VDOT

Virginia Department of Transportation

HUNTER MILL ROAD OVER COLVIN RUN BRIDGE REPLACEMENT

FAIRFAX COUNTY

PROJECT NO. 0674-029-358; UPC 110499 & 110433

STAKEHOLDERS MEETING

www.virginiadot.org/projects

Vicente Valeza, P.E. – Project Manager, Structure & Bridge

Wednesday, February 27, 2019

Meeting Agenda

Agenda

- Introductions and housekeeping
- Purpose of meeting
- Current Bridge Condition
- Crash Data (1991 – 2018)
- Consensus that the bridge must be replaced
- Current Design Criteria
- Current Proposed Design
- Construction Traffic Alternatives
- Current Schedule & Costs
- Construction Funding & Allocations
- Construction Funding Source - SGR Program
- M. Wallwork Proposed Roadway Improvements
- Roundabout – FHWA NCHRP 672 & VDOT Guidelines
- Community Core Group Discussion Items
- Consensus on Design Alternatives (Summary)
- Next Step – Another Public Information Meeting
- Visual Presentation

Purpose of the Meeting

Purpose

- Review the preliminary design for a new bridge on Hunter Mill Road over Colvin Run with community stakeholders
- Discuss the proposed roadway improvements by HMRDL Consultant
- Discuss the Community Core Group Discussion Items summarized in its January 18, 2019 Meeting Minutes
- Summarize acceptable design features and criteria to carry towards the Public Hearing

Current Bridge Condition

Posted 19 Tons weight limit based on temporary condition

Temporary timber bent added in 2012

Temporary knee braces added in 2016

Current Bridge Condition

Before 2012

After 2012/Present

Current Bridge Condition

CURRENT BRIDGE CONDITION RATING

- Deck Condition Rating - 5 (Fair)
- Superstructure Condition Rating - 3 (Serious)
- Substructure Condition Rating - 6 (Satisfactory)
- Condition Rating Scale 0-9

GENERAL COMPONENT – CONDITION RATING

Code Description:

N – NOT APPLICABLE
9 – EXCELLENT CONDITION
8 – VERY COOD CONDITION – No problems noted
7 – GOOD CONDITION – Some minor problems
6 – SATISFACTORY CONDITION – Structural elements show some minor deterioration
5 – FAIR CONDITION – All primary structural elements are sound but may have minor section loss, cracking, spalling, or scour
Structurally Deficient (SD) Line ----------SD Line

Continuation ….

4 – Poor Condition – Advanced section loss, deterioration, spalling, or scour
3 – Serious Condition – Loss of section, deterioration, spalling, or scour have seriously affected primary structural components. Local failures are possible. Fatigue cracks in steel or shear cracks in concrete may be present
2 – Critical Condition – Advanced deterioration of primary structural elements. Fatigue cracks in steel or shear cracks in concrete may be present or scour may have removed substructure support. Unless closely monitored, it may be necessary to close the bridge until corrective action is taken
1 – "Imminent" Failure Condition – Major deterioration or section loss present in critical structural components, or obvious vertical or horizontal movement affecting structure stability. Bridge is closed to traffic but corrective action may put bridge in light service
0 – Failed Condition – Out of service; beyond corrective action

Current Bridge Condition

Current Bridge Condition

Crash Data (1991 – 2018)

Document No.	Crash Date	Crash Time	Day Of Week	Collision Type	Crash Description
920101408	12/18/1991	8:00	Wed	1. Rear End	Rear end South Bound - Stopping for Bridge traffic
930780696	3/5/1993	20:00	Fri	2. Angle	
933490265	12/5/1993	16:00	Sun	5. Sideswipe - Opposite Direction	Sideswipe opposite directions on Bridge
951162719	4/17/1995	16:00	Mon	9. Fixed Object - Off Road	North Bound vehicle swerved to avoid Traffic stopped for bridge - Struck light pole
951790335	5/26/1995	11:00	Fri	16. Other	North Bound Lanes - vehicle backed into police crusier during an accident scene
960821708	3/7/1996	17:00	Thu	2. Angle	North Bound vehicle swerved into South Bound Lane while SB veh had just crossed the bridge
961991552	7/4/1996	16:00	Thu	1. Rear End	Rear end South Bound - Stopping for Bridge traffic
972621782	9/8/1997	9:00	Mon	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
1590259	5/20/2000	12:00	Sat	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
12910117	9/27/2001	13:00	Thu	1. Rear End	Rear end South Bound - Stopping for Bridge traffic
22192075	7/14/2002	12:00	Sun	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
23522016	11/21/2002	9:00	Thu	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
40702508	2/7/2004	8:00	Sat	9. Fixed Object - Off Road	Vehicle Ran off Road while South Bound
42240970	4/22/2004	12:40	Thu	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
52923319	10/7/2005	9:43	Fri	1. Rear End	Rear end North Bound - Stopping for Bridge traffic
93450159	9/28/2009	19:30	Mon	1. Rear End	VEH # 1 AND VEH # 2 WERE BOTH TRAVELING SOUTHBOUND HUNTERMILL ROAD. VEH. # 2 CAME TO A COMPLETE STOP TO ALLOW A VEHICLE TO CROSS THE BRIDGE ON THE NORTHBOUND HUNTERMILL SIDE. WHILE VEH # 2 WAS STOPPED VEH # 1 THOUGH VEH 2 WAS GOING TO BEGIN MOVING. DRIVER # 1 REALIZED VEH # 2 WAS STILL @ A COMPLETE STOP AND COULD NOT STOP HER VEH. VEH # 1 REARENDED VEH # 2. CASE # 09271002897 819.01
100341142	12/22/2009	17:35	Tue	2. Angle	20093560203/215/819.01 VEH # 1 WAS GOING NORTH ON HUNTER MILL RD WHEN VEH #3 (PHANTOM VEHICLE) DRIFTED FROM THE SOUTHBOUND LANES TO THE NORTH. THIS CAUSED VEH #1 TO SWERVE TO AVOID A HEAD ON CRASH. IN DOING SO STRUCK VEH #2 THAT WAS PARKED IN A PRIVATE DRIVEWAY.
103430347	10/3/2010	11:29	Sun	1. Rear End	Rear end South Bound - Stopping for Bridge traffic
121840121	6/3/2012	14:04	Sun	1. Rear End	Vehicle 1 and 2 were traveling n/b on Hunter Mill Rd going through the single lane crosswalk (bike Path) when Vehicle 2 stopped for a blcyclist. Vehlcle 1 struck vehicle 2ln a rear end collision. Vehicle 1 was found at fault for failure to pay full time attention

Crash Data (1991 – 2018)

130500226	12/4/2012	16:50	Tue	1. Rear End	ALL VEH TRAVELING SB ON HUNTER MILL,WHEN V3 WAS STOPPED TO LET A VEH travellng NB pass on the one car bridge. When Vehicle 1 comes around the cornerpreparing to stop but does not stop in time so Vehicle 1 hits vehicle 2(motorcycle) inthe back whlch sends Vehlcle 2 lnto Vehicle 3. Driver 2 was ejected off hls motorcycle HITTING THE BACK OF V3 WAS HIS BODY AND THEN COMING TO REST ON THE GROUND DIRECTTLY BEHIND V3.
130940002	1/11/2013	18:36	Fri	1. Rear End	VEH 2 TRAVELING WEST ON HUNTER MILL ROAD . VEH 2 APPROACHES ONE LANE BRIDGE CONTROLLED BY YIELD SIGNS ON EAST AND WB LANES OF HUNTER MILL RD BEHIND VEH 2. AS VEH 2 BEGINS TO CROSS ONE LANE BRIDGE ANOTHER VEH TRAVELING EB ON HUNTER MILL RD BEGINS TO CROSS ONE LANE BRIDGE , VEH 2 STOPES AND VEH 1 WHICH HAD BEGUN TRAVELIN GWB STRIKES VEH 2 REAR BUMPER WITH VEH 1 FRONT . NO INJURIES REPORTED AT THE SCENE .
132480066	5/7/2013	11:27	Tue	2. Angle	driver of vehicle 1 was traveling south on hunter mill road when he came to the bridge south of chamberlain drive. driver of vehicle 1 applied his brakes rapidly and began to hyddroplaine. driver of vehicle 1 struck the guard rail prior to the bridge
133430030	8/5/2013	16:16	Mon	1. Rear End	Vehl traveling north on Hunter Mill Road. Veh2 traveling north on Hunter Mill Road.Veh2 approaches one lane brldge wlth marked Yield slgns. Vehl travelfng behind Veh2.Driver of Vehl becomes destracted moving with traffic and strikes the rear of Veh2 with front of veh 1.no injuries reported at the scene.driver of v1 issued citation.
142090052	6/30/2014	20:31	Mon	4. Sideswipe - Same Direction	v/1 was traveling e/b on hunter mill rd near mount sunapee rd where he struck the guardrail on a one laned bridge. The driver continued down Hunter Mill Rd turning onto baron cameron ave. he was observed speeding, swerving and unable to maintain his lane of traffic. The driver dropped both drivers side tires off of the roadway on baron cameron ave approaching wiehle ave where a traffic stop was initiated. the driver was subsequently arrested for driving under the influence of drugs.
161660002	1/6/2016	13:26	Wed	2. Angle	DRIVER OF VEHICLE 1 WAS BACKING UP GOING EAST ONTO HUNTERS MILL RD WHILE DRIVER OF VEHICLE 2 WAS DRIVING NORTHBOUND ON HUNTER MILL RD. DRIVER OF VEHICLE 1 WAS BACKING OUT FROM A PRIVATE DRIVEWAY WHEN HE FAILED TO YIELD THE RIGHT OF WAY BEFORE ENTERING A HIGHWAY.
161550087	5/20/2016	20:45	Fri	1. Rear End	VEH 1 AND 2 WERE GOING SOUTH ON HUNTER MILL JUST PAST CHAMBERLAIN DR. VEH 2 HAD STOPPED TO YIELD TO ONCOMING TRAFFIC. VEH 1 DID NOT STOP IN TIME AND STRUCK VEH 2.

Crash Data (1991 – 2018)

161820116	6/21/2016	16:28	Tue	1. Rear End	VEHICLE 2 WAS TRAVELING NB ON HUNTER MILL RD AND HAD STOPPED AT THE ONE LANE BRIDGE, YIELDING TO TRAFFIC THAT WAS ALREADY CROSSING. VEHICLE 1 WAS ALSO TRAVELING NB ON HUNTER MILL RD AND DID NOT STOP IN TIME AND STRUCK VEHICLE 2 FROM BEHIND. NO INJURIES REPORTED ON SCENE. DRIVER 1 CITED.
162250065	7/30/2016	13:02	Sat	1. Rear End	As veh two was stopped, waiting for the vehicle in front to proceed forward at a one lane bridge, the driver of vehicle one failed to maintain control due to a wet roadway surface thus causing a rear end collision. The weather conditions were dry/clear as it had just stopped raining.
171675063	6/15/2017	19:20	Thu	1. Rear End	VH1 TRAVELLING WB REAR-ENDED VH2, WHICH CAUSED VH2 TO REAR-END VH3. VH2 & 3 WERE STOPPED AT A YIELD TO ON COMING TRAFFIC SIGN CONTROLLING TRAFFIC OVER A ONE VEHICLE BRIDGE.
172615430	9/18/2017	16:03	Mon	2. Angle	BOTH V1 & V2 WERE TRAVELING NB ON HUNTER MILL RD. AT THE HILL CREST, V1 TRIED TO MAKE A U-TURN IN THE ROADWAY, NOT AT AN INTERSECTION. V2 STRUCK V1 IN THE DRIVER'S SIDE. BOTH VEHICLES ROTATED ABOUT 90 DEGREES, CROSSED OVER INTO OPPOSITE TRAFFIC AND ENDED UP ON THE GRASSY SHOULDER.
173105214	10/31/2017	10:36	Tue	1. Rear End	V1 REAR ENDS V2 AND CAUSES THEM TO REAR END V3. V1 IS AT FAULT. V1 ALSO RAN OFF THE ROAD AFTER STRIKING V2.
180245297	1/24/2018	20:23	Wed	1. Rear End	V1 AND V2 WERE TRAVELING SB ON HUNTER MILL RD APPROACHING A ONE LANE BRIDGE. V2 STOPPED AT THE BRIDGE TO ALLOW ONCOMING TRAFFIC TO CROSS THE BRIDGE. V1 DID NOT STOP AND REAR ENDED V2.

Summary of Reported Accidents from 1991 – 2018:

*** 24 Accidents over 27 years

Consensus that the bridge must be replaced

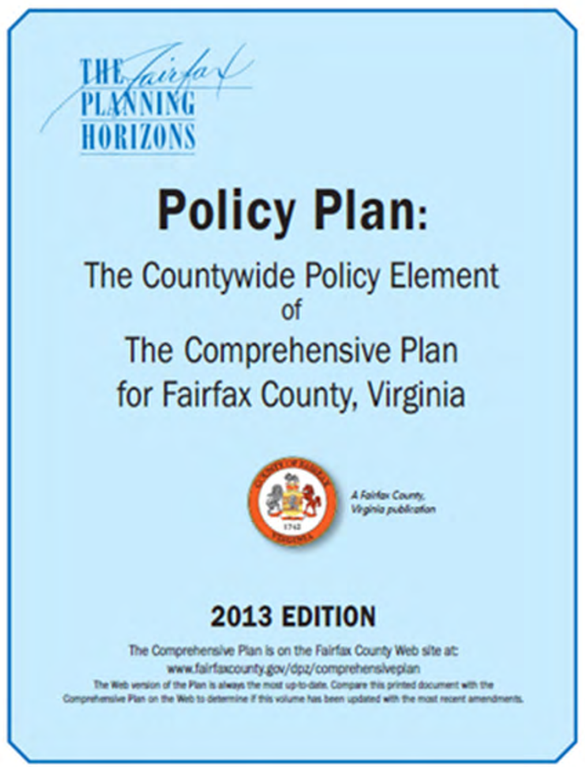
- YES _____
- NO _____

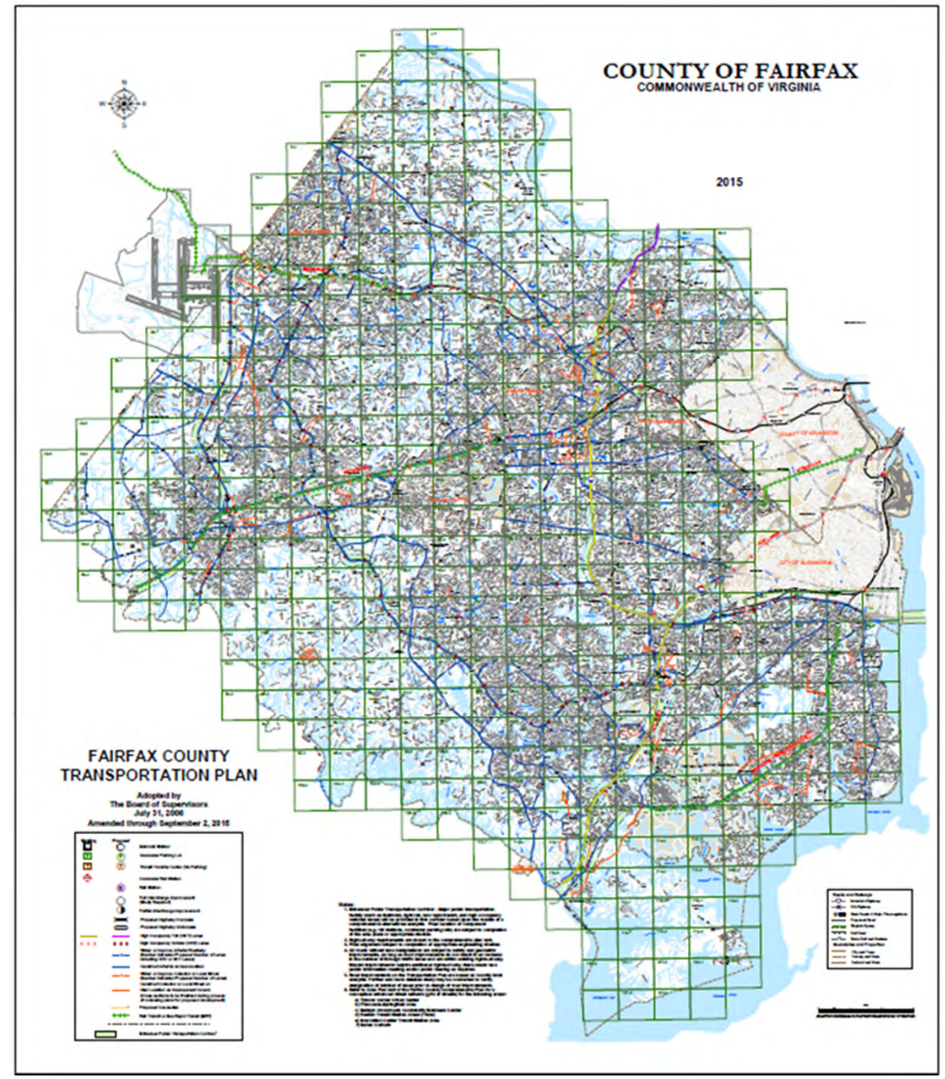
Current Design Criteria
(Urban Minor Arterial)

- The proposed bridge span length will be 40’-0”. Existing bridge is 30’-0”
- The bridge opening will be sized to pass a 10-year flood level & satisfy floodplain criteria.
- Bridge railing (Kansas Corral or CPSR) will be open to minimize the “dam” effect on the floodplain for flooding above the 10-year flood level. (25-year flood level is 1.18 feet below low chord of the existing bridge)
- The proposed bridge section will carry 2 - 11’-0” lanes, 4’-0” median, and 2 - 4’-0” shoulders (or 4’-0” shoulder on one side and wider shoulder or sidewalk on the other side).
- Hunter Mill Road (Average Daily Traffic 7,900 vpd) will be open to traffic during construction using a one-lane configuration.
- Incorporate aesthetic features compatible with the scenic and historic character of Hunter Mill Road.
- Proposed two-lane bridge improves roadway geometrics, functionality, and safety over the current one-lane configuration.
- Design Year (2043) Average Daily Traffic - 11,000 vpd. Design Speed will match the existing posted Speed Limit of 35 MPH.
- Bridge will be designed per latest AASHTO LRFD Bridge Design Specifications (HL-93 Vehicle Live Load) and federal regulations.

Current Design Criteria
(Fairfax County Comprehensive Plan)

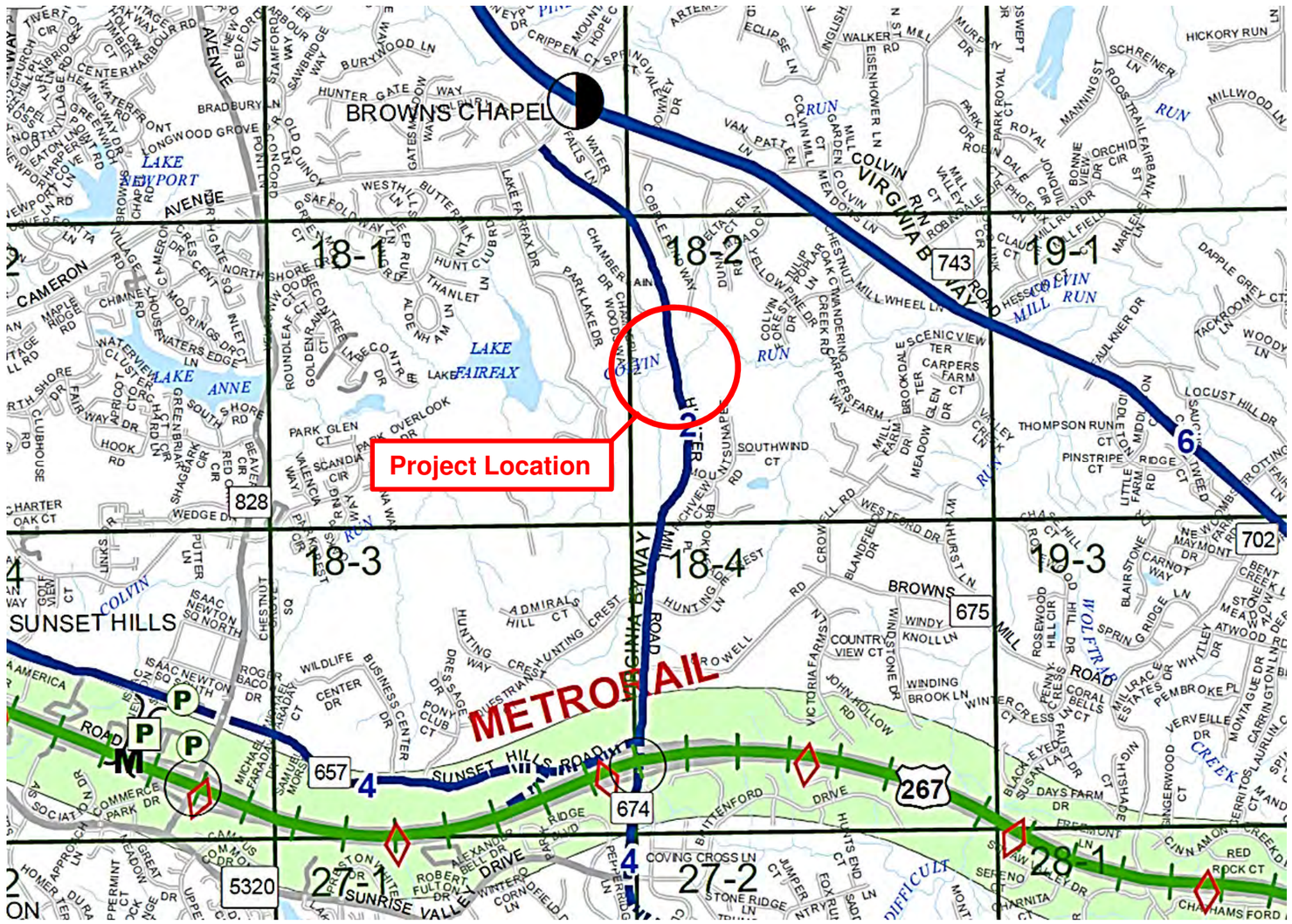
- 2013 Transportation Plan
- 2014 Countywide Bicycle Master Plan
- 2014 Countywide Trails Plan





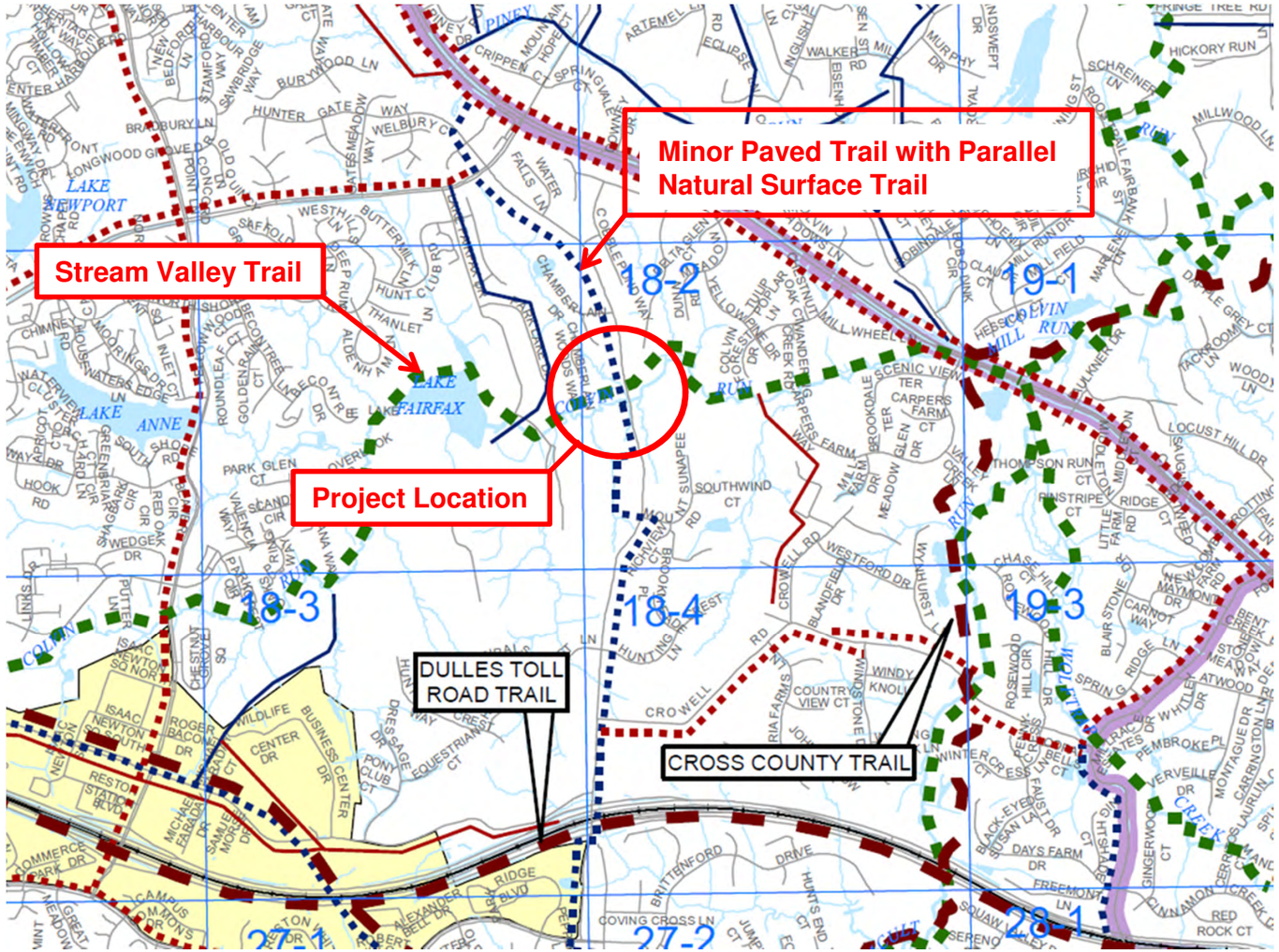
Current Design Criteria

(Fairfax County 2013 Transportation Plan Excerpt)



Current Design Criteria

(Fairfax County 2014 Countywide Trails Plan Excerpt)



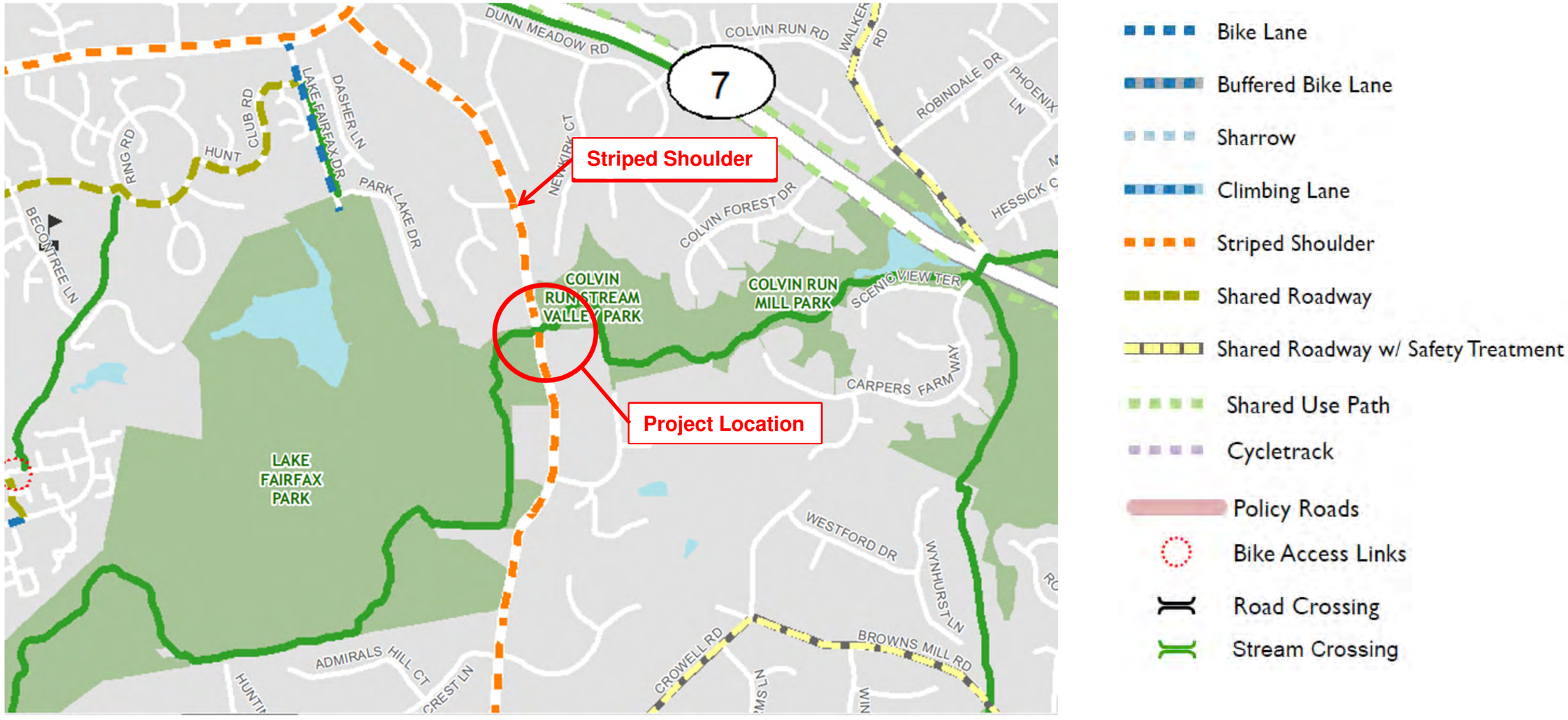
Trails

- Major Regional Trail System (See Note 2)
- Major Paved Trail
- Minor Paved Trail (See Note 3)
- Minor Paved Trail with parallel Natural Surface or Stone Dust Trail (See Note 4)
- Natural Surface or Stone Dust Trail (See Note 4)
- Stream Valley Trail
- Trails in Other Jurisdictions

3) Major Paved Trail (asphalt or concrete) is 8' or more in width
Minor Paved Trail (asphalt or concrete) varies from 4' to 7'-11".
4) Stone Dust Trail or Natural Surface Trail is typically 6' to 8' in width.

Current Design Criteria

(Fairfax County 2014 Countywide Bicycle Master Plan Excerpt)

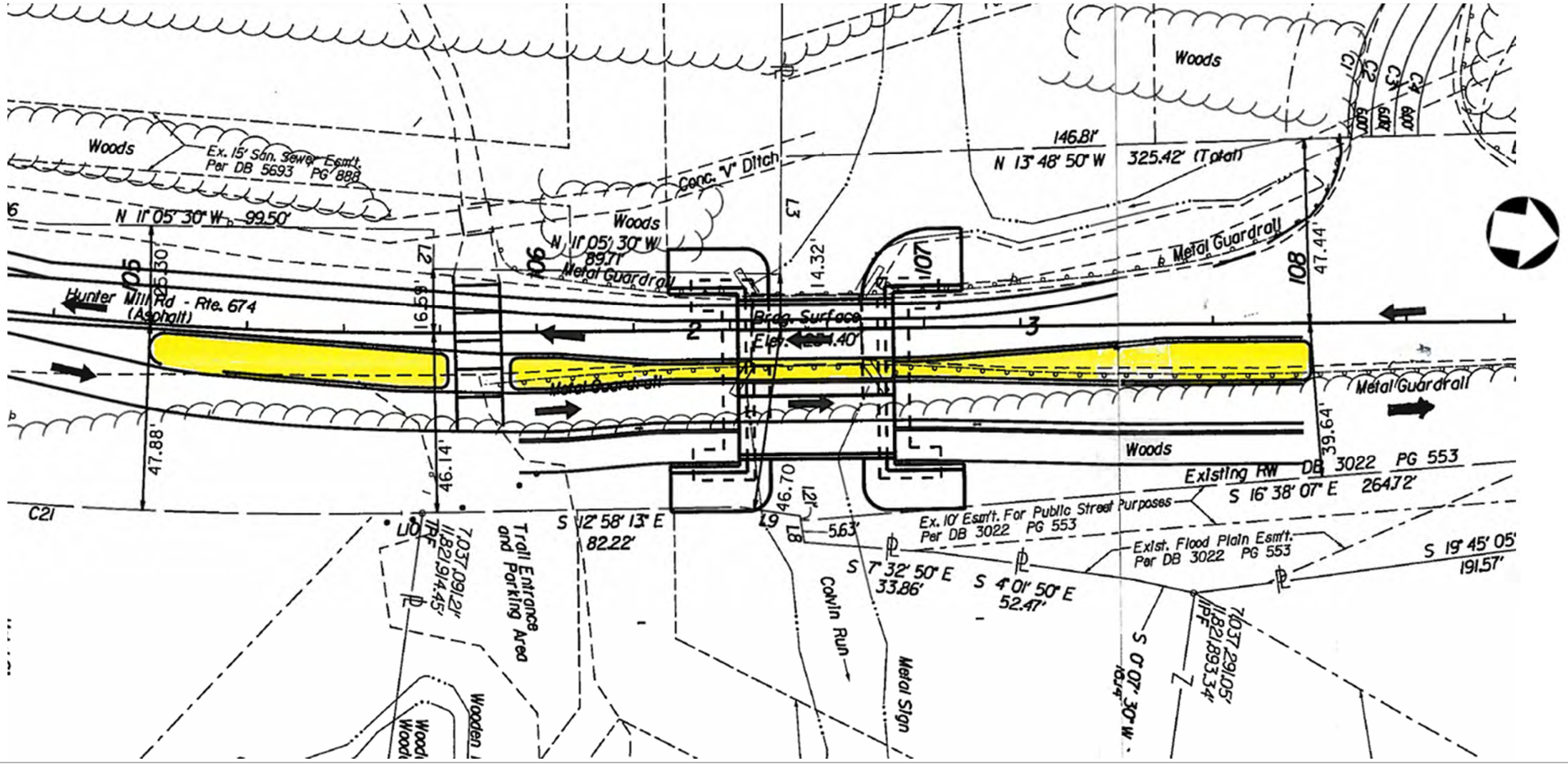


Current Design Criteria
(Urban Minor Arterial)

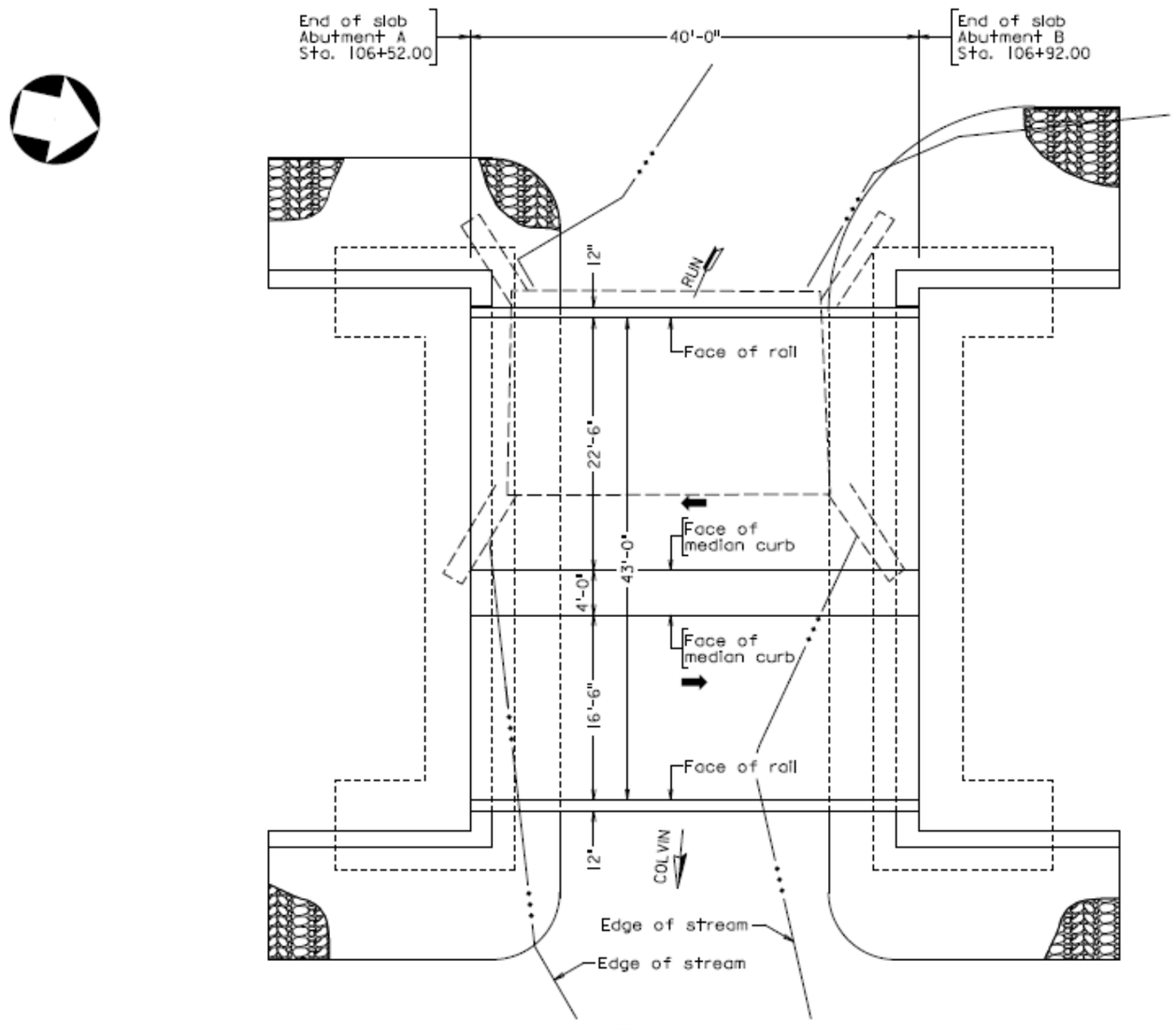
One-lane bridges:

VDOT's general policy is not to build one-lane bridges. However, it is recognized that some conditions may warrant a one-lane bridge. One-lane bridges require a design waiver to be approved by the State Structure and Bridge Engineer. In addition to the normal design waiver request, a letter shall be provided from the locality or county requesting the one-lane bridge. Design waivers for one-lane bridges only can be considered when the design year ADT is less than or equal to 400.

Current Proposed Design
(Urban Minor Arterial)

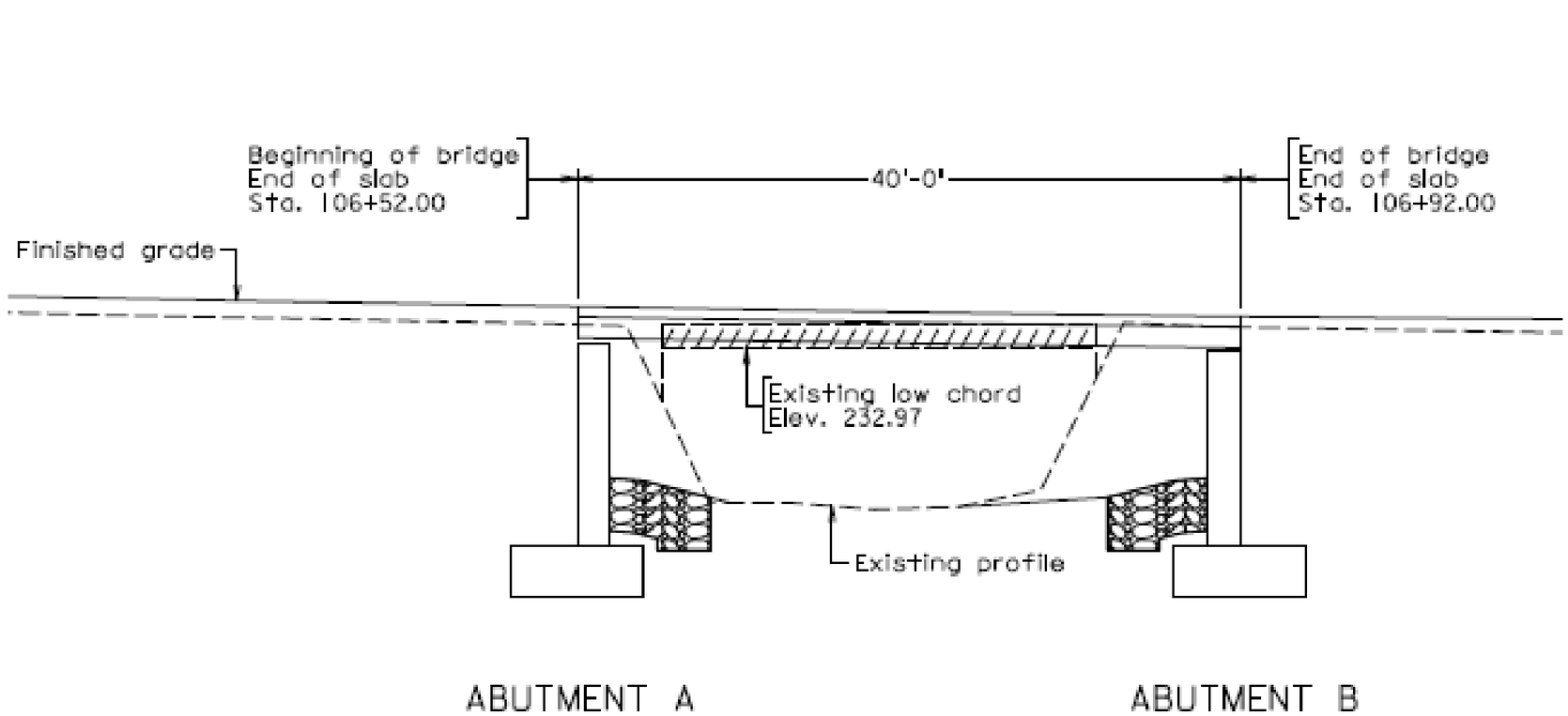


Current Proposed Bridge Plan



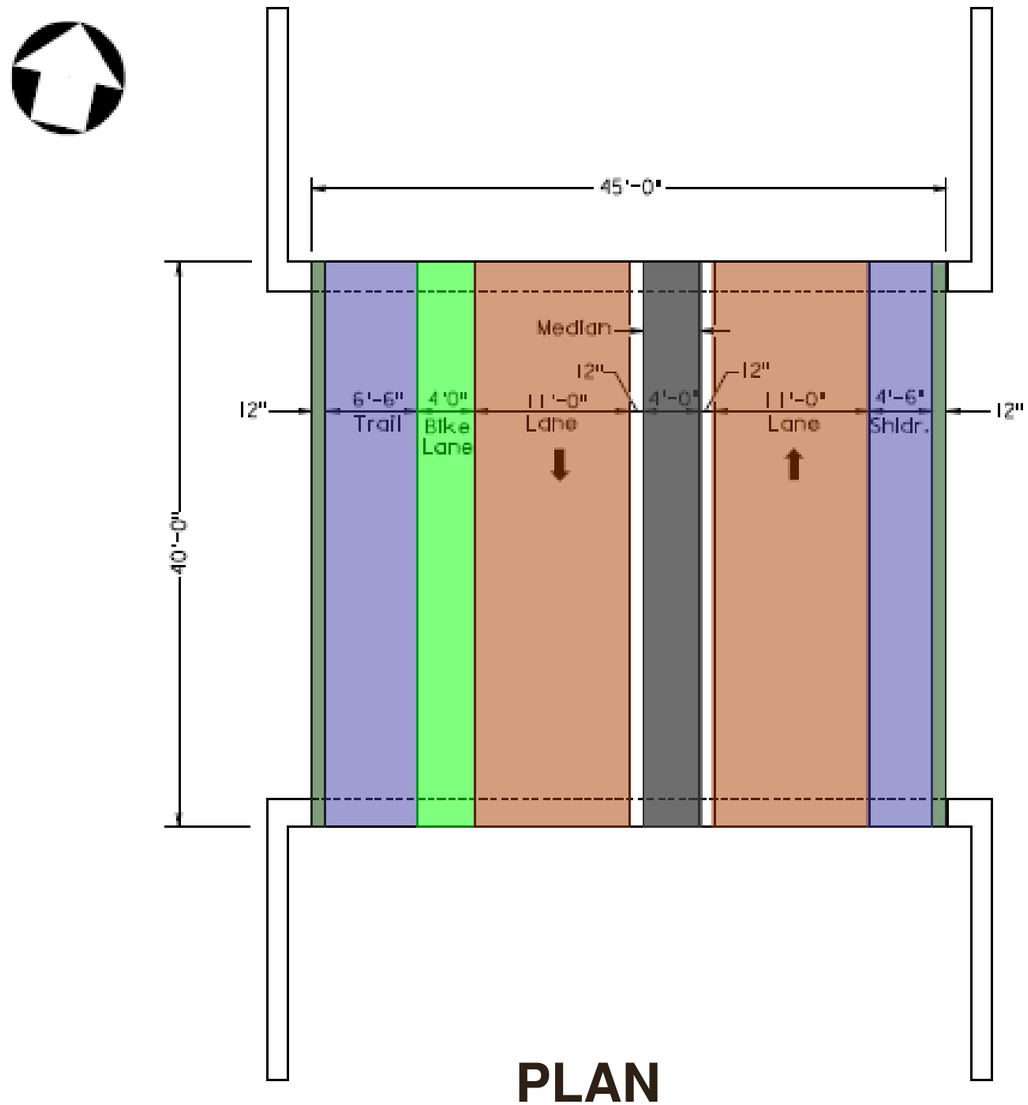
PLAN

Current Proposed Bridge Elevation

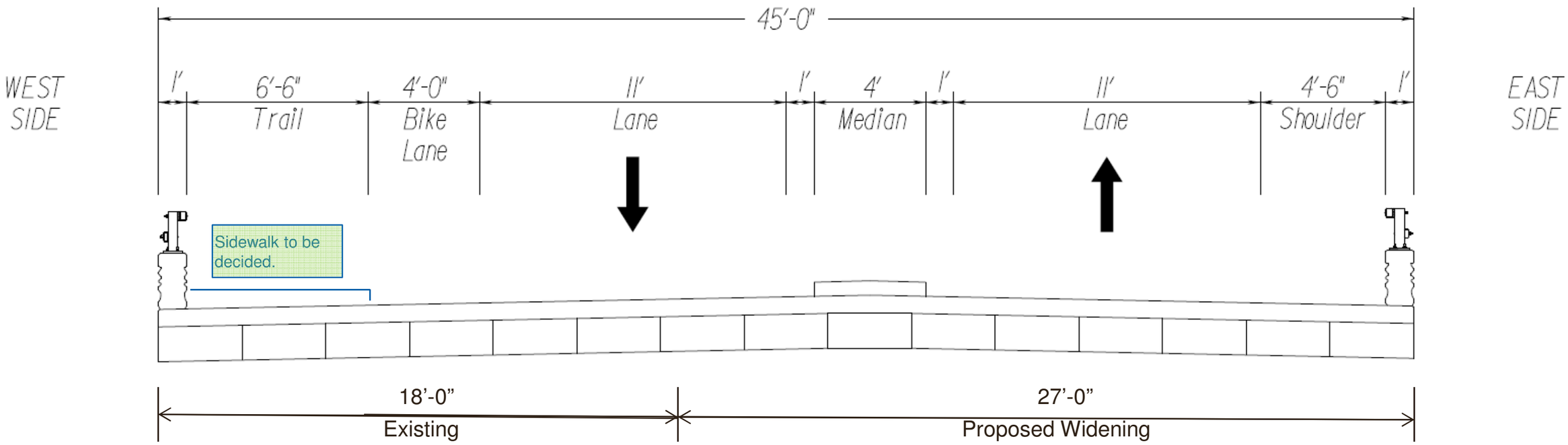


DEVELOPED SECTION ALONG BASELINE

Bridge Schematic Plan

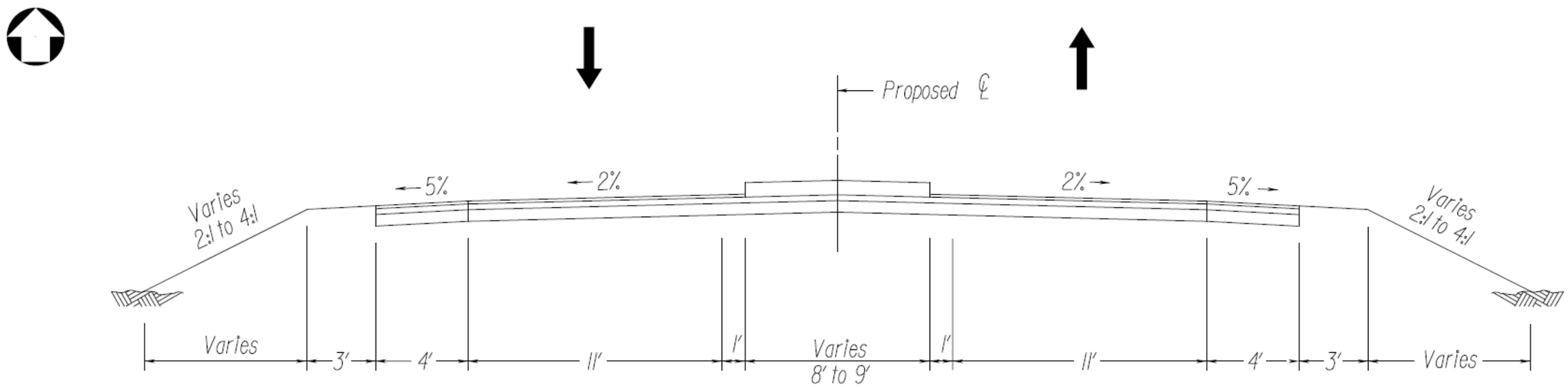


Bridge Typical Section



BRIDGE TYPICAL SECTION

Roadway Typical Section



ROADWAY TYPICAL SECTION
AT SPLITTER ISLAND

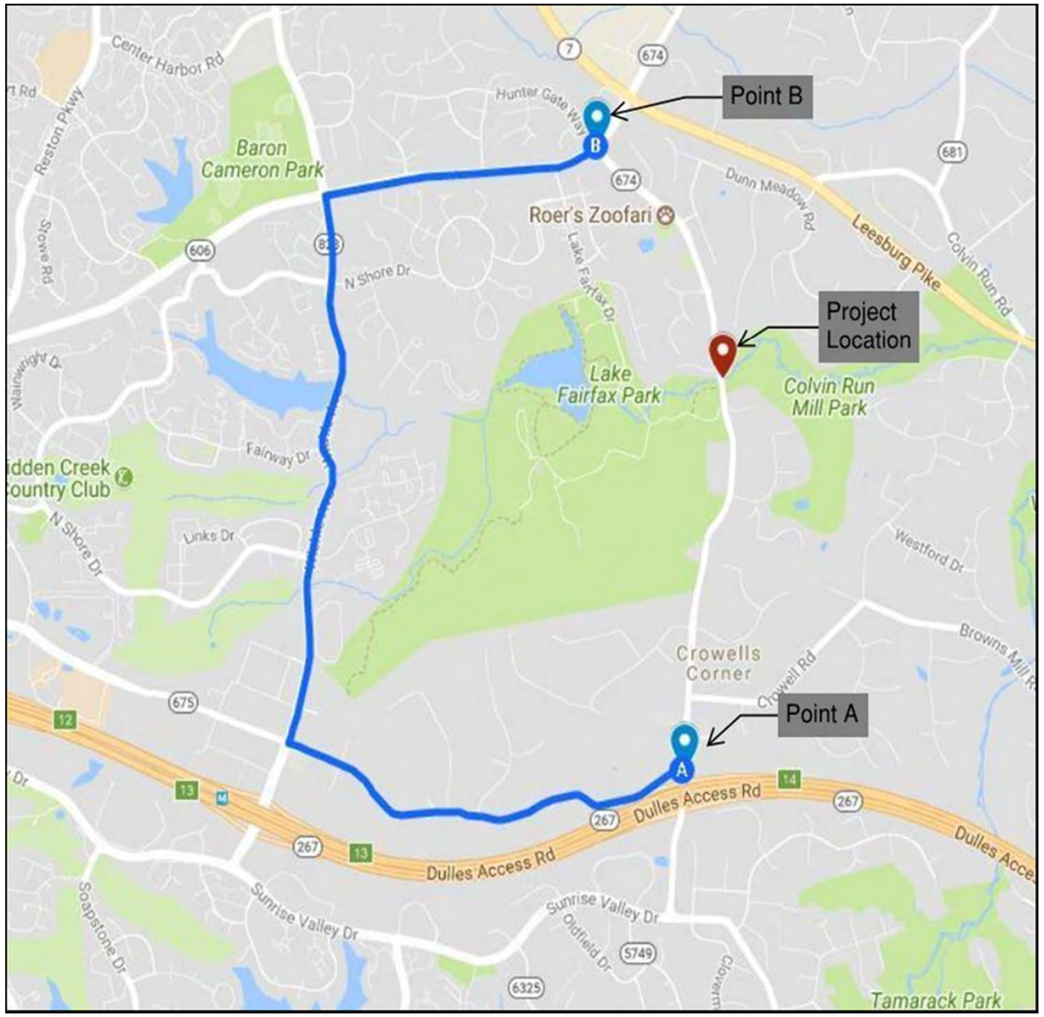
Proposed Bridge Elevation
(using Kansas Corral Bridge Railing (Vehicular use only))

***** Subject to change. Final details to be determined.**

Proposed Bridge Elevation
(using CPSR Bridge Railing (Vehicular, Bike & Ped use))

***** Subject to change. Final details to be determined.**

Construction Traffic Alternatives
(Full Closure with Detour)



- Requires a detour in both directions.
  - Existing distance from Point A to B = 2 miles
  - Detour length from point A to B = 4 miles
- Estimated construction duration = 8 months

Current Schedule and Costs

Current Schedule

- Public Information Meeting - - - - - -April 16, 2018
- Design Public Hearing - - - - - - - - - Fall 2018
- Advertise for Construction - - - - - -Winter 2020/21
- Begin Construction - - - - - - - - - - - Spring 2021
- Complete Construction - - - - - - - - Summer 2022

Cost Estimates

UPC 110499 – PE and RW (Maintenance Funded)

- Preliminary Engineering - - - - - - - - - - - - $ 700,000
- Right-of-Way and & Utility Relocation - - $ 100,000

UPC 110433 – CN (SGR Funded)

- Construction -$2.2 Million

Total Project Cost - - - - - - - - - - - $3 Million

Construction Funding and Allocations

Fundings and Allocations (LIVE SYP)								
Fund Source	previous	FY2020	FY2021	FY2022	FY2023	FY2024	FY2025	TOTAL
HB1887 - SGR	$0	$387,053	$936,435	$950,000	$0	$0	$0	$2,273,488
Total	$0	$387,053	$936,435	$950,000	$0	$0	$0	$2,273,488
							% of Total Allocations Expended	0.00%

Construction Funding Source
State of Good Repair (SGR)

INSTRUCTIONAL AND INFORMATIONAL MEMORANDUM

GENERAL SUBJECT:	NUMBER:
State of Good Repair Bridge Project Selection and Eligible Work Items	IIM-S&B-95
SPECIFIC SUBJECT:	DATE:
Limits, Procedures and Requirements for Use of State of Good Repair Funds	October 10, 2017
	SUPERSEDES:
	None
DIVISION ADMINISTRATOR APPROVAL:	
/original signed/ Kendal R. Walus, P.E. State Structure and Bridge Engineer Approved: October 10, 2017	

State of Good Repair (SGR)

EFFECTIVE DATE:

This memorandum is effective on October 10, 2017.

POLICY:

This memorandum establishes project eligibility, payment limits, and eligible items of work for Structurally Deficient bridge projects using State of Good Repair (SGR) funding. The terms "bridge" and "culvert", as used in this document, refer to structures that meet the Federal Highway Administration (FHWA) definition of a National Bridge Inventory (NBI) bridge. FHWA definitions of NBI bridges and SD bridges are provided at the following locations:

https://www.fhwa.dot.gov/bridge/nbis.cfm

https://www.fhwa.dot.gov/bridge/0650dsup.cfm

State of Good Repair (SGR)

CRITERIA FOR DETERMINING ELIGIBILITY OF BRIDGE PROJECTS FOR SGR FUNDING:

Both of the criteria below must be met for a bridge to qualify for SGR funding:

1. The bridge must be SD as of the annual program update. In very limited cases a bridge that is not SD as of the annual program update may still be eligible for funding if:

   - It had been SD within the prior 24 months of the annual program update and was replaced with an urgently required temporary bridge. After 24 months a temporary bridge installed to eliminate the SD status will be considered permanent.

   The "annual program update" is the date when the inventory and condition data for all SD NBI bridges is updated. The data, as of this date, are used in the prioritization formula. The annual program update is currently July 1st of each year.

2. The bridge must meet the definition of an NBI bridge. NBI bridges include bridges and culverts.

State of Good Repair (SGR)

STATE OF GOOD REPAIR FUNDS

For a bridge project to receive State of Good Repair funds, the scope of work must achieve all three requirements below:

1. Removes the bridge's structurally deficient status
2. Meets the definition of a bridge rehabilitation or replacement in Federal Highway Administration's Bridge Preservation Guide dated August 2011.

   http://www.fhwa.dot.gov/bridge/preservation/guide/guide.pdf

3. Adds or restores strength. Examples of strength restoration include patching, repair or replacement of deck, superstructure or substructure elements.

State of Good Repair (SGR)

ELIGIBLE WIDENING

In some instances it may be necessary to widen a bridge in order to meet minimum geometric standards, improve safety or match existing roadway (not to add additional lanes). In those cases, the entire widened bridge will be eligible for SGR funds for the existing number of lanes on the approach roadway.

For bridges widened beyond the standard geometric limits established in Chapter 6 or built to accommodate additional lanes of traffic or pedestrian or bicycle facilities (unless matching existing facilities on the existing roadway), SGR funding will be based on the eligible width of the bridge as defined in the previous paragraph. Funds for the portion of the bridge beyond the eligible width must be generated from sources other than SGR funds unless one or more of the conditions below applies:

State of Good Repair (SGR)

1. Additional width is required to meet horizontal sight distance requirements.
2. Safety or crash data indicate a need for additional width. Provide documentation in the project file on accident data at the site.
3. Staged construction requires additional width to maintain traffic on the bridge during construction. Provide Maintenance of Traffic plans in project file.
4. Existing one-lane bridge requires a two-lane bridge.
5. Increased bridge width for prestressed voided slab/box beam bridges in order to use standard width shapes.
6. Increased bridge width to simplify the design and/or construction for structures on flat horizontal curve geometrics (i.e., width increased by middle ordinate to allow a straight bridge in lieu of curved bridge).

State of Good Repair (SGR)

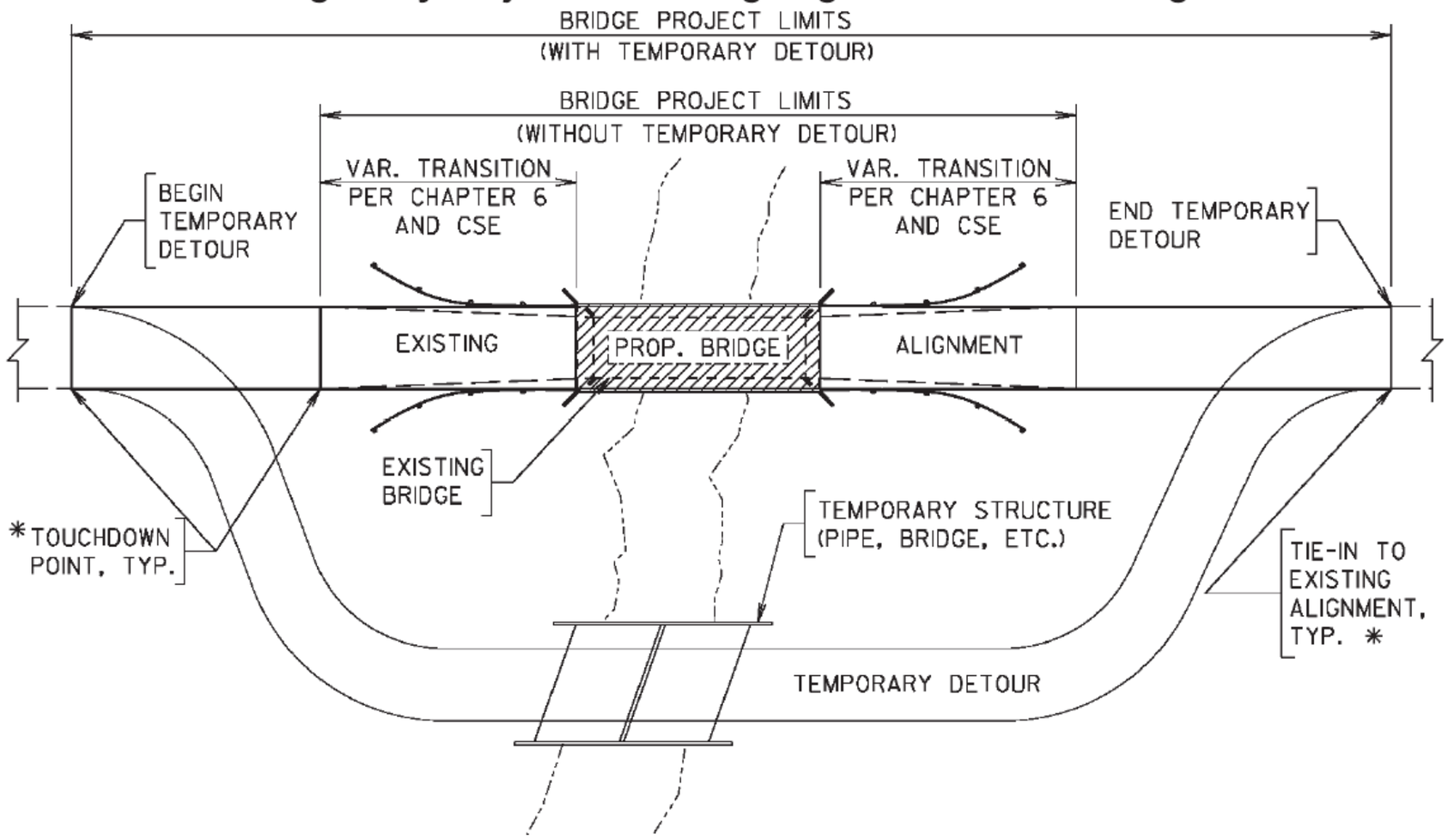
Touchdown Points for Different Conditions				
Figure #	Bridge Widening[1]	Part of Adjacent Roadway Project?	Horizontal Roadway Alignment	Maximum Distance of Touchdown Points from Ends of Abutments[2]
1	No	No	Existing	100' or to Temporary Detour Tie-in Point
2	Yes	No	Existing	Minimum Required by CSE & "Bridge Only" Section of Chapter 6 or to Temporary Detour Tie-in Point
3	Either	Either	Existing	100' from Existing Abutment
4	Either	Either	New	600' or Tie-in Points

[1]A "Bridge Widening" refers to cases where additional bridge width is provided in order to meet geometric requirements or match existing approach roadway. Additional lanes, sidewalks and paths are not eligible unless they are present on the existing approach roadway.

[2]The touchdown point from one abutment may exceed the maximum permissible distance shown as long as the combined distance from the two abutments to the two touchdown points does not exceed twice the indicated limit (200' total for Figures 1 and 3, and 1200' total for Figure 4).

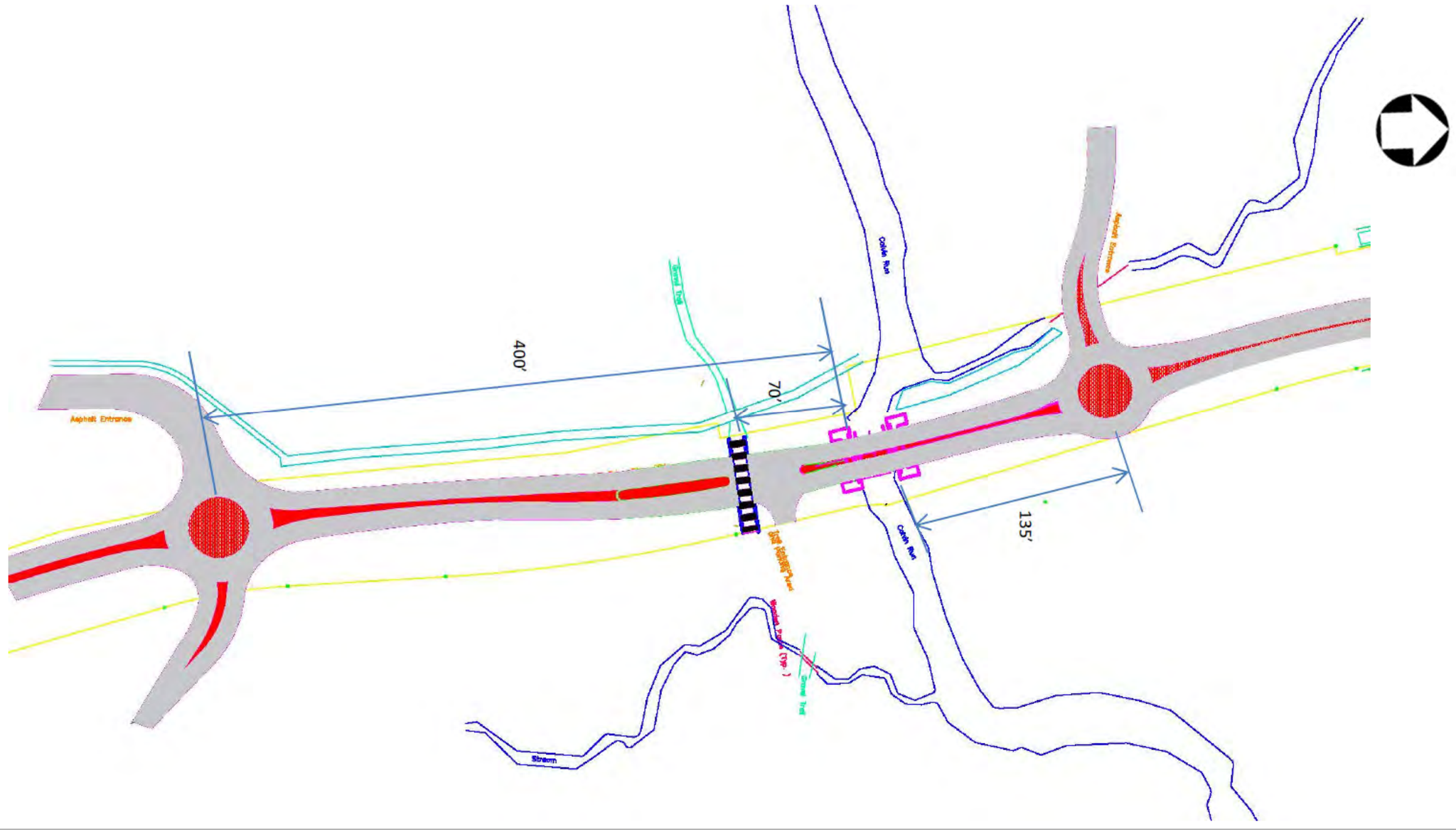
State of Good Repair (SGR)

FIGURE #2: Bridge Only Project on Existing Alignment with Widening



*For cases with temporary detours, the touchdown points are located at the detour tie-in locations. Otherwise, touchdown points are located in accordance with the requirements of Chapter 6 and CSE.

M. Wallwork Proposed Design



Roundabouts – FHWA NCHRP Report 672 (National Cooperative Highway Research)

Advantages	Disadvantages
Non-Motorized Users	
• Pedestrians must consider only one direction of conflicting traffic at a time. • Bicyclists have options for negotiating roundabouts, depending on their skill and comfort level.	• Pedestrians with vision impairments may have trouble finding crosswalks and determining when/if vehicles have yielded at crosswalks. • Bicycle ramps at roundabouts have the potential to be confused with pedestrian ramps.
Safety	
• Reduce crash severity for all users, allow safer merges into circulating traffic, and provide more time for all users to detect and correct for their mistakes or the mistakes of others due to lower vehicle speeds. • Fewer overall conflict points and no left-turn conflicts.	• Increase in single-vehicle and fixed-object crashes compared to other intersection treatments. • Multilane roundabouts present more difficulties for individuals with blindness or low vision due to challenges in detecting gaps and determining that vehicles have yielded at crosswalks.
Operations	
• May have lower delays and queues than other forms of intersection control. • Can reduce lane requirements between intersections, including bridges between interchange ramp terminals. • Creates possibility for adjacent signals to operate with more efficient cycle lengths where the roundabout replaces a signal that is setting the controlling cycle length.	• Equal priority for all approaches can reduce the progression for high volume approaches. • Cannot provide explicit priority to specific users (e.g., trains, emergency vehicles, transit, pedestrians) unless supplemental traffic control devices are provided.
Access Management	
• Facilitate U-turns that can substitute for more difficult midblock left turns.	• May reduce the number of available gaps for mid-block unsignalized intersections and driveways
Environmental Factors	
• Noise, air quality impacts, and fuel consumption may be reduced. • Little stopping during off-peak periods.	• Possible impacts to natural and cultural resources due to greater spatial requirements at intersections.
Traffic Calming	
• Reduced vehicular speeds. • Beneficial in transition areas by reinforcing the notion of a significant change in the driving environment.	• More expensive than other traffic calming treatments.
Space	
• Often require less queue storage space on intersection approaches—can allow for closer intersection and access spacing. • Reduce the need for additional right-of-way between links of intersection. • More feasibility to accommodate parking, wider sidewalks, planter strips, wider outside lanes, and/or bicycle lanes on the approaches.	• Often requires more space at the intersection itself than other intersection treatments.
Operation & Maintenance	
• No signal hardware or equipment maintenance.	• May require landscape maintenance.
Aesthetics	
• Provide attractive entries or centerpieces to communities. • Used in tourist or shopping areas to separate commercial uses from residential areas. • Provide opportunity for landscaping and/or gateway feature to enhance the community.	• May create a safety hazard if hard objects are placed in the central island directly facing the entries.

VDOT Guidelines for Roundabouts

SCREENING CRITERIA

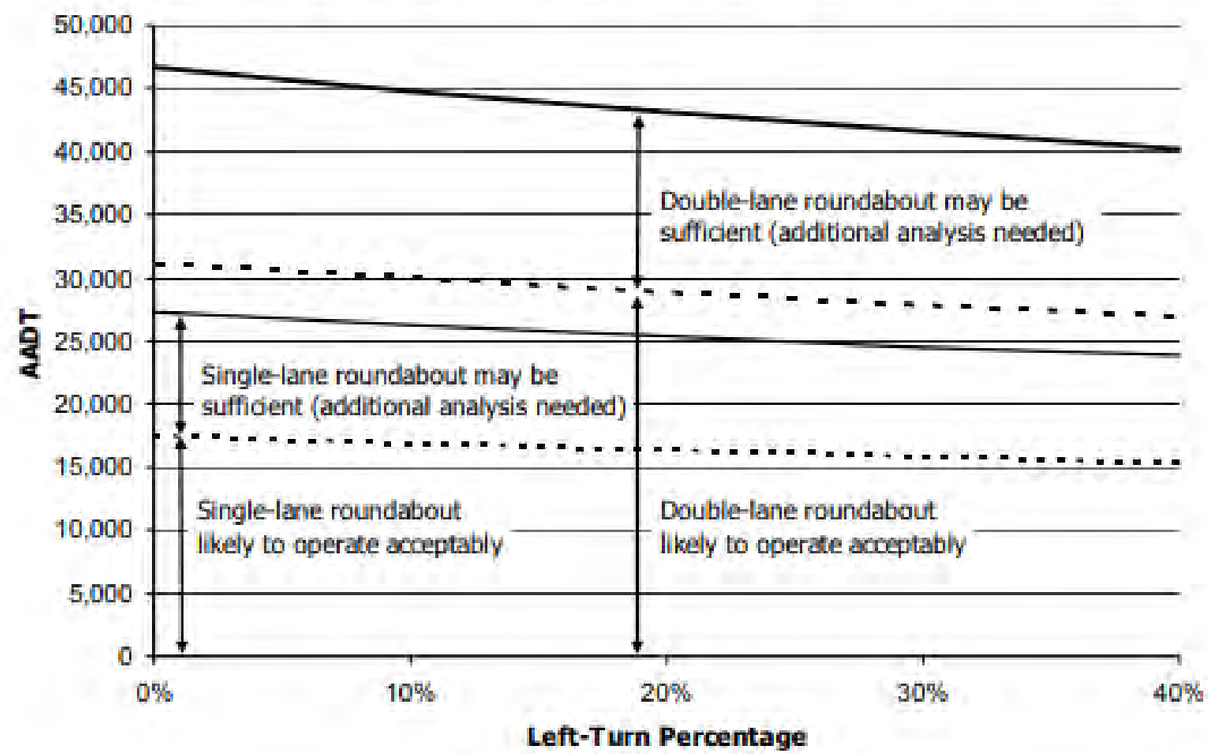
Step 1 – Determine Lane Needs

Use Figure 1 below to assess if a single-lane or double-lane roundabout is needed based on AADT and the left-turn percentage of all legs. The vertical axis represents the total AADT of both roads at the intersection. For three leg sites, lane needs may be approximated by using 75% of the service volumes in Figure 1.

Thresholds in Figure 1 include the following assumptions of traffic characteristics:

- Ratio of peak-hour to daily traffic (K) of 0.09 to 0.10
- Direction distribution of traffic (D) of 0.52 to 0.58
- Ratio of minor street to total entering traffic of 0.33 to 0.50
- Acceptable volume-to-capacity ratio of 0.85 to 1.00

Figure 1 – Planning Level Daily Intersection Volumes (NCHRP Report 672 Exhibit 3-12)



VDOT Guidelines for Roundabouts

Step 2 - Right-of-Way

Based on lane needs identified in Step 1, determine the approximate footprint of the roundabout. Table 1 lists typical ranges of inscribed circle diameter (ICD). The ICD is the distance across the circle inscribed by the outer curb (or edge) of the circulatory roadway; it includes the central island, truck apron, and circulatory roadway. Mini-roundabouts are a special subset of roundabouts that feature fully traversable central islands and in some cases fully traversable splitter islands. They are best suited for low speed, constrained environments.

Table 1 – Typical Ranges of Inscribed Circle Diameters (adapted from NCHRP Report 672 Exhibit 6-9)

Roundabout Configuration	Typical Design Vehicle	Common Inscribed Circle Diameter Range*
Mini-Roundabout	SU-30	45 to 90 ft
Single-Lane Roundabout	B-40	90 to 150 ft
	WB-50	105 to 150 ft
	WB-67	130 to 180 ft
Multilane Roundabout (2 lanes)	WB-50	150 to 220 ft
	WB-67	165 to 220 ft
Multilane Roundabout (3 lanes)	WB-50	200 to 250 ft
	WB-67	220 to 300 ft

* Assumes 90-degree angles between entries and no more than four legs. List of possible design vehicles not all-inclusive.

VDOT Guidelines for Roundabouts

INNOVATIVE INTERSECTIONS

Roundabout

What is a roundabout?

- A circular unsignalized intersection where all traffic moves in a counterclockwise direction around a central island
- Traffic entering the roundabout slows down and yields to traffic already inside the roundabout
- Roundabouts can be designed with one or more circulating lanes
- Design options allow for right turns to be channelized to bypass the circulating lanes

When should a roundabout be considered?

- At intersections with heavy left-turn traffic or with similar traffic volumes on each leg
- At intersections with crashes involving conflicting through and left-turn vehicles
- At intersections with limited room for storing vehicles
- At intersections where there are limited nearby driveways
- At locations where vehicles from adjacent intersections will not queue into the roundabout

What are the benefits of a roundabout?

- **Improved safety:** Reduces the number of points where vehicles can cross paths and eliminates the potential for right-angle and head-on crashes
- **Increased efficiency:** Yield-controlled design means fewer stops, less delay, and shorter queues for overall improved efficiency
- **Safer Speeds:** Promotes lower vehicle speeds, which gives drivers more time to react
- **Long-term cost effective:** No traffic signal equipment means lower long-term costs for operations and maintenance
- **Aesthetics:** Creates opportunities for landscaping and beautification

What are innovative intersections?

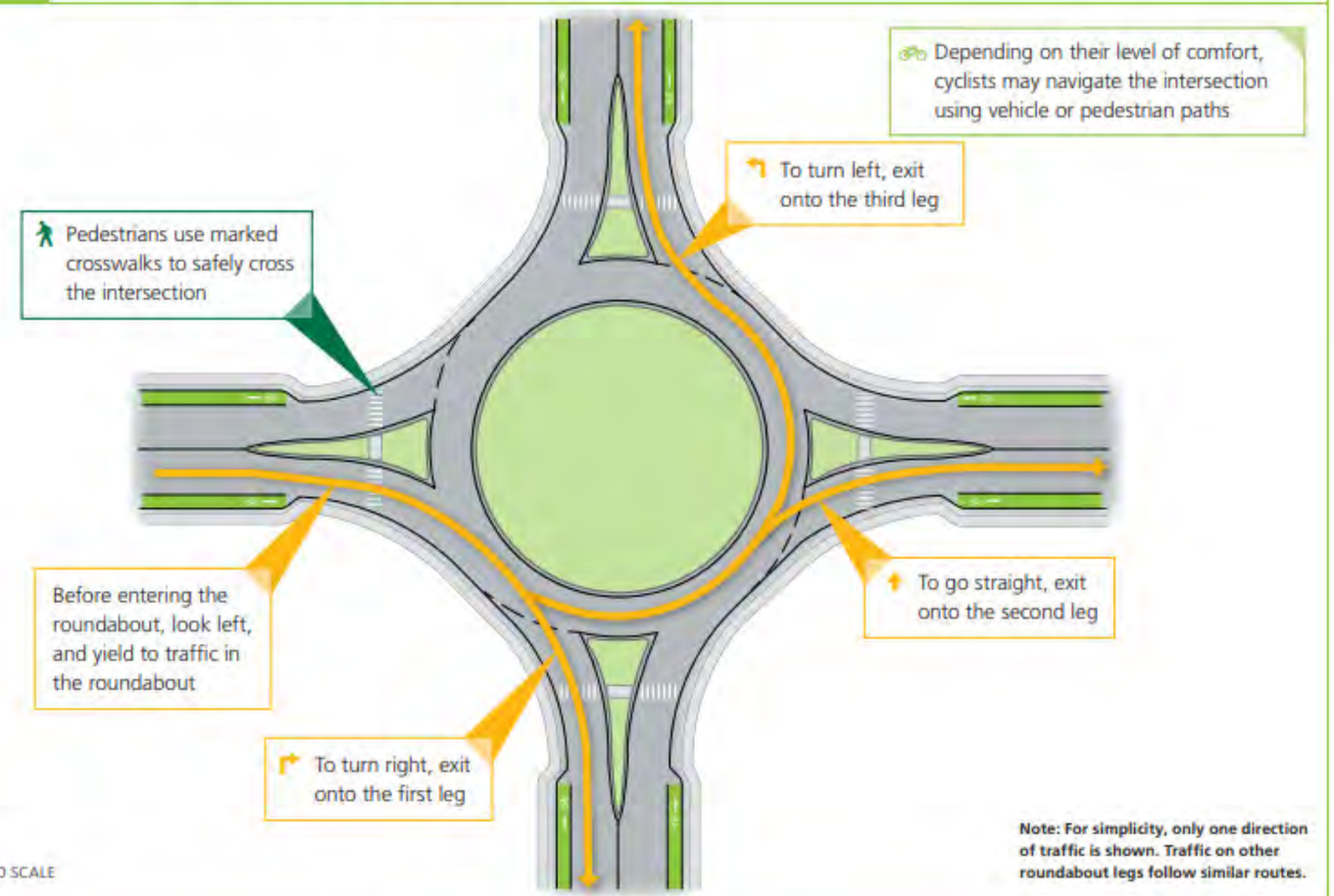
Intersection designs where traffic movements are modified to improve safety, reduce delay, and increase efficiency.

Visit www.virginiadot.org/innovativeintersections to learn more.

VDOT

INNOVATIVE INTERSECTIONS

Navigating a Roundabout



Visit www.virginiadot.org/innovativeintersections to learn more.

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http://www.virginiadot.org/info/innovative_intersections_and_interchanges/roundabout.asp

Discussion Items
(Community Core Group January 18, 2019 Meeting)

The following is the synopsized discussion points that were considered.

1. SAFETY:

- **Present one lane Colvin Run Bridge provides an interruption in vehicles going north and south on Hunter Mill Road (HRM) as vehicles yield to oncoming traffic.**
- **This interruption in traffic does provide an opportunity for users of the Colvin Run Cross County Trail to safely cross from east to west or west to east at the designated crosswalk south of the one lane bridge.**
- **The users of the trail include walkers, bikers, and equestrians.**

2. SAFETY:

- **The proposed two-lane Colvin Run Bridge would remove the safety feature provided by the current one-lane bridge for walkers, bikers, and equestrians.**
- **Therefore, the design for the proposed two lane bridge replacement must address the safety features provided by the present one lane bridge design.**

VDOT Response: Additional signage and Rectangular Rapid-Flashing Beacon (RRFB) will be installed.

Note: The one lane bridge during intermittent traffic causes drivers to accelerate ahead of on-coming traffic to avoid having to yield.

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

3. TWO LANES AND WEIGHT RESTRICTION:

- **There were several questions and major concern about the proposed two-lane bridge with weight restrictions removed.**
- **The one lane Colvin Run Bridge and the associated weight restrictions were factors that were included in the community's overwhelming objections and rejection at the time of the attempt to install a regional septage receiving facility at the Lake Fairfax Park with the heavy truck entrance just south of the Colvin Run Bridge.**
- **Several members of the group said they had tried to find information regarding the current status of the septage receiving facility proposal that was to be located at Lake Fairfax Park.**
- **There has been a lack of success in getting firm information.**

VDOT Response: Hunter Mill Road is a Secondary Road (Urban Minor Arterial) and therefore the bridge must be designed per latest LRFD AASHTO Bridge Design Specifications and federal regulations.

Lake Fairfax Park is no longer in consideration for the Septage Receiving Facility according to latest correspondence with Fairfax County.

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

The Colvin Run septage receiving facility is permanently closed.

In October 2014, the Fairfax County's Wastewater Management Program initiated a Septage Receiving Site Feasibility Study to review the operations of the county's two septage (septic tank, portable toilet, and restaurant grease-trap waste) receiving facilities, assess future need of the septage receiving program, and identify potential sites to replace the outdated and obsolete (almost 40 years old) facility serving the northern half of the county.

After an extensive search of potential sites and associated cost-benefit analysis, the county has decided not to pursue the construction of a new facility to replace the existing north county site (i.e., Colvin Run Septage Receiving Facility), which will be permanently closed. The high costs of purchasing property and constructing a new facility makes it impractical to recover expenditures through reasonable service fees. Further, the alternative disposal options for county generated septage which were instituted during the temporary closure of the Colvin Run Facility (including options at the Noman M. Cole Pollution Control Plant, the Upper Occoquan Service Authority facility, and D.C. Water's Blue Plains facility) have worked effectively and will be able to meet future needs.

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

4. FUNDING:

- **Several members of the group raised questions about the use of scarce transportation funds when the stated VDOT project purpose is to replace the weight-restricted one lane bridge with a two-lane bridge.**
  - **Supposedly to improve safety and operations (as found on the public information meeting handout).**
  - **The group needs design information to identify how the two lane bridge will improve safety for trail users as well as residents who enter/exit their driveways near the bridge.**

VDOT Response: Additional signage and Rectangular Rapid Flashing Beacon (RRFB) will be installed.

Note: The one lane bridge during intermittent traffic causes drivers to accelerate ahead of on-coming traffic to avoid having to yield.

5. TRAFFIC SPLITTERS:

- **VDOT has discussed a design of the two-lane bridge to include splitters at the north and south end of the bridge.**
- **The residents who live near the bridge asked if the splitters will impact their entering/exiting Hunter Mill Road.**

VDOT Response: Discussed and presented in the previous slides.

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

6. INTERSECTION CONGESTION: ***Continuation of the VDOT project purpose discussion***

- **There were several questions, concerns and observation regarding the present traffic congestion at the following intersections:**
  - **Baron Cameron/HMR**
  - **Crowell Road/HMR**
  - **Sunset Hills Road/HMR**
  - **Dulles Toll Road interchange/HMR**

  VDOT Response: Noted. Outside of SGR Scope of Work.
- **During commute times, which on some days extends to 9:00 am**
  - **on Crowell Road there can be stacking of vehicles beyond Dead Man's Curve on Crowell.**
  - **Traffic from Crowell attempting to turn left on HMR competes with traffic going south on HMR that is now producing safety issues.**
  - **In addition, in the afternoon and evening, traffic on HMR at the intersection of Baron Cameron there is extensive vehicle stacking on HMR**
  - **The group asked if VDOT would provide data to the community regarding these congestion points.**

  VDOT Response: Outside the SGR Scope of Work. Will be referred to VDOT Traffic Engineering

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

7. EROSION AT THE BRIDGE:

- Several environmental issues were discussed:
  - How will VDOT address the erosion that is occurring on the shoulders near the bridge?
  - How will the runoff that travels on the east side of HMR be addressed?

  VDOT Response: Noted. This will be handled during design phase

8. SPEED CONTROL:

- HMR approaches, north and south of the bridge, have alignment issues:

  VDOT Response: Noted. This will be handled during design phase
- How will VDOT address the speeding issues.
- Vehicles traveling south gather speed as they travel south, what design features will be used to reduce the speed of vehicles?

  VDOT Response: By installing the proposed additional signage and RRFB in combination with the splitter island
- There is an occasional speed enforcement police officer in the area of Reston Zoo and the intersection of Cobble Mill and Hunter Mill Rds. VDOT Response: Noted.
- This data should be requested. VDOT Response: Not required

Discussion Items
(Community Core Group January 18, 2019 Meeting)

Continuation….

9. APPROACHES:

- Both North and South site distance and speed control.
  VDOT Response: Tree clearing within VDOT right-of-way may be necessary.

10. SPEED CONTROL:

- At the next VDOT meeting, questions about controlling speed should be asked.
- The previous Colvin Bridge replacement design had a design speed of almost 50 MPH.
  VDOT Response: Design Speed will be the same as the 35 MPH posted Speed Limit
- Several noted that with the installation of the signal light at Crowell Road and HMR, vehicles traveling north appear to be traveling much faster.
- Speed sensing and recording may be in order to document that situation.
  VDOT Response: Will be referred to VDOT Traffic Engineering

Consensus on Design Alternatives (Summary)

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

NEXT STEP
Another Public Information Meeting (PIM)

Where: Forest Edge Elementary School, 1501 Becontree Lane, Reston, VA 200190 (Location of previous PIM)

When: _____

Time: _____

THANK YOU!!!

Stay tuned for the Google Earth Visual Presentation .....