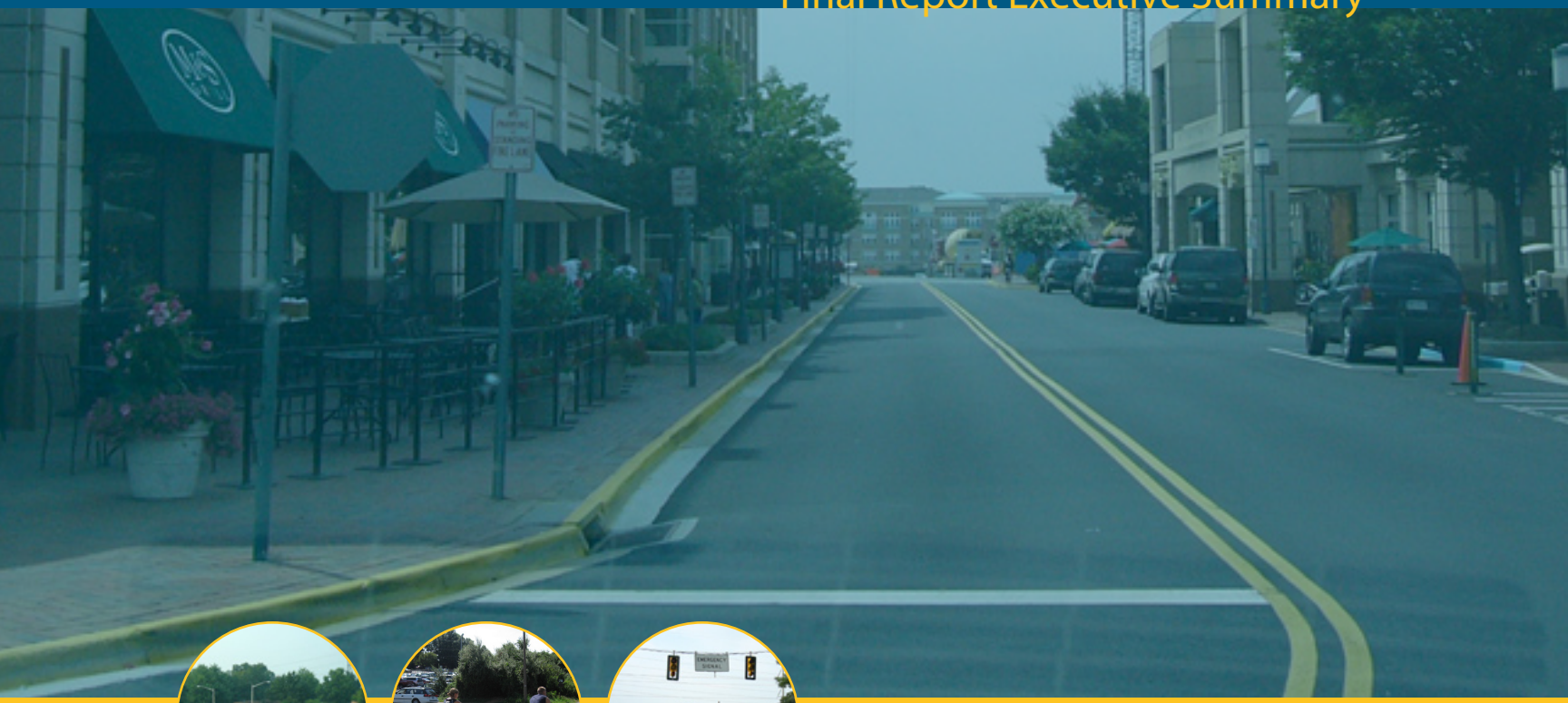
Wiehle Avenue/Reston Parkway

Station Access Management Plans

Final Report Executive Summary



Submitted to
Fairfax County,
Department of Transportation

Submitted by
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Acknowledgements

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- Patty Nicoson, Chair
- Faitmah Allahdoust, Virginia Department of Transportation
- Michael Batt, Greater Reston Chamber of Commerce
- Daniel Bibeault, Winterport Cluster President
- Jennifer Blackwell, Reston Association Board of Directors President
- Andrew Camarda, Newbridge Cluster President
- Robert Deans, Hunters Green Cluster President
- Dave Edwards, Reston Association Transportation Committee
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- Keith Goodman, Fairfax County Department of Transportation
- Jim Larsen, Dulles Area Transportation Association Executive Director
- Joe Leighton, Wethersfield Cluster Association President
- Diana Lord, Disability Services Board
- Kathryn Martin, Reston Association Transportation Committee
- Brian McMillan, Hunter Mill Community Coalition
- Colin Mills, Reston Citizens Association Board
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- Rick Stevens, Fairfax County Department of Transportation
- Clark Tyler, Tysons Corner Task Force Chairman
- David Vanell, Reston Planning and Zoning Committee Chairman
- Bruce Wright, Fairfax County Trails and Sidewalks Committee Chairman

Executive Summary

With the expectation that the initial phase of Metrorail service from West Falls Church to Tysons Corner, Reston, Dulles Airport and Loudoun County would open for revenue service as early as 2011, Fairfax County recognized the need for detailed analyses to determine the appropriate improvements to support access to and from the rail stations. The County initiated the Wiehle Avenue/Reston Parkway Station Access Management Plans study to consider the current status and future needs in the vicinity of the two stations to provide pedestrian and bicycle access, to provide effective bus feeder service, and to deal with traffic projected in the area of the stations. A project team headed by Vanasse Hangen Brustlin, working closely with County staff and the Reston Metrorail Access Group (RMAG), a citizens group appointed by Supervisor Cathy Hudgins, conducted inventories of existing facilities, examined forecasts of the projected modal demands for 2030, identified current and projected deficiencies of the existing roadways, transit services, pedestrian facilities and bike facilities, developed principles for the priority to be given to each mode in developing solutions, and developed a prioritized program of recommended actions.

The primary goal of this plan is to provide access to and from the two Metrorail stations that are proposed for the Reston area in the median of the Dulles International Airport Access Highway (DIAAH) at Reston Parkway and Wiehle Avenue. The Wiehle Avenue station is planned to be the last stop in the first phase of the rail line development. The second phase of the rail project, which would extend the Metrorail line past Dulles Airport, will include the station at Reston Parkway. Once construction commences, the time period between these two phases is predicted to be small; only a few years by some estimates. This project uses a planning horizon of 2030, when both stations will be fully operational as mid-line stations. This project has the additional benefit of highlighting infrastructure improvements that are necessary or desired by community members throughout Reston. Many of the elements in the plan will benefit residents and employees of Reston regardless of the existence of Metrorail stations and should be considered for implementation on their own merits.

Congestion and safety for all modes of transportation will be major issues in the Reston for 2030 unless a set of comprehensive actions are implemented to accommodate the projected growth in travel demand. This report details an array of strategies and projects that can be used to improve conditions for all travelers, residents and employees in Reston. Increased roadway capacity, travel demand management (TDM) strategies, additions to the network of pedestrian paths and spot safety improvements are all represented in these recommendations. The implementation of these recommendations will help ease congestion, improve safety and increase mobility and accessibility for Metrorail passengers and local residents and employees.

The Wiehle Avenue/Reston Parkway Metrorail Station Access Management Study was designed with the intention of providing access to the new Metrorail stations and around the station areas for all modes of transportation including private vehicles, buses, pedestrians and bicyclists. A more detailed analysis was conducted in the areas closest to the stations, as the transportation network in this Influence Area will have the highest travel volumes of all modes. The four modes of travel will be competing for limited space, capacity and resources in the areas around the Reston stations.

In order to arrive at the best set of solutions, a delicate balance between each of the modes must be established by evaluating the tradeoffs between specific recommendations. Through a series of meetings, the RMAG and the general public worked with the project team to determine the community's priorities for improvements and how these tradeoffs should be considered. The ultimate decision, which has received significant support from community members, is that in the station areas priority should be given as follows:

1. Pedestrians
2. Bicyclists
3. Transit Users (buses)
4. Private Vehicles (drivers and carpools)

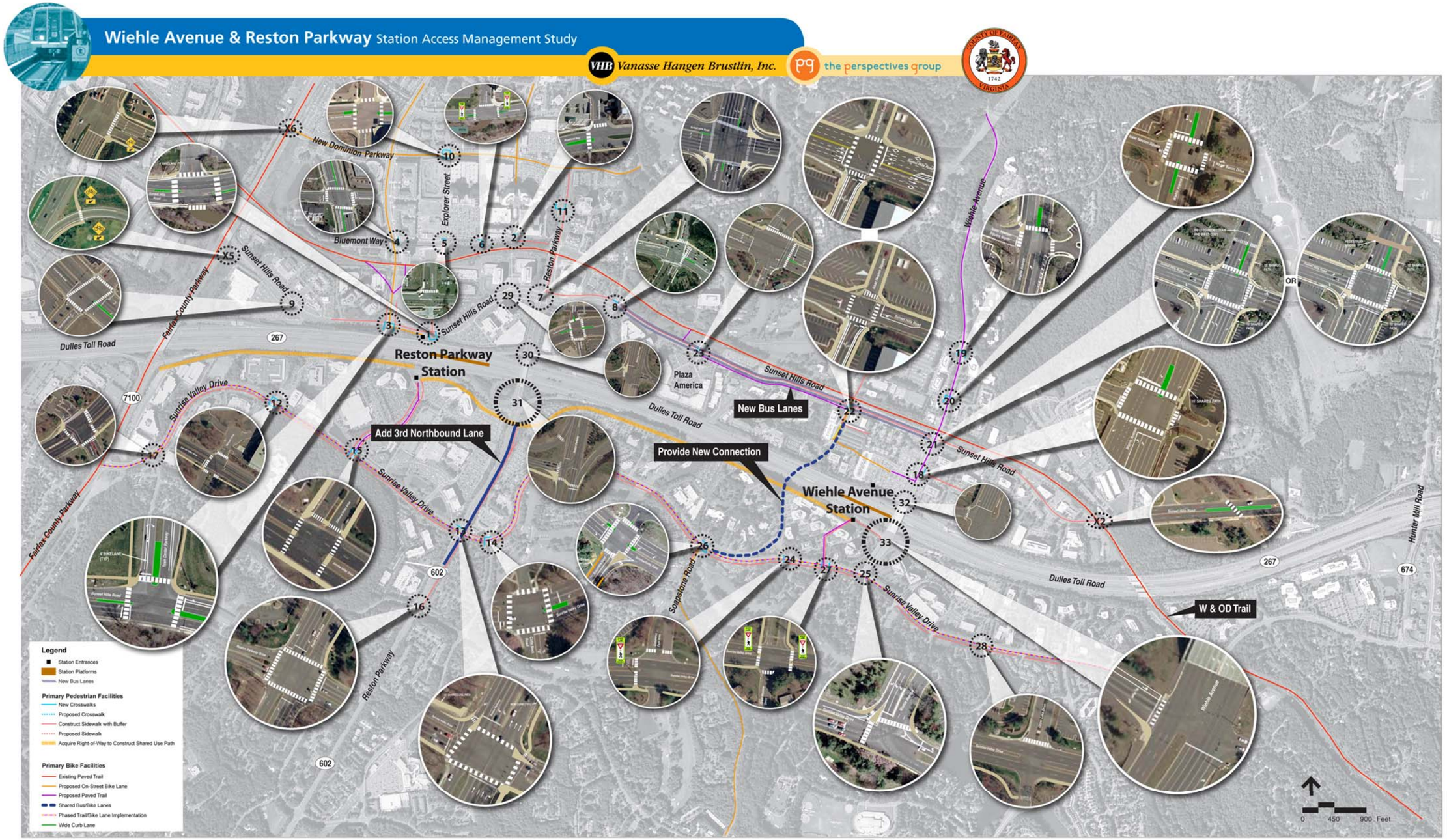
In effect, this prioritization methodology recognizes that some level of vehicular congestion in the area is unavoidable and that the safety and convenience of the other modes (especially the non-motorized modes) should be considered more important than reducing the level of congestion. Walking, bicycling and transit use are encouraged in Reston in 2030. The full set of recommended physical actions can be found in Figure ES - 1.

Cost estimates are developed for each of the actions recommended in this report. The majority of the costs will be capital costs which include facility construction and the purchase of new equipment. All of the roadway, pedestrian and bicyclist projects are included in this category, along with some of the transit costs including the new garage space and new vehicles. These costs total over $105 million in 2007 dollars as shown in Table ES- 1. Transit operating costs are estimated to be approximately $15.2 million annually, in 2007 dollars.

Table ES- 1: Total Estimated Costs (in 2007 dollars)

Capital Costs			
	Roadways		$69,817,500
	Pedestrian/Bicyclist		
		Intersections	$5,383,800
		Paths & Bike Lanes	$22,029,500
	Transit		
		Vehicles	$4,400,000
		Facilities	$3,500,000
	TOTAL		$ 105,130,800
Operating Costs			
	Feeder Bus System	$15,248,575	annually

Figure ES - 1: Recommended Station Access Management Actions



A. Roadways

Projected travel demand in the study area was evaluated by investigating the estimated growth in residents, jobs and other travel in the region. The project team used a traffic micro-simulation tool called VISSIM that accounted for the complex interactions of traffic flow between different intersections when analyzing the vehicular traffic in Reston. The tool also accounts for the needs of pedestrians and buses by including them during simulation.

By 2030, the existing transportation network will not be able to accommodate all of the unconstrained projected peak-hour demand for vehicle travel at all intersections in the study area. Many more vehicles will want to use the roadways than can be accommodated using the existing facilities. The analysis looks at the series of roadway improvements called for in the Environmental Impact Statement (EIS) in addition to a series of supplemental improvements designed to improve traffic throughput at the most congested intersections. The effects of each of these potential improvements were analyzed using the simulation tool and the effects on pedestrians, bicyclists and transit passengers were also considered. Based on this work, a series of roadway projects is recommended, including:

A. New signal and turn lanes on Sunset Hills Road for access into the proposed Reston Parkway Metrorail station
B. New left turn lane for westbound left turning movement at the intersection of Sunset Hills Road/Isaac Newton Square W
C. Add a second left turn lane for northbound traffic at the intersection of Wiehle Avenue and the Station Entrance (between Sunset Hills Road and the Dulles International Airport Access Highway [DIAAH]) and provide a second inbound lane
D. Add an additional left turn lane on the eastbound DIAAH ramps at Wiehle Avenue
E. Improve the existing right turn lane for the eastbound Sunset Hill Road at Wiehle Avenue
F. Improve the existing right turn lane for the westbound Sunrise Valley Drive at Wiehle Avenue
G. Add northbound through lane on Reston Parkway from Sunrise Valley Drive to the on-ramp for eastbound DIAAH
H. Improve the right turn lane for southbound Reston Parkway at Sunrise Valley Drive
I. Provide a new connection over the DIAAH between Soapstone Drive and Isaac Newton Sq W.
J. Construct dedicated bus lanes on Sunset Hills Rd from Old Reston Avenue to Wiehle Avenue
K. Isaac Newton Square West from Isaac Newton Square South to the station as an extension of the proposed Soapstone Connector.
L. The Station Entrance (already planned for improvements as part of station construction) should be extended across Wiehle Avenue to the Private Driveway as far east as Samuel Morse Dr.
M. Michael Faraday Court extension from the new roadway described in (L) north to the extended Roger Bacon Dr described in (N)
N. Extension/improvements to Isaac Newton Square South from Isaac Newton Square West to Wildlife Center Drive.

Projects A-H were included in the Record of Decision[1] (ROD) as mitigation efforts tied to the rail project. The need for dedicated bus facilities is also addressed by the recommendations. The projected level of congestion in Reston will slow transit vehicles if they are forced to travel in general purpose lanes. Providing dedicated bus lanes during peak periods where possible will allow the buses to travel faster and will encourage more people to use transit instead of their private vehicles. Two locations are recommended for the inclusion of dedicated bus lanes including:

[1] Amended Record of Decision. <http://www.dullesmetro.org/about/resources_links.cfm>

- New connector between Soapstone Rd and the Wiehle Ave station
- Sunset Hills Rd between Wiehle Ave & Old Reston Ave

Planning level cost estimates have been developed for each of these projects. The total cost, including an allowance for right-of-way acquisition and other contingencies, is estimated to be almost $70 million in 2007 dollars. Even with these recommended actions, the areas immediately surrounding the stations will experience heavy congestion during peak periods. The full demand will not be accommodated and many travelers, particularly those who do not have an origin or destination within the study area, will find it desirable to change their route, their mode of travel or their time of travel. Policies and programs that encourage other modes of travel, including a comprehensive TDM program will be a key element in accommodating residents, employees and visitors in Reston.

B. Pedestrians and Bicyclists

A set of general recommendations has been developed that should be applied to all roadways and intersections in the whole study area. Based on the proposed roadwork network, intersection infrastructure deficiencies and missing links in the pedestrian and bicycle networks along these paths were identified and recommended improvements were highlighted. Thirty-three intersections and six trail crossings were analyzed in detail with specific recommendations developed for each. The recommendations reflect the desire to complete the network of pedestrian and bicycle facilities in Reston. On-street bike lanes, currently absent in Reston, were also recommended for inclusion on several roadways.

Pedestrian and bicycle recommendations were developed to improve circulation and safety throughout the Reston community, not only for people accessing the stations directly. Internal trips within the Reston community are expected to account for a large portion of pedestrian and bicycle traffic. Access to and around the Reston Town Center was addressed, in addition to pedestrian and bicycle access across the DIAAH. In total, these recommendations are estimated to cost over $27 million to construct. The major types of recommended actions included:

- Crosswalks, pedestrian countdown signals and median refuges.
- Additional sidewalks.
- Shared-use trails.
- On-street bike lanes.

Several features of each intersection including user safety, distance to the Metrorail stations and community input were used to prioritize these recommendations. Many of these recommended actions would be appropriate and necessary regardless of whether or not Metrorail comes to Reston, as pedestrian activity is still likely to grow in the area and should be encouraged to avoid intolerable congestion.

C. Transit and Feeder Bus

Opportunities for expanded bus service to feed the new Metrorail stations and provide local access around for residents and employees in Reston are explored. The project team worked very closely with FAIRFAX CONNECTOR and Fairfax County staff to determine the new bus routings and developed a set of thirteen routes that connect the community to the new Metrorail stations. In addition to the needs of commuters, local bus service was also retained and expanded for those residents and employees who utilize the bus to make local trips within Reston. The proposed routes were discussed with the RMAG and modified as deemed appropriate. Figure ES - 2 and Figure ES - 3 show the structure of the new feeder bus service and the coverage provided in the Reston community during the peak service hours.

Figure ES - 2: Recommended Peak Period Transit Route Structure - North

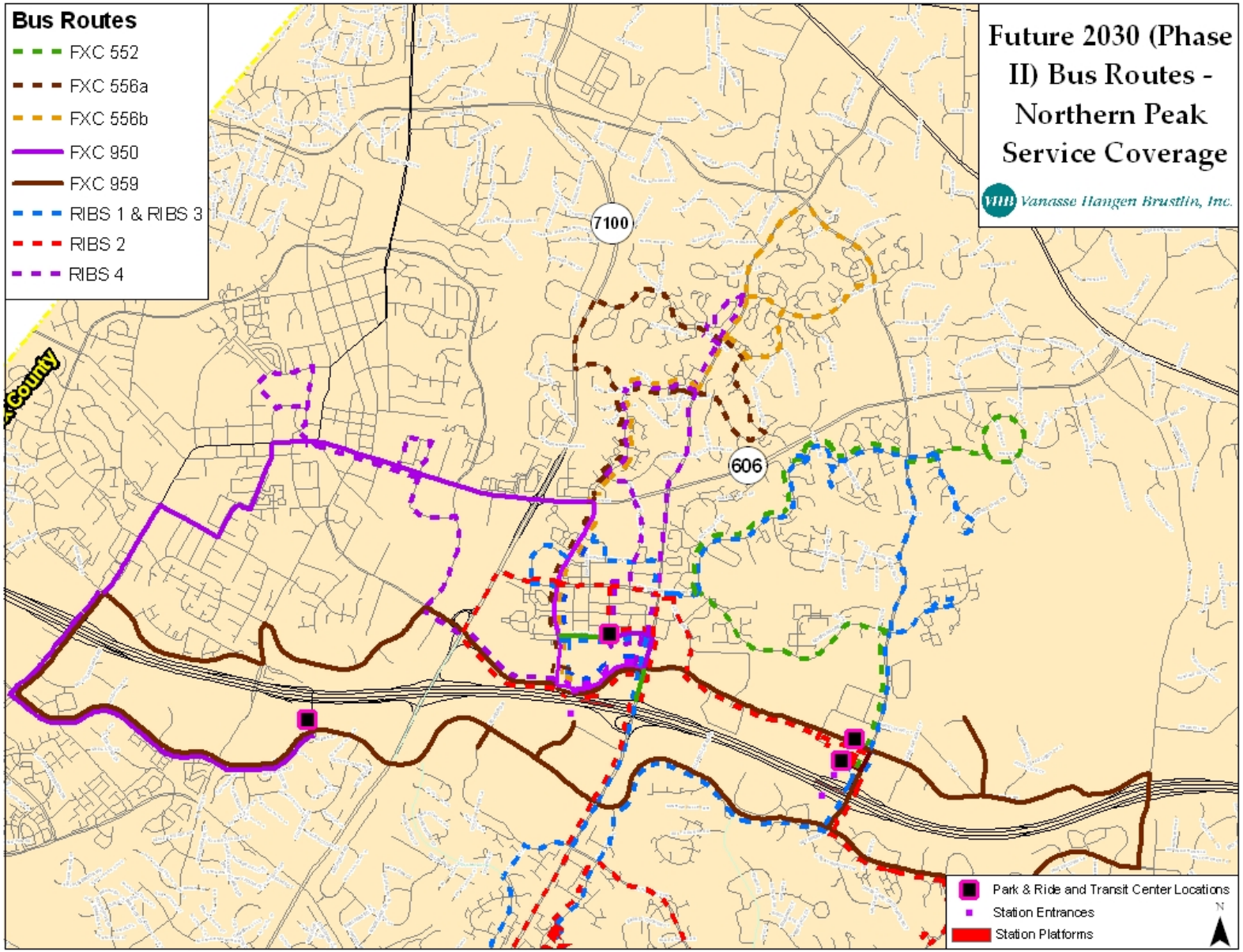
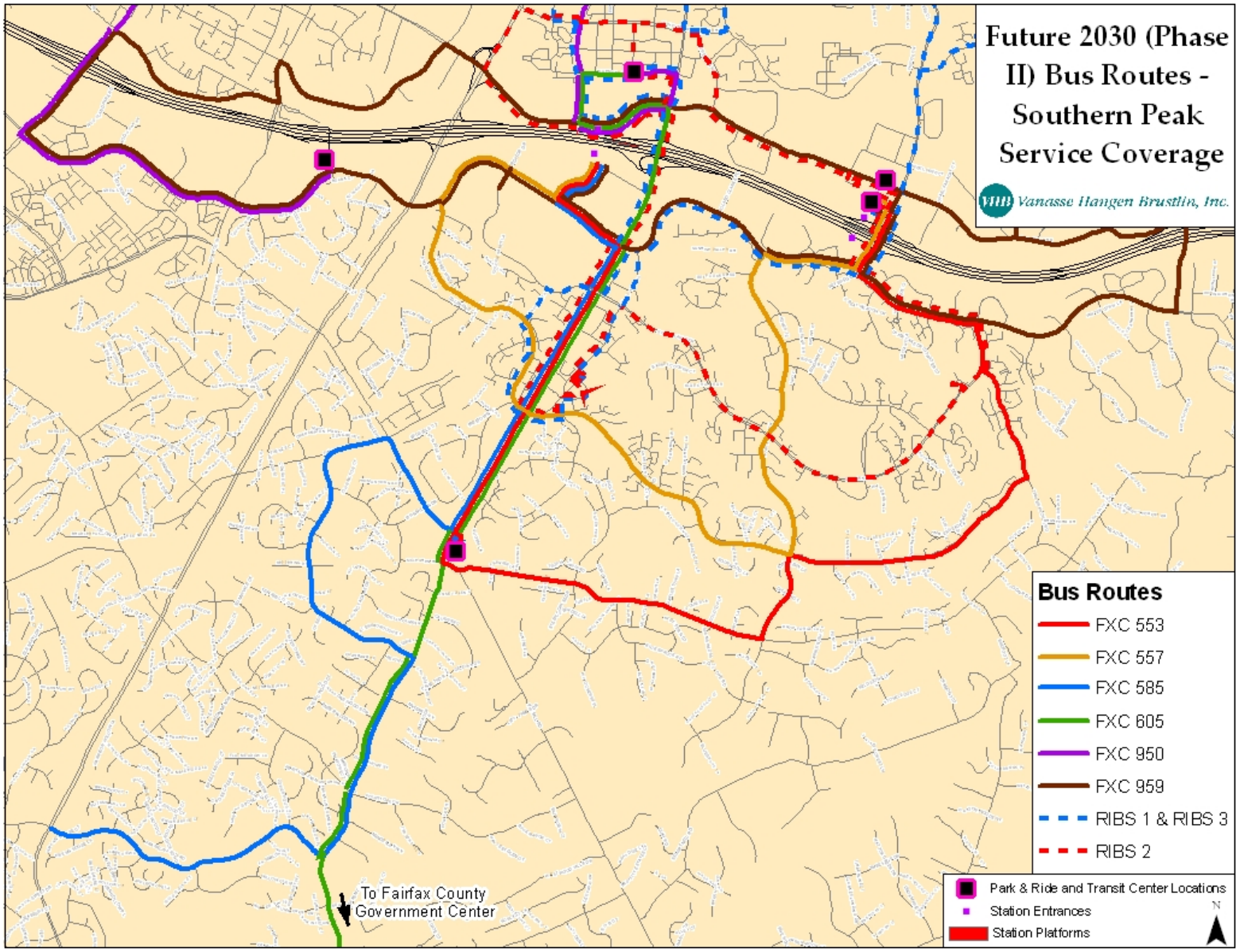


Figure ES - 3: Recommended Peak Period Transit Route Structure - South



Estimates of total bus ridership in the Reston area was developed as part of the FEIS. These ridership levels in addition to field observations of land use patterns were used to determine the necessary service frequencies on each of the recommended routes. Routes with higher ridership levels were recommended to operate at higher frequencies in order to provide adequate capacity. Bus frequencies were set as multiples of seven minutes (train frequencies) so that the buses would be able to match the arrivals of passengers on the Metrorail trains.

Estimates for the number of vehicles, drivers, mechanics and supervisory staff needed to operate this new system were developed based on the existing service, the estimated traffic speeds in 2030 and the necessary headways. It is estimated that an additional 14 buses will be necessary in 2030, which will require a corresponding increase in operational and maintenance staffing levels. The recommended service is estimated to cost an estimated $15.2 million to operate for the year 2030 (in 2007 dollars).

D. Integrated Priorities

An integrated and prioritized list of all the recommendations developed during the course of this study for all potential modes. This includes a discussion of the major tradeoffs and potential future solutions for some of the remaining unsolved issues. Travel Demand Management (TDM) strategies, which encourage travelers to switch from single-occupancy-vehicles (SOV) to another mode of travel, are also discussed. While prioritizing projects in order of importance, this chapter also discusses the reality of implementation which dictates that some projects will be long-term solutions that cannot be implemented without significant study and analysis.

The recommended program is divided into three groups based on the date of implementation. The first group (shown in Figure ES - 4) includes all projects that are required at the opening of the Wiehle Avenue station. All of the roadway projects around the Wiehle Avenue station that were part of the ROD mitigation efforts are included in this group. In addition, the proposed Soapstone Connector is included in this group as additional connection across the DIAAH into the Wiehle Avenue station. Local transit service should also be transitioned to the system proposed in this report as part of this group.

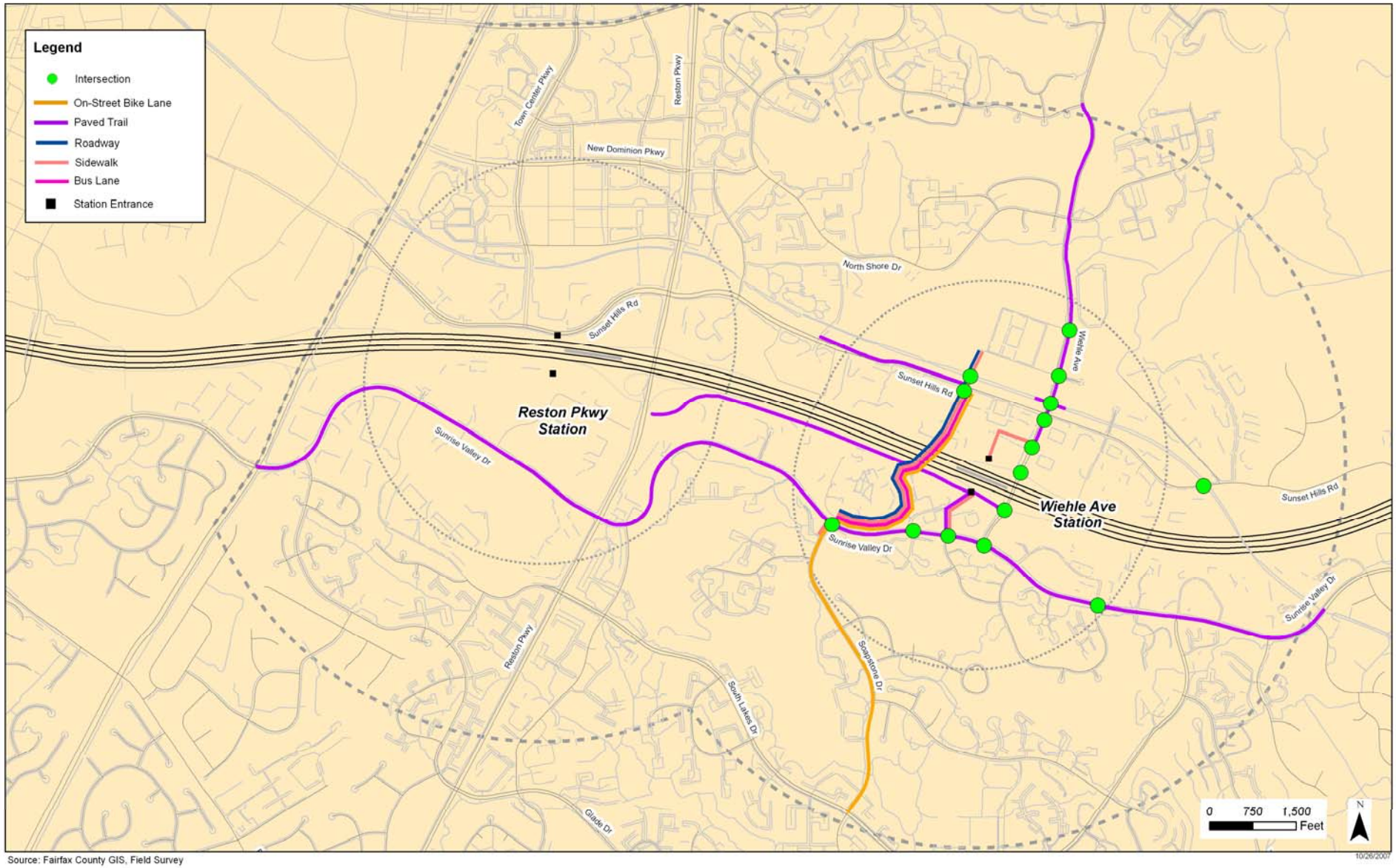
The second group of projects includes all projects that are required for access to the Reston Parkway station and should be constructed by the start of Phase II service. The projects are shown in Figure ES - 5 and include an array of pedestrian and bicycle improvements including sidewalks, trail connections and bike lanes.

The third group of projects, shown in Figure ES - 6, are all projects that are not strictly required for access to either station but are recommended to improve overall accessibility in the station areas. This group includes many of the large-scale projects that require major right-of-way acquisition of other major investments. Each project in this group should be completed as soon as an opportunity becomes available, whether before or after the opening of either Metrorail station. The major projects in this group are the dedicated bus lanes on Sunset Hills Rd and the construction or expansion of several internal streets including Michael Faraday Ct, Isaac Newton Square S and Roger Bacon Drive.

Implementation strategies for the recommended actions are also extremely important to the ultimate success of this project. At the present date, funding for the Dulles Rail project is not certain, and the future, including the start of service date, is relatively unsure. Many of the recommendations in this report will be necessary regardless of the existence of Metrorail stations in Reston as the area continues to grow. For example, because only a small portion of the vehicle trips projected for the area in 2030

will be caused directly by the presence of the Metrorail station, many of the roadway enhancement projects will be necessary anyway by 2030. Additionally, many of the bicycle and pedestrian facilities are recommended for implementation as soon as possible and will help to enhance the existing pedestrian orientation of the Reston community. Despite the obstacles presented to the Dulles Rail extension as a project, many of the projects detailed in this report should still be pursued by Fairfax County.

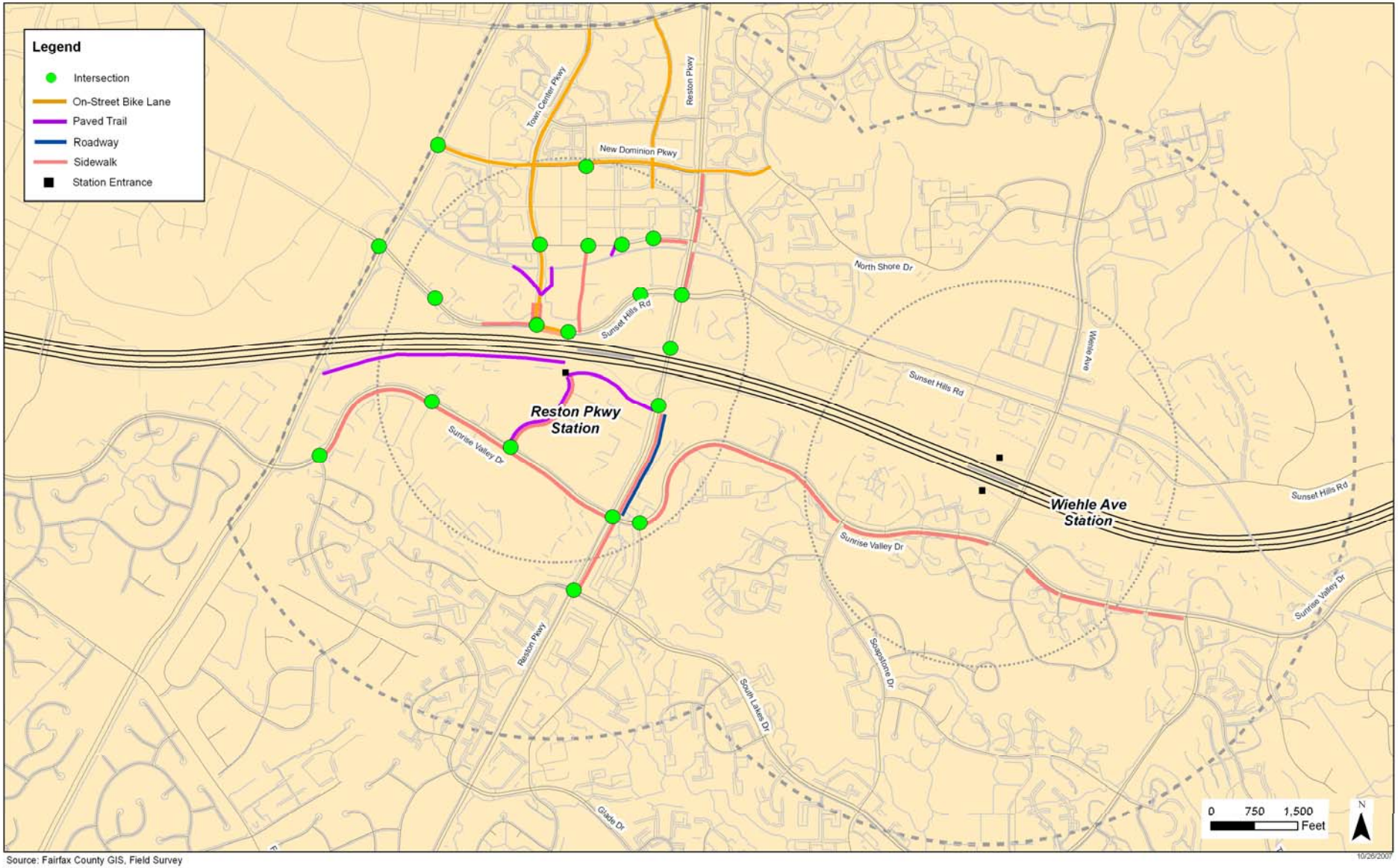
Figure ES - 4: Wiehle Avenue Station Projects



Source: Fairfax County GIS, Field Survey

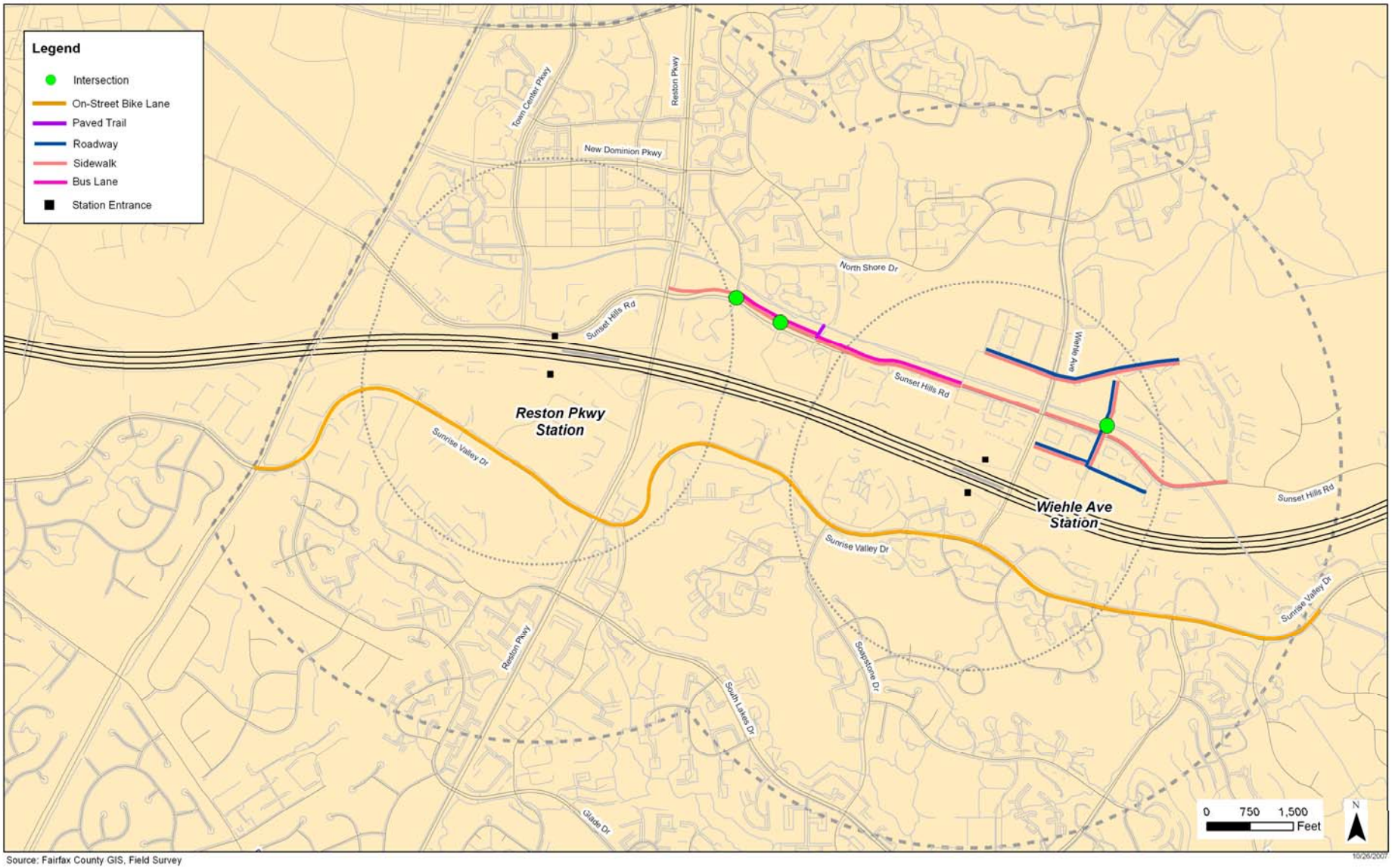
10/26/2007

Figure ES - 5: Reston Parkway Station Projects



Source: Fairfax County GIS, Field Survey

Figure ES - 6: Other Recommended Projects



Source: Fairfax County GIS, Field Survey