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 NVTA (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
Danbury Forest Dr
- Stays in existing location
- Traffic signal added
- “RCUT” allows left in
- 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
Original Design - Signal Operation

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

PHASE 1 & 5

PHASE 2 & 6

PHASE 3

PHASE 4

Red signal
Green signal
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
Port Royal Road traffic travels under I-495 bridge, makes left onto Braddock Road, and makes second left onto Port Royal Road.

Eliminate thru movement from southbound I-495 ramp to Port Royal Road.

Add two left turn lanes at the signal with the existing southbound ramp to provide Port Royal Road access.
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
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
• 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
Thank You!!