



Original SMART SCALE Sketch



Cost Estimates

Current Funding (UPC 111051):

Based on the SMART SCALE application

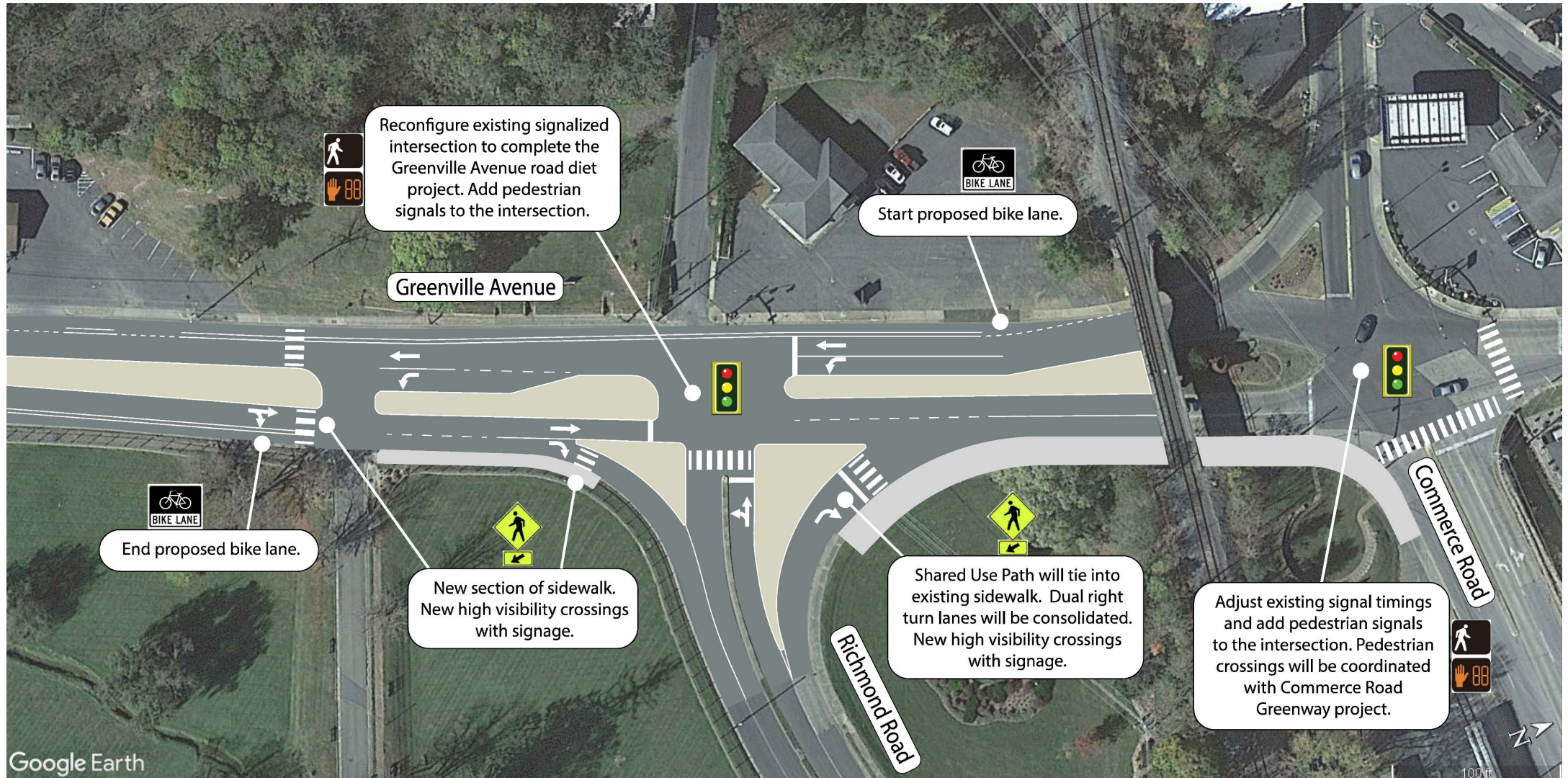
TOTAL: \$2,245,805

Estimate for Original Scope:

Hybrid Roundabout & roadway reconfiguration using raised medians

TOTAL Estimate with Inflation: \$15,790,924

Alternative #1: Intersection Improvement



Cost Estimates

Alternative #1: Intersection Improvement estimate:

Redesign of the intersection using raised medians new lane configurations

TOTAL Estimate with Inflation: \$2,919,699

Alternative #2: Single Lane Roundabout estimate:

Single lane roundabout at intersection

TOTAL Estimate with Inflation: \$7,505,582

Single Lane Roundabout Testing

- Assume linear growth rate of 0.5% over 24 years
(12% added traffic)

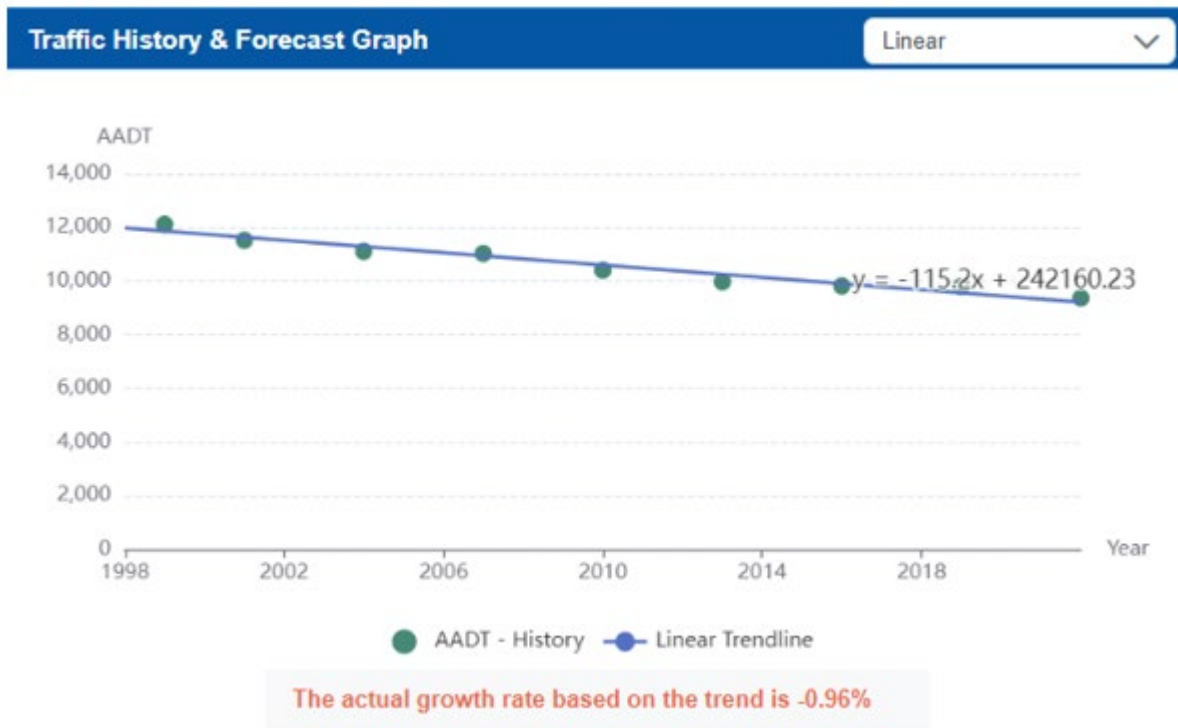


Figure 1. US 250 Historical Growth Trend (VDOT Count Program)

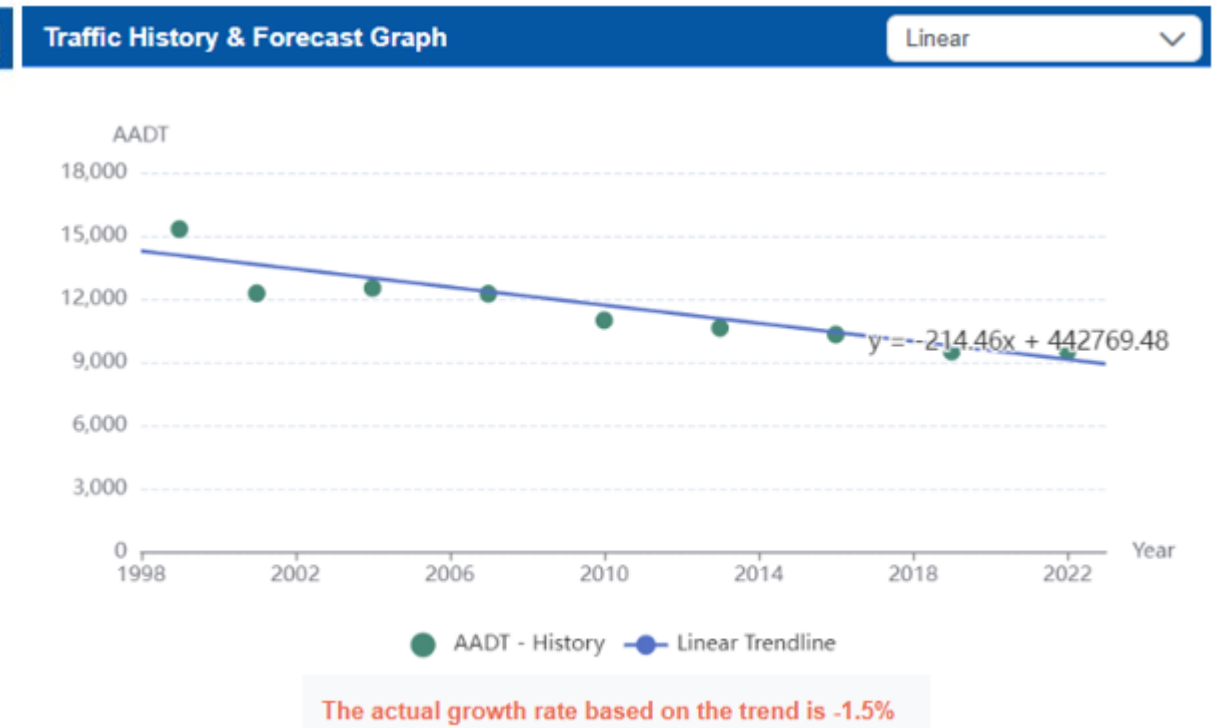


Figure 2. US 11 Historical Growth Trend (VDOT Count Program)

Single Lane Roundabout – 2040 PM Peak Hour

DELAY (CONTROL)

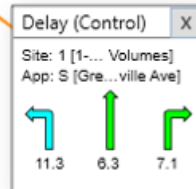
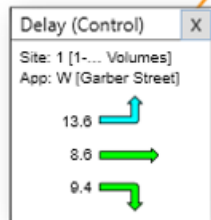
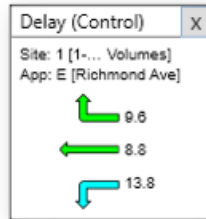
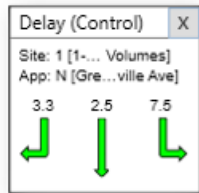
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 1 [1-Lane Roundabout-Alt - 2016 Volumes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 24 years

Use the button below to open or close all popup boxes. Click value labels to open selected ones.
Click and drag popup boxes to move to preferred positions.

Close All Popups

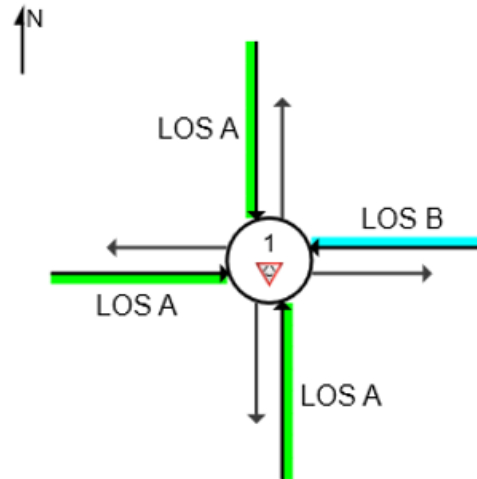


LEVEL OF SERVICE

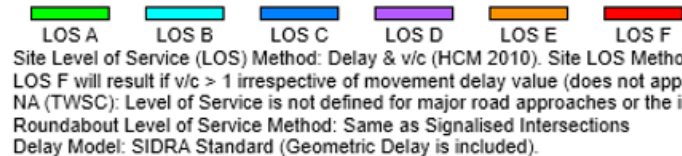
Approach Level of Service

Site: 1 [1-Lane Roundabout-Alt - 2016 Volumes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 24 years



Colour code based on Level of Service

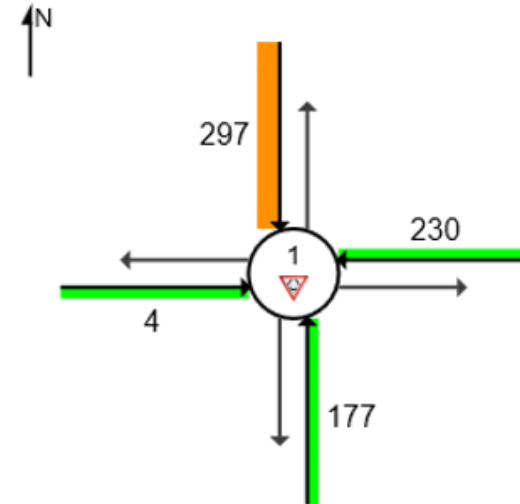


QUEUE DISTANCE (PERCENTILE)

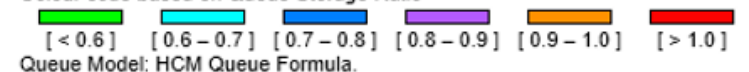
Largest 95% Back of Queue Distance for any lane on the approach (feet)

Site: 1 [1-Lane Roundabout-Alt - 2016 Volumes (Site Folder: General)]

New Site
Site Category: (None)
Roundabout
Design Life Analysis (Final Year): Results for 24 years

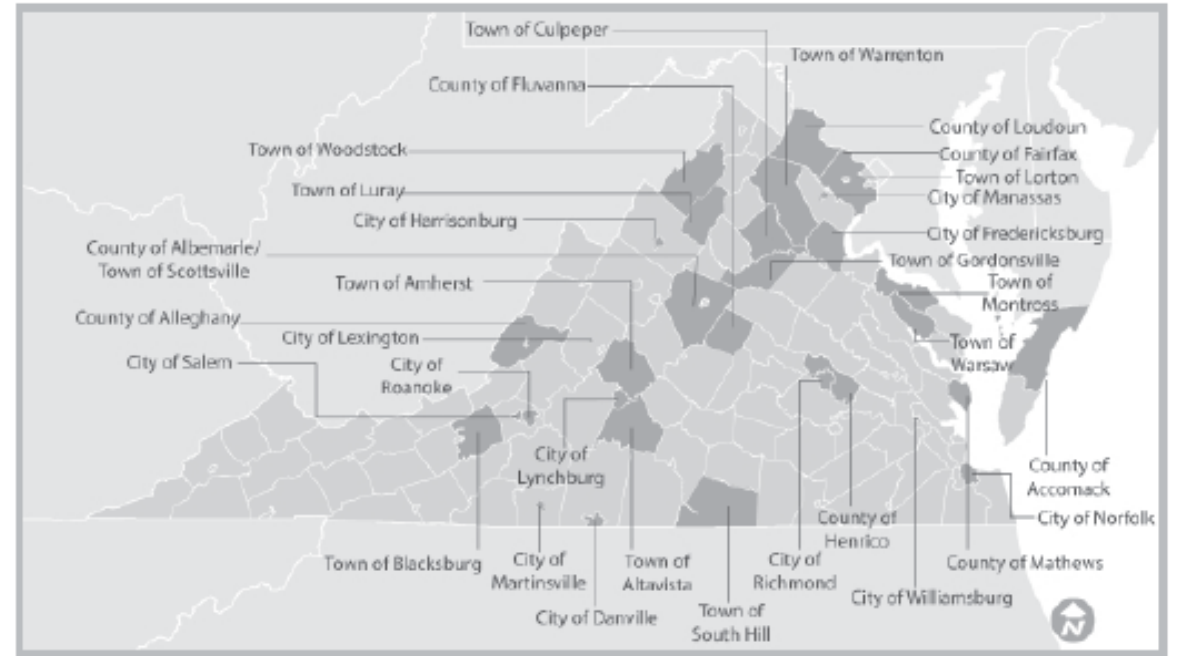
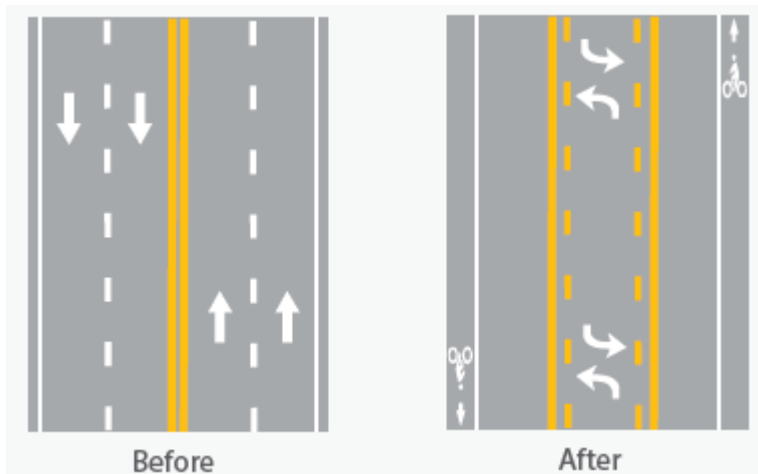


Colour code based on Queue Storage Ratio



Road Diet / Roadway Reconfiguration

VDOT'S ROADWAY RECONFIGURATIONS ACROSS THE STATE



**19-47% expected crash reduction
(FHWA)**

**Road diet benefits are
independent of roundabout**

Summary

Alternative #1 Intersection Improvement:

Redesign of the intersection using raised medians new lane configurations

TOTAL Estimate with Inflation: \$2,919,699

This option would require additional funding from VDOT

Alternative #2 Single Lane Roundabout

Single lane roundabout at intersection

TOTAL Estimate with Inflation: \$7,505,582

This option would require additional funding from VDOT and the City of Staunton