ARTERIAL
PRESERVATION PROGRAM

US 17 Arterial Preservation Plan

November 17, 2022

VDOT
Virginia Department of Transportation

Michael Baker
INTERNATIONAL

Introductions

- Study Participants
  - City of Suffolk
  - Isle of Wight County
  - Hampton Roads Transportation Planning Organization
  - Virginia Department of Transportation
  - Michael Baker International (study consultant)

Purpose of Study

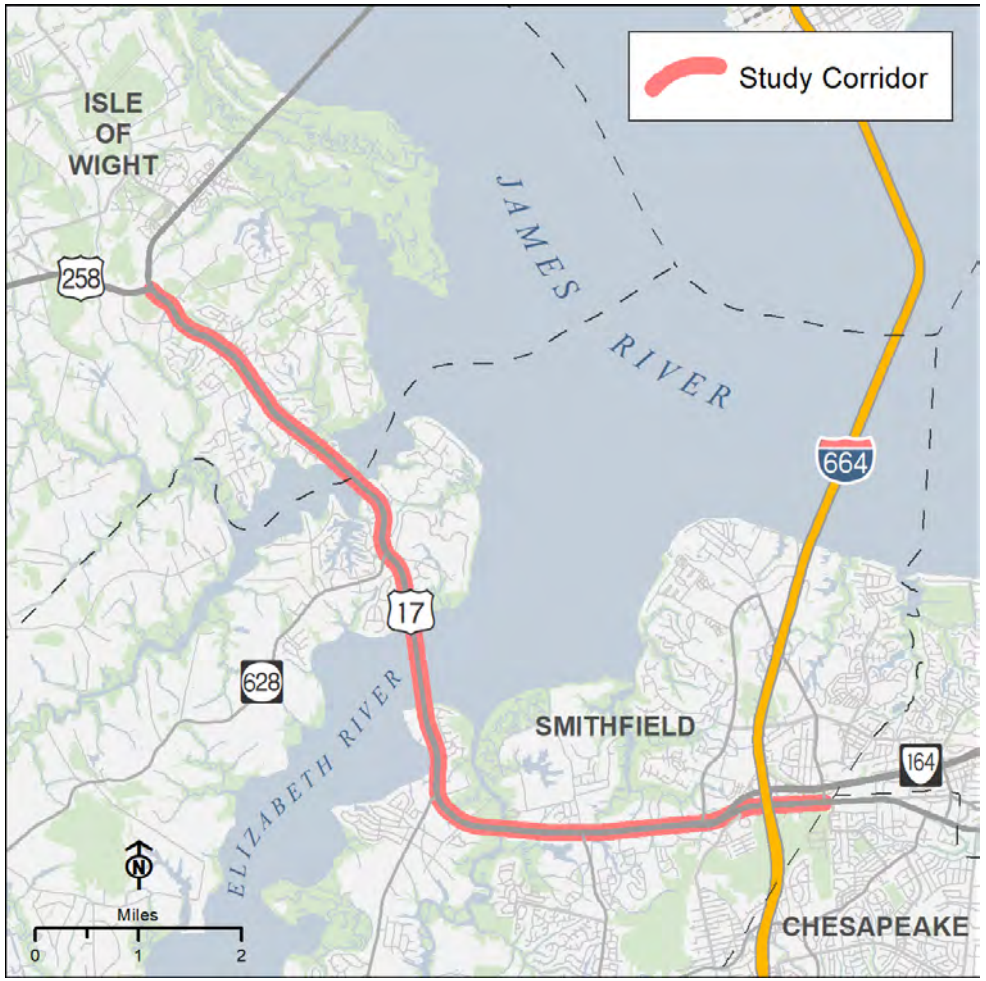
- To ensure safety while preserving and improving the capacity of the Commonwealth's arterial highway network without wide scale road widenings while also accommodating economic development

Study will identify recommendations to:

- Result in a safer corridor
- Preserve and improve corridor capacity and efficiency
- Maintain the Commonwealth's mobility & thus economic competitiveness
- Lower long-term infrastructure capital and maintenance costs

Project Study Area

- **US 17**, from US 258 (Brewers Neck Blvd) in Isle of Wight County to College Drive in the City of Suffolk
- Study area is 10.5 miles in length
- Project coordinated with on-going US 17 study north of US 258



Arterial Preservation

- Access points and signal proliferation are adversely affecting performance of critical routes in the Commonwealth of Virginia.
- The transportation system must be managed as a limited resource by preserving capacity, improving traffic safety, and providing an acceptable level of service for through travel.
- Preservation and enhancement strategies will promote the use of innovative transportation solutions that minimize delays for through traffic and improve safety while considering local economic development goals.

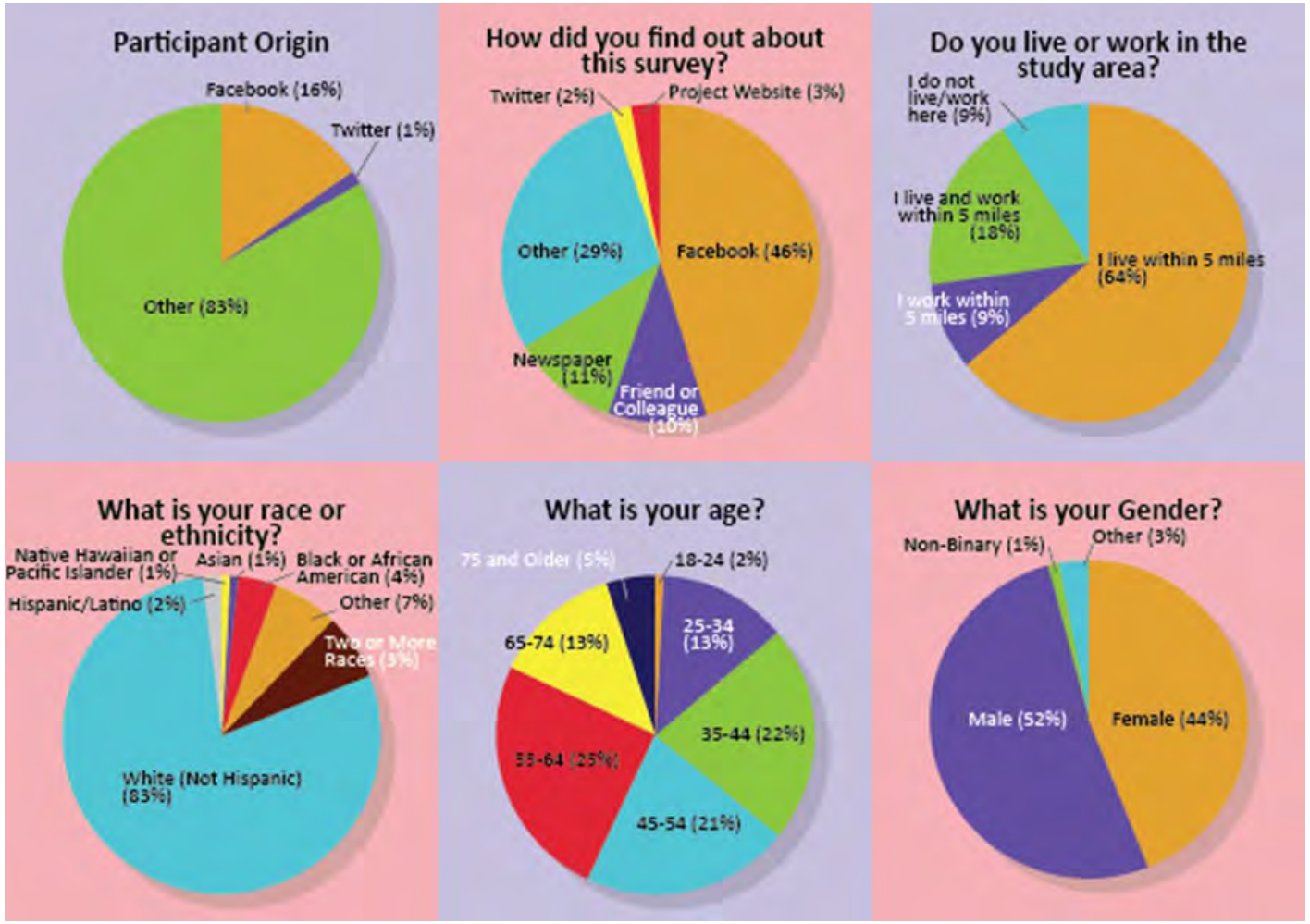
Scope of Work

1. **Identify priority intersections for the development of detailed recommendations**
   a. Historic traffic volumes
   b. Potential for safety improvement (PSI)
   c. Crash history
   d. Field observations
   e. Stakeholder input

   - US 17 & 258
   - US 17 & Omera Dr
   - US 17 & Sugar Hill Rd
   - US 17 & Cedar Grove Rd

2. **Horizon year of 2040**
3. **Arterial Preservation techniques applied where feasible**
4. **Identify opportunities to improve roadway geometrics and access management**

MetroQuest Survey Results



The MetroQuest survey collected public input from March 7, 2022 to March 21, 2022.

522 total participants

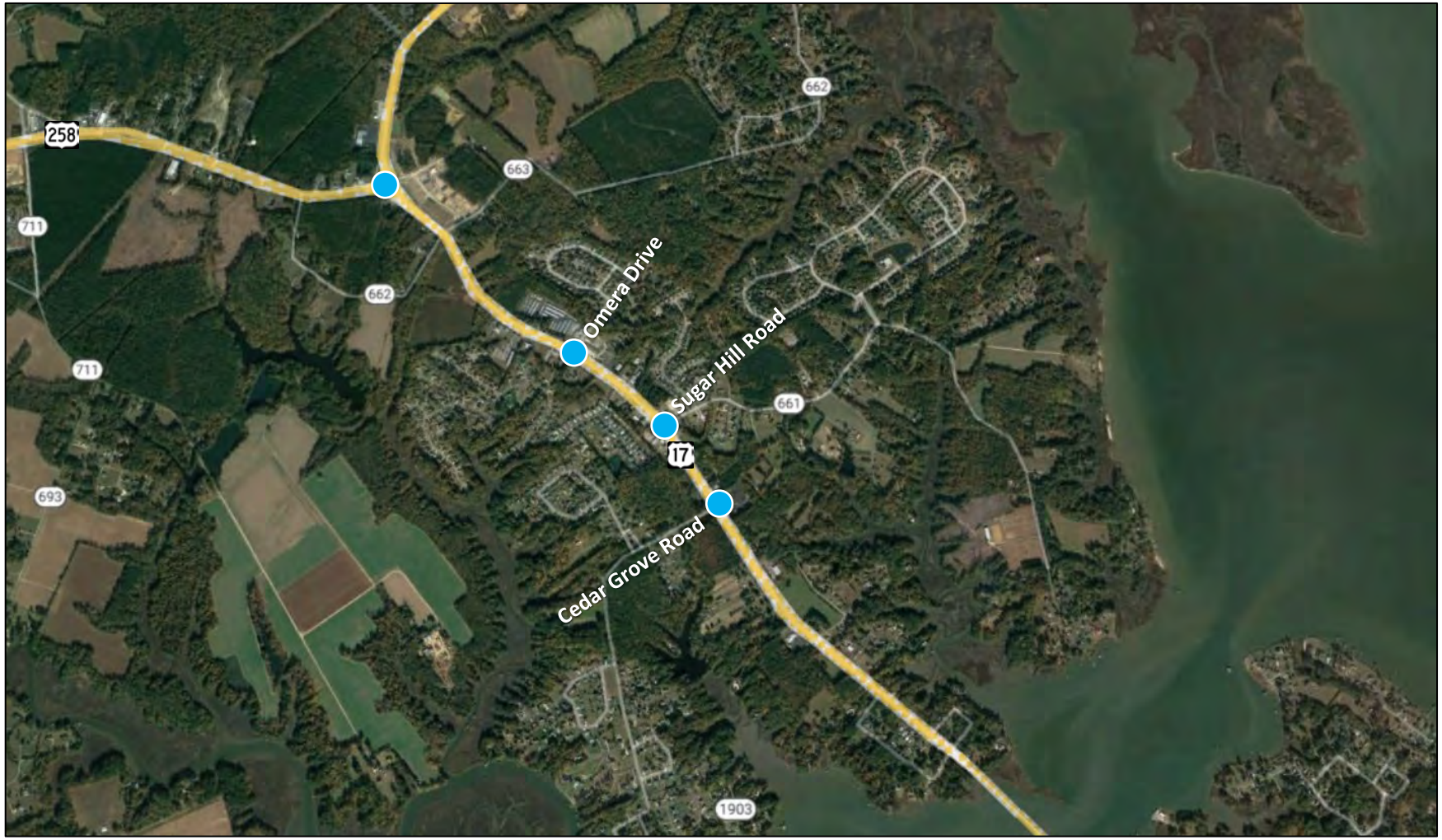
Most participants found the survey through Facebook

91% of participants lived or work within five miles of the study area

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Alternatives

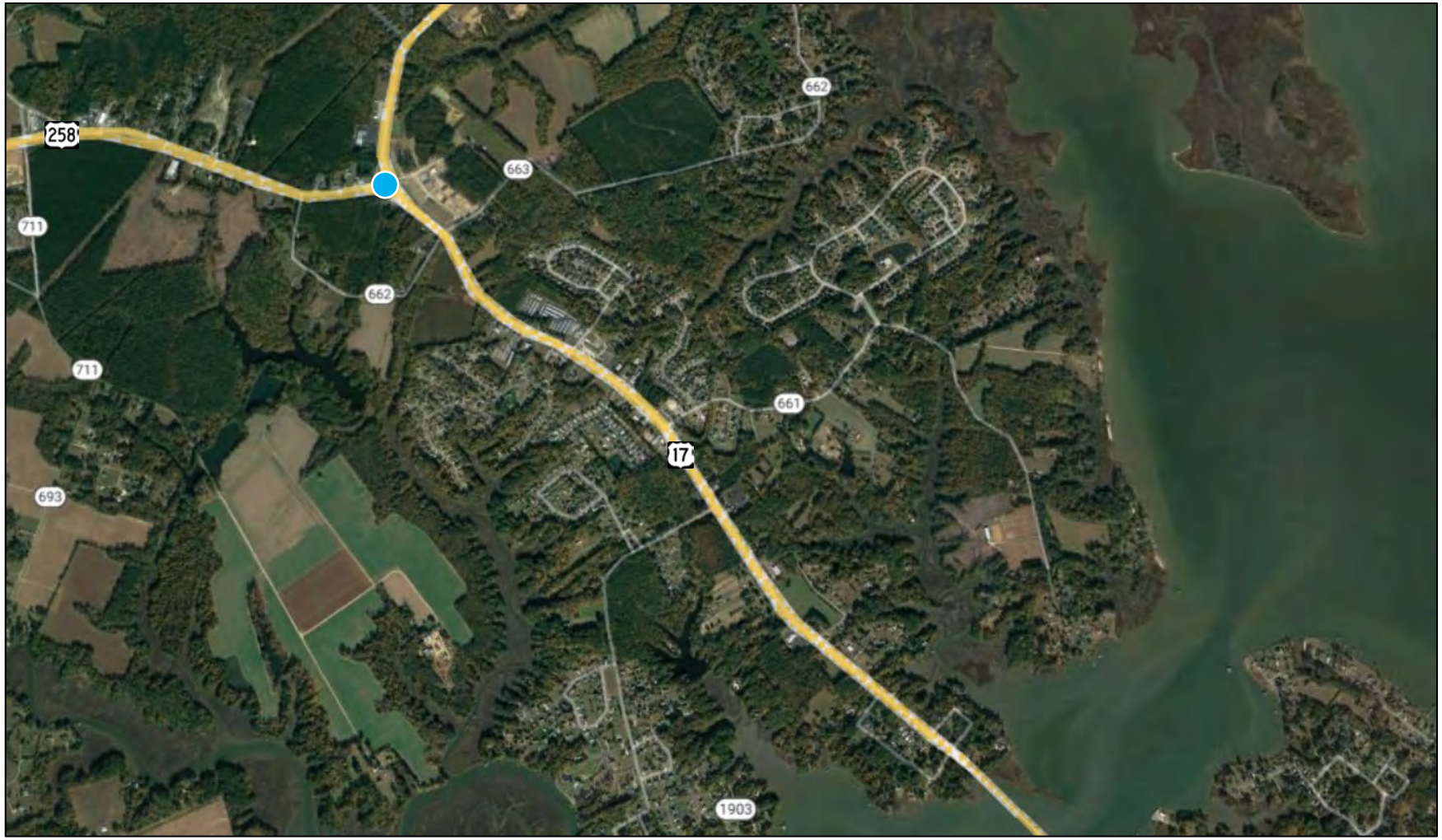
Overview



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US 17 and US 258



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No Improvement



Full Quadrant Roadway

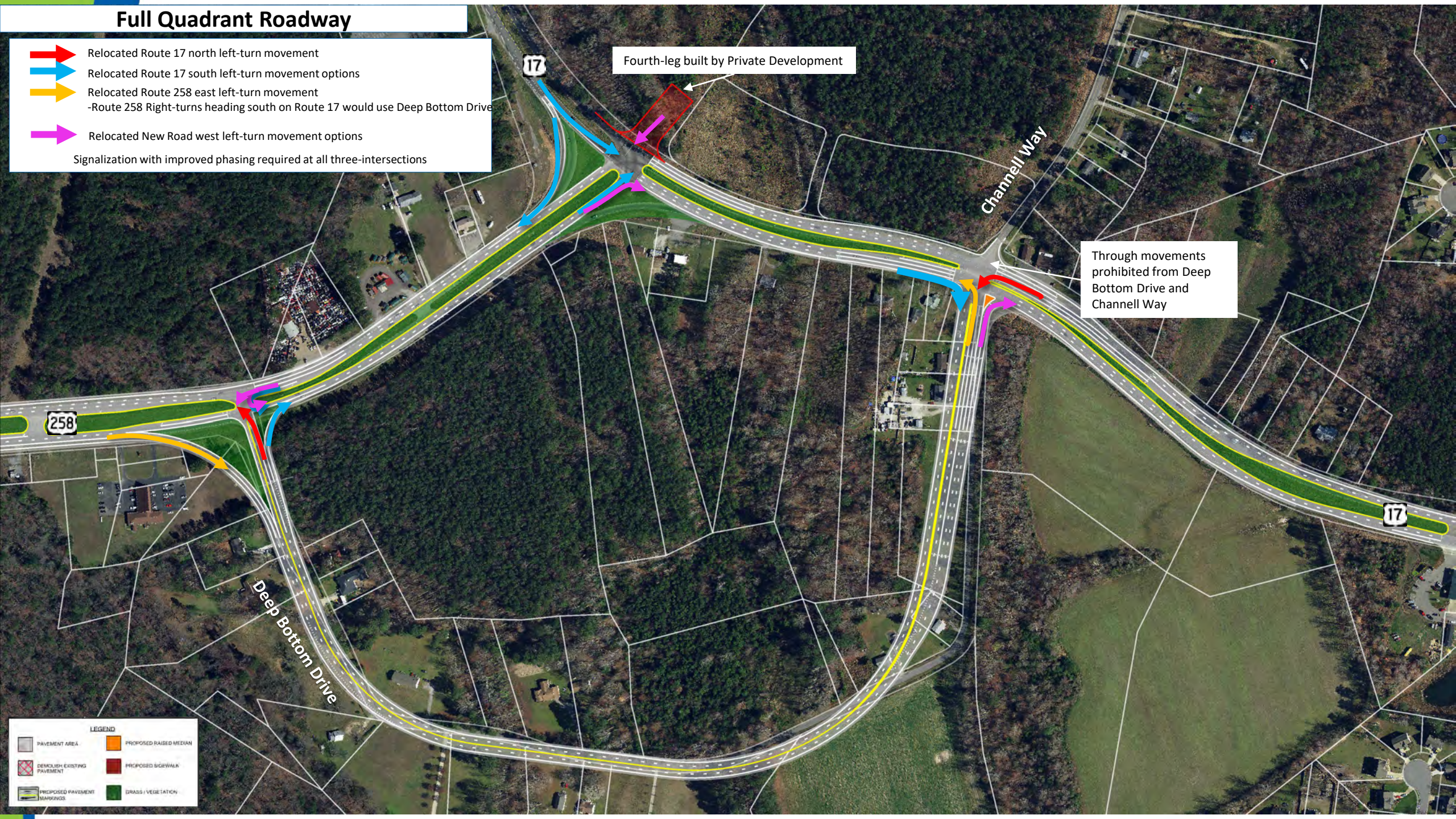
Relocated Route 17 north left-turn movement

Relocated Route 17 south left-turn movement options

Relocated Route 258 east left-turn movement
-Route 258 Right-turns heading south on Route 17 would use Deep Bottom Drive

Relocated New Road west left-turn movement options

Signalization with improved phasing required at all three-intersections



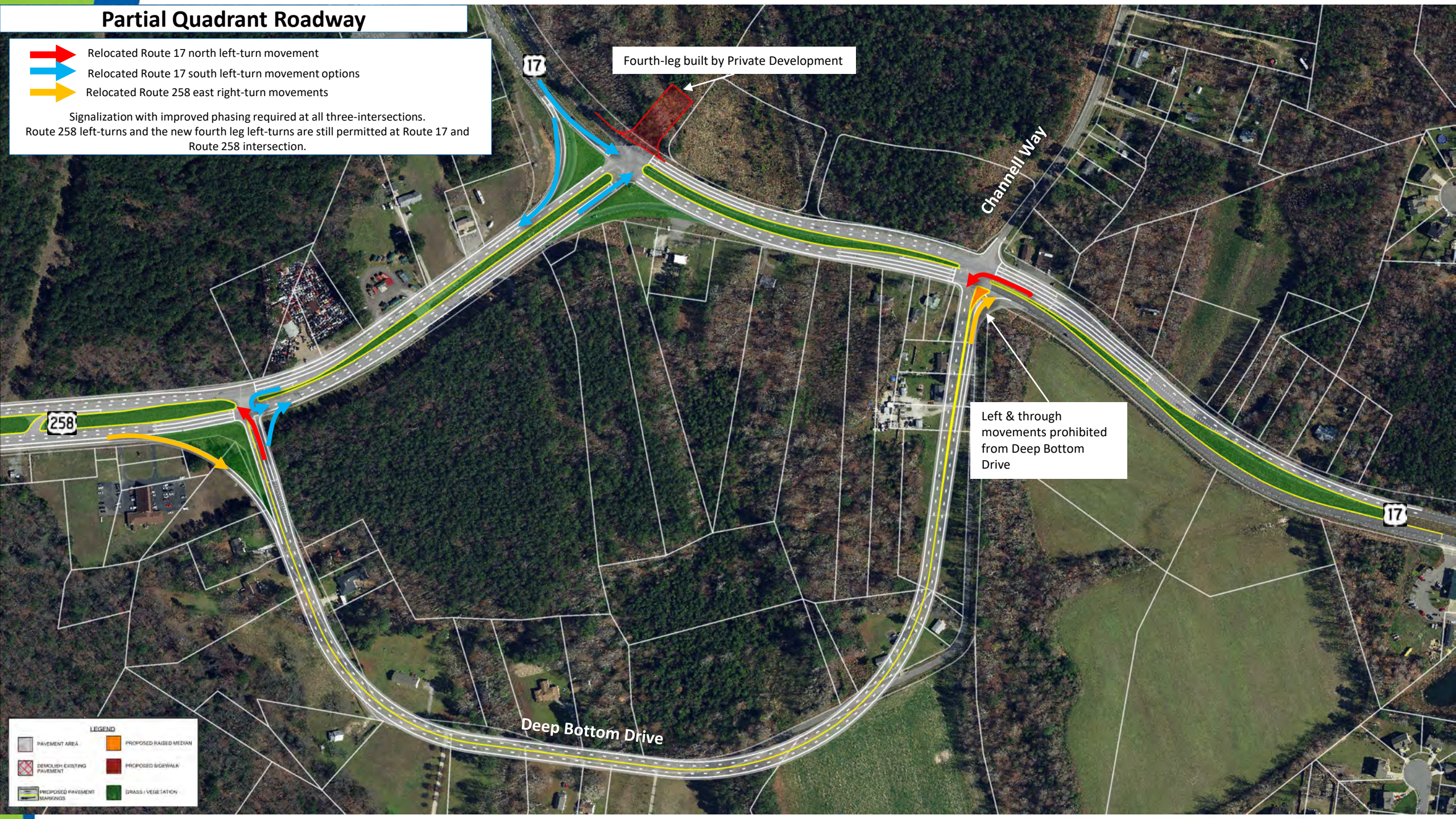
Partial Quadrant Roadway

Relocated Route 17 north left-turn movement

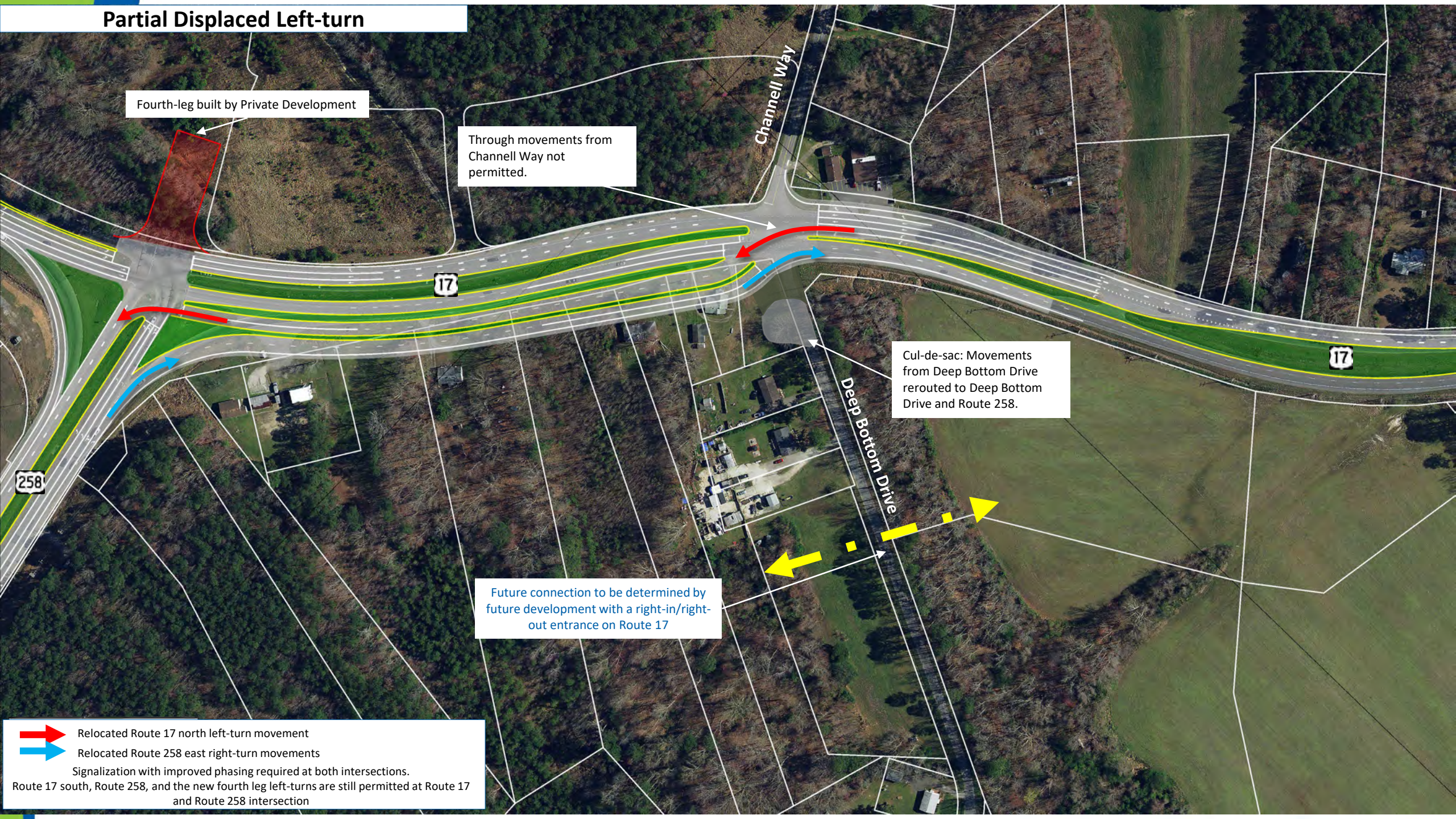
Relocated Route 17 south left-turn movement options

Relocated Route 258 east right-turn movements

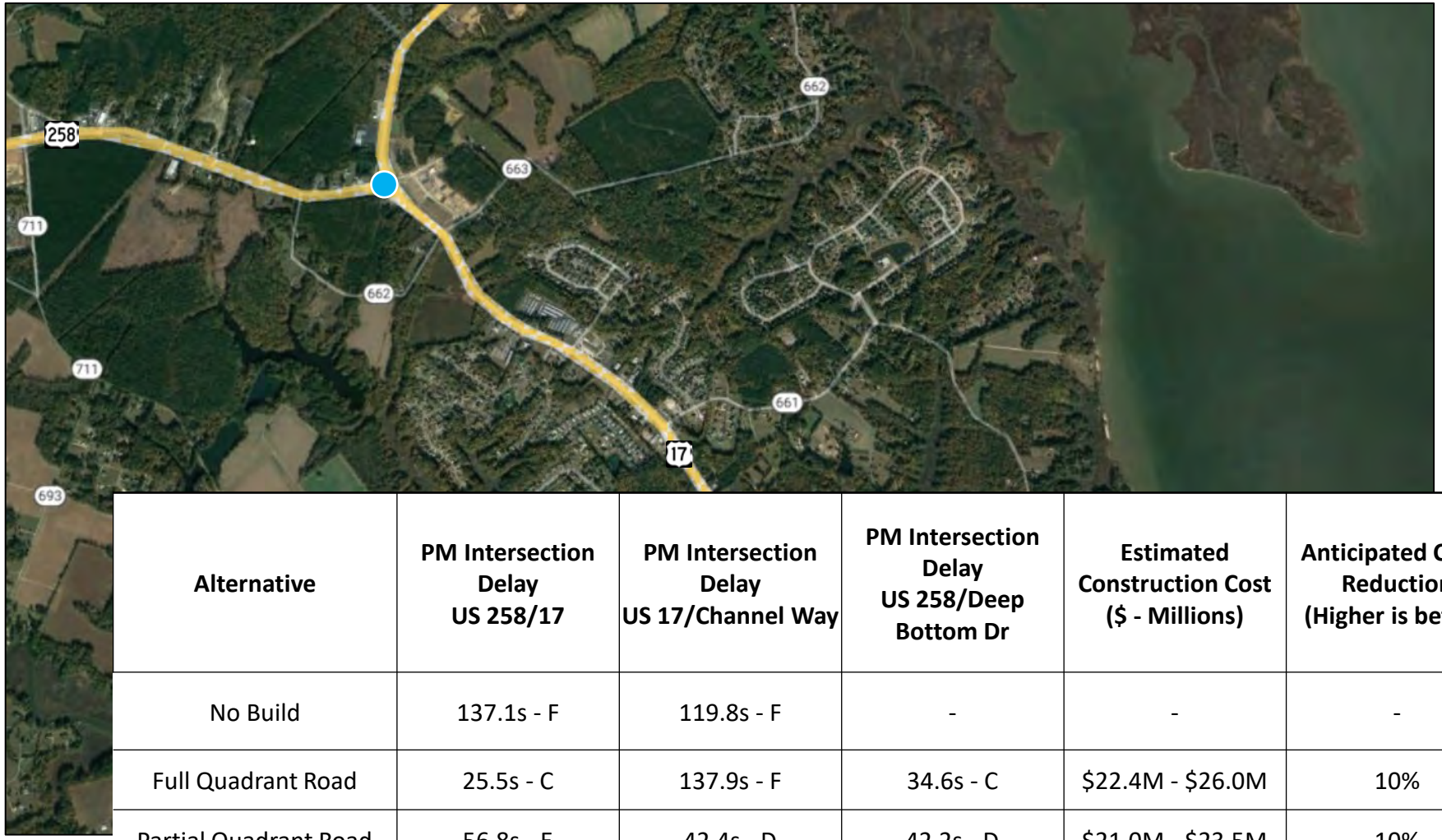
Signalization with improved phasing required at all three-intersections. Route 258 left-turns and the new fourth leg left-turns are still permitted at Route 17 and Route 258 intersection.



Partial Displaced Left-turn



US 17 and US 258



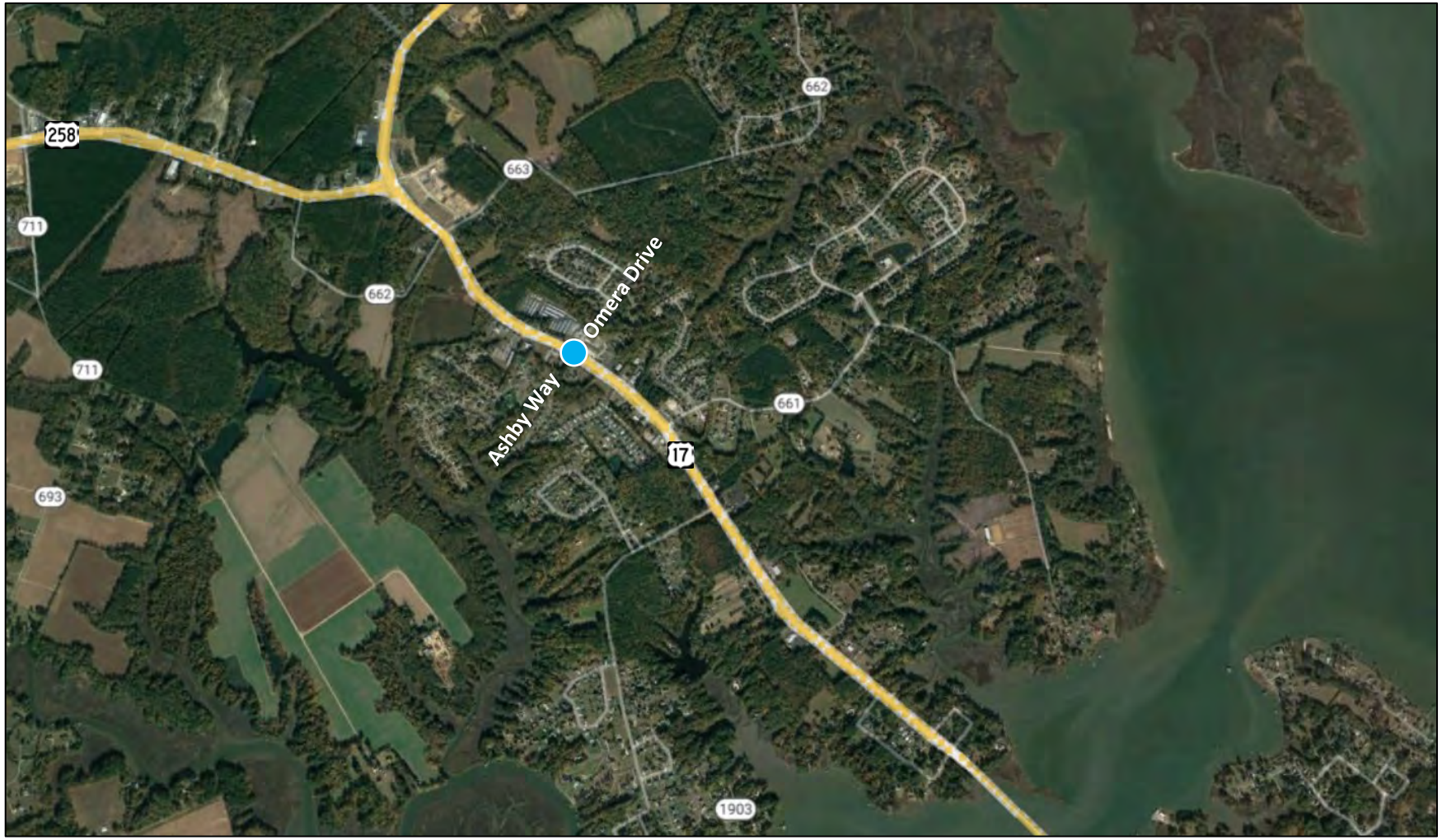
Alternative	PM Intersection Delay US 258/17	PM Intersection Delay US 17/Channel Way	PM Intersection Delay US 258/Deep Bottom Dr	Estimated Construction Cost ($ - Millions)	Anticipated Crash Reduction (Higher is better)	Potential Right-of-way Impacts
No Build	137.1s - F	119.8s - F	-	-	-	-
Full Quadrant Road	25.5s - C	137.9s - F	34.6s - C	$22.4M - $26.0M	10%	15 Acres to 24 Acres
Partial Quadrant Road	56.8s - E	42.4s - D	42.2s - D	$21.0M - $23.5M	10%	15 Acres to 20 Acres
Partial DLT - NB Lefts Relocated	78.9s - E	38.7s - D	-	$15.0M - $20.0M	20%	5 Acres to 9 Acres

US 17 and US 258 Survey Results

Alternative	Average Rating
No Improvement	1.80
Full Quadrant Roadway	2.50
Partial Quadrant Roadway	2.94
Partial Displaced Left-tun	3.21

- No Improvement – no changes to existing intersection outside of funded improvements.
- Full Quadrant Roadway – Redirect all left-turns from US 258 and US 17 through an upgraded Deep Bottom Drive.
- Partial Quadrant Roadway – Redirect the US 17 left-turns from US 258 and US 17 through an upgraded Deep Bottom Drive.
- Partial Displaced Left-turn – Redirect the US 17 northbound left-turns from US 258 and US 17 through a displaced roadway.

US 17 and Omera Dr/Ashby Way



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No Improvement



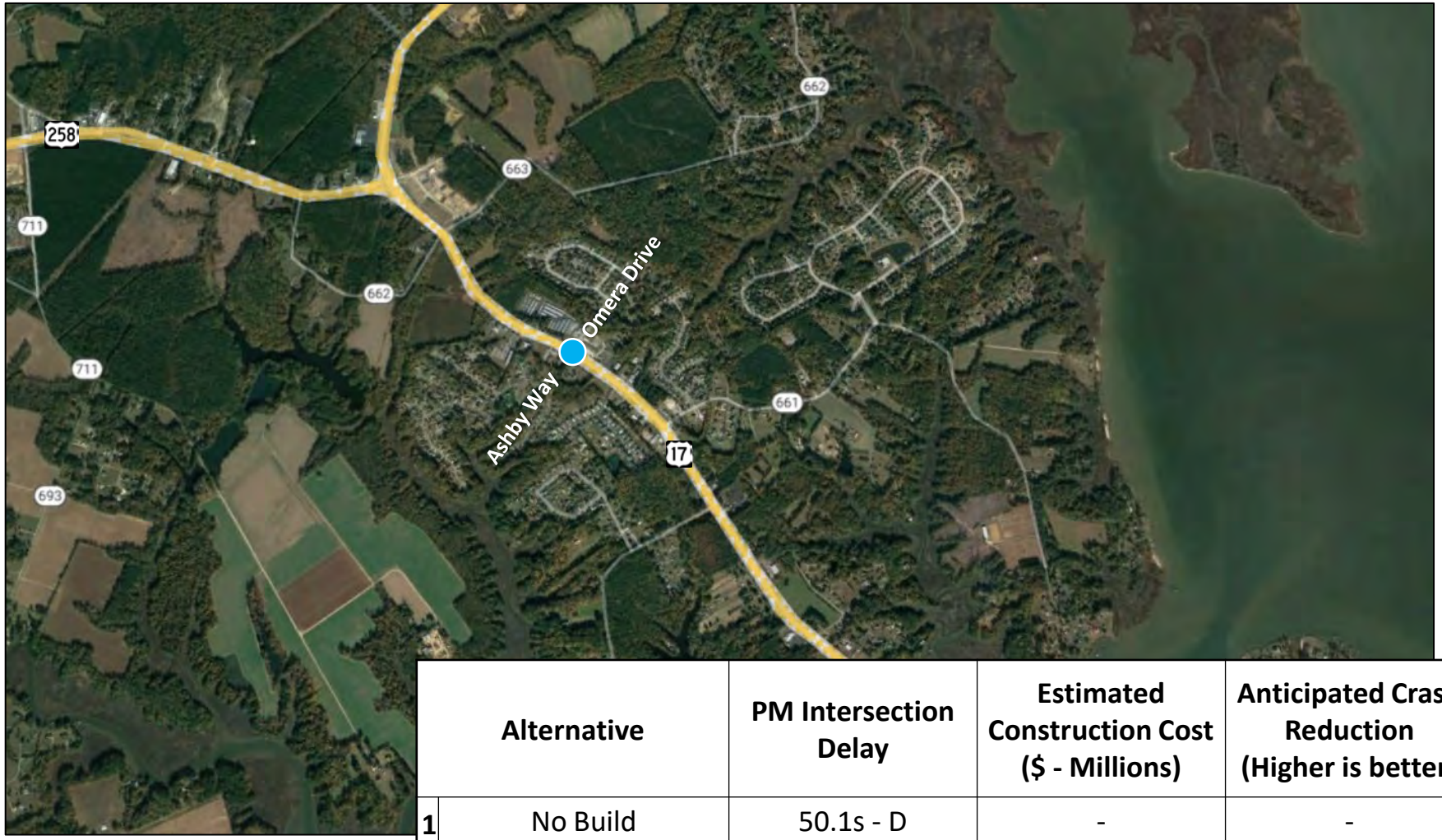
Restricted Crossing U-turn



Thru-Cut


17
Omera Drive
Ashby Way
17
Additional pavement or “Loons” for vehicles that require additional space to make a U-turn.
Additional pavement or “Loons” for vehicles that require additional space to make a U-turn.
LEGEND
PAVEMENT AREA
PROPOSED RAISED MEDIAN
DEMOLISH EXISTING PAVEMENT
PROPOSED SIDEWALK
PROPOSED PAVEMENT MARKINGS
GRASS / VEGETATION
Relocated Ashby Way through movements
Relocated Omera Drive through movements

US 17 and Omera Dr/Ashby Way



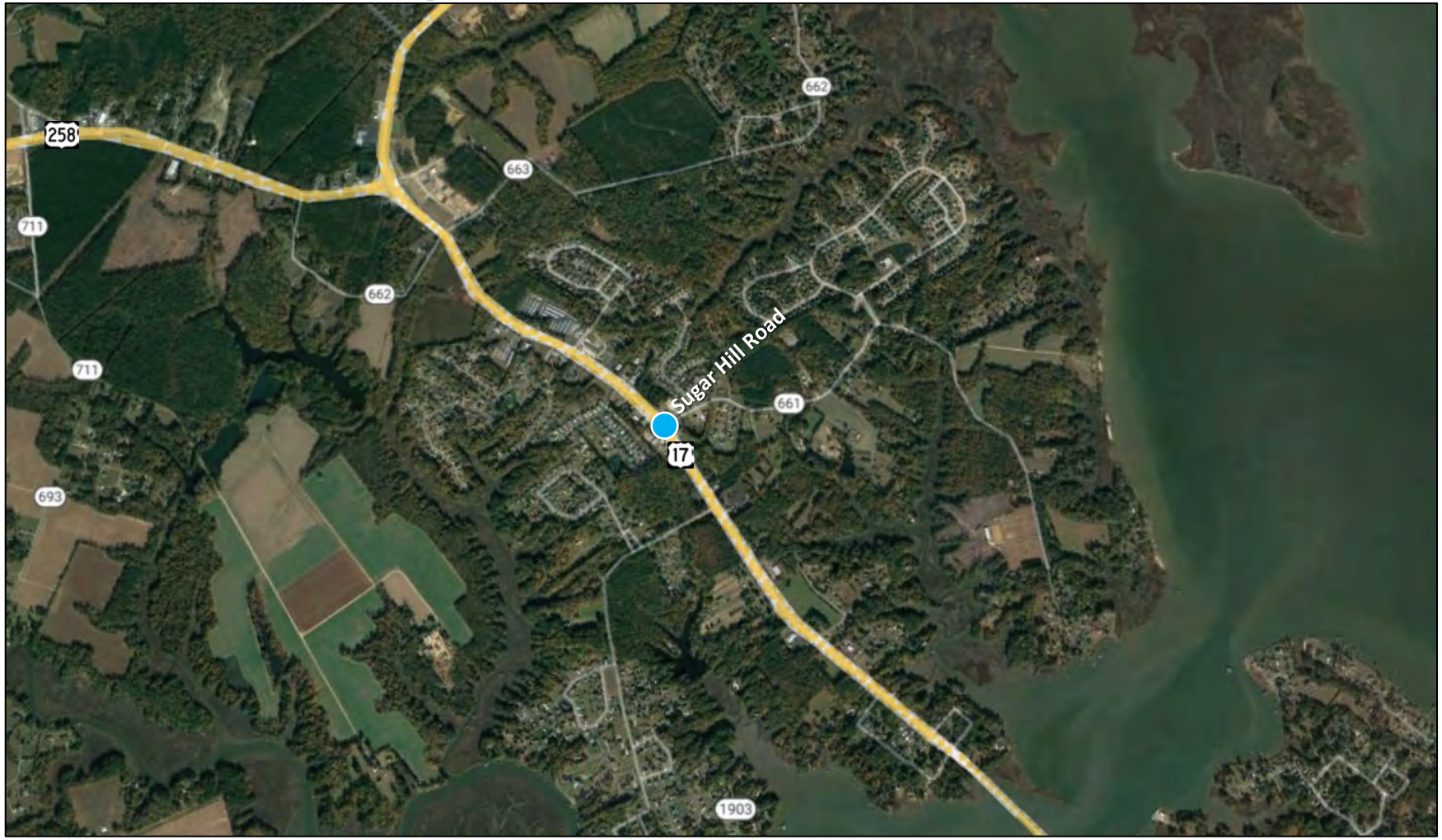
	Alternative	PM Intersection Delay	Estimated Construction Cost ($ - Millions)	Anticipated Crash Reduction (Higher is better)	Potential Right-of-way Impacts
1	No Build	50.1s - D	-	-	-
2	RCUT	26.2s - C	$2.1M - $3.7M	35%	<5,000 Sq. Ft
2	Thru-Cut	21.0s - C	$1.5M - $2.7M	10%	<5,000 Sq. Ft

US 17 and Omera Dr/Ashby Way Survey Results

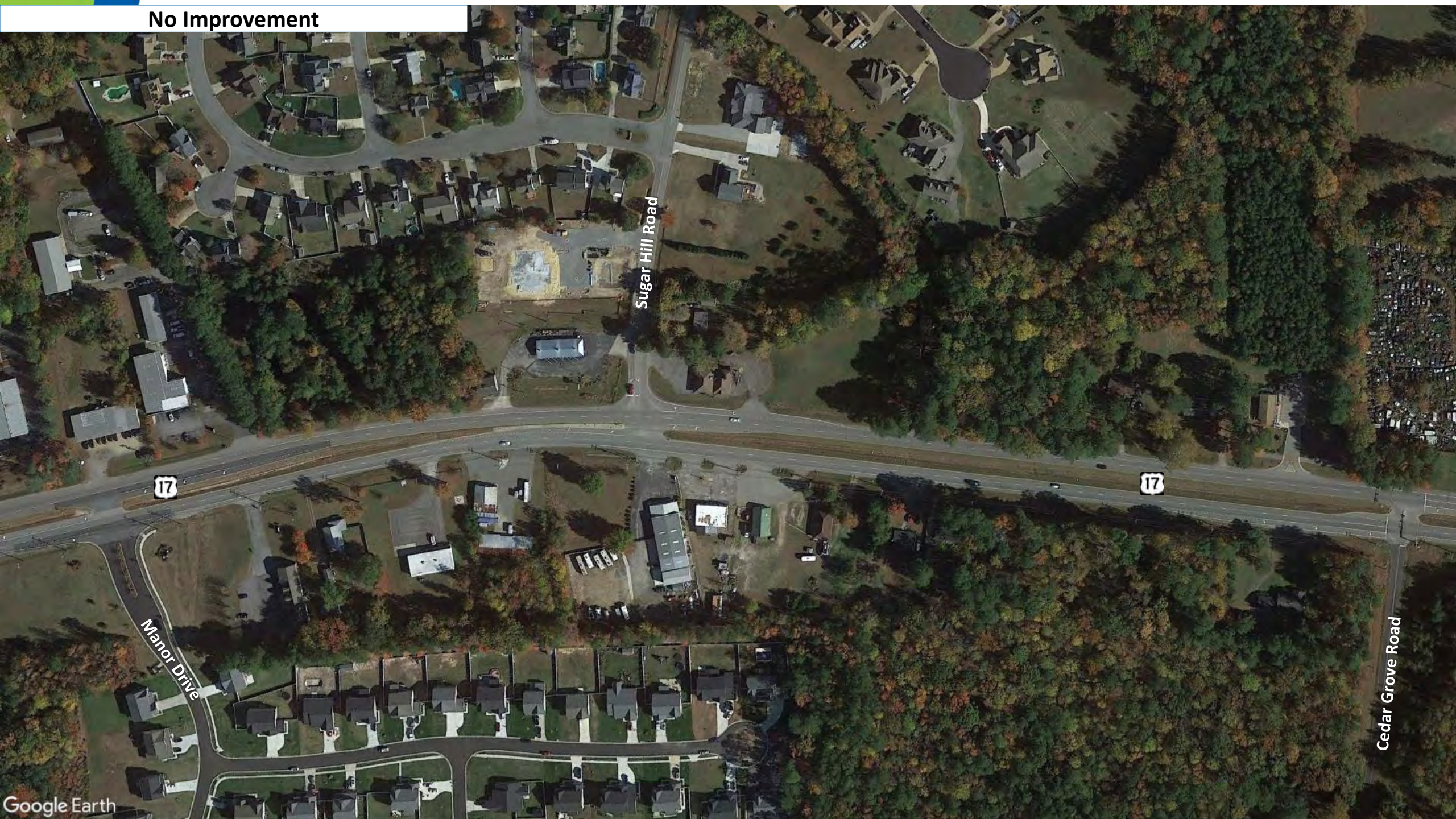
Alternative	Average Rating
No Improvement	2.03
Restricted Crossing U-Turn	2.91
Thru-Cut	2.94

- No Improvement – no changes to existing intersection.
- Restricted Crossing U-turn – Redirect all left and through movements from Ashby Way and Omera Drive through areas north and south of the intersection.
- Thru-Cut – Redirect through movements from Ashby Way and Omera Drive through areas north and south of the intersection.

US 17 and Sugar Hill Road



No Improvement



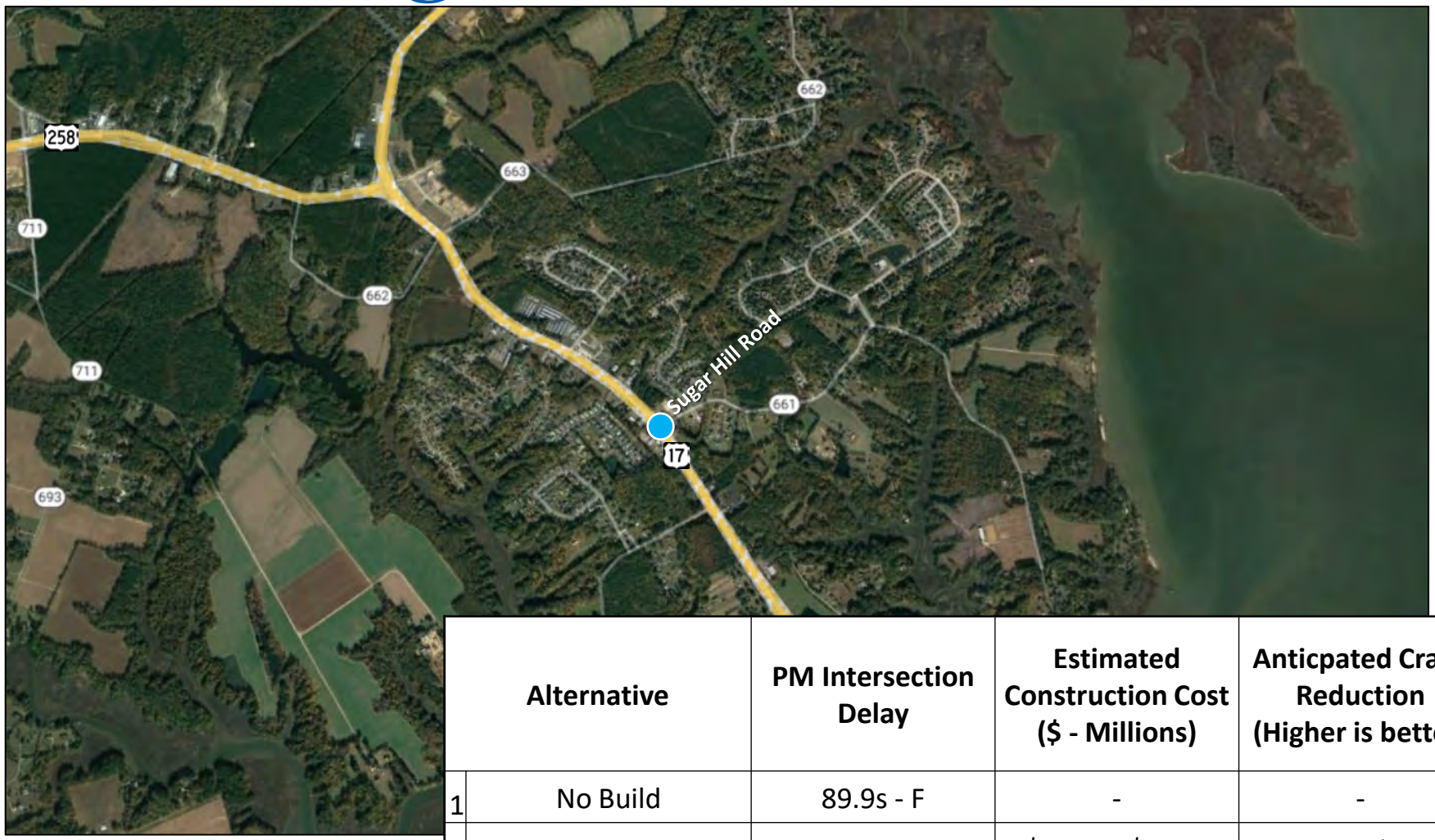
Restricted Crossing U-turn



Turbo-T


Sugar Hill Road
17
17
No conflicts with left-turning Sugar Hill Road vehicles and Route 17 south through vehicles
Cedar Grove Road
LEGEND
PAVEMENT AREA
DEMOLISH EXISTING PAVEMENT
PROPOSED PAVEMENT MARKINGS
PROPOSED RAISED MEDIAN
PROPOSED SIDEWALK
GRASS / VEGETATION

US 17 and Sugar Hill Road



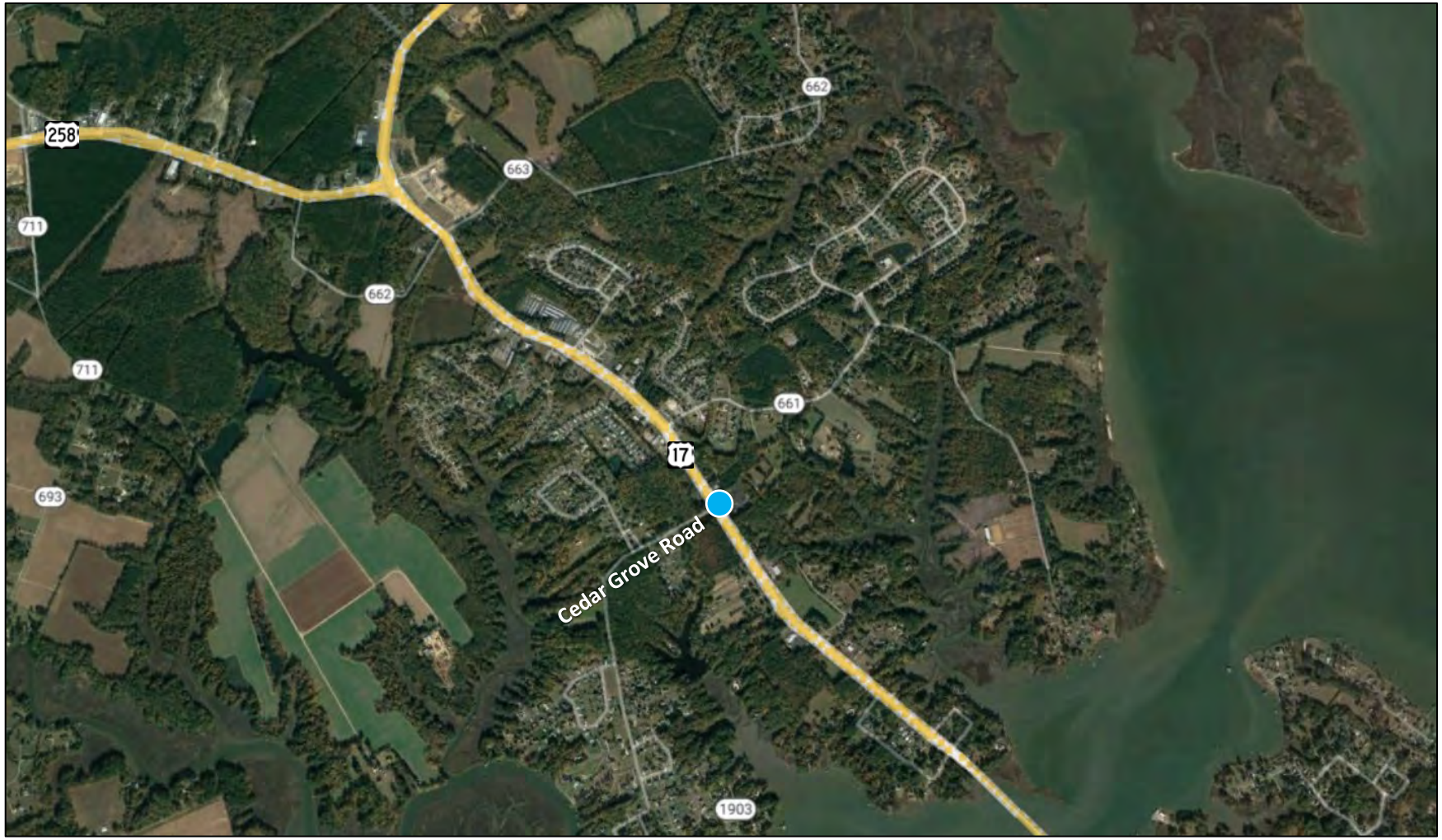
	Alternative	PM Intersection Delay	Estimated Construction Cost ($ - Millions)	Anticpated Crash Reduction (Higher is better)	Potential Right-of-way Impacts
1	No Build	89.9s - F	-	-	-
2	RCUT	5.0s - A	$1.2M - $2.1M	55%	<5,000 Sq. Ft
3	Turbo-T	8.2s - A	$1.6M - $2.6M	15%	<5,000 Sq. Ft

US 17 and Sugar Hill Road Survey Results

Alternative	Average Rating
No Improvement	1.82
Restricted Crossing U-Turn	2.77
Turbo-T	3.58

- No Improvement – no changes to existing intersection.
- Restricted Crossing U-turn – Redirect all left and through movements from Sugar Hill Road and driveway through areas north and south of the intersection.
- Turbo-T – Provide an acceleration lane for left-turn vehicles from Sugar Hill Road to merge onto US 17 southbound.

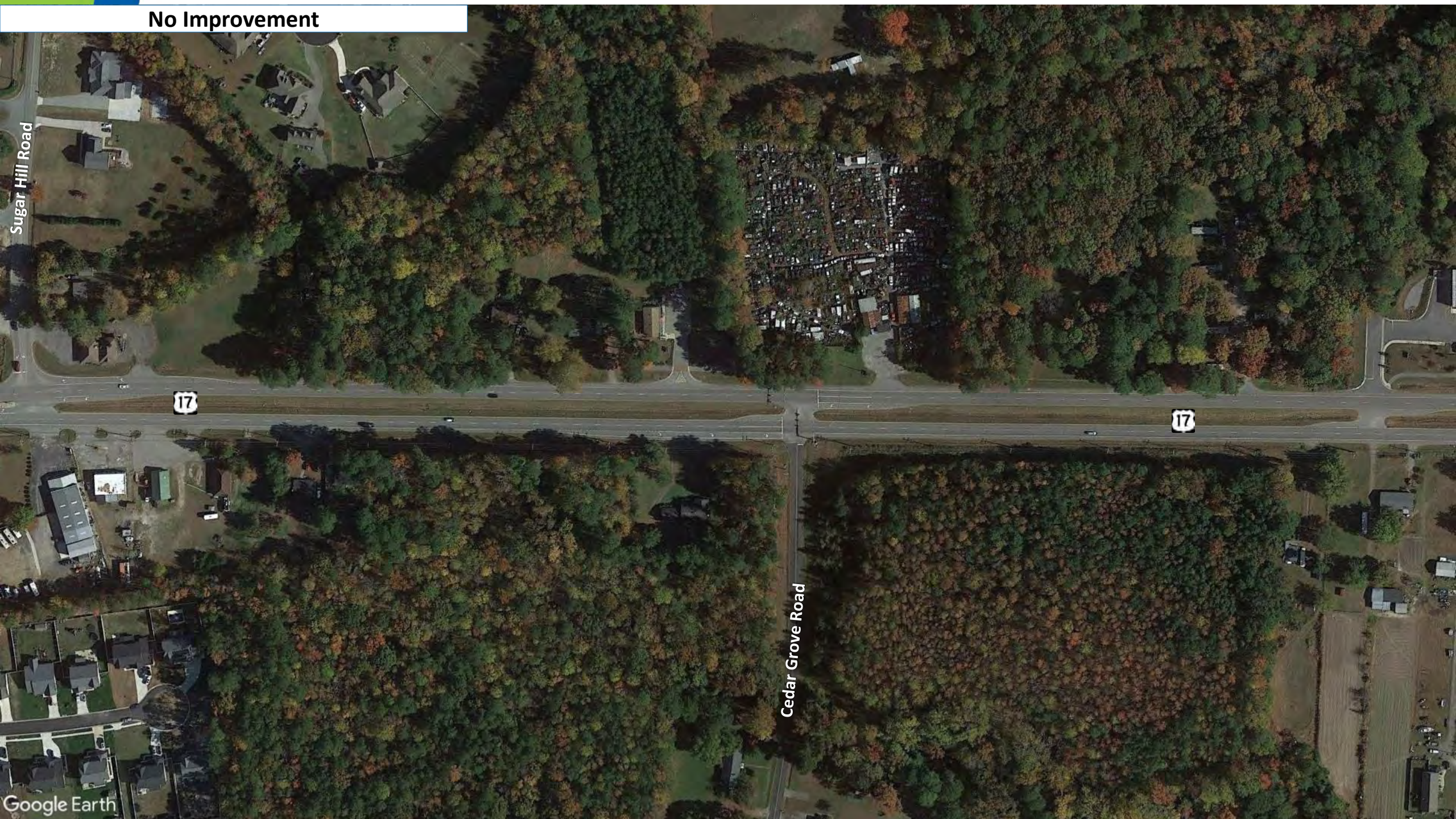
US 17 and Cedar Grove Road



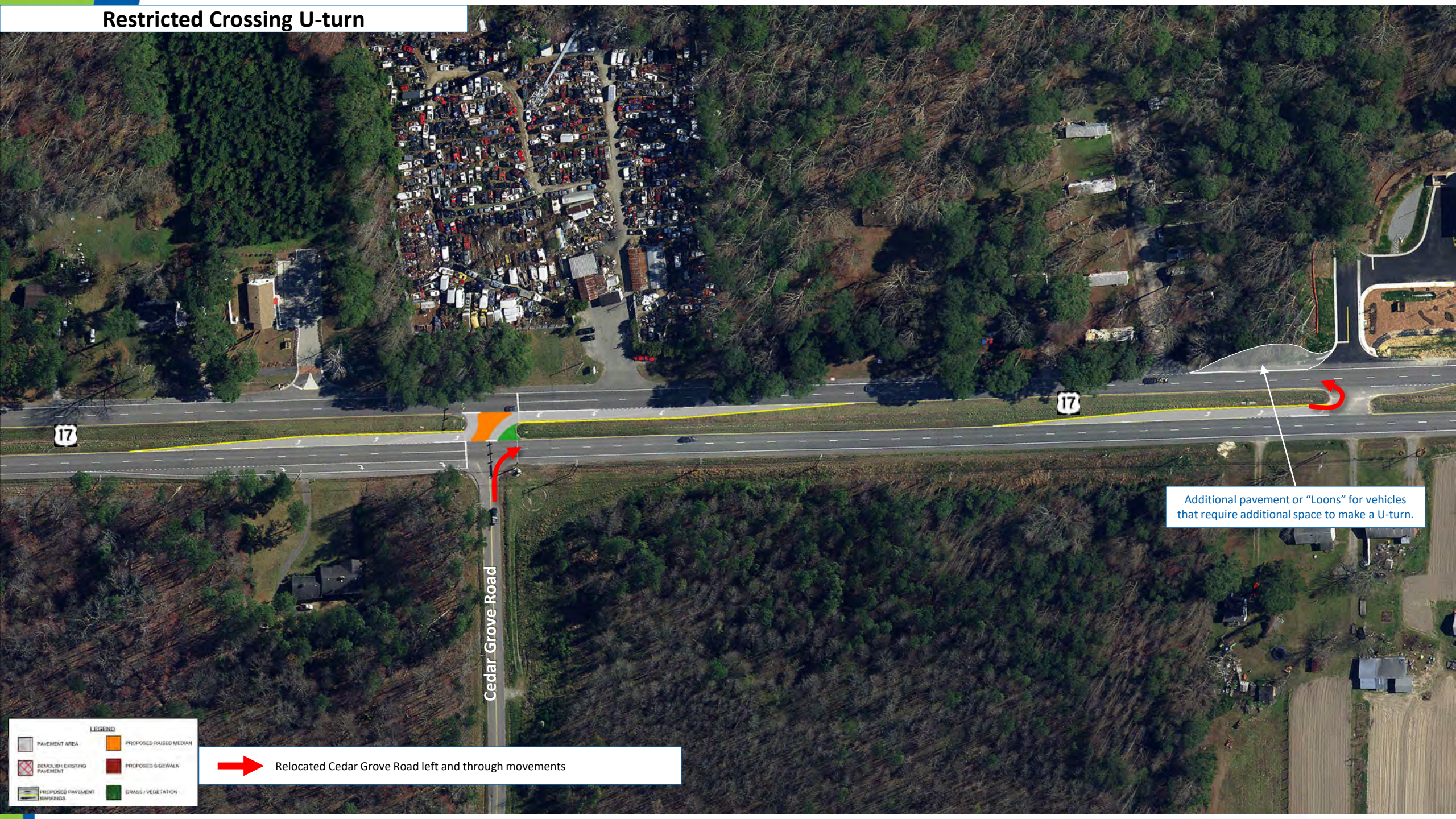
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No Improvement



Restricted Crossing U-turn



Turbo-T



- Route 17 north has continuous “Green” signal indication
- No conflicts with left-turning Cedar Grove Road vehicles and Route 17 north through vehicles

US 17 and Cedar Grove Road



	Alternative	PM Intersection Delay	Estimated Construction Cost ($ - Millions)	Anticpated Crash Reduction (Higher is better)	Potential Right-of-way Impacts
1	No Build	17.3s - B	-	-	-
2	RCUT	7.6s - A	$1.2M - $2.1M	35%	3,000 to 8,000 Sq. Ft.
2	Turbo-T	13.5s - B	$1.6M - $2.6M	15%	3,000 to 8,000 Sq. Ft.

US 17 and Cedar Grove Road Survey Results

Alternative	Average Rating
No Improvement	1.98
Restricted Crossing U-Turn	3.01
Turbo-T	3.08

- No Improvement – no changes to existing intersection.
- Restricted Crossing U-turn – Redirect all left-turns from Cedar Grove Road through an area south of the intersection.
- Turbo-T – Provide an acceleration lane for left-turning vehicles from Cedar Grove Road to merge onto US 17 northbound.

QUESTIONS?

US 17 Arterial Preservation Plan

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