Final Transportation Report for West Falls Church Station Area Redevelopment

Funded by Metropolitan Washington Council of Governments (MWCOG) Transportation/Land-Use Connections (TLC) Program

City of Falls Church

Small Area Plan

Planning Area 8

Mobility & Accessibility

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BACKGROUND

Mobility and Accessibility

Transportation is a key component of everyday life. It is about more than mere movement. Transportation gives us access to our most basic needs. The places it connects us to and how safe, predictable, and reliable it is profoundly affects our personal health and success. Transportation costs are also the second largest household expense after housing. It is for these reasons that sustainable, connected, and integrated transportation is fundamental to sustained success and livability of the city.

Transportation Impacts

While transportation is the way we move about a city and access our day-to-day needs, it also has a significant impact on the shape of our communities. City streets are public spaces, and the way we design our streets directly effects how people use them. Streets designed with the sole purpose of moving vehicles – with wide travel lanes and no sidewalks – will only attract more cars and the land uses that serve those needs. On the other hand, streets designed to serve *people* – with bike facilities, high quality sidewalks, and other pedestrian accommodations – will attract more people and the land uses that support active, livable communities. It is important to consider the type of community we want to build when designing our transportation system. Our transportation system should both inform and respond to the surrounding context, and provide safe accommodations for all potential users.

Existing Policies

The City of Falls Church understands the importance of transportation and has prioritized transportation improvements in the Comprehensive Plan. One of the primary goals of the plan is to enhance mobility for all modes and expand mode choice in the city. While automobiles are a significant component within the overall transportation system, as the population and travel demand in the city and region grow it will be even more important to address some of those needs through a more balance transportation system.

The City has committed to providing more amenities for its residents and shorten travel distances for daily needs to encourage the use of walking and bicycling for more trips. Today, nearly 40,000 trips are taken within the city on a daily basis, and that number is expected to increase to around 43,000 by the year 2030. If residents continue to make those trips by car at the same rate they do today, congestion will increase and quality of life in Falls Church will be negatively impacted. For this reason, the City has committed to reducing the percentage of trips made by car and is prioritizing accommodations for bicyclists, pedestrians, and transit users.

Project Scope

The City of Falls Church is building on a series of recent and ongoing planning efforts to redevelop and improve the property surrounding Mary Ellen Henderson Middle School and George Mason High School. As part of this effort, the Metropolitan Washington Council of Governments (MWCOG) funded a transportation study for the City of Falls Church to evaluate the transportation network. This evaluation was conducted in conjunction with the planning for potential redevelopment of the school site to identify ways to:

1. Accommodate travel demand to, from, and within the site;
2. Better connect to local and regional transportation facilities including West Falls Church Metro Station, I-66, and the W&OD Trail; and
3. Increase accessibility and street crossings nearby.

As part of the larger study, a day-long stakeholder workshop was held on February 23, 2017 to bring together all of the primary stakeholders for the study area to collaborate on potential solutions for the site. During the workshop, the project team and stakeholders discussed goals for the study area, as well as potential land uses, development form, and transportation needs for the site and adjacent properties.

The goals that framed the transportation portion of the study included:

1. Increase mode choice and reduce reliance upon single occupancy vehicles.
2. Increase walkability and community connectivity.
3. Support infill development.
4. Support transit-oriented, mixed-use development.

KEY FINDINGS

Goals

This study was conducted in conjunction with the planning for potential redevelopment of the school site to identify ways to:

1. Accommodate travel demand to, from, and within the site;
2. Better connect to local and regional transportation facilities including West Falls Church Metro Station, I-66, and the W&OD Trail; and
3. Increase accessibility and street crossings nearby.

Challenges

Some of the challenges within and surrounding the site include:

- Significant barriers to walking and bicycling
- Limited/low quality accommodations for pedestrians and bicyclists
- Lack of street connectivity
- Poor access and wayfinding to the nearby Metro station
- Intersection safety for all users

Recommendations

The following recommendations were developed to address these challenges and meet the goals of the study. These recommendations are discussed in more detail later in the report.

Street Network

- Improve the street connectivity through site and enhance connections to adjacent properties.
- Introduce new traffic signals at added intersections and coordinate them with existing signals to improve safety and efficiency.

Bicycle Network

- Establish high quality bicycle facilities on the designated streets within the site and connecting to the W&OD Trail.
- Design all intersections to safely and comfortably accommodate bicyclists.

Pedestrian Network

- Construct a shared path along Route 7 to provide safe access for bicyclists and pedestrians to the north side of I-66.
- Establish high quality pedestrian facilities within the site and surrounding area.

Transit

- Coordinate with the Route 7 BRT planning to ensure quality access is provided to the site.
- Implement transit signal priority to increase efficiency of transit on Route 7 and enhance transit access to/through the site.

Parking

- Develop a shared parking policy for the site to allow for less, but better utilized parking on site.

EXISTING CONDITIONS AND OPPORTUNITIES

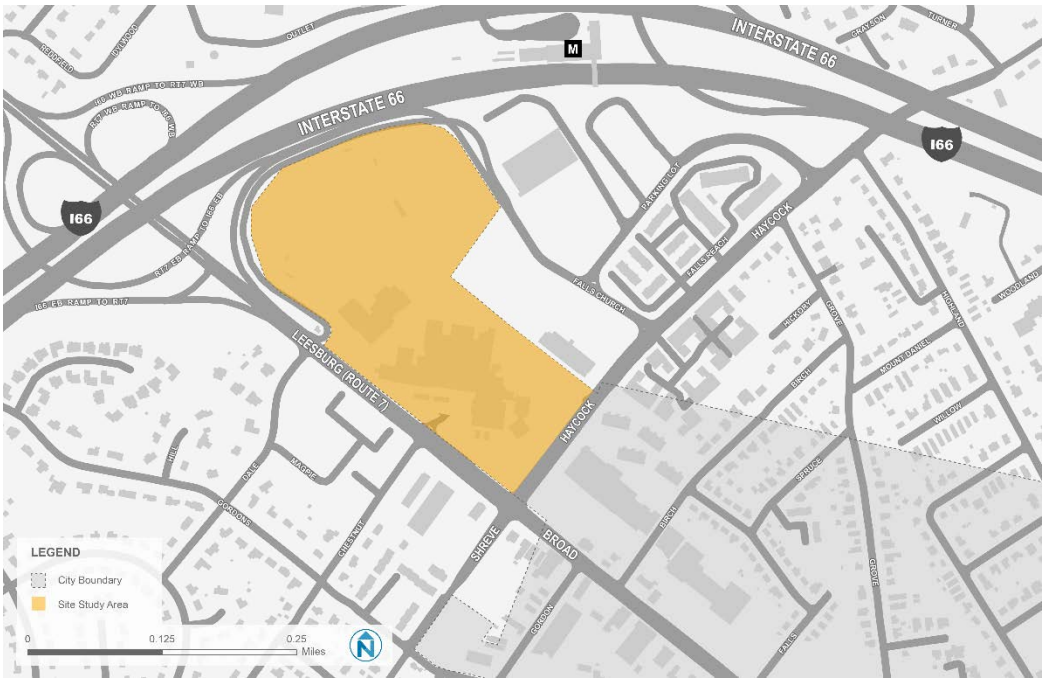
Introduction

The Schools-Related Parcels POA is located in the northwestern corner of the City of Falls Church at the intersection of Route 7 (Leesburg Pike) and Haycock Road. The study area, illustrated by the map in Figure 1, is bound by I-66 to the north and sits adjacent to the West Falls Church Metro Station, both significant regional transportation connections. The study area is also in close proximity to the Washington and Old Dominion (W&OD) trail, another regional asset.

While the location of the site in relation to these assets is quite valuable, there is a lack of connectivity currently between them. The site and surrounding area are oriented around vehicular circulation and provides little accommodation for other users.

This chapter describes the existing conditions for all modes of transportation and establishes strategies for improving access for each mode.

Figure 1 Study Area Location



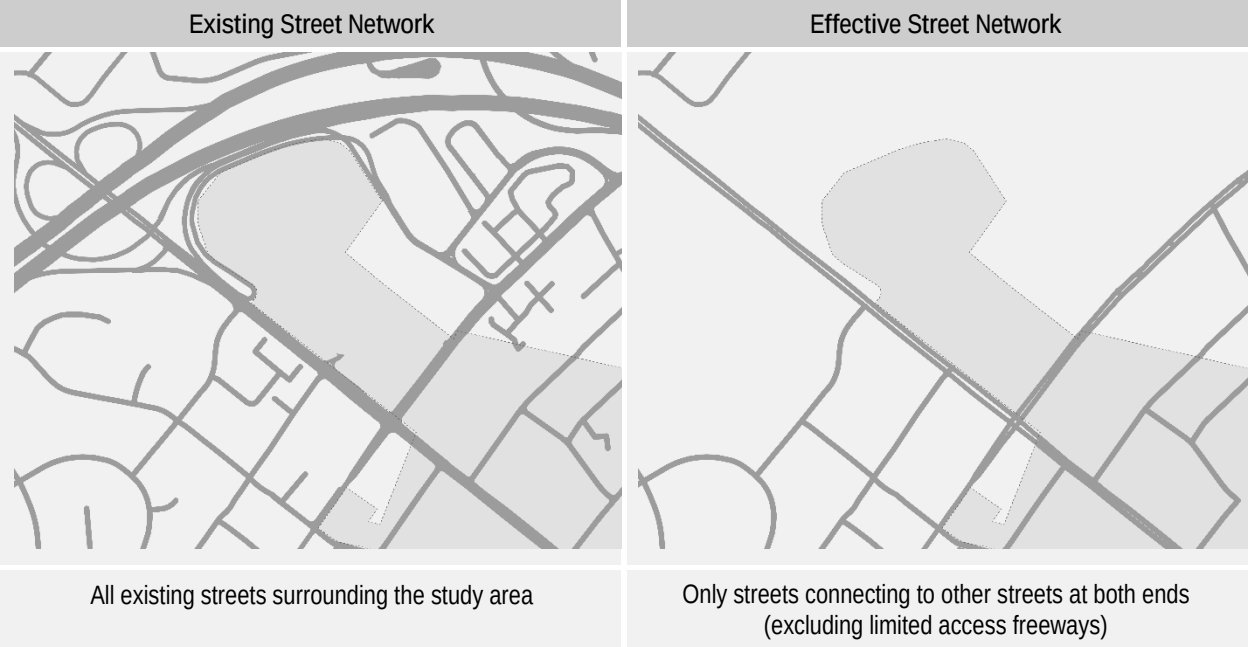
Street Network and Travel Patterns

The study area has limited internal connectivity and no real connectivity with adjacent sites. While the study area has access to both Haycock Road and Route 7, there is no direct vehicular access between the

site and I-66 or the West Falls Church Metro Station. Street connectivity surrounding the study area is also quite limited, as many streets end with cul-de-sacs or simply connect back into the same street from which they originated.

This limited street network can contribute to congestion by forcing all travelers to use one main roadway, whether they intend to only drive a block or drive a longer distance. The difference between the overall existing street network and the effective, or connected, street network can be seen in Figure 2.

Figure 2 Existing vs. Effective Street Network



Mode Share

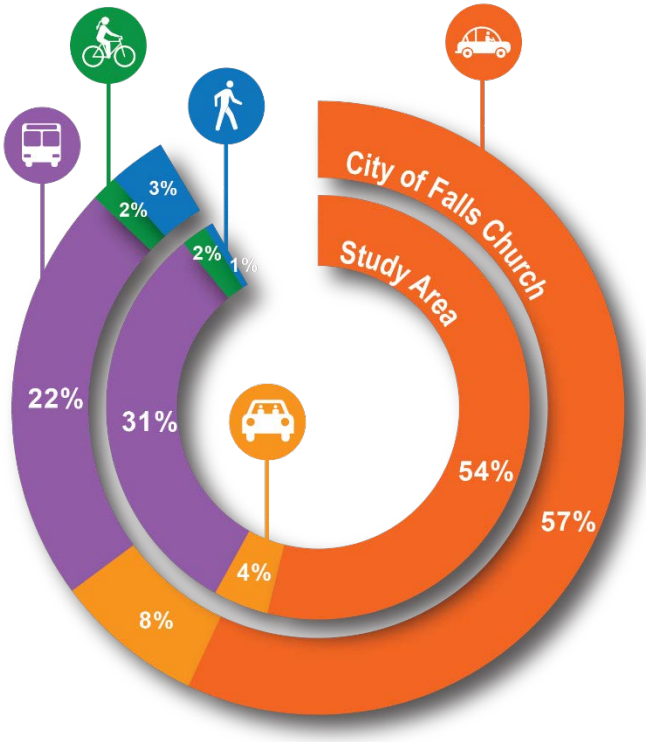
Travel in Falls Church already includes walking, bicycling, and transit use, as well as driving. The current mode split, or balance between different modes of travel, for *commute* trips originating in the city differs fairly significantly from the mode split for *all* daily trips – trips to work, the gym, the store, to visit friends, etc. – demonstrated by data from the Metropolitan Washington Council of Governments (MWCOG). While the MWCOG data for all trips shows 86% being made by car, Census data for 2015 shows that only 65% of commute trips are in a car. This difference indicates that residents of Falls Church choose to make more of their non-work related trips by car.

Looking specifically at the mode split for the study area, transit usage is much higher (9% higher) for commute trips leaving the study area than for the city as a whole. This can likely be attributed to the close proximity of the West Falls Church Metro Station, and also indicates the potential for increasing the transit share further with improvements in connectivity between the Metro Station and surrounding sites.

Conversely, the share of commute trips made by foot in the study area is much lower than for the city as whole, sitting at barely 1% compared to 3% citywide. This indicates that the pedestrian infrastructure and walking environment around the site is not adequate.

The conditions for each mode of transportation are discussed later in this chapter. The mode split comparison between the study area and the City of Falls Church can be seen in Figure 3.

Figure 3 Mode Split in the Study Area vs. City



School Mode Split

Prior to the 2015-2016 school year, MEHMS had a policy in place that prohibited students from walking or bicycling to school out of concern for safety. All students at MEHMS were provided bus transportation as a result of that policy. The policy was removed after the 2014-2015 school year as campus-wide safety improvements were made on campus enabling students to walk or bike to school.

The 2011 City of Falls Church Safe Routes to School Plan conducted an online parent survey to collect data on how far from campus students lived and how students were getting to school. Because MEHMS had the no walking or bicycling policy at the time of the survey, data on the mode of transportation for those students was not provided in the plan. However, the general mode split for GMHS was included and can be seen Figure 4. The most common mode of transportation for the high school students was the school bus, accounting for 40% of the respondents. Between 10-15% of respondents indicated that their students traveled to school either on foot or by bicycle.

Figure 4 Mode Split for Students at GMHS 2010-2011

George Mason High School (2010-*2011)*					
Travel Mode	Walk	Bike	School Bus	Family Vehicle	Carpool
Number of Students	*AM-70 (10%) PM-103 (15%)*	*13*	*279 (40%)*	*220 (31%)*	*77 (11%)*

Source: City of Falls Church Safe Routes to School Plan, Online Parent Survey Sep/Oct 2010

Similar data for the 2016-2017 school year was collected from a survey conducted as part of the West Falls Church Transportation Study at both GMHS and MEHMS. The responses to this survey indicated that there have not been significant changes to the mode of transportation for GMHS students over the years. The school bus is still the most common mode for getting to school, accounting for 42% of student trips to and from school.

Additionally, around 16% of trips made by GMHS students to and from school are still on foot (12%) or by bicycle (4%), as shown in Figure 5. With the change in policy at MEHMS in regard to walking and bicycling, it is worth noting that 8% of trips made by students to and from school are now made on foot or by bicycle.

Figure 5 Mode Split for Student Trips to and from MEHMS and GMHS 2016-2017

MEHMS and GMHS 2016-2017 Student Survey Results					
Travel Mode	Walk	Bike	School Bus	Drive Alone	Carpool
MEHMS Student Trips	7%	1%	77%	-	14%
GMHS Student Trips	12%	4%	42%	9%	33%

Figure 6 provides a breakdown of staff trips to campus by mode. It is worth noting that while the mode split for the area surrounding the school site demonstrates that 54% of commuters drive alone, staff on campus who responded to the survey indicated that they drive alone for the majority (89%) of their trips to and from campus. This suggests that the place of residence for staff is not conducive to non-auto trips.

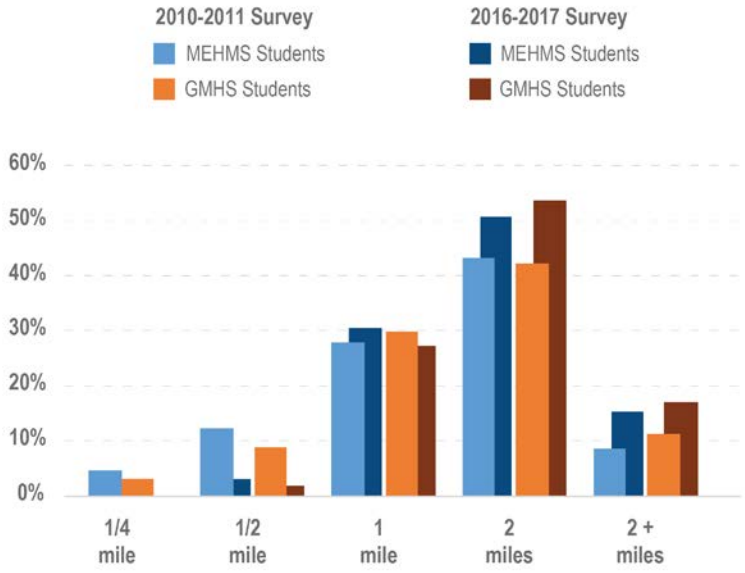
Figure 6 Mode Split for Staff at MEHMS and GMHS 2016-2017

MEHMS and GMHS 2016-2017 Staff Survey Results					
Travel Mode	Walk	Bike	Public Transit	Drive Alone	Carpool
Staff Trips	2%	1%	5%	89%	3%

Travel Distances

Data from the 2016-2017 survey also provided the travel distances to campus for both students and staff. Comparing the results from the 2010-2011 survey to those from the 2016-2017 survey illustrates a slight increase in students from both schools living further away from the campus. This comparison is illustrated by the graph in Figure 7. While around 42% of GMHS students lived within a 1-mile radius of the school in 2010-2011, only about 37% indicated that they live with a 1-mile radius in the 2016-2017 survey. For MEHMS, around 45% of students lived within a 1-mile radius in 2010-2011 compared to about 40% in the 2016-2017 survey. Around 9% of the staff at both schools live with a 1-mile radius of the campus, while the majority of staff (81%) live farther than 2 miles from campus.

Figure 7 Comparison of Student Travel Distances from 2010-2011 and 2016-2017



Site Conditions

Traffic

Recent traffic volume data from the Virginia Department of Transportation, shows that the average daily volumes along Route 7 as it passes the study area are relatively high. However, the volumes on the north side of I-66 are about 25% higher than they are through the study area. This is a result of traffic moving southbound on Route 7 exiting onto I-66 before reaching the study area, as well as a higher share of traffic exiting northbound from I-66 onto Route 7 compared to those exiting southbound.

While the traffic volumes on Route 7 are high, all other streets surrounding the study area have volumes that are quite low in comparison. Haycock Road, for example, has about a third of the volume as Route 7, yet based upon the existing roadway configuration has the ability to accommodate a similar capacity. The traffic volumes on many of the streets surrounding the study area, as well as intersection level of service and delay can be seen on the maps in Figure 8.

Turning movement counts for primary intersections around the study area were taken during the AM and PM peak periods in December of 2016. These counts were used to determine the Levels of Service (LOS), a measure of traffic flow/delay, at each intersection surrounding the study area. According to the data collected and analysis undertaken, the intersection of Haycock Road and Route 7 exhibits a poor level of service (LOS E) with the average vehicle delay approaching 60 seconds during both peak periods. LOS E indicates that there is an unstable traffic flow that is at or near capacity.

During both the AM and PM peak periods, more than 30% of all vehicles passing through this intersection were performing turning movements. The greatest number of these turning movements originated from the southbound left turn lanes on Route 7, comprising between 24-28% of the total southbound movements. This high volume of turning movements contributes to the delay occurring at this

intersection, and also indicates increased potential of conflict for pedestrians traveling through the intersection. The total counts of all movements through this intersection for both the AM and PM peak periods can also be seen on the maps in Figure 8.

Route 7 and Haycock Road Intersection

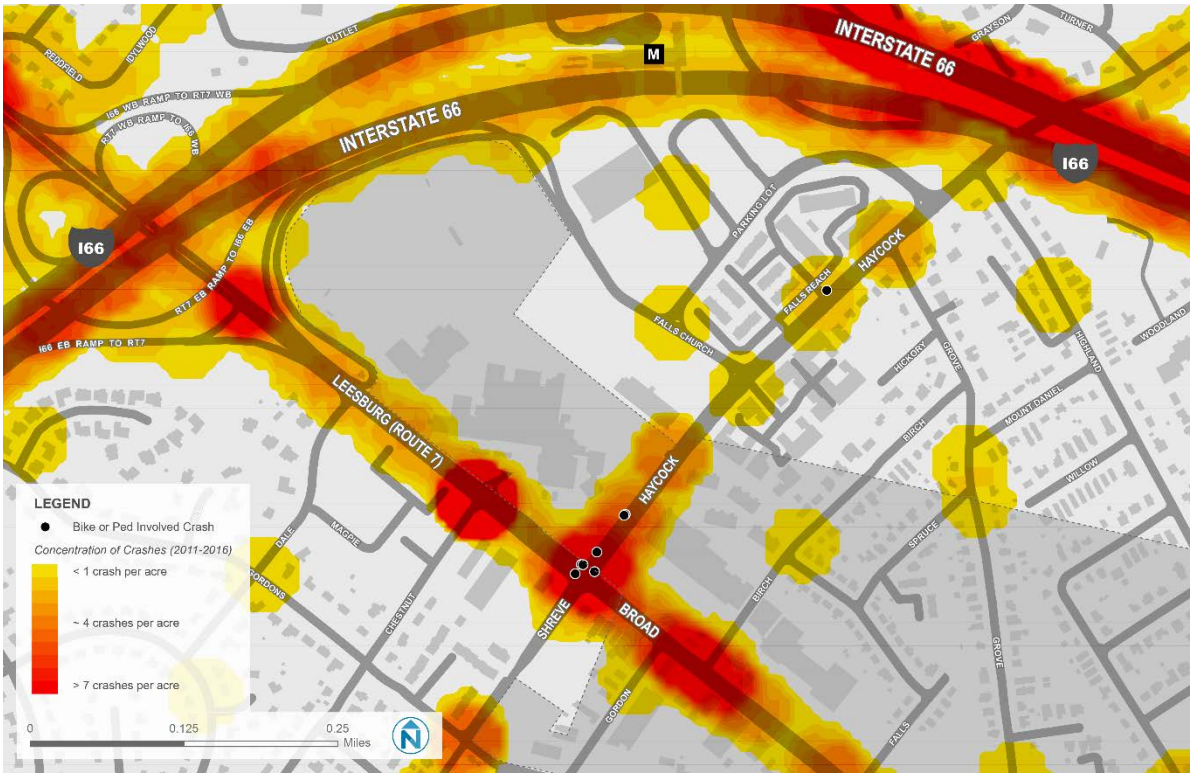
The intersection of Haycock Road and Falls Church Drive is the only other intersection that exhibited a Level of Service lower than LOS A, and this occurred during the PM peak hour. There was significantly more traffic (nearly 4 times as much) entering the intersection from Falls Church Drive during the PM peak, which is directly related to the exiting vehicles from the Metro Station parking facilities.

Figure 8 Average Daily Traffic and Intersection Level of Service

Safety

Between January 2011 and August 2016, more than 100 crashes were reported on the streets surrounding the study area at an average of just fewer than 25 crashes per year The vast majority (more than 70%) of the total crashes occurred along Route 7, with a significant concentration around the intersection with Haycock Road, illustrated in Figure 9.

Figure 9 Concentration of Crashes Reported 2011-2016



The location with the greatest number of crashes near the study area is the intersection of Route 7 and Chestnut Street, which is an unsignalized intersection. The majority (87%) of the crashes reported at this intersection were angle crashes, most likely related to vehicles turning left onto Route 7 from Chestnut Street. The remaining crashes at the intersection were rear end crashes. The most common crash types reported within the general study area included angle crashes and rear end crashes, comprising more than 80% of the total crashes. The top five most common crash types for the study area are listed in Figure 10.

Figure 10 Most Common Crash Types in the Study Area

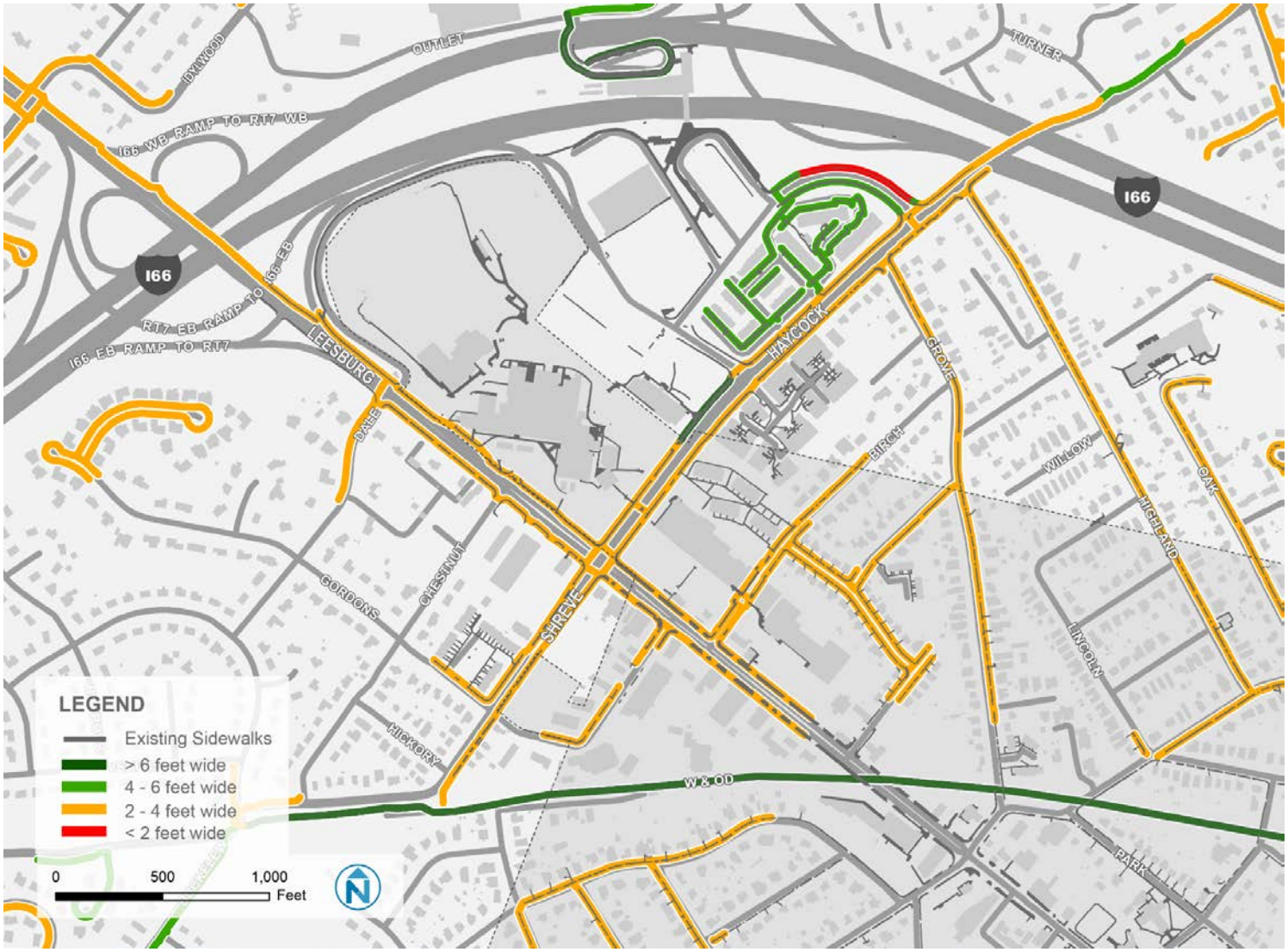
Crash Type	Percentage of Total
Angle	44%
Rear End	41%
Sideswipe - Same Direction	4%
Pedestrian	4%
Fixed Object - Off Road	3%

Out of the 100+ crashes near the study area, only 8 were reported as involving either a pedestrian or bicyclist. While few in number, pedestrian-involved crashes were the fourth most common crash type in the area. None of these crashes resulted in fatalities, however all but one resulted in some form of injury. Most of these crashes occurred near the intersection of Haycock Road and Route 7, and 6 out of the 8 crashes occurred during typical commuter time periods. It is known that crash data does not always tell the full story for non-motorized users, as many crashes and/or near-misses that involve bicyclists and pedestrians go unreported.

Pedestrian Conditions

There are approximately 36 miles of sidewalks within the City of Falls Church, covering around 50% of the total street network in the city. As illustrated on the map in Figure 11, in many locations where sidewalks do exist they are narrow and poor quality. The vast majority of sidewalks surrounding the site are only 2-4 feet wide, and are located adjacent to the roadway with no or limited buffer.

Figure 11 Existing Sidewalk Conditions



Pedestrian related challenges within and surrounding the study area include:

- A significant volume of vehicular traffic during school arrival and dismissal times
- Circulation patterns that prioritize vehicular movement over pedestrian paths
- Perception of high vehicle speeds on adjacent streets
- Adjacent streets are a significant barrier to cross due to turning movements and street widths
- Missing or insufficient sidewalks and crossings
- Unfriendly walking environment due to lack of pedestrian amenities

Winding Pedestrian Walkway Designed around Vehicular Circulation

Narrow Sidewalks Directly Adjacent to
High-Speed Roadway without Adequate Crossing Facility

Bicycling Conditions

There are currently no existing bicycle facilities within or immediately adjacent to the study area. However, previous planning efforts for the area have recommended extending the City's bike network to connect to the campus, and the Falls Church Bicycle Master Plan includes a number of new facilities and connections around the study area:

- An off-street trail connecting Haycock Road to the West Falls Church Metro Station
- An on-street, separated facility along Shreve/Haycock Road connecting the W&OD Trail to another proposed facility along the I-66 corridor
- An off-street pedestrian and bike trail connecting Haycock Road to the W&OD Trail at Grove Avenue through the rear of the Falls Plaza/West Falls Shopping Center
- An on-street facility connection across Broad Street (Route 7) between the Falls Plaza/West Falls Shopping Center and the W&OD Trail

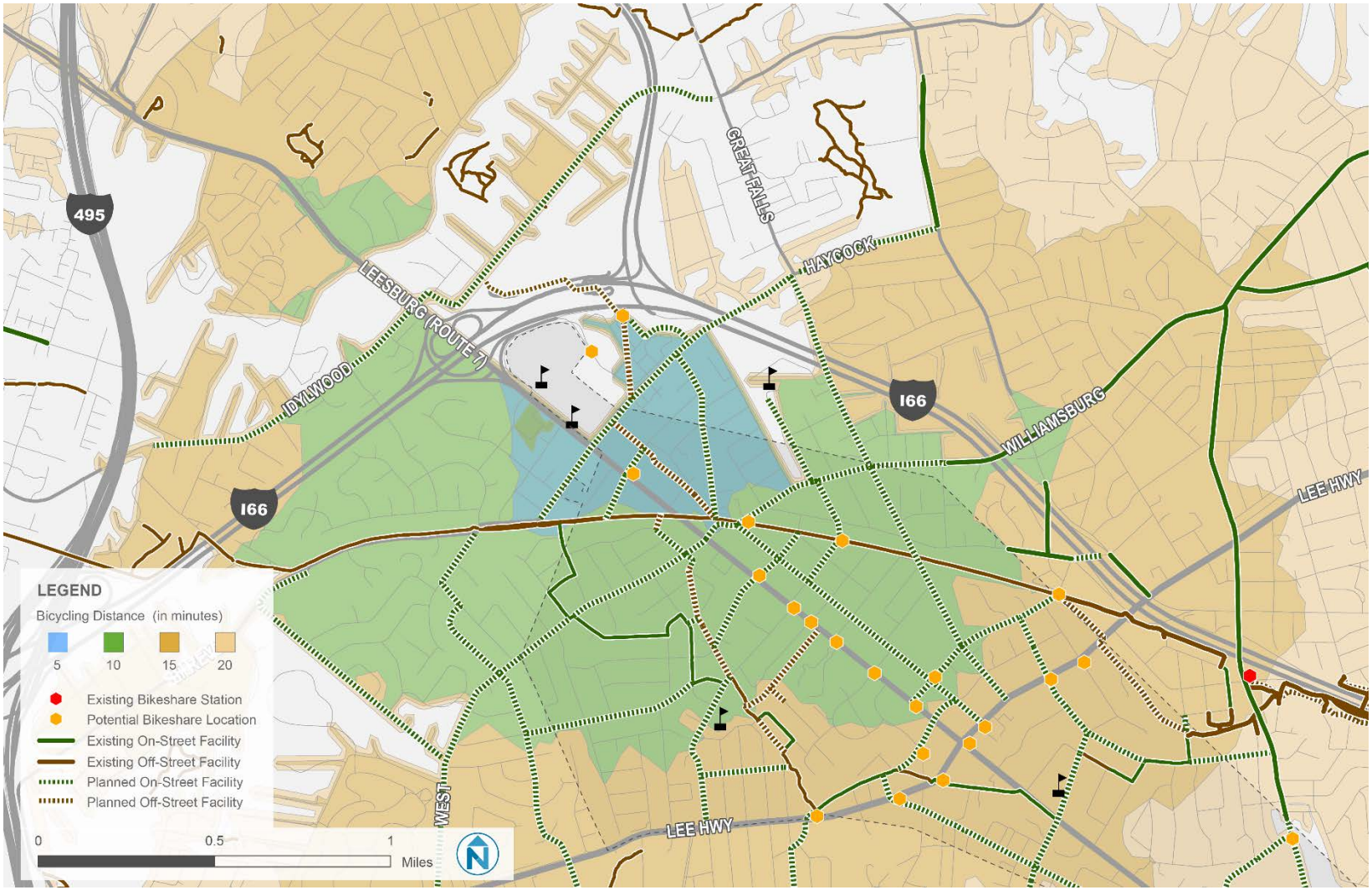
All of the facilities proposed in the Bicycle Master Plan can be seen on the map in Figure 12. Many of these planned facilities highlight the desire for safe accommodations to City schools, as well as connectivity with the larger regional bike network. It will be critical to explore additional connections into and through the study area, particularly as it pertains to providing safe accommodations for students and staff at MEHMS and GMHS.

The map in Figure 11 also illustrates the distances a person can travel by bicycle from the southern entrance of the West Falls Church Metro Station. Nearly the entire City of Falls Church can be reached within a 20-minute bicycle ride from the station, as well as many neighborhoods beyond the City's borders. All of the potential bike share station locations under consideration as part of the Capital Bikeshare expansion are also within a 20-minute bike ride of the West Falls Church station, most of them reachable in less than 15 minutes.

Bikes Locked to Poles at George Mason HS

West Falls Church Metro Station Bike Parking

Figure 12 Existing and Planned Bicycle Facilities



Bicycling related challenges within and around the site are similar to those facing pedestrians:

- A significant volume of vehicular traffic during school arrival and dismissal times
- Internal circulation network that prioritizes vehicular movement over bicycle traffic
- Lack of secure places to park and lock bicycles upon arrival
- Perception of high vehicle speeds on adjacent streets
- Adjacent streets create significant barriers to cross
- Lack of bicycle facilities to accommodate young and/or novice riders

According to the Falls Church Comprehensive Plan, more than 1,000 bicyclists pass though the city everyday riding along the W&OD Trail. Data displayed through an online mapping tool developed by Strava Labs illustrates this heavy usage occurring along the trail. A screenshot of this online mapping tool can be seen in Figure 13. The data shown on this map represents the number of bicyclists riding in the area throughout 2015, though is limited to bicyclists who use the Strava application to track their rides. The thicker, red lines on the map represent the highest number of bicyclists, while the thinner, less visible, yellow lines represent the fewest number of bicyclists.

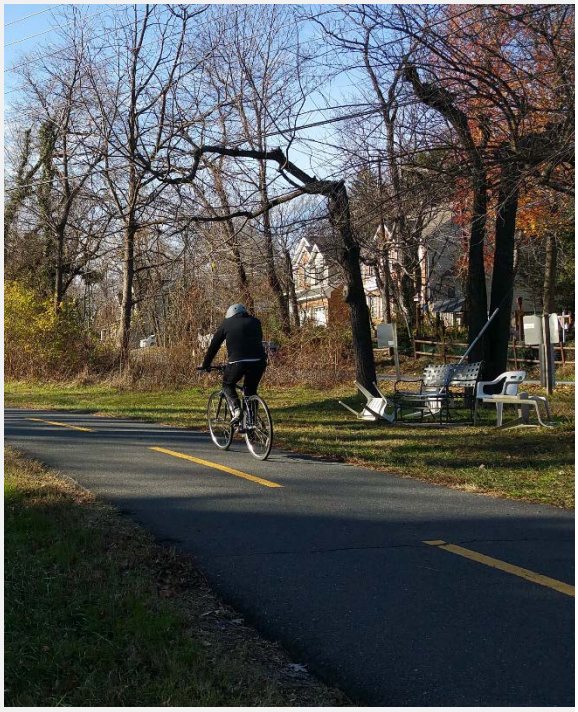
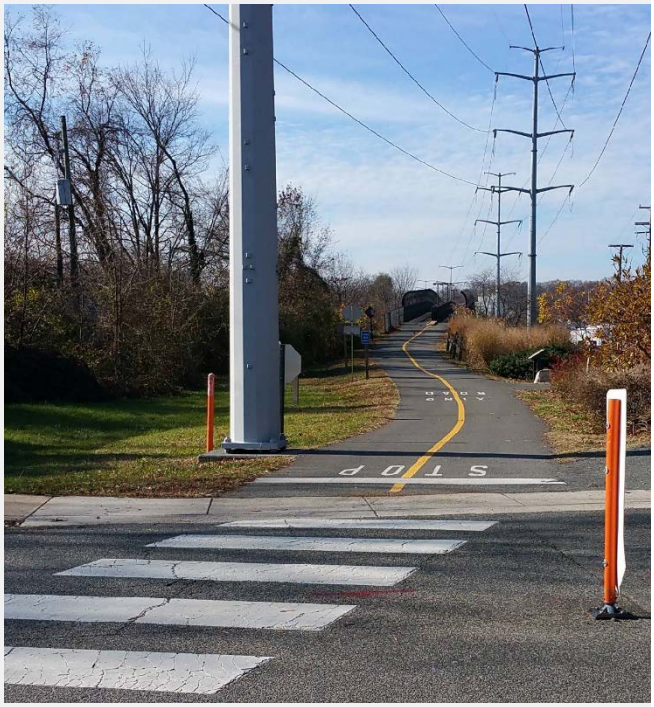
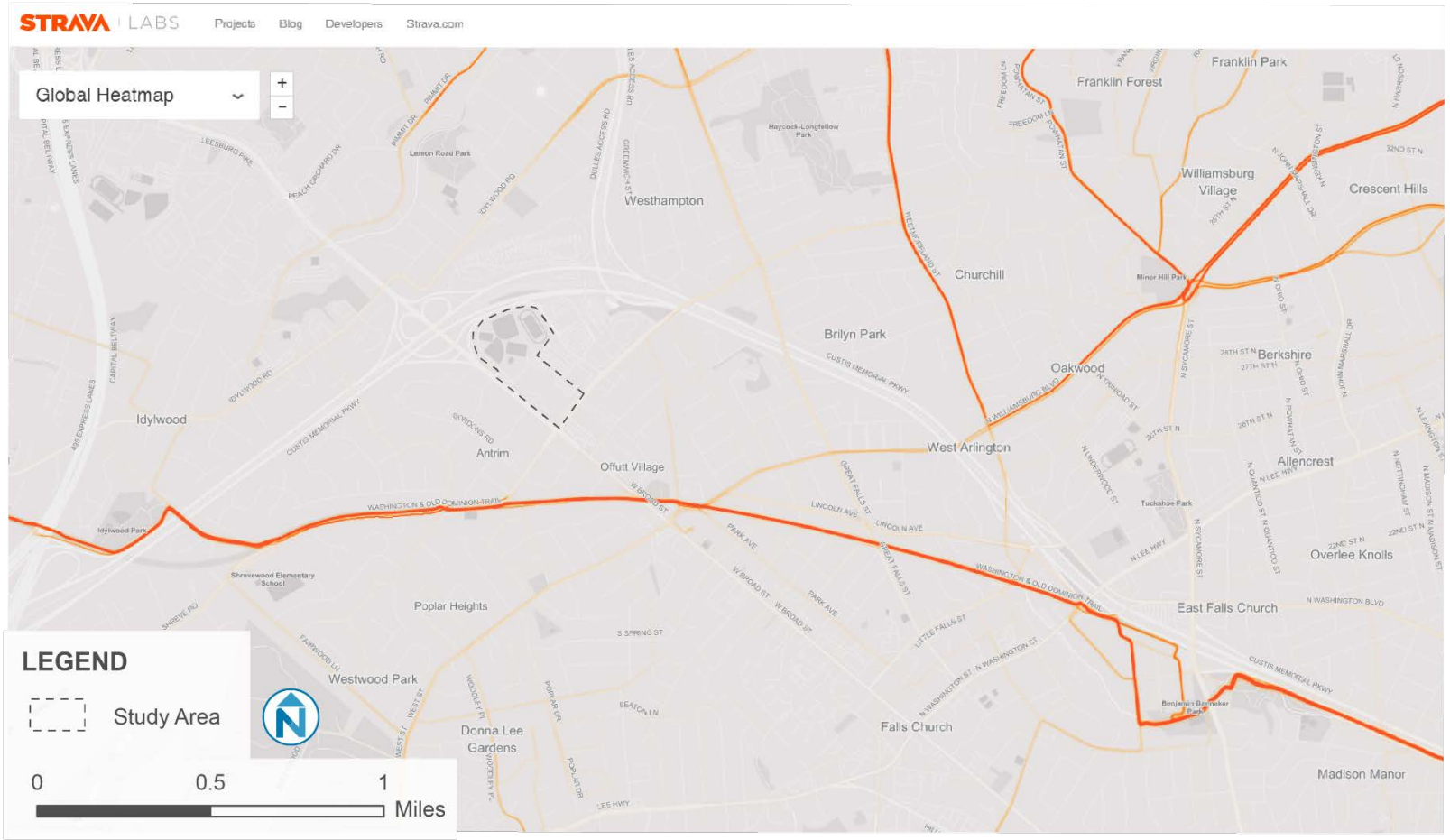
W & OD Trail Access from Shreve Road	W & OD Trail Access from Grove Avenue
	

Figure 13 Strava Labs Bicycling Data for Falls Church



Source: http://labs.strava.com/heatmap/#15/-77.18518/38.89878/orange/bik

Transit

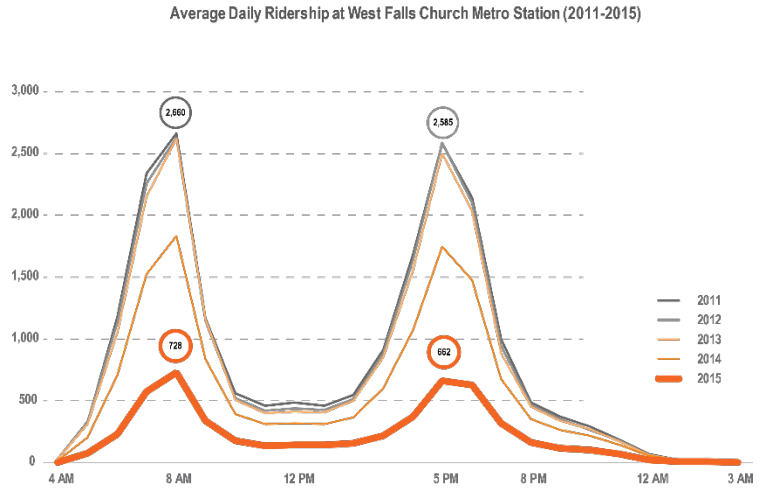
The West Falls Church Metrorail station is an important regional transportation hub located within walking distance of the study area. Prior to the opening of the Silver Line extension in July of 2014, the West Falls Church station served close to 10,000 riders per day. More than 25 bus routes operated by four different transit agencies served the Metro station, including service that connected commuters along the Route 267 and I-66 corridors to West Falls Church. When the Silver Line extension opened, the bus routes serving the West Falls Church station were reorganized and now only five routes serve the station.

West Falls Church Metro Station Entrance

After the opening of the Silver Line, many commuters from Reston and Tysons who previously commuted to West Falls Church for Metro access stopped using the station. Total weekday ridership at West Falls Church dropped to around 7,000 in late 2014 and to around 3,000 in 2015, less than a third of what it was in 2013.

The average weekday Metrorail ridership patterns at West Falls Church for 2011-2015 can be seen in Figure 14. This data represents the total number of entries and exits at the station over the course of a single weekday. In 2011, the station experienced more than 2,500 entries at exits during both the morning and evening peak hours. Fast forward to 2015, and the entries and exits during those same peak hours decreased by more than 70%.

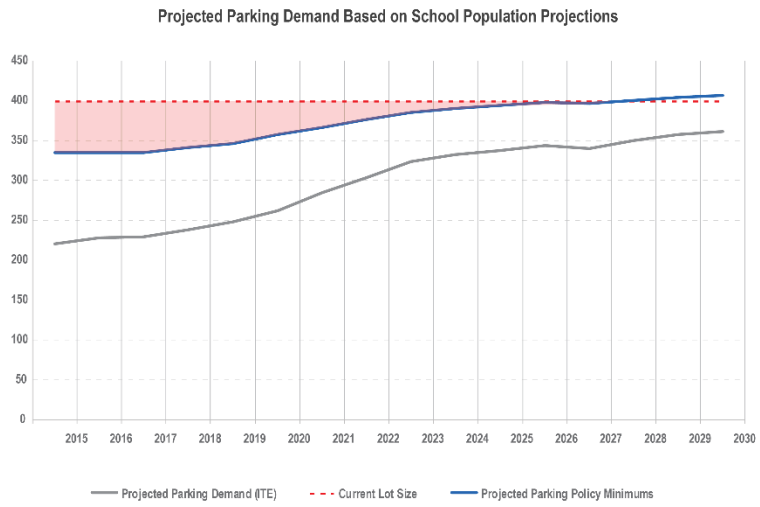
Figure 14 Station Ridership by Time of Day (2011-2015)



Parking

The current parking policy for Falls Church requires a dedicated parking space for every staff member, meaning the parking requirements will also increase with the growing student (and staff) numbers. The growth of this parking demand over time was estimated using the FCCPS student population projections for MEHMS and GMHS, and is illustrated by the graph in Figure 15.

Figure 15 Estimate of Future Parking Needs On-Site

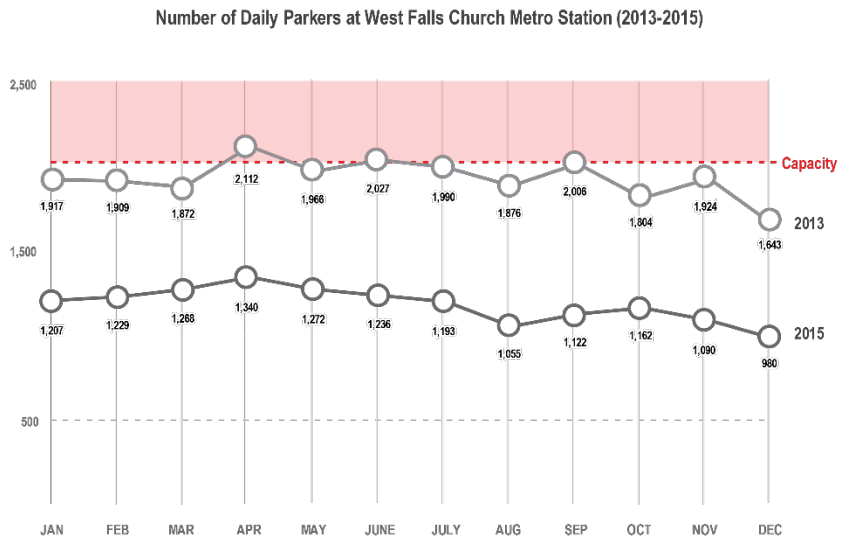


As shown in this graphic, the existing capacity of the parking currently on site is much higher than what is required by the City of Falls Church and based on the FCCPS projections, the parking requirement will meet the capacity of the existing parking lot by the 2025-2026 school year. For comparison, the graph in Figure 15 also illustrates the projected parking *demand* estimated using the Institute of Transportation Engineers (ITE) Parking Generation manual.

According to the ITE manual, the average peak period parking *demand* on site for middle schools equates to 0.09 vehicles per student, and 0.23 vehicles per student for suburban high schools. Based on the student populations at MEHMS and GMHS for the 2016-2017 school year, the ITE demand ratios indicate that parking demand between the two schools should equate to around 230 parking spaces. This is 105 spaces fewer than what is currently required by City policy and 170 spaces less than what is existing.

In 2013, prior to the opening of the Silver Line extension, the West Falls Church Metro parking lot and garage regularly experienced sufficient demand to fill near to and even over capacity. After the extension opened in 2014, both the ridership at the station and demand for parking at the station dropped significantly. In 2015, weekday utilization of the parking lot and garage decreased to an average of 59% occupied spaces compared to an average of 96% in 2013. The average weekday utilization of the parking lot and garage over the course of both 2013 and 2015 is illustrated in Figure 16.

Figure 16 WMATA Parking Utilization by Month (2013 v. 2015)



This data represents the average number of spaces occupied on a given weekday for each month of the year.

Data on the utilization of metered spaces around the Metro station as well as the parking area that serves the VT/UVA Northern Virginia Center was not available, but neither of these parking areas appear to be widely used based upon observations during site visits.

Short-Term Metered Spaces at West Falls Church Metro

Challenges and Opportunities

Some of the most notable challenges that have been identified within the site include the barriers to walking and bicycling. It will be critical for any redevelopment or reconfiguration of the site to consider these conditions and make improvements that enable students, staff, and area residents to access the site (and adjacent Metro station) on foot or by bike. This is especially important for the students and staff who live nearest to the campus, but currently feel the need to get to school by car.

Other safety related challenges include the crashes occurring at intersections surrounding the site. It will be important to consider the roadway conditions that are contributing to these crashes and make the physical improvements necessary to mitigate future crashes.

While there are many challenges on site, there are also notable opportunities. The proximity of the site to the West Falls Church Metro station provides a prime opportunity for transit-oriented development and enhanced transit access to and from the site. In addition to the Metro station, the Route 7 BRT line will eventually travel directly adjacent to the site, introducing additional high-frequency transit access. Even without existing connections, the proximity of the site to the W&OD Trail presents a significant opportunity to develop better access to and from the site for those interested in bicycling and/or walking.

The properties adjacent to the site have seen a stark decrease in utilization of parking on-site, opening up an opportunity for shared parking scenarios in the future. Surface parking lots currently act as major barriers to access, limit connectivity between neighboring sites, as well as inhibit pedestrian activity in the area. However, these lots offer the opportunity for redevelopment and the creation of new connections.

While there is significant traffic along Route 7, many of the other streets surrounding the site have more space dedicated to cars than is necessary. This excess space provides opportunities for pedestrian improvements and bicycle facility connections. The key to unlocking these opportunities will be working with the community and area stakeholders to ensure that all needs and interests are included in the planning process.

This following section presents recommended strategies to address the issues identified earlier in this chapter.

RECOMMENDATIONS

Vision

In order to develop the recommended strategies, the following assumptions were taken into account about the future of the study area and follow along from the previous Urban Land Institute development program:

- 10 acres on the school site nearest the intersection of Haycock Road and Broad Street will be redeveloped as a mixed-use environment.
- The mix of uses may include retail, commercial, office, and residential.
  - 700 residential units (apartments, condominiums, active living)
  - 130,000 sq. ft office/medical office
  - Health club/movie theater/restaurant
- The development will encourage the use of transit, walking, and bicycling through street design and streetscape.

The opportunities presented by the site's proximity to significant regional transportation resources such as the West Falls Church Metro Station, future Route 7 BRT, and the W&OD Trail creates a wealth of transportation options for traveling to and from the site. An intensive, mixed-use development on the site that supports and encourages the use of these transportation modes can help to balance the mode split for both commute trips and non-commute trips. Based on these factors, the target mode splits for the study area are listed in the chart in Figure 17.

Figure 17 Current and Target Mode Share for the Study Area

	Walk & Bike	Transit	Drive
Target Mode Share for Commute Trips	10%	40%	50%
Target Mode Share for All Trips	5%	25%	70%

Strategies

The following strategies were developed to enhance the existing transportation network and create an environment more suitable for the redevelopment of the site. These strategies will help to improve safety and access for all modes of transportation to, from, and through the site.

Street Network

The recommended strategies for improving connectivity and travel within and surrounding the study area are shown on the map in Figure 17.

Strategy: Work with the University of Virginia, Virginia Tech, and WMATA to create new street connections through the site to improve network connectivity.

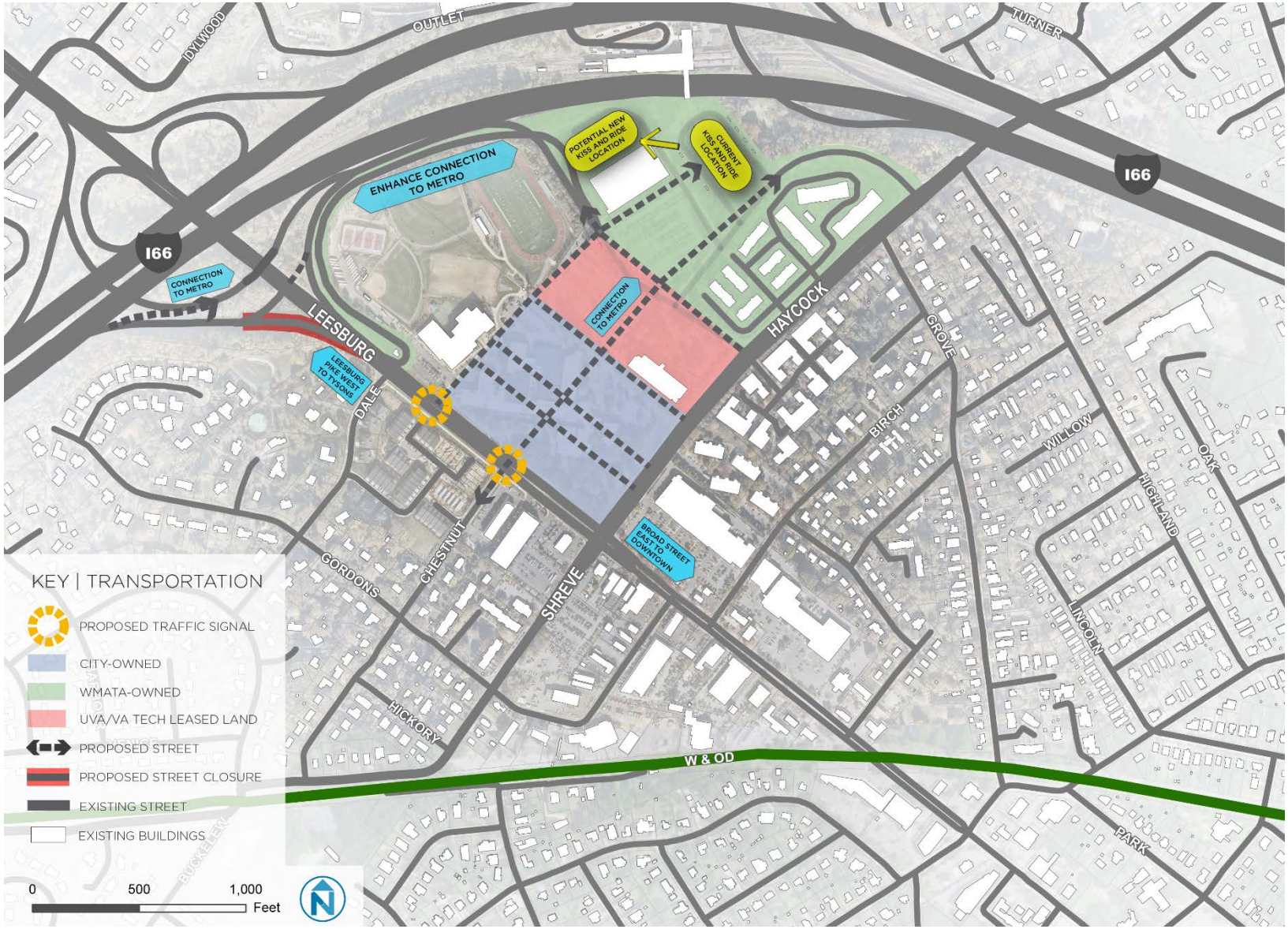
Strategy: Work with VDOT to establish new traffic signals at the intersections created by new street connections to Route 7. These signals will address safety challenges that currently exist at these locations, and will provide additional safe crossings for bicyclists and pedestrians.

Strategy: Work with VDOT to establish new connection from I-66 off-ramp to Metro, and redesign intersection with I-66 on-ramp from Route 7 to mitigate speed and safety concerns.

Street Design

To be collaborated with final RHI materials

Figure 18 Proposed Street Network Improvements



Bicycle Network

The recommended strategies for improving bicycle access and connectivity within and surrounding the study area are shown on the map in Figure 18.

Strategy: Work with VDOT to implement a shared path along the east side of Route 7 that will serve as both a pedestrian walkway and bicycle facility.

Strategy: Establish high quality bicycle connections from the site to the W&OD Trail.

Strategy: Utilize the toolkits provided in this chapter to determine the appropriate bicycle facilities and treatments for the study area bike network. Reference the NACTO Urban Bikeway Design Guide for more detailed design recommendations.

On-Street Bicycle Facilities

The following section provides a toolkit of bicycle facility types (Figure 19) that should be used to create a bicycle network. Each facility type serves a different purpose and provides a different level of comfort for different types of riders. Bicycle facilities must respond to the surrounding land uses and transportation environment, and should be selected based on the traffic volumes and traffic speeds on the street. A high quality facility feels safe, is separated from vehicles, and has minimal conflicts with pedestrians.

Intersection Treatments

Intersection design is a critical aspect of bicycle network design that is often overlooked. Good intersection design makes bicycling more comfortable and attractive, reduces conflicts with motor vehicles and pedestrians, and contributes to reduced crashes and injuries. The following section provides a toolkit of intersection treatments (Figure 20) that can be used to connect bicycle facilities and accommodate bicyclists. In addition to using these tools, it is critical to consider the following:

- Designs should maintain continuity of bicycle facilities to the maximum extent possible.
- Dedicated bicycle lanes should continue striping through intersections to provide guidance for bicyclists.
- Bicycle lane markings, including green colored pavement, shared lane markings, dashed bicycle lane lines, and signage may be provided through intersections per engineering judgement.
- Shared lane markings may be used where space is not available for bicycle lanes at intersections. This should only be used when no other design solution is possible.

Figure 19 Proposed Bicycle Network Improvements

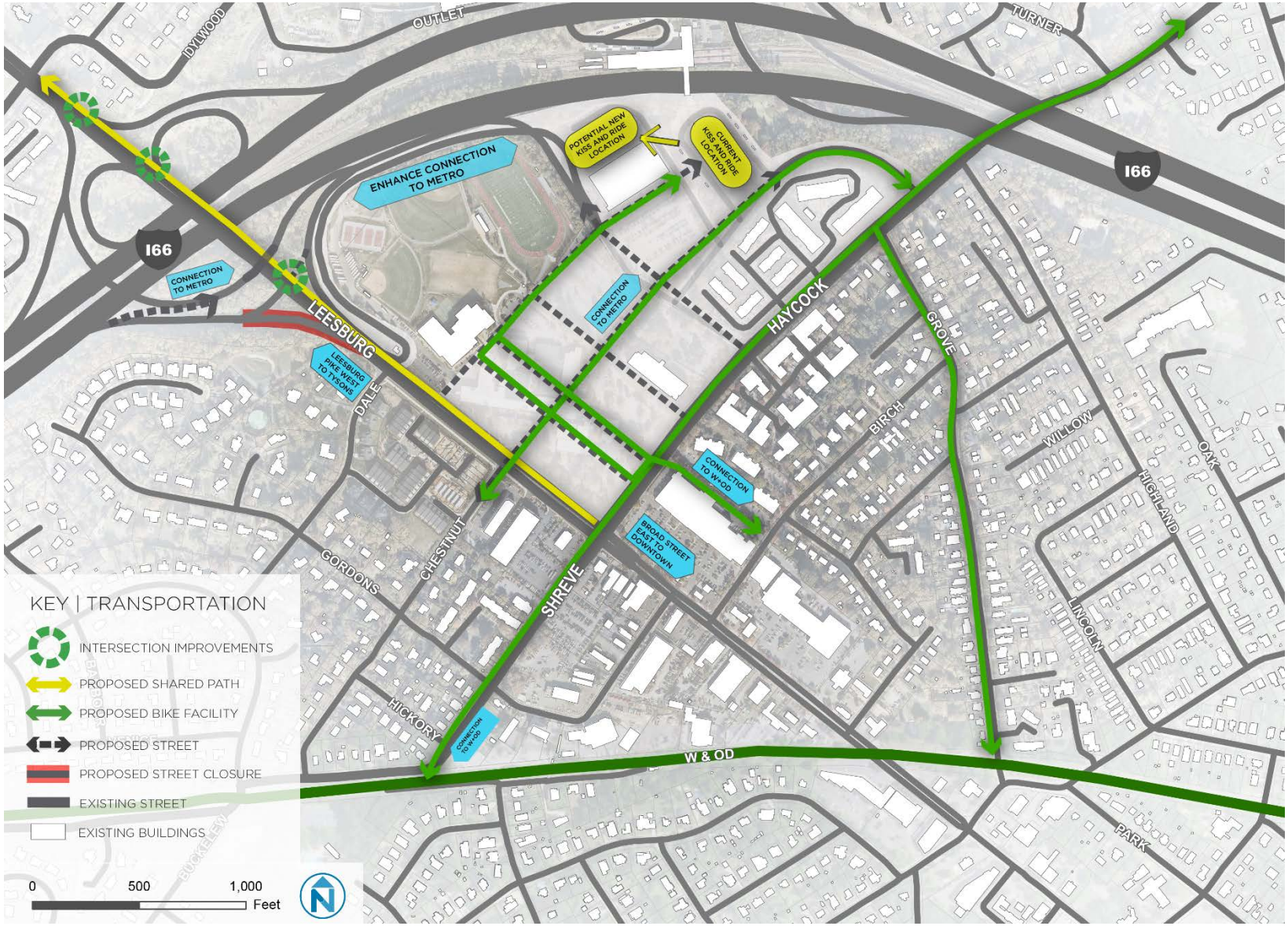

IDYLWOOD
OUTLET
TURNER
I66
ENHANCE CONNECTION TO METRO
POTENTIAL NEW KISS AND RIDE LOCATION
CURRENT KISS AND RIDE LOCATION
CONNECTION TO METRO
LEESBURG
LEESBURG PIKE WEST TO TYSONS
DALE
HAYCOCK
GROVE
BIRCH
WILLOW
OAK
HIGHLAND
CONNECTION TO W+OD
BROAD STREET EAST TO DOWNTOWN
CHESTNUT
CORDONS
SHREVE
LINCOLN
HICKORY
W & OD
PARK
KEY | TRANSPORTATION
INTERSECTION IMPROVEMENTS
PROPOSED SHARED PATH
PROPOSED BIKE FACILITY
PROPOSED STREET
PROPOSED STREET CLOSURE
EXISTING STREET
EXISTING BUILDINGS
0
500
1,000
Feet

Figure 20 On-Street Bicycle Facilities

Shared Lane	Bicycle Lane
	
Sharrows, or shared lane markings, are pavement markings that alert motorists to expect cyclists and orient bicyclists to the preferred line of travel within the lane.	Bicycle lanes are dedicated bicycle facilities delineated by striping, signage, and pavement markings. The target width recommended for bicycle lanes is five feet.

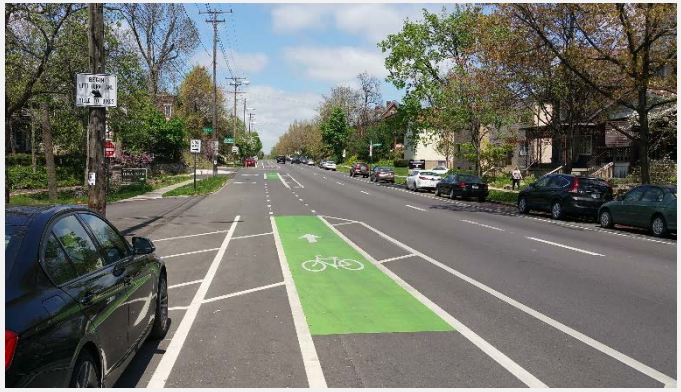
Buffered Bicycle Lane	Protected Bike Lane
	
Buffered bicycle lanes are dedicated bicycle facilities with separation between the bicycle lane and other roadway uses. Separation is provided by a flush, painted zone between the bicycle facility and adjacent vehicle lanes.	Protected bicycle lanes or separated bike lanes, are on-street bicycle facilities that are physically separated from general traffic. Physical barriers can include curbs, parked vehicles, planted medians, or flexible posts.

Figure 21 Intersection Treatments for Bicycle Facilities

Intersection Markings	Merge Markings
	
Pavement markings for bicycle facilities should continue through the intersection to indicate where bicyclists can be expected to cross. This can include green colored pavement or dashed lines.	When providing a dedicated lane for vehicular turn movements, the bicycle facility should continue straight while vehicles merge across the lane.

Two-Stage Turn Queue	Bike Box
	
Provides a protected area for cyclists to move out of the through lane or bicycle lane and wait for the green cycle of the intersecting road before proceeding across to complete a (usually left) turn.	A bike box is a dedicated area for bicyclists at the front of a traffic lane at a signalized intersection, but behind the crosswalk.

Pedestrian Network

The recommended strategies for improving bicycle access and connectivity within and surrounding the study area are shown on the map in Figure 21.

Strategy: Work with VDOT to implement a shared path along the east side of Route 7 that will serve as both a pedestrian walkway and bicycle facility.

Strategy: Establish high quality pedestrian facilities within the study area on both new and existing streets. Follow the guidelines described in this chapter and reference the Falls Church Streetscape Design Manual for appropriate standards.

Strategy: Consider creating shared streets, or woonerfs, within the site redevelopment where pedestrian activity is priority.

Falls Church Streetscape Standards

Pedestrian Infrastructure and Facility Design

The pedestrian environment is generally defined as the portion of the streetscape between the curb line and the property line. This space may extend into the street (through curb extensions, parklets, shared streets, or crosswalks) as well as the private realm (through activated frontages, parks, or plazas). The following section provides a toolkit of pedestrian facilities (Figure 22) that should be used to create a quality pedestrian environment.

The pedestrian environment includes a variety of elements, and is split into three different zones:

- Building Zone – activity space along the building façade
- Pedestrian Zone – clear path of travel for pedestrians
- Amenity Zone – space for street furniture and amenities

Whether a sidewalk or other type of facility, the pedestrian zone must, at minimum, provide a clear, unobstructed pathway sufficient to accommodate persons with disabilities. Additionally, it is important to consider the following for design of the pedestrian zone:

- The pedestrian zone should be an inviting place with adequate light and shade to create a comfortable pedestrian environment.
- The best sidewalk design is wide enough to enable small groups to walk side by side engaging in conversation and pass oncoming pedestrians without conflict.

Figure 22 Proposed Pedestrian Network

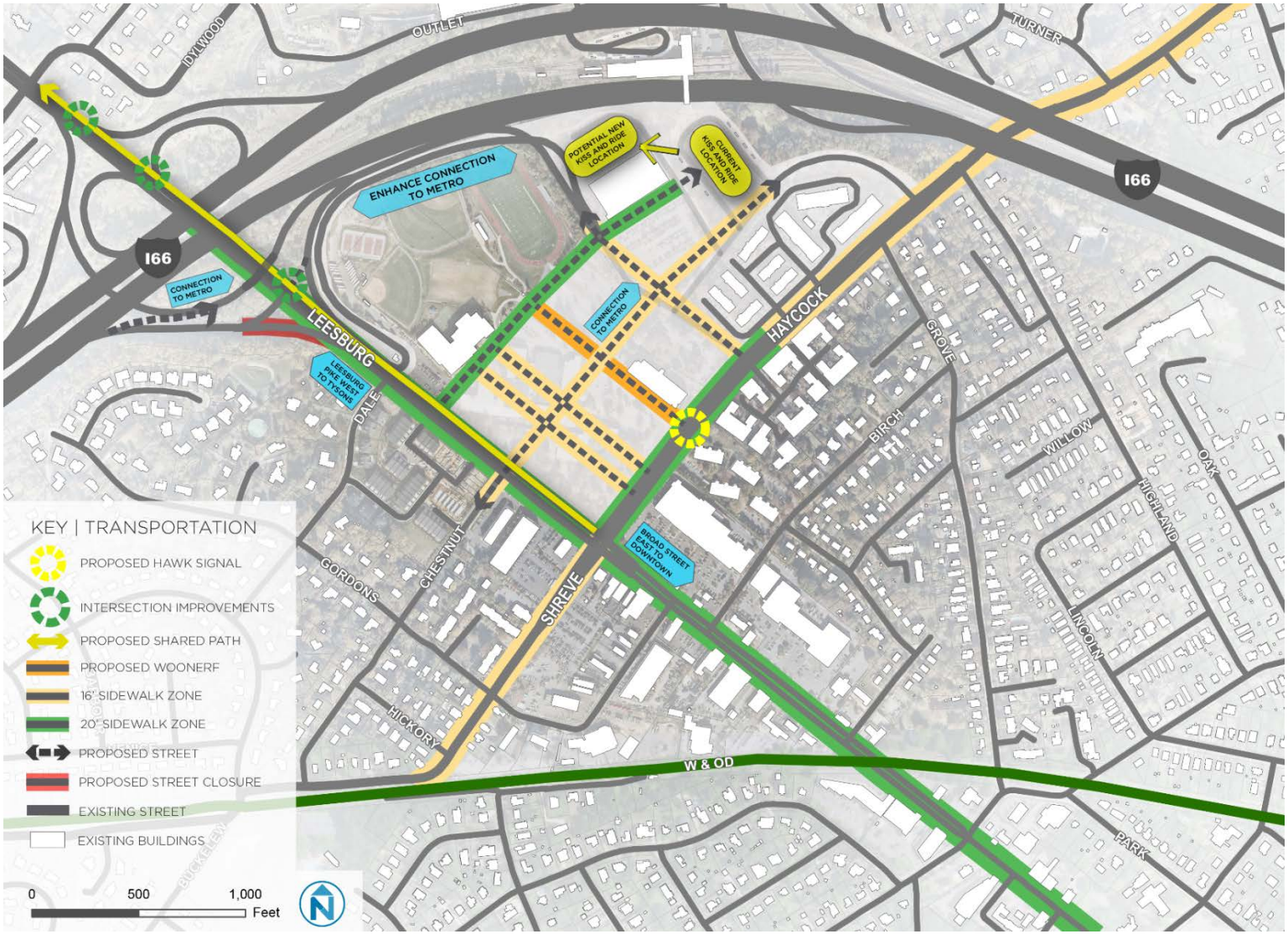


Figure 23 Pedestrian Facility Toolkit

Driveway Crossings	Crosswalks
	
Sidewalks should continue at grade across driveways. Sidewalk materials should continue through these crossings to indicate the priority of the pedestrian zone.	Crosswalks should be implemented on all legs of an intersection. As the speed, volume of traffic, and width of a street increases, pedestrian crossings may require enhancements to make them more conspicuous.

Shared Paths	Woonerf, or Shared Street
	
Shared paths are paved off-street facilities shared by both bicyclists and pedestrians. These facilities are generally wider than a typical sidewalk and are often used as an alternative for streets with higher volumes and speeds.	Woonerfs are low-speed and low-volume streets shared by motorists, bicyclists, and pedestrians. These streets often have textured pavement to cue motorists to slow down and be aware of other users. They are designed to prioritize pedestrians and encourage “walking speed” for all users.

Transit

The recommended strategies for improving transit access and circulation within and surrounding the study area are shown on the map in Figure 23.

Strategy: Work with VDOT to establish new connection from I-66 off-ramp to the West Falls Church Metro Station, and redesign the loop road to enhance the connection to Metro.

Strategy: Coordinate with the Route 7 Bus Rapid Transit (BRT) planning to establish a connection to the West Falls Church Metro Station.

Strategy: Work with WMATA to relocate the Kiss and Ride/Bus loop for easier access. Realign bus circulation to the station so the routing is less circuitous.

Strategy: Implement Transit Signal Priority at Haycock Road and the new loop road intersection to increase efficiency of the transit access to West Falls Church Metro.

School Buses

The recommended strategies for improving school bus access and circulation within and surrounding the study area are shown on the map in Figure 24.

Strategy: Establish a drop-off zone alongside Mary Ellen Henderson that enables school bus circulation and safe crossing pathways for students.

Strategy: Reroute school buses to use either Haycock Road and Falls Church Drive, or continue along Route 7 to use the proposed internal site network. The final circulation routes will be determined based on the future high school location.

Parking

The provision of shared parking facilities is a key goal in the redevelopment of the schools related parcel. With the potential for varied uses on the site including school related uses, residential, commercial and office, there will be differing demands throughout the day for parking. In addition, given the close proximity of transit (and transit parking facilities), enhancement of pedestrian and bicycle facilities, there is an opportunity to reduce the amount of required parking in this area.

With the adjacent WMATA parking facilities and the surface lot associated with the UVA/Va. Tech building, there are existing parking facilities with substantial availability. It is essential for the City to determine the adequate number of spaces required for the future school uses and that of the future development on related parcels to ensure a district wide parking program.

Strategy: Work with WMATA to create a district wide parking management program.

Strategy: Promote and develop a shared parking policy for the planning opportunity area.

Strategy: Consider partnering with car share businesses for further reductions in parking demand.

Figure 24 Proposed Transit Network

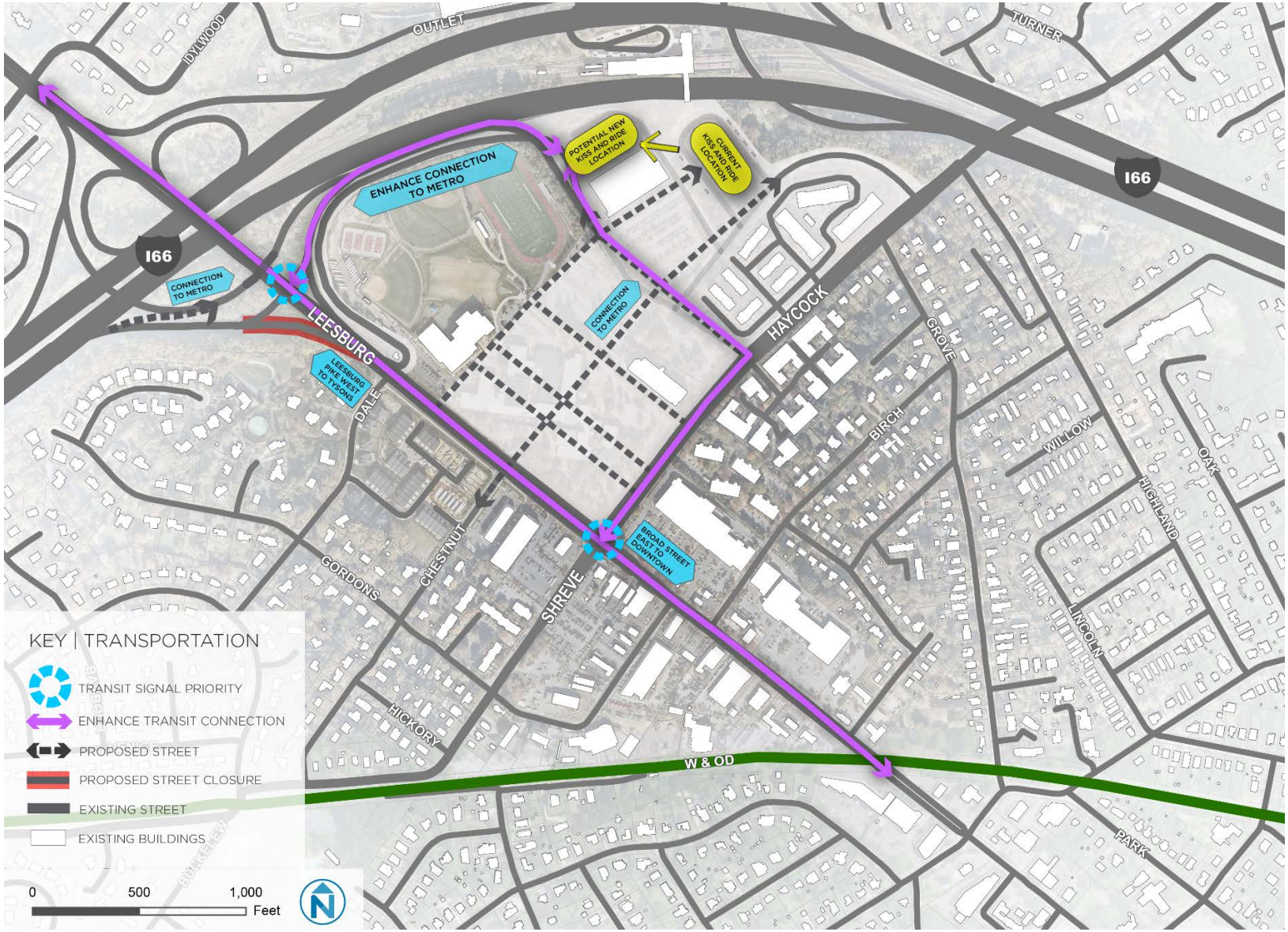


Figure 25 Proposed School Bus Routes