

# S. George Mason Drive

## MULTIMODAL TRANSPORTATION STUDY REPORT

### Project Purpose

The purpose of this study was to develop a preliminary plan to improve safety and access along S. George Mason Drive for people cycling, riding transit, walking/rolling, and driving. Its goals included:

- Identify challenges, constraints, and opportunities for improvements to all modes of transportation based on data analysis, best practices research, and public engagement.
- Advance Arlington’s Master Transportation Plan (MTP) and related County planning guidance and priorities, including but not limited to Vision Zero, Arlington’s Commitment to Equity, and Biophilic Goals and Principles.
- Establish a guide for future capital projects and grant funding applications, including corridor-wide cross-section concepts, intersection concepts, and spot recommendations.



Study Area and Transportation Context

### This project was informed by:



County Planning Guidance



Data Analysis and Research



Inter-Departmental Coordination

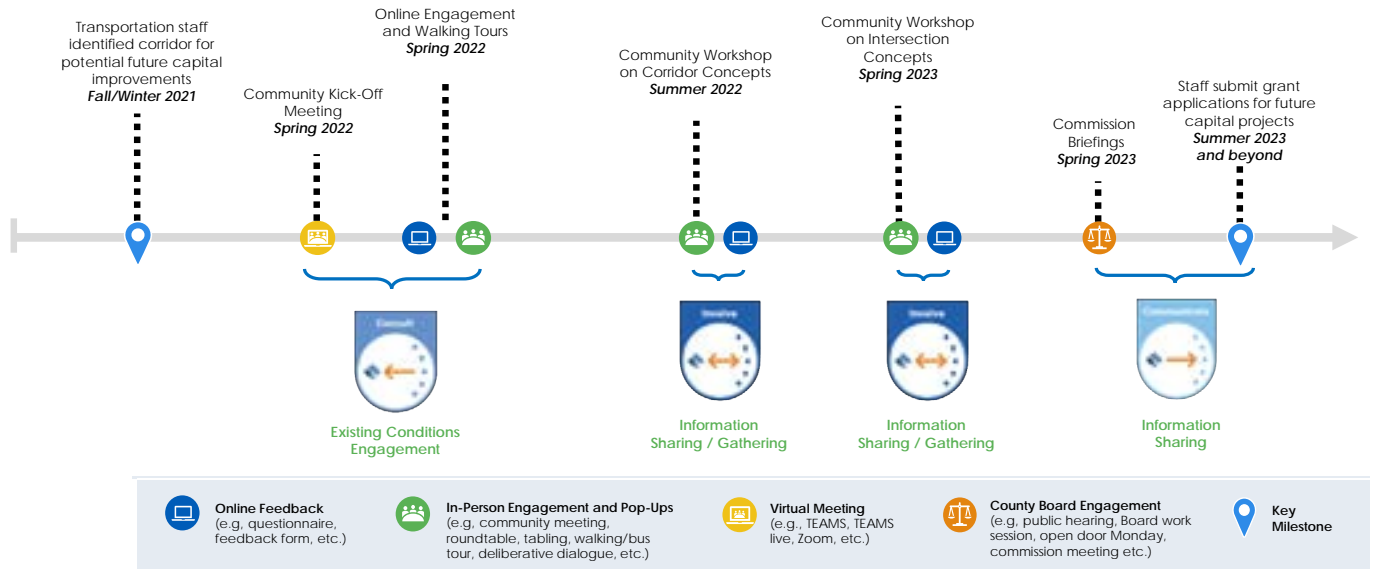


Public Engagement

### Each phase of engagement had a different focus:

- Phase 1 - Existing Conditions
- Phase 2 - Corridor-wide Concepts
- Phase 3 - Key Intersections

# Project Timeline



## Background

S. George Mason Drive is a major north-south transportation corridor within Arlington County that provides local access to businesses, neighborhoods, schools, parks, as well as connections to neighboring jurisdictions (i.e., Fairfax County, City of Alexandria). It intersects with many busy east-west corridors: Arlington Boulevard (Route 50) is a limited access road connecting the heart of Arlington to Washington, D.C. and the rest of Northern Virginia; Columbia Pike has high-frequency bus service and is undergoing a transformation as a part of the Columbia Pike Forward project; S. Four Mile Run Drive is paralleled by the Washington and Old Dominion Trail, an integral part of the bicycling commuting corridor into and out of Arlington and Washington, D.C. The intersections of S. George Mason Drive and Columbia Pike and S. Four Mile Run Drive are Vision Zero Hot Spots.

For the purposes of this study, the corridor was divided into three segments based on the typical roadway cross section and adjacent land uses:

- Segment 1: Arlington Boulevard to Columbia Pike** is primarily residential with single family homes but also includes federal government facilities for the National Guard and Foreign Service Institute/National Foreign Affairs Training Center (FSI/NFATC) at the north end. Alcova Heights Park and Barcroft Elementary School are two important community assets. 8<sup>th</sup> Street S. provides an important east-west bicycle connection. There is bus service along S. George Mason Drive with several bus stops.
- Segment 2: Columbia Pike to S. Four Mile Run Drive** includes commercial uses along Columbia Pike and the Barcroft Apartments on the west side of the corridor. Doctors Run Park and Randolph Elementary School are key destinations in this segment. There is bus service along S. George Mason Drive with several bus stops.

- Segment 3: S. Four Mile Run Drive to S. Dinwiddie Street (Arlington County/Fairfax County Line)**, like Segment 1, is primarily residential but also provides access to Barcroft Community Center and Park, Wakefield High School, and Claremont Elementary School. S. Four Mile Run Drive at the northern end of the segment is one of the more complex intersections within the County with the Washington and Old Dominion Trail. Bus transit service runs along George Mason Drive between Frederick and S. Dinwiddie Streets but no stops are provided along George Mason Drive.



Corridor Asset Map

# Needs Assessment

The project team completed a needs assessment of the corridor, organized by travel mode. This included reviewing and summarizing Arlington County planning documents, policies, guidelines, evaluating multimodal operational data along the corridor, and field data collection. There were multiple site visits to the corridor by both County staff and consultant to document existing conditions (e.g. locations of mature trees, pedestrian crossing conditions, other safety concerns) and people's behaviors. The team combined these findings with community feedback to develop the design alternatives presented.



## WALKING

### PLANS, POLICIES, GUIDELINES

- MTP Street Element: Sections fit the profiles of various arterial types, and emphasize pedestrian travel.
- Sidewalk width: 6-ft minimum, wider preferred where denser land uses.
- Planted buffer width: 6-ft minimum for trees.

### DATA, INVENTORY

- The existing crosswalk spacing exceeds the County's standard maximum spacing of 800 ft.
- Average delay greater than 30 seconds at many crossings.
- Narrow, uneven sidewalks in some sections with varied buffer widths.



Existing sidewalk with grass buffer on east side, south of S. Four Mile Run Drive.



In Segment 3, there are no marked crosswalks between signalized intersections.



## TAKING TRANSIT

### PLANS, POLICIES, GUIDELINES

- MTP Transit Element: Part of primary transit network.
- MTP Street Element: Sections fit the profiles of various arterial types, and all emphasize transit access.
- Travel lane width, on transit routes: 11-ft minimum.

### DATA, INVENTORY

- Routes on Columbia Pike connect to Metro with more frequent service and higher ridership.
- Buses on S. George Mason Drive scheduled to come every 30 minutes.
- Narrow, uneven sidewalks in some sections.



Curb extensions at bus stops (e.g. at National Guard Bureau Pedestrian Hybrid Beacon) shorten crossing distances.



Bus stops near Columbia Pike have the highest ridership.





## BIKING

### PLANS, POLICIES, GUIDELINES

- MTP Bicycle Element: “recommended route.”
- One of seven important north-south bicycling corridors.
- Vision Zero: Intersection with Four Mile Run Dr is crash hot-spot for bicycles.
- Bike lane width: 6-ft preferred, 5-ft minimum.

### DATA, INVENTORY

- Intersects W&OD Trail and Four Mile Run Trail, both major regional trails.
- No continuous bicycle route.
- All segments high-stress for bicyclists.
- Two Capital Bikeshare stations.
- Lower levels of shared mobility use.



**Bike lane between S. Four Mile Run Drive and Columbus Street.**



**A bike lane ends north of Columbia Pike.**



## DRIVING

### PLANS, POLICIES, GUIDELINES

- Vision Zero: Intersections with Columbia Pike and S. Four Mile Run Drive intersections are crash hot-spots for vehicles.
- Travel lane width: 10-ft min.
- Parking lane width: 7-ft min.

### DATA, INVENTORY

- Posted speed limit: 30 mph.
- In Segment 1 and 2, most people (approx. 62%) drive 31 to 40 mph). In Segment 3, most people (54%) drive 31-40 mph.



**The double S. Four Mile Run Drive intersection looking north.**

- Avg. speeds are 32 mph in Segment 1 and 2 and 31 mph in Segment 3.
- 92% of crashes involved motor vehicles only.



## ALL MODES

### PLANS, POLICIES, GUIDELINES

- Vision Zero: Area of community concern.

### DATA, INVENTORY

- Vehicle volumes create delays and stress for all travel modes.
- 90% of bicycle and pedestrian crashes resulted in injury.



**Intersection of Columbia Pike and S. George Mason Drive.**

# Understanding People's Experiences in Existing Conditions

As shown in the project timeline on page 2, community engagement occurred multiple times during the planning process. Each phase of engagement had a different focus, beginning with an existing conditions assessment, followed by the presentation of different design concepts for the corridor and key intersections.

The project began with an extensive assessment of existing conditions which included reaching out to the people who use S. George Mason Drive to understand their thoughts and experiences when traveling on the corridor.

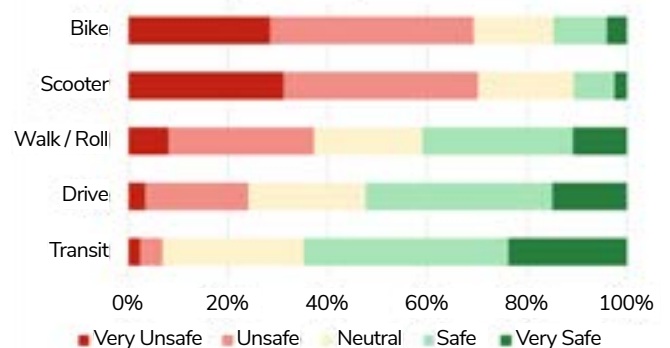
ENGAGEMENT OPPORTUNITY	METHOD	DATE/TIME	ATTENDEES/RESPONDENTS
Community Kickoff Meeting	Online	April 6, 2022 at 7:00 PM	16
Online Feedback Questionnaire and Map	Online	April 6, 2022 to May 1, 2022	Survey: 404 Unique Respondents Map: 625 Total Comments
Barcroft Walking Tour	In Person	April 23, 2022 at 12:00 PM	8
Alcova Heights Walking Tour	In Person	April 28, 2022 at 2:00 PM	4

## WHAT WE HEARD

The engagement opportunity that garnered the most responses was an interactive online map that asked people about their current travel habits, feelings about safety, and changes they would like to see on S. George Mason Drive. The online map gathered 625 comments from over 400 people.

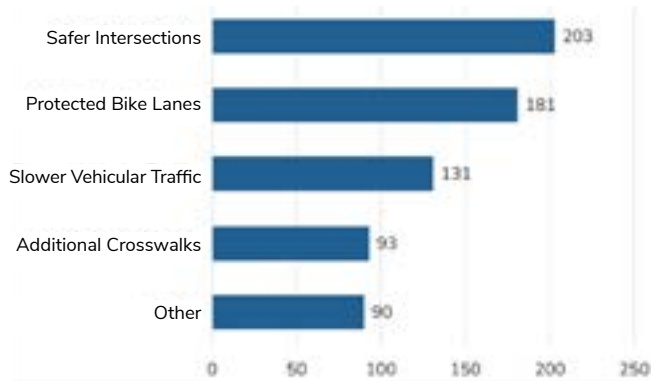
**How safe do you feel when traveling on S. George Mason Drive?** Most people said they felt safe or very safe taking transit and driving, felt neutral while walking or rolling, while very few said they felt safe bicycling and scootering. In fact, people were the least comfortable bicycling on S. George Mason Drive; nearly three-quarters said they felt unsafe or very unsafe.

How safe do you feel when traveling in different modes?

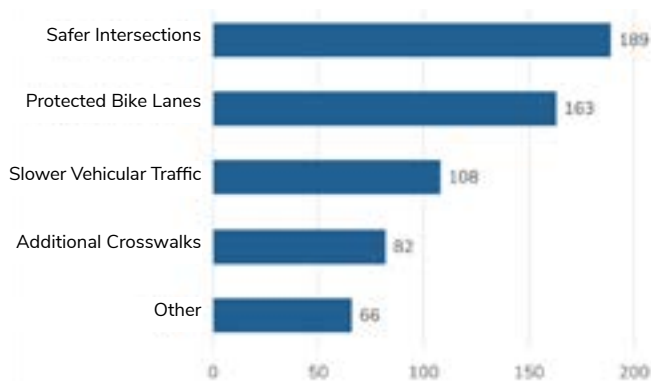


# WHAT CHANGES WOULD YOU LIKE TO SEE...

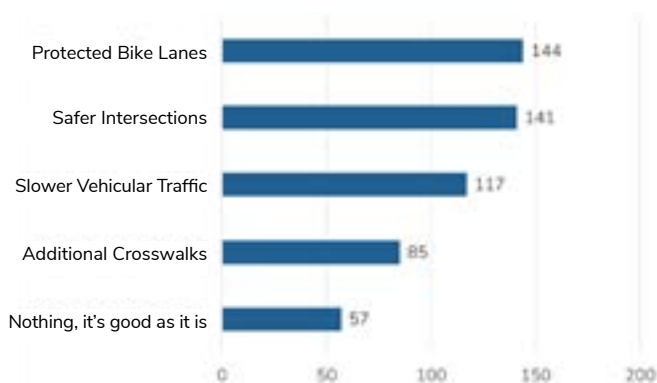
## on Segment 1, Arlington Boulevard to Columbia Pike?



## on Segment 2, Columbia Pike to S. Four Mile Run Drive?



## on Segment 3, S. Four Mile Run Drive to S. Dinwiddie Street?



**What changes do you want to see on S. George Mason Drive?** When asked about what changes they would want to see on the corridor, people were interested in safer intersections, protected bike lanes, slower vehicle traffic, and additional crosswalks, across all segments.

**Comment Themes** Participants in the Walking Tours and online meeting brought up themes that echoed those of the online feedback map.

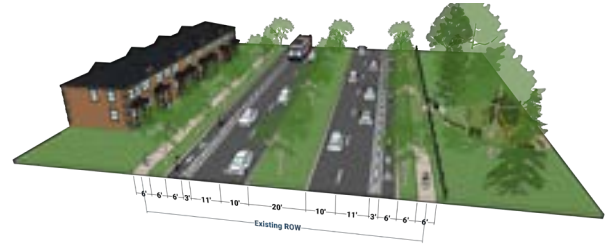
- Intersections were a major area of concern with many respondents expressing concerns about S. Four Mile Run Drive, which received the most number of comments, as well as Columbia Pike, 8<sup>th</sup> Street S., 6<sup>th</sup> Street S., and Arlington Boulevard.
- The corridor feels unsafe due to fast vehicle speeds, limited sight distance, and confusing intersections, especially Arlington Boulevard and S. Four Mile Run Drive.
- Frustration with intersection geometry, traffic signal cycle lengths, and high traffic volumes seem to encourage unsafe driving behaviors such as making left turns in front of on-coming traffic, not yielding to pedestrians, running red lights, etc.
- Large, parked commercial vehicles obstruct sightlines at driveways and side streets.
- Vehicle speeds, complex intersections, and parked vehicles impact all users, but particularly those crossing S. George Mason Drive on foot.
- While bike lanes were recently added near Columbia Pike, they are perceived as inadequate because they do not extend the length of the corridor.
- There's a general appreciation for the mature trees along the corridor and in the median.

# Corridor-wide Concepts

The project team incorporated the feedback from the existing conditions analysis, along with guidance from County plans and policies, transportation data, and other information to develop two corridor-wide concepts for consideration. Both concepts incorporate continuous, enhanced bike infrastructure, wider sidewalks, maximize street tree planting opportunity and ensure travel lane widths to support transit operations. Accommodating these improvements requires the reallocation of the right-of-way by adjusting parking or median width to gain the space needed.

Concept A for all segments features separated bike lanes on both sides of the corridor, whereas Concept B places a two-way, multiuse trail on the east side of the corridor. These concepts were applied to each segment and shared with the public through several different methods (see table). An engagement summary was posted to the project page illustrating a preference for “Concept B”. Preferred cross section concepts were shared during the Spring 2023 engagement opportunity.

**Concept A features separated bike lanes on both sides of the corridor.**  
(Segment 2 graphic shown for reference)



**Concept B includes a multiuse trail on the east side of S. George Mason Drive**  
(Segment 3 shown for reference)



This study highlighted the need for speed reduction on S. George Mason Drive which will be further evaluated through Arlington County Vision Zero.

ENGAGEMENT OPPORTUNITY	METHOD	DATE/TIME	ATTENDEES/RESPONDENTS
Virtual Community Meeting	Online	July 18, 2022 at 7:00 PM	20
Online Feedback Questionnaire	Online	July 17, 2022 to August 7, 2022	Survey: 392 Unique Respondents
Community Workshop and Open House	In Person	July 20, 2022 from 5:00 to 7:00 PM	12





# Segment 1: Arlington Boulevard to Columbia Pike

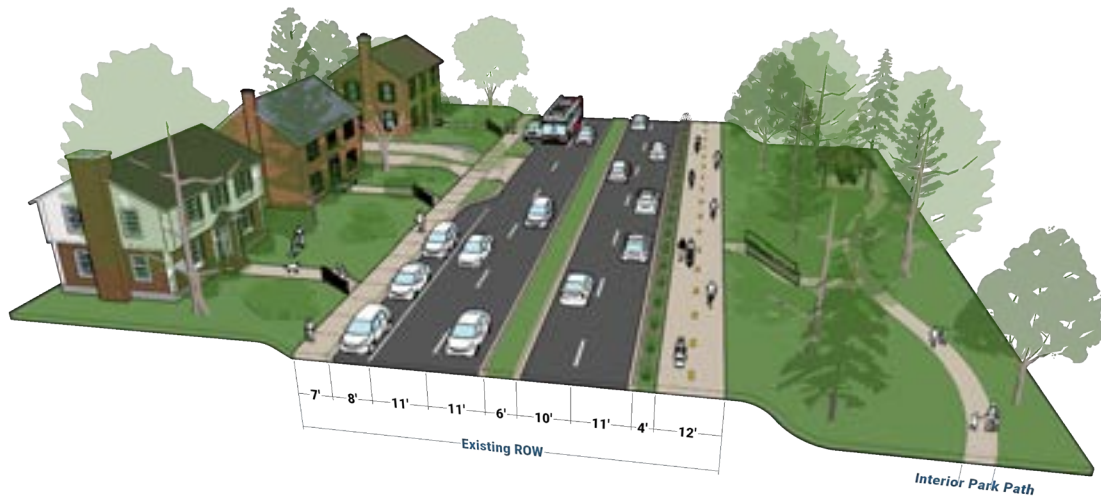
In Segment 1, respondents had a slight preference for Concept B. The public indicated that a dedicated bike facilities and sidewalks were the top two priorities for this segment.

## WHAT'S HERE TODAY

Between Arlington Boulevard and Columbia Pike, S. George Mason Drive generally has two travel lanes in each direction, a 6-foot wide median, and sidewalks on both sides (4-foot on both sides), either with a narrow buffer or no buffer.

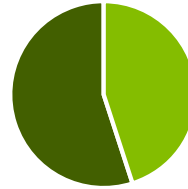


Existing Typical Section (Segment 1)



Segment 1 Preferred Typical Section (Concept B with Modifications)

**Concept A (45%):** One-way separated bike lanes, widened sidewalks, parking removal



**Concept B (55%):** Multiuse trail, widened sidewalks, parking removal one side

## PREFERRED CONCEPT

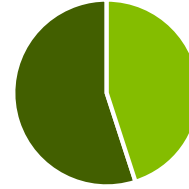
The preferred concept incorporates feedback from the community, including concerns about maintaining parking, findings from engineering analyses, coordination with multiple county departments, and Arlington County planning guidance. The future street will be within the existing right-of-way, preserving existing park space in Alcova Heights Park, and will provide a wider sidewalk on the west side (left side of graphic) by converting the existing buffer, where it exists, to sidewalk. The existing curbs on the west side and median are maintained to reduce construction costs and disturbances to the residents and people traveling on S. George Mason Drive. Travel lanes are narrower and the median is maintained. On the east side (right side of graphic), space for parking is reallocated to provide space for a 12-foot multiuse trail and 4-foot planted buffer. As design progresses, new street tree plantings will be considered where feasible.



# Segment 2: Columbia Pike to S. Four Mile Run Drive

Responses to concepts for Segment 2 were very similar to Segment 1 with respondents having a **slight preference for Concept B**. Dedicated bike facilities and sidewalks were the top two priorities for this segment.

**Concept A (44%):** One-way separated bike lanes, widened sidewalks, parking removal



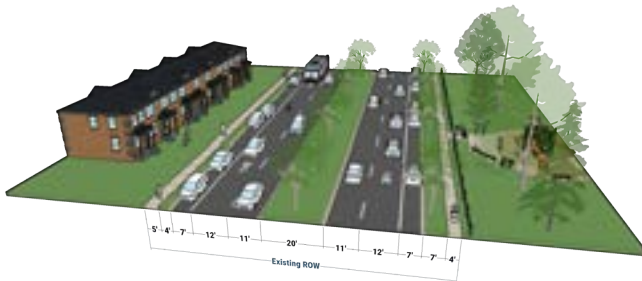
**Concept B (56%):** Multiuse trail, widened sidewalks, median narrowing

## PREFERRED CONCEPT

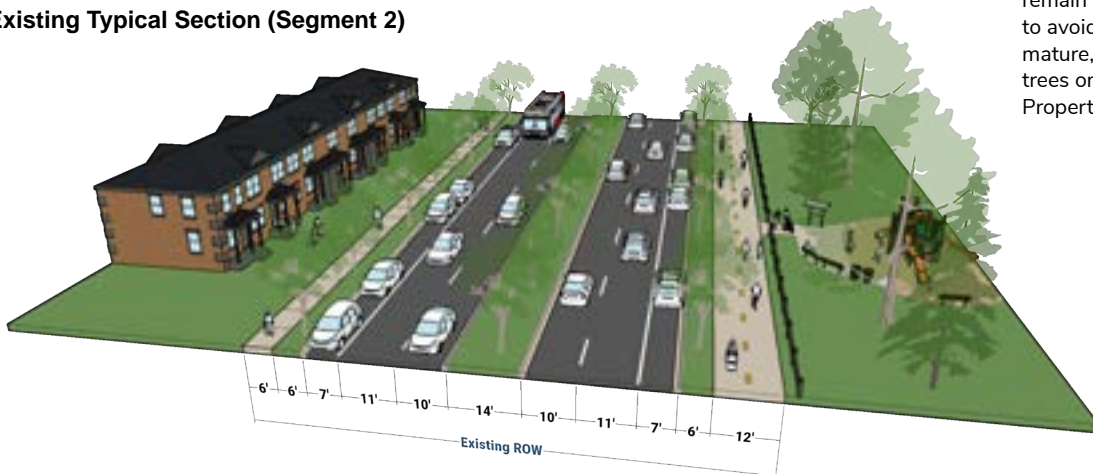
The preferred concept incorporates feedback from the community, including concerns about maintaining parking, findings from engineering analyses, coordination with multiple county departments, and Arlington County planning guidance. The future street will be within the existing right-of-way and will include a 6-foot sidewalk and 6-foot planted buffer with trees on the west side (left side of graphic). The median will be narrowed and travel lane widths reduced to provide space for the wider sidewalk on the west side. Parking is maintained on both sides and a 12-foot multiuse trail and 6-foot buffer is provided on the east side.

## WHAT'S HERE TODAY

Between Columbia Pike and S. Four Mile Run Drive, S. George Mason Drive generally has two travel lanes in each direction, a 20-foot wide median with trees, and sidewalks on both sides (5 to 6-foot sidewalks on the west side and 4-foot on the east side), either with a narrow buffer or no buffer. Adjacent to Doctors Run Park, the sidewalk is wider than other portions of the segment.



Existing Typical Section (Segment 2)



Segment 2 Preferred Typical Section (Concept B with Modifications)

NOTE: In some locations on the left side (west), the existing sidewalk will remain as it is today to avoid impacts to mature, high-value trees on the Barcroft Property.



# Segment 3: S. Four Mile Drive to S. Dinwiddie Street

In Segment 3, respondents were **nearly split on the preferences for Concept A and B**. Sidewalks were the highest priority in this segment with dedicated bike facilities being the second highest priority. Parking is less of a concern along this segment.

## WHAT'S HERE TODAY

Between S. Four Mile Run Drive and S. Dinwiddie Street, S. George Mason Drive generally has two travel lanes in each direction, a 24-foot wide median with trees, and sidewalks on both sides (4-foot sidewalks for most of the segment with 7 to 8-foot sidewalks near the high school on the east side), either with a narrow buffer or no buffer. There are overhead utilities on both sides of the street along much of this segment.



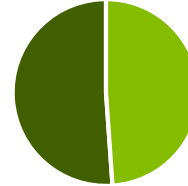
**Existing Typical Section (Segment 3)**

NOTE: Overhead utilities are present in the sidewalk buffer for most of Segment 3.

## PREFERRED CONCEPT

The preferred concept incorporates feedback from the community, findings from engineering analyses, coordination with multiple county departments, and Arlington County planning guidance. Preferred Concept - Maintain Existing Utility Poles, shown on the next page, assumes that the overhead utility lines and poles will remain on both sides of the street. It would provide a wider sidewalk

**Concept A (49%):** One-way separated bike lanes, widened sidewalks, parking removal



**Concept B (51%):** Multiuse trail, widened sidewalks, median narrowing

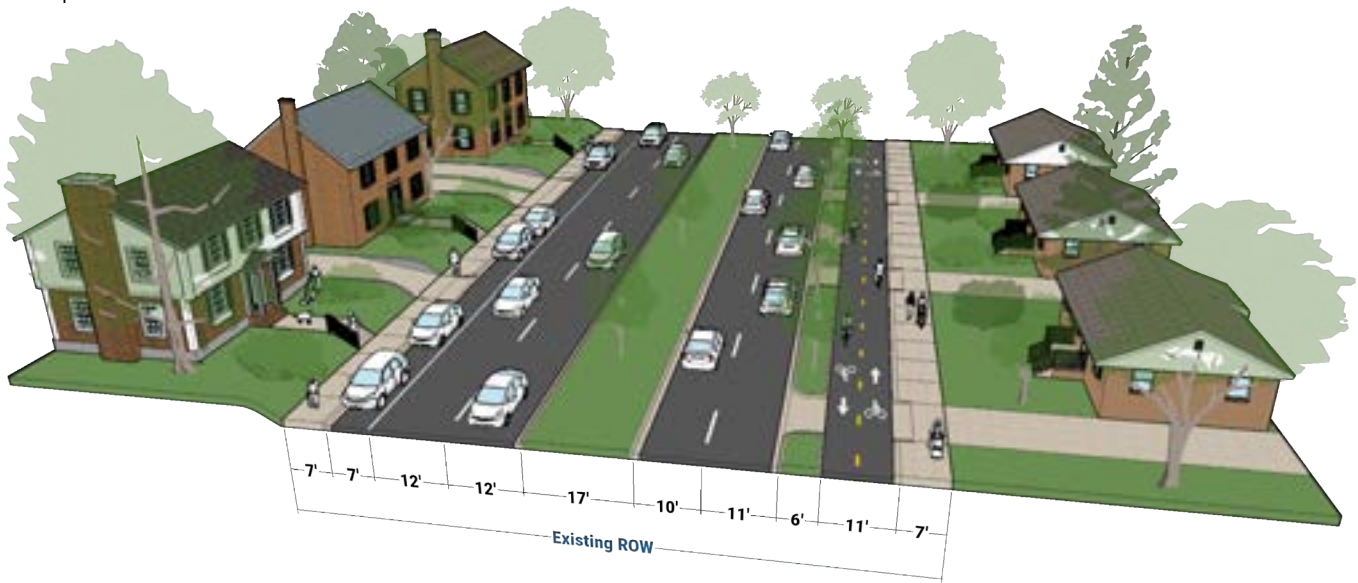
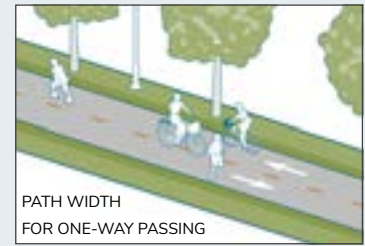
on the west side (left of graphic) by converting the existing buffer, where it exists, to sidewalk. The existing curbs on the west side (right side of graphic) and median would be maintained to reduce construction costs and disturbances to the residents and people traveling on S. George Mason Drive. Because the curbs are not moving, the lane widths will remain the same as the existing condition. On the east side, the median would be narrowed and parking removed to provide space for a 6-foot planted buffer with trees and an 11-foot two-way separated bike lane. Similar to the west side, the existing planted buffer would be paved to provide a wider sidewalk.

The study considered a variation that explored placing utility lines underground (see below). This would be a costly addition and would be subject to funding availability, however it would increase tree planting opportunities and enable the retention of some parking on the east side. In this scenario, the preferred concept (Preferred Typical Section - Underground Utilities, on next page) would provide a 6-foot sidewalk on the west side with a 6-foot planted buffer. The median width would be slightly reduced and travel lanes narrowed. The 12' wide multiuse trail, a 6-foot buffer with trees, and on-street parking would be located on the east side. The study's traffic analysis indicates that a lane reduction for Segment 3 may be feasible in the future. This possibility could be further explored in capital project scoping with additional analysis of traffic volumes, intersection operations, and emergency access needs.



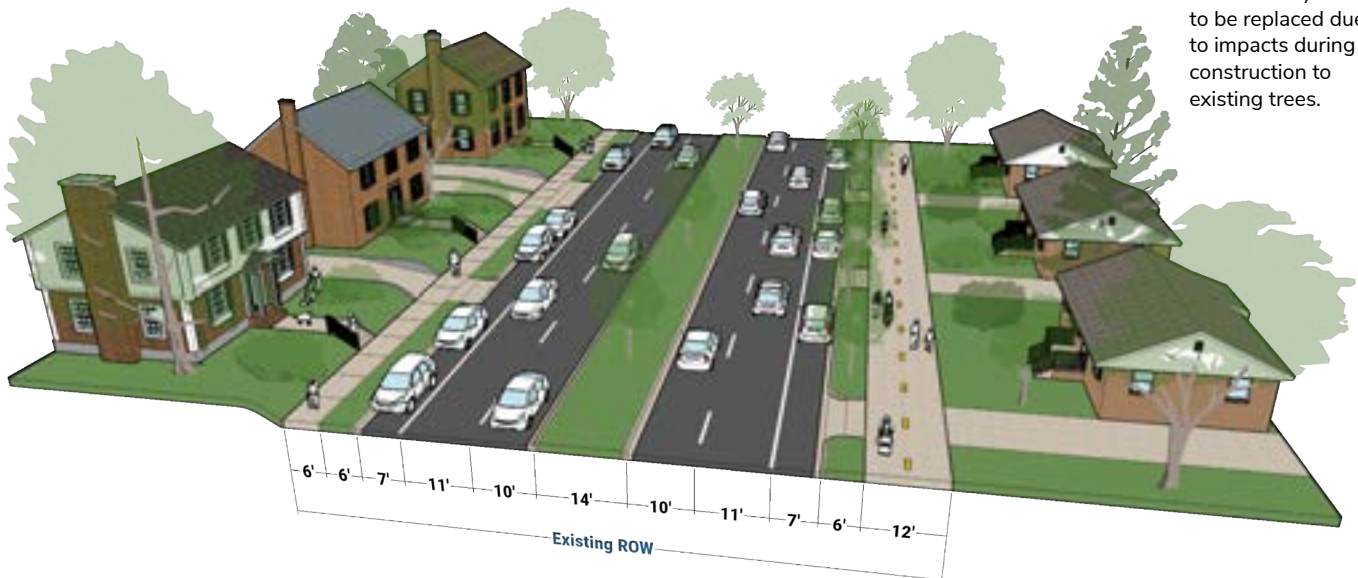
NOTES: 1) Overhead utilities are present in most of Segment 3. The utility poles are along the curb/edge of the sidewalk. 2) Trees in median likely need to be replaced due to impacts during construction to existing trees. 3) Trees on the right side buffer are small trees, suitable to be planted under power lines.

Each of the preferred concepts includes a 12-foot wide multiuse trail. A 12-foot wide multiuse trail provides adequate width for passing to improve the function and comfort of the trail.



**Segment 3 Preferred Typical Section - Maintain Existing Utility Poles**

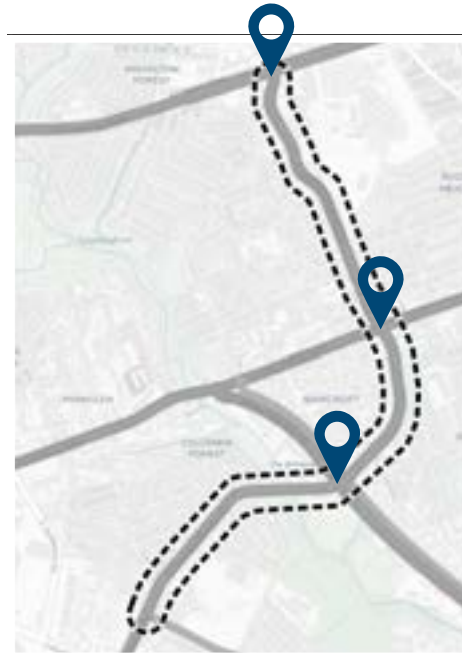
NOTE: Trees in median likely need to be replaced due to impacts during construction to existing trees.



**Segment 3 Preferred Typical Section - Underground Utilities (Concept B with Modifications)**

# Intersection Concepts

The public input during existing conditions highlighted concerns about major intersections along the corridor, including an interest in simplifying how the intersections operate, improving overall safety, and reducing intersection footprints. The project team evaluated three key intersections along the corridor with that public feedback in mind as well as the need to safely, comfortably, and efficiently incorporate the multiuse trail on the east side of the corridor. The project team developed concepts that focused both on intersection layout and operation and had extensive interdepartmental coordination prior to presenting the intersection concepts to the public for their feedback.



**ARLINGTON BOULEVARD BRIDGE**

**S. GEORGE MASON DRIVE AND COLUMBIA PIKE**

**S. GEORGE MASON DRIVE AND S. FOUR MILE RUN DRIVE**

ENGAGEMENT OPPORTUNITY	METHOD	DATE/TIME	ATTENDEES/RESPONDENTS
Virtual Community Meeting	Online	March 22, 2023 at 7:00 PM	48
Online Feedback Questionnaire	Online	March 22, 2023 to April 30, 2023	Survey: 192 Unique Respondents Map: 384 Total Comments
Barcroft Apartments Pop-Up	In Person	April 5, 2023 at 3:00 PM	5
Barcroft Apartments Pop-Up	In Person	April 13, 2023 at 3:00 PM	6



# ARLINGTON BOULEVARD BRIDGE

Arlington Boulevard crosses underneath S. George Mason Drive and there are ramps connecting motorists on Arlington Boulevard with S. George Mason Drive. This intersection provides an important connection to the planned Arlington Boulevard Trail.

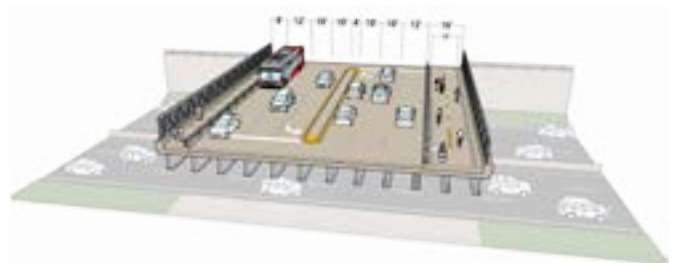
This project produced two high-level concepts for the Arlington Boulevard bridge: a short-term cross-section that narrows vehicle travel lanes to provide one-way separated bike lanes on either side and a long-term cross-section that would include a multiuse trail on the east side which could be built when the bridge is replaced in the future (timing unknown). The project team explored narrowing the median to allow for additional roadway re-allocation but it was deemed infeasible to remove or reduce the median due to impacts to the bridge structure. Additional evaluation and design will be needed to determine transitions between bikeways at this intersection.



Existing Bridge Cross-Section (looking north)



Short-Term Cross-Section (looking north)



Long-Term Cross-Section (looking north)

## RESULTS OF ONLINE FEEDBACK FORM (FOR ARLINGTON BOULEVARD):

- For all modes, most respondents reported that they would feel the same or safer with the improvements both in the short-term and long-term.
- Regarding the short-term concept, many respondents reported feeling “neutral”, specifically for driving a personal vehicle (47%) and taking public transit (44%).
- Fewer respondents identify with scooter riding than other modes - 32% answered

“not applicable”, which was significantly more than other modes.

### Comment Themes Included:

- Requests to provide further protection of the cycle track on the Short-Term concept, particularly vertical protection.
- Concerns about vehicle turning movements and high vehicle speeds through this intersection for both the short-term and long-term concepts.

# INTERSECTION OF S. GEORGE MASON DRIVE AND COLUMBIA PIKE

This intersection was identified as a crash hot spot through the County’s Vision Zero efforts and received the second highest number of comments in the online interactive feedback map.

Columbia Pike is undergoing a transformation to make it safer and more accessible for everyone through the Columbia Pike Forward project. Construction began in mid 2022 and is expected to be completed in 2025. The improved intersection will include:

- Wider sidewalks, updated curb ramps, and shorter crosswalks to improve comfort, accessibility, and safety.
- Separated multiuse trail to improve safety for users.
- Changing traffic signal timing to allow full or partial phase separation between trail users and turning drivers.
- Reallocating existing space on northbound S. George Mason Drive to include a dedicated right turn lane to simplify vehicle movements.
- Combining a through lane with a right turn lane on eastbound Columbia Pike as part of the Columbia Pike Forward Multimodal Project.



Intersection of S. George Mason Drive and Columbia Pike – Existing Conditions

## RESULTS OF ONLINE FEEDBACK FORM:

- For all modes, most respondents reported that they would feel the same or safer with the improvements.
- General support for the multiuse trail, proposed on the east side in Concept B of this study, but concern for separation of pedestrians, cyclists, and scooter riders.
- Concern about traffic signalization and a call for full phase separation allowing pedestrians and cyclists to safely cross.
- Concerns that the intersection is still too large, even with the upcoming improvements, particularly long crossing distances for pedestrians across S. George Mason Drive.



Intersection of S. George Mason Drive and Columbia Pike – Proposed Concept Design







“Peanutabout” Concept for S. George Mason Drive and S. Four Mile Run Drive

### “Peanutabout” Concept at S. George Mason Drive and S. Four Mile Run Drive

In addition to the conventional signalized intersection concepts presented above, this project explored a novel intersection treatment: a “peanutabout” which incorporates design features and operations of a typical roundabout. This design would reduce vehicle speeds and reduce the number of conflict points between motorists, trail users, bicyclists, and pedestrians. It would provide trail users with a “dutch-style” roundabout experience where they would cross only one lane of vehicle traffic at a time.

#### RESULTS OF ONLINE FEEDBACK FORM:

Respondents were given a sliding scale and asked to rate their interest in Arlington County staff exploring this novel intersection treatment for S. Four Mile Run Drive, with 0 (all the way to the left) being no interest and 100 (all the way to the right) being high interest. Most respondents (62%) indicated moderate to high interest in the “peanutabout” concept.

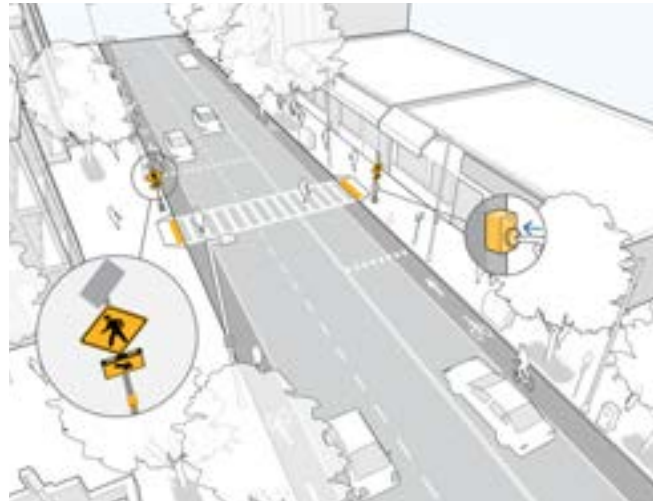




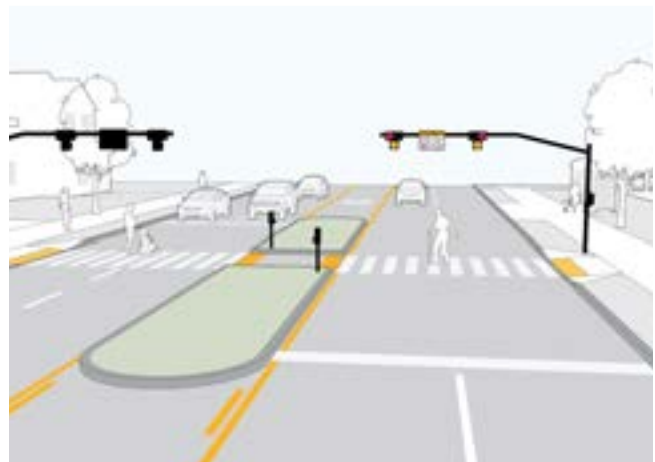
# Next Steps

This document is the culmination of a robust and inclusive, 14-month analysis and study to improve safety and modal choice in the S. George Mason Drive corridor. The recommendations reflect the preferred concepts to achieve this, however the concepts will be refined and finalized through future capital project development processes. The cross sections and intersection concepts developed from the S. George Mason Drive Multimodal Transportation Study will advance to capital project scoping and will be considered for initial funding through the Capital Improvement Planning process. The potential alternatives for segment three (peanutabout, lane reduction) that require additional analysis will be further explored during scoping and preliminary design development.

The study will lead to multiple capital projects along S. George Mason Drive, all of which will have opportunities for additional community engagement as the designs are developed. There are several Arlington County and external planning efforts that may change guidance or standards including, Arlington County's Transit Strategic Plan, an updated Arlington County Master Transportation Plan, and WMATA Better Bus Network Redesign. Final corridor design concepts are contingent upon future discovery during the design development process, funding availability, and additional factors.



**Rectangular Rapid Flashing Beacon**  
(Source: County Multimodal Safety Engineering Toolbox)



**Pedestrian Hybrid Beacon**  
(Source: County Multimodal Safety Engineering Toolbox)