

# ARTERIAL

## PRESERVATION PROGRAM

### **US 301 / Rte 207 Arterial Preservation Plan – Final Recommendations April 25, 2018**

*The following pages represent the final recommendations resulting from a comprehensive transportation study of the US 301/Route 207 corridor from US Route 1 in the Carmel Church area to the Potomac River at the Governor Harry Nice Memorial Bridge. A map key can be found on the next two pages.*

*More information about the Arterial Preservation Program can be found at:*

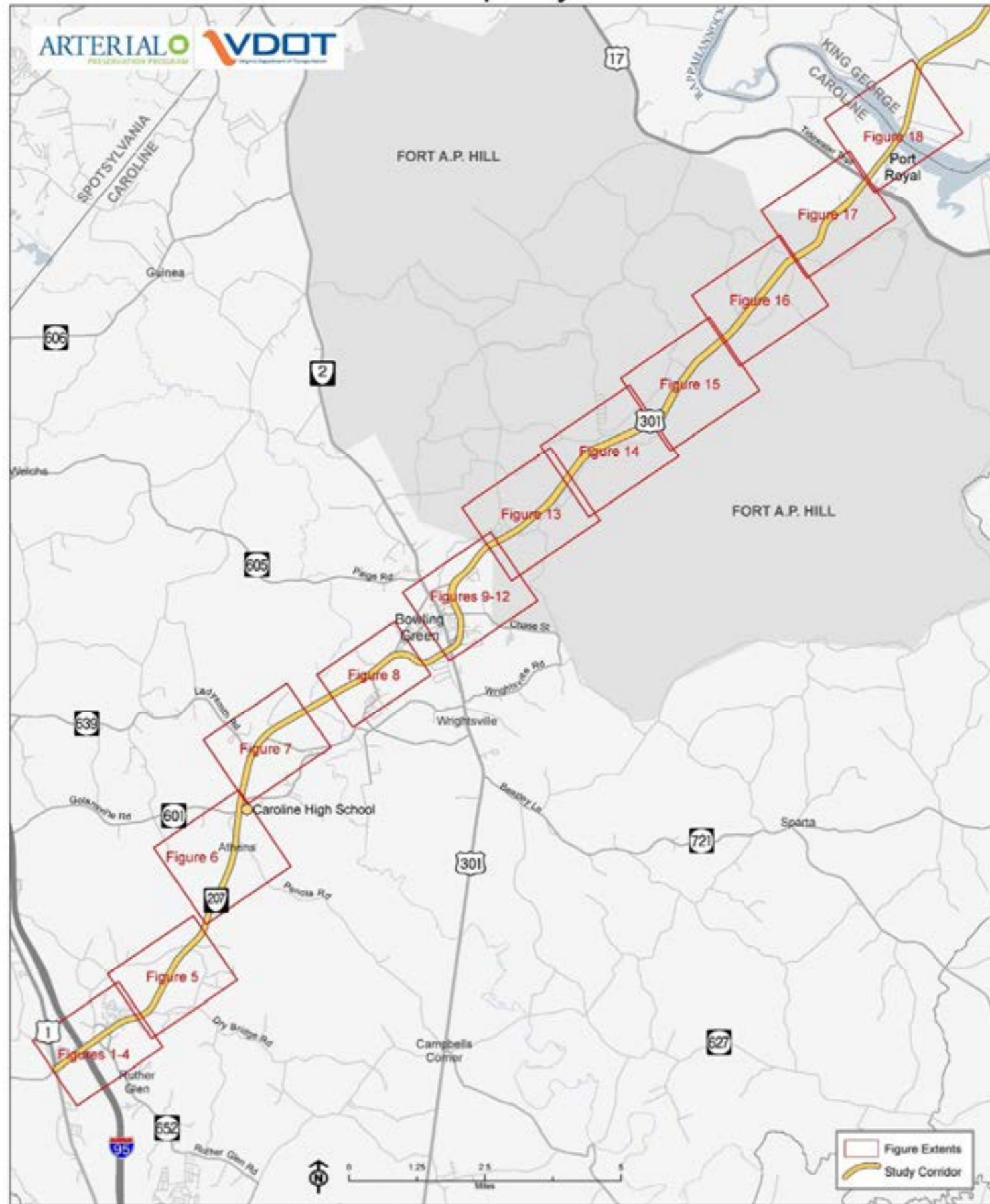
[http://www.virginiadot.org/programs/vdot\\_arterial\\_preservation\\_program.asp](http://www.virginiadot.org/programs/vdot_arterial_preservation_program.asp)

*A final study report is being developed and will be posted to the project webpage by the end of May 2018.*

[http://www.virginiadot.org/projects/fredericksburg/route\\_301\\_and\\_route\\_207\\_corridor\\_study.asp](http://www.virginiadot.org/projects/fredericksburg/route_301_and_route_207_corridor_study.asp)

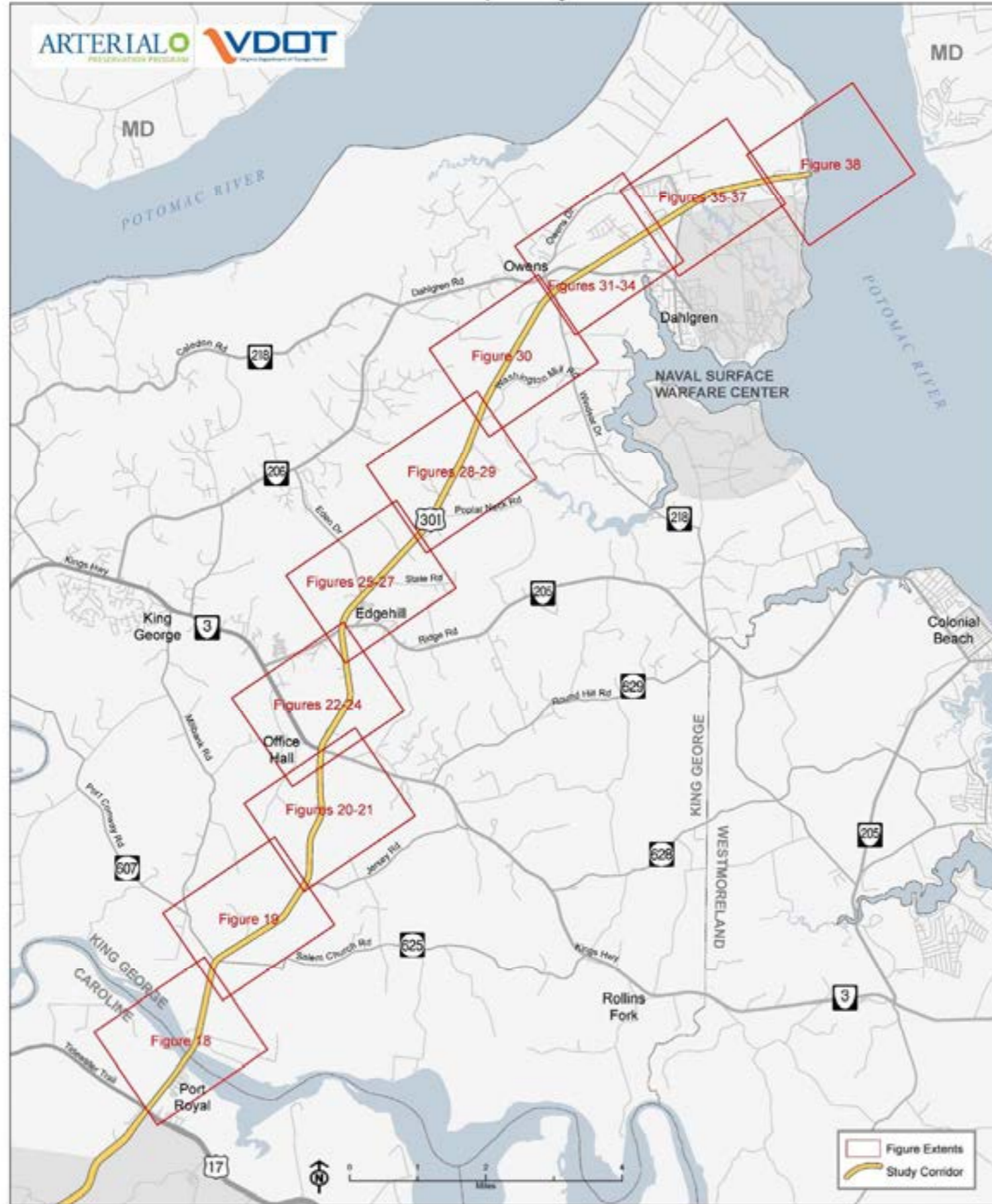


# Map Key





# Map Key





Fort AP Hill

Gov. Nice Bridge

**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 18**  
**Intersections & Median Crossovers**  
**Caroline County/King George County**

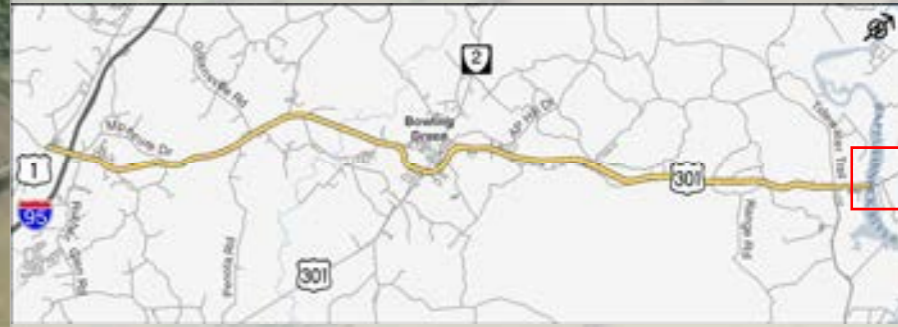
I## - Intersection #  
 C## - Crossover #

**Town of Port Royal**  
 Portion of US301 that goes through Town of Port Royal will require a stand-alone study outside the scope of this project

**Crossovers #27:**  
**Recommendation:** None

**Crossovers #28:**  
**Recommendation:** Reconfigure existing crossover to a directional median only allowing left turns from northbound US 301  
**Cost:** \$0.2M to \$0.3M

**Crossovers #29:**  
**Recommendation:** Lengthen existing left-turn lanes on US 301 as development occurs  
**Cost:** \$0.4M to \$0.5M





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**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 19**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

**Intersection #24: Port Conway Rd with US 301**

**Recommendation:** Lengthen existing left-turn lanes on US 301; Future VDOT project to reconfigure intersection to Restricted Crossing U-Turn  
**Cost:** To Be Done by Others

**Crossovers #30:**

**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #31:**

**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #32:**

**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #33:**

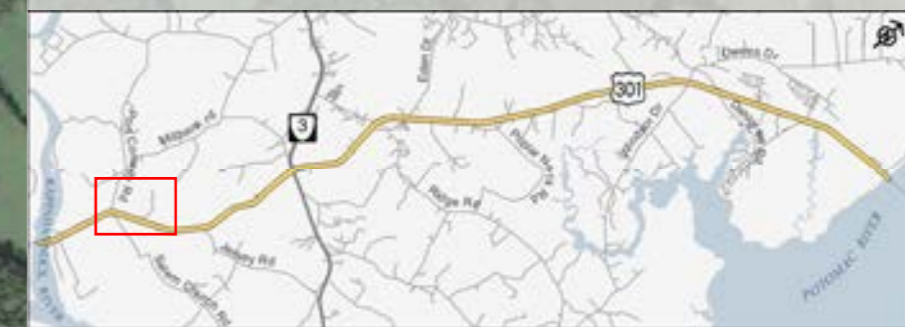
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #34:**

**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #35:**

**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M





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**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 20**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

**Intersection #25: Jersey Rd with US 301**  
**Recommendation:** Lengthen existing turn lanes on US 301; Widen median opening  
**Cost:** \$0.5M to \$0.6M

**Crossovers #36:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

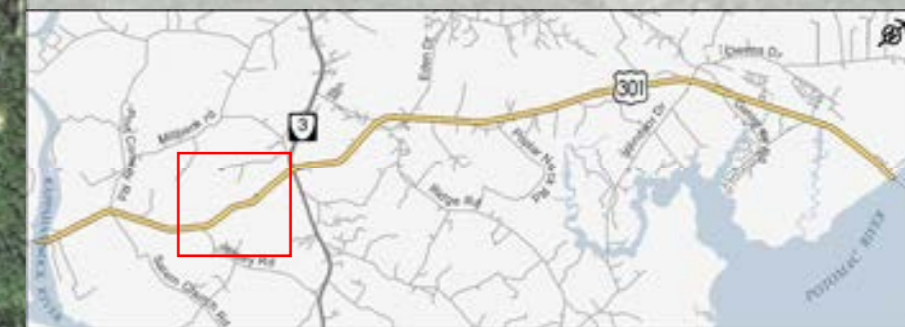
**Crossovers #37:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #38:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #39:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #40:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #41:**  
**Recommendation:** Construct left-turn lanes on US 301; Widen median opening  
**Cost:** \$0.5M to \$0.6M





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# US 301/Rte 207 Arterial Preservation Plan Figure 21 Intersections & Median Crossovers King George County

I## - Intersection #  
C## - Crossover #

**Crossovers #42:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #43:**  
**Recommendation:** Construct left-turn lanes on US 301 and lengthen existing southbound US301 right-turn lane; Widen median opening  
**Cost:** \$0.7M to \$0.9M



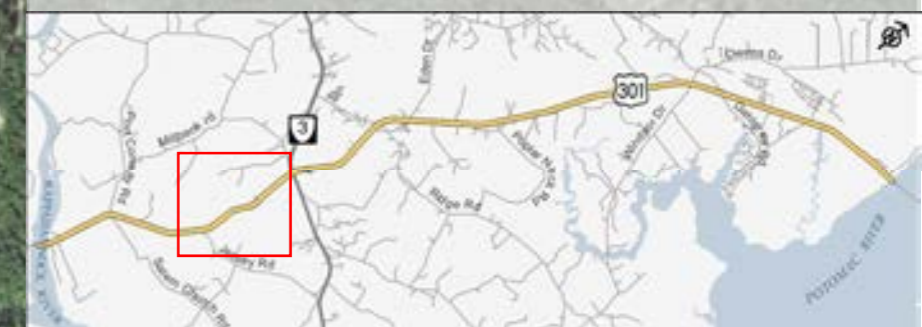
King George County  
School Transportation

C#42

C#43

301

Jersey Rd





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**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 22**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

**Intersection #26: Rte 3 with US 301**  
**Recommendation:** Reconfigure intersection to Quadrant Roadway or Median U-Turn— See Figures 23 and 24  
**Quadrant Cost:** \$2.8M to \$4.8M  
**Median U-Turn Cost:** \$1.8M to \$3.2M

**Crossovers #44:**  
**Recommendation:** Lengthen existing northbound and southbound left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #45:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #46:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #47:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #48:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M







**US 301/Rte 207 Arterial Preservation Plan  
Figure 23  
Intersection #26: US 301 with Route 3  
Quadrant Roadway (QR)  
Improvement Type: Congestion, Economic  
Development**

**Recommendation:** Reconfigure main intersection at Route 3 with US 301 disallowing lefts. Construct quadrant roadway with signalized intersection on US 301 and Unsignalized intersection on Route 3

**ROW Impacts:** Quadrant Roadway will require significant land acquisition and storm water management facilities. Modifications such as new turn lanes and new crossovers on US 301 and Rte 3 will require minimal ROW impacts

**Traffic Operations:** Delay (seconds) – Level of Service Median U-Turn

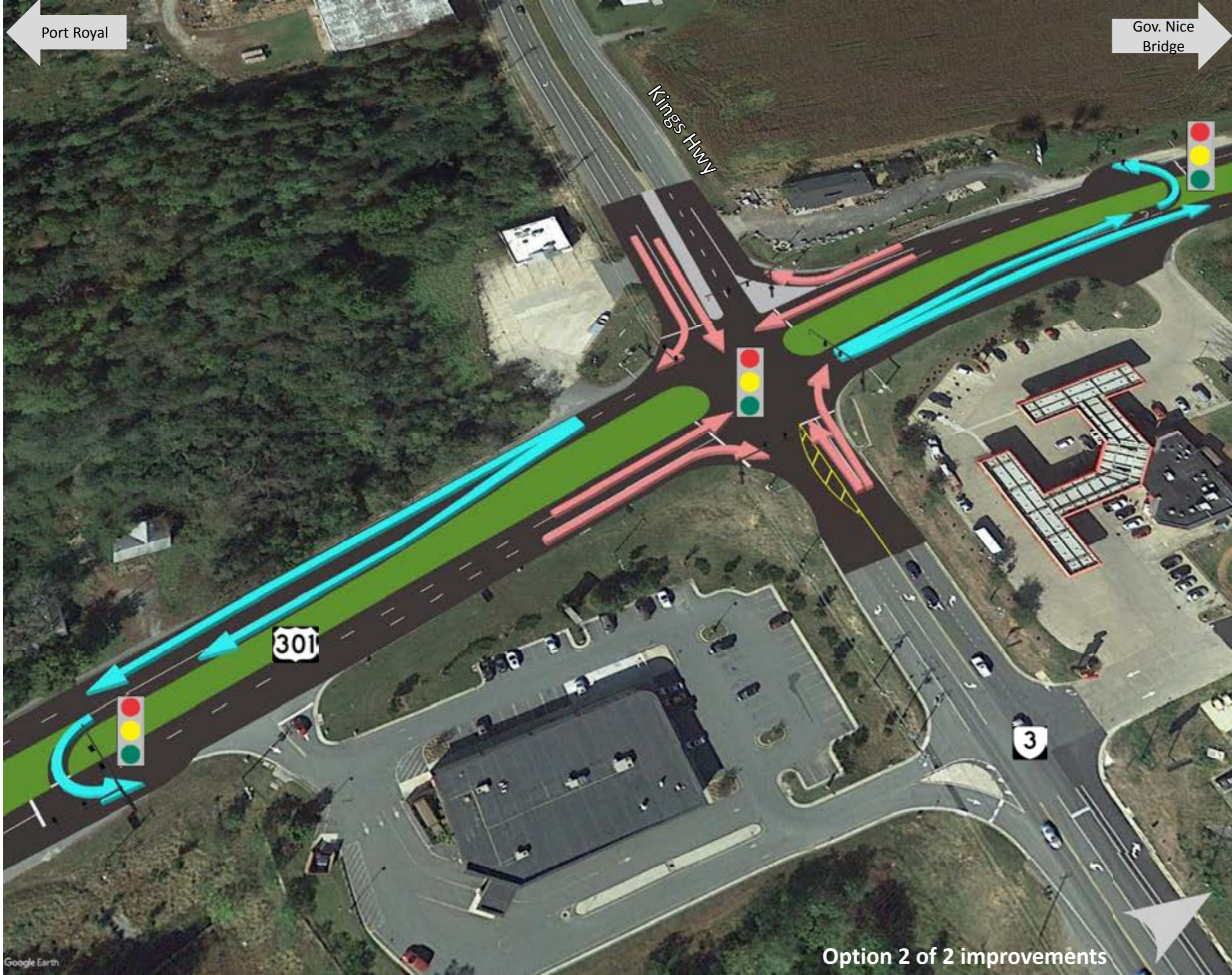
|    | Conventional | Quadrant        | Median U-Turn |
|----|--------------|-----------------|---------------|
| AM | 116.8 - F    | <b>15.2 - B</b> | 19.2 - B      |
| PM | 105.4 - F    | <b>21.9 - C</b> | 25.8 - C      |

- Quadrant Cost:** \$2.8M to \$4.8M
- Standard Movements
  - Southbound US 301 to Eastbound Rte 3
  - Northbound US 301 to Westbound Rte 3
  - Eastbound Rte 3 to Northbound US 301
  - Westbound Rte 3 to Southbound US 301



**Option 1 of 2 improvements**





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Kings Hwy

301

3

Option 2 of 2 improvements

**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 24**  
**Intersection #26: US 301 with Route 3**  
**Median U-Turn (MUT)**  
**Improvement Type: Congestion, Economic Development**



**Recommendation:** Reconfigure main intersection at Route 3 with US 301 disallowing lefts. Construct single lane signaled U-turn areas north and south of main intersection

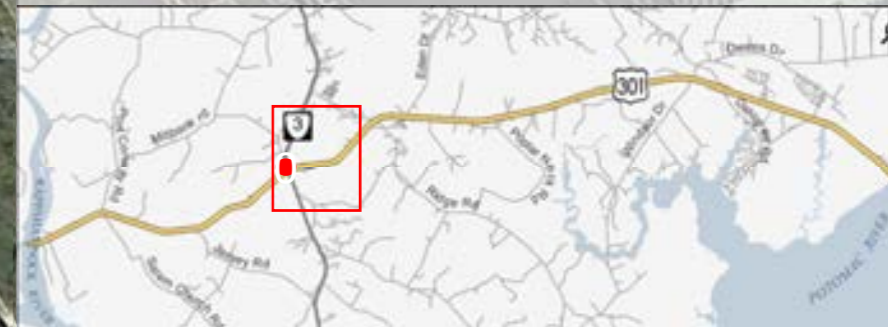
**ROW Impacts:** Signalized U-turn areas and removal of existing left-turn lanes at main intersection are primarily in existing ROW and any ROW acquisition will be minimal

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | Quadrant | Median U-Turn   |
|----|--------------|----------|-----------------|
| AM | 116.8 - F    | 15.2 - B | <b>19.2 - B</b> |
| PM | 105.4 - F    | 21.9 - C | <b>25.8 - C</b> |

**Median U-Turn Cost:** \$1.8M to \$3.2M

-  Standard Movements
-  Re-routed left turn movements



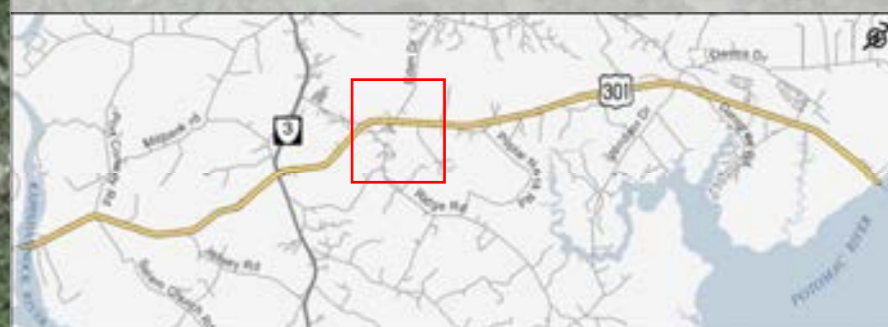




**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 25**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

- Crossovers #49:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M
- Crossovers #50:**  
**Recommendation:** Use for Median U-turn  
**Cost:** Included in Intersection #27 Cost
- Intersection #27: Ridge Rd with US 301**  
**Recommendation:** Reconfigure intersection to Median U-Turn—  
 See Figure 27  
**Cost:** \$2.1M to \$3.5M
- Crossovers #51:**  
**Recommendation:** Use for Median U-turn  
**Cost:** Included in Intersection #27 Cost
- Crossovers #52:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M
- Intersection #28: Eden Rd with US 301**  
**Recommendation:** Lengthen existing northbound left-turn lane on  
 US 301  
**Cost:** \$0.2M to \$0.3M
- Crossovers #53:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M





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# US 301/Rte 207 Arterial Preservation Plan Figure 26 Intersections & Median Crossovers King George County

I## - Intersection #  
C## - Crossover #

### Crossovers #54:

**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

### Intersection #29: State Rd with US 301

**Recommendation:** Lengthen existing southbound left-turn lane on US 301. Construct northbound left-turn lanes on US 301.  
**Cost:** \$0.4M to \$0.5M

### Crossovers #55:

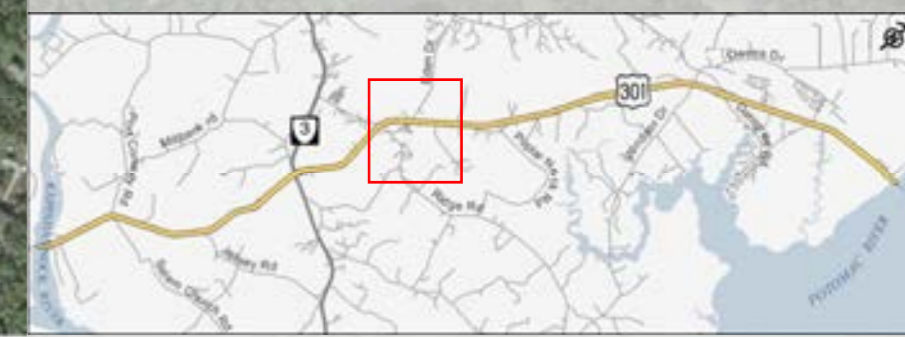
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

### Crossovers #56:

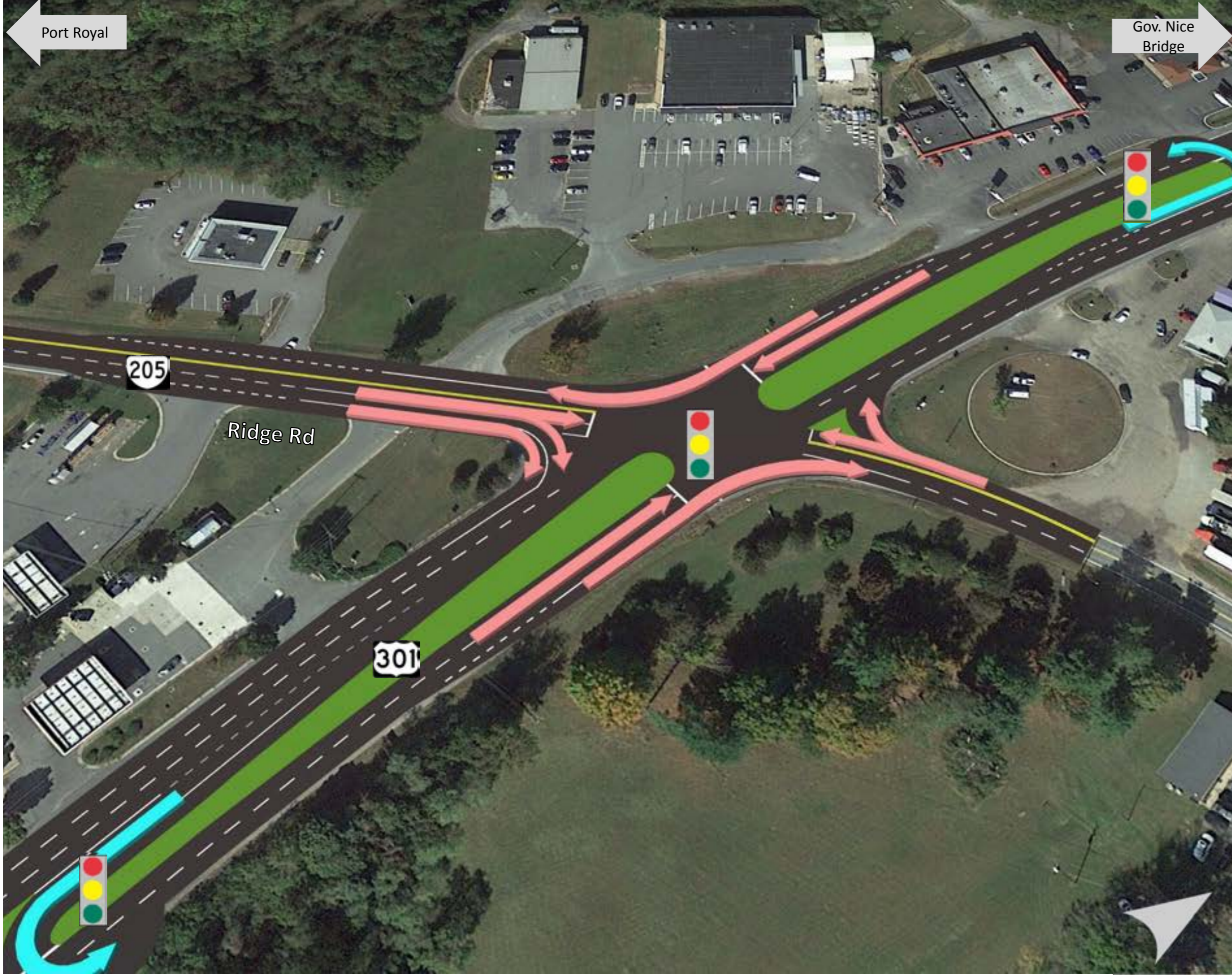
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

### Crossovers #57:

**Recommendation:** Lengthen existing southbound left-turn lane on US 301. Construct northbound left-turn lanes on US 301.  
**Cost:** \$0.4M to \$0.5M







**US 301/Rte 207 Arterial Preservation Plan  
Figure 27  
Intersection #27: US 301 with Ridge Rd  
Median U-Turn (MUT)  
Improvement Type: Congestion, Economic  
Development**

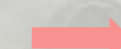
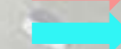
**Recommendation:** Reconfigure main intersection at Ridge Rd with US 301 disallowing lefts. Construct single lane signaled u-turn areas north and dual lanes signaled u-turn area south of main intersection. Eastbound Ridge Rd approach requires widening from 2 lanes to 4 lanes.

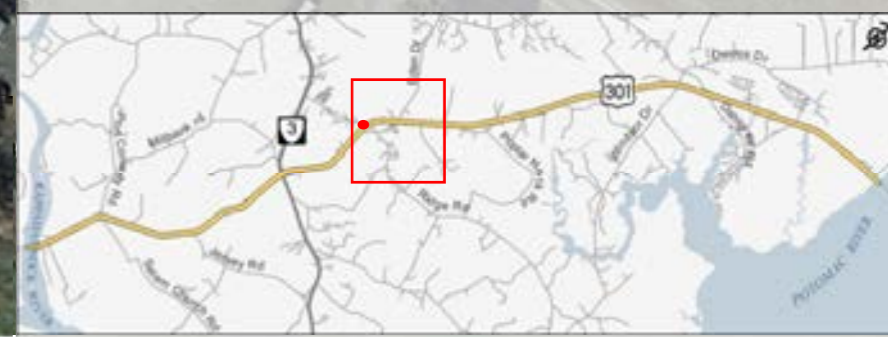
**ROW Impacts:** Signalized U-turn areas and removal of existing left-turn lanes at main intersection are primarily in existing ROW and any ROW acquisition will be minimal. Approach widening on Ridge Rd eastbound will require a minimum of one-lanes width on each side

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | Median U-Turn |
|----|--------------|---------------|
| AM | 51.4-D       | 47.4 - D      |
| PM | 101.5 - F    | 40.6 - D      |

**Cost:** \$2.1M to \$3.5M

-  Standard Movements
-  Re-routed left turn movements





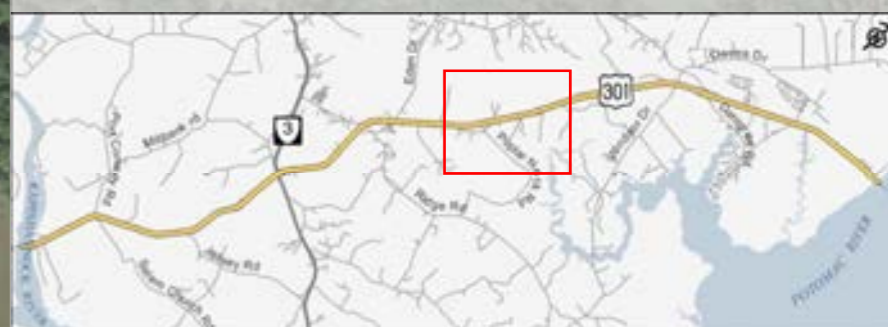
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**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 28**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

- Crossovers #58:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M
- Intersection #30 Poplar Neck Rd with US 301**  
**Recommendation:** Lengthen existing left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M
- Crossovers #59:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M
- Crossovers #60:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M
- Crossovers #61:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M
- Crossovers #62:**  
**Recommendation:** Construct left-turn lanes on US 301. Construct northbound right-turn lane on US301  
**Cost:** \$0.6M to \$0.8M





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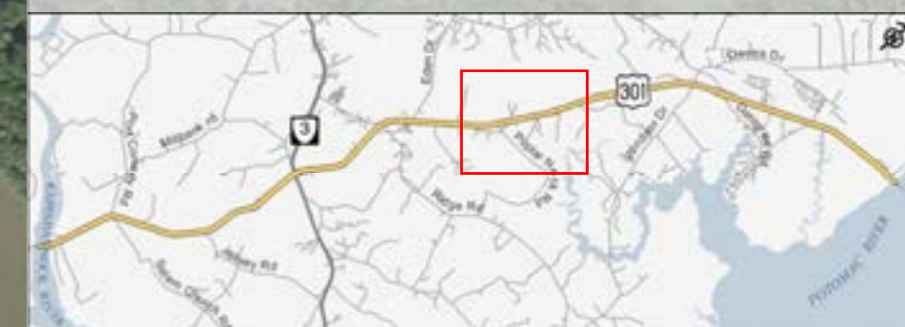
# US 301/Rte 207 Arterial Preservation Plan Figure 29 Intersections & Median Crossovers King George County

I## - Intersection #  
C## - Crossover #

**Crossovers #63:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Intersection #31 Washington Mill Rd with US 301**  
**Recommendation:** Lengthen existing southbound left-turn lane on US 301. Construct northbound left-turn lane on US 301. Potential road realignment of Washington Mill Rd  
**Cost:** \$0.8M to \$1.2M

**Crossovers #64:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M





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**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 30**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
 C## - Crossover #

**Crossovers #65:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Crossovers #66:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #67:**  
**Recommendation:** Construct northbound left-turn lane on US 301  
**Cost:** \$0.2M to \$0.3M

**Crossovers #68:**  
**Recommendation:** Reconfigure crossover to directional median to allow only lefts from northbound US 301 onto Hillcrest Dr  
**Cost:** \$0.4M to \$0.5M

C#67

C#65

301

Hillcrest Dr

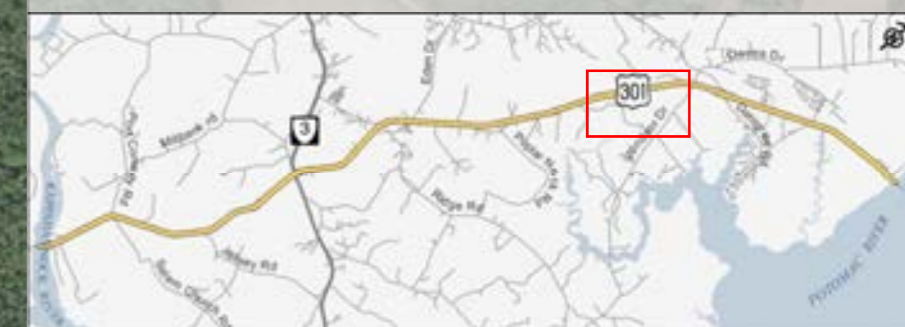
Hillcrest Motel

C#68

C#66

301

Washington Mill Rd







**US 301/Rte 207 Arterial Preservation Plan  
Figure 31  
Intersections & Median Crossovers  
King George County**

I## - Intersection #  
C## - Crossover #

**Intersection #32 Windsor Dr with US 301:**  
**Recommendation:** Reconfigure intersection to Restricted Crossing U-Turn- See Figure 32  
**Cost:** \$0.6M to \$0.9M

**Intersection #33 Dahlgren Rd with US 301**  
**Recommendation:** Reconfigure intersection to Quadrant Roadway or Median U-Turn— See Figure 33 and Figure 34  
**Quadrant Cost:** \$3.5M to \$6.1M  
**Median U-Turn Cost:** \$2.6M to \$4.2M

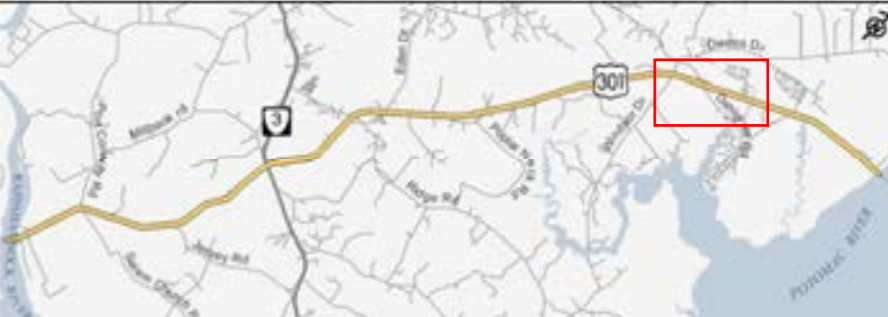
**Crossovers #69:**  
**Recommendation:** Remove Crossover or utilize for Median U-Turn at intersection of Dahlgren Rd with US 301  
**Cost:** Included in Intersection #33 Cost

**Crossovers #70:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

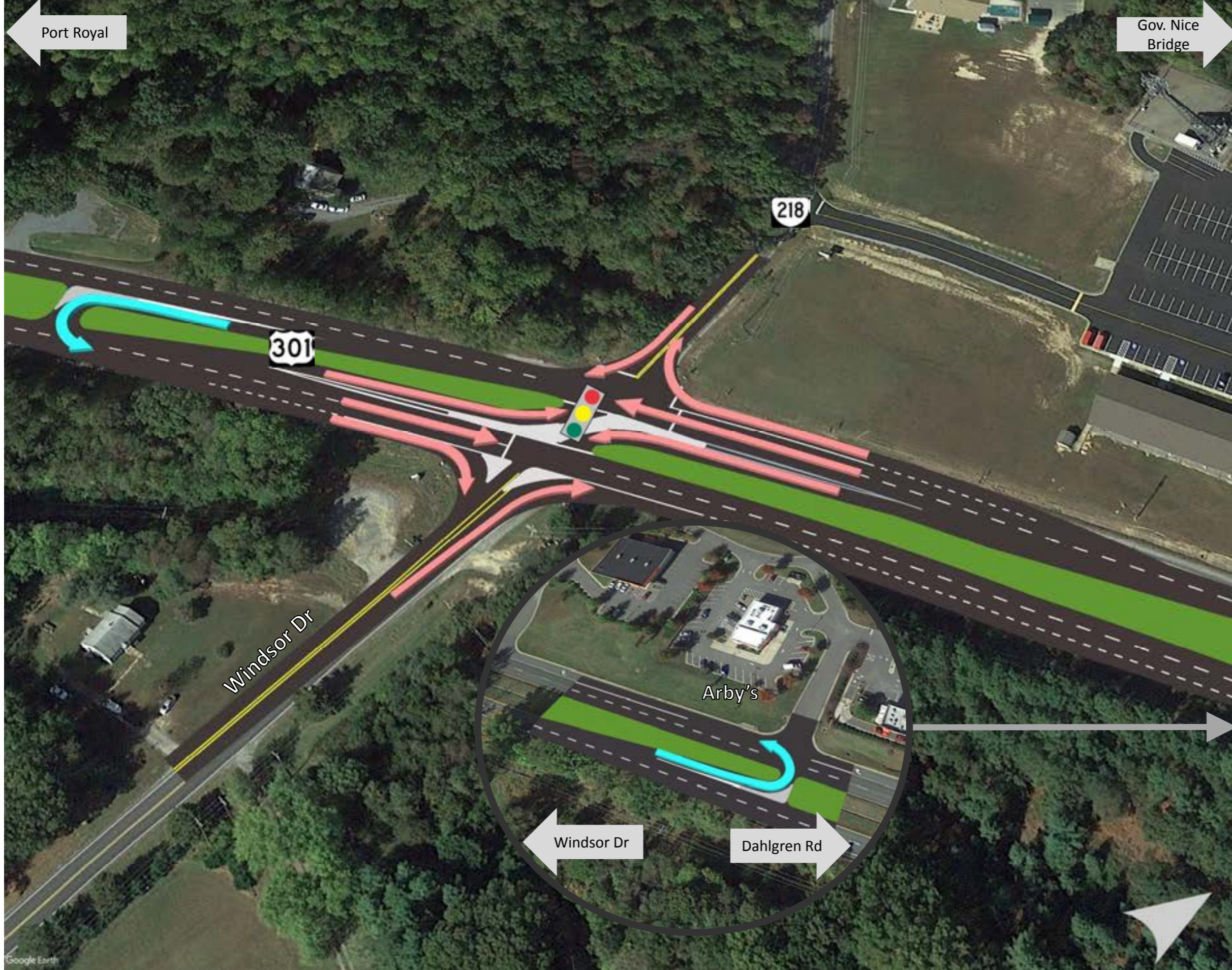
**Crossovers #71:**  
**Recommendation:** Construct left-turn lanes on US 301  
**Cost:** \$0.4M to \$0.5M

**Intersection #34 Danube Dr with US 301**  
**Recommendation:** Reconfigure intersection to directional median to allow only lefts from northbound US 301. Utilize Crossover # 71 as U-Turn area.  
**Cost:** \$0.2M to \$0.3M

**Crossovers #72:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M







**US 301/Rte 207 Arterial Preservation Plan  
Figure 32  
Intersection #32: US 301 with Windsor Dr  
Restricted Crossing U-Turn (RCUT)  
Improvement Type: Congestion, Economic  
Development**

**Recommendation:** Reconfigure intersection at Windsor Dr with US 301 to signalized restricted crossing u-turn. Construct u-turn areas north and south of existing intersection for westbound and eastbound thru and left-turn movements. See inset for redirected westbound turn movements u-turn area.

**ROW Impacts:** U-turn areas and intersection modifications are within existing ROW. Westbound right-turn acceleration lane will require minimum of one lane width on northbound US301.

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | RCUT            |
|----|--------------|-----------------|
| AM | 17.7 - B     | <b>9.8 - A</b>  |
| PM | 43.7 - D     | <b>15.2 - B</b> |

**Cost:** \$0.6M to \$0.9M

- ➔ Standard Movements
- ➔ Re-routed left-turn movements







**US 301/Rte 207 Arterial Preservation Plan  
Figure 33  
Intersection #33: US 301 with Dahlgren Rd  
Quadrant Roadway (QR)  
Improvement Type: Congestion, Economic  
Development**

**Recommendation:** Reconfigure main intersection at Dahlgren Rd with US 301 disallowing lefts. Construct quadrant roadway with signalized continuous green-t intersection on US 301 and signalized intersection on Dahlgren Rd

**ROW Impacts:** Quadrant Roadway will require significant land acquisition and storm water management facilities. Modifications such as new turn lanes and new crossovers on US 301 and Rte 206 will require minimal ROW impacts

Possible area for development opportunities if access management principles can be satisfied

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | Quadrant        | Median U-Turn |
|----|--------------|-----------------|---------------|
| AM | 57.5 - E     | <b>42.5 - D</b> | 66.3 - E      |
| PM | 179.8 - F    | <b>64.4 - E</b> | 48.4 - D      |

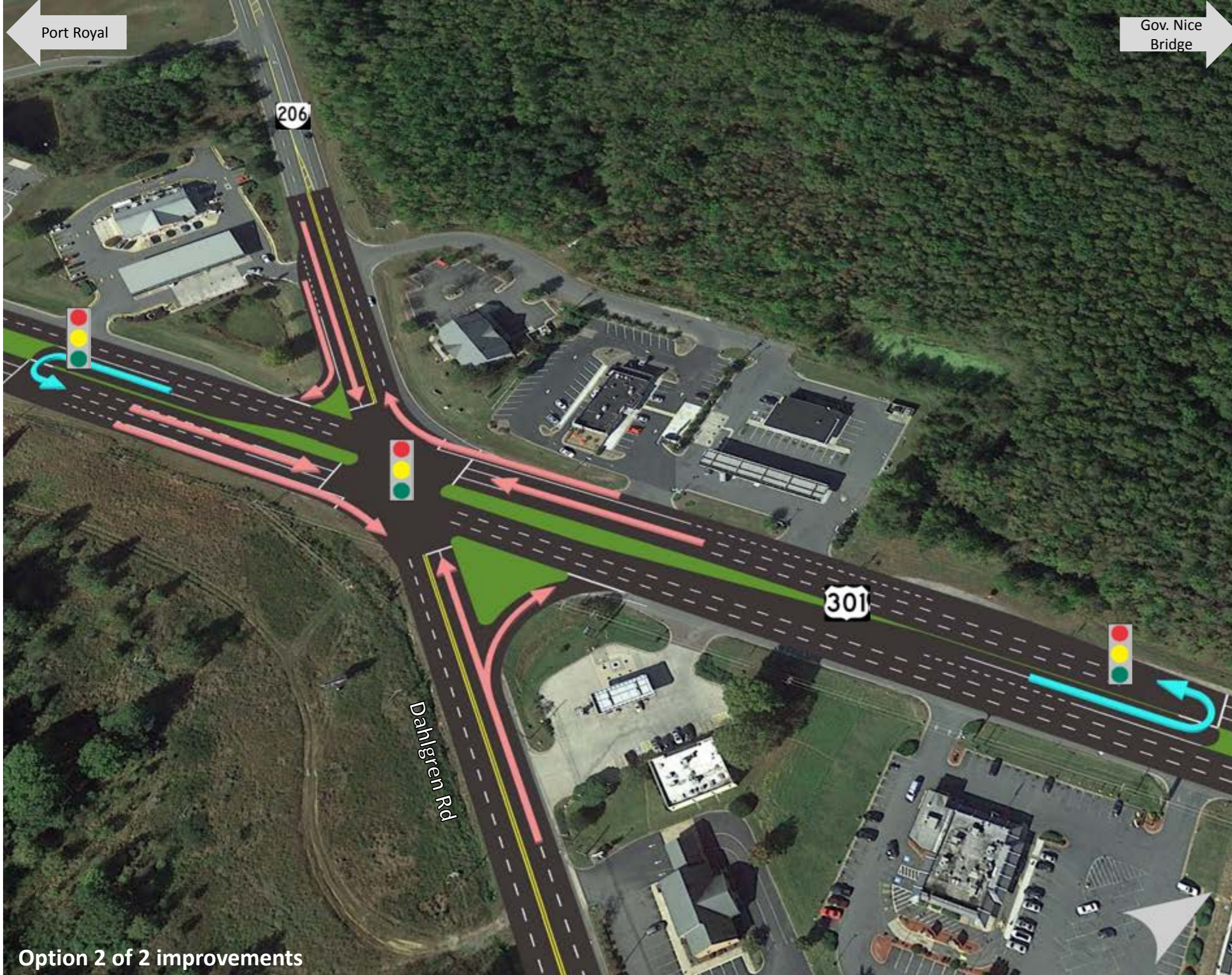
**Quadrant Cost:** \$3.5M to \$6.1M

- Standard Movements
- Southbound US 301 to Eastbound Dahlgren Rd
- Northbound US 301 to Westbound Dahlgren Rd
- Westbound Dahlgren Rd to Southbound US 301
- Eastbound Dahlgren Rd to Northbound US 301



**Option 1 of 2 improvements**





**US 301/Rte 207 Arterial Preservation Plan  
Figure 34  
Intersection #33: US 301 with Dahlgren Rd  
Median U-Turn (MUT)  
Improvement Type: Congestion, Economic  
Development**



**Recommendation:** Reconfigure main intersection at Dahlgren Rd with US 301 disallowing lefts, construct two-lane signaled U-turn areas north and south of main intersection.

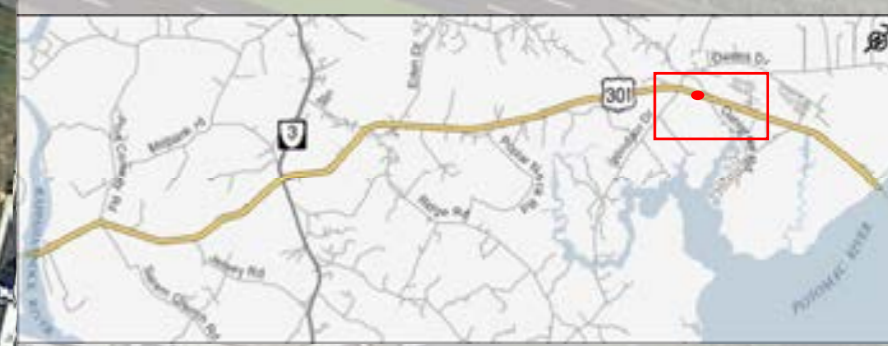
**ROW Impacts:** Signalized U-turn areas and removal of existing left-turn lanes at main intersection are primarily in existing ROW and any ROW acquisition will be minimal

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | Quadrant | Median U-Turn   |
|----|--------------|----------|-----------------|
| AM | 57.5 - E     | 42.5 - D | <b>66.3 - E</b> |
| PM | 179.8 - F    | 64.4 - E | <b>48.4 - D</b> |

**Cost:** \$2.6M to \$4.2M

-  Standard Movements
-  Re-routed left turn movements



**Option 2 of 2 improvements**



Port Royal

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Bridge

# US 301/Rte 207 Arterial Preservation Plan Figure 35 Intersections & Median Crossovers King George County

I## - Intersection #  
C## - Crossover #

**Intersection #35 University Dr with US 301:**  
**Recommendation:** Reconfigure intersection to Restricted Cross U-Turn  
- See Figure 36  
**Cost:** \$1.6M to \$2.8M

**Intersection #36 Market Ctr with US 301**  
**Recommendation:** See Figure 36  
**Cost:** Part of Intersection #35 Cost

**Intersection #37 Owens Dr with US 301**  
**Recommendation:** Reconfigure intersection to Quadrant Roadway -  
See Figure 37  
**Cost:** \$3.8M to \$6.5M

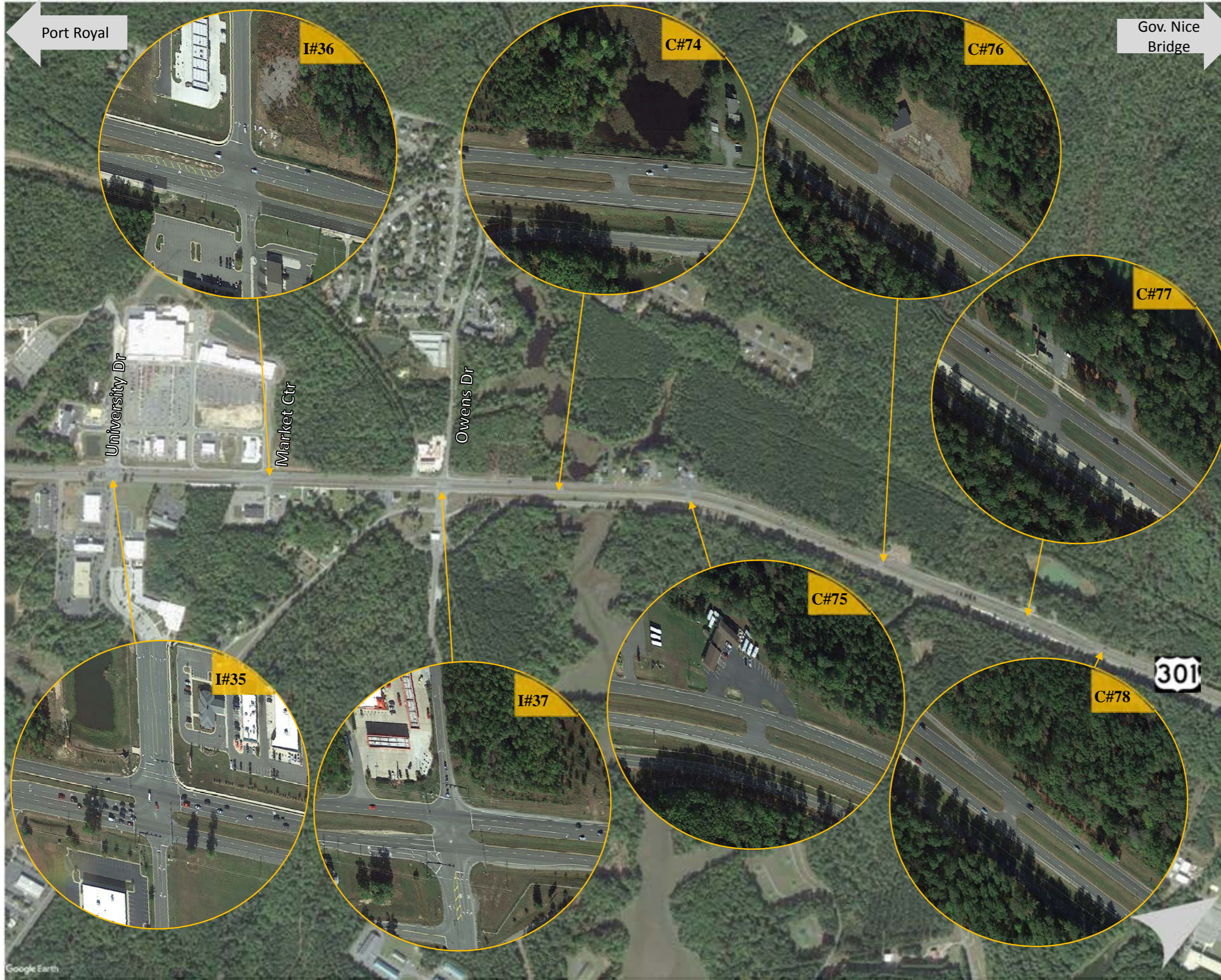
**Crossovers #74:**  
**Recommendation:** Remove Crossover  
**Cost:** \$0.2M to \$0.3M

**Crossovers #75:**  
**Recommendation:** Construct northbound left-turn lane on US 301  
**Cost:** \$0.2M to \$0.3M

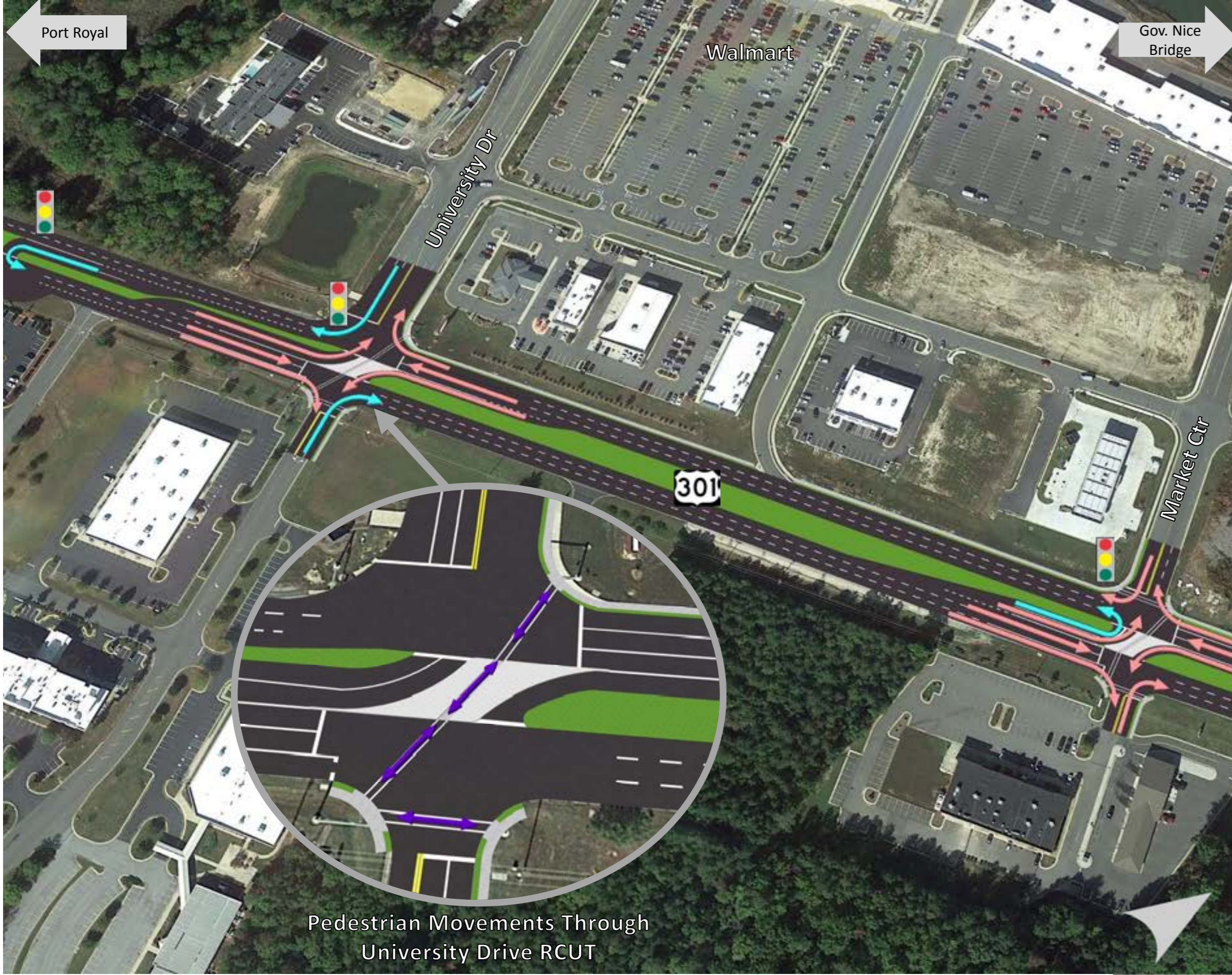
**Crossovers #76:**  
**Recommendation:** Construct northbound left-turn lane on US 301  
**Cost:** \$0.2M to \$0.3M

**Crossovers #77:**  
**Recommendation:** Sign for "Authorized Vehicles Only"  
**Cost:** <\$0.1M

**Crossovers #78:**  
**Recommendation:** Sign for "Authorized Vehicles Only"  
**Cost:** <\$0.1M







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Walmart

University Dr

Market Ctr

301



Pedestrian Movements Through University Drive RCUT

**US 301/Rte 207 Arterial Preservation Plan  
Figure 36**

**Intersection #35 & 36:  
US 301 with University Dr  
US 301 with Market Ctr  
Restricted Crossing U-Turn (RCUT)  
Improvement Type: Congestion, Economic  
Development**

**Recommendation:** Reconfigure main intersection at University Dr with US 301 to restricted crossing u-turn. Construct dual lane signaled u-turn areas south of main intersection. Reconfigure intersection with Market Ctr to disallow lefts from Market Ctr and construct u-turn lane for northbound US301. Construct pedestrian accommodations at University Dr and Market Ctr intersections on US301.

**ROW Impacts:** Signalized U-turn areas and removal of existing left-turn lanes at main intersection are primarily in existing ROW and any ROW acquisition will be minimal. Pedestrian accommodations on east side of US301 will require land acquisition for sidewalk and buffer.

**Traffic Operations:** Delay (seconds) – Level of Service

|    | Conventional | RCUT            |
|----|--------------|-----------------|
| AM | 25.0 - C     | <b>31.0 - D</b> |
| PM | 184.3 - F    | <b>50.8 - D</b> |

**Cost: \$1.6M to \$2.8M**

- Standard Movements
- Re-routed left turn movements
- Pedestrian Movements







**US 301/Rte 207 Arterial Preservation Plan  
Figure 37**  
**Intersection #37: US 301 with Owens Dr**  
**Quadrant Roadway (QR)**  
**Improvement Type: Congestion, Economic  
Development**

**Recommendation:** Reconfigure main intersection at Owens Dr with US 301 disallowing lefts, construct quadrant roadway with signalized intersection on Owens Dr and signalized continuous green-t intersection on US 301

**ROW Impacts:** Quadrant Roadway will require significant land acquisition and storm water management facilities. Modifications such as new turn lanes and new crossovers on US 301 will require minimal ROW impacts.

**Traffic Operations:**

|    | Conventional | Quadrant        |
|----|--------------|-----------------|
| AM | 54.5 - D     | <b>22.5 - C</b> |
| PM | 165.3 - F    | <b>53.6 - D</b> |

**Cost:** \$3.8M to \$6.5M

- Standard Movements
- Southbound US 301 to Eastbound Owens Dr
- Northbound US 301 to Westbound Owens Dr
- Westbound Owens Dr to Southbound US 301
- Eastbound Owens Dr to Northbound US 301





Port Royal

**US 301/Rte 207 Arterial Preservation Plan**  
**Figure 38**  
**Intersections & Median Crossovers**  
**King George County**

I## - Intersection #  
C## - Crossover #

**Crossovers #79:**  
**Recommendation: None**

**Crossovers #80:**  
**Recommendation: None**

**Crossovers #81:**  
**Recommendation: None**

