

Port Republic Road Safety and Operations Study

City Council Presentation
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Department of Public Works

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Introduction

- Small Area Study Program identifies regional transportation issues and develops fundable solutions
- Corridor identified for safety and operations needs by HRMPO TAC in 2018
- HRMPO Study team selected VHB to analyze safety and operations.
- Study began in October 2018

Purpose

**Address
Vehicle Crash
Hotspots and
Safety Issues**

**Analyze Bicycle
and Pedestrian
Traffic Safety
Issues**

**Evaluate
Current
Operational
Performance
Metrics**

**Recommend
Improvements**

Study Area



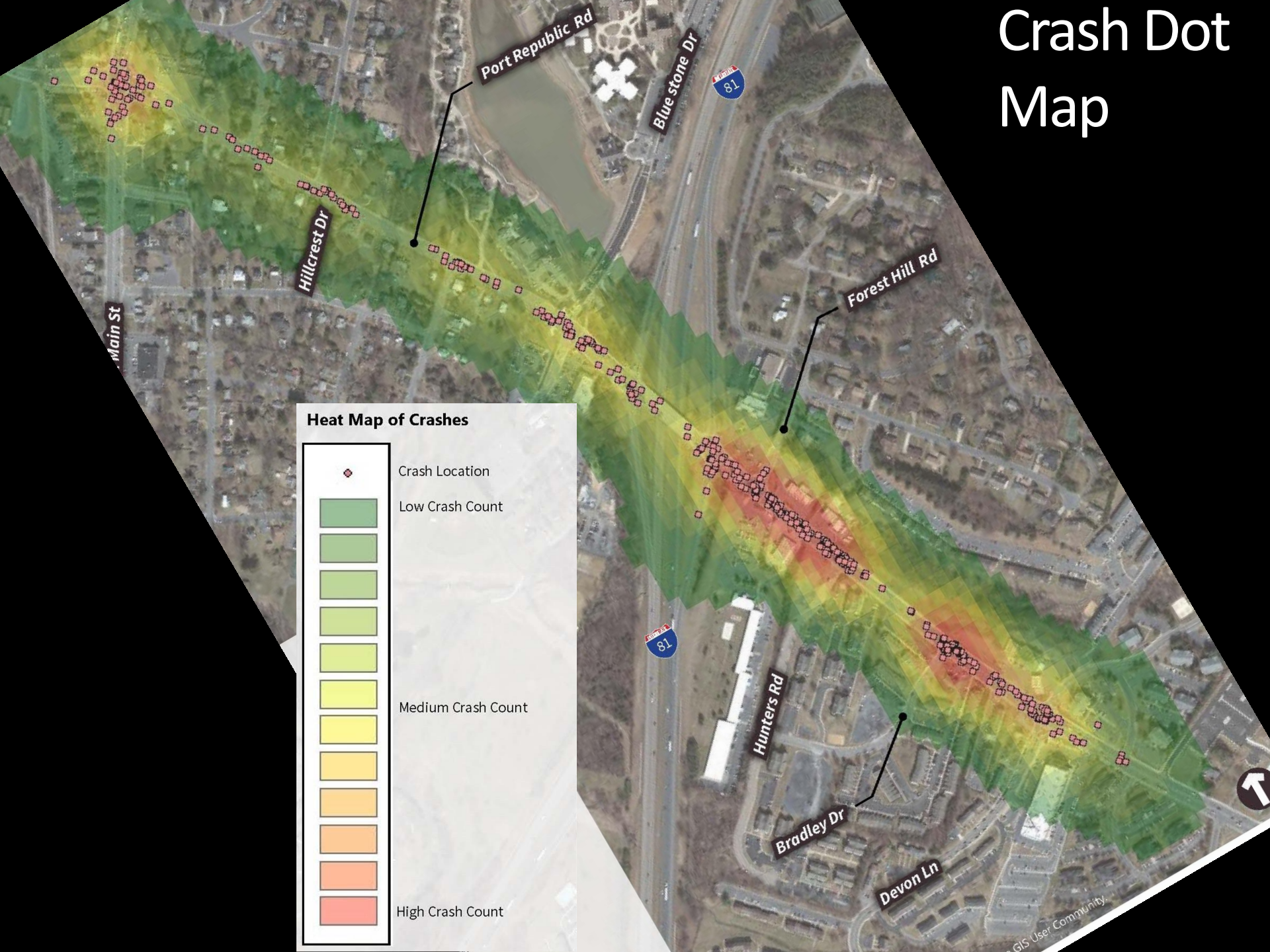
LEGEND

- 1 South Main Street
- 2 Hillcrest Drive
- 3 Crawford Avenue
- 4 Bluestone Drive/Hillside Avenue
- 5 I-81, Exit 245 SB Ramps
- 6 I-81, Exit 245 NB Ramps
- 7 Forest Hill Road
- 8 Hunters Road
- 9 Bradley Drive
- 10 Devon Lane

Needs

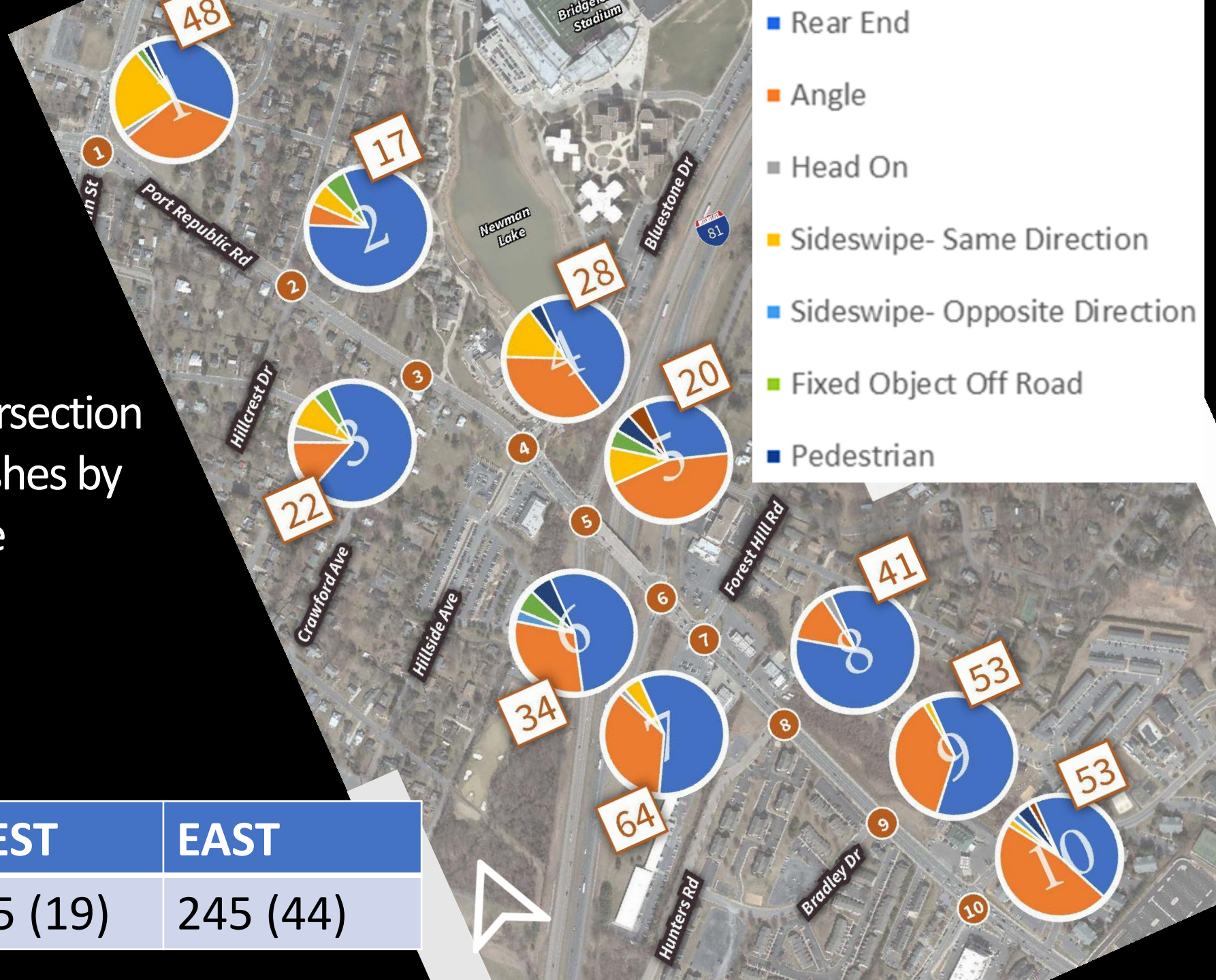
- Improve Safety
- Manage intersection queue lengths and capacity
- Reduce delay
- Reduce corridor travel time

Crash Dot Map



Intersection Crashes by type

- Rear End
- Angle
- Head On
- Sideswipe- Same Direction
- Sideswipe- Opposite Direction
- Fixed Object Off Road
- Pedestrian



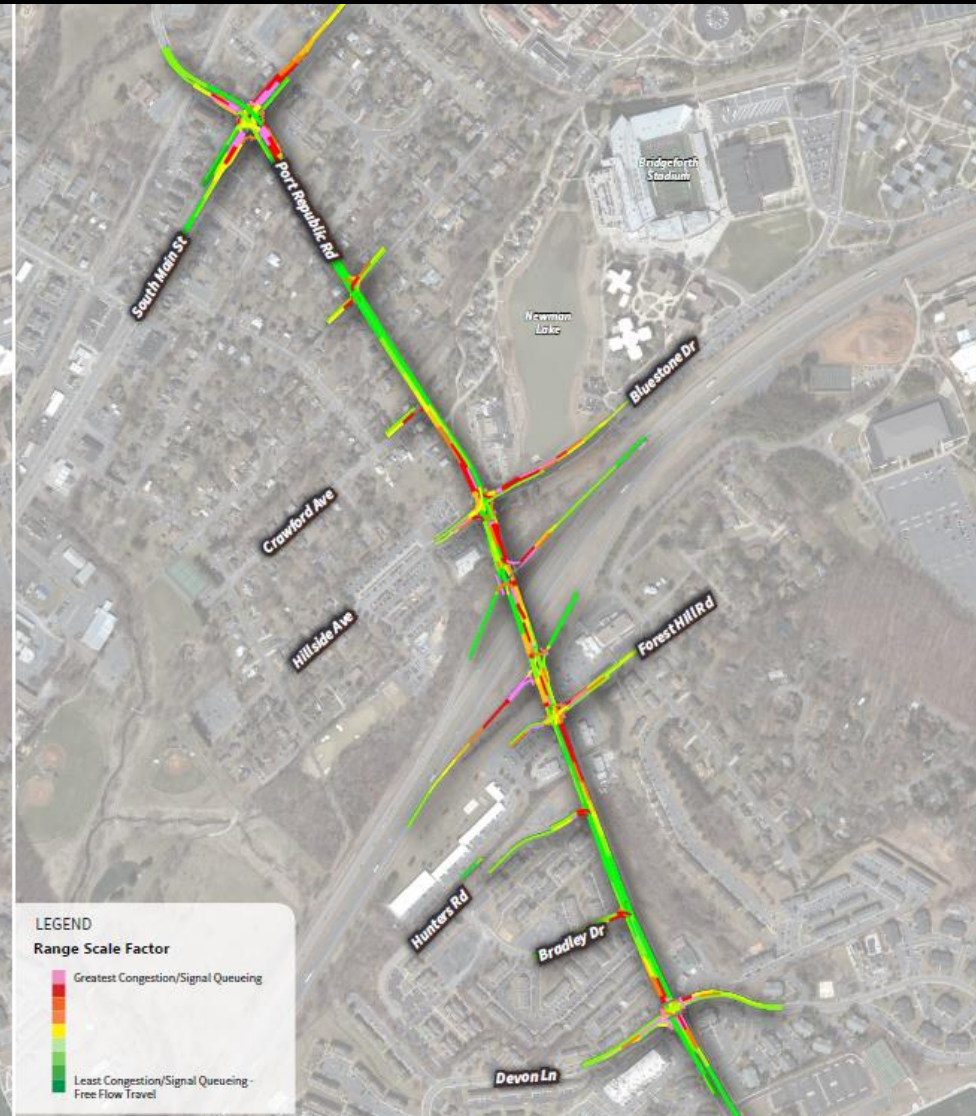
WEST	EAST
135 (19)	245 (44)

Existing (2018) Model Findings

Several intersections are currently operating over capacity

Morning Peak Hour

Evening Peak Hour



Summer 2019

- Reconfigure WB approach to establish dual right turn lanes
- Estimated Cost: \$2,500

Summer 2020

- Lengthen southbound dual left turn lanes
- Estimated Cost: \$500,000



Port Republic Road at South Main Street

Summer 2019

- Restrict left turn movements during AM & PM peak hours

Estimated Cost: \$2,500



Port Republic Road at Hillcrest Drive

Summer 2019

- Restrict left turn movements during AM & PM peak hours

Estimated Cost: \$2,500



Port Republic Road at Crawford Avenue

HSIP Grant Application 2019

- Lengthen eastbound left turn lane to 300 feet

Estimated Cost:
\$750,000 to
\$1,000,000

Long Term

- Construct a pedestrian overpass over Port Republic

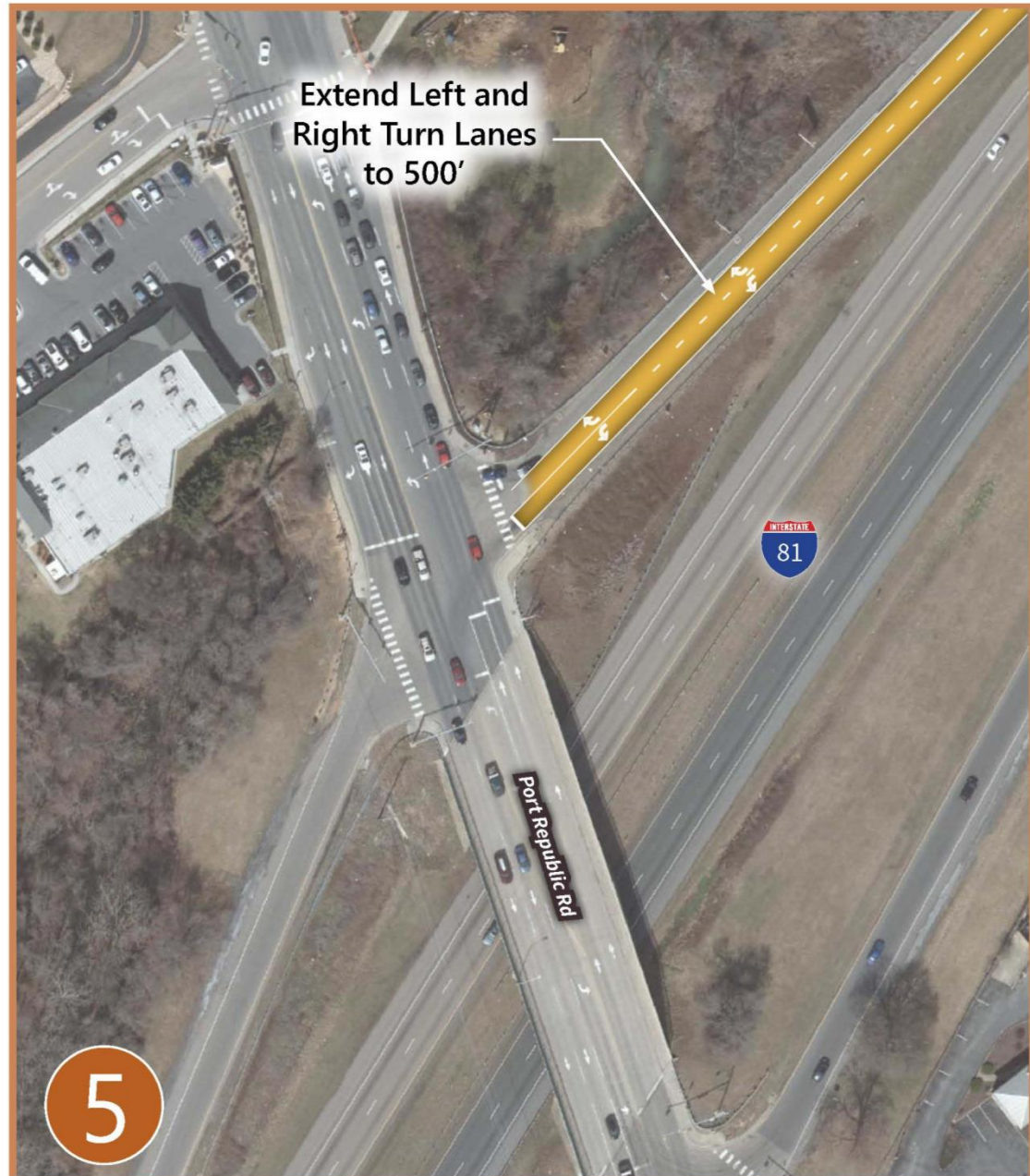


Port Republic Road at Bluestone Drive

Long Term

- Widen off ramp to lengthen turn lanes to 500 feet

Estimated Cost: \$237,000



Port Republic Road at I-81, Exit 245 SB Ramp

Construction Summer 2020

- I-81 NB off-ramp relocated to align with Forest Hill Rd
- Parking Lot access to be relocated to Hunters Rd
- Install flexible post median at Forest Hill Intersection

Long Term

- Construct 100 foot WB right turn lane

Estimated Cost: \$778,000



Port Republic Road at Forest Hill Road

Summer 2019

- Restrict left turn movements during AM & PM peak hours

Estimated Cost: \$2,500

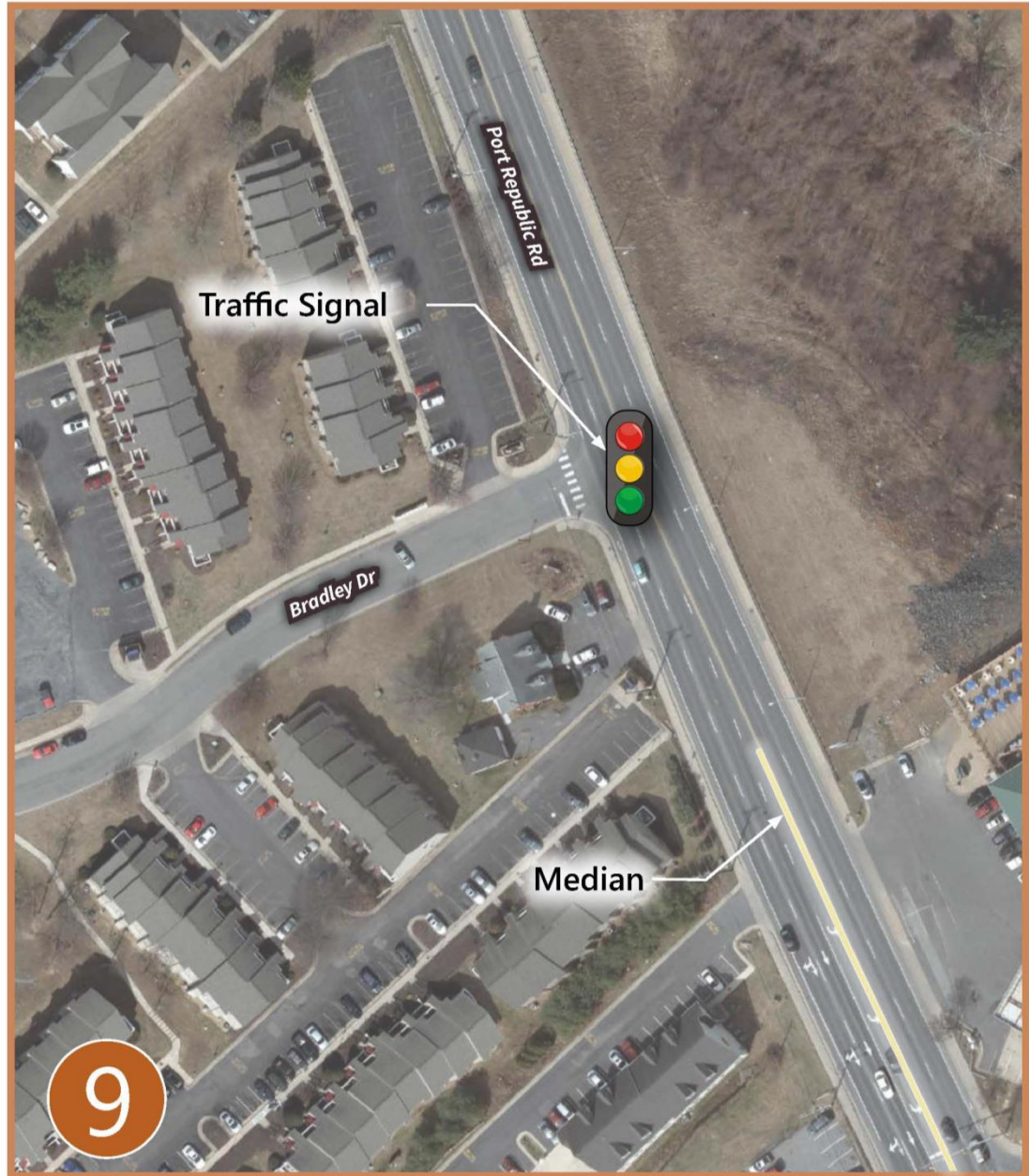


Port Republic Road at Hunters Road

Long Term

- Install Traffic Signal

Estimated Cost: \$474,000



Port Republic Road at Bradley Drive

Short Term

- Restripe NB lanes to add 150 foot left turn lane

Estimated Cost: \$3,000

Mid Term

- Widen SB lanes to add 150 foot turn lane

Estimated Cost: \$1.1 million




Port Republic Road at Devon Lane

Travel Time Comparison

Travel Time	Eastbound VISSIM Travel Time (M:SS)	Westbound VISSIM Travel Time (M:SS)
AM Peak Hour		
Existing	03:37.5	03:52.7
No Build (2030)	04:20.9	04:34.9
Build (2030)	03:28.0	03:27.6
PM Peak Hour		
Existing	04:21.9	04:16.0
No Build (2030)	05:34.3	07:58.6
Build (2030)	04:18.0	05:02.3

2 mins and
56 secs in
travel time
savings



Number of Stops Comparison

Stops	Average Stops per Vehicle within Network
AM Peak Hour	
Existing	2.26
No Build (2030)	4.29
Build (2030)	1.87
PM Peak Hour	
Existing	2.51
No Build (2030)	4.50
Build (2030)	2.68

To Prevent Stop-and-Go Conditions

Delay Comparison

Delay	Average Delay [sec] per Vehicle
AM Peak Hour	
Existing	69.3
No Build (2030)	122.3
Build (2030)	58.4
PM Peak Hour	
Existing	92.3
No Build (2030)	171.2
Build (2030)	101.1

Reduce 70
secs for
every
vehicle in
the
network

