



The Arlington Boulevard Trail

A Concept Plan for a Bicycle and Pedestrian Corridor from the National Mall to Fairfax City



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The Arlington Boulevard Trail

*A Concept Plan for a Bicycle and Pedestrian Corridor
from the National Mall to Fairfax City*

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Executive Summary

Arlington Boulevard runs just over twelve miles from the National Mall in Washington, DC to Fairfax City, VA, crossing several jurisdictional lines and the Potomac River along the way. The thoroughfare connects over 110,000 people living in the adjacent neighborhoods to offices, retail, parks, schools, and government services. But it lacks a consistent, high-quality bicycling route.

Such a route would encourage bicycling and walking along its length, increase the value of existing bicycle and pedestrian facilities by making them part of a more connected network, and improve the character of the corridor for all users. The Virginia Department of Transportation (VDOT) and the Metropolitan Washington Council of Governments (MWCOG) have identified this route as an important, yet underdeveloped, bicycle route in several planning documents—but to date, improvements have been piecemeal. This document shows how those piecemeal improvements could combine to form a functional trail for transportation and recreation.

Much of the Arlington Boulevard bicycle route already exists in the form of off-road paths and wide service roads with little traffic. Building just 1.3 miles of bridges and 8.1 miles of protected bicycle lanes (or off-road shared-use paths) would create a continuous trail, 22 miles in length, on both the north and south sides of Arlington Boulevard. A basic, interim version of this focused on at-grade improvements and “low hanging fruit” could be built for just \$2-4M, while a high quality path with grade separated crossing of major obstacles would cost \$20-40M as redevelopment allows for increased investment.

Arlington Boulevard already has many miles of excellent infrastructure for bicyclists and pedestrians. Investing in linking this piecemeal infrastructure into a continuous trail corridor—and linking that corridor, in turn, to the regional trail network, would unlock the full potential of the corridor as a place for people, not just automobiles.



Glossary

Shared-Use Path

A path for bicyclists and pedestrians, physically separated from motorized vehicular traffic by a curb plus open space or barrier when there is insufficient separation from roads.



Bicycle Lane

A one-way portion of the roadway designated for preferential use by bicyclists, at least 5 feet wide. Additional buffering of 2-3 feet may be added if adjacent to heavy or higher speed traffic.



Shared Lane Marking

Also known as a “sharrow”, this is a bicycle symbol with arrows painted on the road to alert bicyclists the preferred location to ride to avoid hazards and to inform motorists to expect bicycles on this road.



Protected Bicycle Lane

An on-road bicycle lane that is physically separated from traffic by a barrier such as a raised curb or parked cars. Protected bicycle lanes can be either one-way pairs or a two-way configuration.



Contra-Flow Lane

A bicycle lane that flows opposite the direction of adjacent traffic, separated from opposing traffic by a standard yellow centerline and buffer. Often used to allow two-way bicycle traffic on one-way streets.

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The History of Arlington Boulevard

Since its construction in the 1930s, Arlington Boulevard has evolved with the needs and values of the people and communities it has served. Initially just a connector of the suburbs to the city, the roadway nearly became a freeway in the 1960s. Now, as communities seek alternatives to traffic congestion and show preferences for walkable and bikeable communities, it is time for the corridor to evolve once again in order to meet the needs of a more diverse set of users and stakeholders.



Arlington Boulevard was one of the first major roads in the region to be designed for the automobile. Also known as US Route 50, it began at Memorial Bridge and continued west to Fairfax City. It had four lanes, service roads, no overpasses, and often a grassy median. By the 1940s and 1950s, car use and the local population were booming. To keep pace with increases in automobile usage and local population growth in the 1940s and 1950s, interchanges were added, and the road was widened to six lanes in Arlington. By the end of the 1960s, Arlington Boulevard looked almost as it does today, complete with residences and shopping centers along its length--but divided by the Capital Beltway and connected across the Potomac on the Theodore Roosevelt Bridge.

The 1970s, 1980s, and 1990s saw a shift in focus away from Arlington Boulevard. I-66 and Metro's Orange Line were completed, creating freeway and mass transit links that paralleled Arlington Boulevard. The Custis Trail was built concurrently with I-66 and the bulk of the Washington and Old Dominion Trail was completed during this time. Growth in the region continued, but these new transit links largely met the demand for east-west travel in the area, sparing Arlington Boulevard from further expansion.



In 2003, a Virginia Department of Transportation regional bikeway study identified Arlington Boulevard as an important corridor for bicycles and ranked it as trail with potential for heavy use. A year later The Washington Post published Mary Battiata's "A Walk on the Wild Side". Her story of how much of Northern Virginia had turned from walkable to inhospitable in the last 40 years helped people see roads like Arlington Boulevard in a new light. In 2012 VDOT published a study of long-term transportation needs along the I-66 corridor. This study rejected turning Arlington Boulevard into a freeway and recommended building a shared-use trail along the road from Rosslyn to Fairfax City. The agency provided further detail and continued support for the trail in a 2014 supplemental report. Even as VDOT conducted these studies, the area became friendlier to pedestrians and bicyclists. Capital Bikeshare has come to Arlington. Merrifield has been rebuilt as a walkable mixed-use destination. A pedestrian bridge has been built across Arlington Boulevard in Seven Corners.

With growth in the region continuing, the future of Arlington Boulevard is uncertain. Road widening, interchange construction, and speed increases could make the corridor a completely inhospitable place for pedestrians and bicyclists. Or, as Arlington County put it in 2003, the future could be "to transform Arlington Boulevard into a parkway route through the County, one that is made safer for bus riders, bicyclists and pedestrians and one that serves as an appropriate gateway into the County."



A 2003 Virginia Department of Transportation regional bikeway study identified Arlington Boulevard as an important corridor for bicycles and ranked it as trail with potential for heavy use.

Why Arlington Boulevard Needs a Trail

It is hard to leave many neighborhoods along Arlington Boulevard without getting into a car. Even if residents want to walk or bike, they will not do so if there are impediments along their route. A continuous, well-signed, safe trail along Arlington Boulevard will provide residents alternatives to driving. A shared-use trail along Arlington Boulevard will unlock access to neighborhoods and businesses, remove barriers among adjacent communities, increase the use of other facilities along its route, and bring economic benefits by improving the character of the corridor.

Unlock Access to Neighborhoods and Businesses

Consider the Fairfax neighborhood bounded by Annandale Road and Graham Road (see the map overleaf). Shopping at Seven Corners is only 2 miles away, a night out in Merrifield only 3 miles, and an office in Rosslyn 8 miles. Yet without a safe route to these destinations, trips that could reasonably be taken on foot or by bike will not be.

The fitness app, Strava, provides data (albeit limited, see note on next page) on where people do and do not ride. This data reveals a bicyclist and runner "dead zone" along Arlington Boulevard. This map also demonstrates that, in contrast, regional bicycle and pedestrian routes that are continuous, well-connected, and safe see heavy usage from runners and bicyclists. Intermittent facilities along roads like Arlington Boulevard see almost no activity.

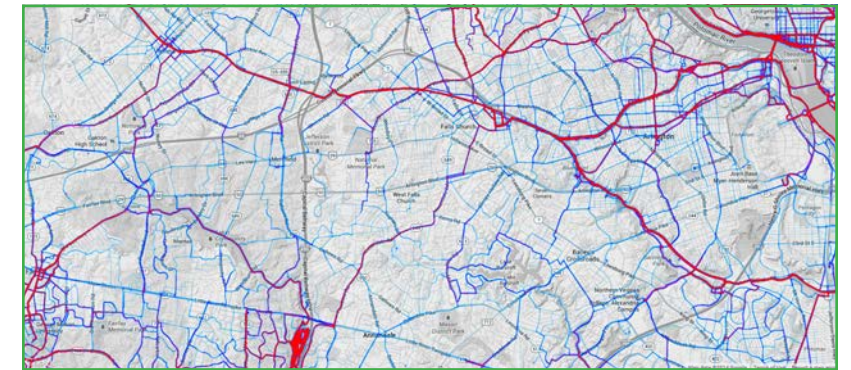
Sensibly, neighborhoods near good bike infrastructure have many people biking, while neighborhoods lacking such facilities have few.

In the map on the right below, the Mantua neighborhood in Fairfax County, just south of Arlington Boulevard, is adjacent to the Mason to Metro Trail and the Cross County Trail. Compare bicycle and running volumes in that neighborhood to the section of West Falls Church mentioned above. With no nearby bicycle facilities, there is almost no use in the neighborhood, despite the presence of many parks, restaurants, and shops within a mile. The Arlington Boulevard Trail will connect dozens of neighborhoods along Arlington Boulevard, greatly increasing pedestrian and bicycle trips by the over 100,000 people who live within half a mile of the route.

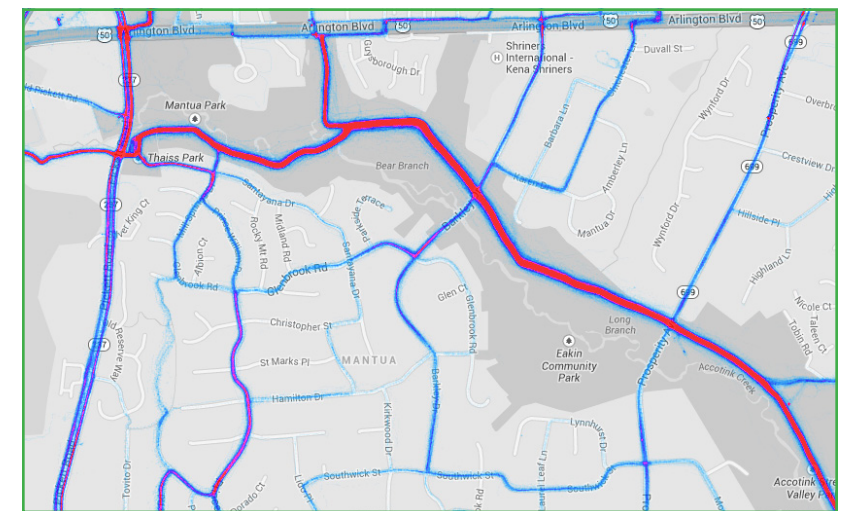
Increased Use of Existing Facilities

Arlington Boulevard already has some excellent bicycle and pedestrian facilities along its length. There is a brand-new section of shared-use trail in the Arlington neighborhood of Courthouse, a Capital Bikeshare station in Lyon Village, and cross bridges at Jackson Street and Patrick Henry Drive. Arlington Boulevard also intersects the Mount Vernon, Washington & Old Dominion, and Cross County Trails. Completing the shared-use trail network along Arlington Boulevard will increase the use of these existing facilities. This is a tremendous value. A small investment can unlock the full potential of facilities that have already been paid for.

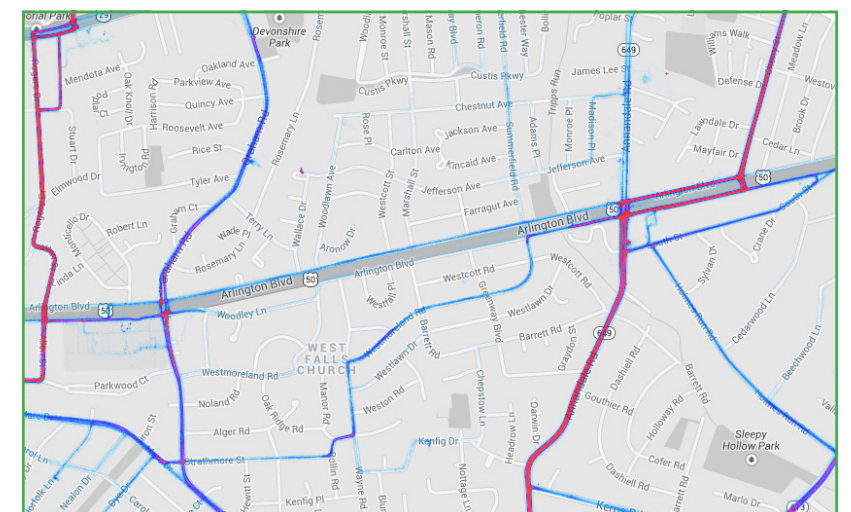
These heatmaps are from a popular cycling app called Strava. Users tend to be recreational or competitive cyclists, and the app requires a GPS enabled smartphone. This means that these maps are not a comprehensive look at all cycling activity, but rather a good way to get a general sense based on the activity of a subset of cyclists.



Strava map of bicycle density with Arlington Boulevard Trail circled. The brightest red lines are the W&OD, Custis, and Capital Crescent Trails.

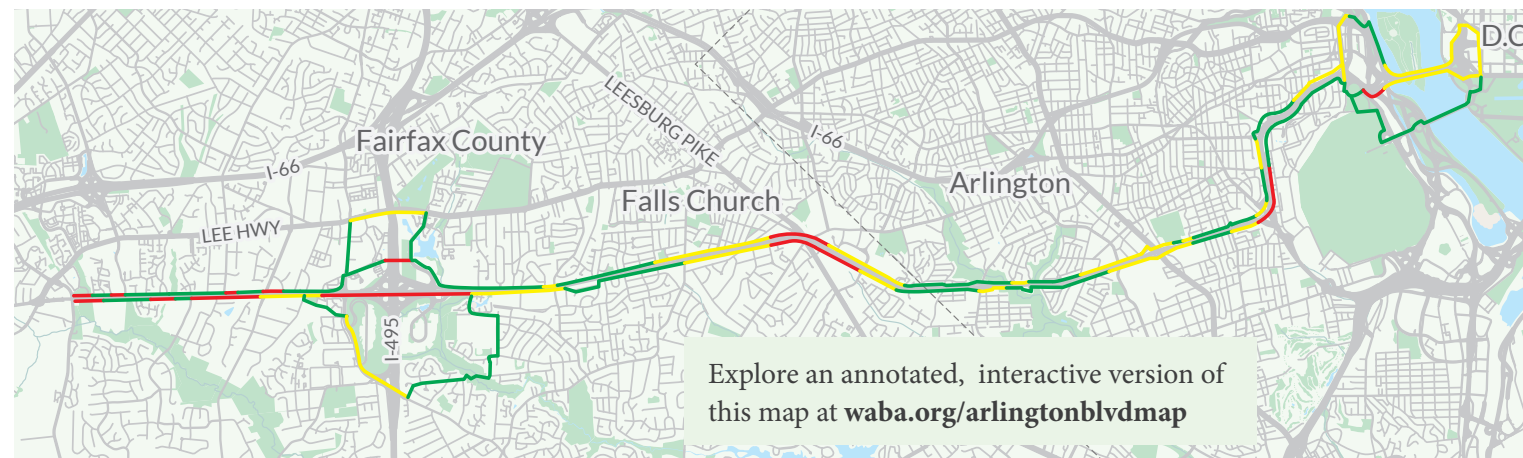


Mantua neighborhood - many bicyclists



West Falls Church neighborhood - few bicyclists

Route Summary



	National Mall to Meade Street	Meade Street to Pickett Road (North Side)	Meade Street to Pickett Road (South Side)	Total Arlington Boulevard Trail*
Shared-Use Path, >8' wide sidewalk, or low-traffic road Green	0.2 miles (17%)	6.7 miles (54%)	4.8 miles (40%)	11.7 miles (49%)
Busy road, <8' wide sidewalk, one-way road Yellow	0.9 miles (68%)	4.6 miles (37%)	3.5 miles (30%)	9.0 miles (40%)
Impassable or dangerous for pedestrians and bicyclists Red	0.2 miles (15%)	1.1 miles (9%)	3.6 miles (30%)	3.1 miles (13%)
Longest Green section	0.2 miles	1.2 miles	1.2 miles	1.2 miles
Longest Red section	0.2 miles	0.3 miles	1.3 miles	0.3 miles
Total distance covered	1.3 miles	12.3 miles	12.0 miles	23.8 miles

*Assumes the south side connections are not built between Pershing Drive and Washington Boulevard (Arlington has deemed this impractical due to limited space) and only one pedestrian bridge is built over the Beltway on the north side due to the cost of this bridge

Arlington Boulevard Today

The twelve mile trip from the National Mall to Fairfax City on Arlington Boulevard takes one through a variety of settings. The route includes parks, urban centers, residential neighborhoods, and shopping centers. Counting facilities on both sides of the route separately, more than 11 miles of shared-use infrastructure already exist, though these are in need of wayfinding signage, lane markings, and amenities. Only 3 miles of new construction and 8 miles of upgrades would be needed to create a total of over 22 continuous miles of shared-use trail, bicycle-friendly sidewalks, and bicycle lanes between the National Mall and Fairfax City. Over time, as the road is redeveloped, a full multi-use trail can be constructed, upgrading the temporary improvements.

The following sections address the current conditions along Arlington Boulevard in detail, along with suggesting what improvements would be necessary in each section. From east to west, the Arlington Boulevard Trail is grouped into six segments, each with the potential for trail on both the north and south sides of the main roadway.

- » National Mall to Meade Street in Rosslyn
- » Meade Street to Washington Boulevard
- » Washington Boulevard to the Fairfax County Line
- » Fairfax County Line to Annandale Road (Seven Corners)
- » Annandale Road to Gallows Road
- » Gallows Road to Fairfax City

For each section, a detailed map is provided to point out the planned route, potential short-term detours, and the current conditions. The following color code is used:

- » **Green** – most adults can comfortably ride a bicycle here.
- » **Yellow** – some challenges, only very experienced bicyclists would be comfortable riding here.
- » **Red** – Impassable or major challenges for all bicyclists and pedestrians.

Segment 1 of 6: National Mall to Meade Street

Starting in DC from the corner of Constitution Avenue and 23rd Street NW, an existing trail heads across Ohio Drive and up to the south side of Theodore Roosevelt Bridge. The bridge's sidewalk is separate from traffic, but the low railing and 5 foot wide path would not prevent a bicyclist from falling off her bicycle into the road as has happened to riders on the north side of the bridge. At the east end of the bridge, the trail inexplicably ends. Just 1,000 feet away, across two lanes of traffic and a large grass field is the Marine Corps War Memorial in Rosslyn. At both ends of the bridge, there are plenty of tourists on the National Mall and admiring the Iwo Jima sculpture, although the trail gap at the western end of the Roosevelt Bridge keeps them from making this crossing. Those who do wish to cross must make a half mile longer trip via Memorial Bridge or a 1.5 mile longer trip to get to the north side of the Roosevelt Bridge.



Looking east from the Marine Corps War Memorial – a bridge would bring bicyclists and pedestrians across traffic, following the white line

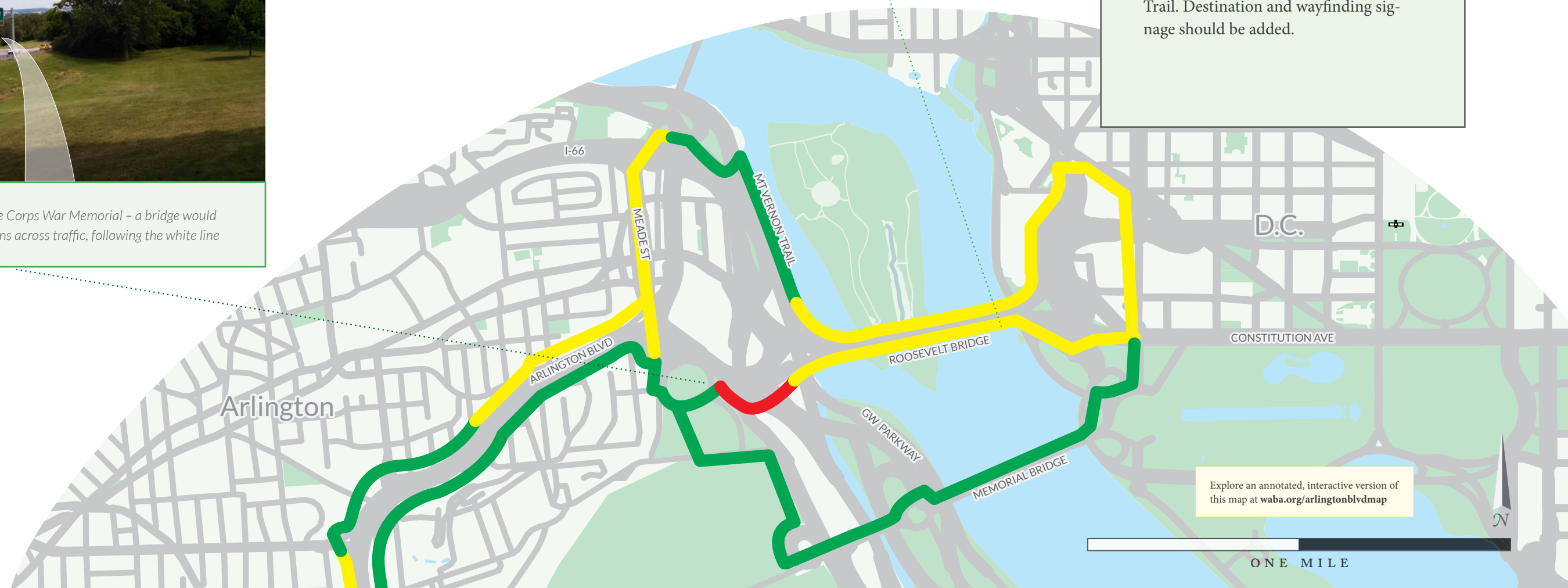


Bicyclists have fallen off this narrow sidewalk on the Roosevelt Bridge into travel lanes (south side looking west)

How This Section Could Be Better:

Three improvements are needed in this section.

- » The western terminus of the bridge must be connected to the existing roads and paths at the Marine Corps War Memorial. This means a shared use path and a pedestrian bridge over the two-lane road from Arlington Boulevard to the George Washington Parkway.
- » Widening of the south side of the Roosevelt Bridge to at least 8 feet and preferably 10 feet to accommodate two-way bicycle and pedestrian traffic.
- » Refurbishing of the trail from 23rd Street to the Roosevelt Bridge. To further increase use, the south side of the bridge could also be connected with the Rock Creek Park Trail and Mount Vernon Trail. Destination and wayfinding signage should be added.



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap

ONE MILE

Segment 2 of 6: Meade Street to Washington Boulevard

North Side

From the Marine Corps War Memorial, the trail continues west on both the north and south side of Arlington Boulevard. To get to the north side, the trail uses Meade Street to Arlington Boulevard, although this requires users to navigate a 5-lane road or ride on sidewalks with several crosswalks. The trail then follows Fairfax Drive to its intersection with Rolfe Street. Fairfax Drive is lightly traveled, although the traffic getting on and off Arlington Boulevard at Queen Street makes for a dangerous intersection there. Once at Rolfe Street, the road connects to a new shared-use path constructed in 2014. The 10 foot wide path parallels Arlington Boulevard to its intersection with Pershing Drive. This section passes through the urban villages of Rosslyn, Courthouse, and Clarendon. The many homes and businesses make this a prime route for commuting or running errands.

At Pershing Drive, the crosswalk connects to a narrow sidewalk that darts between closely-planted bushes, obscuring the route. Across Pershing Drive, behind the bushes, is a 500 foot long service road in front of a Days Inn hotel. This dead-end road connects to a shared-use path that continues west to the far side of Washington Boulevard. The biggest hurdle for most bicyclists and pedestrians is the bridge over Washington Boulevard, where the 8 foot wide path is covered in gravel and directly abuts heavy traffic traveling at 45 mph or faster.

South Side

Back at the Marine Corps Memorial, the other option is to head west on the south side of Arlington Boulevard, taking a service road uphill to Rolfe Street then a new shared-use path to Pershing Drive. Here the trail has to cross Arlington Boulevard at Pershing to follow the north side route until it crosses Washington Boulevard. Arlington determined that a shared-use trail here was not possible due to the limited space between Fort Myer and Arlington Boulevard.



This seven-road intersection at North Queen Street is confusing enough for cars, even without bicyclists trying to use the curving and bumpy sidewalks



This wide service road could easily accommodate bike lanes or a shared-use path (South Side Arl Blvd, between Meade St and the pedestrian bridge)

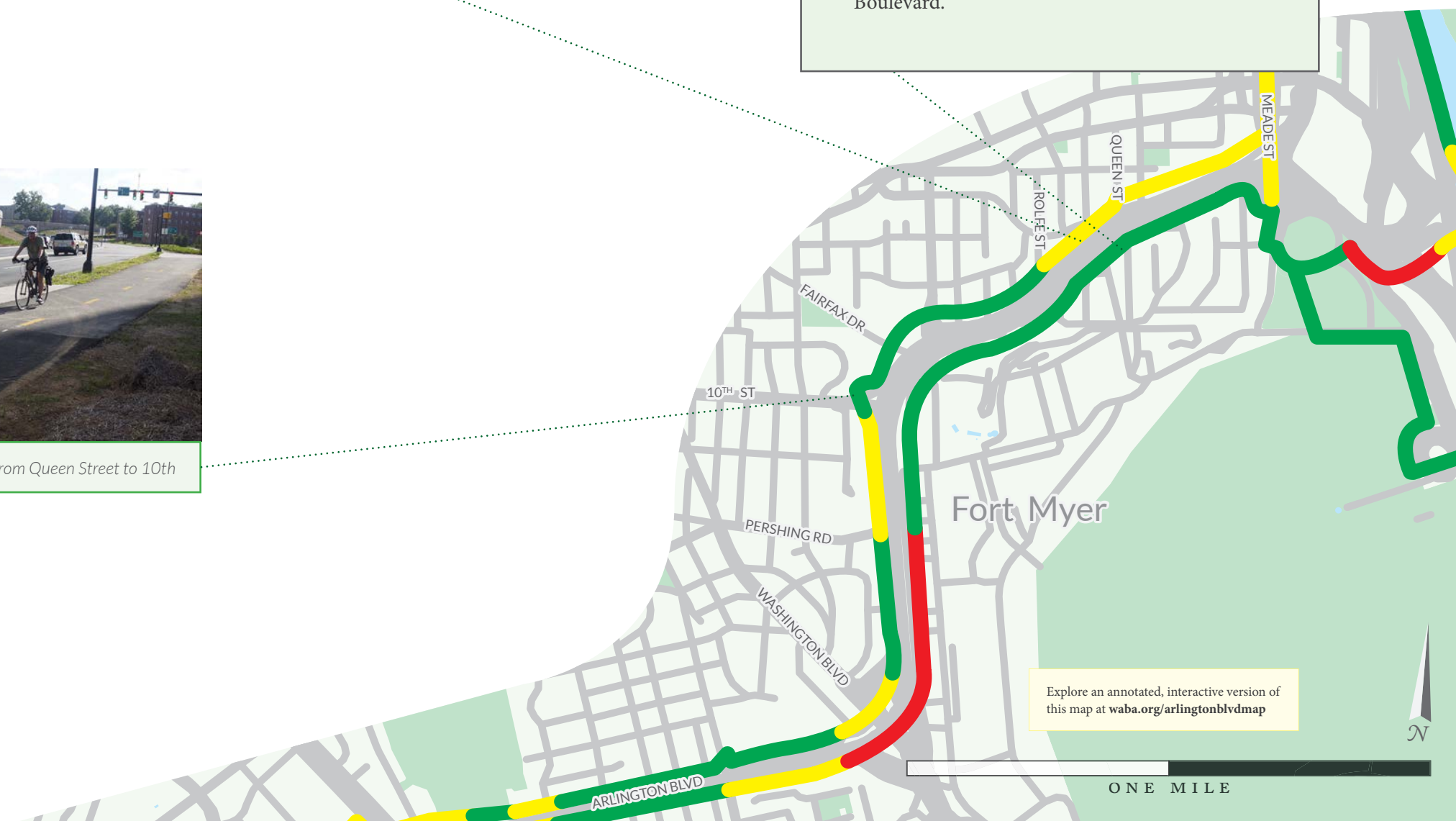


Excellent new trail from Queen Street to 10th

How This Section Could Be Better:

This is one of the best sections of existing trail along Arlington Boulevard. Trail or a protected bicycle lane is needed to connect the Marine Corps War Memorial with the new trail beginning at Rolfe Street. There is a short section on the north side between 10th Street and Pershing Drive where the sidewalk needs to be widened to full trail width.

West of Pershing Drive, the route in front of the Days Inn needs to be made more obvious, the existing trail widened, and paint laid to mark the trail centerline and alert drivers to places where the trail crosses roads. Finally, a barrier should be added to protect bicyclists and pedestrians from traffic on the bridge over Washington Boulevard.



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap

Segment 3 of 6: Washington Boulevard to the Fairfax County Line

North Side

After crossing Washington Boulevard and continuing along the north side, the trail crosses another dangerous intersection, essentially a cloverleaf ramp from Arlington Boulevard westbound to Washington Boulevard southbound. Once across, it is a smooth trip along a service road to Fillmore Street, past a Capital Bikeshare station, then along a shared-use trail the rest of the way to Glebe Road. This section is not up to the standards of newer bicycle facilities in Arlington, but it is close. The road here is lined with single family homes. Many of the residents push baby strollers on the existing path or let their children walk to Thomas Jefferson Park and Elementary School.

At Glebe Road, the route is again unclear. The best option is to cross Glebe immediately, then proceed north 200 feet on the sidewalk to take a left on to Cathedral Lane. Riding on Glebe road here, with all of its traffic, is not an option most bicyclists. After the left, Cathedral Lane is a lightly traveled

road, but a long block later it connects to the Arlington Boulevard service road. This is a wide road, but from Thomas Street to Henderson Road it serves as an on/off-ramp from main Arlington Boulevard. It is also one-way, so riders would have to find another route home since there are no contra-flow bicycle lanes here.

After crossing Henderson, the trail's route is on a pleasant mix of residential service roads, shared-use path, and wide sidewalks all the way to Federal Hill Drive on the eastern edge of the Seven Corners area, at border of the Fairfax County. At Park Drive there is a park for picnicking and several restaurants within walking distance of nearby neighborhoods. The biggest challenge on this section is a 700 foot section of narrow sidewalk that directly abuts Arlington Boulevard traffic, just east of the intersection with the Washington and Old Dominion Trail at Granada Street.



This Capital Bikeshare on Fillmore street lets occasional bicyclists use the Arlington Boulevard Trail



Plenty of space for a bike lane on a quiet access road.



Overgrown vegetation makes for a tight squeeze coming off the bridge over Washington Blvd



Overgrown vegetation on the right, speeding trucks on the left, and the entrance to the W&OD trail only 700 feet ahead. (north side at Edison looking west)



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap



Segment 3 of 6: Washington Boulevard to the Fairfax County Line

South Side

Back at Washington Boulevard, users can also follow an underpass to arrive on the south side of Arlington Boulevard without having to cross its six lanes of traffic. From here to near Glebe Road, the current route is a mix of service roads and shared-use path. This service road is narrow with parking on both sides. The path crosses several roads and driveways that connect directly to Arlington Boulevard. Finally, to get from the service road to Glebe Road, there is only an overgrown footpath up a fairly steep hill.

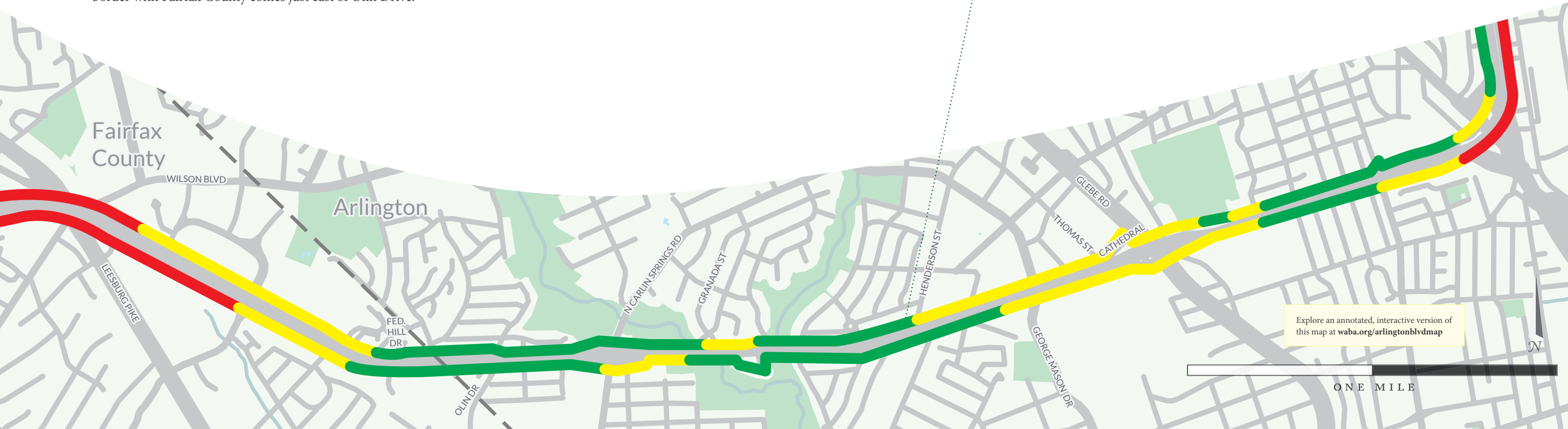
From Glebe Road to George Mason Drive, there are only 5 foot wide sidewalks to ride on, often not in good condition and with little buffer from traffic. Yet after crossing George Mason Drive and before Carlin Springs Road, the route is quite pleasant. It is all on service roads, but they are adjacent to neighborhoods and get little traffic. Smooth travel is interrupted when the wide sidewalk leading up to Carlin Springs Road ends and the route detours via a gravel path to a neighborhood road. A block later, a narrow 5 foot sidewalk with poor visibility brings connects to the crosswalk at Carlin Springs Road. Once across Carlin Springs Road, the route follows a wide sidewalk for a block before connecting to a lightly-traveled service road. The border with Fairfax County comes just east of Olin Drive.

What Could Make Segment 3 Better:

In this section, the north side needs relatively minor improvements. Better marking of places where the trail crosses roads would improve safety at intersections along the whole route. The trail under the Jackson Street pedestrian bridge, just east of Glebe Road, and just east of Granada Street needs to be widened from its current 5 feet and better separated from traffic. The section from Glebe Road to Henderson Road needs a protected bicycle lane or to have the sidewalk replaced with a shared-use trail. On the south side trail is needed along much of the length to replace narrow sidewalks and gravel paths. On both sides, bicycle lanes, preferably with buffers from traffic, should be added to the lower-traffic service road sections. Maintenance is a major issue throughout this section.



Arlington Boulevard is a major road, but many of the trail sections are in leafy neighborhoods



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap

ONE MILE

Segment 4: Fairfax County Line to Annandale Road (Seven Corners)

North Side

From the Fairfax County line to South Street on the other side of Seven Corners, it is technically possible to ride or walk, but few do. The service road that parallels Arlington Boulevard is heavily traveled at the shopping centers adjacent to Patrick Henry Drive and it essentially becomes a highway ramp connecting Arlington Boulevard and Route 7. Even if riders were to walk their bicycles through this mile-long section, there is no place for pedestrians to cross Route 7. Once across Route 7, there is a wide service road that runs to Annandale Road. Several intersections and traffic from the many businesses makes this an undesirable place to ride. Cars tend to “race” between stop signs along the straight and wide road.

This area is home to many immigrants new to the United States. Many new and existing residents cannot afford to own multiple cars per household but would value safe and direct walking and bicycling routes. There is also a long-standing Vietnamese presence here, centered on bustling Eden Center just off Wilson Boulevard. This whole segment is also filled with retail businesses, all the way from the Fairfax County line to Annandale Road.

South Side

On the south side, the service road from Carlin Springs Road becomes busy between Olin Drive and Patrick Henry Drive, as ramps allow traffic to move quickly on and off of Arlington Boulevard. To reach the other side of Route 7 from Patrick Henry Drive, the only options are a narrow sidewalk used by many pedestrians or illegally bicycling the wrong way on a busy, fast-moving service road. As on the north side, crossing Route 7 is not pedestrian or bicyclist friendly. Conditions improve west of Route 7 as the route returns to a two-way service road. Yet as on the north side, car traffic moves fast here.



This service road has room for cars and protected bicycle lanes (South Street, north side)



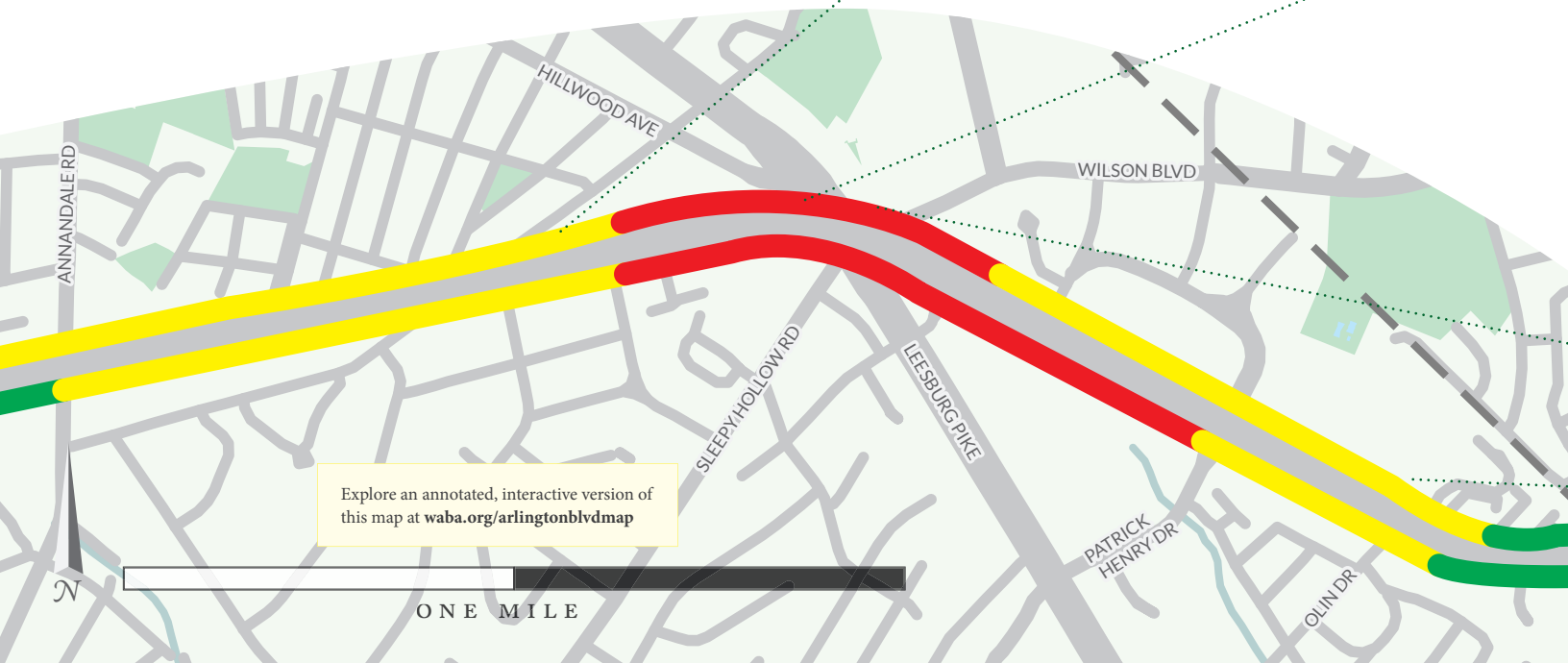
When construction is done to widen the road to six lanes, a shared-use path could be added for a small additional cost.



With no sidewalks, pedestrians have made their own trails across Seven Corners (at Route 7)

What Could Make Segment 4 Better?

This segment is one of the most challenging for bicycling along the entire route. The many businesses in Seven Corners make it a desirable destination, but access is difficult. For through bicyclists and pedestrians, detours around Seven Corners add about 1.5 miles and require many road crossings. Detailed study of this area is needed to determine the best way to route non-motorized traffic through Seven Corners. If Arlington Boulevard is widened to six lanes here as planned, a shared use trail could be added to run under Route 7. Protected bicycle lanes on the service roads to the east and west could connect this underpass to the rest of the Arlington Boulevard Trail.



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap



Neighbors could bicycle to shopping east of Seven Corners

Segment 5: Annandale Road to Gallows Road

North Side

After crossing Annandale Road, there is a wide service road for bicyclists to use all the way to I-495. Most of it is a pleasant route along neighborhoods, although there are still some challenges. In front of the commercial center Graham Road, the service road sees heavier traffic. East of Graham Road, the service road becomes one-way eastbound, meaning that riders are prohibited from continuing west. As in Seven Corners, the area around Graham Road has a concentration of retail businesses and many shoppers trying to navigate the area without a car.

At Jaguar Trail, the obvious route along Arlington Boulevard is not an option. Arlington Boulevard is a limited access freeway as it passes under Fairview Park Drive, I-495, and Gallows Road. The best option today is to take a 1.3 mile detour north on Fairview

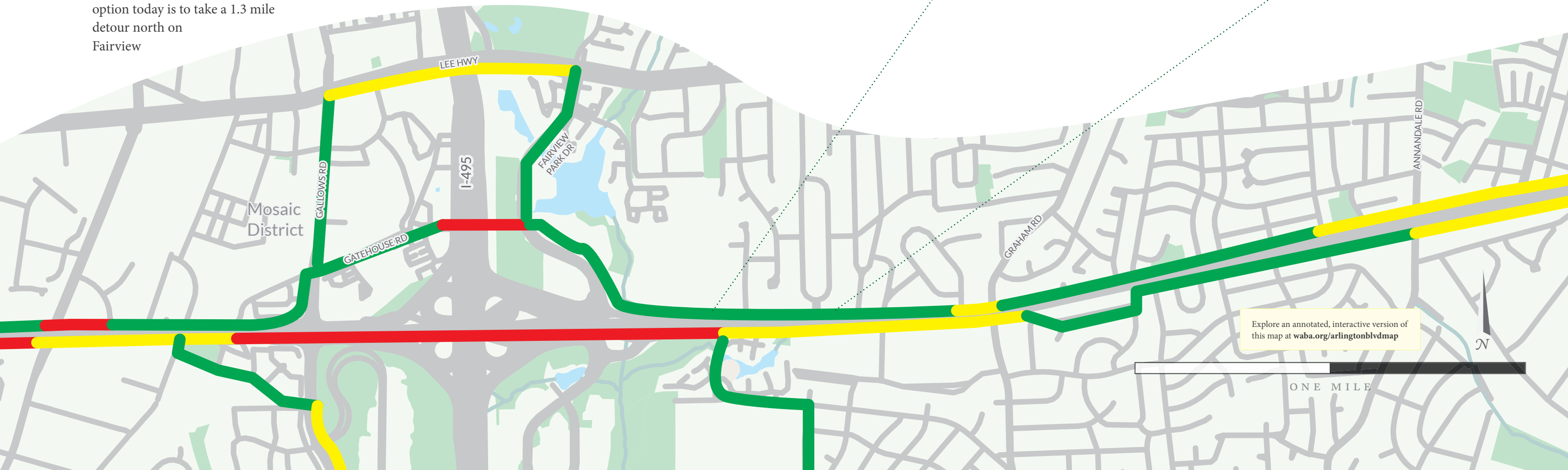
Park Drive, west on Lee Highway, and south on Gallows Road. This detour is long but the facilities are good, with wide sidepaths on Fairview Park and Gallows. Lee Highway has narrower sidewalks but with good separation from traffic, except at the I-495 HOT lane junction. After passing the new Merrifield Mosaic District, which is bustling with people walking to dinner and the movies, users end up back on Arlington Boulevard.



Bicyclists and pedestrians need another way across I-495



Leafy residential roads would draw many more bicyclists and pedestrians if they connected someplace (between Annandale Road and Graham Road, north side)



Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap

ONE MILE

Segment 5: Annandale Road to Gallows Road

South Side

On the south side, once across Annandale Road, conditions are good all the way to Graham Road. There is a new shared-use path outside the Honda dealership, then lightly-used residential service roads the rest of the way. Conditions deteriorate between Graham Road and Jaguar Trail. The service road becomes narrow, busy, and one way eastbound. Near Jaguar Trail the road ends and the only route is on a very narrow, 4 foot wide sidewalk.

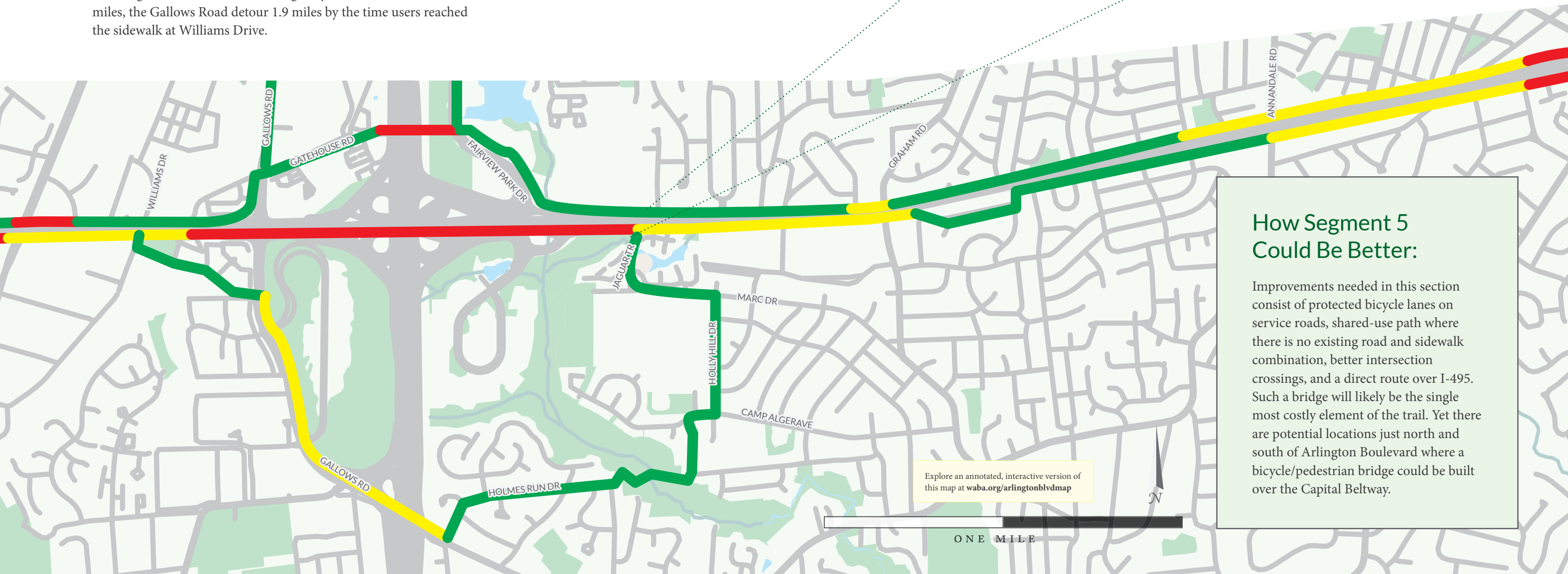
As on the north side, a detour is necessary to cross I-495. The south side alternative is to cut through neighborhoods and parks, past Falls Church High School, to reach Gallows Road. From there, extensive riding on sidewalks along Gallows Road would be necessary to return to Arlington Boulevard. The Lee Highway detour would add 1.5 miles, the Gallows Road detour 1.9 miles by the time users reached the sidewalk at Williams Drive.



No biking here. Arlington Blvd becomes a limited access freeway as it crosses under I-495.



8-foot shared-use path turns into a 4-foot sidewalk - this bus stop is nearly unreachable by bicycle from the east (Jaguar Trl, south side, SW corner looking east)



How Segment 5 Could Be Better:

Improvements needed in this section consist of protected bicycle lanes on service roads, shared-use path where there is no existing road and sidewalk combination, better intersection crossings, and a direct route over I-495. Such a bridge will likely be the single most costly element of the trail. Yet there are potential locations just north and south of Arlington Boulevard where a bicycle/pedestrian bridge could be built over the Capital Beltway.

Explore an annotated, interactive version of this map at waba.org/arlingtonblvdmap

ONE MILE

Segment 6: Gallows Road to Fairfax City

North Side

From Gallows Road to Pickett Road at the Fairfax City boundary on the north side, the current facilities include some of the nicest shared-use path and quietest service roads of the whole route, mixed block-by-block with a complete lack of any bicycle or pedestrian facility. On the 1.6 mile section from Prosperity Drive to Pickett Road, only about a third of a mile is impassable, but these three 650 foot gaps would keep someone from making this trip on foot or by bike.

South Side

The south side route from Gallows Road is more challenging. Currently, a detour through office parks is needed to reach the start of sidewalk at Williams Drive, about 1/3 of a mile away from Gallows Road. From Williams Drive to Prosperity Drive there is only 5 foot wide sidewalk. After crossing Prosperity, there is no bicycle or pedestrian facility for over half a mile until a one block long, privately owned service road west of Barkley Drive. From here to Covington Street there is again no place to bike. Between Covington Street and Stonehurst Lane there is a quiet service road and the entrance to the Cross County Trail. This service road then ends with no way to continue west to Pickett Road and the end of Arlington Boulevard Trail route.

Connections

At Pickett Road, the Arlington Boulevard Trail will connect with at the Mason to Metro trail. To the right, the Vienna Metro station is 1.5 miles away. To the left it is 2.7 miles to the center of Fairfax City and 3.6 miles to George Mason University.



The western-most of the many trail connections made by the Arlington Boulevard Trail



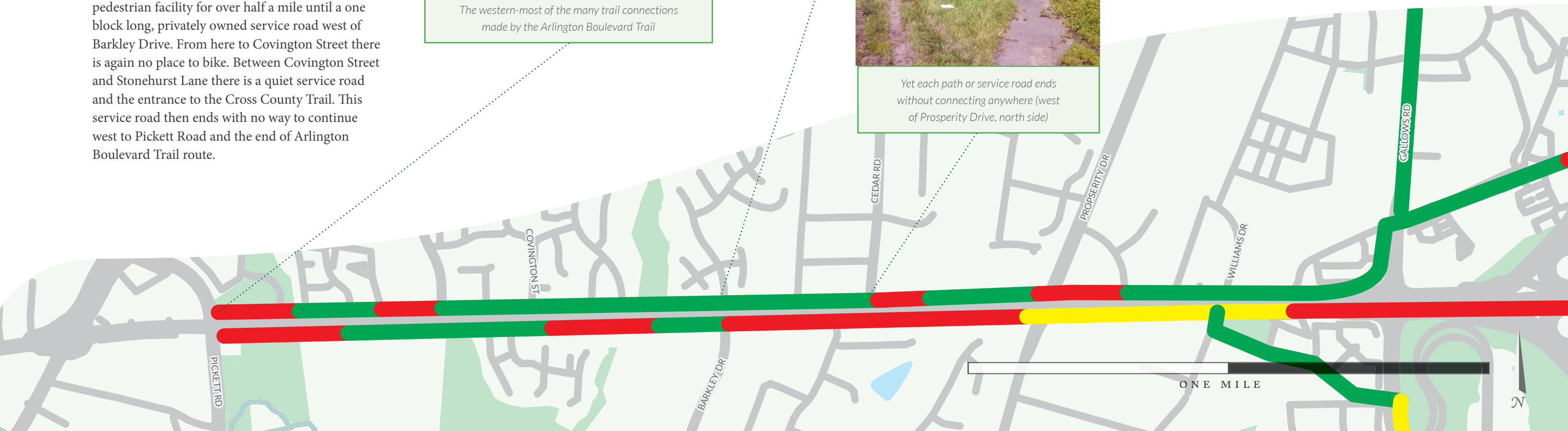
Some excellent shared-use path already exists outside the Beltway (north side, just west of Barkley Gate Rd)



Yet each path or service road ends without connecting anywhere (west of Prosperity Drive, north side)

How Segment 6 Could Be Better:

In this segment, the existing lengths of shared use trail should be connected to bridge the gaps between service roads and protected bicycle lanes added to the service roads. The biggest challenge is between Williams Drive and Prosperity Drive, where the Fairfax County Water Authority and associated buildings leave no room for a route adjacent to Arlington Boulevard. A detour north to Prosperity Drive here would work if Prosperity Drive could be crossed away from its intersection with Arlington Boulevard. On the south side greater lengths of new trail are needed, sidewalks would need to be widened to trail width, and a connection made with Gallows Road.





Arlington Boulevard Tomorrow

Within the next few years, the Arlington Boulevard Trail could be a reality. In 2014 VDOT recommended focusing first on the north side of the road. As noted above, the north side currently has better facilities. The commercial and residential areas north of Arlington Boulevard are also denser. The trail could be a continuous, safe, and easy-to-follow route for pedestrians and bicyclists headed both east and west. Just 1.3 miles of new trail and bridges need to be constructed. Along the remaining 4.6 miles that have meaningful traffic and no off-road routes for bicyclists, bicycle lanes would complete a useable, interim route from Fairfax City to the National Mall.

While sidewalks and bicycle lanes will greatly increase the use of Arlington Boulevard, they are merely a short-term solution. If the trail is to have appeal for the entire community, everyone from age 8 to 108, an off-road, shared-use trail is necessary. Protected bicycle lanes, together with sidewalks, could provide similar safety in areas where an off-road trail is impractical. This cannot be built overnight, but should be part of the long-term vision for Arlington Boulevard.

Arlington Boulevard as a Freeway

The trail should be addressed together with the future of the entire roadway. While the road is signed at 45mph for most of its length, traffic often

races at 55mph or faster between lights. These are freeway speeds. At places, such as I-495 or Rosslyn, Arlington Boulevard looks like a freeway. Yet in other places it is adjacent to single-family homes and connected to driveways. In the long run, the demand for more speed could encourage Arlington Boulevard to be rebuilt as the freeway it sometimes tries to be. A true freeway would eliminate the many crossings that slow down pedestrian and bicycle users along Arlington Boulevard and the construction would be a perfect time to invest a few percent of the cost into a dedicated shared-use trail away from traffic.

Lower Speeds on Arlington Boulevard Benefit All Users

Rather than let Arlington Boulevard continue to be a divider in Arlington and Fairfax counties, it could be a centerpiece. The right-of-way for Arlington Boulevard is 200 feet wide and sometimes wider. This width could be used to turn Arlington Boulevard into a world-class facility for all users. Consider a parkway with a 30 mph design speed. This slower-speed road needs less cleared space next to travel lanes, no on/off ramps, and shorter yellow lights. For rush-hour traffic, when capacity is most critical, the lower speed may have little impact because traffic volume already slows large sections of Arlington Boulevard to a crawl.

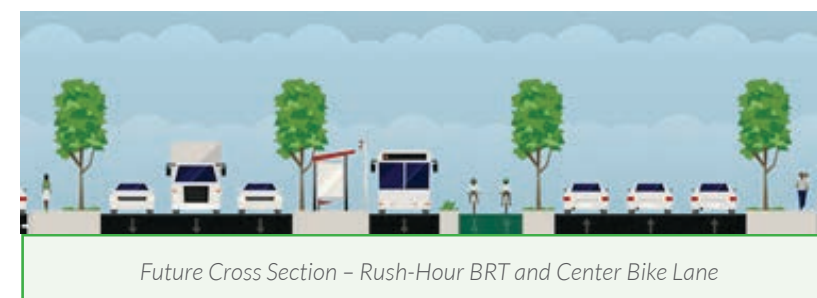
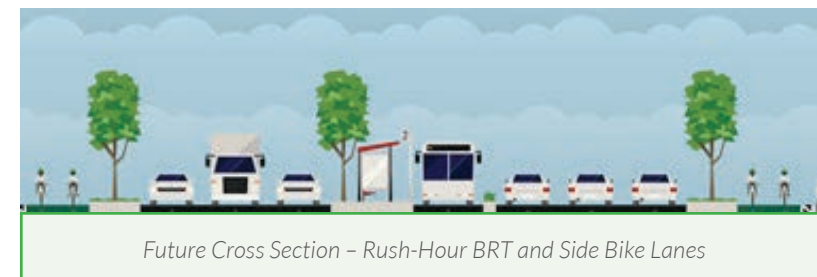
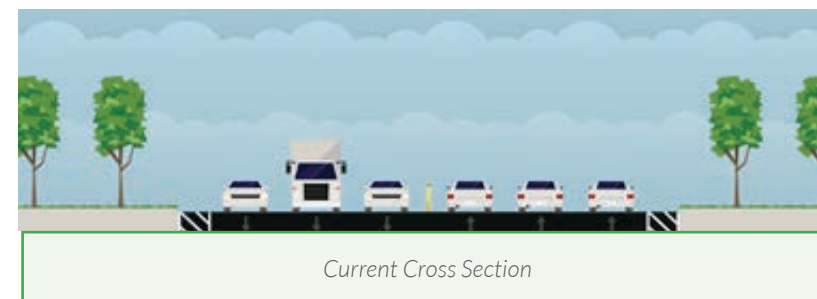
Coordinated lights could be used to reinforce the slower speed limit while allowing traffic to flow for miles without needing to stop at a light. Slower speeds mean less frequent and less severe crashes.

For public transportation users, a slower-speed road would be more pleasant to stand next to while waiting for the bus. Additionally, the perceived disadvantage of a bus is reduced when general traffic and public transportation are traveling at similar speeds. With its direct access to DC, Arlington Boulevard could even become an advantageous place to ride public transit if a bus rapid transit (BRT) system were put in place, using dedicated lanes separate from rush-hour jams.

For bicyclists and pedestrians, a slower speed road means more space for a multi-use trail, more trees, and easier road crossings. For people living along the road, more trees and slower moving traffic means less noise and a more enjoyable environment. Improving the character of Arlington Boulevard would boost property values, offsetting the cost of any road work. In the three mile segment from Washington Boulevard to the Fairfax County line, the total value of residences that look out onto Arlington Boulevard is about \$100 million. Studies on the effect of noise show that a change from 40 mph traffic to 30 mph traffic has the same effect as removing half the vehicles from the road and could boost property values by 3-6%. A modest 5% boost from a more pleasant Arlington Boulevard would create over \$1.5 million of value per mile.

Potential Layouts for Arlington Boulevard

Here are three cross-sections of Arlington Boulevard. One is the road today and one is how it could look as a parkway with bus rapid transit. While it may seem counterintuitive at first, redesigning Arlington Boulevard to slow traffic would actually increase the ability of the road to serve all types of users long into the future.



Where It Will Take You

Arlington Boulevard is well-traveled by cars because it connects to so many places. The benefits of this connection will also extend to pedestrians and bicyclists on the Arlington Boulevard Trail. The trail will increase access to and usefulness of other transit options. Here is a summary of those transit links, connections to other trails, and a selection of destinations within half a mile of the Arlington Boulevard Trail's route.

Transportation Links

The Arlington Boulevard Trail will provide connections along its route to Metrorail, bus routes, Capital Bikeshare, and existing shared-use trails. Metrorail stations near Arlington Boulevard will allow pedestrian users to continue on to farther destinations. Bicyclists can park and ride during rush hour or take their bicycles on the Metro on weekends and off-hours. The Arlington Cemetery station lies three quarters of a mile south of the trail route and Rosslyn is just a quarter of a mile north. Courthouse, Clarendon, Virginia Square, Ballston, East Falls Church, Dunn Loring, and Vienna are all less than 1.2 miles from the trail route.

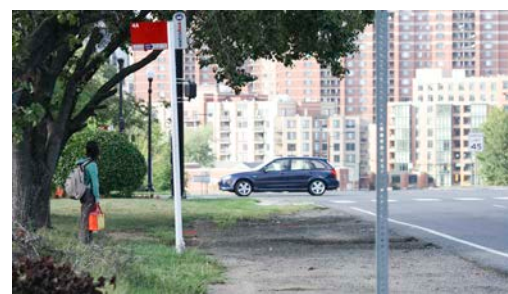
Bus connections to the Arlington Boulevard Trail are particularly important. The buses that serve the Arlington Boulevard Trail have bicycle racks, allowing a bicyclist to easily travel beyond the trail or get a ride down several miles of its length (although there is no single bus route that runs along Arlington Boulevard all the way from Fairfax City to DC). Furthermore, a more accessible Arlington Boulevard makes pedestrian access to bus stops easier, potentially increasing ridership. The following bus routes serve the Arlington Boulevard Trail route:

- » Metrobus 1A/B/C/E/Z, 4A/B, 16Y, 10B (all run along significant segments of Arlington Blvd), 13F/G, 7Y, H1, L1 Constitution Ave

& 23rd St NW), 23A/B/T (Glebe Rd), 22A/B (George Mason Dr), 28A/X, 26A (Seven Corners Transit Center), 3A (Annandale Rd), 29N (Pickett Rd)

- » Arlington Transit 61 (Queen St, Meade St), 42, 45, 77 (Washington Blvd), 41 (Glebe Rd), 75 (Carlin Springs Rd)
- » Fairfax Connector 401, 402 (Gallows Road)
- » Fairfax City-University Energy Saver (Nutley St and west)

Capital Bikeshare is heavily used by people making one-way trips, people new to bicycling as transportation, and tourists. The bikeshare locations along the trail will broaden its user base beyond bicycle commuters. For example, the Bikeshare location at the Marine Corps Memorial would allow tourists to reach the National Mall in a leisurely ten minute ride. There are 14 Capital Bikeshare locations between the National Mall and George Mason Drive within a quarter mile of the Arlington Boulevard Trail. There are dozens more locations just slightly farther away and new locations are continually being added.



Waiting for the bus on Arlington Boulevard today – a better experience would bring more riders

Shared-use Trails

The Arlington Boulevard Trail will connect many of the outstanding shared-use trails that already exist in the area. These trails include:

- » Rock Creek Park Trail (National Mall to Rockville, MD)
- » Mount Vernon Trail (Mount Vernon to Rosslyn)
- » Custis Trail (Rosslyn to Falls Church)
- » Washington Boulevard Trail (Arlington Boulevard to Columbia Pike)
- » Four Mile Run Trail (Crystal City to Falls Church)
- » Washington & Old Dominion Trail (Shirlington to Purcellville, VA)
- » Cross-County Trail (Great Falls Park to the Occoquan River)
- » Mason to Metro Trail (George Mason University to Vienna Metro Station)

The trail will also connect many heavily used on-road bicycle and pedestrian routes in the area, even if those roads are not recognized as official bicycle routes. Some examples include:

- » Fillmore Street / Walter Reed Drive (Clarendon to Shirlington)
- » George Mason Drive (Ballston to Barcroft Park / W&OD Trail)
- » Sleepy Hollow Road (Seven Corners to Columbia Pike)
- » Annandale Road / Cherry Avenue (East Falls Church Metro to Annandale)
- » Gallows Road (Dunn Loring Metro to Inova Fairfax Hospital)
- » Oden Lane / Barkley Drive (Vienna to Mantua)

Schools

- » Elementary Schools: Francis Scott Key, Long Branch, Patrick Henry, Barcroft, Barrett, Carlin Springs, McKinley, Westlawn, Graham Road, Pine Spring, Fairhill, Mosby Woods, Daniels Run
- » Middle Schools: Thomas Jefferson, Kenmore, Luther Jackson
- » High Schools: Falls Church, Fairfax
- » Private Schools: Merritt Academy, Saint Leo the Great Catholic School

Libraries

- » Plaza Branch Library
- » Glencarlyn Branch Library
- » Thomas Jefferson Library

Commercial Centers (Retail & Office)

- » Rosslyn-Ballston corridor
- » Park Drive shopping center
- » Seven Corners shopping centers
- » Eden Center
- » Annandale Road area businesses
- » Loehmanns Plaza shopping center
- » Fairview Park
- » Merrifield / Mosaic District
- » Exxon-Mobile campus
- » Inova Fairfax Hospital
- » Lee Highway / Arlington Boulevard Circle

Government Facilities

- » US State Department
- » National Academy of Sciences
- » Joint Base Myer / Henderson Hall

- » Arlington County Government Offices & Courts
- » National Science Foundation
- » National Foreign Affairs Training Center
- » Defense Health Headquarters
- » Fairfax County Water Authority

Parks & Monuments

- » National Mall
- » West Potomac Park
- » Theodore Roosevelt Island
- » US Marine Corps War Memorial
- » Arlington National Cemetery
- » Lady Bird Johnson Park
- » Fillmore Park
- » Thomas Jefferson Park
- » Lubber Run Park
- » Glencarlyn Park
- » Jefferson Village Park
- » Bluemont Park
- » Barkley Park
- » Mantua Park
- » Towers Park

Getting it Built

Design Issues

To the extent possible, any new construction along the trail corridor should be done in accordance with the American Association of State and Highway Transportation Officials' (AASHTO) Guide for the Development of Bicycle Facilities and the National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide. Existing facilities that do not meet current standards but which meet the needs of trail users need only be upgraded when construction is done for other reasons. The following AASHTO guidelines apply to the Arlington Boulevard Trail:

- » One-way bicycle lanes should be a minimum of five feet wide, or wider if they are next to car parking or a curb and gutter.
- » Trails shall be a minimum of ten feet wide for two-way bicycle traffic. In addition, a minimum of two feet wide graded area should be maintained adjacent to both side of the pavement to provide clearance from trees, poles, walls, fences, guardrails, or other obstructions. Wider trails than the minimum are preferred.
- » Minimum design speed should be 20 mph when the grade is less than 4% and 30 mph when the grade exceeds 4%. Grade should be 5% or less.
- » Sight distances should allow bicyclists adequate stopping sight distances. For a design speed of 20 mph on a level grade, the minimum stopping distance is 125 feet.
- » On trails, a center yellow line should separate two-way bicycle traffic.
- » Overpasses, underpasses, and bridges should be the same width as the path, including clear width.
- » Railings or barriers along the path should be a minimum of 4.5 feet high.
- » Drainage grates should be located outside the travel path of cyclists.
- » Placement of traffic control signals (e.g., stop signs, traffic lights) should consider the operating characteristics of bicyclists, including a reluctance to repeatedly stop and return to traveling speed.

Signage is extremely important to communicating that the Arlington

\$2-5 million would make a strong beginning to the Arlington Boulevard Trail and \$40 million could see it completed as a 22 mile high-quality bicycle and pedestrian facility.

Boulevard Trail is a continuous route designed for bicyclists and pedestrians. Signs also help build a brand for the trail, helping users know what to expect. The following types of signs should be provided: directional / location (mileage to certain points, mile markers), traffic signs (stop, yield, watch for cars), signs to the trail from transit stations and other trails. Signs should be uniform along the entire length, despite different managing agencies.

Costs

The cost to complete the Arlington Boulevard Trail depends greatly on the quality of service desired and far more study will be required as DC, Arlington County, and Fairfax County detail exactly the improvements to be made. At this time, costs can be estimated using the 2012 VDOT I-66 Multimodal Study, the 2014 Supplement to that study, and a bottom-up approach using cost per mile for required improvements (e.g., \$15,000/mile for painting bicycle lanes or \$500,000 per mile for a new shared use path). All dollar amounts given are in 2014 dollars.

A bare-minimum interim trail, with no bridge over I-495, little additional pavement, and a lot of bicycle lane and shared lane markings would cost approximately \$2-5 million. That total would increase to \$5-7 million for the trail to run on both the north and side of Arlington Boulevard. Upgrading to shared-use path and protected bicycle lanes would increase the total cost to about \$5 million for the north side and slightly less than twice that for a trail on both sides.

Building new bridges and upgrading old ones would be the most expensive part of the Arlington Boulevard Trail. A new pedestrian bridge over I-495 would cost \$5-10 million or more but over-

comes a major obstacle in Fairfax County better than either the Lee Highway or Gallows Road sidewalks. A bridge or tunnel at Seven Corners would also cost several million dollars as a stand-alone project. Adding a bridge between the Marine Corps War Memorial and the south side of the Roosevelt Bridge would likely cost around \$3-5 million. Finally, widening the Theodore Roosevelt Bridge sidewalk from under 5 feet to a more appropriate 8 or 10 feet is another multi-million dollar project. However, many of these projects can be accomplished when work is done for other reasons. A direct trail route through Seven Corners could be built when Fairfax County's planned widening of Arlington Boulevard and Route 7 is completed. DC plans to spend \$110 million in the next several years to rehabilitate aging bridges, including the 50-year old Theodore Roosevelt Bridge. The sidewalks on Key Bridge were widened by over 4 feet during rehabilitation in 1987 – similar widening could be done as part of the upcoming Theodore Roosevelt Bridge work.

Totaling all the costs, \$2-5 million would make a strong beginning to the Arlington Boulevard Trail and \$40 million could see it completed as a 22 mile high-quality bicycle and pedestrian facility. It is important to note that this is only a rough order of magnitude estimate of costs – accurate enough to say that the complete trail will cost closer to \$10 million than \$1 million or \$100 million. Funding should be prioritized to address the locations with the best cost-to-benefit ratio. For example, connecting the Roosevelt Bridge to Meade Street would fill in a major gap while requiring less than 1,000 feet of new trail. Low cost, interim solutions, such as bike lanes on low-traffic streets or 600-foot sections of shared-use path can be completed soon to build support for and prove the usefulness of the complete shared-use path. Further detail on cost estimates can be found in the appendix.

Appendix A: Stakeholders

District of Columbia

Only one mile of the trail will be in DC, but it is an important mile to link Rosslyn and the Marine Corps Memorial with DC and the National Mall. This mile will provide the most direct bicycle and pedestrian link between the Mall and the Virginia section of the Arlington Boulevard Trail. The DC Department of Transportation is currently assessing a rehabilitation of the Theodore Roosevelt Bridge which should include bicycle and pedestrian upgrades.

Arlington County

The Arlington County section of the trail is about 5 miles long, much of which needs little change to be incorporated into the final trail. Arlington has already committed to improving this corridor by rebuilding the trail between Rolfe Street and 10th Street. There are also studies planned for the section in Rosslyn and of the intersection with Glebe Road. The county plans to upgrade several intersections, improve the trail between Pershing Drive and Washington Boulevard, and build new trail on the south side near Fillmore Street.

Fairfax County

Just over 7 miles of the trail are in Fairfax County. Unlike in Arlington County, there is no existing trail route so many of the largest challenges are found here. In the 2014 public draft of the Fairfax County Bicycle Master Plan, Arlington Boulevard is designated a “Policy Road”, meaning that further study is necessary before specific recommendations can be made. Despite this, there are plans to improve sidewalks along Arlington Boulevard inside the beltway and to study adding crosswalks at Route 7 in Seven Corners. Most significantly, Fairfax County plans to eventually widen Arlington Boulevard to six lanes to match the width in

Arlington County. That project would be an ideal time to install a high-quality, shared use path parallel to but separate from travel lanes on Arlington Boulevard.

City of Fairfax

Although the Arlington Boulevard Trail would end at the City of Fairfax line, the City's completion of the Mason to Metro trail will ensure that the Arlington Boulevard Trail will have its westernmost connection. The Arlington Boulevard Trail would make the Mason to Metro trail more useful, as users could also connect to neighborhoods and businesses east towards Merrifield and Gallows Road.

Virginia Department of Transportation (VDOT)

The right of way for Arlington Boulevard is controlled by VDOT between the City of Fairfax and the western terminus of the Theodore Roosevelt Bridge. This right of way is typically about 200 feet wide, encompassing the service roads on both sides. The fact that the bulk of the Arlington Boulevard Trail can be built within this right of way means minimal impact to other property owners.

National Park Service (NPS)

The National Park Service is responsible for the Marine Corps War Memorial in Rosslyn and the National Mall in DC. The Arlington Boulevard Trail will traverse half a mile on Park Service land. Completing the connection across the south side of the Theodore Roosevelt Bridge would provide tourists a direct link from the National Mall to the Marine Corps War Memorial, a link made even quicker for those using Capital Bikeshare.

Washington Area Bicyclist Association (WABA)

WABA is the metropolitan Washington region's non-profit bicycle advocacy organization which focuses on making bicycling safe and convenient. WABA instigated construction of the Mount Vernon, W&OD, Capital Crescent, and Metropolitan Branch Trails. WABA has 5,000 members throughout Washington DC, suburban Maryland, and northern Virginia and is connected to over 50,000 supporters.

Fairfax Advocates for Better Biking (FABB)

FABB is a group of 1,300 cyclists who want to make bicycling an integral part of the transportation network of Fairfax County. FABB helped Fairfax County create a bicycle route map and worked with the county on developing the Bicycle Master Plan. FABB is also involved in bringing bike sharing to Fairfax County, improving safety and education, and supporting the Safe Routes to School program. FABB is a sponsored project of WABA.

Appendix B: Detailed information on costs

Cost Estimates

Source	Total Cost *	Notes
2012 VDOT Study	\$7,886,500	Meade St to Fairfax City, mixed facilities
2014 VDOT Study	\$7,227,000	Glebe Rd to Fairfax City, incl. I-495 Bridge
Bottom-up estimate	\$17,678,340	DC to Fairfax City, shared-use path
Bottom-up, both sides	\$22,187,408	DC to Fairfax City, shared-use path
Interim solution, north only	\$849,294	DC to Fairfax City, no I-495 bridge
Interim solution, both sides	\$1,586,356	DC to Fairfax City, no I-495 bridge
Integrated estimate	\$18,353,900	DC to Fairfax City, mixed facilities

Per-Mile Costs for Bottom-up Estimate

Upgrade	Cost/mile (in 2014 dollars) *
Bike lane / shared lane marking	\$15,000
Protected bike lane (cycletrack)	\$200,000
Shared use path	\$500,000
Bike/pedestrian bridge	\$7,900,000
Widen bridge by 3 feet	\$9,504,000

Source: Regional Transportation Priorities Plan, I-66 Multimodal Study 2012 Appendix

* Costs on this page are hard costs associated with actually building infrastructure. In the text of this document, we have factored in estimated soft costs for for planning, design and other contingencies.

Appendix C: Planned projects as of July 2014

Integrated Estimate

Segment	Cost*	Source/Notes
23rd St NW to west end of Roosevelt Bridge	\$5,873,400	From I-66 Study (2012): \$600/sqft to widen bridge (3' for .6 miles) plus \$570,000/mile to rebuild shared-use path (1584 feet)
Roosevelt Bridge to Meade St	\$704,000	From I-66 Study (2012): \$570,000/mile for shared-use path (580 feet), \$7,971,000/mile for 14-foot wide shared-use bridge (425 feet)
Meade St to Glebe Rd	\$1,000,000	I-66 Study (2012) for trail upgrades from Taft St to Meade St (\$377,500) plus \$420,000/mile for lane and trail upgrades on Meade St and from Pershing Drive to Glebe Rd (1.5 miles)
Glebe Rd to I-495	\$3,062,000	I-66 Study (2014) assumes 10-foot wide shared use path on north side.
Crossing I-495	\$3,300,000	I-66 Study (2014) assumes 16-foot wide bridge over Fairview Park Drive and I-495 north of Arlington Boulevard
I-495 to Pickett Rd	\$865,000	I-66 Study (2014) assumes 10-foot wide shared use path on north side
Total (North Side Only)	\$14,804,400	
Total (Both Sides)	\$18,353,900	Doubles cost from Washington Blvd to Pickett Rd

District of Columbia

- » Theodore Roosevelt Bridge rehabilitation study

Arlington County

- » Trail extension study – Meade Street to Rolfe Street
- » Trail rehabilitation – Pershing Drive to Washington Boulevard (north side)
- » New trail – Washington Boulevard to Irving Street (south side)
- » Spot intersection improvements – Park Drive, Irving Road, Manchester Street
- » Intersection study – Glebe Road
- » Upgrade to limited access highway – Fairfax County line to DC

Fairfax County

- » Sidewalk improvements – Patrick Henry Dr to Olin Dr (south side), areas between Seven Corners and Jaguar Trl (both sides), I-495 to Pickett Road
- » Pedestrian improvements study – Seven Corners intersection
- » Widen road to 6 lanes – Arlington Boulevard from Fairfax City to Arlington County line, Route 7 from Seven Corners to Bailey's Crossroads

* Costs on this page are hard costs associated with actually building infrastructure. In the text of this document, we have factored in estimated soft costs for for planning, design and other contingencies.

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Maps are courtesy of Google and Open Street Map, © 2014

Street cross-sections courtesy of Streetmix.net (see <http://streetmix.net/-/146830>)

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