

Arlandria Service Evaluation



Alexandria Transit Company (DASH)

January 2025

1.0 | Executive Summary

The following document seeks to identify and evaluate several different scenarios in which DASH could expand bus service into Arlandria. DASH currently operates three routes – Lines 33, 36A/B and 103 – along the southern edge of Arlandria, but does not offer service along Mount Vernon Avenue north of Reed Avenue. The Mount Vernon Avenue corridor is served by Metrobus routes 10A/B (future A11/A12), however, Metrobus passengers are required to pay a fare while DASH routes are all free to ride. In an effort to provide more affordable bus service to residents of Arlandria, city leadership has requested that DASH review options for improved service in this community.

Staff were able to identify four (4) different scenarios – three of which included modifications to existing DASH routes. Each scenario was evaluated based on ridership, equity, cost and operational efficiency. A brief summation of the different scenarios is provided below while a more detailed comparison can be found in later sections.



Based on these analyses, DASH staff have identified Scenario 4 - an extension to Line 34 from Potomac Yard to Arlandria - as the best option for achieving the goals of this evaluation. This scenario was selected because it would create new bus connections to nearby shopping centers for Arlandria residents but would not have a negative impact on any existing DASH riders.

Table 1 | Arlandria Service Scenario Comparison

Scenario	Buses Req'd	Net Hours	Annual Subsidy Impact	Jobs Accessible in 45 minutes	Rider Impact Rating (4 Stars = Best)
1 (No Change)	0	0	\$0	365,625	
2 (Line 33 Re-Route)	+1	5,730	+\$573,000	365,698	★★
3 (Line 36 Re-Route)	+2	12,200	+\$1,220,000	367,559	★★★
4 (Line 34 Extension)	+1	6,040	+\$604,000	365,853	★★★★

2.0 | Background

Arlandria is a neighborhood in the northeast corner of Alexandria (bordering Arlington County) with a population of 7,100 residents (2020 Census). Most of the residential areas are comprised of high- and mid-density apartment units, and the main commercial street (Mount Vernon Avenue) is lined with shops and small businesses whose Spanish-language names reveal the community's deep connections to Latin America. As shown in **Error! Reference source not found.**, roughly 19 percent of Arlandria residents reside in low-income households, which is more than twice the citywide average (American Community Survey 2019-23).

Primary transit service along Mount Vernon Avenue is via long-established “regional” bus routes (Metrobus 10A/B and 23A/B) that provide service to hubs and stations outside of Alexandria. Starting this year, the Metrobus 10A/B will become known as the A11/A12 and the Metrobus 23A/B routings will be eliminated due to low ridership.

DASH fixed-route bus services (Lines 33, 36A/B and 103) operate around the edges of the neighborhood to provide further connectivity to points within the City of Alexandria but were established prior to the implementation of the DASH Free Fares Program in 2021. Consequently, the majority of Arlandria residents are only served by Metrobus routes with a \$2.25 fare and are not able to benefit from fare-free DASH service.

Table 2 | Neighborhood Demographics

population (Census 2020)	7,182
jobs (work)	1,249
% of people in poverty	19%
% of people who are non-White or of Hispanic / Latino origin (Census 2020)	85%
% of households that are car free	36%
% of workers who take public transit to work	26%
% of jobs that are essential (work)	70%
% of jobs that are essential (home)	54%
% of people who speak English less than very well	34%

Select demographics of proposed service area (source: Remix, ACS, Census 2020)

3.0 | Existing Conditions

Permeability & Walkability

Adequate ADA-accessible sidewalks are available on most streets in the corridor. Minor and gradual grades exist between Mt Vernon Ave and W Glebe Rd, otherwise most pedestrian paths are flat. All businesses in the corridor are accessible on foot, with most businesses either on the road frontage or behind minimal parking space.

Aside from Mount Vernon Ave and W Glebe Rd, north-south permeability is somewhat easier than east-west permeability. One very long block exists on Mount Vernon Ave between Executive Ave and W Glebe Rd. Because W Glebe Rd crosses Mount Vernon Ave at a diagonal intersection, block length between the two roads increases from about 270ft just north of the crossroads to 0.3 miles via the northernmost road within city limits, meaning ease of access to DASH services varies somewhat depending on precise location along Mount Vernon.

Existing Transit Options

DASH provides service on the periphery of the neighborhood, with service on West Glebe Road along its southern boundary via Lines 36 and 103, and West Reed Ave one block north via the Line 33; however, DASH service does not penetrate further into the neighborhood, north of West Reed Avenue. The DASH Line 36 operates every 15 minutes, whereas Line 33 and the weekday peak-only Line 103 and each operate every 30 minutes.

WMATA provides service on Mount Vernon Ave via routes 10A/10B (A11/A12), and on Russell Road and Mount Vernon Ave via route 23A/23B. The Metrobus 10A/B services are classified as “Frequent Service Network” (FSN) routes, with each providing service to Arlandria every 20 minutes or better all day, seven days per week. With the implementation of WMATA’s Better Bus Network in June 2025, the Metrobus 10A/10B will be maintained as the A11/A12, while the Arlandria segment of the 23A/B will be discontinued due to low ridership.

Metrorail Access

Despite the recent opening of the Potomac Yard Metro Station just over one mile to its east, most of the transit options in Arlandria are focused on other Metrorail stations that are much farther away. Metrorail access from the intersection of Mount Vernon Ave & Executive Ave is as follows:

- **Braddock Road Metro** is accessible in roughly 20 minutes via Metrobus 10A/B (A11/A12). This station is best for accessing points south and west in Alexandria and Fairfax County.
- **Pentagon Metro** is accessible in approximately 15 minutes via Metrobus 10A (A11). For Arlandria residents, this route provides the fastest available access to Washington, DC and the larger metropolitan area, as well as major bus connections to locations throughout Northern Virginia
- **Ballston Metro** can be reached in 30 minutes using Metrobus 10B (A12), 23A or 23B. This station is the most direct means of travel to points in Arlington County, Tysons, and McLean.

- **Crystal City Metro** is reachable in 15 minutes or less by the Metrobus 23A/23B. Crystal City is another gateway to Washington, DC and nearby Reagan National Airport, however, these routes are being reconfigured and will no longer serve Arlandria in FY 2026 and beyond.
- The new **Potomac Yard Metro** is accessible by a half-mile walk from Mt Vernon & Executive to Reed Avenue where passengers can board DASH Line 33 to either the Potomac Yard or **King Street Metro** station. No passenger amenities are available at this transfer stop, and this route operates every 30 minutes all day. Passengers traveling to Potomac Yard Metro may also walk several blocks to West Glebe Road and Executive Avenue, which is served every 15 minutes by DASH Lines 36A/B. This route connects to Potomac Yard, Shirlington and Mark Center. DASH Line 103 also operates on Glebe Road with service to the Pentagon Metro and Braddock Metro, however, few stop amenities are provided in these locations.

Fare Collection

As noted in previous sections, all DASH routes are free to ride and are expected to continue to be free for the foreseeable future. Metrobus routes require a \$2.25 fare for regular riders, or \$1.10 for reduced fare programs (e.g. Senior or Disabled SmarTrip cardholders). Metrobus passengers who are connecting to/from Metrorail would receive a free transfer on their SmarTrip card. As a result, the bus trip would essentially be free and they would only be paying for their Metrorail trip.

The City of Alexandria is also in the process of applying for state grant funds that could allow ACPS students to ride Metrorail and Metrobus for free. If awarded, the grant could allow George Washington Middle School students traveling from Arlandria to their school to use Metrobus 10A/10B (A11/A12) for free. A decision on the grant application is expected by April 2025 and the program could begin as early as the 2025-2026 school year.

Upcoming Improvements

As part of its Better Bus Network rollout, WMATA will implement service on the new A70 route which will provide new service along S Glebe Rd to Potomac Yard Station. This is expected to launch in June 2025 but will not operate in Arlandria and would require residents to walk north across Four Mile Run bridge. All travel time analysis in this report factors the presence of the A70 route, but its true impact on local travel patterns is unknown.



4.0 | Potential DASH Service Improvements

Despite the services mentioned above, the central core of Arlandria today lacks access to DASH's high-quality, locally controlled, free service focused on providing access to business, residential, and employment opportunities as well as city services throughout Alexandria. Therefore, at the request of City Council, DASH staff have evaluated several options for modifying existing routes or adding new service to improve connectivity and access.

Scenario #1 – Maintain Existing Service

As discussed previously, a network of high-frequency transit routes is available within ¼ mile of all residents and jobs within Arlandria, with connections available to numerous Metrorail stations. Upcoming improvements to Metrobus service and the potential for free rides on Metrobus for George Washington Middle School are expected to have a positive impact on this community in making transit more useful and affordable to all. While this scenario would not address the lack of DASH service in Arlandria north of Reed Avenue, it would meet the service needs for students and would not require any new funding or resources above those that have been identified for the state grant program for the George Washington Middle School students.

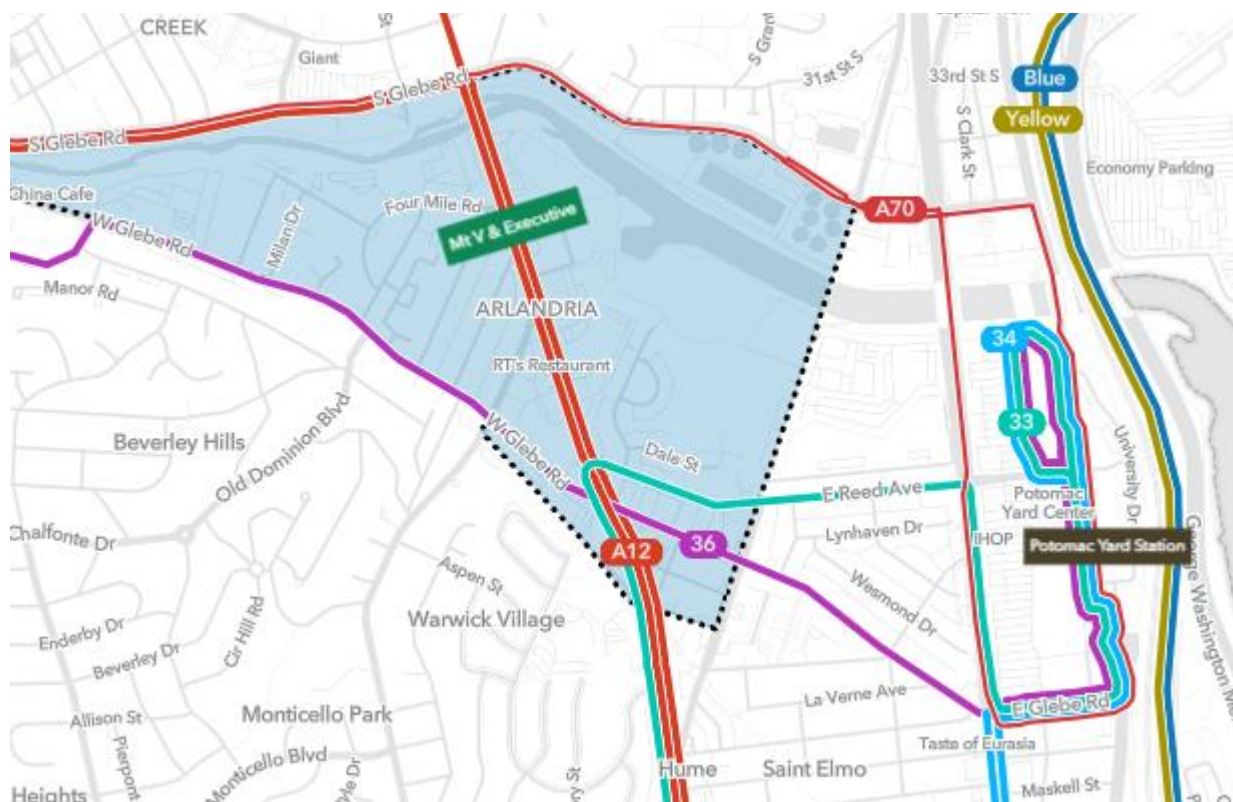


Figure 1 - Scenario 1: Existing Transit Options in Arlandria area

Scenario #2 – Line 33 Extension to South Glebe Road

The DASH Line 33, formerly the AT10, began service in 2006 and has remained largely unchanged since its inception. This route currently operates every 30 minutes, seven days per week, from 6:00 am to 10:00 pm. The route begins at King Street Metro Station, traveling through Rosemont, Del Ray, and Warwick Village before entering Arlandria at Mount Vernon Avenue & West Glebe Road and then turning onto West Reed Avenue, serving Hume Springs and Cora Kelly Elementary School before terminating at Potomac Yard Center.

DASH staff evaluated a potential realignment of the route to bypass Reed Ave and continue on Mount Vernon Ave to South Glebe Road and then approaching Potomac Yard Station either via expanded service on Richmond Highway, providing improved service to the Lynhaven neighborhood, or via Potomac Avenue.

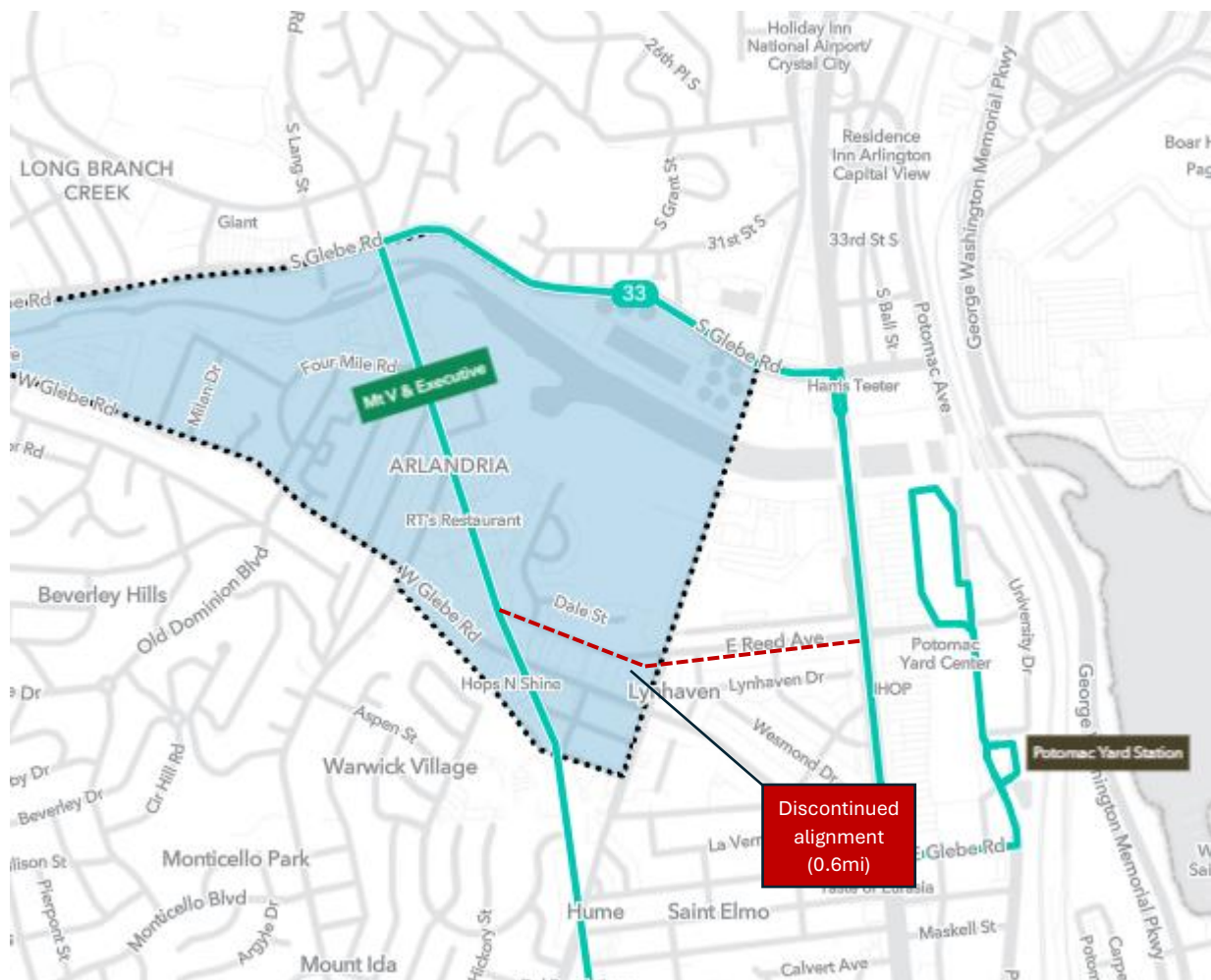


Figure 2 - Scenario 2: Line 33 Deviation via Mt Vernon Av/S Glebe Rd

Impact

Benefits

A realigned Line 33 would provide one-seat access from Arlandria to King St-Old Town Metro Station or Potomac Yard. This will facilitate connectivity from Arlandria to jobs and businesses across the

region with direct connections to Potomac Yard, Del Ray, Old Town and Eisenhower East. Other regional points of interest such as Crystal City, Pentagon City, Alexandria Hospital, the National Harbor, Annandale, and Fairfax would also be easier to reach via transfers at the Potomac Yard or King Street Metro stations.

Cost

This scenario would likely increase operating costs as an additional all-day bus would have to be incorporated into the Line 33 cycle 7 days per week to maintain reliability. This will strain resources during weekday peaks, with the DASH fleet currently at maximum utilization.

Peak Vehicles Required	3 (+1)
Cost Increase	\$573,000
Annual Rev Hrs	5,730

Table 3 - Scenario 2 Costs

This extension uses existing stops, so no capital improvements would be necessary to implement the service.

Trade-offs

In this scenario, DASH would discontinue service on Reed Avenue through Lynhaven. Alternate service from these areas to Potomac Yard Metro is available on Glebe Road – located 1-3 blocks south of Reed Avenue – but no other direct service to King St-Old Town Metro Station exists beyond the Line 33. Across all impacted stops, this change would displace 125 average daily boardings at stops on Reed. This would also reduce access to Cora Kelly Elementary School, which would remain accessible from W Glebe Rd. The route change would also carry a negative impact for several hundred Line 33 passengers who travel between Del Ray and Potomac Yard on a typical weekday. With the new, less direct routing, the travel time would be expected to increase from 12 minutes to 20+ minutes, making the bus less convenient for those individuals.

Statistically, regionwide access does not appear to be impacted very much by this change. This is likely due to the new WMATA A70, which has been included in all of the analyses but was only very recently added to the overall transit mix in Arlandria. Jobs access remains stable except for a slight uptick in jobs accessible via transit within 45 minutes (see Figure 6).

Scenario #3 – Line 36 Deviation via Executive Ave/Russell Rd

The DASH Line 36A/B began service as the AT9 in 2014 with service between the Mark Center and Potomac Yard. Prior to the Potomac Yard Metro station opening in 2023, Line 36 was the only DASH route that did not serve a Metrorail station; connections to other routes were available at numerous locations, but the route served more as a citywide orbital connecting local destinations than a service that facilitated interjurisdictional travel. The ridership profile of this route has changed considerably since the opening of the station, and far more people depend on it than in years past. Currently, the combination of Line 36A and 36B operates every 15 minutes.

A deviation of Line 36 into Arlandria onto either Russell Rd or Executive Ave would facilitate easier access to Potomac Yard by riders in central Arlandria who would otherwise have to walk to South Glebe Road to take the new Metrobus “A70” route. This scenario also facilitates novel travel opportunities unparalleled by any other one-seat ride from Arlandria.

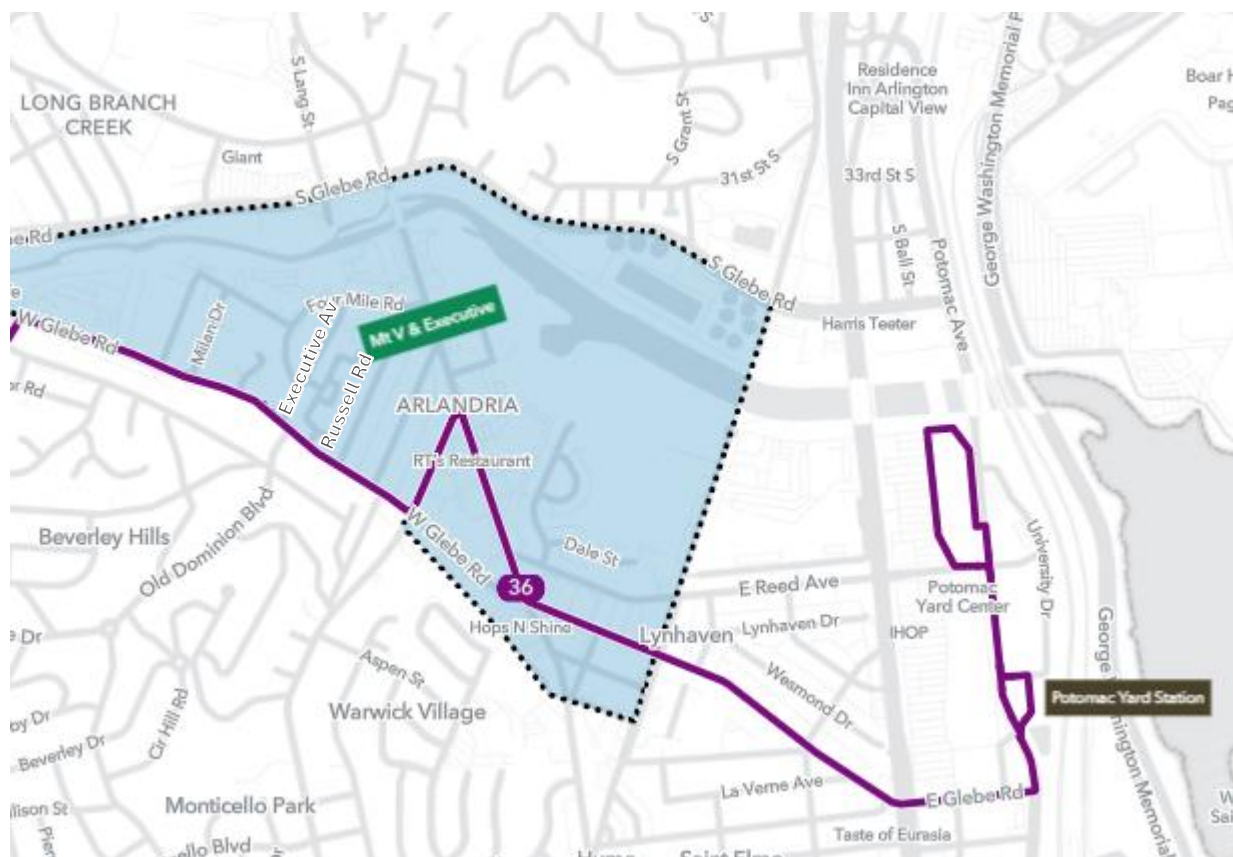


Figure 3 Scenario 3 - Line 36 Deviation

Russell Road vs. Executive Avenue

DASH staff evaluated the suitability of multiple Line 36 deviations from West Glebe Road. The two main possibilities were via Executive Avenue or Russell Road. Ultimately, Russell Road was selected due to the acute turn movement from northbound Executive Avenue onto southbound Mount Vernon and the on-street parking configuration along Executive Avenue that makes it extremely difficult to establish ADA-accessible bus stops without major curb improvements on private property. An unrelated “Complete Streets” city project is also expected to improve pedestrian safety and bus

amenities along the Mount Vernon Avenue corridor in the coming years. The curb modifications proposed by this project would further favor the Russell Road route alignment.

Route Branching

DASH Line 36 currently operates every 15 minutes as the combination of two route variants (36A and 36B) that operate every 30 minutes on their own. Lines 36A and 36B each have two mid-route diversions of roughly equivalent length; this allows us to maintain 15-minute spacing throughout the entire trunk of the route. Adding a third deviation to only one of the two lines would likely interfere with the even spacing of buses outside of the deviated area, as well as provide less useful service to the Arlandria area relative to all the existing options explained in Scenario #1 – Maintain Existing Service. For purposes of this evaluation, all projections and comparisons assume that both branches would deviate into Arlandria based on the issues noted above.

Impact

Benefits

Scenario #3 would provide key connection opportunities between Arlandria and points in western Alexandria such as Mark Center and Beauregard Street corridor. It would also make it easier for Arlandria residents to connect to Shirlington, Potomac Yard and points north via transit. As a result, this scenario offers the biggest improvement in terms of regionwide access to jobs, with over 2,300 more opportunities available within 60 minutes, compared to the existing bus network.

Costs

Peak Vehicles Required	9 (+2)
Cost Increase	\$1,220,000
Annual Rev Hrs	12,200

Table 4 - Scenario 3 Costs

*Cost projections assume both 36 branches deviate into Arlandria

Trade-offs & Considerations

Line 36's relevance to commuters has increased significantly with the opening of Potomac Yard Metro Station. As of July 2024, 57% of alightings at Potomac Yard Metro were from 36A/B buses. A deviation into Arlandria would cause inconvenience to hundreds of existing passengers who are reliant on existing travel times to the subway station. For example, a passenger who travels from Shirlington to Potomac Yard normally needs 14 minutes to make his/her trip. With the new deviation, that time would increase by 5-7 minutes and would make the trip less convenient.

The Line 36 is also currently one of two DASH routes that are funded by NVTC's I-395 Commuter Choice program. An increase in travel times could negatively impact the time competitiveness of this route versus driving a single-occupant vehicle, which is the primary scoring criteria for Commuter Choice grant applications. DASH receives over \$2 million annually from this program and any loss of funding from this program would be very difficult to replace.

DASH has also received feedback on other parts of Line 36A/B near Parkfairfax, Bradlee Shopping Center and Menokin Drive. Staff is continuing to review the entirety of the route in the context of the desire to expand service in Arlandria but has not identified other changes that might make an Arlandria realignment more feasible.

Scenario #4 – Arlandria Circulator/Line 34 Extension

The final scenario proposes a new route, or Line 34 extension, from Potomac Yard to Arlandria and Arlington Ridge Shopping Center. Staff evaluated two route variants – a one-way loop via Reed, Mount Vernon Avenue and South Glebe Road, as well as a bidirectional routing to Arlington Ridge Shopping Center via Reed Avenue and Mount Vernon Avenue. For operational efficiency, it can also be operated as an interline with, or as an extension to, Line 34.

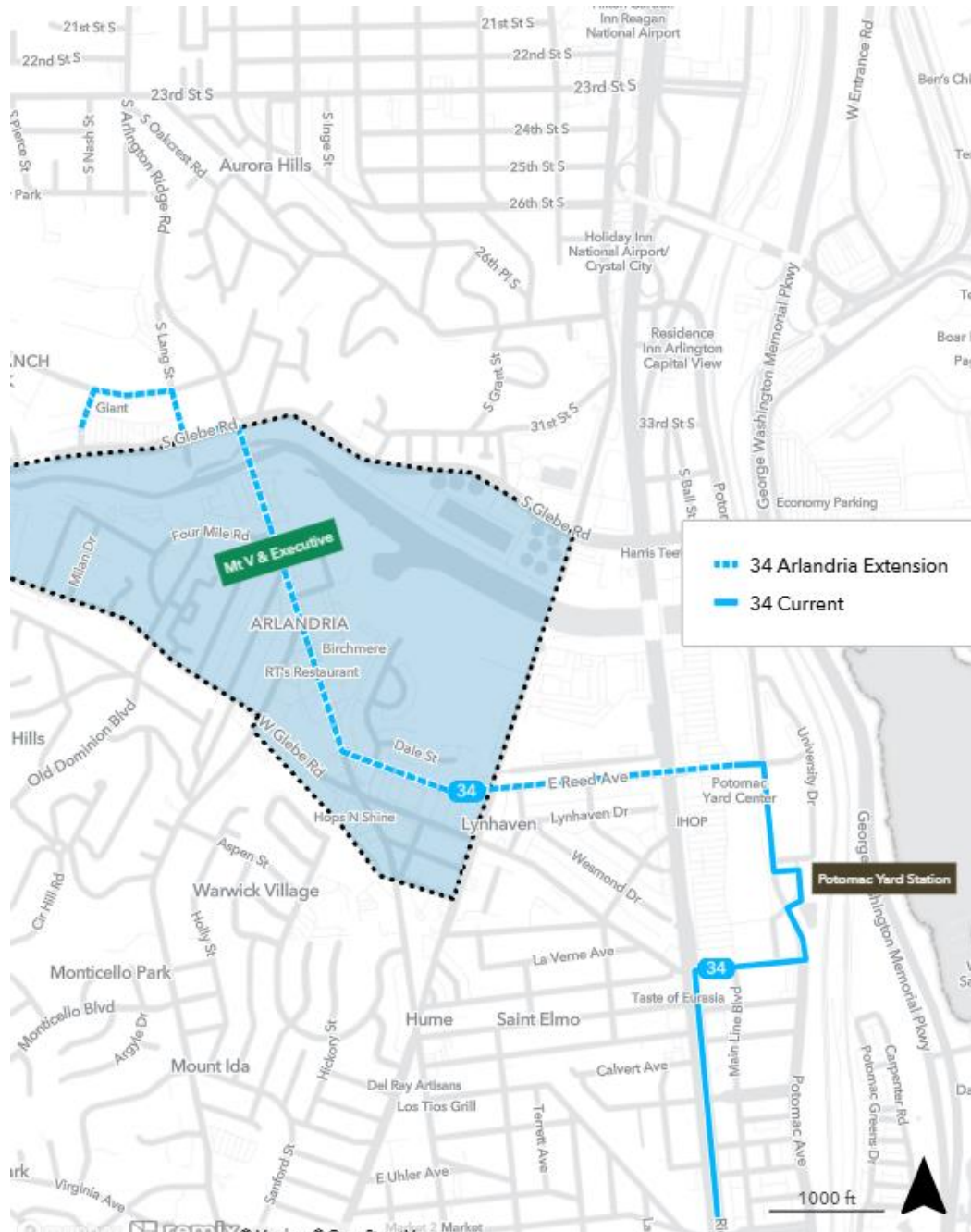


Figure 4 - Scenario 4: Line 34 Bidirectional Extension to Arlandria

Impact

Benefits

The proposed loop routing to Arlington Ridge Shopping Center would provide a free transit connection for Arlandria residents traveling to grocery stores or other shopping options just across the bridge into Arlington. It would also provide a more direct routing to or from Potomac Yard, albeit as a one-way loop that would be circuitous in one direction. The bidirectional variant that is shown in the above map would operate to Arlington Ridge via Reed Avenue and Mount Vernon Avenue. It would be much more convenient from an operational efficiency and customer utility standpoint, however, it would require the elimination of the raised islands at the intersection of Richmond Highway and Reed Avenue to allow buses to travel directly through the intersection.

This scenario is the only option evaluated that does not create a negative impact to existing riders; even if operated as an extension to Line 34, current customers will be able to use the route in the same manner as they do today as all new activity would take place before/after the current Potomac Yard terminus. It would also provide a modest increase in regional access to jobs within 45 and 60 minutes via transit.

Costs

Peak Vehicles Required	3 (+1)
Cost Increase	\$604,000
Annual Rev Hrs	6,040

Table 5 - Scenario 4 Costs

Trade-offs

As an extension of Line 34, this route provides more direct access to City Hall and some jobs and residences in North Old Town & Southwest Quadrant, but is largely duplicative of existing transit options in Arlandria and does not open up travel options to new destinations as previous options would.

While there are benefits to this proposal, there are also several challenges. Due to a sharp turn at Richmond Highway and East Glebe Road, and the inability for buses to cross Richmond Highway on East Reed Avenue due to intersection barriers, a less efficient one-way loop routing is necessary in the Potomac Yard area. This would break some of the consistency of today's services running from the shopping center towards Potomac Yard Metro and to Glebe & Richmond. These roadway design limitations prevent true two-way service on either East Glebe Road or on East Reed Avenue, leading to a scenario where service is either split across the two roads, or forms the one-way loop proposed above.

Unlike other scenarios, the implementation of Scenario 4 also comes with a minor capital need beyond peak buses – the reconfiguration of the intersection of E Reed Av & Richmond Hwy, where a current traffic channelizing island prohibits vehicles from continuing straight across the intersection. The geometry of the intersection of Richmond Hwy and E Glebe Rd precludes large vehicles from being able to make the right turn from southbound Richmond onto westbound E Glebe Rd, and current alignments into and through Potomac Yard Center are time consuming and expensive just to position buses for that only available means to cross Richmond Hwy.



Further, again due to challenging geography in the Arlandria area, the most useful terminal location would be the Arlington Ridge Shopping Center; service to this location would require coordination with Arlington County staff.

5.0 | Summary & Staff Recommendation

In considering the benefits, tradeoffs, and costs of all the scenarios presented, DASH staff recommend the bidirectional extension of Line 34 in **Scenario #4** as option that achieves the objective of improving connectivity and affordability of travel options for Arlandria residents without creating a negative impact for existing DASH riders.

This scenario appears to strike a balance between cost and benefit; whereas Scenario 1 comes at the lowest cost, the benefits are very minor, with little to no increase in transit access to employment opportunities within 60 minutes.

Table 1 | Arlandria Service Scenario Comparison

Scenario	Buses Req'd	Net Hours	Annual Subsidy Impact	Jobs Accessible in 45 minutes	Rider Impact Rating (4 Stars = Best)
1 (No Change)	0	0	\$0	365,625	
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4 (Line 34 Extension)	+1	6,040	+\$604,000	365,853	★ ★ ★ ★

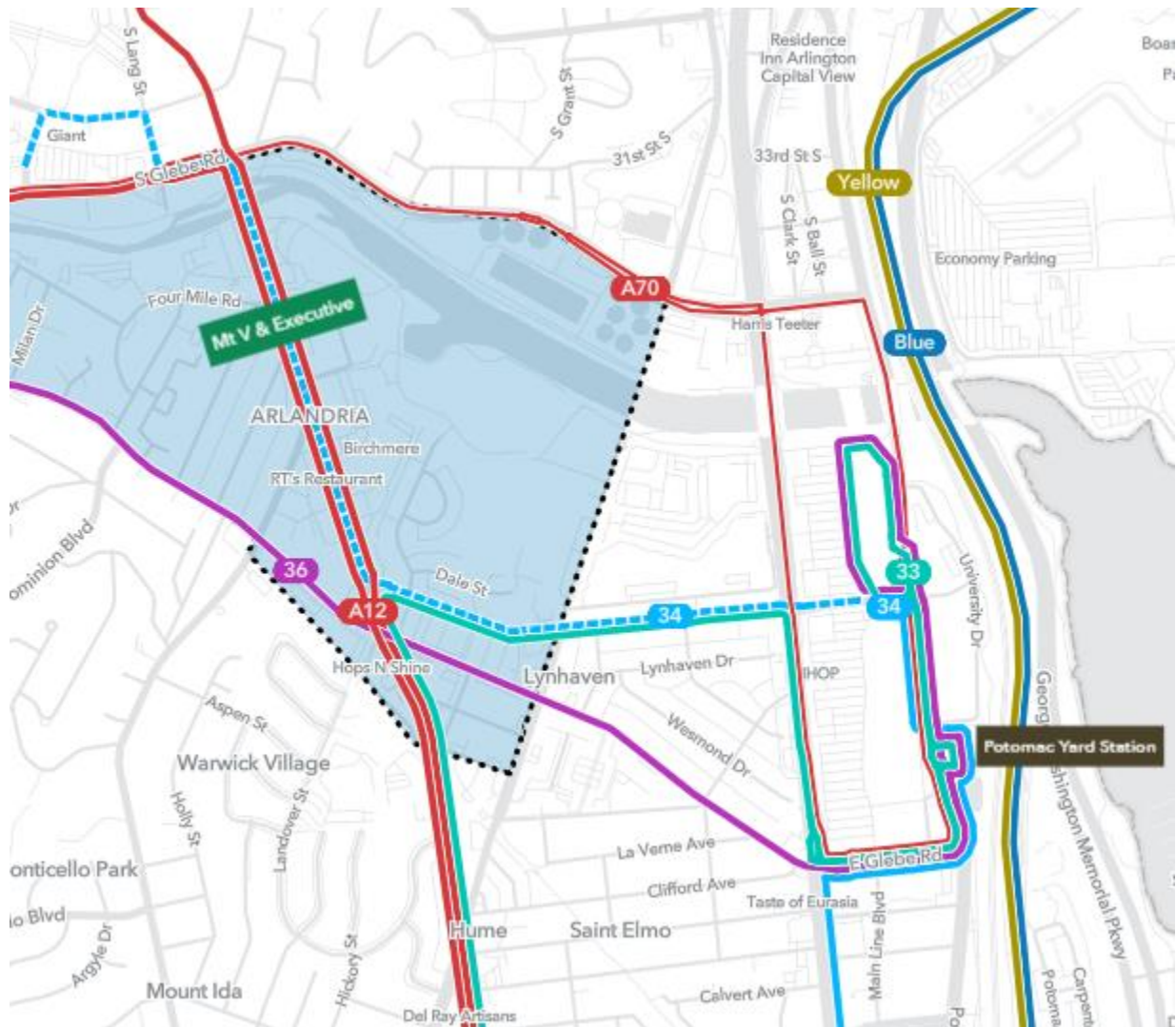
As mentioned previously, cost notwithstanding, Scenario 2 presents the most novel one-seat & frequent travel opportunities to the Arlandria area at a level of convenience unparalleled by any existing option today, but at a significant cost relative to the other scenarios. There is currently no one-seat, and sometimes not even a 2-seat, option for access to some points on the 36 like Alexandria Hospital and Bradlee Center. However, in addition to the significant cost and resource requirements, this option also has a negative time impact on a developing market of transit riders that have begun using the 36A/B since the opening of the Potomac Yard Metro Station. Also, such a deviation will negatively impact the time competitiveness of 36A/B versus driving, which is an important metric in the scoring of this service relative to other projects competing for I-395 Commuter Choice funding. Increased travel times from the West End to Potomac Yard Metro Station could jeopardize that funding, which supplements city funds to improve the frequency on these routes.

In Scenario 4, DASH staff proposes an addition to an existing route instead of a deviation from that route, so current passengers will not face any delay to their current trips. The downside of this scenario is that the travel patterns enabled by this addition would be largely redundant to existing Metrobus 10A/10B service which also runs from Arlandria to central Old Town, which could make it a less appealing use of limited public dollars. In spite of this, the scenario does still post modest improvements in access to employment opportunities, indicating some utility of the service beyond its free fare.

As with all of the scenarios involving service changes, DASH would require both capital for peak bus expansion, and operating support for the costs of operating the additional bus(es).

For Scenario 4, the net increase to operating costs are projected at \$604,000 in 2025 dollars. It is important to note that this request must compete with other longstanding requests that continue the buildout of the Alexandria Transit Vision Plan and could not be implemented prior to FY 2027 due to fiscal limitations, fleet constraints, intersection improvements at Richmond Highway and Reed Avenue and additional regional coordination needs.

Figure 5 - Scenario 4: Line 34 Bidirectional Extension to Arlandria (Staff Recommendation)



Appendix A | Service Access Evaluation

The compact nature of the Arlandria area causes calculations of network-level equity and access statistics to hide the scope of the potential service improvements under each scenario; therefore, the data tables provide statistics for the free network only (DASH routes only), whereas the travel time analysis attempts to show how many more residents can access jobs within the DC area considering each set of proposed changes.

The data tables indicate jobs and people that can access the service, whereas the maps illustrate how far those people can travel at noon on a weekday to jobs located throughout the region with each network scenario.

Within ¼ mile of existing free transit route network:

Travel Time

How far Jane can go via transit at 12:00 on a Weekday.

Jane's walking route follows the pedestrian network. Transit line wait times are based on frequency.

TRAVEL TIME	JOBS (WORK)
15 min	2,694
30 min	53,313
45 min	365,625
60 min	588,498

Figure 5 Commute Times via Existing Transit Options from Mt Vernon & Executive (Including new WMATA A70)

Scenario 2 Coverage – Line 33 deviation via Mount Vernon Ave/S Glebe Rd

Within ¼ mile of new transit route network with Line 33 change implemented (free routes only):

	Arlandria	Alexandria
Population	70,700	157,400
Transit Accessible Jobs	41,000	83,200
% People in Poverty	7%	8%
% Non-White or Hispanic/Latino origin	43%	50%

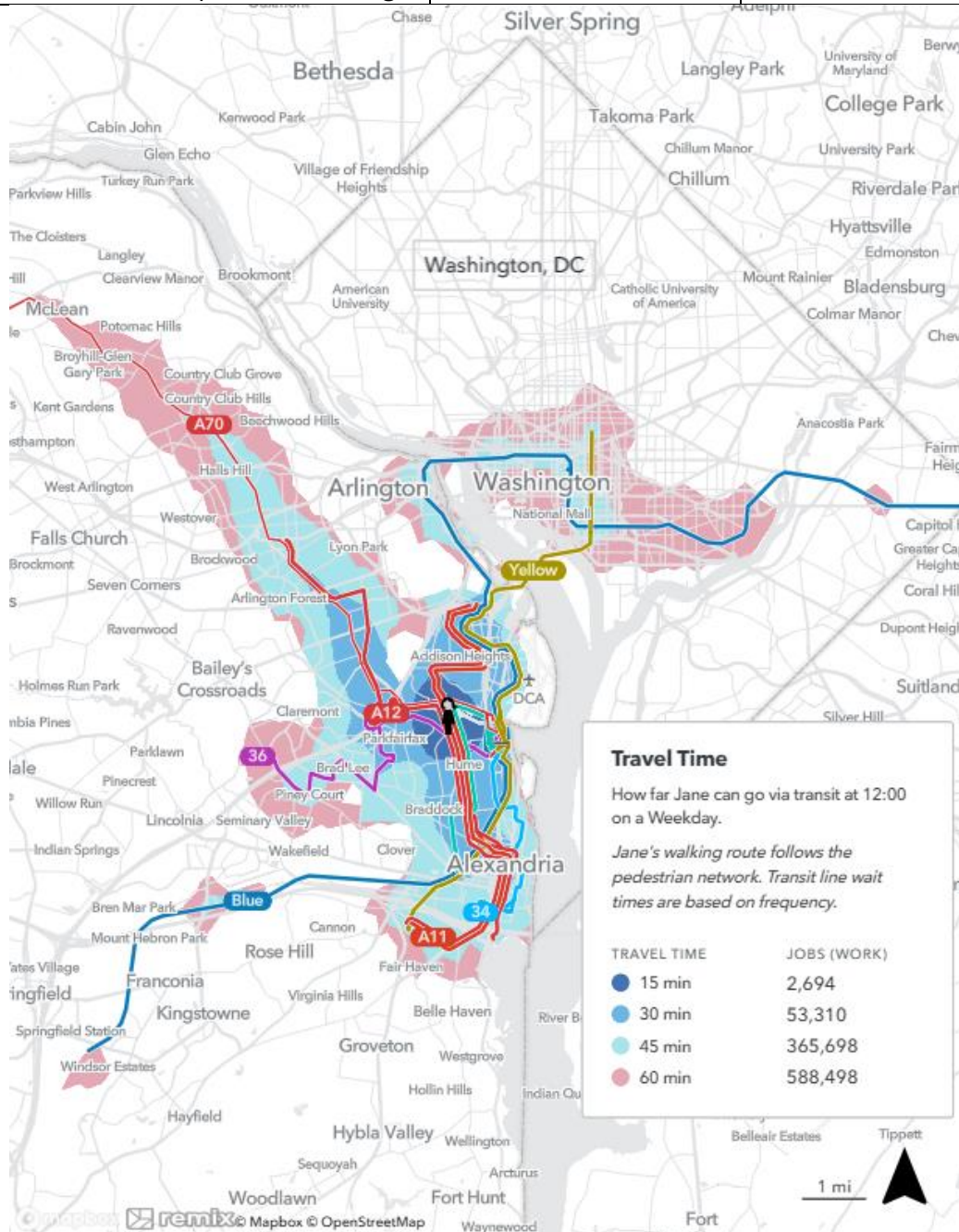


Figure 6 Jobs Access via Transit – Scenario 2

Within ¼ mile of new transit route network with Line 36 change implemented (free routes only):

	Arlandria	Alexandria
Population	68,600	157,400
Transit Accessible Jobs	39,400	83,200
% People in Poverty	7%	8%
% Non-White or Hispanic/Latino origin	43%	50%

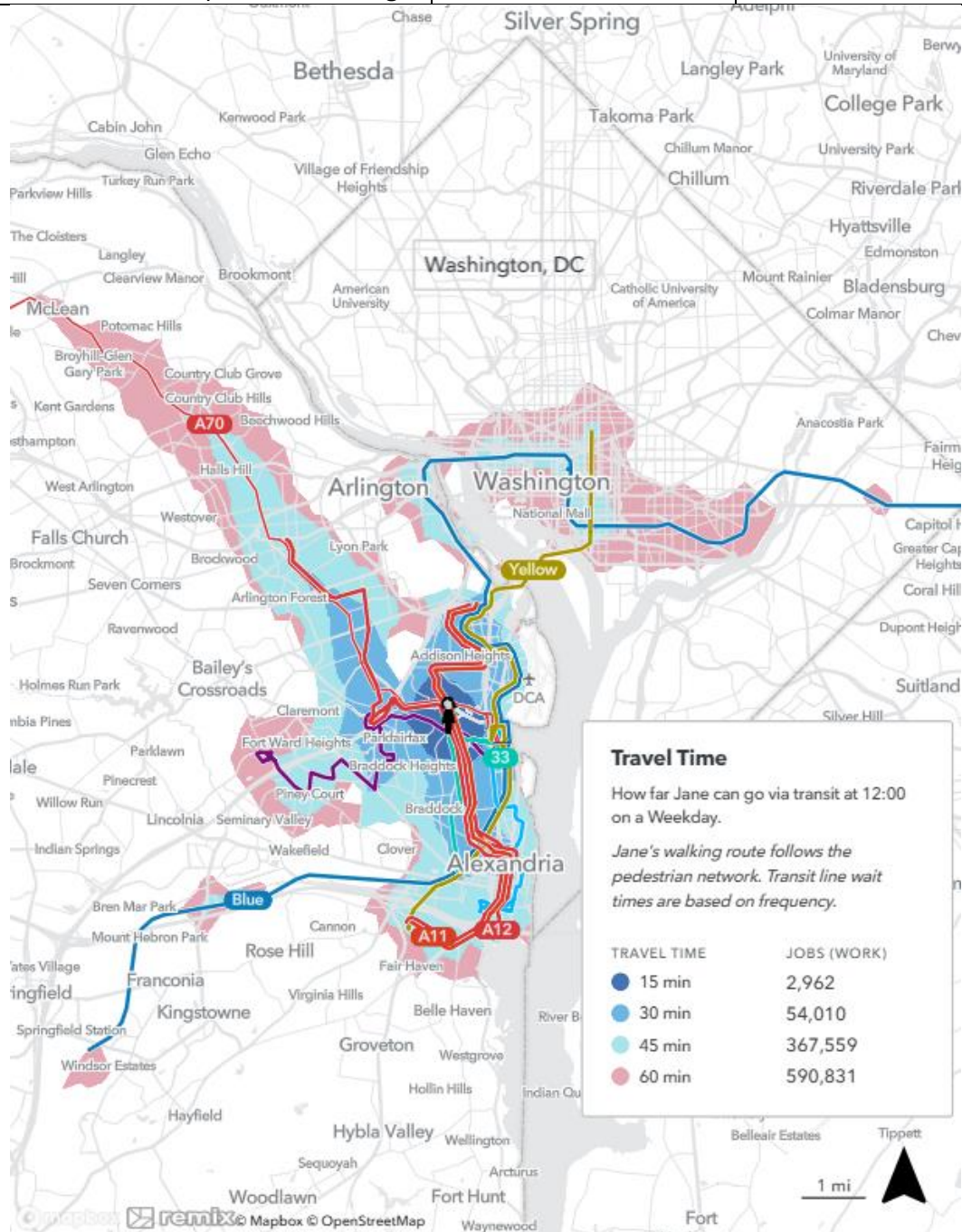


Figure 7 Jobs Access via Transit - Scenario 3

Scenario 4 Coverage – Line 34 Extension to Arlandria

	Arlandria	Alexandria
Population	70,200	157,400
Transit Accessible Jobs	40,900	83,200
% People in Poverty	7%	8%
% Non-White or Hispanic/Latino origin	43%	50%

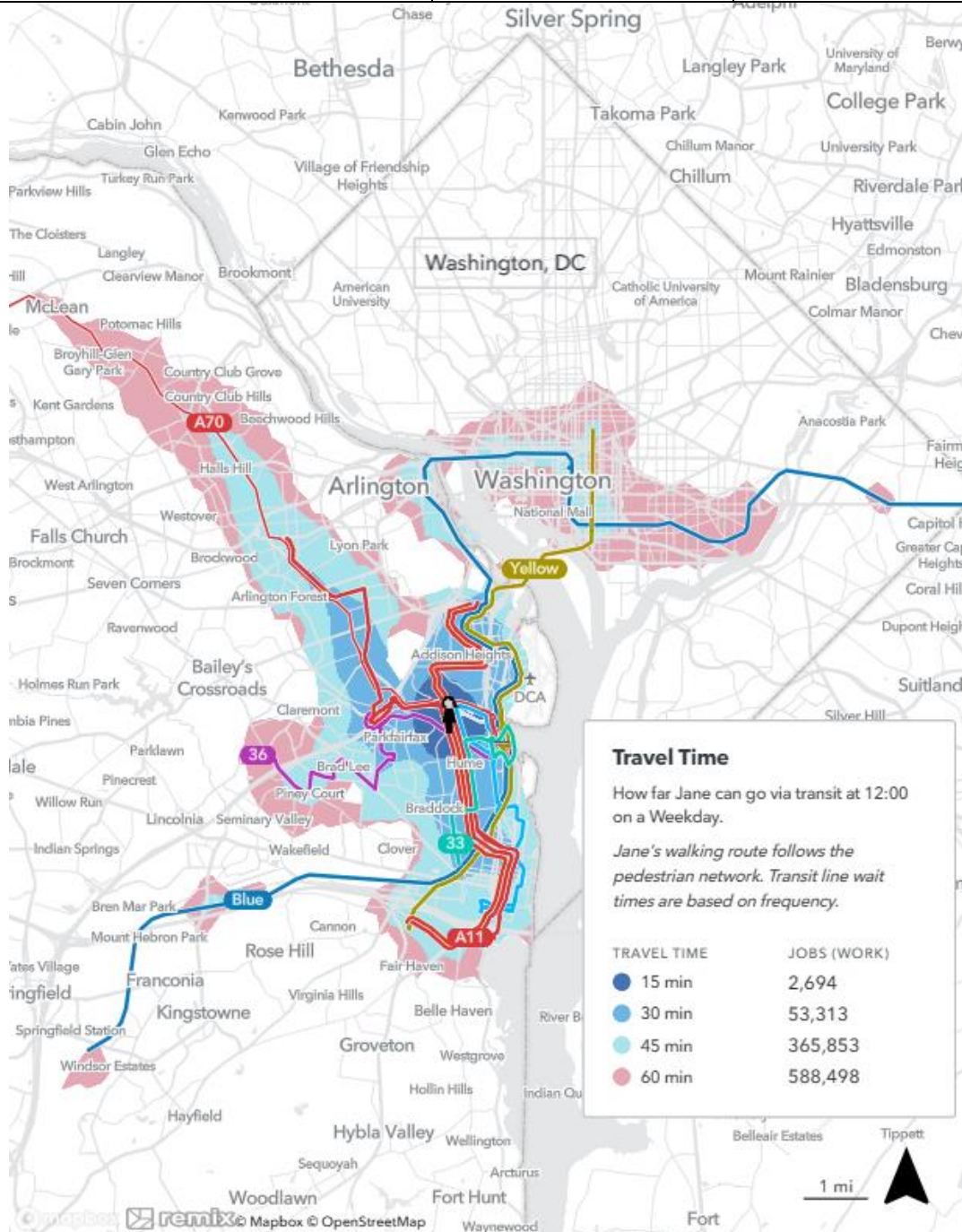


Figure 8 Jobs Access via Transit - Scenario 4