Old Lee Highway Multimodal Improvements

Stakeholder Advisory Committee Meeting #3

December 2, 2020

Tonight's Agenda

- Welcome and Review of Agenda
- Environmental Requirements Overview
- Cultural Resources Studies
- Design Updates
- FAQ Review
- Next Steps

Old Lee Highway - Environmental Overview

- State Environmental Review Process (SERP)
- Environmental Design Considerations
- Cultural Resources Studies (Dovetail Cultural Resources Group)

State Environmental Review Process (SERP)

The State Environmental Review Process (SERP) requires that all major state-funded projects undergo an environmental review to evaluate project impacts including:

- The environmental impact of the project, including the impact on wildlife habitat;
- Any adverse environmental effects which cannot be avoided if the project is undertaken;
- Measures proposed to minimize environmental impacts;
- Any alternatives to the proposed construction; and
- Any irreversible environmental changes which would be involved in the project.

Environmental Studies

Environmental due diligence and studies are required to examine impacts to resources including:

- Cultural Resources: Archaeological & Historic Resources
- Water Quality Impacts: Wetlands & Streams
- Threatened & Endangered Species
- Hazardous Materials

Environmental Agency Coordination

The project is reviewed by various environmental agencies including:

- Department of Conservation & Recreation
- Department of Environmental Quality
- Department of Game & Inland Fisheries
- Department of Health
- Department of Historic Resources
- Army Corps of Engineers
- Department of Environmental Quality
- Virginia Marine Resources Commission
- Virginia Outdoors Foundation

Environmental Design Considerations

- Context-sensitive design approach to minimize impacts to resources identified through SERP
- Stormwater Management (SWM) & Best Management Practices (BMP's) compliant with City and State regulations
  - Anticipate no increase in impervious area
  - Analyze and demonstrate adequacy of drainage outfalls
- Tree Impacts
  - Develop design to minimize tree removal
  - Plan will include street trees and replacement landscaping

Dovetail Cultural Resource Group

- Founded in 2005; Company has 50 preservation staff
- Completed over 1,000 projects, including almost 700 in Virginia and over 60 in Fairfax City and County
- Coordinated over 600 projects with the DHR

Cultural Resource Process

- Initiate Project with SHPO (Virginia Department of Historic Resources/DHR)
- Conduct Identification-Level Survey (Phase I)
- Submit to SHPO for Review
- Complete Evaluation-Level Study, if Needed (Phase II)
- Submit to SHPO for Review
- Evaluate Project for Impacts/Effects to Historic Properties
- Mitigate Adverse Effects, if Any

Cultural Resource Studies

Summer 2020: Completed a Reconnaissance-Level Architectural and Archaeological Study

- Archaeology:
  - Over 120 STPs were excavated
  - Site 44FX2176 (prehistoric site)
  - Willcoxon/Farr family cemetery (44FX2092) at Blenheim
- Architectural History
  - Nearly 110 resources identified in footprint and surrounding viewshed
  - Blenheim is listed in the National Register
  - Recommended three properties for intensive-level study: Army-Navy Country Club, Olde Post Farm, Old Lee Highway

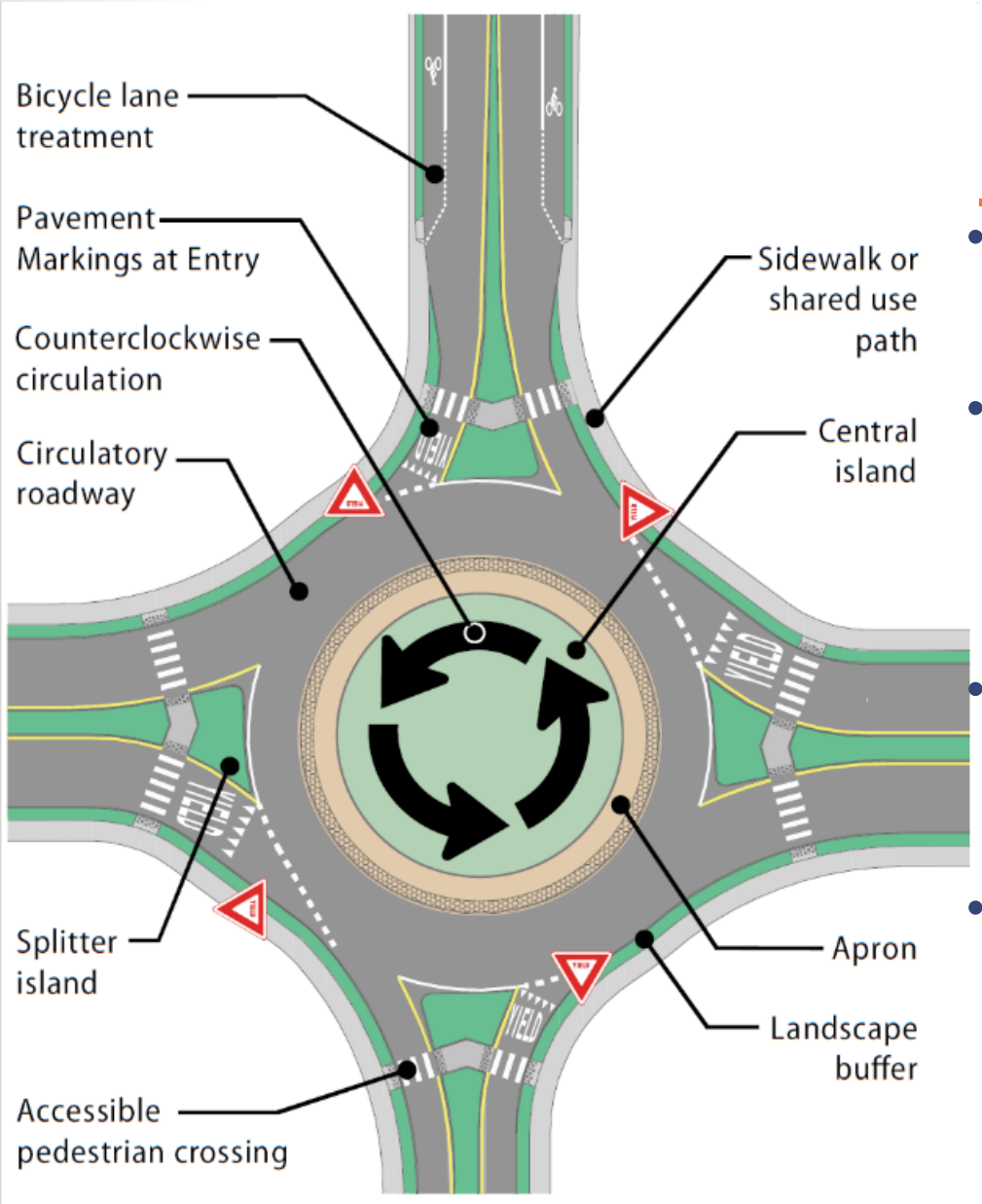
Cultural Resource Studies

Future Work (awaiting SHPO comments)

- Intensive-Level Architectural Studies
  - Three Resources
    - Olde Post Farm
    - Army-Navy Country Club
    - Old Lee Highway
  - Research
  - Additional Fieldwork
- Additional Archaeological Studies
  - Shovel tests in one area southeast of Blenheim
  - Monitoring during construction in front of Blenheim
  - Assure avoidance of Willcoxon/Farr family cemetery

Design Updates Since Last Meeting

- Relocated proposed roundabout from Cornell Road to Country Hill Drive
- Added proposed roundabout at Ridge Avenue
- Modified design for curb areas adjacent to OLH driveways
- Additional coordination with City of Fairfax Emergency Services



Roundabouts

- Reduce vehicle speeds, increased capacity, and improved usability
- Reduce traffic delay as compared to stop-controlled or traffic signal-controlled intersections
  - Yield controls eliminate unnecessary stops due to traffic signal timings or stop sign requirements
- Reduce vehicle conflict points, frequency, and severity
  - All movements are right turns and angled approaches improve visibility
- Easier movements to and from side roads
  - Roundabout geometry requires slower speeds, creating gaps in traffic that allow side road entry into roundabout

Roundabout Benefits

- Slows excessive speeds since all vehicles must slow down and yield at the roundabout entrance and slower speeds are required to navigate the roundabout
- Enhances pedestrian crossings and safety with a refuge island, decreased conflict points with vehicles, and slower speeds
  - Refuge islands require pedestrians to only cross one direction of traffic at a time
- Shortened sight distance lines for vehicular and bicycle/pedestrian movements due to decreased vehicle speeds and yielding at entrances
  - Drivers look left to enter the roundabout, approaching traffic to the right no longer constrains ability of vehicles to enter the roundabout
- Increases safety for school buses and large emergency vehicles since potential for broadside collisions during slow left turns in a traditional intersection are removed

Roundabout Example

Roundabout Resources

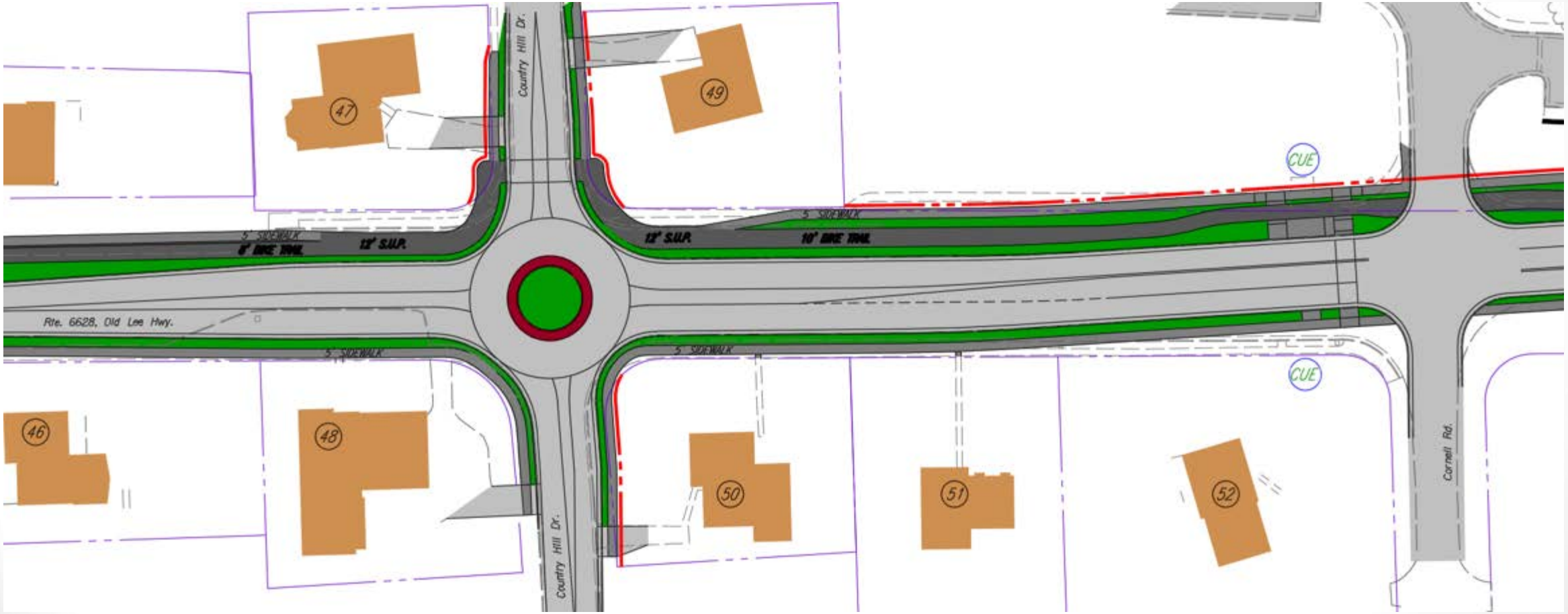
Several resources are available demonstrating the operations and benefits of roundabouts:

- VDOT Roundabout Resources
  - http://www.virginiadot.org/info/innovative_intersections_and_interchanges/roundabout.asp
  - https://www.youtube.com/embed/fPbWjoSYU1Q
  - https://www.youtube.com/watch?v=0UkTeZ-800M&feature=youtu.be
- Federal Highway Administration Roundabout Resources
  - https://safety.fhwa.dot.gov/intersection/innovative/roundabouts/
  - Modern Roundabouts: A Safer Choice - YouTube
- City of Carmel, Indiana (~130 roundabouts installed by City) Roundabout Resources
  - https://www.carmel.in.gov/department-services/engineering/roundabouts

Country Hill Drive Roundabout

- Relocated roundabout from Cornell Road to Country Hill Drive
  - Provides access for neighborhoods on both sides of OLH
- Facilitates left turns to and from side roads
  - Small gaps created in traffic by vehicles slowing down and yielding if necessary allow other vehicles on side roads to enter the roundabout
- Roundabout at Country Hill Drive will reduce traffic speed at Cornell/FHS entrance due to proximity
  - Increases safety for pedestrians crossing at FHS

Country Hill Drive Roundabout



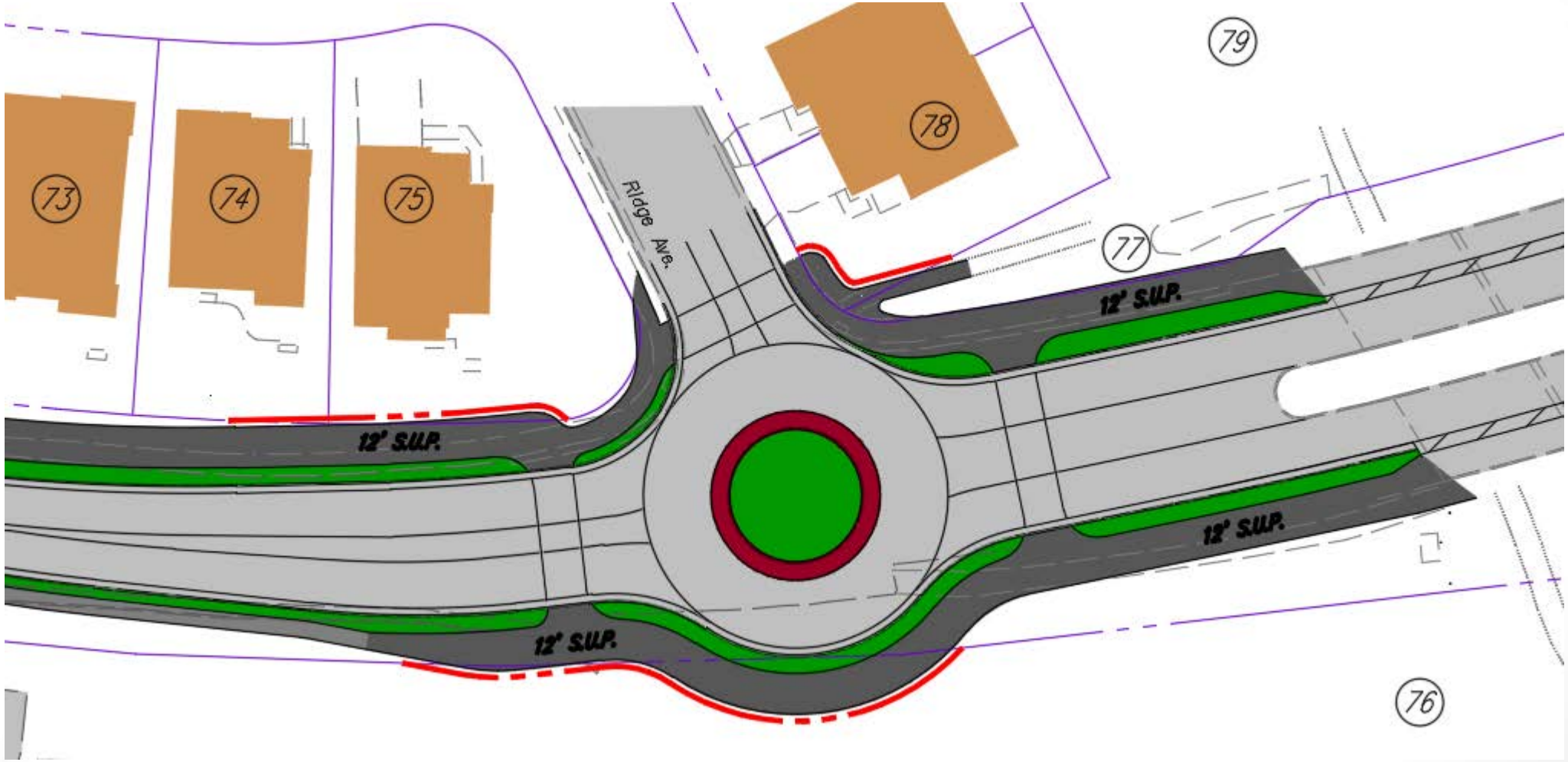
Ridge Avenue Roundabout

- Reduces speeding at intersection
  - Vehicles required to yield to enter roundabout and slow down to navigate roundabout geometry
- Allows for safer left turns to and from Ridge Avenue
  - Travel speeds reduced at roundabout approaches
  - Left turn from Ridge becomes a right turn into the roundabout, entering gaps in traffic created by OLH traffic slowing to enter the roundabout
  - Left turn to Ridge enabled by vehicles in roundabout having the right-of-way and vehicles entering the roundabout yielding

Ridge Avenue Roundabout

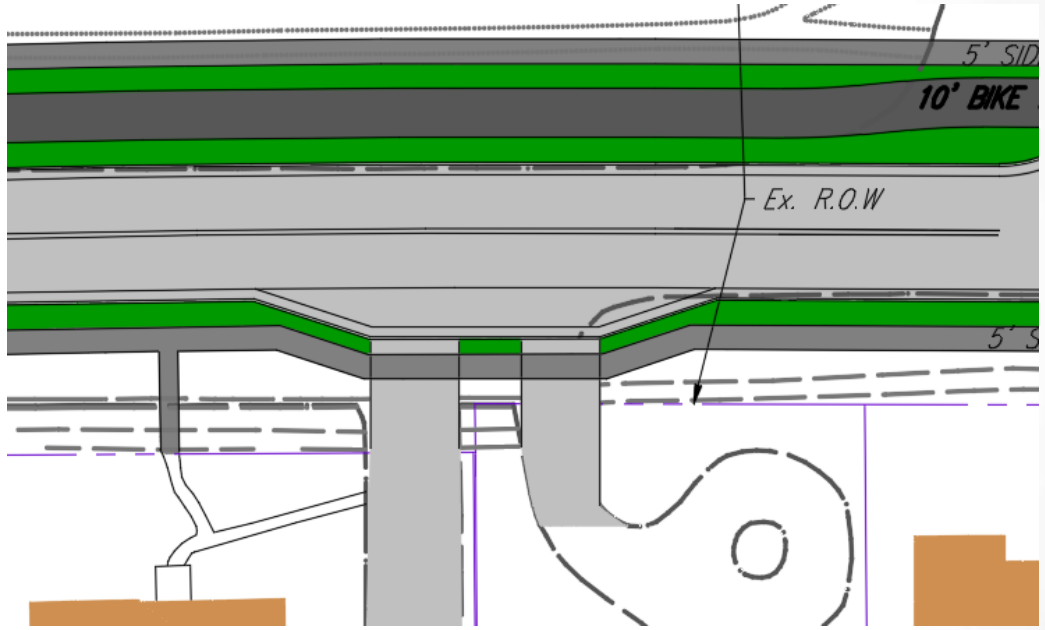
- Provides safe U-turn opportunity for vehicles from shopping plaza north of bridge
  - Vehicles can make the U-turn movement within the roundabout by following it 180 degrees instead of turning around in Ridge Avenue
- Facilitates transition of bicycle/pedestrian facilities at north end of project
  - Provides safe bicycle and pedestrians crossings with refuge islands

Ridge Avenue Roundabout

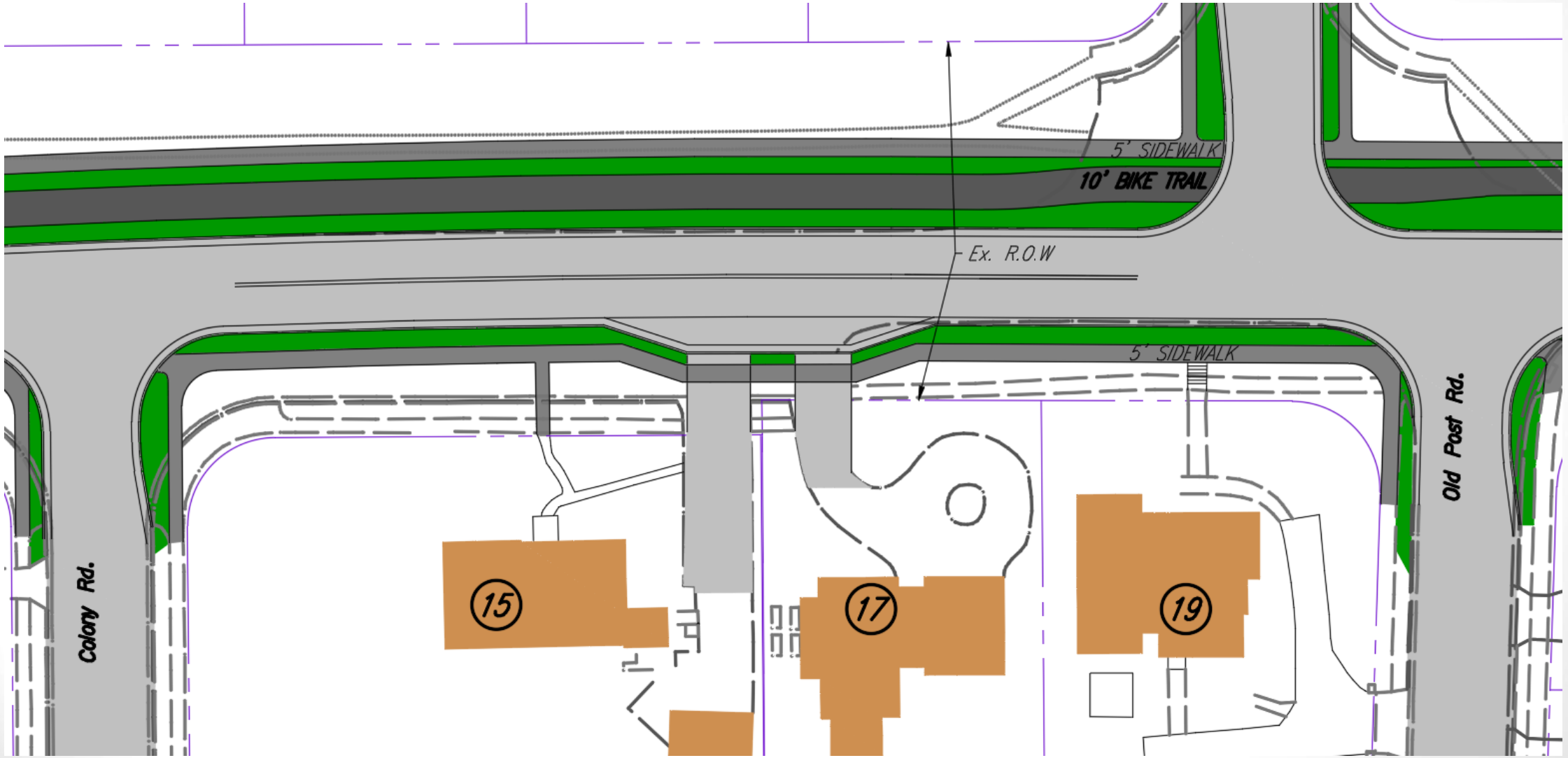


Driveway Connections

- Pull-off areas provided for driveways on Old Lee Highway
- Provides area for deliveries, trash collection, mail delivery
- Not intended for on-street parking
- Proposed at 10 locations



Driveway Connections



Emergency Services Coordination

- Reviewed proposed design with City Police Chief and Fire Chief in November
  - No major concerns were raised regarding roadway section or roundabouts
  - Continuing to evaluate with PD and FD
  - City of Fairfax fire apparatus dimensions provided for review by design team
- Additional outreach performed
  - Town of Vienna reports no issues or impact to emergency service following construction of roundabout within the Town
- Federal Highway Administration Information on Roundabouts & First Responders
  - https://safety.fhwa.dot.gov/intersection/innovative/roundabouts/responder/responderbrochure.pdf

Emergency Services Coordination

U.S. Department of Transportation
Federal Highway Administration

ROUNDABOUTS
& First Responders
Saving Lives Together

Shared Mission – Shared Benefits

Saving lives and preventing serious injuries are the highest priority of both first responders and highway agencies. Roundabouts are safer intersections that result in fewer severe crashes requiring emergency response.

Safer intersections are important for first responder occupational safety and health, too. Studies show that most fatalities resulting from a crash involving a fire truck occur at, or are related to, an intersection. Further, angle crashes are the most common fatal crash type involving fire trucks.[2] The International Association of Fire Fighters (IAFF) and others cite intersections as high risk locations for all emergency response disciplines.[3]

Roundabouts are also a very efficient type of intersection. They do not have the same stop-and-go conditions as traditional intersections.

- Roundabouts keep people moving, but at speeds where injury risk is greatly reduced.
- Roundabouts can reduce or eliminate lines of stopped traffic typical of stop signs and traffic signals, making them easier to navigate throughout the day and night.
- Unlike traffic signals, roundabouts don't depend on electricity to function, so they are not susceptible to power outages.

[1] *Highway Safety Manual*, American Association of State Highway and Transportation Officials, Washington, DC, 2010.

[2] Campbell, K.L., *Traffic Collisions Involving Fire Trucks in the United States*, UM-TRI-99-26, Ann Arbor, MI: University of Michigan Transportation Research Institute, Ann Arbor, MI, 1999

[3] International Association of Fire Fighters (IAFF), *Best Practices for Emergency Vehicle and Roadway Operations Safety in the Emergency Services*, Washington, DC 2010

[4] Bailey, E.D., Sweeney, T., Considerations in Establishing Emergency Medical Services Response Time Goals, National Association of EMS Physicians, Lenexa, KS, 2003

Designing for First Responders

Roundabouts are not designed to inhibit traffic. Rather, they are optimized for the safety and efficiency of all users. Roundabouts can be designed for large trucks, including a special purpose apparatus such as a ladder truck. This is accomplished by using features such as:

- Wider entry and exit lanes for efficient movement of traffic through the roundabout.
- Mountable aprons and curbs intended for use by vehicles with a wide and/or long wheelbase.
- Curvature and radii that allow for easy turning movements, including u-turns.

"Before the first roundabout was constructed in our city, our station arranged to visit one nearby so that we could experience it firsthand. That answered a lot of questions and helped build confidence in roundabouts."

- **Brad Estochen**
Minnesota DOT Safety Engineer &
Firefighter and EMT for the City of Woodbury

Frequently Asked Questions

When the first roundabout in a community is proposed, it is natural for first responders to have questions and concerns. Several of the most common questions are addressed below:

Q: Will all our vehicles be able to maneuver through a roundabout?
A: Roundabouts work for many types of large vehicles. Partnering with the road agency to conduct a "test drive" (laying out the roundabout in a large open area using cones and temporary devices) can help evaluate and influence the design.

Q: What about emergency response times?
A: At any intersection, traffic conditions vary throughout the day. Roundabouts can actually improve travel times by eliminating unnecessary stops and delays. Furthermore, the IAFF and other public health and safety organizations recognize that small differences in travel times rarely, if ever, impact incident or patient outcomes.[3,4]

Q: How will drivers in our community know how to react to approaching emergency vehicles?
A: In this way, roundabouts are no different from other intersections – drivers must clear the intersection, pull off to the right, and let the emergency vehicle pass. To help educate drivers, there are many excellent resources available from states and cities where roundabouts are common. First responders can contribute to general roundabout education and outreach in a community by helping explain to the public how to react when an emergency vehicle approaches.

Q: Why consider roundabouts when we have traffic signal preemption in our city?
A: The use of preemption devices at signalized intersections remains a worthwhile option. However, in addition to being safer, roundabouts are viable in many places where traffic signals are not. Furthermore, even where signal preemption is used, first responders must obey state laws and department policies, and proceed cautiously – likely at speeds comparable to a roundabout.

On-Going Analysis

- City performing in-depth traffic analysis to evaluate
  - Roundabout performance
  - Turn lane additions at select locations
  - Traffic flow and turning movement performance

FAQ Review

- Questions/comments?

Next Steps

- Traffic Evaluation – Approximate 2 month timeframe to complete
- 4th Stakeholder Meeting – Feb 17
  - Landscaping, Lighting, Aesthetics, Traffic Evaluation Update
- City Council work session
- Public Meeting