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MEMORANDUM

BICYCLE AND PEDESTRIAN ACCESS TO KEY DESTINATIONS

Purpose of Analysis

The goal of this analysis was to identify bicycle and pedestrian facility gaps within travel sheds of key destinations in Prince William County including, schools, parks, libraries, and medical facilities. This analysis is intended to complement the county-wide Bicycle/Pedestrian Facility Gap Analysis (Fall 2024) and the Comprehensive Traffic Safety Action Plan (Spring 2025), providing further insight into active transportation facility improvement opportunities for the County. This analysis is also intended to support the pursuit of strategic goals outlined in the FY2025-2028 Strategic Plan, aiming to enhance walkability and bikeability around public amenities and parks. The pursuit of this analysis is also the result of input from community members and advocates from Greater Prince William Trails.

Data Discovery

A summary table of the data used throughout this analysis is shown below in **Table 1**:

Table 1: Bicycle/pedestrian access analysis data summary table

Data Item	Source Agency	Source Link	Last Updated
School Points	PWC	Schools | GIS Data Portal for Prince William County, Virginia	2025
Library Points	PWC	Library | GIS Data Portal for Prince William County, Virginia	2025
Park Access Points	PWC		2025
Medical Facility Points	PWC	Emergency Medical Facility | GIS Data Portal for Prince William County, Virginia	2025
Bicycle Facility Gaps	PWC		2024
Pedestrian Facility Gaps	PWC		2024
Pedestrian Facilities	PWC	Pedestrian Access | GIS Data Portal for Prince William County, Virginia	2025
Roadway Network	PWC	Roads | GIS Data Portal for Prince William County, Virginia	2025

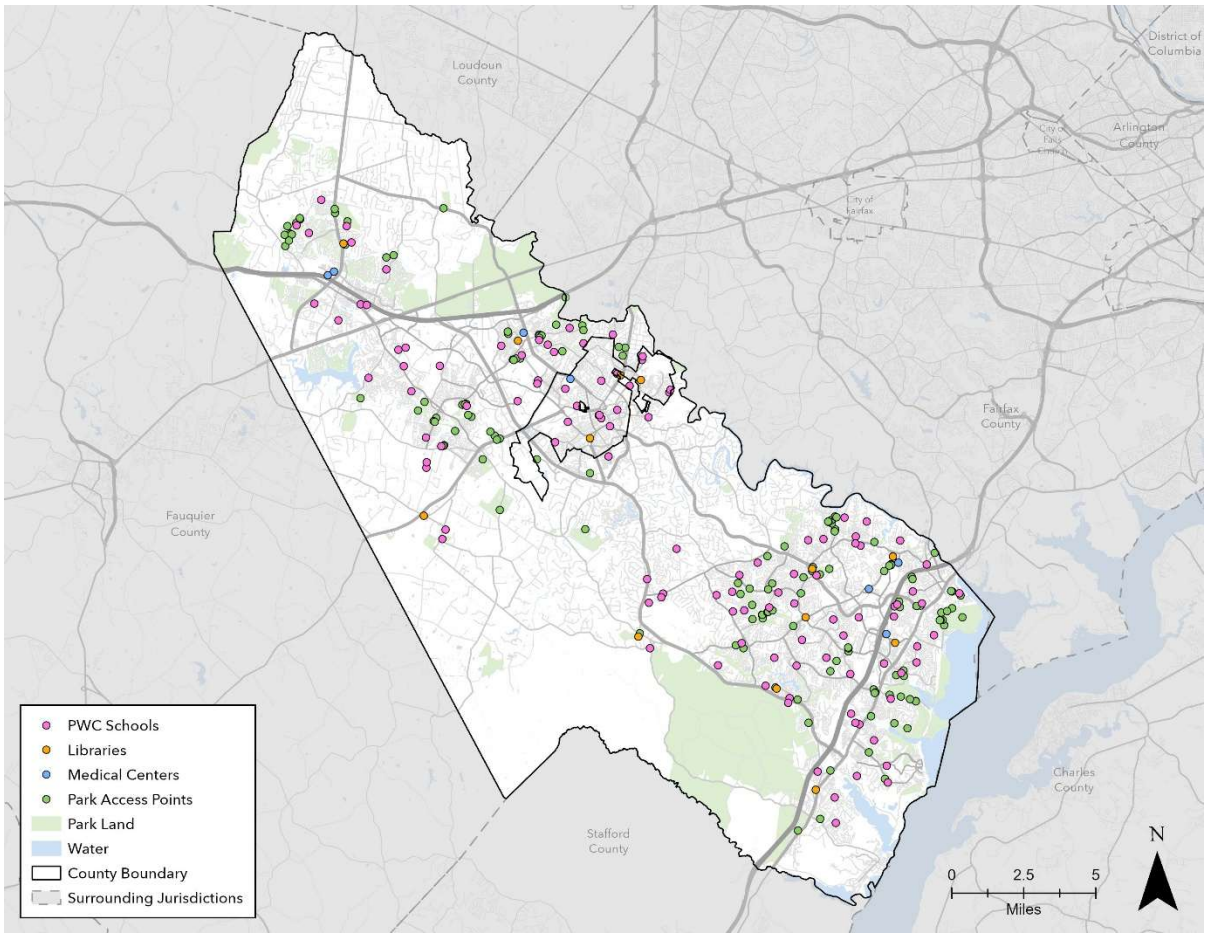
This analysis focused on the following key destinations:

- Schools: Elementary schools, middle schools, high schools, alternative schools, and learning centers (not including private day schools or preschools)
- Libraries: Full service and neighborhood libraries (not including drop boxes)
- Park Access Points: Bicycle/Pedestrian access points to parks (developed by Prince William County Department of Parks and Recreation)

- Medical Facilities: Hospitals, emergency rooms, and Kaiser Permanente locations

Figure 1 below shows a map of the key destinations listed above that were used in the analysis.

Figure 1: Key destinations included in analysis



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Methodology

The first step in the analysis was to develop travel shed isochrones around each of the destination points based on the overall connectedness of the surrounding facilities. To achieve this, a travel shed model was run using Open Street Map data to create polygons representing areas where users could reach each destination within the following parameters:

For Libraries, Parks, and Medical Facilities:

- Travel time: 10 minutes
- Travel speed: 3 mph
- Travel distance: ~0.5 miles

For Schools:

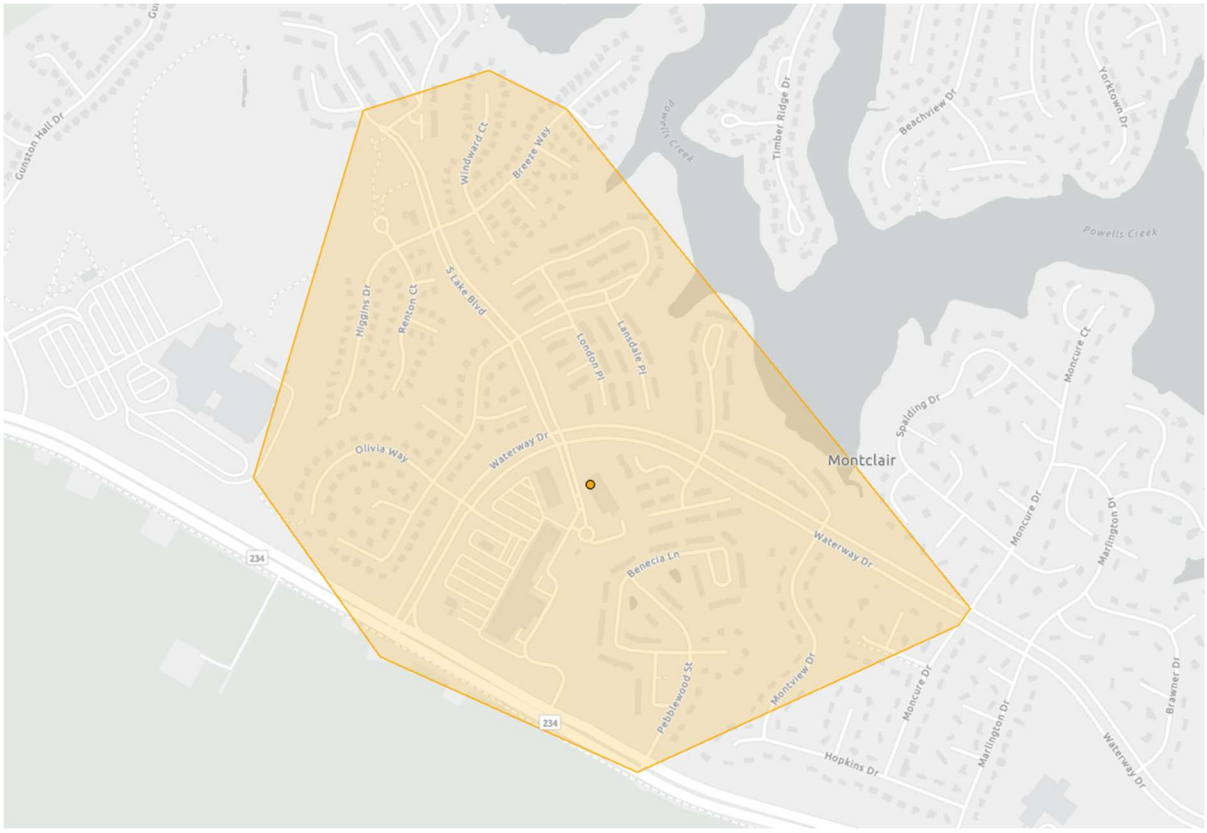
- Travel time: 15 minutes
- Travel speed: 2 mph
- Travel distance: ~0.5 miles

The parameters were chosen in the effort to create a uniform travel shed that is representative of varying speeds and comfort levels of all user types. The parameters for schools are different to accommodate a slower speed while maintaining the estimated travel distance of ~0.5 miles, which is generally the area around a school where bus service is not provided.

The travel sheds were created with the assumption that bicyclists/pedestrians could comfortably use any road in the network, even those without bicycle/pedestrian facilities. By making this assumption, the analysis was able to highlight roads in the network that may not currently be accessible for bicyclists/pedestrians but could be used to reach destinations if facilities were added.

Figure 2 below shows an example of one of the resulting travel shed isochrones (Montclair Library). It is important to note that the Open Street Map data used is not perfect and some inaccuracies existing within the underlying network surrounding some destinations. However, this method provides a more accurate and realistic travel shed for the key destinations than a simple “as the crow flies” buffer would.

Figure 2: Montclair Library travel shed



The next step in the analysis was to overlay identified gaps in existing bicycle and pedestrian facilities with the travel sheds of each destination. The following details the pedestrian and bicycle network gaps data used as the foundation for this portion of the analysis:

Pedestrian Facility Gaps:

- For local roads, gaps include segments that do not have pedestrian access within a 100-foot buffer of the centerline
    - Used the County's Pedestrian Access layer including all sidewalks and shared-use paths
- For functional classes above local roads, results from the Fall 2024 Bicycle/Pedestrian Gap Analysis were used, including segments with partial or no sidewalk or shared-use path identified with a detailed visual analysis

Bicycle Facility Gaps:

- Results from the Fall 2024 Bicycle/Pedestrian Gap Analysis were used, including segments with partial or no shared-use path
- Bicycle gaps on local roads were not assessed, as it is assumed that users could bike relatively comfortably on most local roads

In the Cities of Manassas and Manassas Park, only gaps along functional classes above local roads were considered for both bicycle and pedestrian facilities.

Figure 3 and

Figure 4 below show the identified pedestrian and bicycle gaps across the County.

Figure 3: Full County partial or no pedestrian facilities

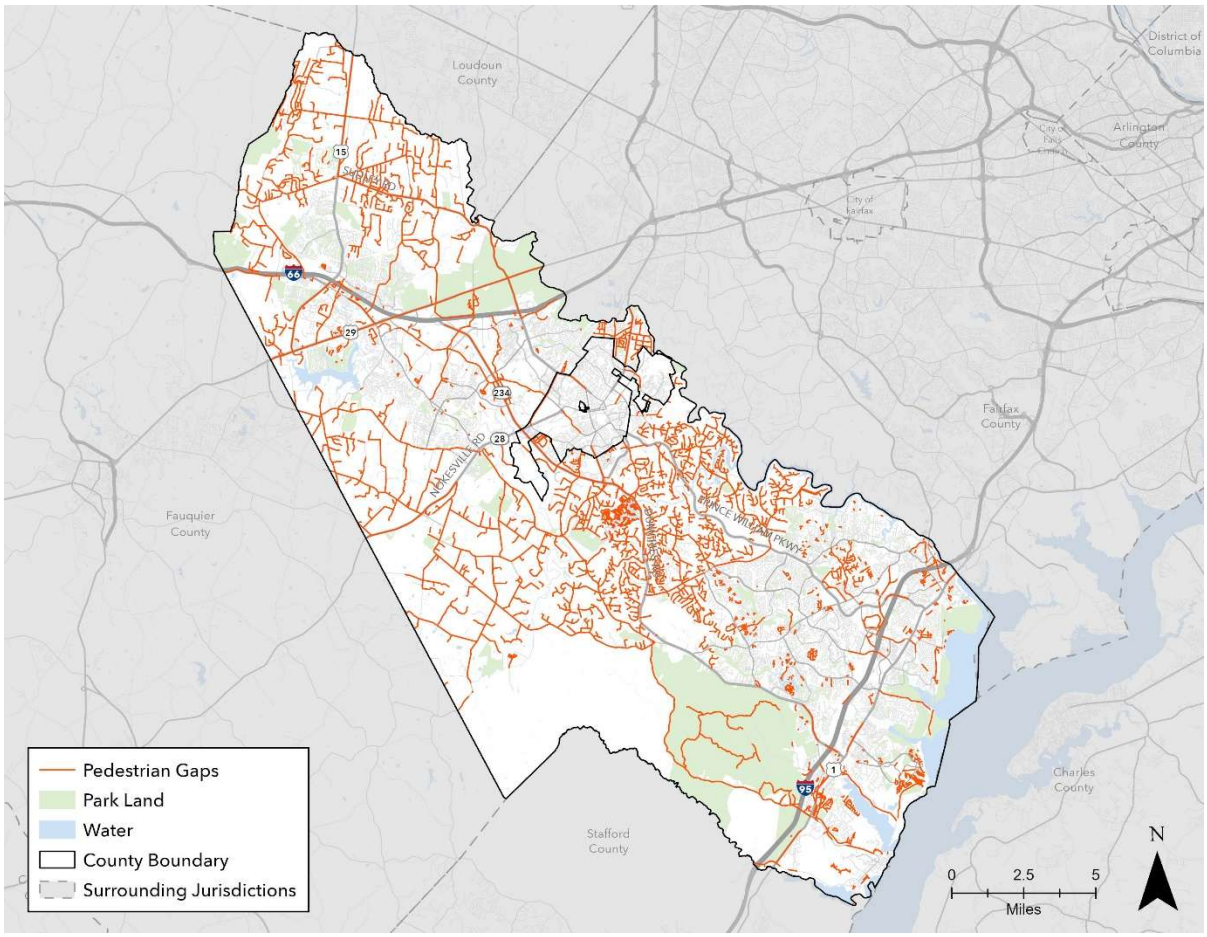
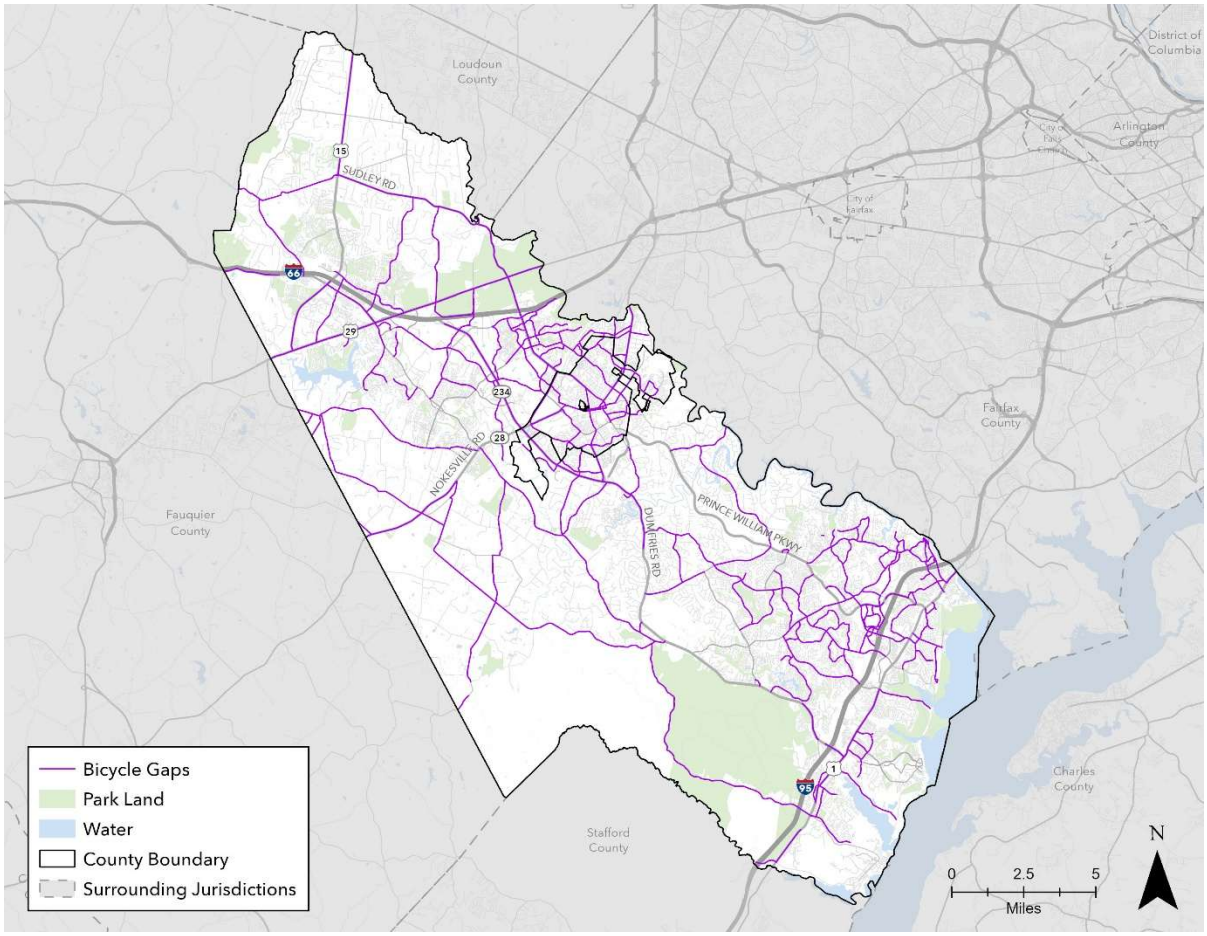


Figure 4: Full County partial or no bicycle facilities



Once the travel shed isochrones and bicycle and pedestrian gap layers were prepared, the gaps were overlayed with the travel sheds of each destination type. To do this, the project team completed the following steps:

1. Used the Select by Location tool to highlight all pedestrian and bicycle gaps that intersect with travel sheds of each destination
2. Exported these highlighted gaps to new layers of only gaps that intersect with travel sheds
3. Created ¼ mile buffers around each travel shed isochrone. Then clipped the intersecting gaps layer to this buffer. The buffer was used to allow the gap segments to extend slightly outside of the travel sheds. This also allowed the analysis to reveal gaps that extend across multiple destination travel sheds.

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Results

The results of the analysis included clipped layers of both pedestrian and bicycle network gaps that exist within travel sheds of the identified destinations. These resulting gaps include segments with no existing facilities or those with only partial existing facilities. Table 2 below details total miles of identified gaps existing within travel sheds of each destination.

Destination	Pedestrian Gaps	Bicycle Gaps
Parks	43 miles	48 miles
Schools	28 miles	48 miles
Libraries	9 miles	14 miles
Medical Centers	2 miles	7 miles

The following series of maps shows the results of the analysis for each destination type, visualizing the travel sheds as well as the pedestrian and bicycle gaps identified within those travel sheds.

Park Access:

- **Figure 5: Park Access Results - Brentsville Magisterial District**
- **Figure 6: Park Access Results - Coles Magisterial District**
- **Figure 7: Park Access Results - Gainesville Magisterial District**
- **Figure 8: Park Access Results - Neabsco Magisterial District**
- **Figure 9: Park Access Results - Occoquan Magisterial District**
- **Figure 10: Park Access Results - Potomac Magisterial District**
- **Figure 11: Park Access Results - Woodbridge Magisterial District**

School Access:

- **Figure 12: School Access Results - Brentsville Magisterial District**
- **Figure 13: School Access Results - Coles Magisterial District, Cities of Manassas & Manassas Park**
- **Figure 14: School Access Results - Gainesville Magisterial District**
- **Figure 15: School Access Results - Neabsco Magisterial District**
- **Figure 16: School Access Results - Occoquan Magisterial District**
- **Figure 17: School Access Results - Potomac Magisterial District**
- **Figure 18: School Access Results - Woodbridge Magisterial District**

Library Access:

- **Figure 19: Library Access Results - Area 1**
- **Figure 20: Library Access Results - Area 2**

Medical Center Access:

- **Figure 21: Medical Center Access Results - Area 1**
- **Figure 22: Medical Center Access Results - Area 2**

Figure 5: Park Access Results - Brentsville Magisterial District

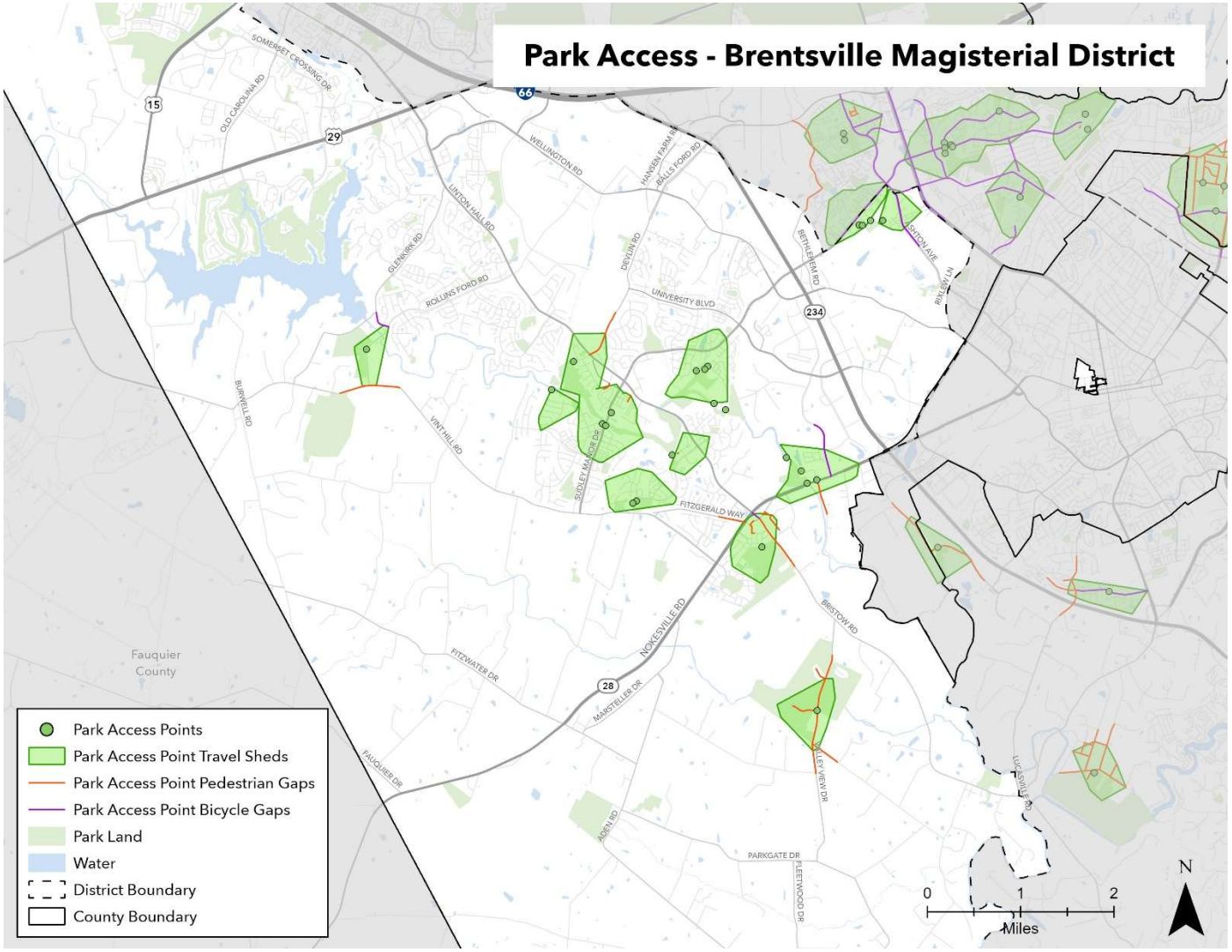


Figure 6: Park Access Results - Coles Magisterial District

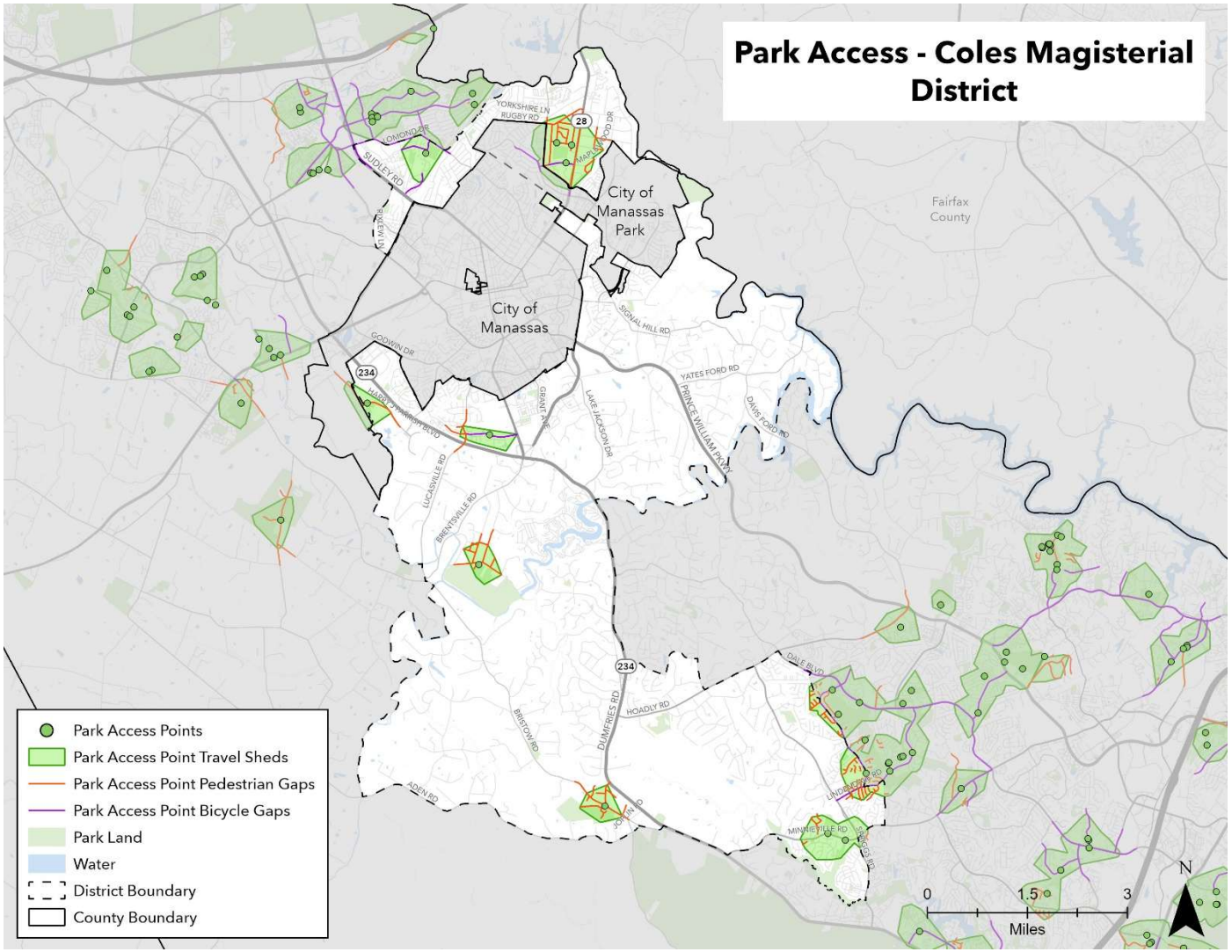


Figure 7: Park Access Results - Gainesville Magisterial District

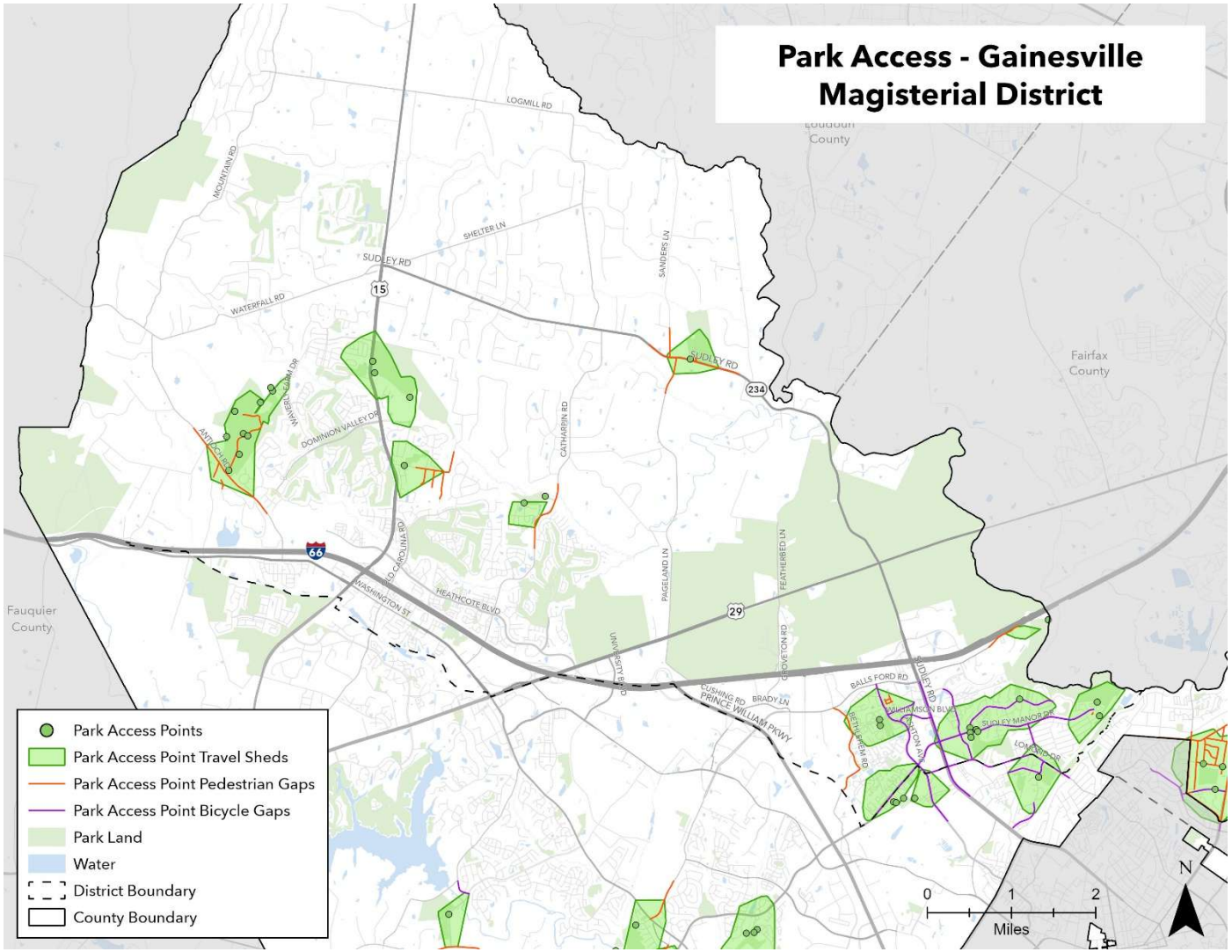


Figure 8: Park Access Results - Neabsco Magisterial District

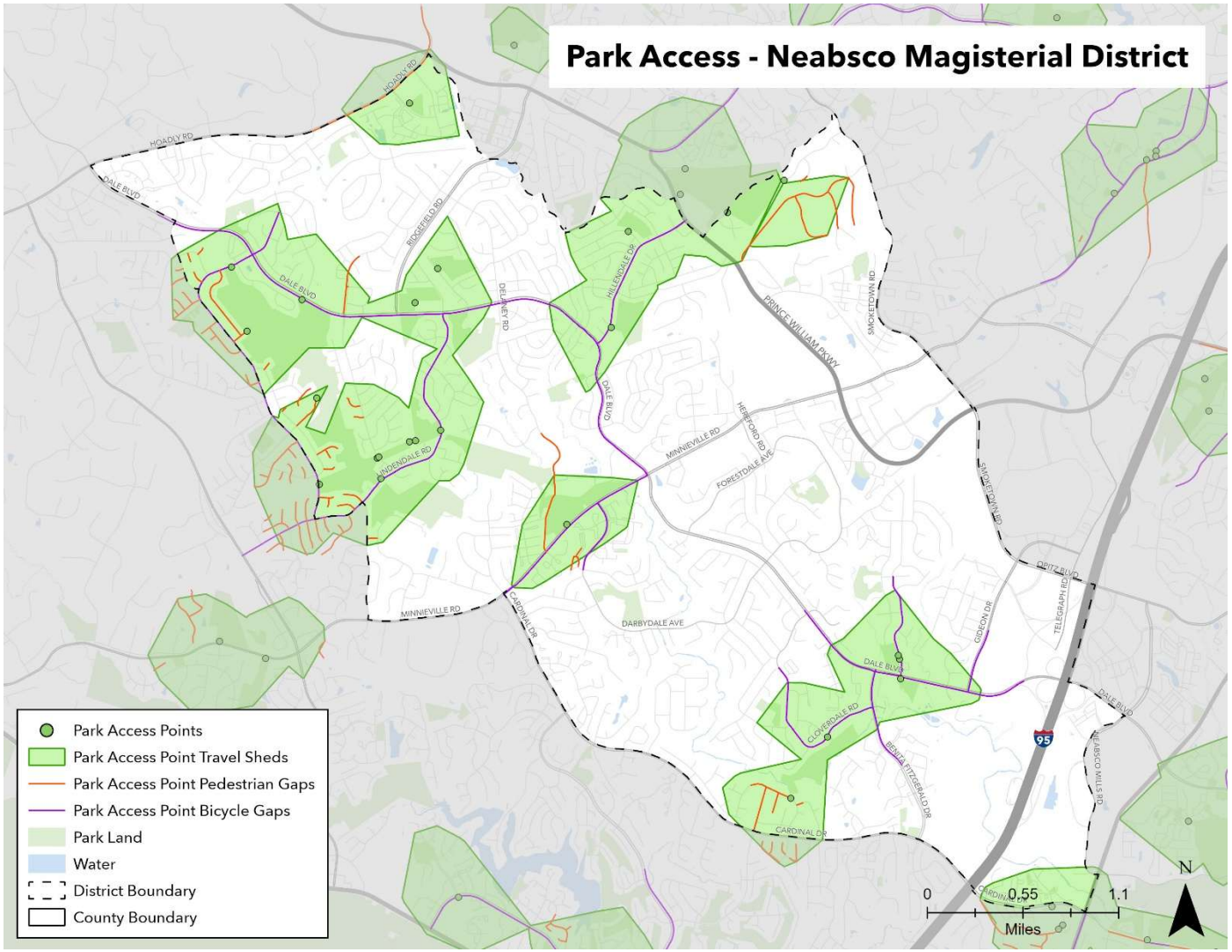


Figure 9: Park Access Results - Occoquan Magisterial District

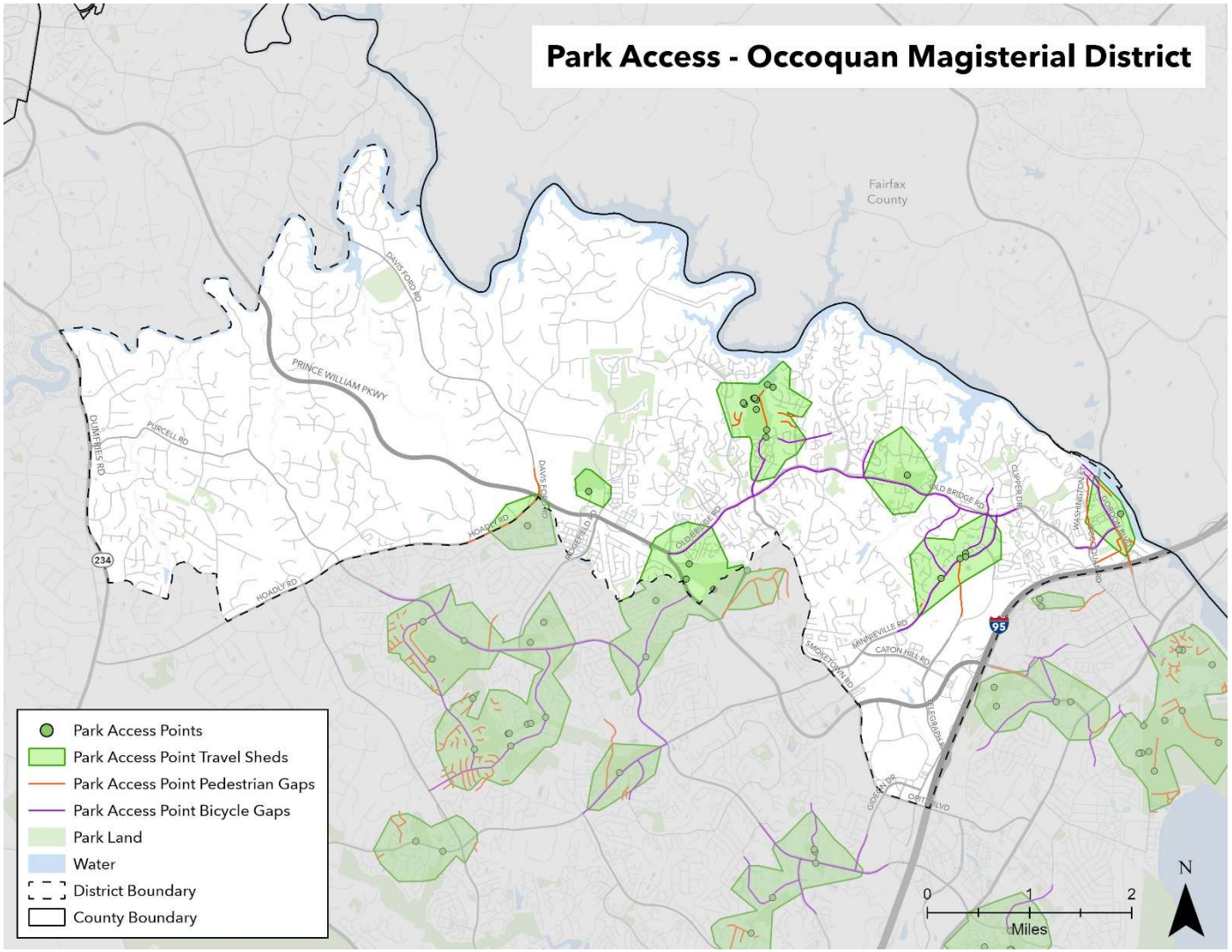


Figure 10: Park Access Results - Potomac Magisterial District

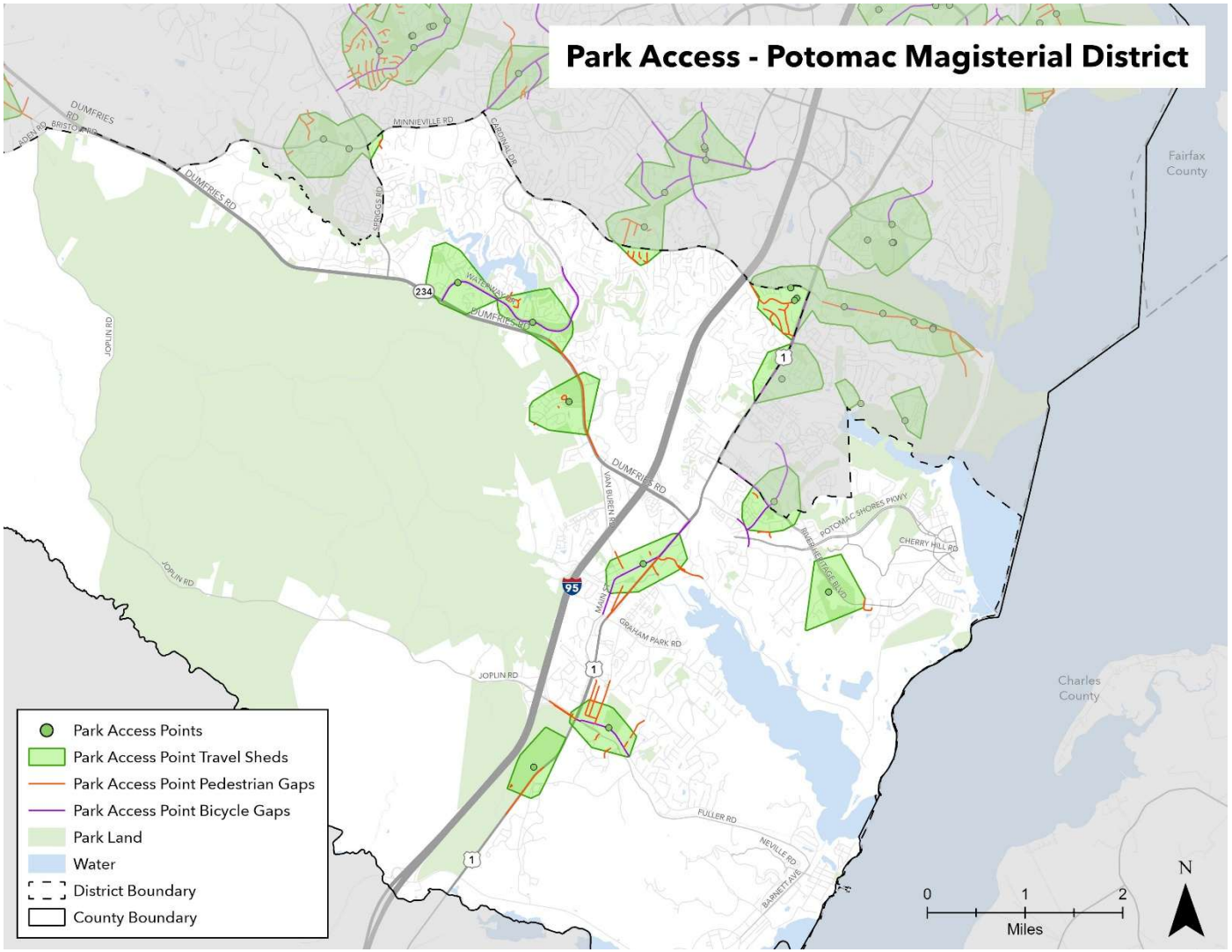


Figure 11: Park Access Results - Woodbridge Magisterial District

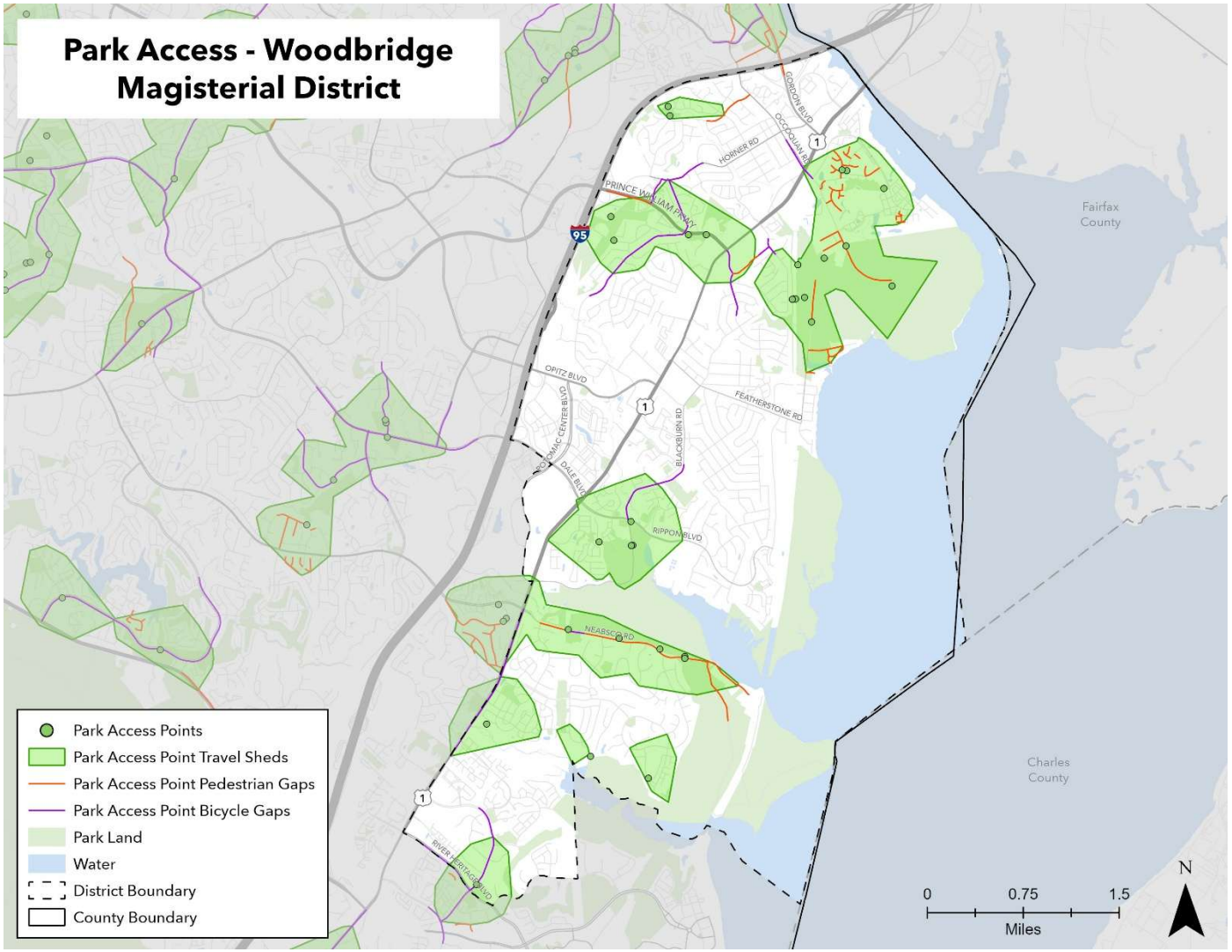


Figure 12: School Access Results - Brentsville Magisterial District

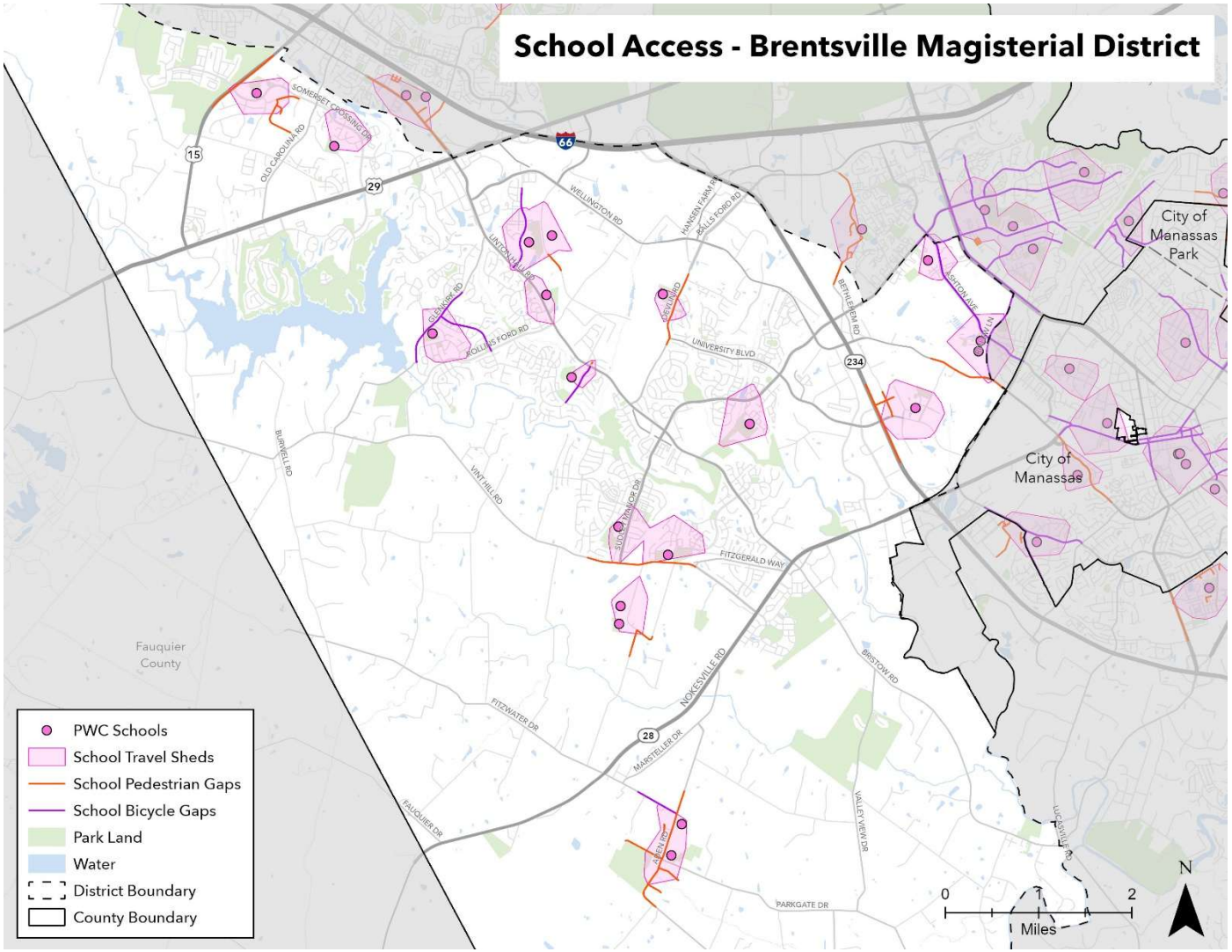


Figure 13: School Access Results - Coles Magisterial District, Cities of Manassas & Manassas Park

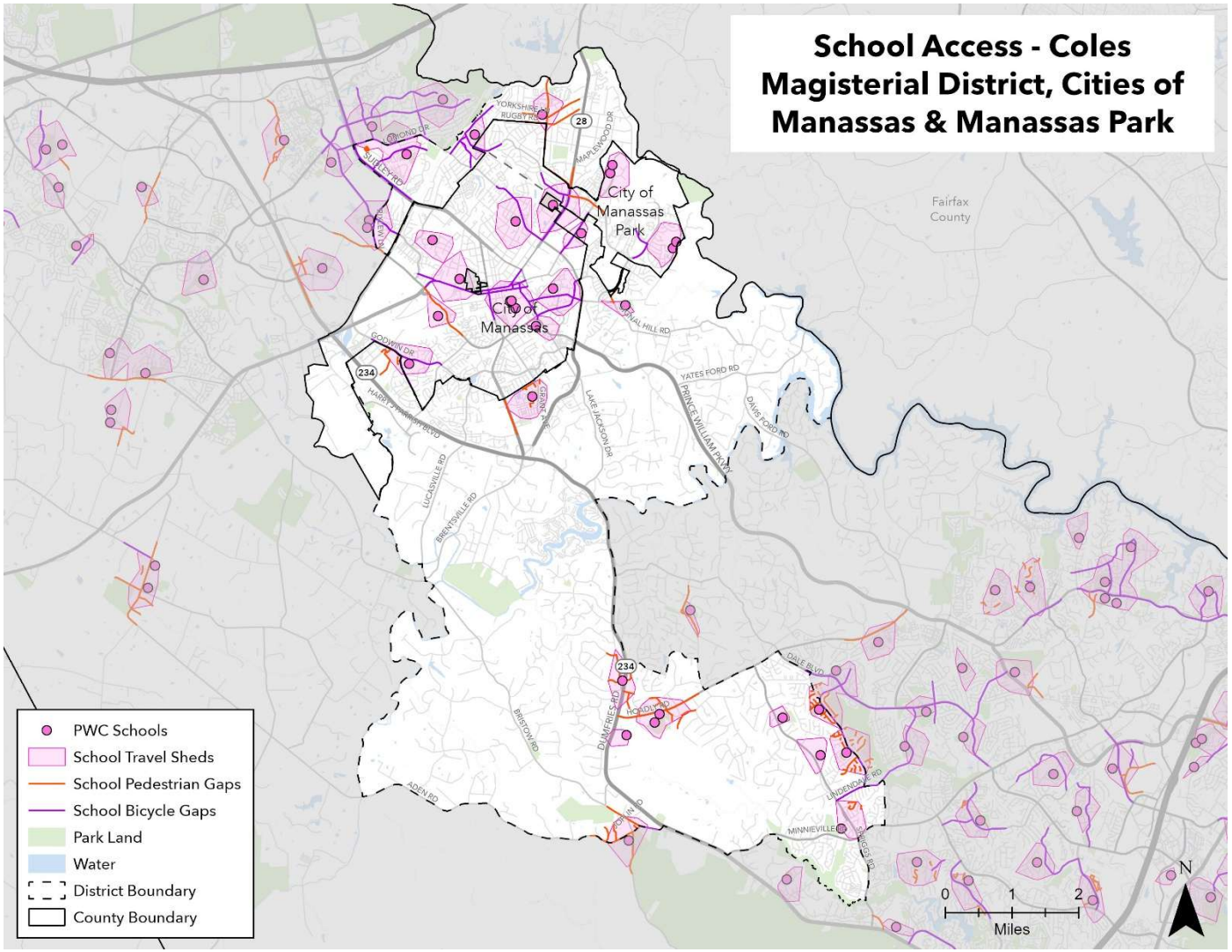


Figure 14: School Access Results - Gainesville Magisterial District

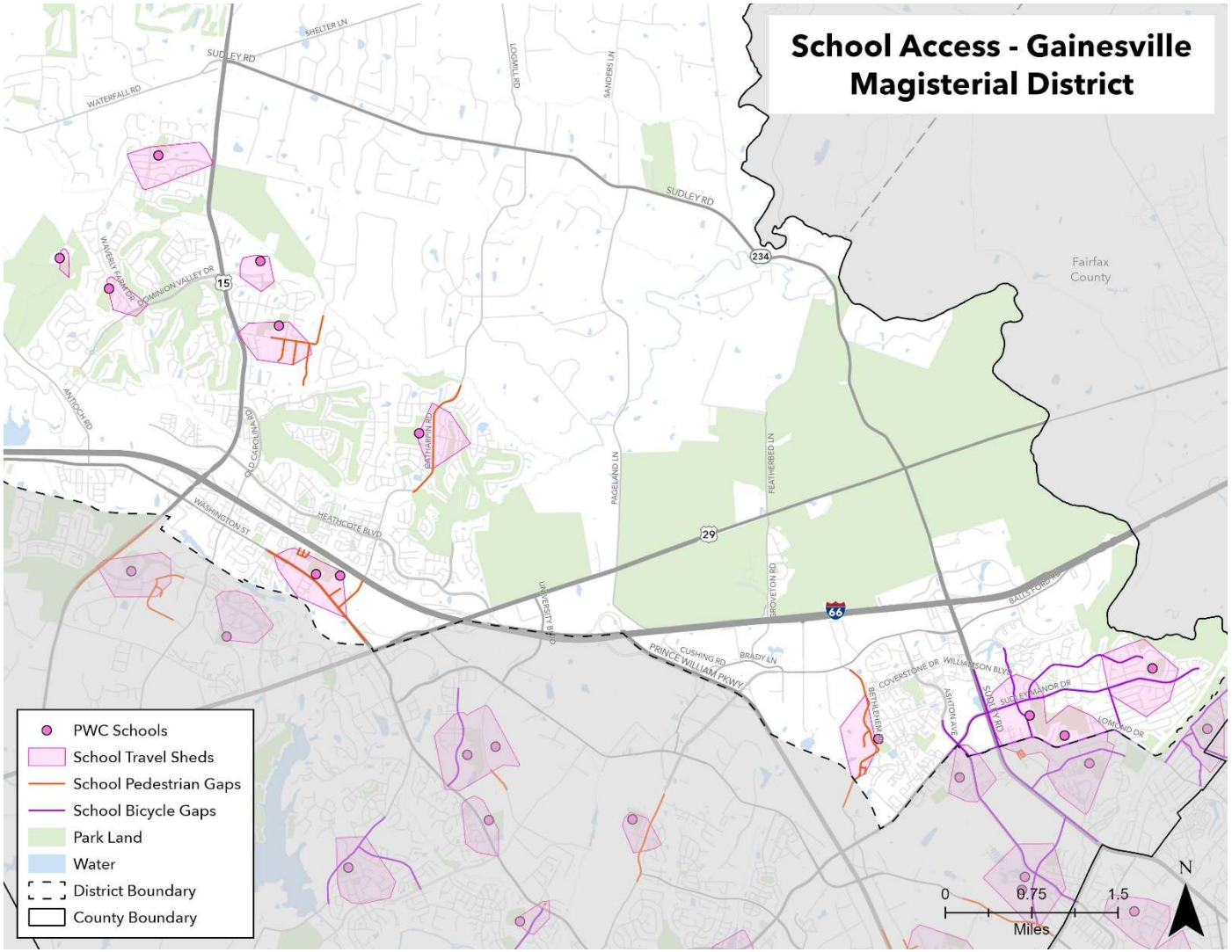


Figure 15: School Access Results - Neabsco Magisterial District

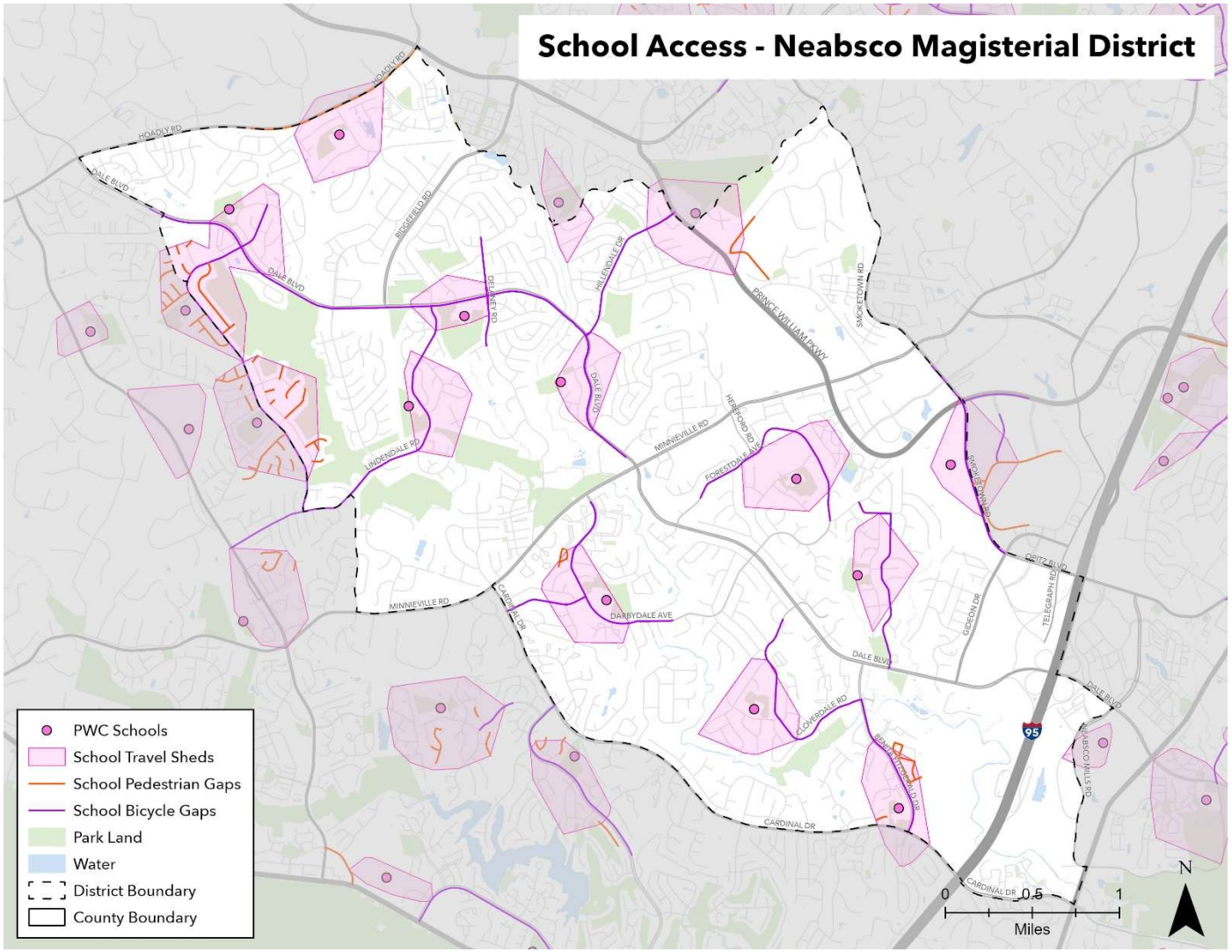


Figure 16: School Access Results - Occoquan Magisterial District

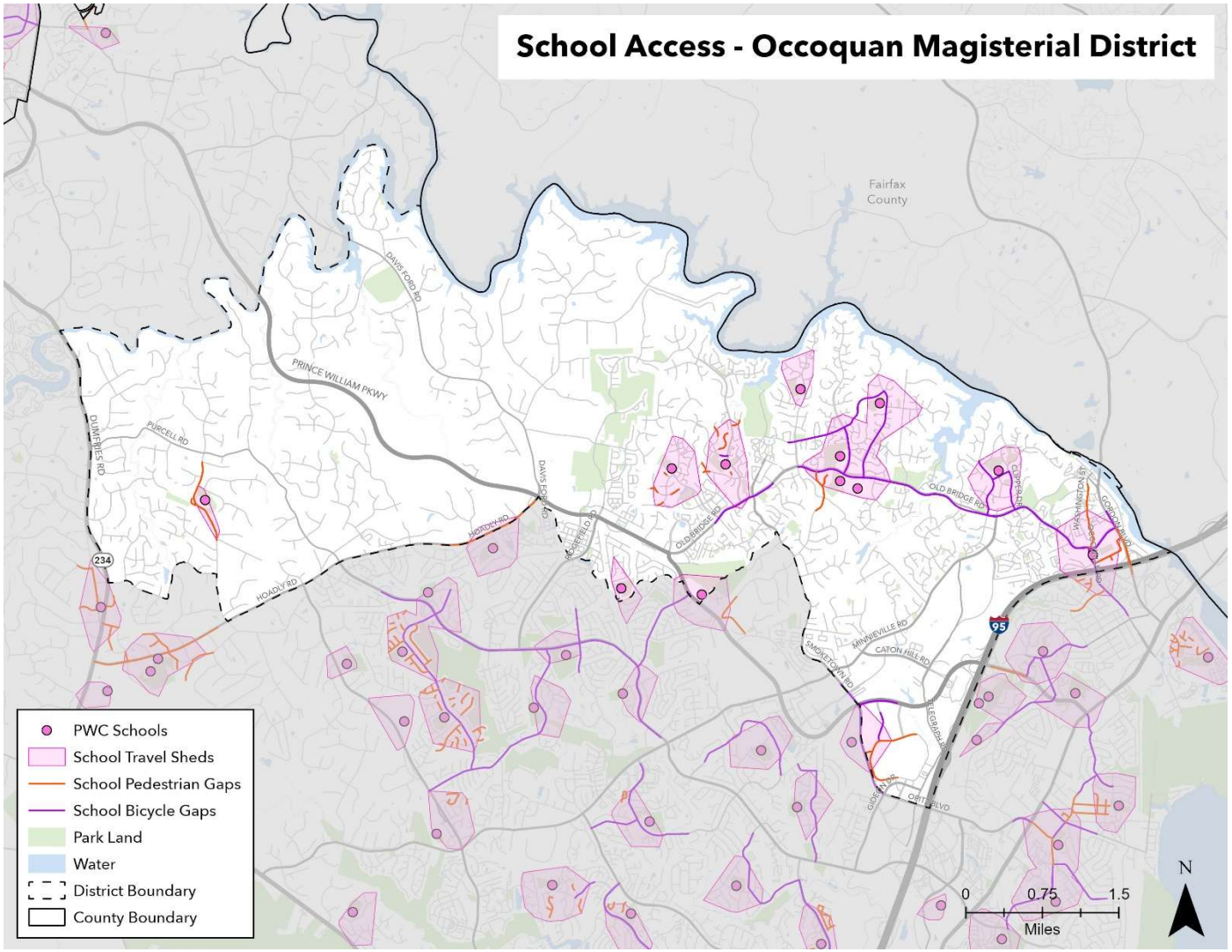


Figure 17: School Access Results - Potomac Magisterial District

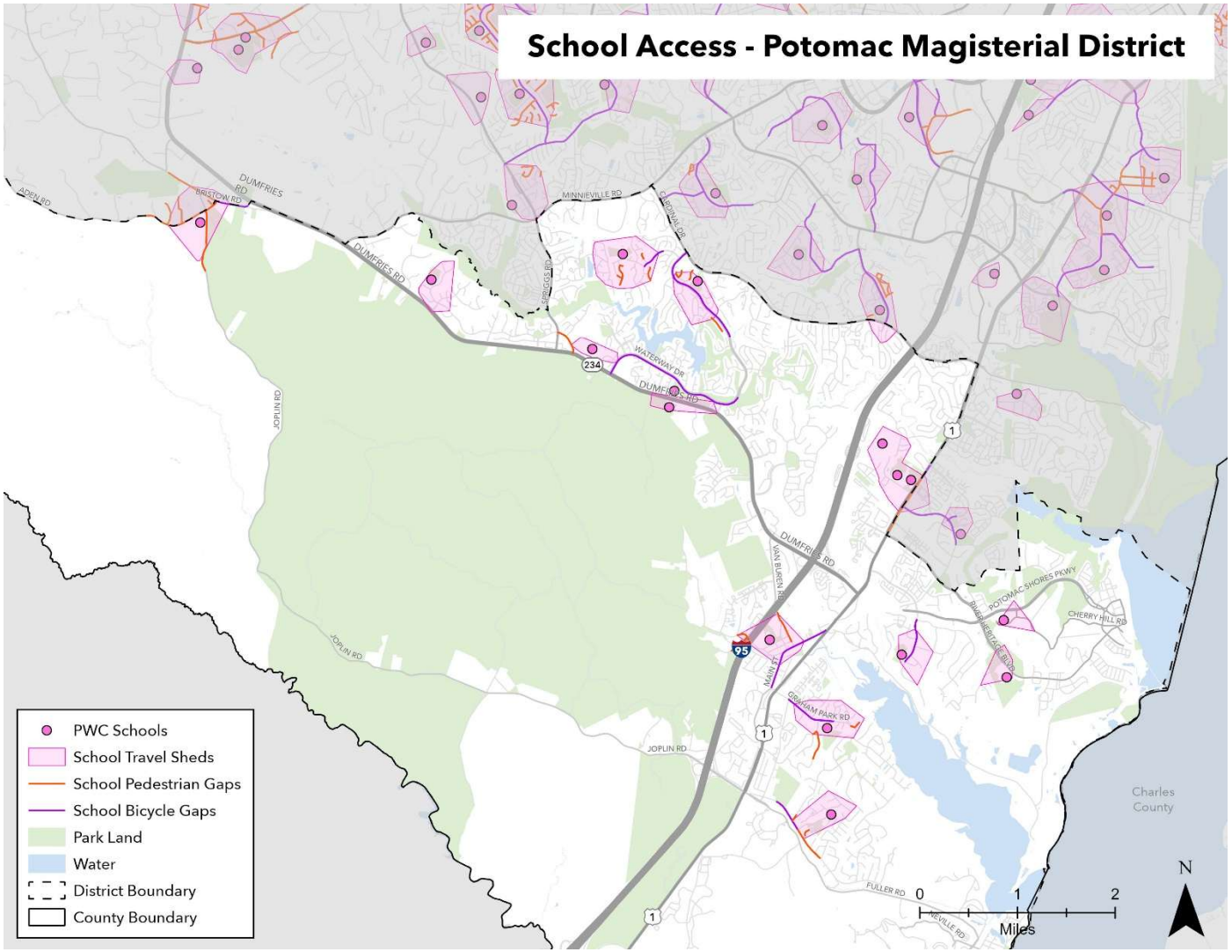


Figure 18: School Access Results - Woodbridge Magisterial District

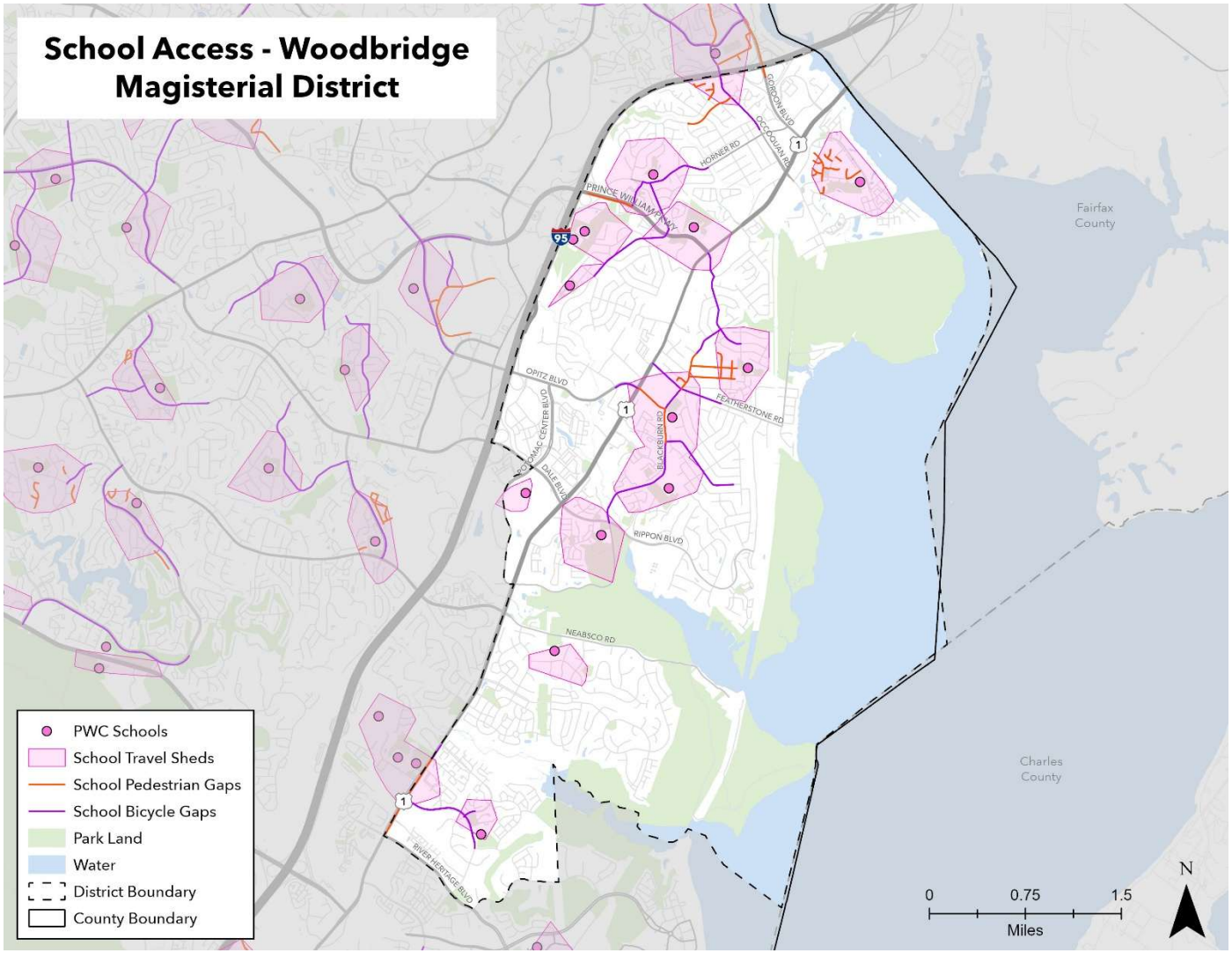


Figure 19: Library Access Results - Area 1

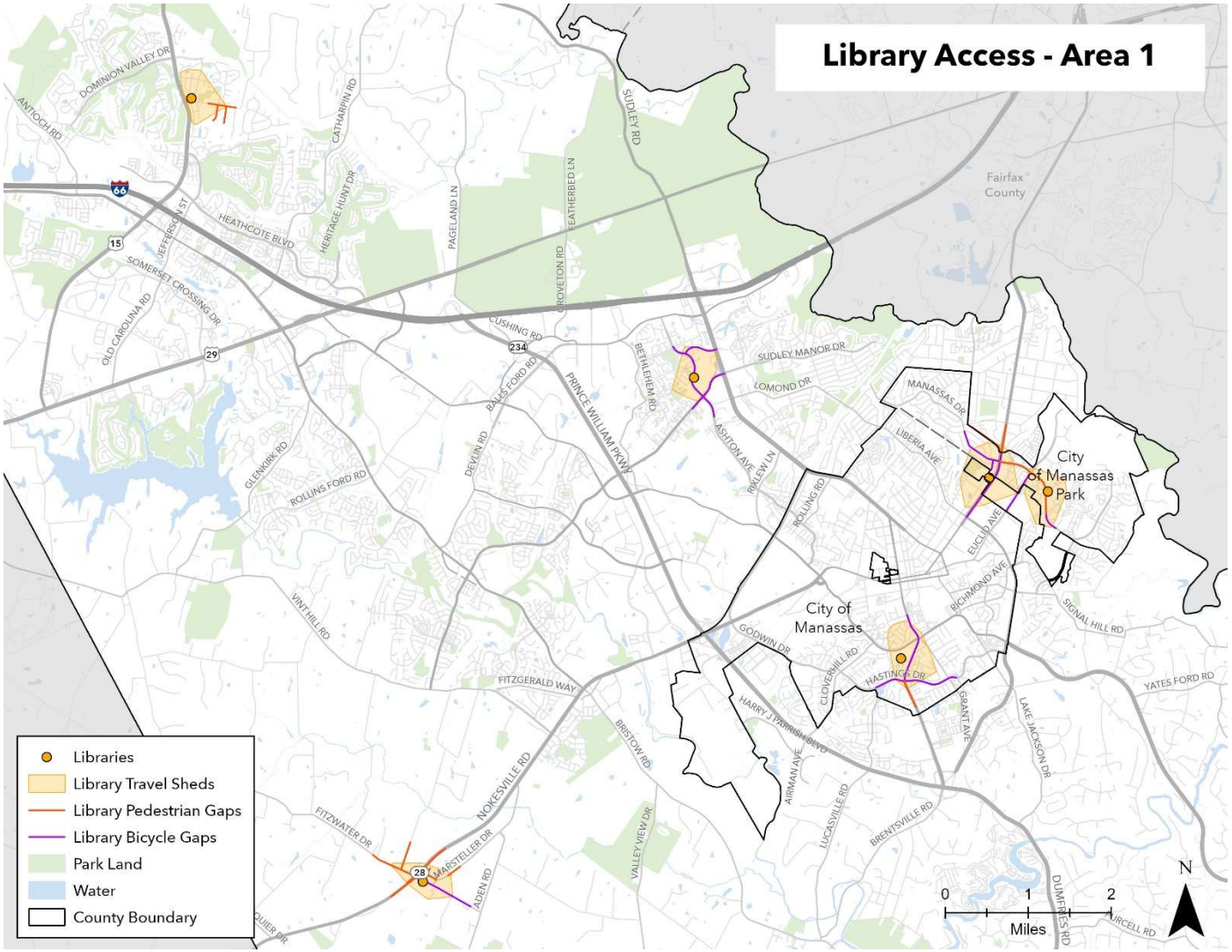


Figure 20: Library Access Results - Area 2

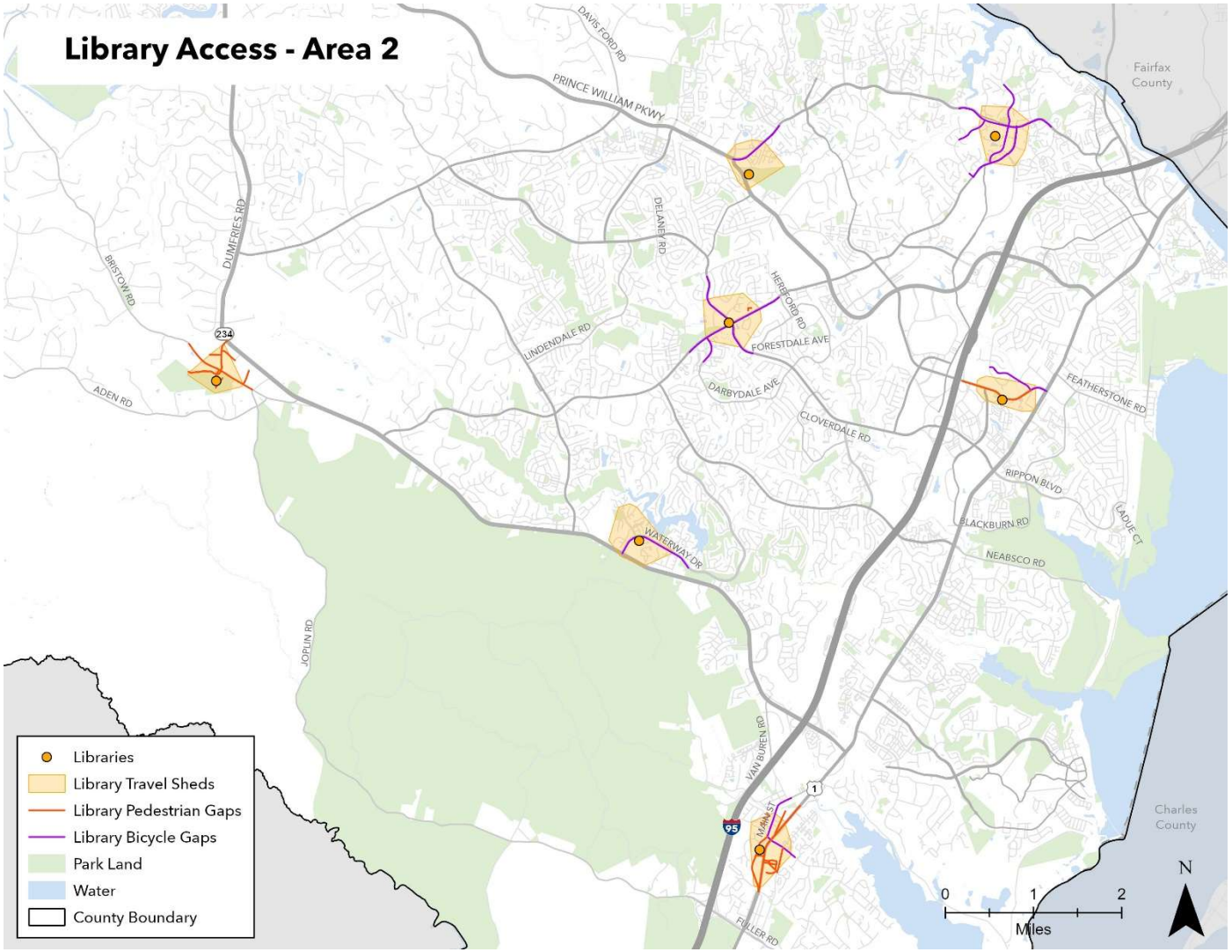


Figure 21: Medical Center Access Results - Area 1

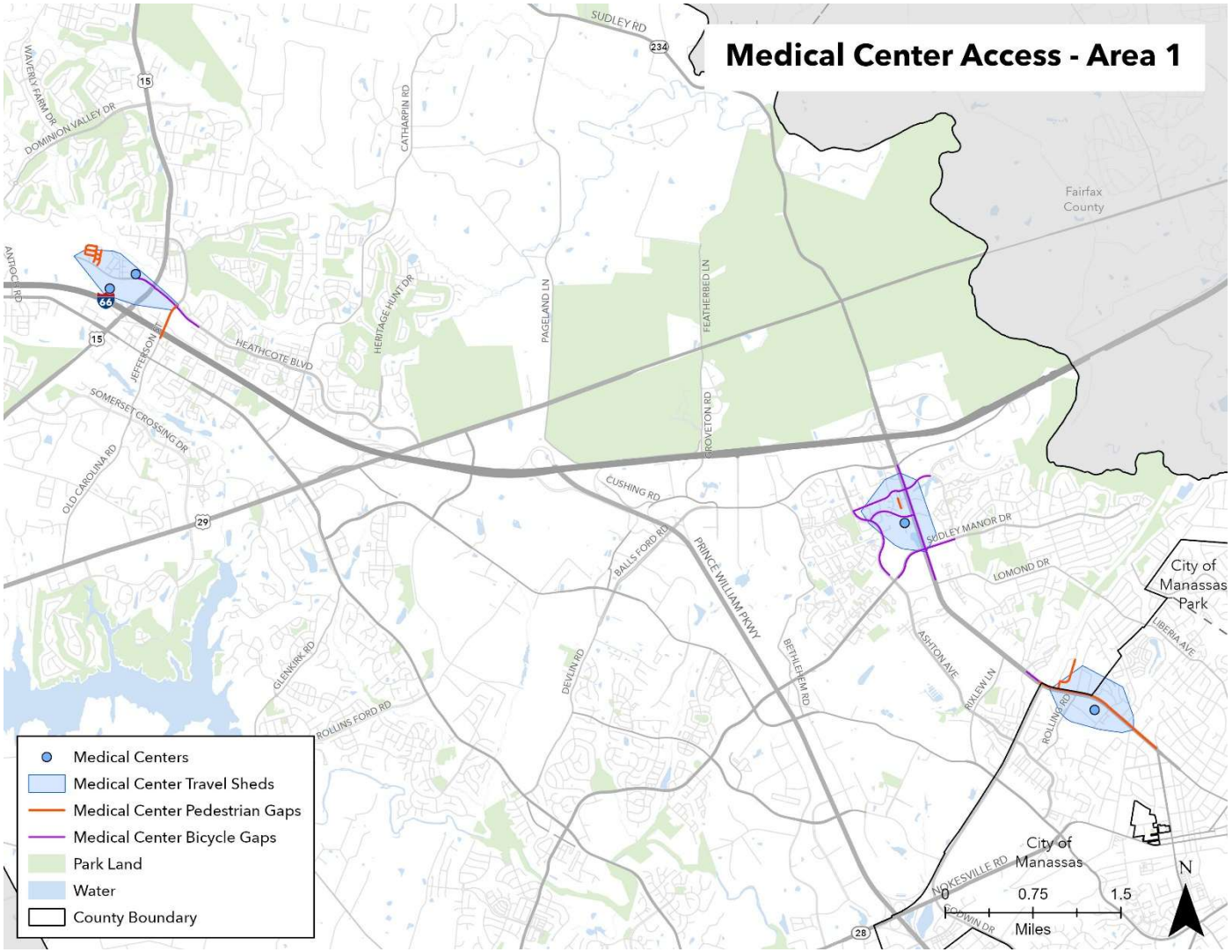
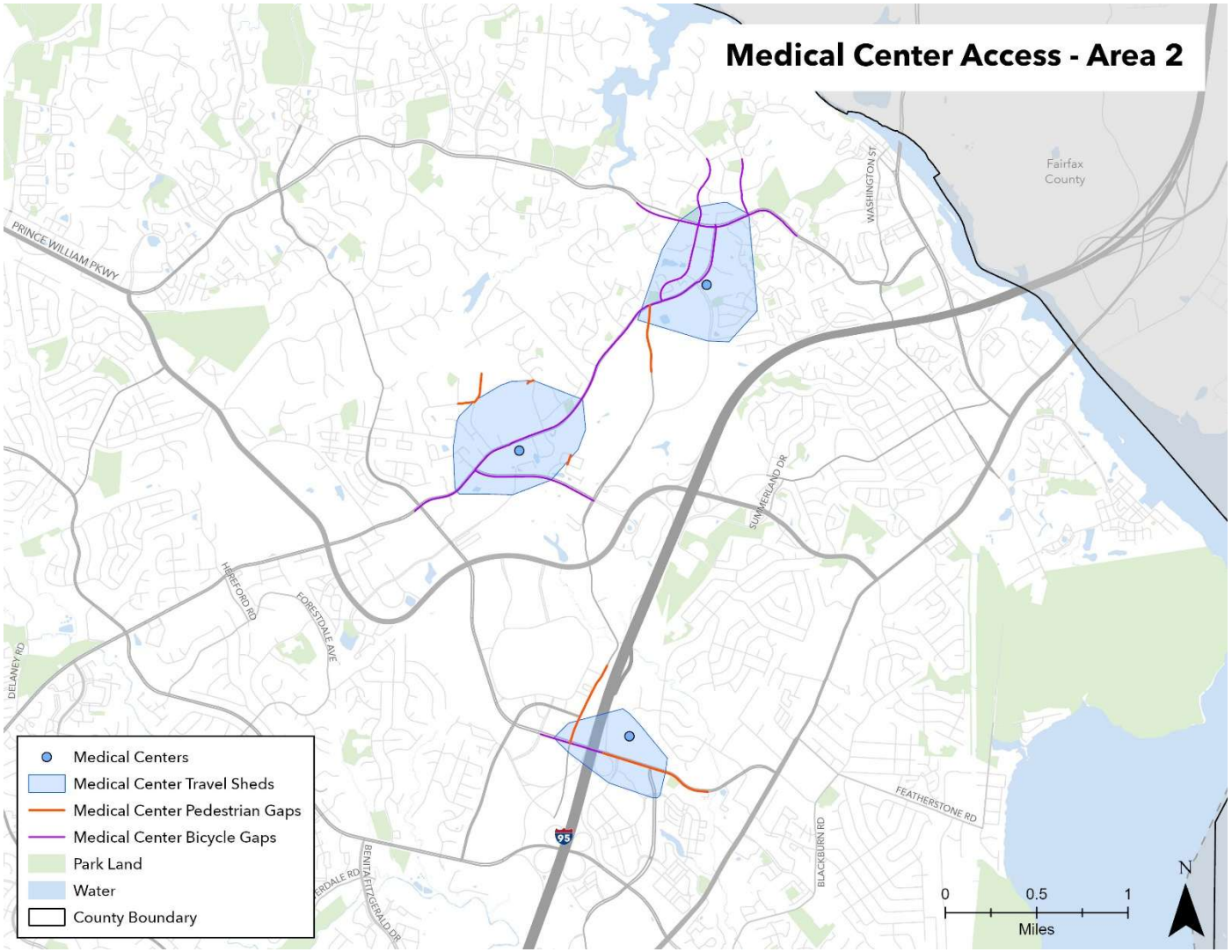


Figure 22: Medical Center Access Results - Area 2



Next Steps

As previously noted, this analysis is also intended to support the pursuit of Strategic Plan goals to improve walkability and bikeability around public amenities and parks throughout the County. This analysis was completed in anticipation of a comprehensive active transportation plan being developed for the County to further the progress being made for pedestrian and bicycle mobility.

This analysis identified existing bicycle and pedestrian facility gaps within access areas to some of the County's key destinations and amenities. The goal of the County is to build on this analysis by developing plans that move toward filling these gaps in the active transportation network, including the following actions:

- Further evaluation of other key destinations in the County that would benefit from an expanded bicycle and pedestrian network
- Engagement with community members on priority areas for bicycle and pedestrian infrastructure
- Analysis with revised Open Street Map network data for more accurate destination travel sheds
- Prioritization of projects for Capital Improvement Plan (CIP) and funding opportunities