



# Braddock Road Multimodal Intersection and Corridor Improvements

## Design Updates

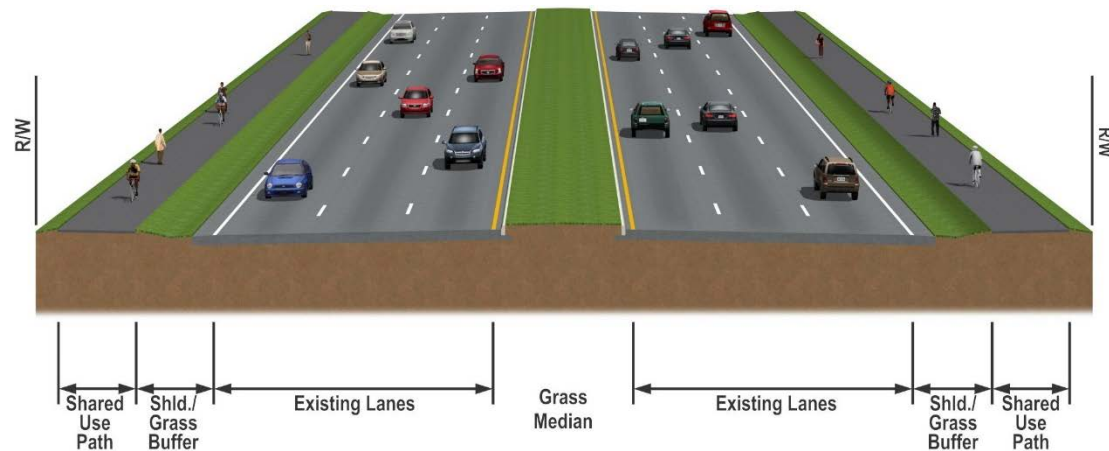
Wakefield Chapel Rd/Danbury Forest Dr  
Port Royal Rd and I-495 Ramps

August 3, 2020



# Multimodal Intersection and Corridor Improvements Summary of Study Recommendations

- Guinea Rd to Ravensworth Rd
- Intersection improvements
- Access Management (intersection spacing, side street access)
- Bicycle and pedestrian paths on both sides





# Multimodal Intersection and Corridor Improvements





# Project Status

VDOT is implementing the project

- FCDOT and VDOT coordinated on the best implementation approach
- Reviewed study, concept plans, and traffic analysis
- Developed detailed cost estimates
- Initiated field survey and consultant procurement



# Project Status

## Project split into two phases

- Phasing helps manage project implementation
- Phasing helps with obtaining funding

Preliminary design for both phases will be done concurrently



## Project Phases

### Phase I – Ravensworth Dr to Southampton Dr

- Includes Ravensworth Dr from Braddock Rd to Greenfield Rd
- Updated Cost Estimate = \$74 million

### Phase II – Southampton Dr to Humphries Dr

- Includes planned improvements on Rolling Rd and Burke Lake Rd
- Updated Cost Estimate = \$75 million



## Project Funding

### Cost Estimate Increases

- Rising costs of land acquisition and construction
- Increased contingencies
- High costs of building Danbury Forest Dr bridge over Long Branch Creek

### Funding Status

- \$11 million total allocated to project
- \$5.5 million provided to VDOT for 30% design of Phases I and II



# Project Funding

## Previous Funding Applications

- Applied for state Smart Scale funding for Phases I and II in 2018 and NVTAA (Northern Virginia Transportation Authority) regional funding for Phases I and II in 2017 and 2018. Applications were unsuccessful
- Currently applying for Smart Scale funding for Phase I in August 2020





## Project Funding

### VDOT Pilot Project

- Analyzes projects with competitive benefit scores, but are less competitive overall due to relatively high cost
- Braddock Rd Phase I is one of four projects selected statewide to be evaluated

### New Submission for Smart Scale Funding

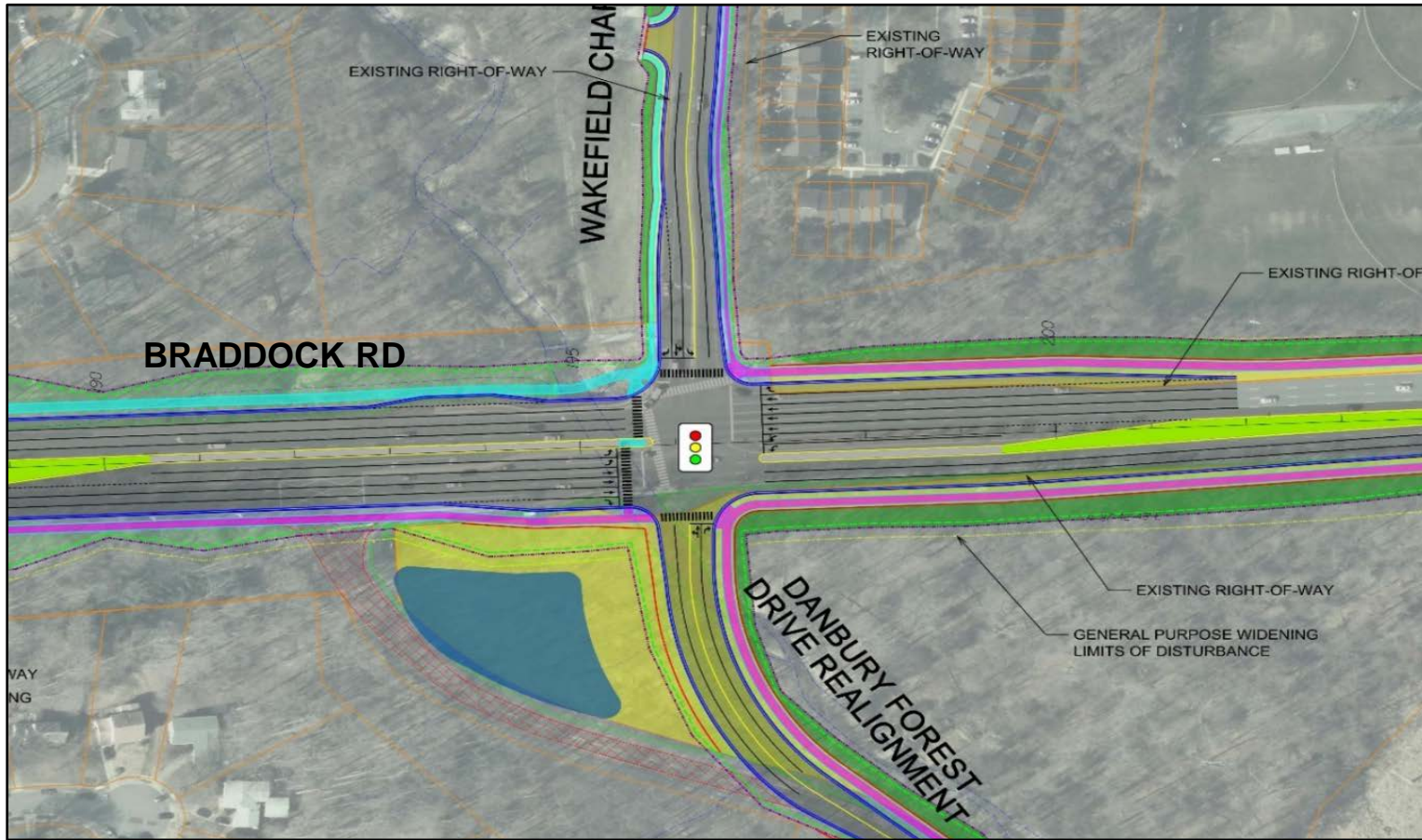
- Propose the changes at Wakefield Chapel Rd/Danbury Forest Dr and Port Royal Rd / I-495 Ramps
- Total estimate savings from design changes for Phase I is \$26 million and with the reduced cost, the project will be more competitive



# Proposed Design Changes at Wakefield Chapel Road and Danbury Forest Drive



## Original Design – Conventional 4-Leg Intersection



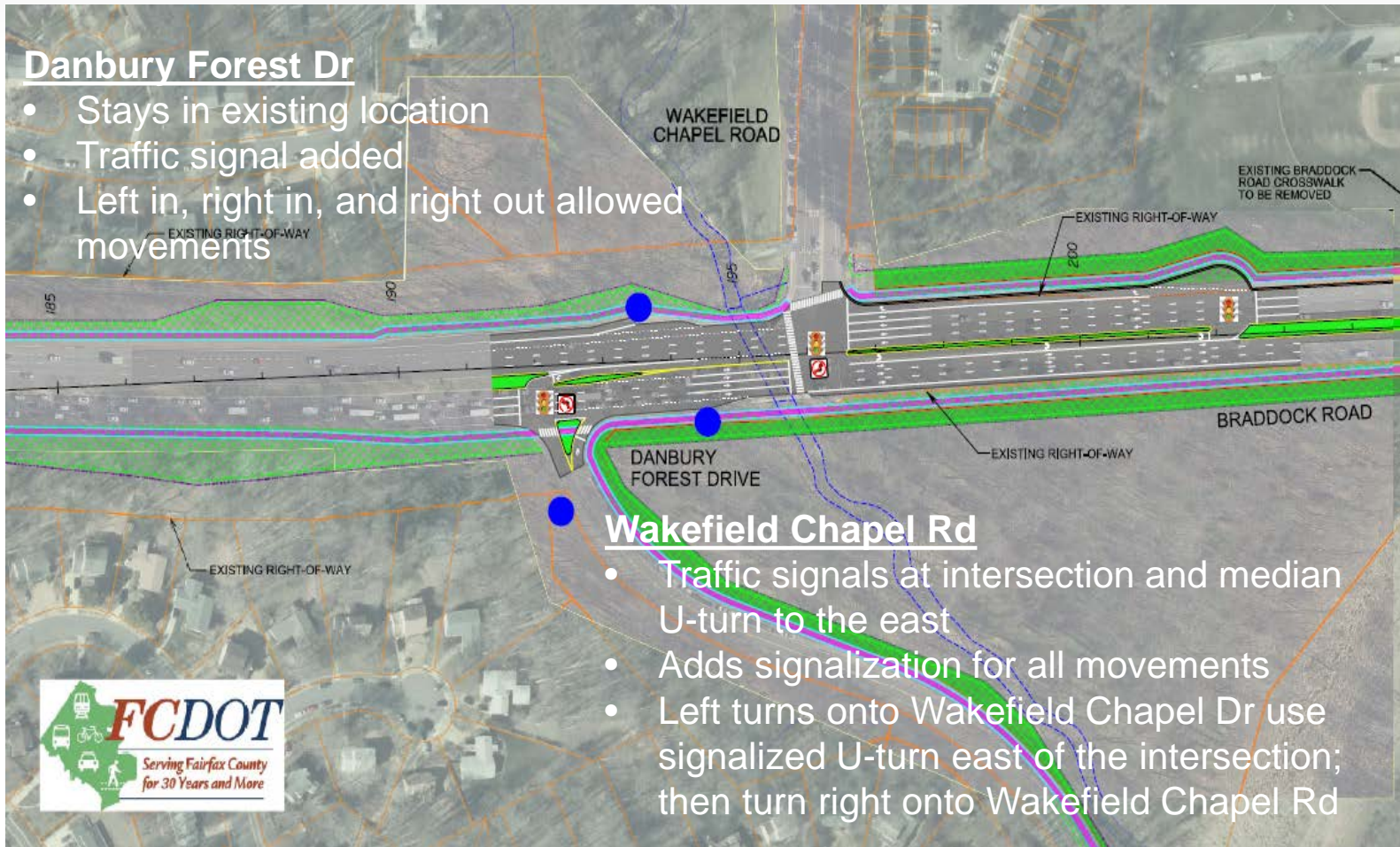




## Proposed Design – Combined RCUT and Median U-Turn

### Danbury Forest Dr

- Stays in existing location
- Traffic signal added
- Left in, right in, and right out allowed movements

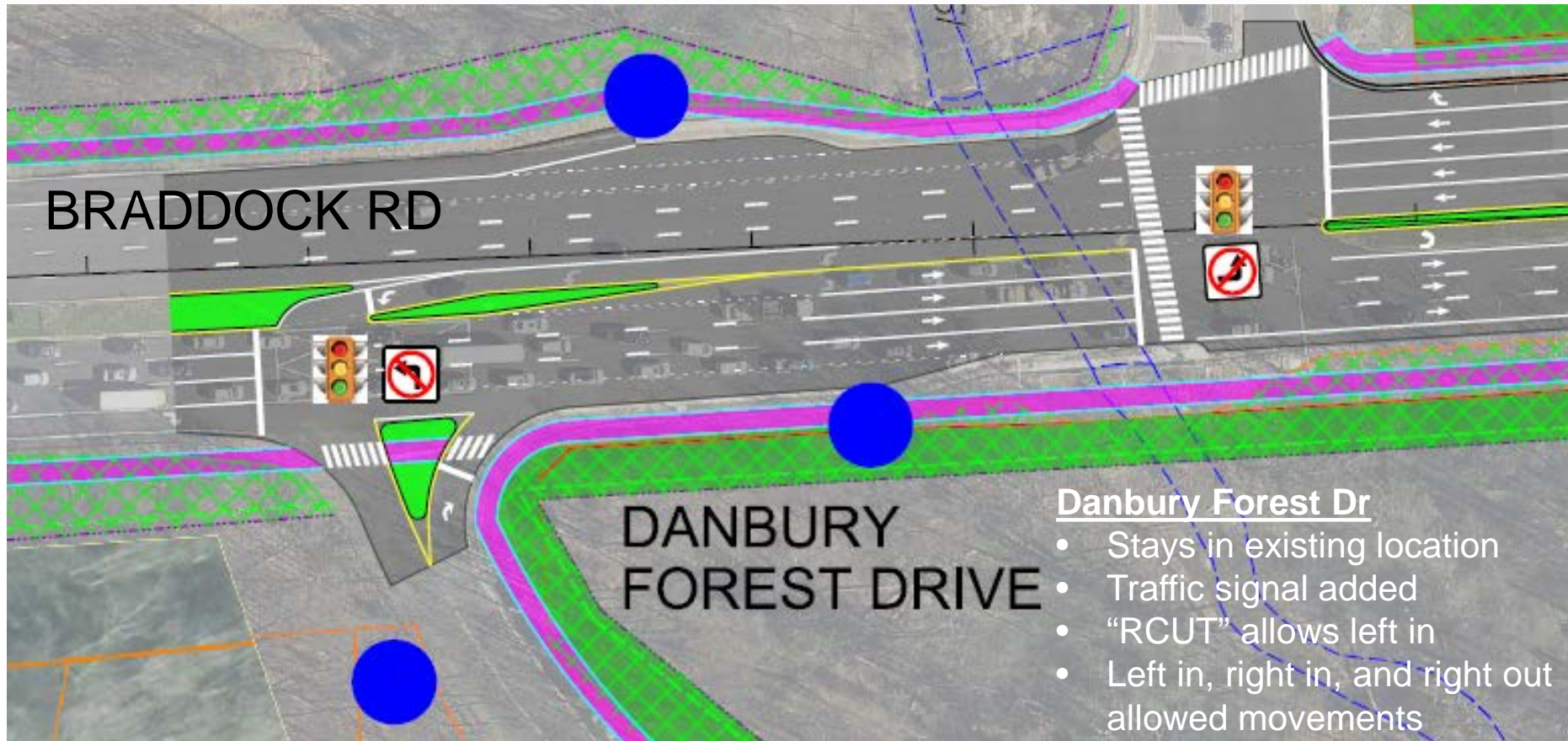


### Wakefield Chapel Rd

- Traffic signals at intersection and median U-turn to the east
- Adds signalization for all movements
- Left turns onto Wakefield Chapel Dr use signalized U-turn east of the intersection; then turn right onto Wakefield Chapel Rd



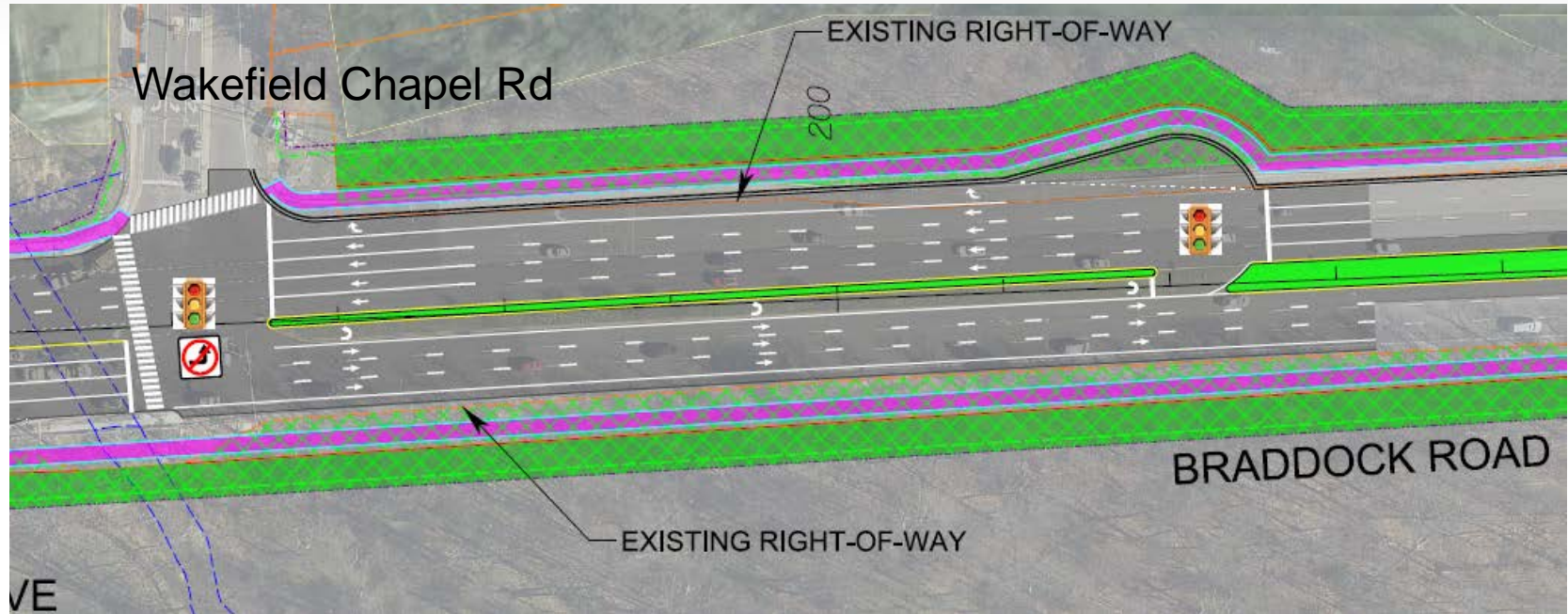
## Proposed Design – RCUT







## Proposed Design – Median U-Turn



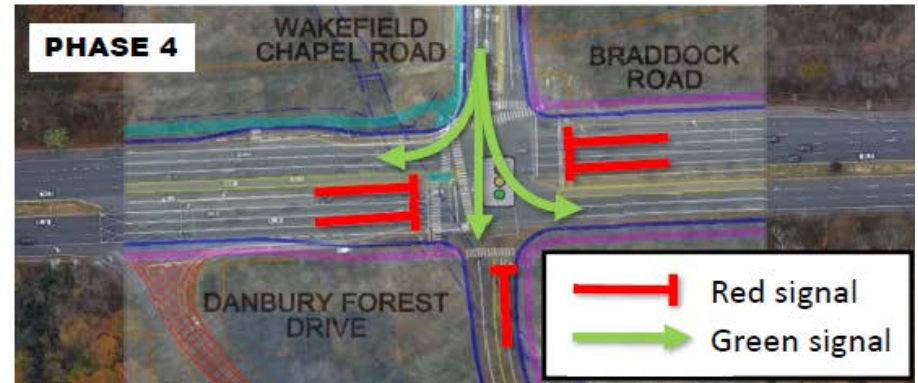
### Wakefield Chapel Rd

- Traffic signals at intersection and median U-turn to the east
- Adds signalization for all movements
- Left turns onto Wakefield Chapel Dr use signalized U-turn east of the intersection; then turn right onto Wakefield Chapel Rd



# Original Design - Signal Operation

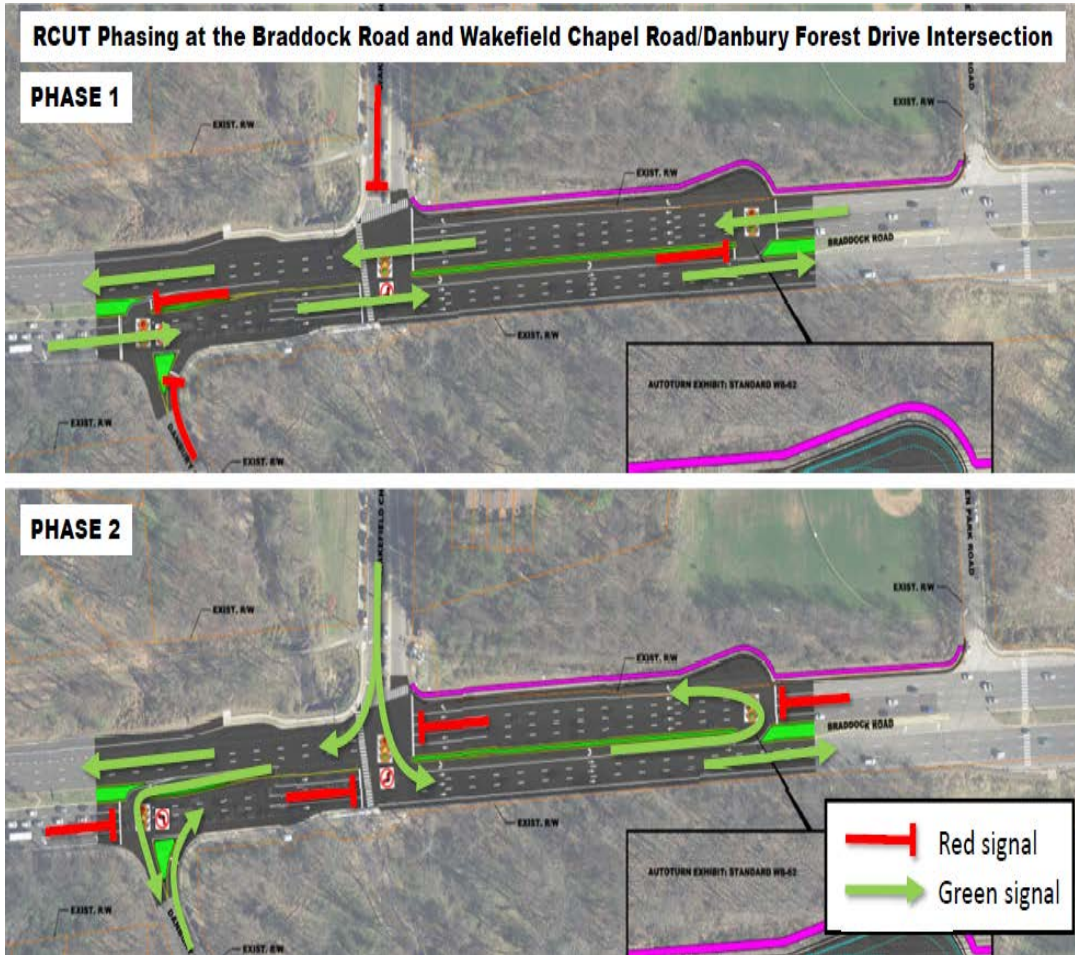
**Conventional Split Phasing at the Braddock Road and Wakefield Chapel Road/Danbury Forest Drive Intersection**







## Revised Design - Signal Operation



- Significantly more efficient and safer signal phasing with two phase operation
- Reduces crossing conflicts by more than 50%
- Increases mainline available green time by 10-20%





# Proposed Design Benefits

## Wakefield Chapel Rd/Danbury Forest Dr

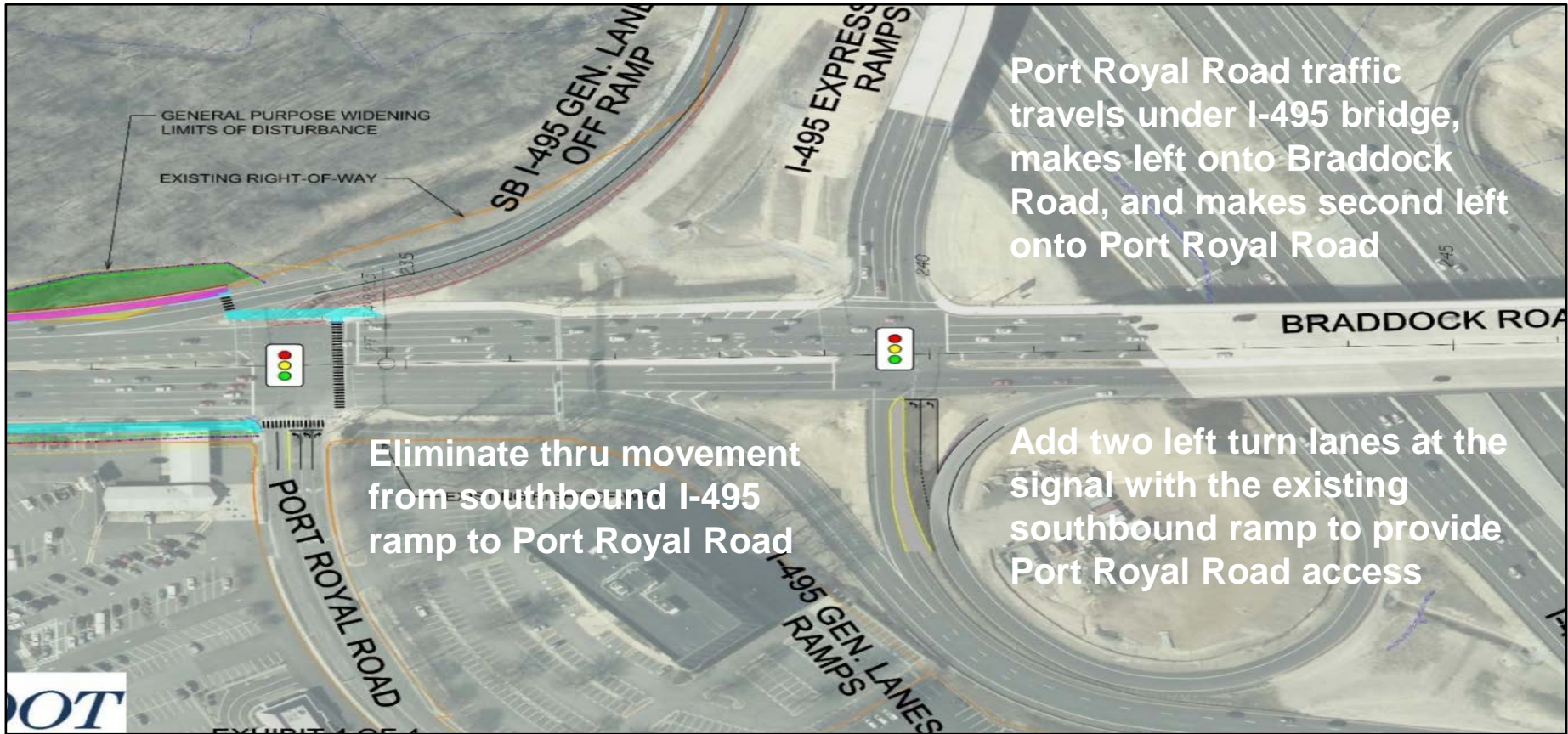
- Reduces impacts to park land, tree loss, and waterways
- Eliminates bridge over Long Branch Creek for relocated Danbury Forest Dr
- Allows for efficient pedestrian crossings by reducing number of signal phases
- Total cost savings – \$24 million
  - Eliminates fourth leg at the intersection, relocation of Danbury Forest Dr, and proposed bridge over Long Branch Creek



# Proposed Design Changes Port Royal Road and I-495 Ramps



# Original Design







## Proposed Design

Retains exiting I-495 off ramp access to Port Royal Rd

EXISTING RIGHT-OF-WAY

SB I-495 GEN. LANES OFF RAMP

I-495 EXPRESS LANES RAMP

230

PT 234+82.13

235

240

245

BRAD

I-495

I-495

EXISTING RIGHT-OF-WAY

RAVENSWORTH SHOPPING CENTER

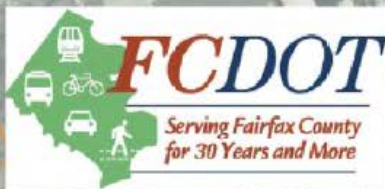
PORT ROYAL ROAD

PROPOSED AT-GRADE PEDESTRIAN CROSSING (SIGNALIZED) CROSSWALKS AT THE SOUTH AND EAST LEGS ONLY

I-495 GEN. LANES RAMP

Provides signal controlled dual right for off ramp from I-495 south to Braddock Rd east

Provides shared right/thru lane on Braddock Rd eastbound, starting after Port Royal Rd, for I-495 south (right) and I-495 north (thru) traffic







## Proposed Design

Retains exiting I-495 off ramp access to Port Royal Rd

Provides shared right/thru lane on Braddock Rd eastbound, starting after Port Royal Rd, for I-495 south (right) and I-495 north (thru) traffic

Provides signal controlled dual right for off ramp from I-495 south to Braddock Rd east



## Proposed Design Benefits Port Royal Rd and I-495 Ramps

- Retains existing I-495 access to Port Royal Rd
- Provides shared right/thru lane on Braddock Rd eastbound, starting after Port Royal Rd, for I-495 south (right) and I-495 north (thru) traffic
- Reduces weaving and increases safety on bridge
  - Adds signal at Southbound I-495 ramp to Eastbound Braddock
- Total cost savings = \$2 million



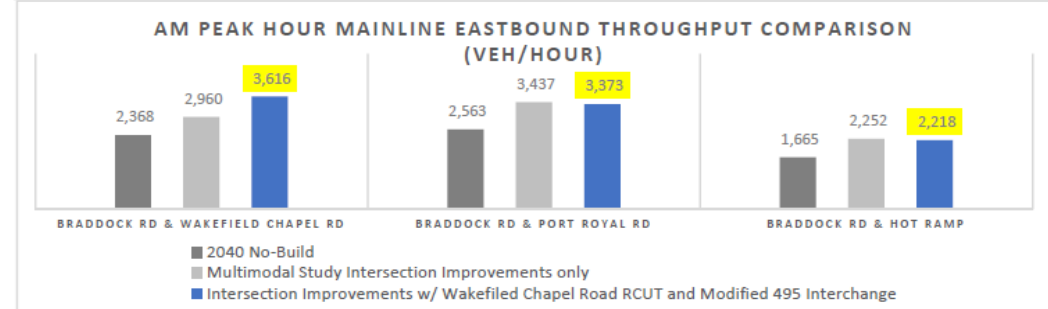
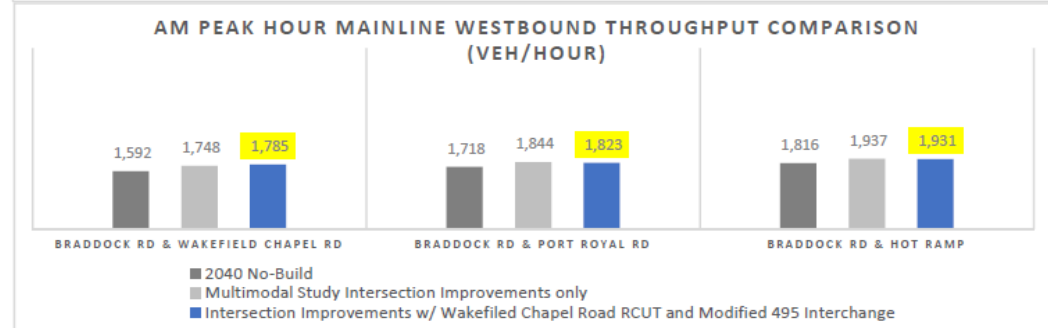
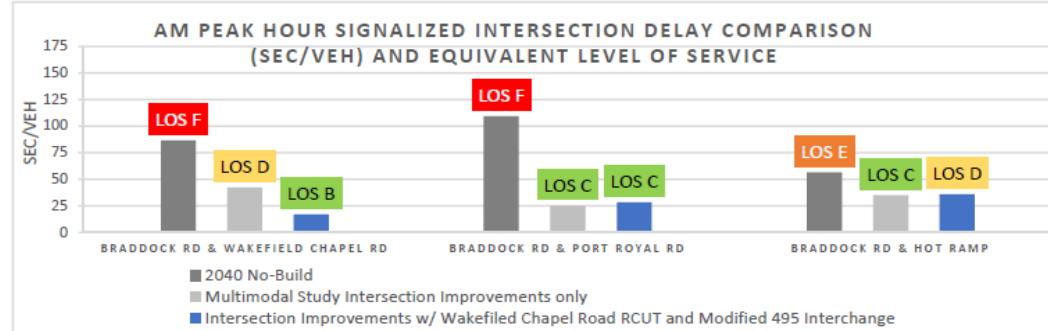
# Proposed Design Changes Operational Analysis



- Generally equal to or better AM operations than original concept
- Significantly improved throughput at Wakefield Chapel/Danbury Forest eastbound during morning rush hour

**Braddock Road Phase 1 Performance Based Planning Operations Analysis**  
**VISSIM Model Network 2040 AM Peak Hour Intersection Measures of Effectiveness Comparison**

02/28/2020



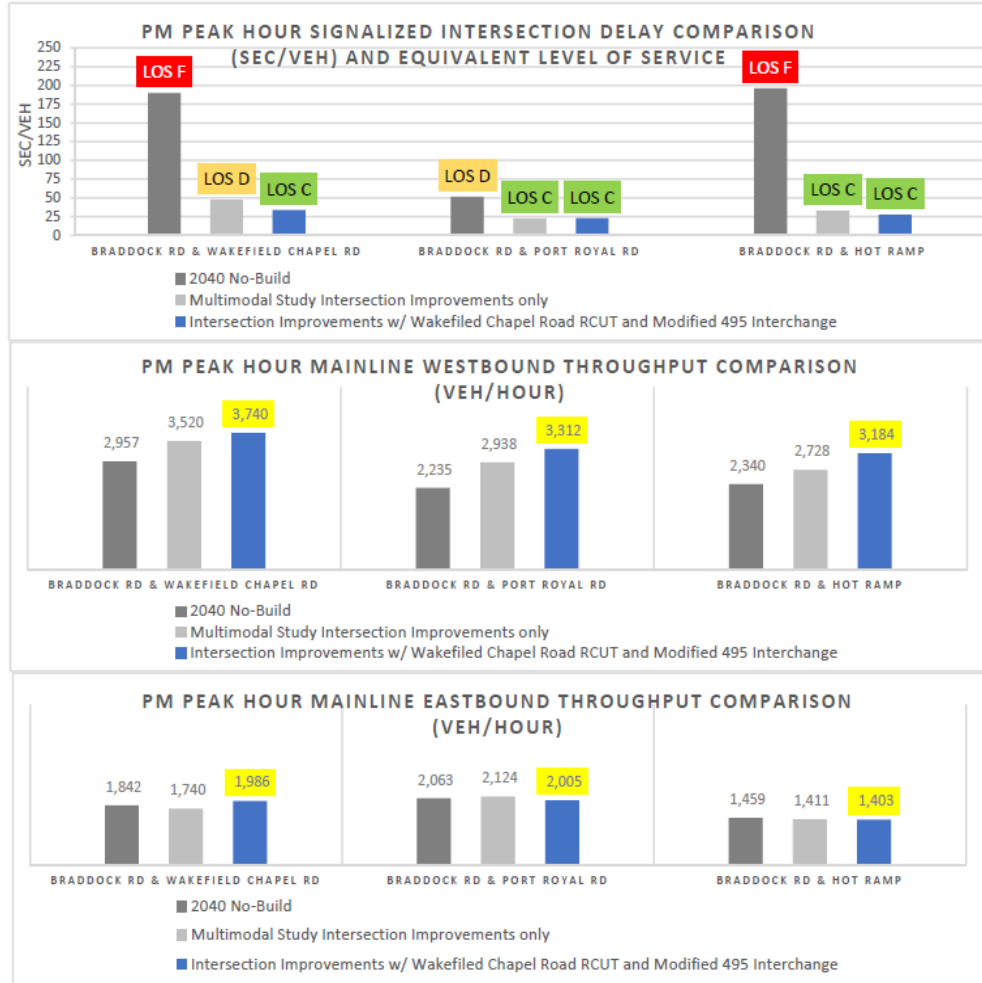




Braddock Road Phase 1 Performance Based Planning Operations Analysis  
VISSIM Model Network 2040 PM Peak Hour Intersection Measures of Effectiveness Comparison

02/28/2020

- Provides equal to or better PM operations to original concept
- Significantly improved throughput at all locations Westbound during afternoon rush hour





## Proposed Pedestrian Crossings at Wakefield Chapel Rd / Danbury Forest Dr and Kings Park Shopping Center



- To be studied further during design as originally planned
- Potentially included with Phase II, pending results of further analysis





## Pedestrian and Bicycle Improvements included in Phase I

### Shared Use Paths

- Completed along both sides of road for entire project length to I-495

### At-grade pedestrian crossings

- At all signalized intersections with pedestrian crossing signals

### Underpass at Accotink Creek

- Cross County Trail under Braddock Rd retained
- Improved access from Braddock Rd including ramps and stairs



## What Do You Think?

- Proposed changes reduce total cost of Phase I from \$74 million to \$48 million
- Smart Scale funding application for Phase I is due August 17, 2020
- Staff recommendation is to proceed with the proposed design changes summarized in this presentation
- **Public input is needed before submitting Smart Scale application**



# Next Steps

- Review public comments and survey results for proposed design changes by August 10
- Finalize Smart Scale funding application for Phase I and submit by August 17, 2020
- Continue applying for Smart Scale, NVTA, and other appropriate sources of funding for Phase I, as necessary, and Phase II
- VDOT completes consultant selection and initiates design



# Proposed VDOT Project Schedule

## **Preliminary Engineering to Design Approval (30% Design) for Phases I & II**

- Consultant Procurement - Summer 2020 through Winter 2020
- Citizen Info Meetings - Spring 2021
- Public Hearing - Spring 2022
- Design Approval - Late Spring 2022

## **Detailed Engineering, Land Acquisition, and Construction for Phase I**

- Final Roadway, Bridge, Utility Design - Fall 2022 thru Winter 2023/24
- Right of Way Acquisition - Winter 2023/24 to Summer 2024
- Utility Relocations - early 2024 through early 2025
- Construction - early 2025 through Spring 2027

*\* Assumes funding received for Phase I; Phase II schedule dependent on funding*



## Let us hear from you! Comment period closes August 10, 2020

- Take the **online survey**, available at the project website [www.fairfaxcounty.gov/transportation/projects/braddock-multimodal](http://www.fairfaxcounty.gov/transportation/projects/braddock-multimodal)
- Send us an **email** via the Website Contact Form (link from the red box at the bottom of the webpage)
- Submit comments **in writing** to:  
Tad Borkowski, P.E.  
FCDOT – Braddock Road Project  
4050 Legato Road, Suite 400  
Fairfax, Virginia 22033
- Call 703-877-5600; TTY 711



County of Fairfax, Virginia

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Thank You!!