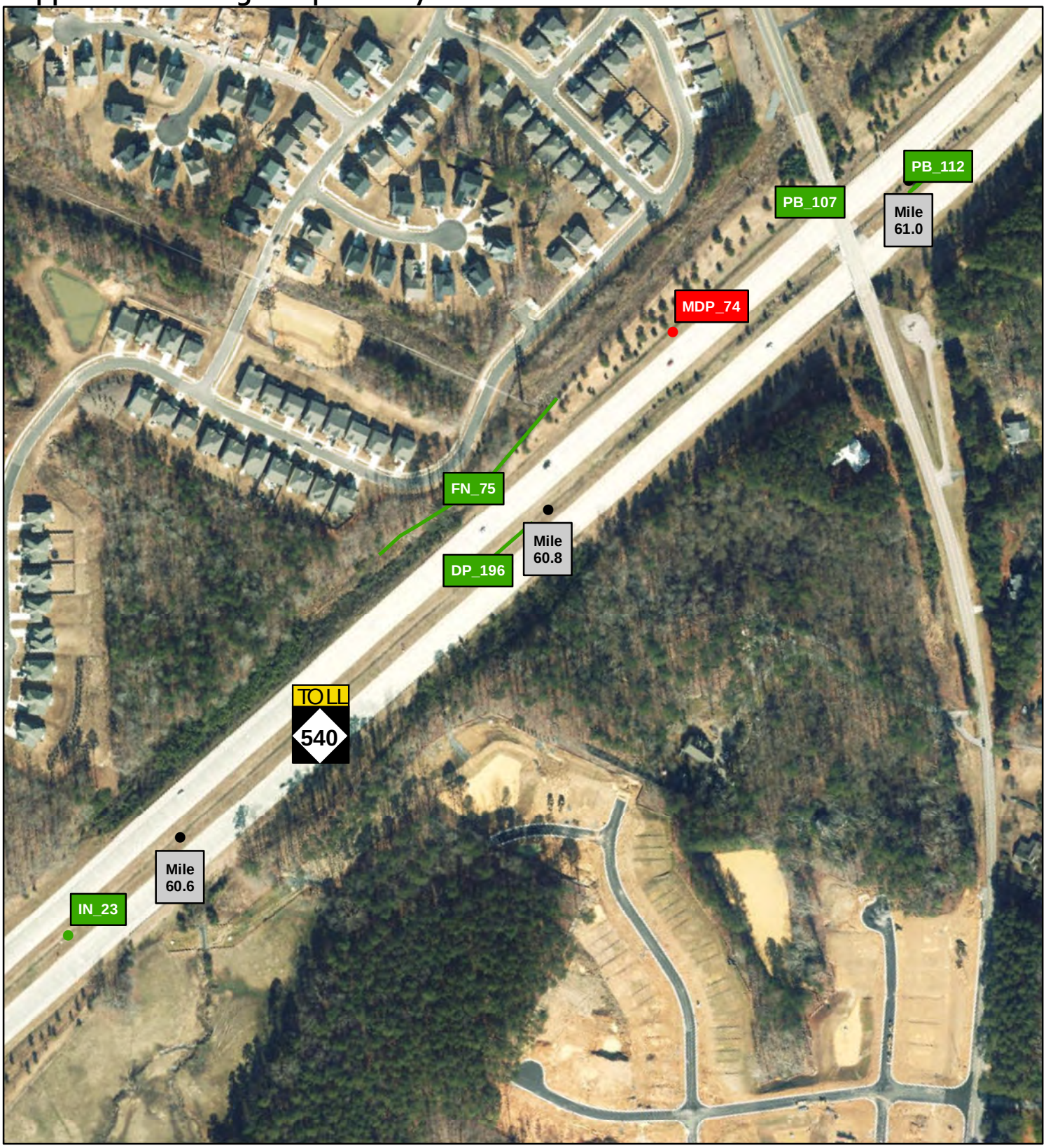

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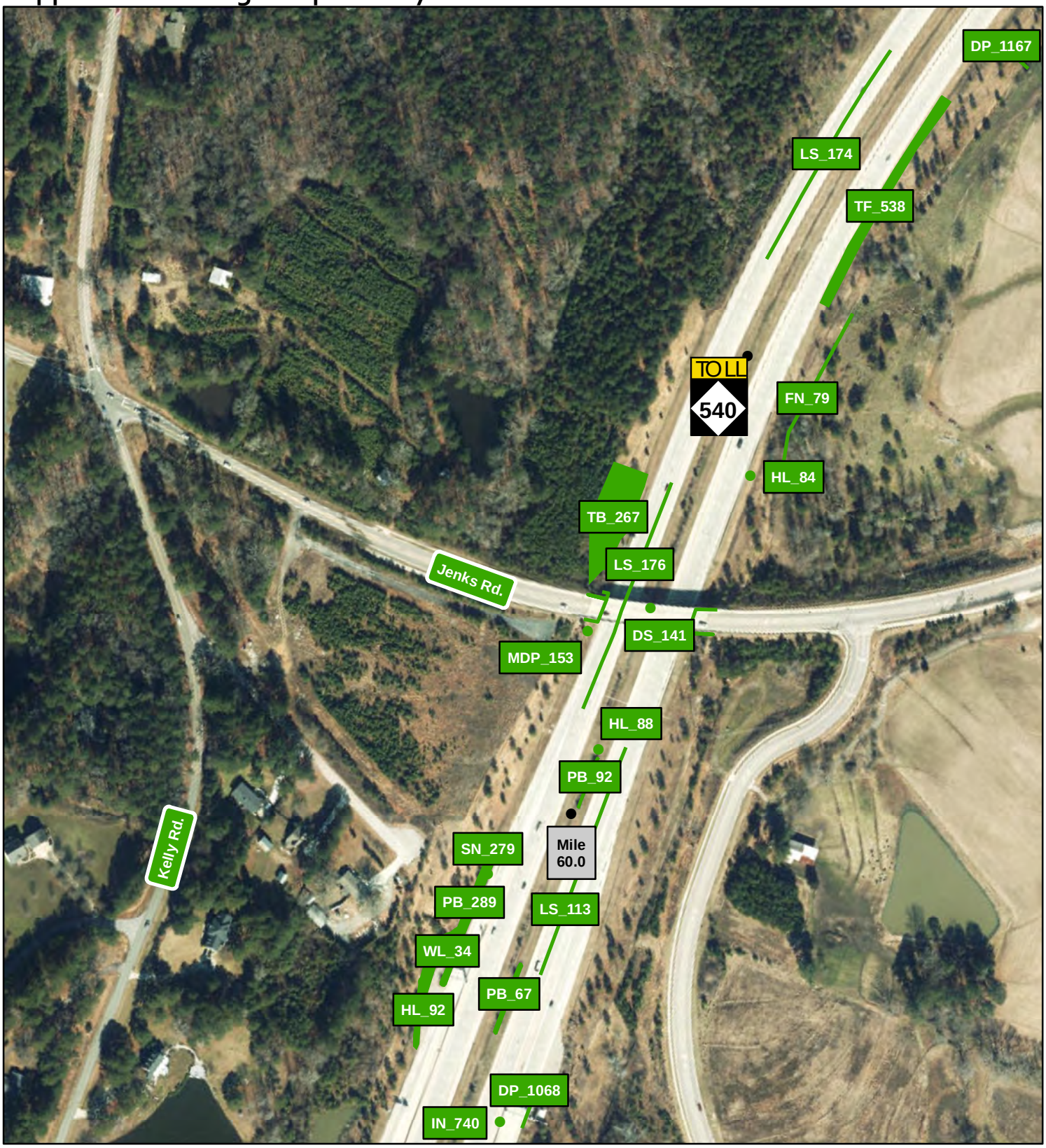

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NORTH CAROLINA Turnpike Authority

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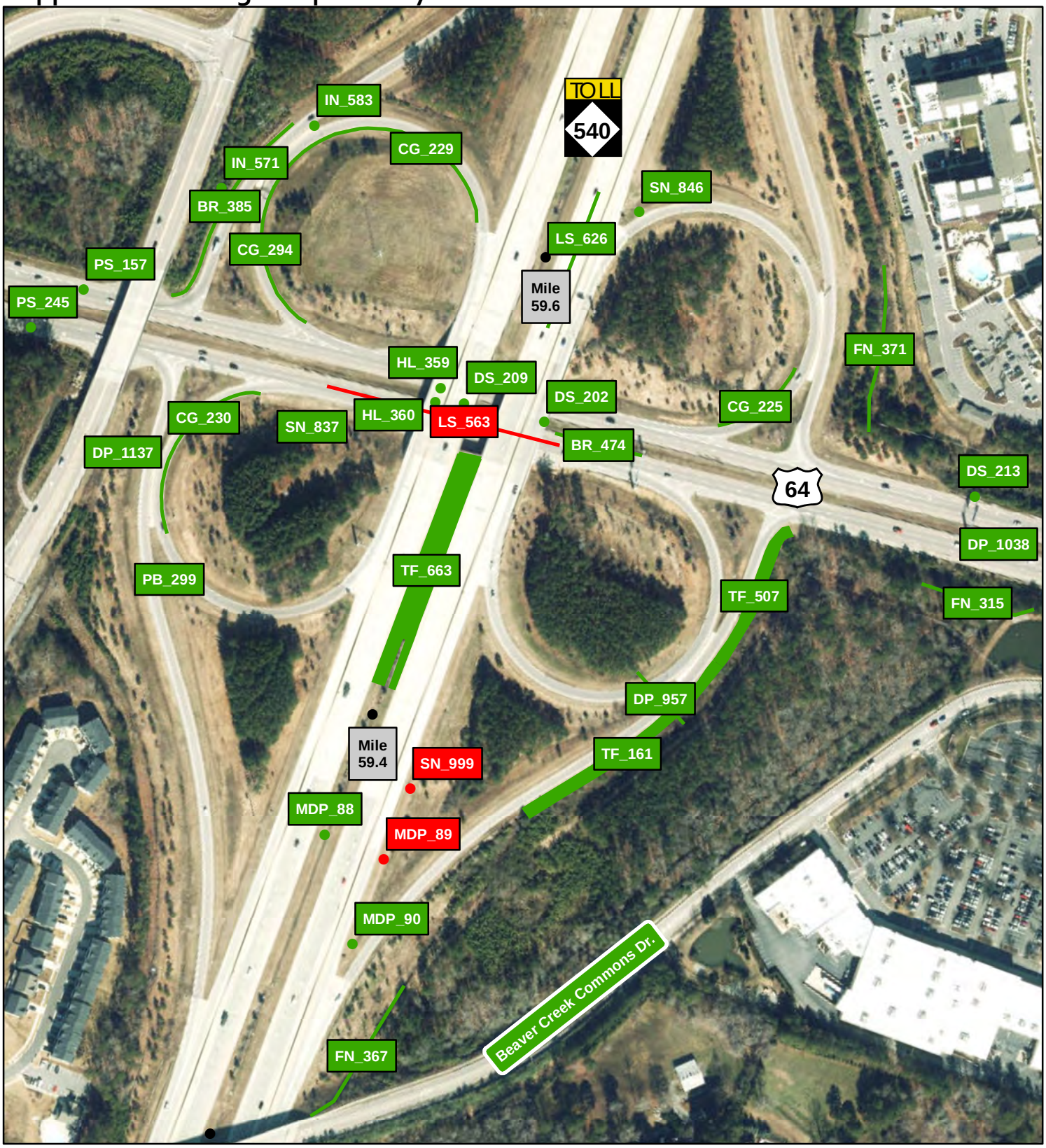

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Failing Asset

Passing Asset

NORTH CAROLINA Turnpike Authority

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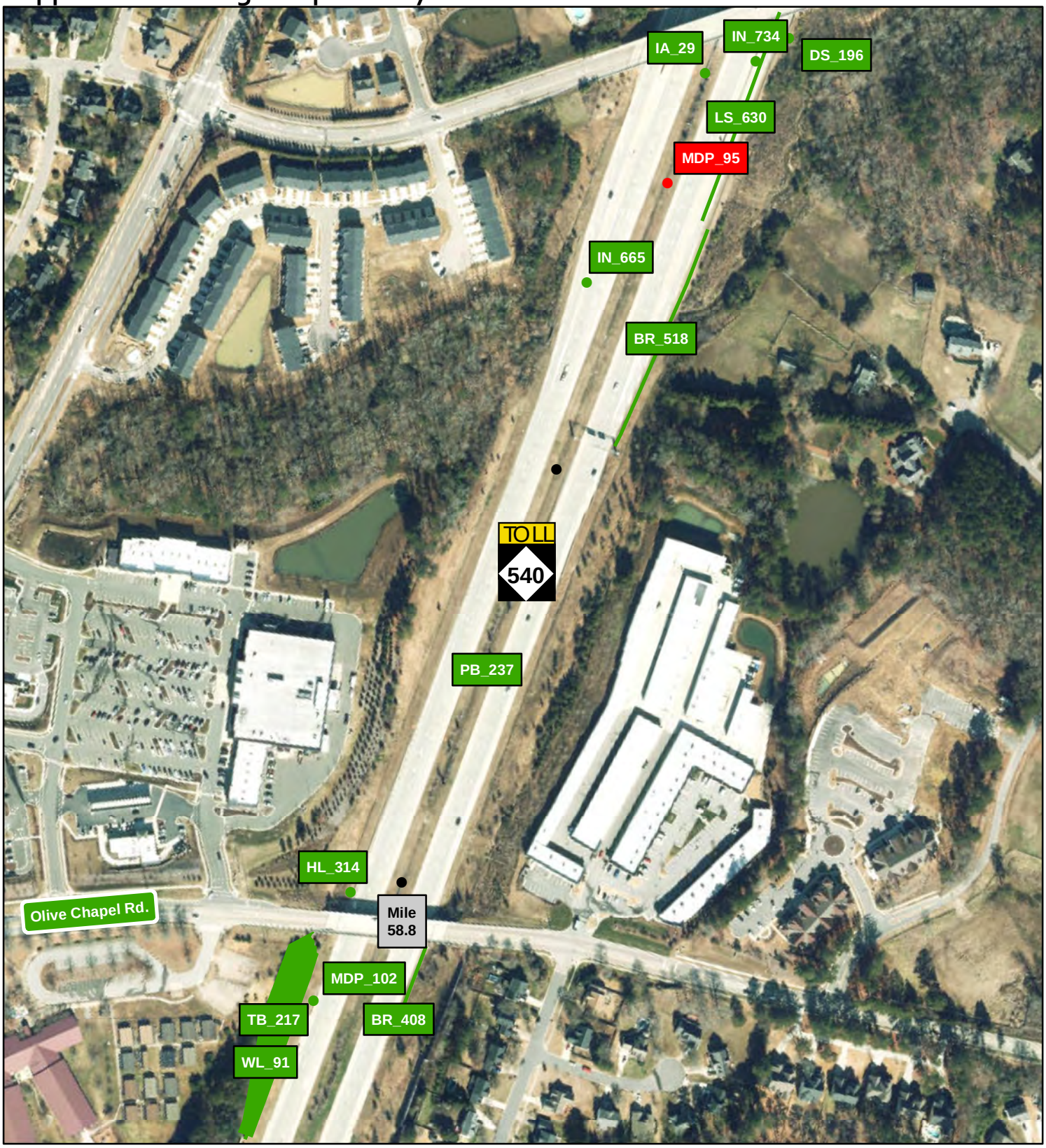

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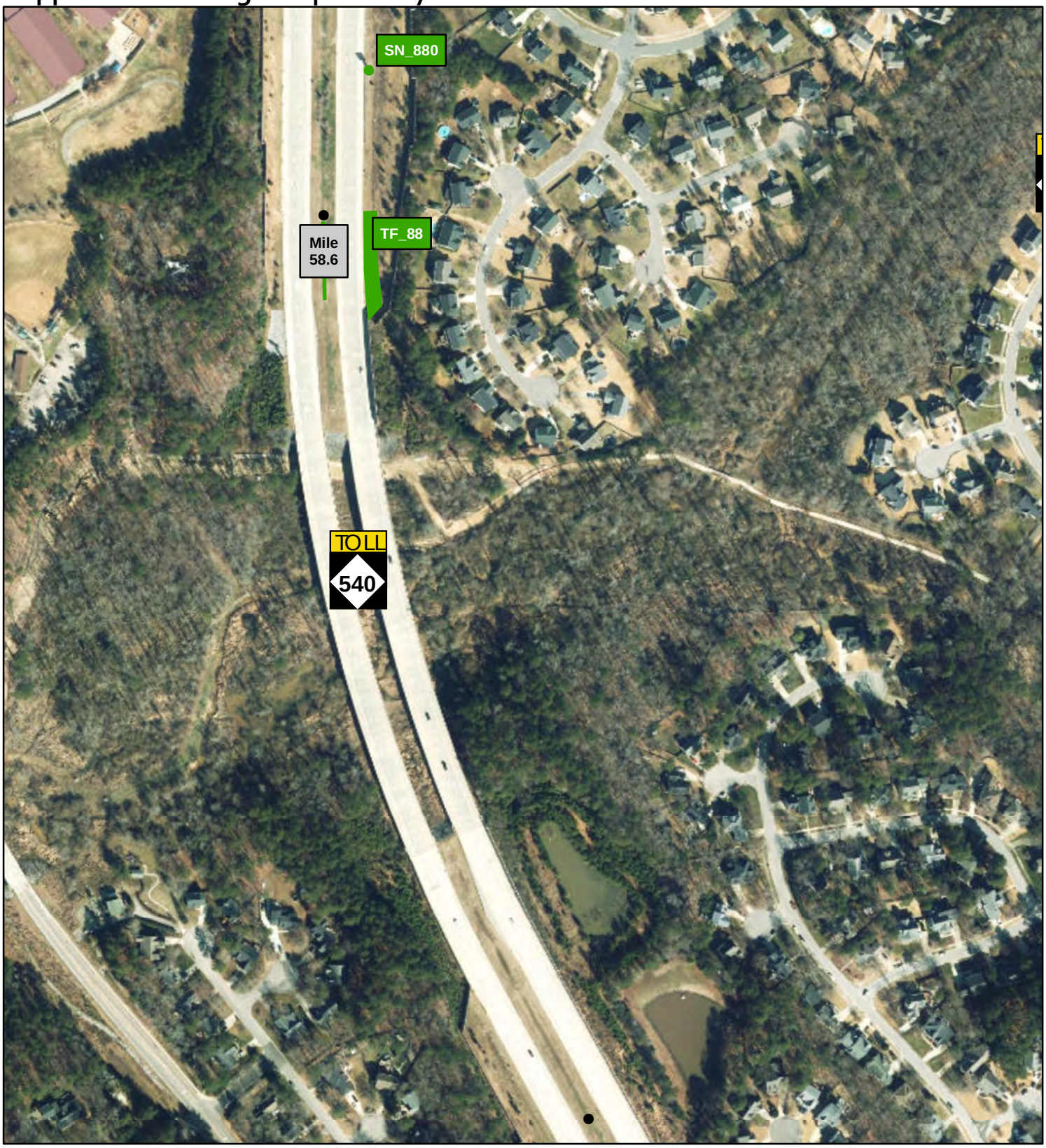

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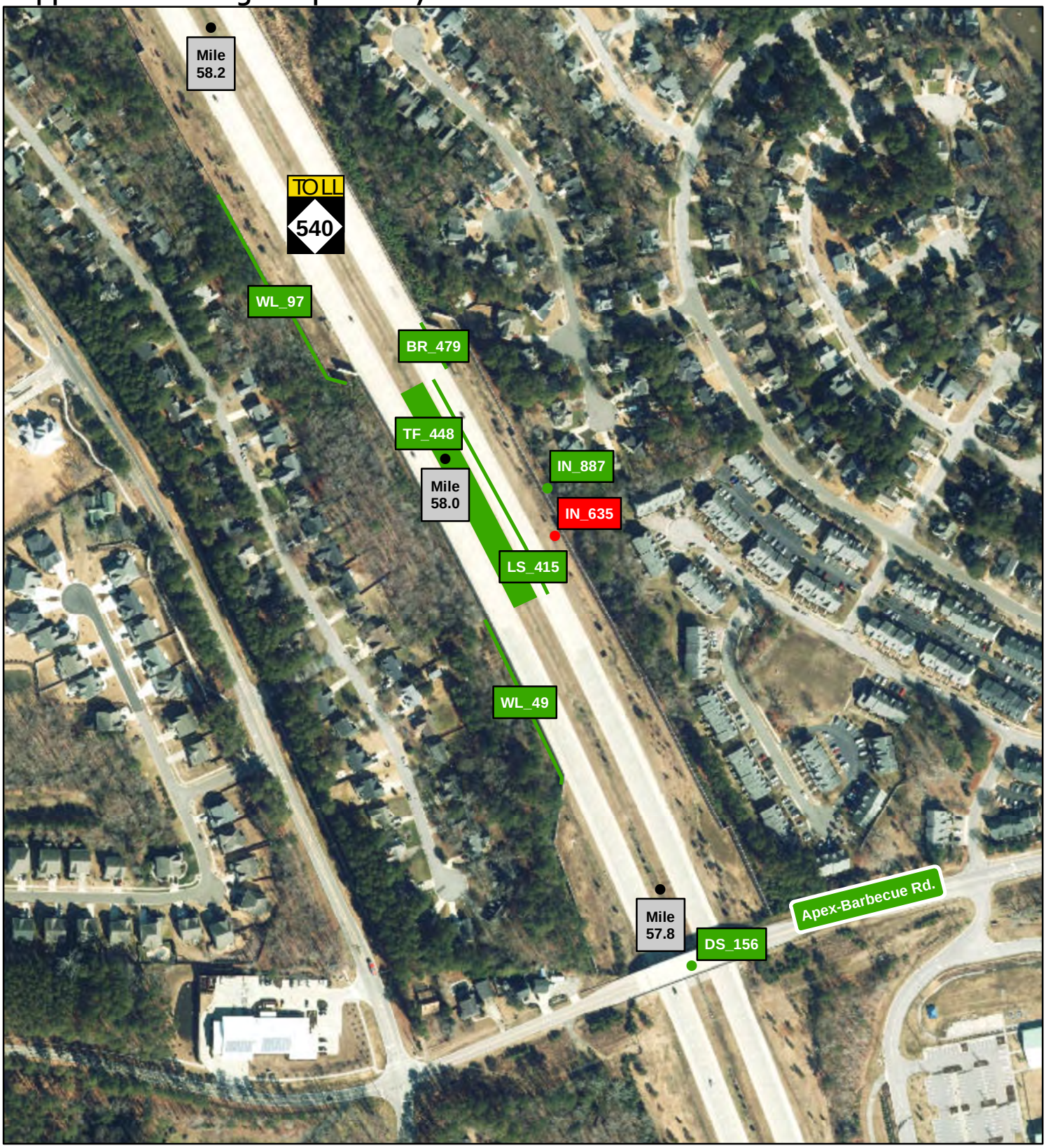

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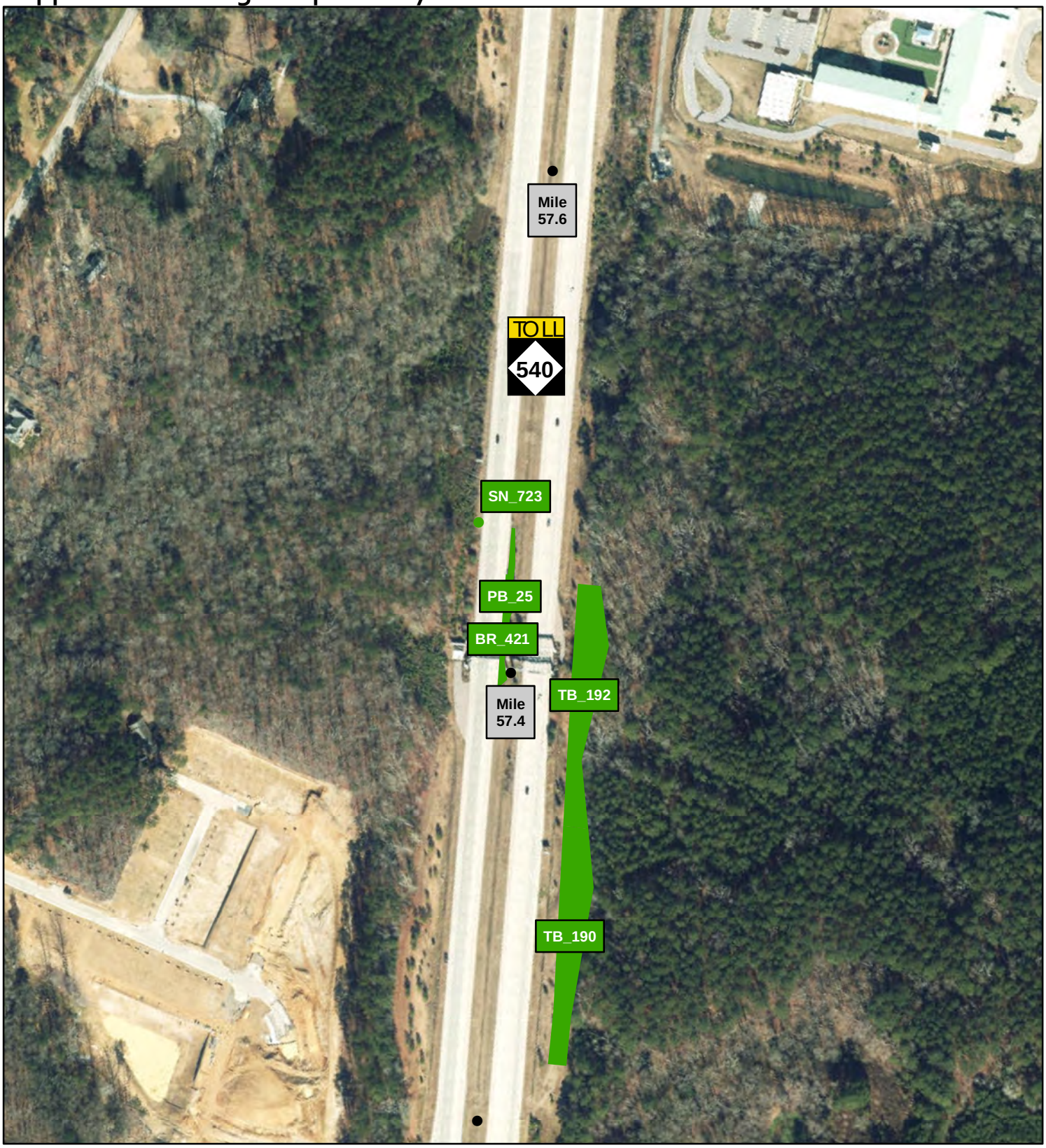

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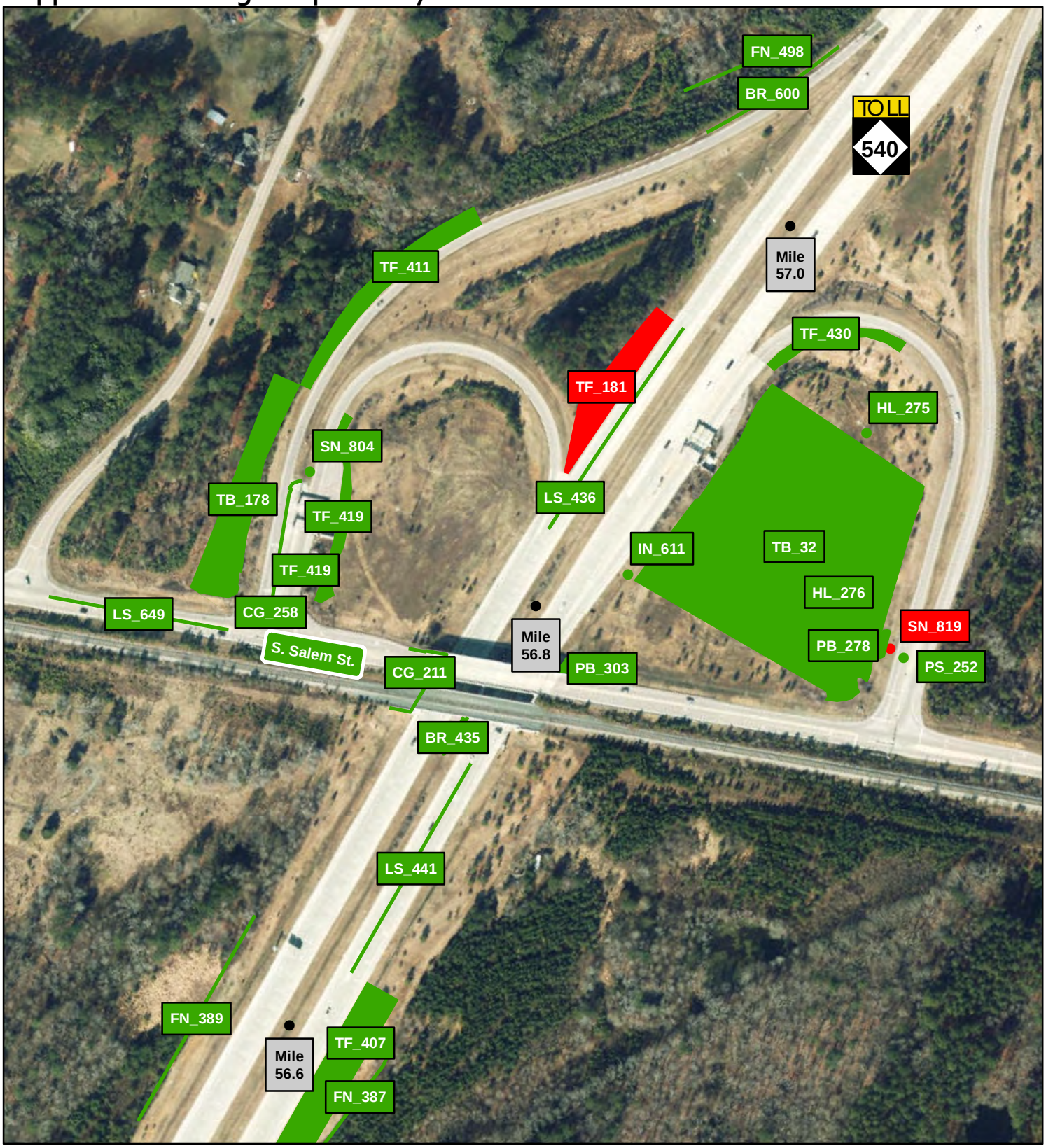

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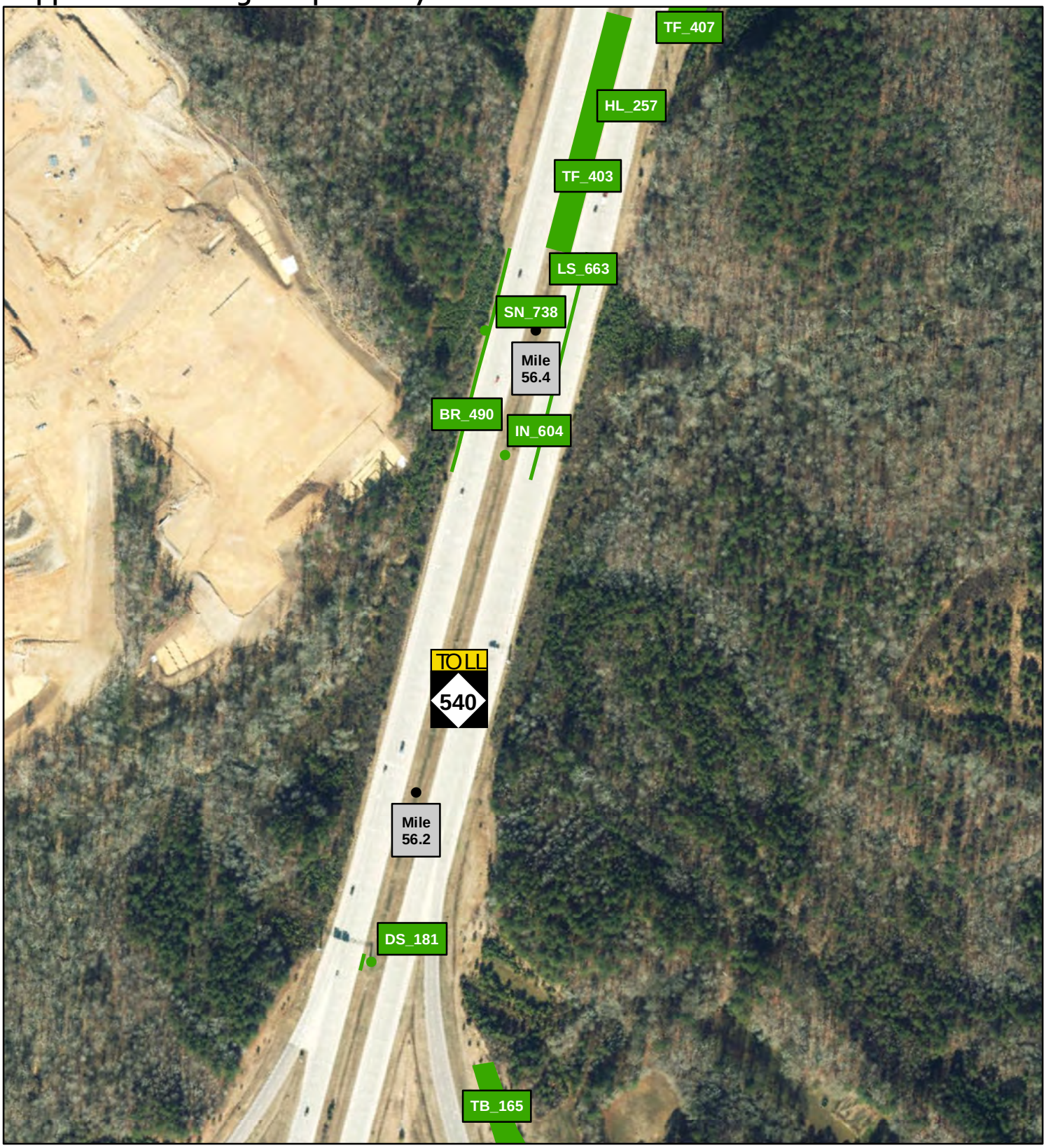

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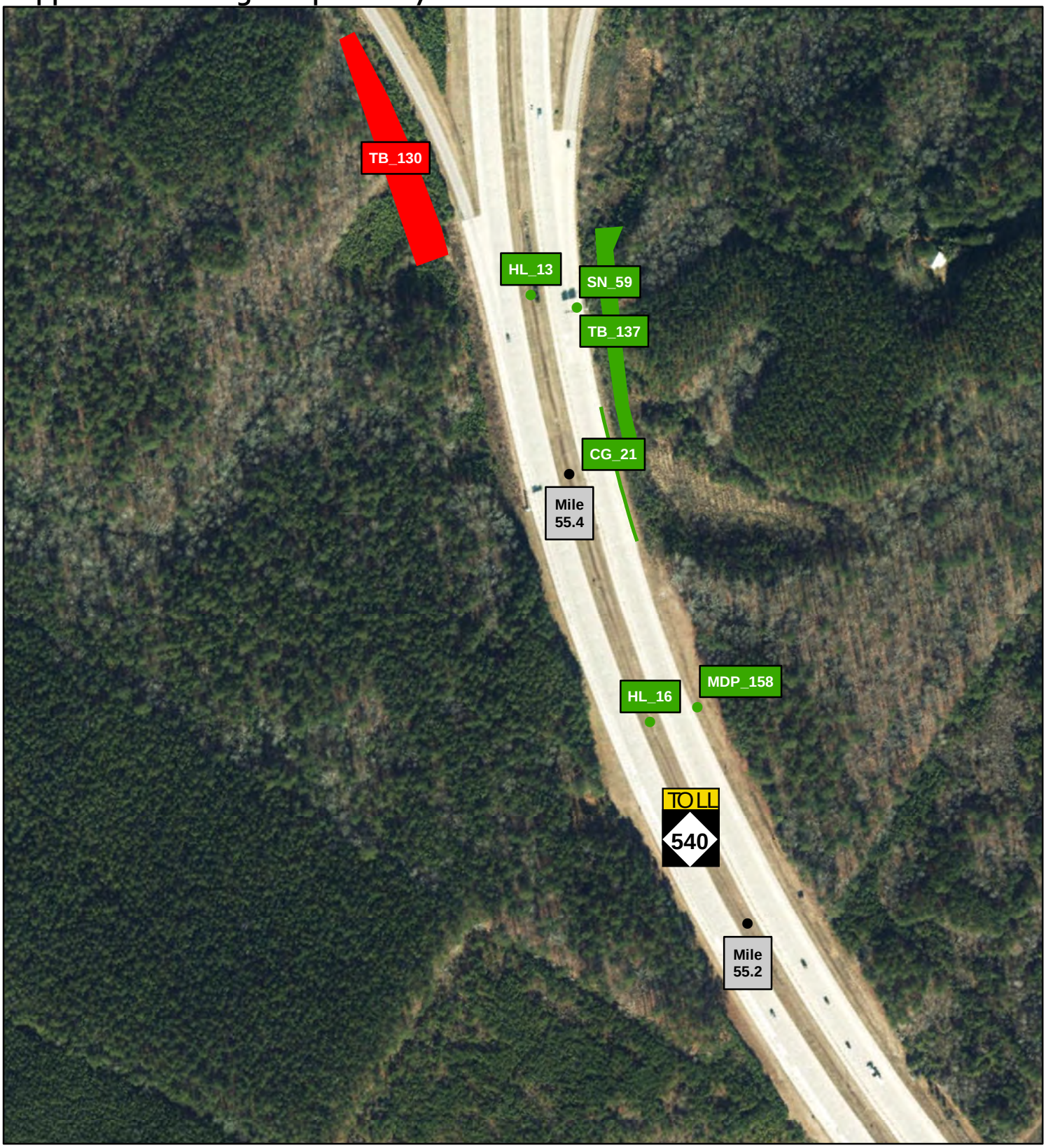

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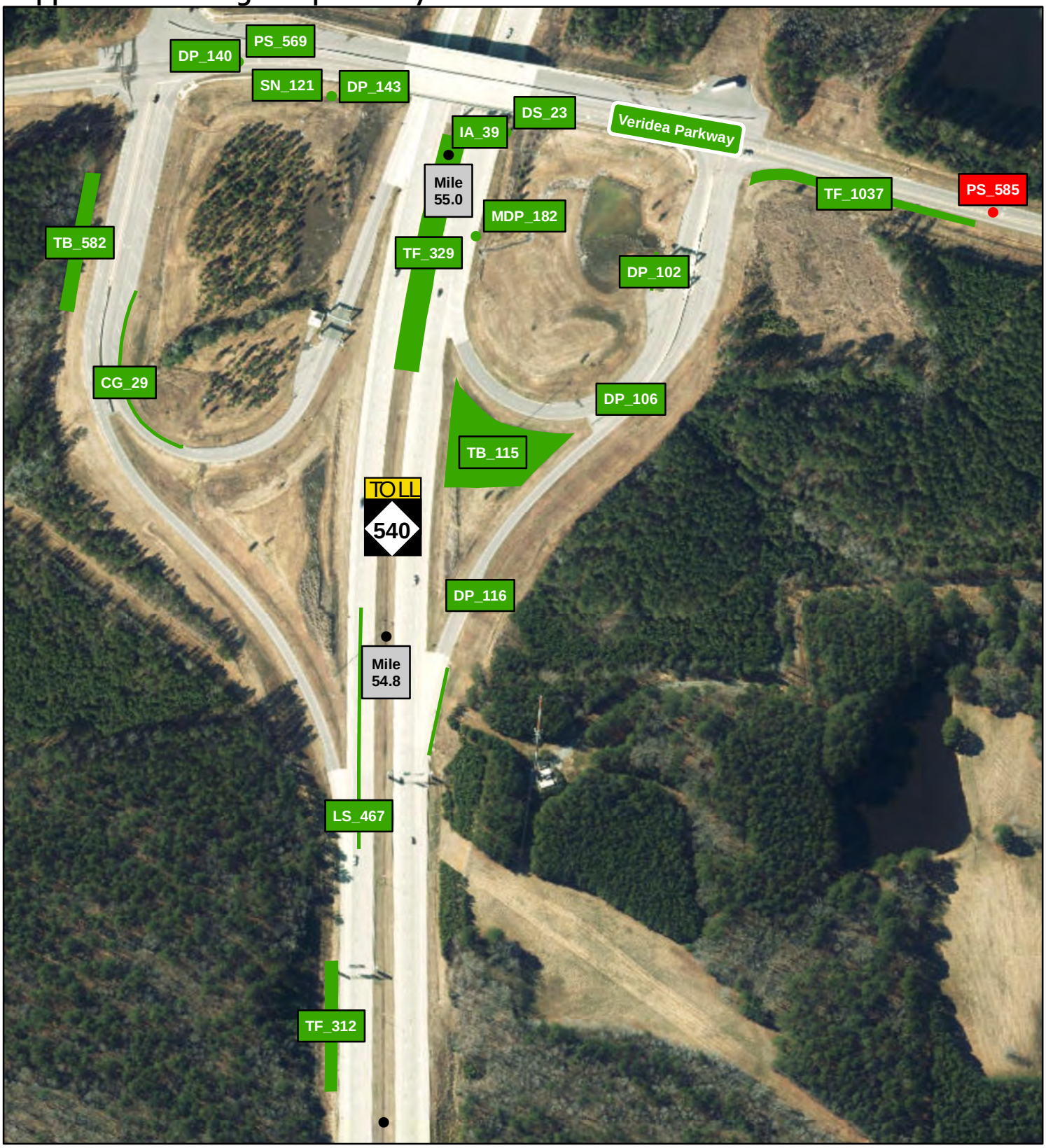

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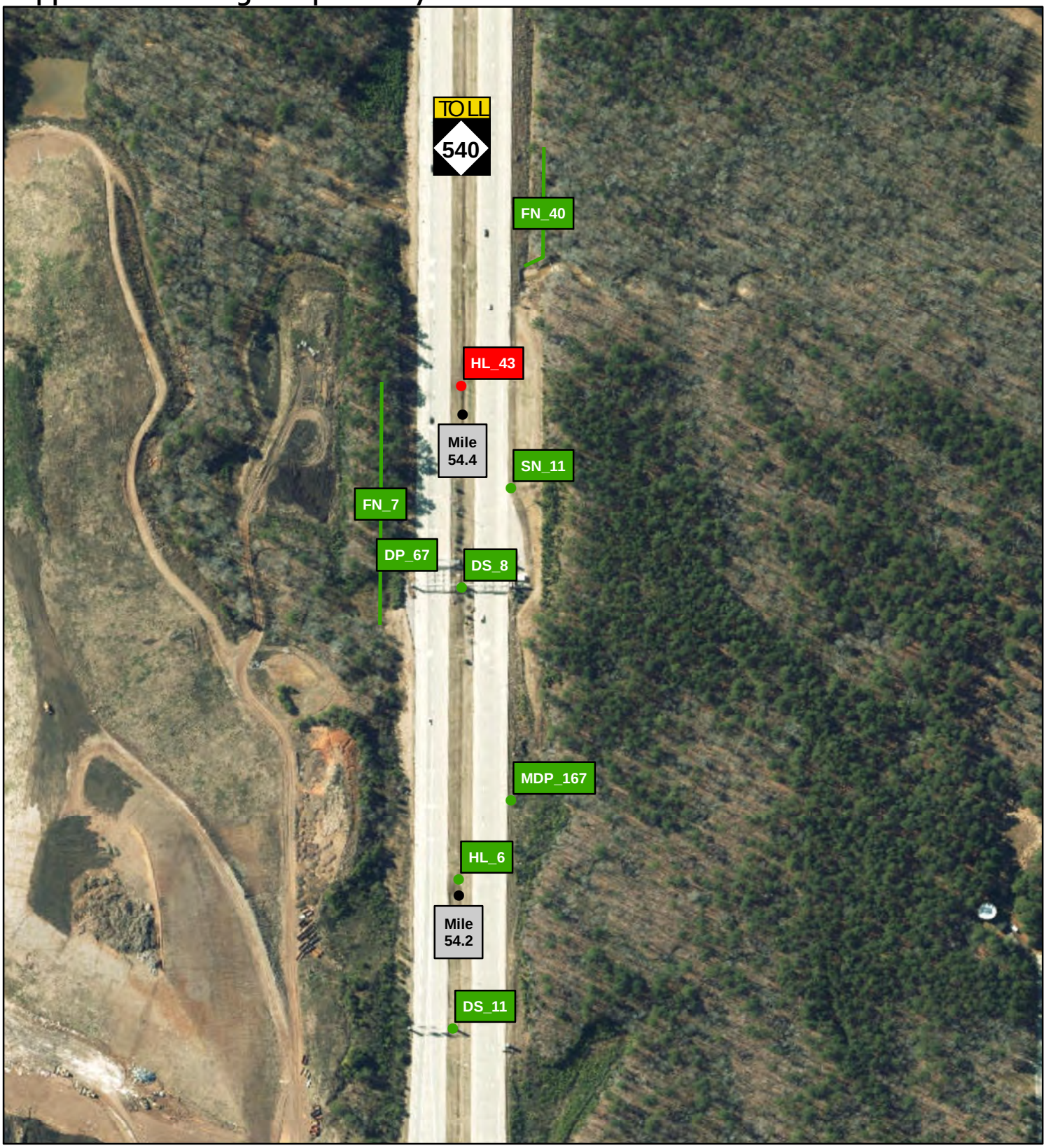

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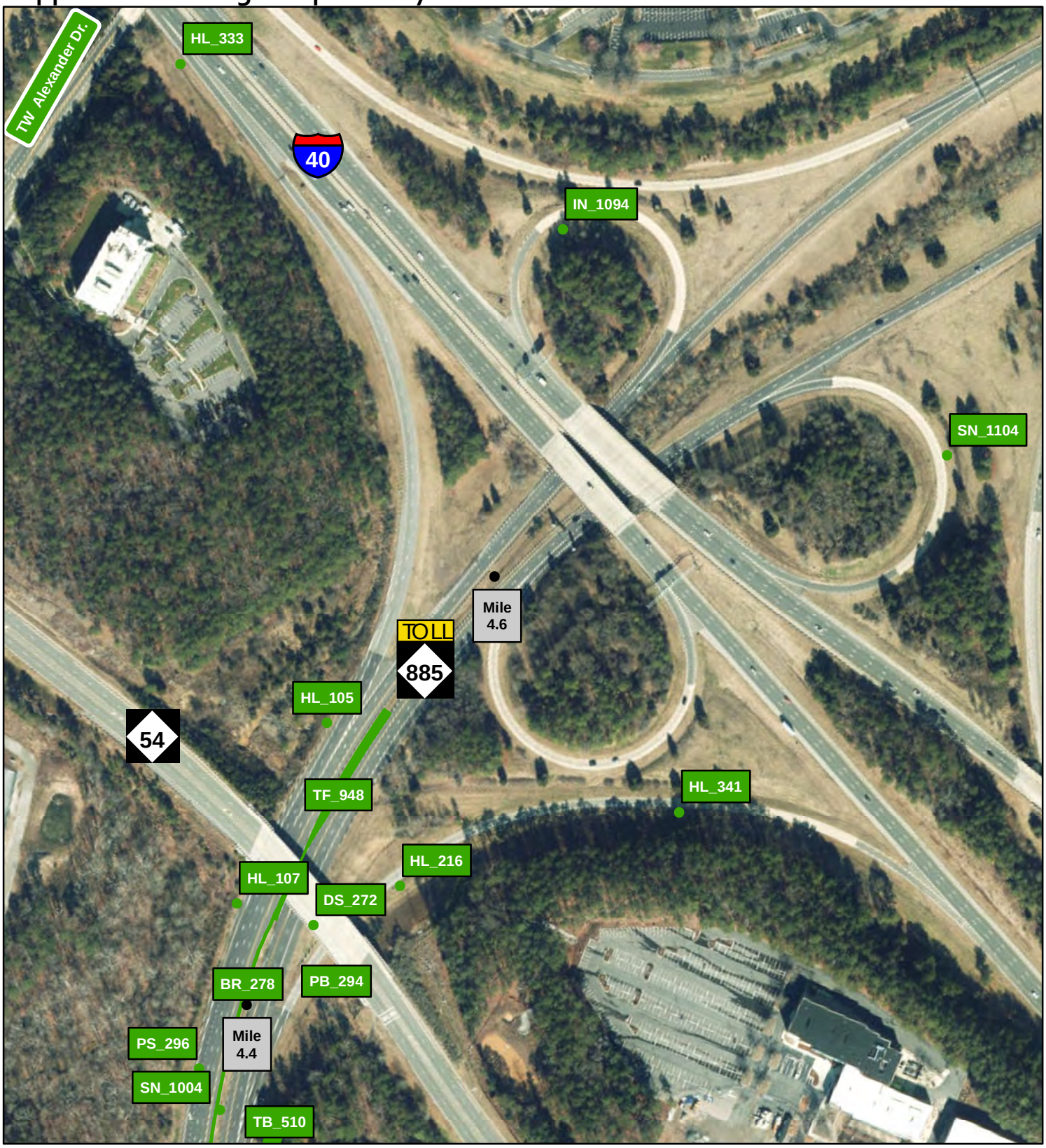

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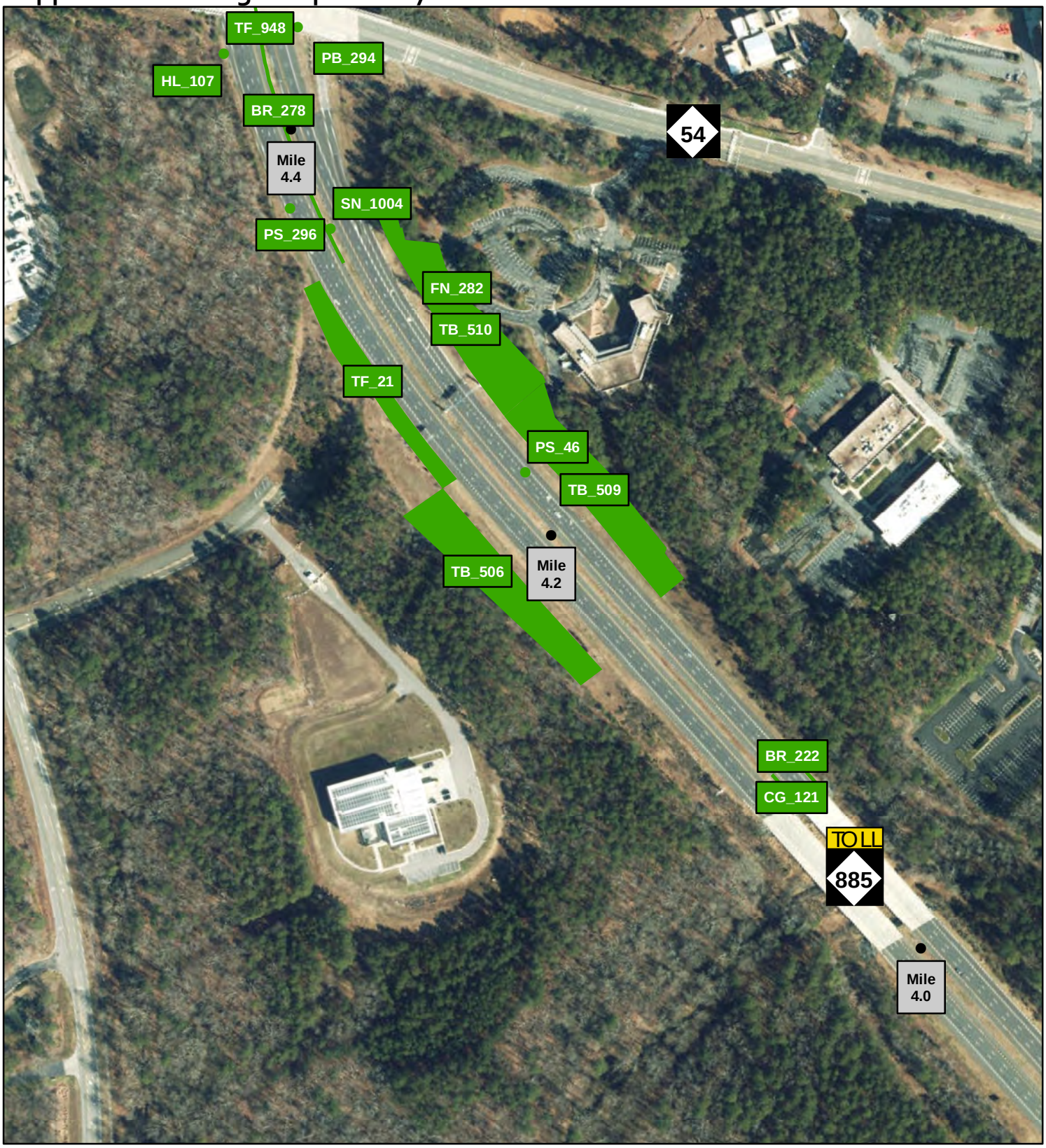

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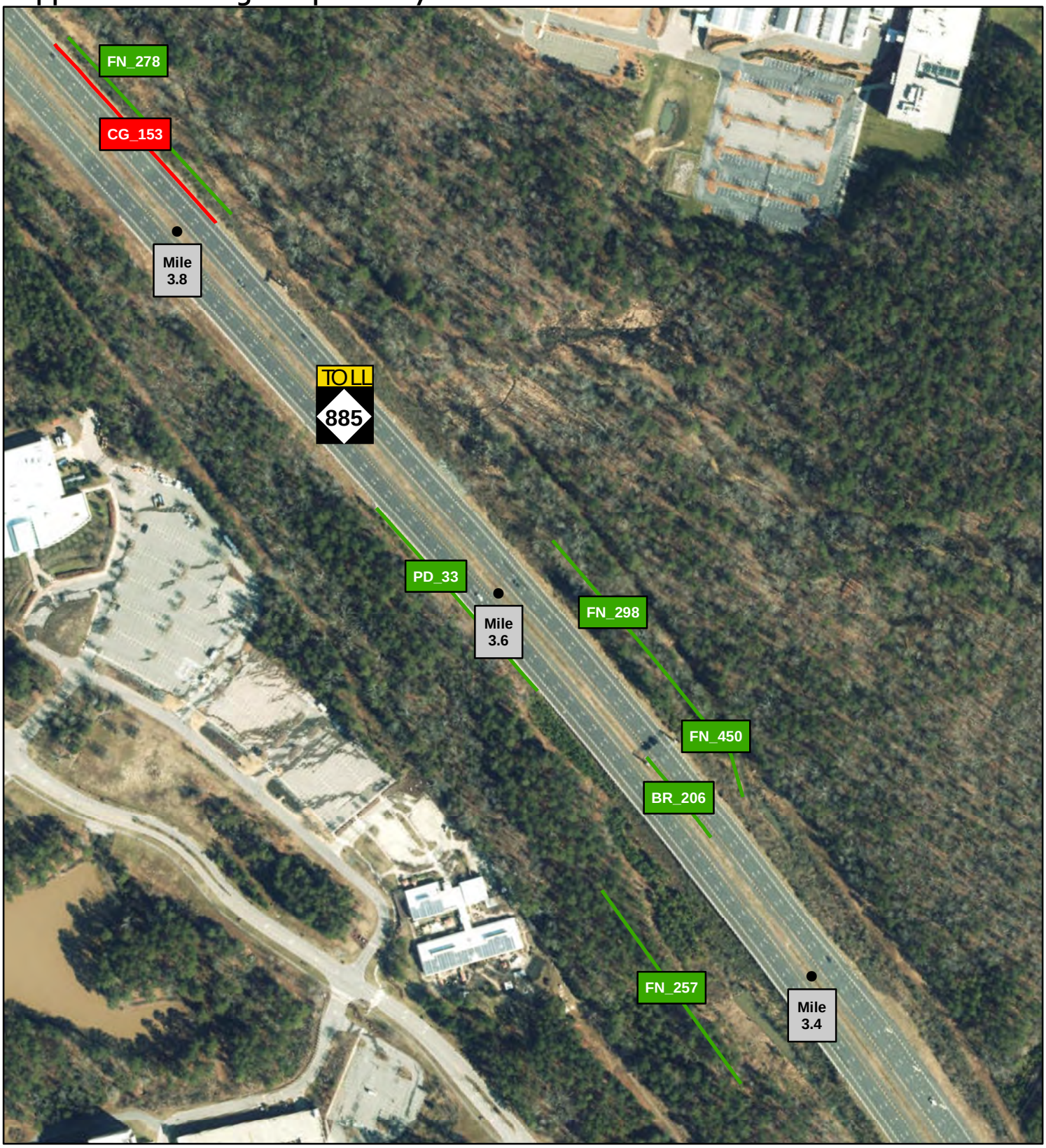

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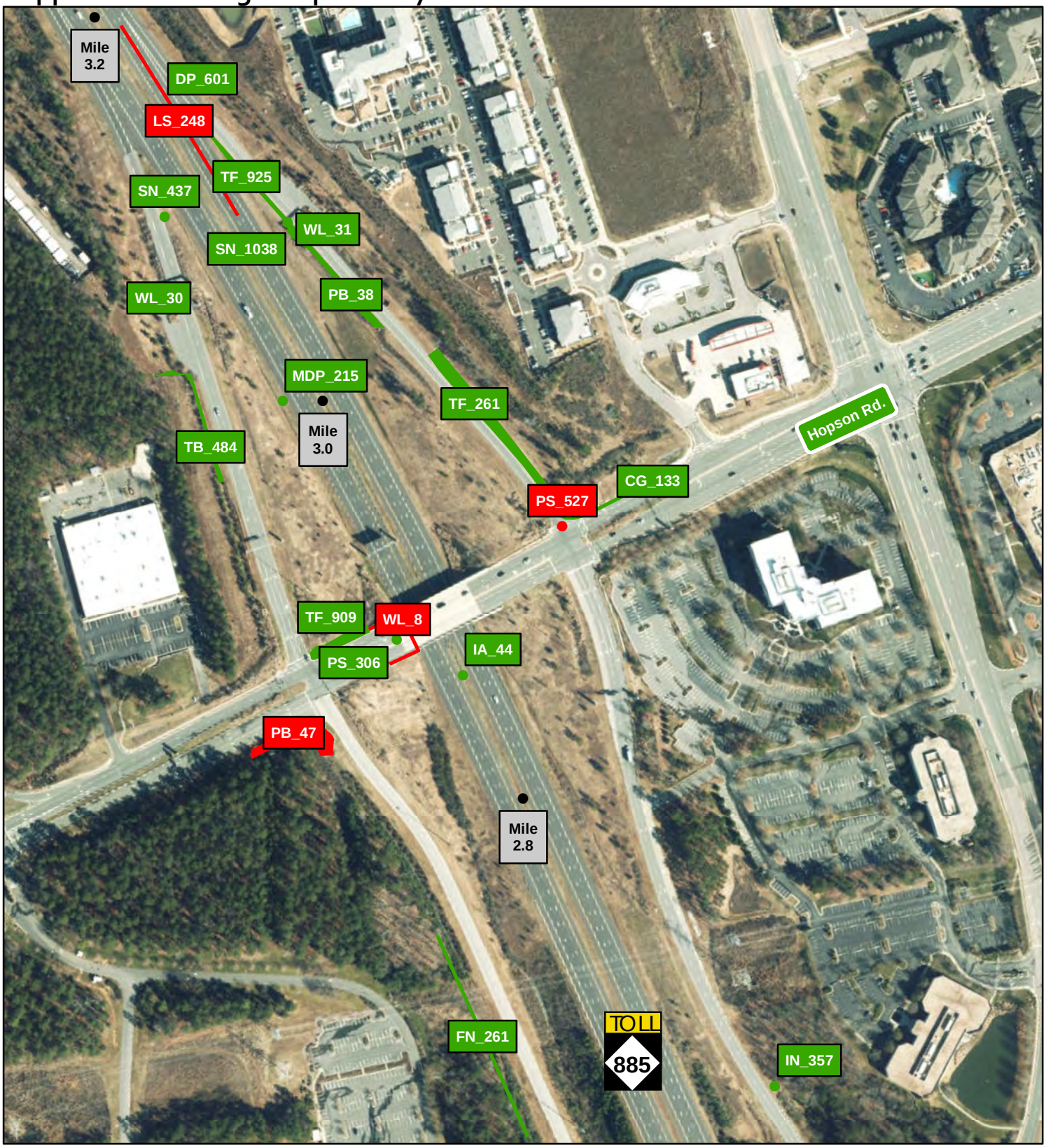

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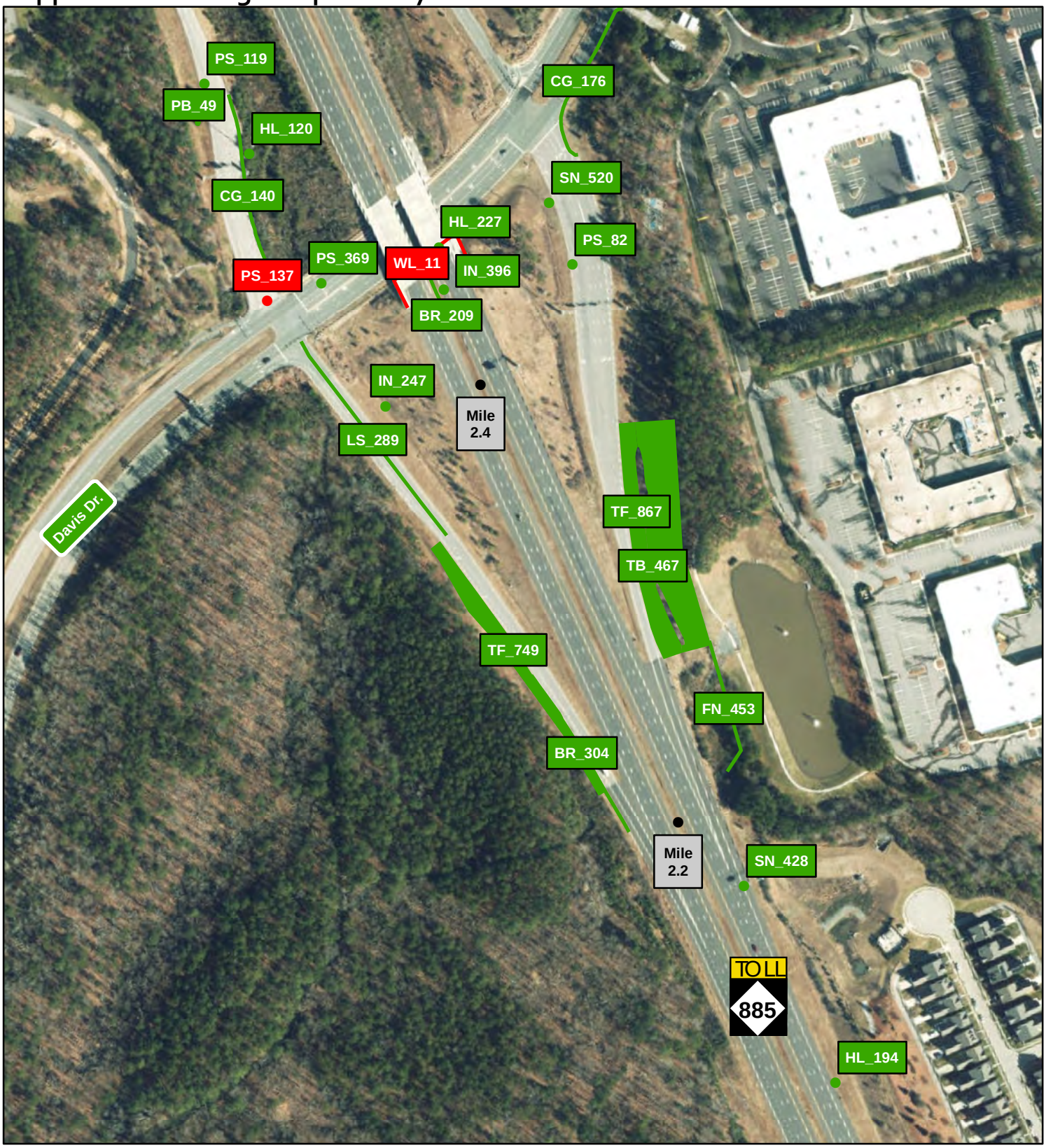

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Appendix B

Triangle Expressway 2022 Third Quarter Table Results of Assets Failing MRP

Appendix B: Triangle 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 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.

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
1	Guardrail	BR_338	Functional Damage		A4
2	Guardrail	BR_378	Functional Damage		A5

Curb and Gutter (CG)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Shoulder Berm Gutter	CG_52	Settlement		A11
2	Shoulder Berm Gutter	CG_153	Settlement		A32

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

This asset did not produce any failures.

Misc. Drainage Structure (MDP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Shoulder Drain	MDP_20	Obstruction		A9
2	Shoulder Drain	MDP_74	Rodent Screen		A15
3	Shoulder Drain	MDP_89	Obstruction		A17
4	Shoulder Drain	MDP_95	Obstruction		A18

Misc. Drainage Structure (MDP)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
5	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_93	Fence Hole		A14
2	Woven	FN_145	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_43	Functional Damage		A29

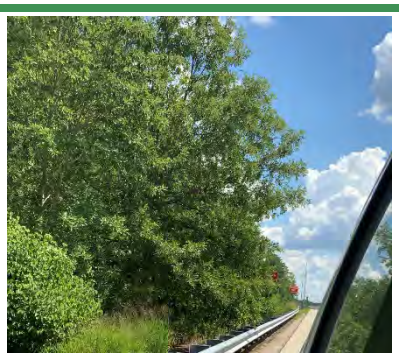
Impact Attenuators (IA)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Impact Attenuator	IA_12	Functional Damage		A2

Inlets (IN)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Inlet	IN_523	Eroded Area		A35
2	Inlet	IN_635	Surface Damage		A20
3	Inlet	IN_767	Obstruction		A25
4	Inlet	IN_1061	Obstruction		A3

Landscaping (PB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Plant Bed	PB_47	Weeds		A33
2	Plant Bed	PB_155	Overgrown		A12

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
1	Concrete	LS_148	Drop Off		A11
2	Asphalt	LS_563	Drop Off		A17
3	Asphalt	LS_679	Drop Off		A5
4	Asphalt	LS_785	Drop Off		A10

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
1	Concrete	LS_101	Litter		A14

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_248	Nighttime Reflectivity		A33

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

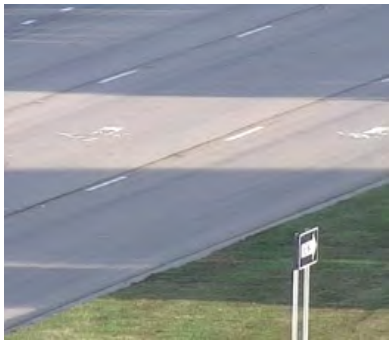
This asset did not produce any failures.

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	Ped Xing	PS_137	Nighttime Reflectivity, Daytime Assessment		A34
2	Right Turn	PS_418	Nighttime Reflectivity	Not Available for Nighttime Failures	A1
3	Thru Lane	PS_444	Daytime Assessment		A6
4	Ped Xing	PS_527	Nighttime Reflectivity, Daytime Assessment		A33
5	Left Turn	PS_585	Nighttime Reflectivity	Not Available for Nighttime Failures	A28

Signs (SN)

#	Sign Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Mile Post	SN_599	Functional Damage		A3
2	Other	SN_819	Height		A22
3	Merge	SN_999	Leaning		A17

Tree and Brush (TB)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Tree and Brush	TB_130	Barrier Clearance		A27
2	Tree and Brush	TB_327	Sign Obstruction		A11

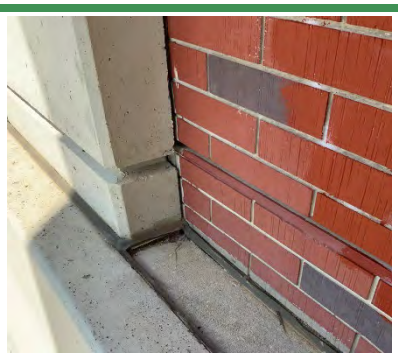
Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Turf	TF_181	Bare Ground		A22
2	Turf	TF_239	Bare Ground		A24
3	Turf	TF_379	Bare Ground		A24
4	Turf	TF_568	Bare Ground		A13

Turf Condition (TF)

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
5	Turf	TF_581	Bare Ground		A12
6	Turf	TF_1073	Bare Ground		A10

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

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Bridge Wall	WL_8	Unsealed Cracks/Joints		A33
2	Bridge Wall	WL_11	Unsealed Cracks/Joints		A34
3	Bridge Wall	WL_17	Unsealed Cracks/Joints		A8
4	Bridge Wall	WL_21	Unsealed Cracks/Joints		A11