Richmond District Traffic Operations

Date: August 21, 2024
Completed by: Karim Fadhloun
Reviewed by: Jason Zhang, P.E.

Jurisdiction: Goochland County & Hanover County

Location:

Goochland County:
Route: Route 622 (Rockville Road)
From: Mile Point (MP) 1.54 – Int. of Route 623 (Ashland Road)
To: MP 3.89 – Goochland/Hanover County Line
Length: 2.35 Miles

Hanover County:
Route: Route 622 (Rockville Road)
From: MP 0.0 – Goochland/Hanover County Line
To: MP 1.6 – Int. of Route 271/Route 620 (Pouncey Tract Road)
Length: 1.6 Miles

Total Length: 3.95 Miles

Request:

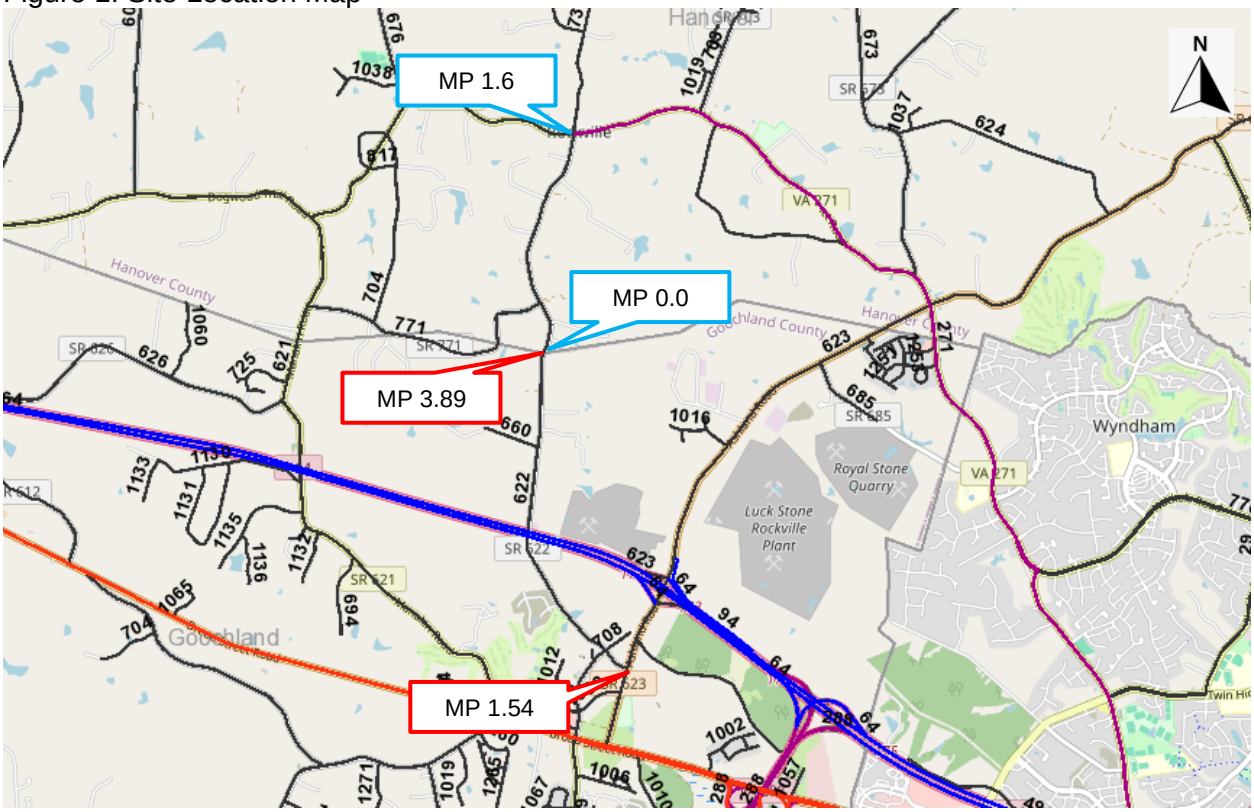
The study was initiated by a request from the Ashland Residency, on behalf of Goochland County because of safety concerns from potential sight distance issues along the corridor.

Study Results & Recommendations:

Based on the results of the study, Traffic Operations is recommending warning signage and pavement markings improvements.

Existing Conditions:

Figure 1. Site Location Map



Speed Limit & Functional Class & Volume:

Route 622 (Rockville Road) is governed by a posted speed limit of 45 MPH, which was established via resolution.

The subject roadway is classified as a Major Collector, per the 2014 VDOT Approved Functional Classifications Map. The 2023 Annual Average Daily Traffic (AADT) count, according to the Traffic Monitoring System (TMS) along Route 622 through the study limits are as follows:

Route	Limits	MP Segment	Volume (AADT)
622	Route 623 – Hanover CL	1.54 – 3.89	2,385
622	Goochland CL – Route 771	0.0 – 0.4	2,232
622	Route 771 – Route 271	0.4 – 1.6	1,874

Physical Roadway:

Route 622 is a two-lane undivided roadway with a total pavement width varying between 19 and 24 feet depending on the location. The pavement is bordered by grassy shoulders on both sides of the roadway which taper down to shallow stormwater ditches. The width of the shoulders is generally around two to five feet but is wider in some locations. Approach tapers emerge from the right and left lanes of the roadway to provide space for turn lanes at the intersection of North Tuckahoe Bridge Road. During the field site visit, both the pavement and shoulders were assessed to be in good condition. Rolling terrain and several horizontal curves characterize the

topography through this section. The surrounding landscape is characterized by the presence of open fields, thick wooded lots, utility poles, a rescue squad, scattered residential dwellings, and a new residential development.

Roadside Development and Environment:

Overall, the surrounding environment along Route 622 is rural in nature. Within the study segment borders, the roadway winds through wooded lots as well as scattered residential single-family homes and open fields.

Roadside parking is not accommodated along the study segment because of narrow shoulders. Additionally, all the single-family houses have their own driveways. No Pedestrian or bicyclist activity was observed during the field review and no facilities are present along the corridor.

Curve Evaluation:

The study segment exhibits several horizontal curves. As part of the field review conducted on August 26, 2024, each of these curves was evaluated at the posted advisory speed or the existing speed limit of the roadway. Based on the results, warning signage improvements are being recommended for two curves along the study segment.

Intersection Sight Distance:

Three (3) public roads intersect Route 622 within the borders of the study segment: Route 708 (St Matthews Lane), Route 660 (Childress Road), and Route 771 (Echo Meadows Road). Intersection sight distances were measured as part of the field review for each intersection. Albeit being outside the state's roadway system as of yet, intersection sight distances for North Tuckahoe Bridge Road were measured as well. North Tuckahoe Bridge Road is a new road (still under construction) that gives access to a new residential development.

No further improvements were identified for the intersections of Route 660 (Childress Road), and Route 771 (Echo Meadows Road). While the view of the intersection of Route 708 (St Matthews Lane) was obstructed due to the roadway's horizontal curvature, intersection warning signage were present on both sides of the intersection. As for the intersection with North Tuckahoe Bridge Road, TO is recommending minor warning signage and pavement marking improvements at this location.

Stopping Sight Distance:

Rolling terrain characterizes this section of roadway. As a result, constrained stopping sight distance (SSD) has been identified in several locations due to the vertical alignment of the road. However, given the low traffic volumes and the absence of crashes that were potentially contributed by SSD constraints, TO is only recommending minor improvements in the vicinity of North Tuckahoe Bridge Road.

Traffic Control Devices:

Traffic control devices along the study segment include pavement markings (centerline, turn lane lines, hatch markings, and stop bars) and signage (regulatory, warning, and guide signs). At both ends of the study segment, the intersections with Route 623 (Ashland Road) and Route 271/Route 620 (Pouncey Tract Road) are governed by stop control at the level of Route 622.

The other intersections are with a STOP sign on the minor approaches. During the field visit, the existing signage and pavement markings were deemed in good condition, however, minor improvements are being recommended for standardization purposes.

Five-Year Crash Analysis:

Crash records obtained through the Roadway Network System (RNS) are for the most recent five-year period from June 1, 2019, through May 31, 2024.

NOTE: Crash records are from VDOT's Roadway Network System (RNS) crash module based on the Department of Motor Vehicle's official record of reportable crashes (those involving an injury or fatality or property damage exceeding $1,500). Due to the time required to process and code reported crashes, data for the most recent 1-2 months (or more) may not be available.

Route 622 (Rockville Road):

16 **Crashes**	7 **Injury Crashes**	0 **Fatalities**
100 **Crash Rate** per 100 million VMT	44 **Injury Crash Rate** per 100 million VMT	0 **Fatality Rate** per 100 million VMT

According to VDOT's "Summary of Crash Data" Report for the years between 2018 and 2022, the Statewide Averages for a Rural Major Collector are:

Crash Rate is 152 per 100 million VMT	**Injury Crash Rate** is 50 per 100 million VMT	**Fatality Rate** is 2.70 per 100 million VMT

Crash data for a period of five years, from June 1, 2019, to May 31, 2024, indicated a total of 16 crashes, which are categorized in **Table 1**. The most frequent types of crashes were Fixed Object – Off Road crashes (50%) followed by Angle crashes (31%). The majority of Angle crashes and Deer crashes occurred on dry pavement under no adverse weather conditions with the Angle crashes occurring during daytime and the Deer crashes occurring during nighttime. The Fixed Object – Off Road crashes are evenly distributed between daytime (4) and nighttime (4) and less than half (3) occurred on wet pavement. One (1) crash was Alcohol-Related, and another crash involved a driver who fled the scene. A review of the time of occurrence of the crashes revealed that the crashes are randomly distributed throughout the day. Overall, the crash rates for the study segment were lower than the statewide crash rates for a Rural Major Collector

No fatal crashes occurred in the study segment during the investigated period. Out of the seven (7) injury crashes, four (4) crashes resulted in severe injuries. Two of the severe injury crashes took place at the intersection of Route 708 (St Matthews Lane): One crash involved a driver who disregarded the stop sign while the other crash involved a teenager driver (16 years old) who failed to maintain proper control of the vehicle while making a left turn, ran off the roadway and struck a ditch resulting in serious injuries to the front-seat passenger. While the police report noted that the crash occurred on wet pavement under rainy conditions, it also noted that the driver accelerated too quickly causing the vehicle to fishtail. Another severe injury crash involved a drunk driver who ran off the road and struck a tree. According to the police report, the driver was not wearing a seatbelt. The remaining severe injury crash was the result of an improper left turn from a private driveway onto Route 622.

Table 1. Crash Summary

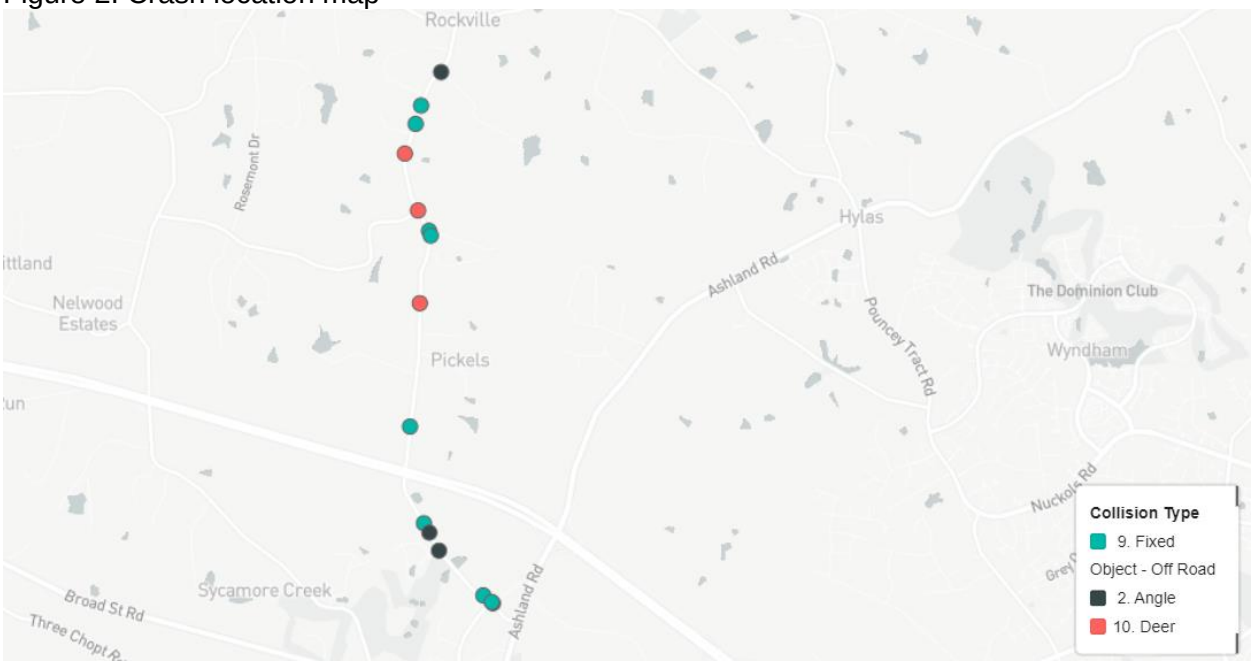
June 1, 2019 - May 31, 2024		Severity			Lighting		Pavement	
Crash Type	Quantity	Injury	PDO	Fatal	Day	Night	Dry	Wet
Angle	5	3	2	0	5	0	4	1
Fixed Object Off-Road	8	4	4	0	5	5	5	3
Deer	3	0	3	0	0	3	3	0

Year	2019[a]	2020	2021	2022	2023	2024[b]	Total
Crashes	3	2	4	2	4	1	16

NOTE: [a] for 2019, only the period between June 1 through December 31 is considered.
[b] for 2024, only the period between January 1 through May 31 is considered.

Figure 2 provides a look at the crash locations throughout the study corridor.

Figure 2. Crash location map



As **Figure 2** illustrates, the crash locations were distributed randomly throughout the corridor with no apparent hotspots. The locations that have had multiple crashes are: intersection of Route 708 (St Matthews Lane) with 3 crashes; intersection of Tuckahoe Bridge Road with 2 crashes, and a curve around MP 0.225 in Hanover County with 2 crashes.

It should be noted that both crashes at the intersection of Tuckahoe Bridge Road involved a northbound left-turning vehicle from Route 622 onto North Tuckahoe Bridge Road. Adequate sight distance has been confirmed in the field for this particular movement and the SSD constraint was not a contributing factor to this crash.

Recommendations:

Traffic Operations is recommending the actions shown in **Figure 3** through **Figure 8** for warning signage improvements and pavement markings improvements.

Figure 3.

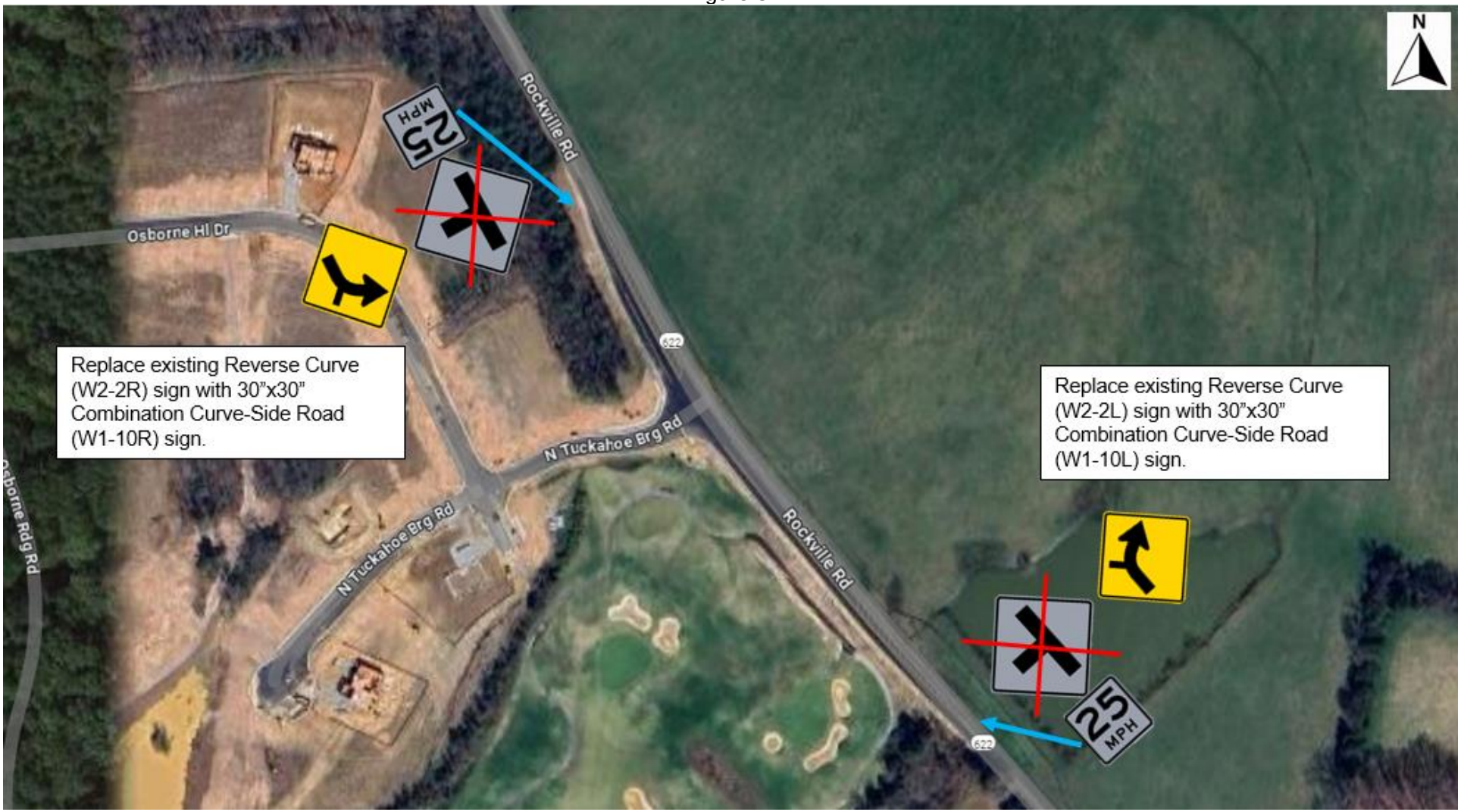

N
Rockville Rd
25 MPH
Osborne Hl Dr
622
Replace existing Reverse Curve (W2-2R) sign with 30"x30" Combination Curve-Side Road (W1-10R) sign.
N Tuckahoe Brg Rd
N Tuckahoe Brg Rd
Rockville Rd
Replace existing Reverse Curve (W2-2L) sign with 30"x30" Combination Curve-Side Road (W1-10L) sign.
622
25 MPH

Figure 4.

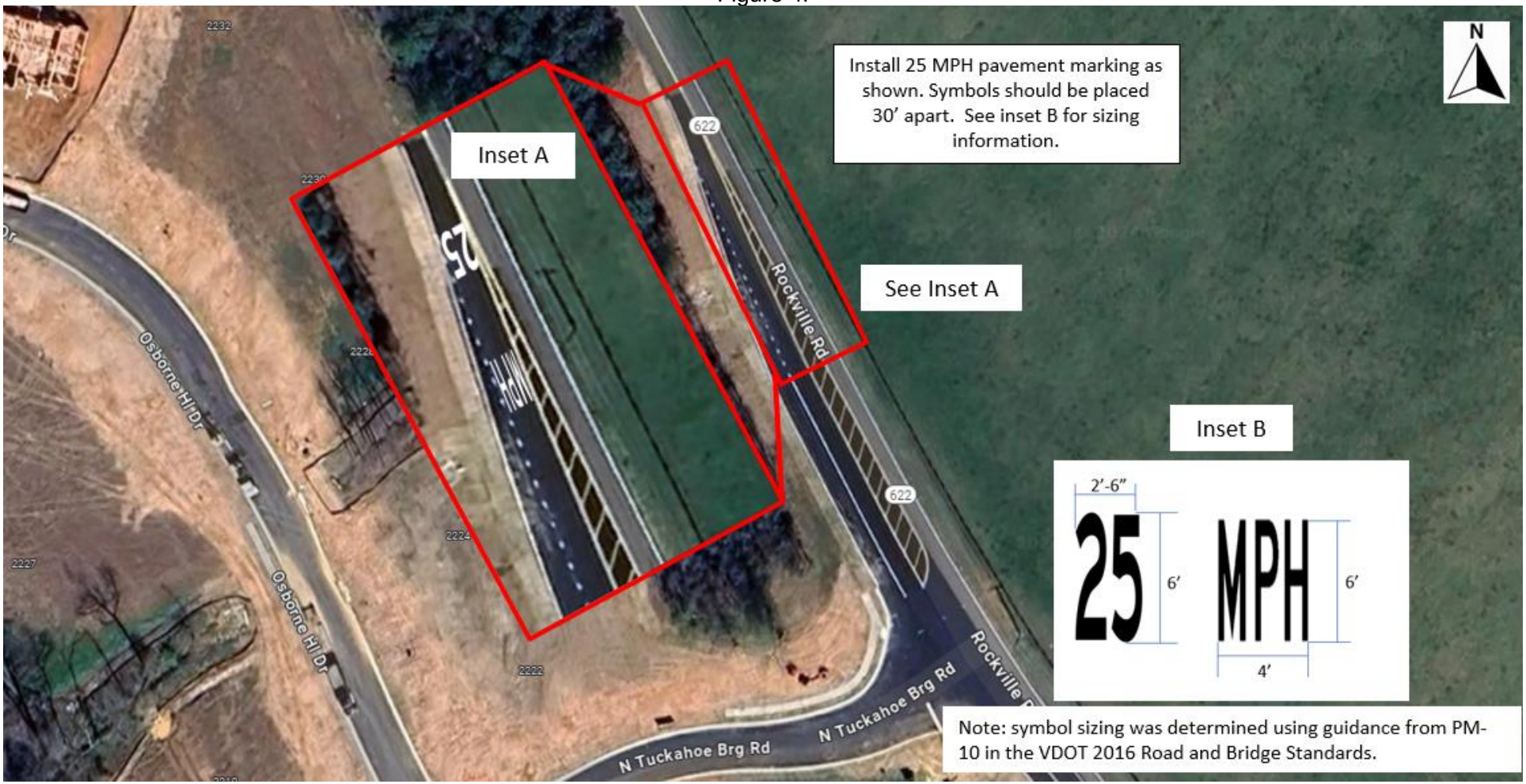

Install 25 MPH pavement marking as shown. Symbols should be placed 30' apart. See inset B for sizing information.
Inset A
See Inset A
Inset B
2'-6"
25
6'
MPH
6'
4'
Note: symbol sizing was determined using guidance from PM-10 in the VDOT 2016 Road and Bridge Standards.
Osborne Hl Dr
Rockville Rd
N Tuckahoe Brg Rd
622
N

Figure 5.

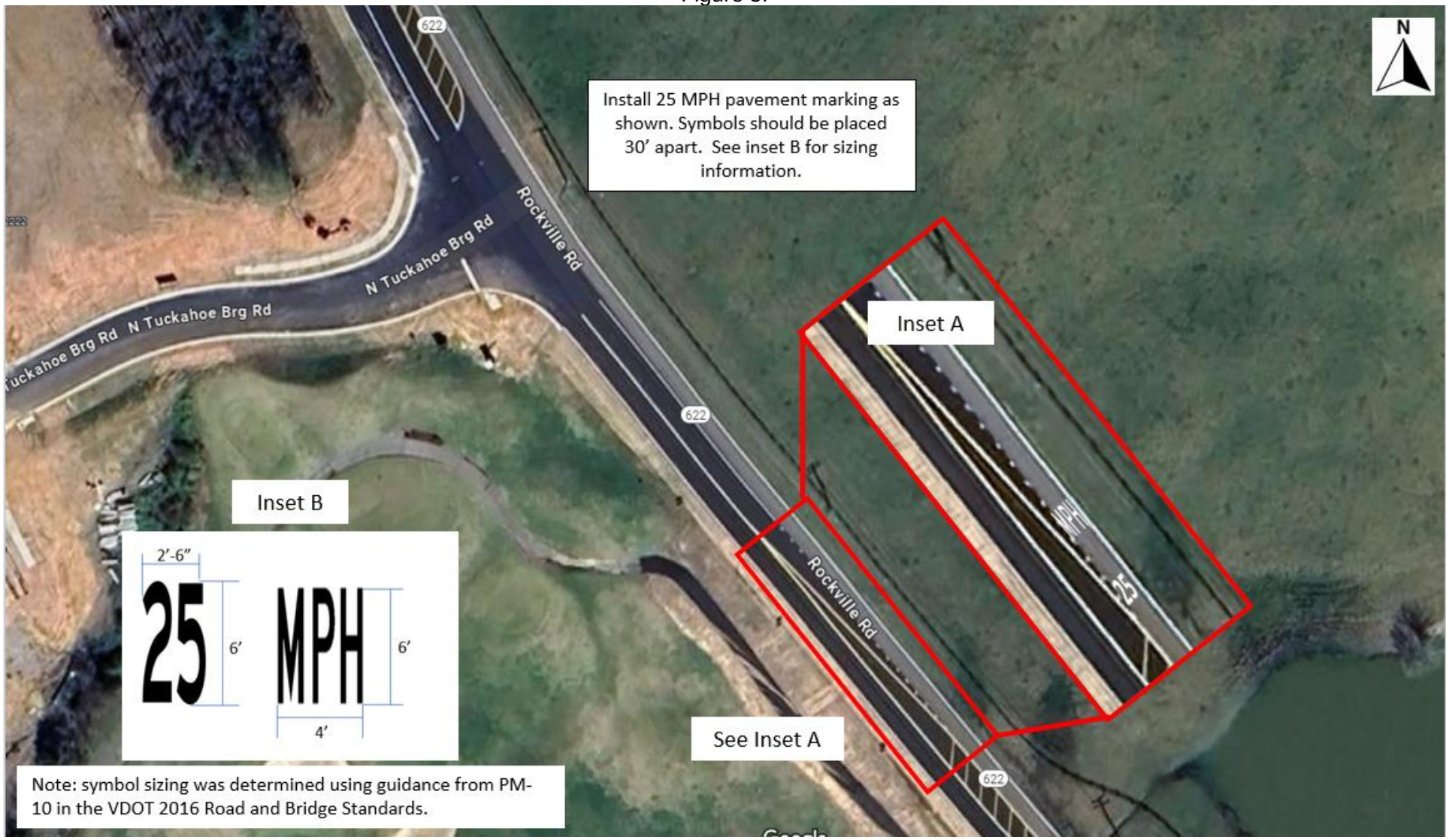

Install 25 MPH pavement marking as shown. Symbols should be placed 30' apart. See inset B for sizing information.
N
622
N Tuckahoe Brg Rd
Rockville Rd
Inset A
Inset B
2'-6"
25
6'
MPH
6'
4'
See Inset A
Note: symbol sizing was determined using guidance from PM-10 in the VDOT 2016 Road and Bridge Standards.

Figure 6.

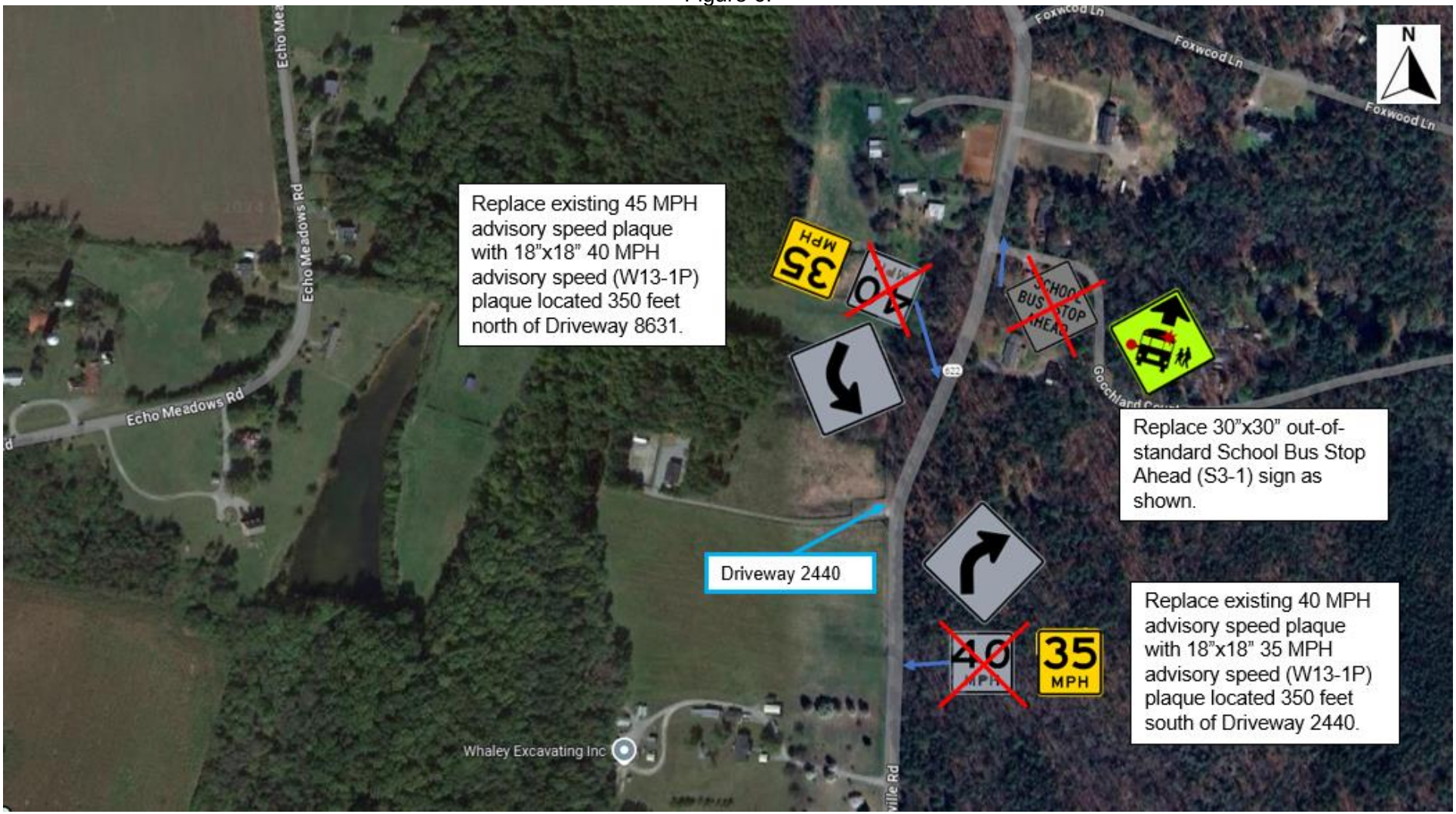

Replace existing 45 MPH advisory speed plaque with 18"x18" 40 MPH advisory speed (W13-1P) plaque located 350 feet north of Driveway 8631.
Replace 30"x30" out-of-standard School Bus Stop Ahead (S3-1) sign as shown.
Driveway 2440
Replace existing 40 MPH advisory speed plaque with 18"x18" 35 MPH advisory speed (W13-1P) plaque located 350 feet south of Driveway 2440.
Echo Meadows Rd
Foxwood Ln
Whaley Excavating Inc
N

Figure 7.


Replace existing 35 MPH advisory speed plaque with 18"x18" 30 MPH advisory speed (W13-1P) plaque north and south of Foxwood Lane as shown.
Rockville Rd
Foxwood Ln
Foxwood Ln
Foxwood
622
30 MPH
N

Figure 8.


N
Rockville Rd
Locust Hill Dr
622
Driveway 11368
Franklin Hills Dr
Rockville Rd
Franklin Hills Dr
Locust Hill Dr
Replace 30”x30” out-of-standard School Bus Stop Ahead (S3-1) sign as shown.
622