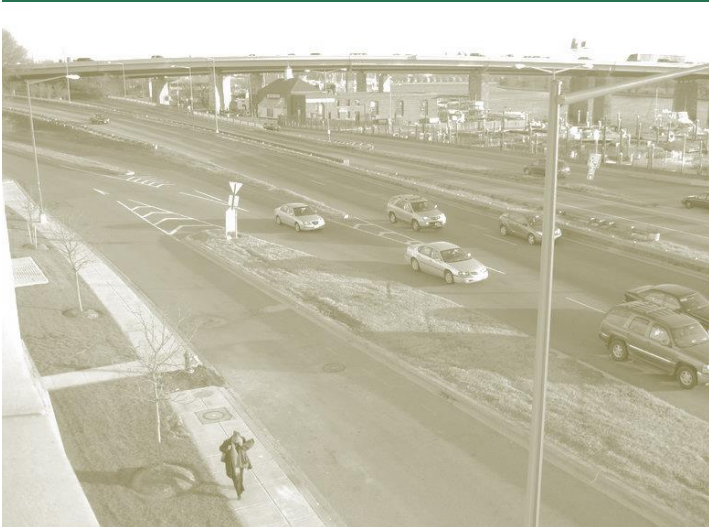




TRANSPORTATION IMPACT STUDY

McMILLAN SAND FILTRATION SITE PUD

WASHINGTON, DC



March 17, 2014

 **GOROVE / SLADE**
Transportation Planners and Engineers

ZONING COMMISSION
District of Columbia
CASE NO.13-14
EXHIBIT NO.32D1

Prepared by:



1140 Connecticut Avenue NW
Suite 600
Washington, DC 20036
Tel: 202.296.8625
Fax: 202.785.1276

3914 Centreville Road
Suite 330
Chantilly, VA 20151
Tel: 703.787.9595
Fax: 703.787.9905

15125 Washington Street
Suite 136
Haymarket, VA 20169
Tel: 703.787.9595
Fax: 703.787.9905

www.goroveslade.com

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Contents

Executive Summary.....	i
Introduction.....	1
Project Summary.....	1
Purpose of Study.....	1
Contents of Study.....	1
Study Area Overview.....	3
Major Transportation Features.....	3
Population Characteristics.....	7
Future Regional Projects.....	7
Project Design.....	14
Parcel Overview.....	14
Parking.....	17
Loading.....	17
Bicycle Parking.....	18
Site Transportation Demand.....	22
Weekday Trip Generation.....	22
Saturday Trip Generation.....	22
Trip Generation Comparison.....	22
Roadway and Vehicular Impacts.....	30
Roadways.....	30
Study Area.....	30
Capacity Analysis.....	34
Summary of Improvements and Recommendations.....	85
Transit.....	88
Transit Capacity Analysis.....	88
On-Site Transit Facilities.....	101
Summary of Improvements and Recommendations.....	107
Pedestrian Facilities.....	109
Existing Conditions.....	109
Pedestrian Crosswalk Level of Service.....	116
Pedestrian Site Design.....	117
Bicycle Facilities.....	121
Existing and Proposed Bicycle Facilities.....	121
Bicycle Link Analysis.....	121
Future On-Site Bicycle Facilities.....	122
Crash Data Analysis.....	128
Summary of Available Crash Data.....	128
Potential Impacts.....	128
Transportation Demand Management.....	130
Summary and Conclusions.....	131

Figures

Figure 1: Site Location.....	2
Figure 2: Major Regional Transportation Features	4
Figure 3: Major Local Transportation Facilities	5
Figure 4: Walkability Heat Map	6
Figure 5: Commuting Mode Split Percentage - Public Transit	8
Figure 6: Commuting Mode Split Percentage - Walking	9
Figure 7: Commuting Mode Split Percentage – Biking	10
Figure 8: Percentage of Households without a Car	11
Figure 9: Background Developments and Roadway Improvements.....	12
Figure 10: Summary of Development Program	15
Figure 11: Summary of Proposed Vehicular Access	16
Figure 12: Weekday Trip Generation Summary, Page 1 of 2	23
Figure 13: Weekday Trip Generation Summary, Page 2 of 2	24
Figure 14: Saturday Trip Generation Summary, Page 1 of 3.....	26
Figure 15: Saturday Trip Generation Summary, Page 2 of 3.....	27
Figure 16: Saturday Trip Generation Summary, Page 3 of 3.....	28
Figure 17: Existing Roadway Functional Classification.....	31
Figure 18: Driveshed Analysis for Site-Generated Trips (1 of 2)	32
Figure 19: Driveshed Analysis for Site-Generated Trips (2 of 2)	33
Figure 20: Study Intersections for Weekday AM/PM Peak Period Analysis	35
Figure 21: Study Intersections for Weekday AM/PM Peak Period Analysis	36
Figure 22: Minimum Growth Rates Calculated Based on MWCOG Projections	40
Figure 23: Traffic Volume Summary – Weekday AM Peak Hour (1 of 2)	45
Figure 24: Traffic Volume Summary – Weekday AM Peak Hour (1 of 2)	46
Figure 25: Traffic Volume Summary – Weekday PM Peak Hour (1 of 2)	47
Figure 26: Traffic Volume Summary – Weekday PM Peak Hour (1 of 2)	48
Figure 27: Traffic Volume Summary – Saturday Peak Hour	49
Figure 28: Capacity Analysis Results – Weekday AM Peak Hour (1 of 2).....	51
Figure 29: Capacity Analysis Results – Weekday AM Peak Hour (2 of 2).....	52
Figure 30: Capacity Analysis Results – Weekday PM Peak Hour (1 of 2).....	53
Figure 31: Capacity Analysis Results – Weekday PM Peak Hour (2 of 2).....	54
Figure 32: Capacity Analysis Results – Saturday Peak Hour.....	55
Figure 33: Summary of Recommended Improvements (1 of 2)	86
Figure 34: Summary of Recommended Improvements (2 of 2)	87
Figure 35: Percent Bus Commuting Mode Split of Total Transit Mode Split	91

Figure 36: Transit Study Area - Existing Conditions 92

Figure 37: Existing (2013) Ridership/Capacity Ratios..... 93

Figure 38: Proposed Transit Improvements 97

Figure 39: Future Background (2025) Ridership/Capacity Ratios (without McMillan PUD) 98

Figure 40: Total Future (2025) Ridership/Capacity Ratios (with McMillan PUD)..... 103

Figure 41: Shuttle Routes for Nearby Institutional Facilities 104

Figure 42: Existing On-Site Transit Facilities 105

Figure 43: Future On-Site Transit Facilities 106

Figure 44: Pedestrian Routes 110

Figure 45: Pedestrian Infrastructure 111

Figure 46: Morning Peak Pedestrian Link Analysis Results 113

Figure 47: Afternoon Peak Pedestrian Link Analysis Results 114

Figure 48: Off-Peak Pedestrian Link Analysis Results 115

Figure 49: Existing On-Site Pedestrian Circulation..... 119

Figure 50: Future On-Site Pedestrian Circulation 120

Figure 51: Existing and Proposed Bicycle Facilities 123

Figure 52: Morning Peak Bicycle Link Analysis Results 124

Figure 53: Afternoon Peak Bicycle Link Analysis Results 125

Figure 54: Off-Peak Bicycle Link Analysis Results..... 126

Figure 55: Future On-Site Bicycle Facilities 127

Tables

Table 1: Neighborhood Non-Auto Mode Scores (walkscore.com)	6
Table 2: Review of Parking Supply by Loading.....	19
Table 3: Review of Loading Facilities by Parcel.....	20
Table 4: Review of Bicycle Facilities by Parcel	21
Table 5: Trip Generation Comparison.....	22
Table 6: Weekday Peak Hour Trip Generation.....	25
Table 7: Saturday Trip Generation.....	29
Table 8: Summary of Analysis Assumptions.....	37
Table 9: Review of Background Developments	38
Table 10: Weekday Peak Hour Background Trip Generation.....	41
Table 11: Saturday Background Trip Generation.....	42
Table 12: Applied Background Growth Rates	42
Table 13: Review of Background Roadway Improvements.....	43
Table 14: Intersection Summary – Michigan Avenue NW & First Street NW (1 of 2).....	56
Table 15: Intersection Summary – Michigan Avenue NW & First Street NW (2 of 2).....	57
Table 16: Intersection Summary – Michigan Avenue NE/NW & North Capitol Street (1 of 2).....	58
Table 17: Intersection Summary – Michigan Avenue NE/NW & North Capitol Street (2 of 2).....	59
Table 18: Intersection Summary – Girard Street NW & North Capitol Street	60
Table 19: Intersection Summary – Franklin Street NE & North Capitol Street (1 of 2).....	61
Table 20: Intersection Summary – Franklin Street NE & North Capitol Street (2 of 2).....	62
Table 21: Intersection Summary – Evarts Street NE & North Capitol Street	63
Table 22: Intersection Summary – Douglas Street NE & North Capitol Street	64
Table 23: Intersection Summary – Channing Street NW & First Street NW	65
Table 24: Intersection Summary – Channing Street NE/NW & North Capitol Street (1 of 2).....	66
Table 25: Intersection Summary – Channing Street NE/NW & North Capitol Street (2 of 2).....	67
Table 26: Intersection Summary – Bryant Street NW & First Street NW.....	68
Table 27: Intersection Summary – Columbia Road NW & Georgia Avenue NW (1 of 2).....	69
Table 28: Intersection Summary – Columbia Road NW & Georgia Avenue NW (2 of 2).....	70
Table 29: Intersection Summary – Harvard Street NW & Georgia Avenue NW (1 of 2).....	71
Table 30: Intersection Summary – Harvard Street NW & Georgia Avenue NW (2 of 2).....	72
Table 31: Intersection Summary – W Street NW & Georgia Avenue NW (1 of 2).....	73
Table 32: Intersection Summary – W Street NW & Georgia Avenue NW (2 of 2).....	74
Table 33: Intersection Summary – North Service Court NW & North Capitol Street (1 of 2).....	75
Table 34: Intersection Summary – North Service Court NW & North Capitol Street (2 of 2).....	76

Table 35: Intersection Summary – Evarts Street NW & North Capitol Street (1 of 2)	77
Table 36: Intersection Summary – Evarts Street NW & North Capitol Street (2 of 2)	78
Table 37: Intersection Summary – Evarts Street NW & First Street NW (1 of 2)	79
Table 38: Intersection Summary – Evarts Street NW & First Street NW (2 of 2)	80
Table 39: Intersection Summary – North Service Court NW & First Street NW (1 of 2)	81
Table 40: Intersection Summary – North Service Court NW & First Street NW (2 of 2)	82
Table 41: Intersection Summary – Medical Office Driveway #1 & First Street NW (1 of 2)	83
Table 42: Intersection Summary – Medical Office Driveway #1 & First Street NW (2 of 2)	84
Table 43: Existing Metrobus Conditions	90
Table 44: Existing Metrorail Ridership	94
Table 45: Background Metrobus Conditions	96
Table 46: Background Metrorail Ridership	96
Table 47: Transit Mode Split	96
Table 48: Transit Trip Generation	99
Table 49: Total Future Metrobus Conditions	100
Table 50: North Capitol Corridor with Improvements	100
Table 51: Total Future Metrorail Ridership	100
Table 52: Sidewalk Requirements	109
Table 53: Pedestrian LOS Criteria	112
Table 54: Bicycle LOS Criteria	122
Table 55: Intersection Crash Rates	128
Table 56: High Crash Rate Intersections by Crash Type	129



EXECUTIVE SUMMARY

The following report is a Transportation Impact Study (TIS) for the McMillan Sand Filtration Site redevelopment. This report reviews the transportation aspects of the PUD (Planned Unit Development) application submitted on November 22, 2013, including the Stage 1 and Stage 2 PUD plans and Statement of the Applicant. This report and evaluation are based on the November 22, 2013 and February 18, 2014 submittals and site plans. Additions to the Applicant’s file after February 18, 2014 are not incorporated into this document.

The purpose of this study is to evaluate whether the PUD will generate a detrimental impact to the surrounding transportation network. This evaluation is based on a technical comparison of two future conditions: one with the PUD constructed and one without. This report concludes that **the PUD will not have a detrimental impact** to the surrounding transportation network as long as the report’s recommendations and mitigation measures are incorporated into the PUD application or made a condition of approval. These recommendations are summarized at the end of this executive summary and in detail in the body of the report.

The methodologies and analyses contained within are tailored to reach a conclusion on the impact of the PUD, and thus this report is not a general neighborhood study that makes recommendations to solve all existing and predicted transportation concerns near the PUD. Although some discussions within this report do discuss non-PUD generated

impacts including planning level suggestions on improvements.

This TIS bases what it considers acceptable conditions for transportation services on typical standards for urban environments. This means that during a roadway’s (or other piece of infrastructure) highest time of use, it is processing users efficiently and generating the most positive impact for resources dedicated. In other words, when a road has the most cars on it, the desire is for that road to be just under its capacity limit. Unacceptable conditions result when a roadway is not operating efficiently, either through too high of a delay at peak times, or having too much capacity at peak.

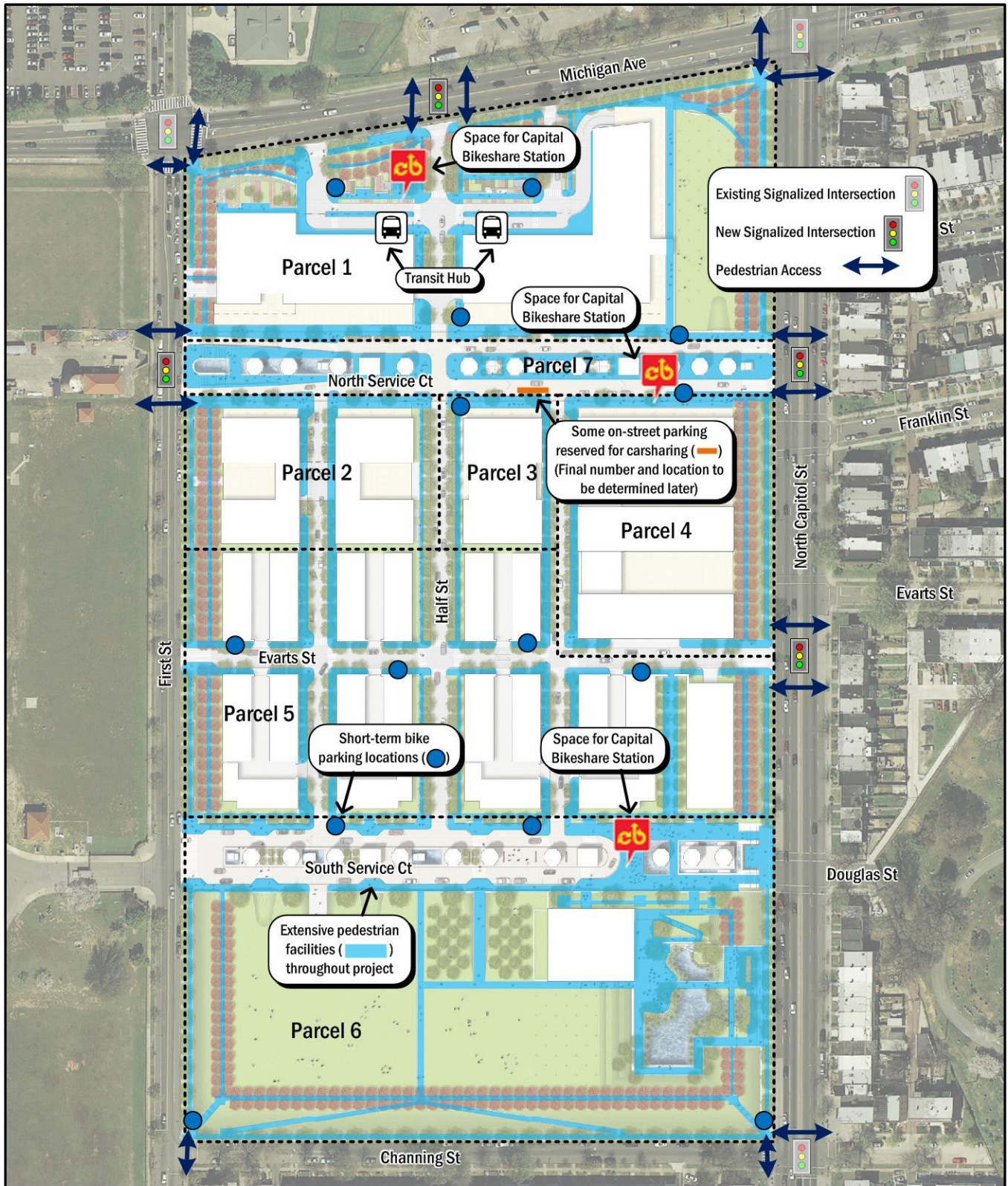
In addition, this TIS attempts to strike a balance between modes of travel when making recommendations on transportation improvements. For example, roadway widening including turn lanes will typically have negative impacts to pedestrian and bicycle modes, and sometimes to transit. This report approaches its recommendations with this context in mind, only suggesting improvements when it is necessary to mitigate unnecessary conditions on one mode without negatively impacting another.

Proposed PUD

The Stage 1 PUD master plan provides two significant transportation benefits. First, it opens a portion of the City closed to the public and replaces it with porous streets and blocks integrating it into the urban fabric. Second, the master plan and individual parcels within the PUD are all designed to take advantage of the new streets and blocks in a way that meshes with the high quality transportation network surrounding the site, while minimizing potential impacts.

Table ES 1: Summary of McMillan PUD Program

Parcel	Phase	Program	Off-Street Parking	Loading Facilities	Bicycle Parking
1	I	860,000 SF Health Care Office 15,000 SF Retail	1,667 to 1,900 Spaces	4 berths and 4 spaces	Multiple on-street bike racks plus parking within garage
2	II	258 Residential Units 23,250 SF Retail	313 Spaces	TBD in Stage 2 PUD	TBD in Stage 2 PUD
3	II	170,000 SF Office 3,000 SF Retail	194 Spaces	TBD in Stage 2 PUD	TBD in Stage 2 PUD
4	I	52,920 SF Grocery Store 278 Residential Units	339 Spaces	3 berths and 1 space	Multiple on-street bike racks plus parking within garage
5	I	146 Row Houses	208 to 292 Spaces	None required, on-street loading available	Multiple on-street bike racks plus row house parking garages
6	I	Community Center & Park	None (parking provided on-street in South Service Court)	None required, on-street loading available	Multiple on-street bike racks



NOT TO SCALE



Figure ES 1: Summary of Major PUD Transportation Features



A key feature of the plan maintains the historic North and South Service Courts, while integrating them into practical transportation infrastructure serving the project. These historic Service Courts will serve as major frontages and pedestrian entries for many parcels, while also providing secondary vehicular access. The new Evarts and Half Streets provided in the Master Plan form a hierarchy with the Service Courts by providing more vehicular-oriented internal streets to access parcels and distribute vehicular traffic. These new internal streets all connect to the existing street grid surrounding the PUD.

The Stage 1 plans also identify multiple bicycle racks located throughout the streetscape, a minimum of two locations for future Capital Bikeshare stations within the PUD site, and on-street parking which can be used by car-sharing services. The on-street parking, since it will occur on private streets, will be controlled by the Applicant. A breakdown of the program for each Parcel is presented in Table ES 1. A summary of major transportation features of the PUD are shown on Figure ES 1.

Parking

The Stage 1 PUD contains 2,721 to 3,038 off-street and approximately 97 on-street spaces on the internal streets. This is an appropriate amount of parking for an urban mixed-use project, and it represents only 60% to 67% of standard suburban parking (ITE's *Parking Generation*, 4th Edition). This decrease in parking relative to suburban standards is representative of the multi-modal design of the McMillan PUD.

The majority of parking spaces are within Parcel 1, the healthcare office building, with 1,650 to 1,883 spaces reserved for the building's office use. Typically, an office building in this location in the District would provide about 50% of suburban standard; the amount proposed equates to 56% to 65% of the suburban standard. However, when considering the healthcare orientation of the building, the amount of parking is appropriate. The nature of the healthcare industry is in flux and evolving toward a more out-patient and clinical service mode, which has increased the amount of traffic and parking these buildings generate on a square footage basis. Thus, basing recommendations on the typical suburban rates presented in ITE's *Parking Generation* may not be applicable. The Applicant has indicated that the amount of spaces proposed was reached after significant internal discussions and discussions with potential future tenants on how best to 'right-size' the parking

in order to accommodate all demand while not encouraging driving as a mode.

The remaining consolidated PUD parcels have an appropriate amount of parking; a discussion for each is included in the report. The Phase 2 parcels will need to be reexamined during their Stage 2 applications once more detail on the types of tenants is fully defined.

Loading Facilities

The report contains a breakdown of the loading facilities for each consolidated Parcel, including estimates on truck activity expected on a daily basis. Based on this review, the amount of loading facilities proposed in the PUD will be adequate to handle demand. The loading dock facilities as shown in the Stage 2 plans were not dimensioned nor were platforms identified. The Applicant will provide updated plans prior to the hearing with dimensions and details on loading platforms.

As grocery stores can have significant deliveries of large vehicles, and Parcel 4 is located adjacent to residential land uses, it is recommended that the grocery store have a loading dock manager. This is common practice in urban locations to manage deliveries so that they do not negatively impact the adjacent street.

Several maneuvering diagrams were provided in the Stage 2 PUD plans, showing how the docks can accommodate truck maneuvers. Prior to the hearing, the Applicant will present maneuvering plans showing routing through the internal streets to and from District truck routes, to ensure that the design of the internal streets and intersections can handle movements from the trucks, notably the large trucks servicing the grocery store.

Bicycle Parking

The PUD plans identified multiple locations for bicycle parking throughout the internal street network, and discussed that long-term parking for residents and employees will be located in parking garages. Prior to the hearing the Applicant will supplement the PUD plans with drawings showing more detail on the location of these spaces, including tabulations per parcel. The Applicant is committing to a minimum amount of bicycle parking that will exceed the minimum required by the Zoning Regulations and the *DC Zoning Regulations and Bicycle Commuter and Parking Expansion Act of 2007*.



Vehicular Impacts

The main technical analysis within the TIS is an evaluation of the PUD's traffic impacts. This is done through comparing two future traffic analyses: one with the build-out of the PUD and one without. The analysis, along with the rest of the TIS, was scoped with the District Department of Transportation (DDOT). Due to the complicated nature of the project and its surroundings, the scoping process lasted several months, from April to November 2013. This included multiple interactions with DDOT staff, and convening a meeting with representatives from local institutions to share information on their future development plans.

The analysis of future traffic without the PUD is based primarily on existing traffic plus traffic generated by nearby developments, including the VA Medical Center hospital, the large mixed-use Armed Forces Retirement Home development, and changes to the nearby Howard University. The results of the analysis without the PUD showed significant growth in traffic volumes, which will require some improvements to reach acceptable levels of congestion in the future, as outlined in the report. It should be noted that these improvements are not included as mitigation measures for the PUD, as they would be needed regardless of whether the McMillan redevelopment were to be approved and constructed.

The future analysis with the PUD builds upon this scenario by including PUD-generated trips. The PUD generates a significant amount of new vehicular traffic: 1,934 trips in the weekday morning peak hour and 2,110 trips in the afternoon peak hour. This represents 65% of what the PUD would generate if it were located in a suburban environment.

The capacity analysis for the future scenario with the PUD resulted in the recommendation of several improvements that will be required to mitigate the impact of the PUD. These are shown graphically on Figure ES 2 and include:

- Construct new traffic signals at the intersections of Michigan Avenue with Half Street NW, North Capitol Street with the North Service Court, and North Capitol Street with Evarts Street NW, as outlined in the PUD. In addition, construct a new traffic signal at the intersection of First Street and the North Service Court.
- Extend parking restrictions on North Capitol Street adjacent to the site to include peak hour restrictions on both sides of the roadway during the weekday morning

and afternoon peak hours. Construct new turn lanes at intersections adjacent to the PUD.

- Revise existing signal timings and phasings at signals adjacent to the site to reflect new traffic patterns.
- Reconstruct First Street NW adjacent to the Parcel 1 employee access.

The improvements near the Parcel 1 access on First Street are needed due to the significant amount of the vehicular trips generated by the PUD. Parcel 1's healthcare office building will generate 69% of the morning peak hour and 62% of the afternoon peak hour trips for the entire PUD. During peak hours, most of these trips will be healthcare employees using the driveway on First Street. In order to make traffic flow at acceptable levels, improvements to Michigan Avenue's intersection with First Street NW are required, as well as the addition of a traffic signal where First Street NW intersects the North Service Court. The purpose of this signal is to handle turns at this intersection, as well as operate in conjunction with the signal at Michigan Avenue NW to help provide adequate gaps for vehicles to exit the Health Care driveway. With the proper signal timing strategy, gaps in traffic can be created to allow the Parcel 1 driveway to operate at acceptable levels of congestion.

Although these improvements are necessary for the Parcel 1 driveway to operate under acceptable conditions, there are some positive benefits to locating the driveway on First Street. Its location allows for a clear separation of vehicular access patterns between employees of Parcel 1 and visitors/patients. In addition, it focuses the highest vehicular traffic to the northwest portion of the PUD, away from the residential uses within the PUD located to the east and south, and this section of First Street will have the fewest pedestrians walking along the sidewalks, minimizing pedestrian/vehicle conflicts.

It should be noted that the intersection of Michigan Avenue NW and First Street NW has some necessary improvements generated by background (non-McMillan) traffic and are not required as PUD mitigation. Thus, if the PUD constructs these improvements as part of its work on the intersection, the portion of work spent on mitigating the background development trips should be counted as a PUD amenity and not a required PUD mitigation measure.

The report also identifies other improvements that are recommended to be examined during the Stage 2 process for



Parcels 2 and 3. These improvements are not as definitively necessary to reduce congestion to acceptable levels since trip generation used in the analysis assumed the highest amount of trips possible for all Parcels. A lower amount of trips would not trigger the need for these improvements. Thus, these mitigation measures are not recommended at this time, but further traffic study should be included in the Stage 2 application for Parcels 2 and 3 that reviews these improvements. This encourages the Applicant to implement a quality TDM program to reduce peak hour trips and negate the need for future improvements.

Transit

The PUD site is served by several transit sources. The site is currently connected to six Metrobus routes that travel on Michigan Avenue and North Capitol Street along the perimeter of the site. The Brookland Station and the U Street Station are both located just over a mile from the site. Additionally, Metrobus routes connect the site with the Brookland Station and Columbia Heights Station.

Although a significant amount of bus service travels by the site, existing conditions analyses show numerous capacity constraints on some lines, and additional transit capacity will be needed to serve both existing demand and demand generated by various development plans including the McMillan PUD. With this in mind, WMATA and DDOT have various transit improvements planned, including the following:

- A MetroExtra 80x route that will provide additional service along North Capitol Street, implementation yet to be determined (described in the Metrobus Route 80 – North Capitol Line Study);
- A Brookland-CUA Metro-Union Station Neighborhood Connector that will increase connectivity between the site, Union Station, and Brookland Station implementation yet to be determined (also described in the Metrobus Route 80 – North Capitol Line Study);;
- A Tenleytown to Brookland Circulator Route that will create added capacity along Michigan Avenue, to be implemented by 2018 (DC Circulator Transit Development Plan Final Report); and
- A Woodley Park-Adams Morgan to Brookland Station Streetcar Line, which will vastly increase capacity along this corridor, to be implemented by 2020 (DCs Transit Future System Plan).

The report contains an analysis of the capacity of existing and future transit service, and compares that to projections of future ridership including new trips generated by the PUD. Based on this analysis, at full build out, some bus routes may be over-capacity without the inclusion of streetcar service. The inclusion of streetcar service, and the additional capacity it brings, eliminates capacity related concerns from the analysis. Without the streetcar, the following improvements may be needed:

- The Metrobus 80 bus route, which primarily provides service along North Capitol Street, would be well-served if some standard buses were replaced by articulated buses to increase capacity.
- The McMillan development may need to provide shuttle service between the PUD and Brookland Station.

After Phase 1 of the development is complete, there will likely be enough capacity on available public transportation such that a shuttle will not be necessary (even excluding streetcar); however, at full build-out the amount of transit trips generated by the site will likely warrant a shuttle (if streetcar is not present). Thus, the TIS recommends that the Applicant coordinate with DDOT and nearby institutions to help bring these transit improvements including streetcar to the area to help alleviate transit capacity concerns, and also to examine whether a shared shuttle service is feasible. When the Woodley Park-Adams Morgan to Brookland Station Streetcar Line is in service, the added capacity will be enough to support the estimated future trips, and shuttle service for full build-out may no longer be warranted.

With the new traffic signals located along North Capital Street and Michigan Avenue adjacent to the PUD, there is an opportunity to consolidate bus stops to these new signals, where they could take advantage of the new pedestrian crossings. The current stops on Michigan Avenue are located at the corners of the PUD where controlled crosswalks are located. A shift towards the new signal at Half Street would help place the stops closer to expected ridership. The current stops along North Capitol Street are located at unsignalized locations, which creates intimidating pedestrian crossings along North Capitol Street. The new signal at Evarts Street provides a logical place to consolidate stops. This report recommends that the Applicant work with DDOT, WMATA and the community to review stop location and develop a plan to use the new pedestrian crossings to improve transit service.

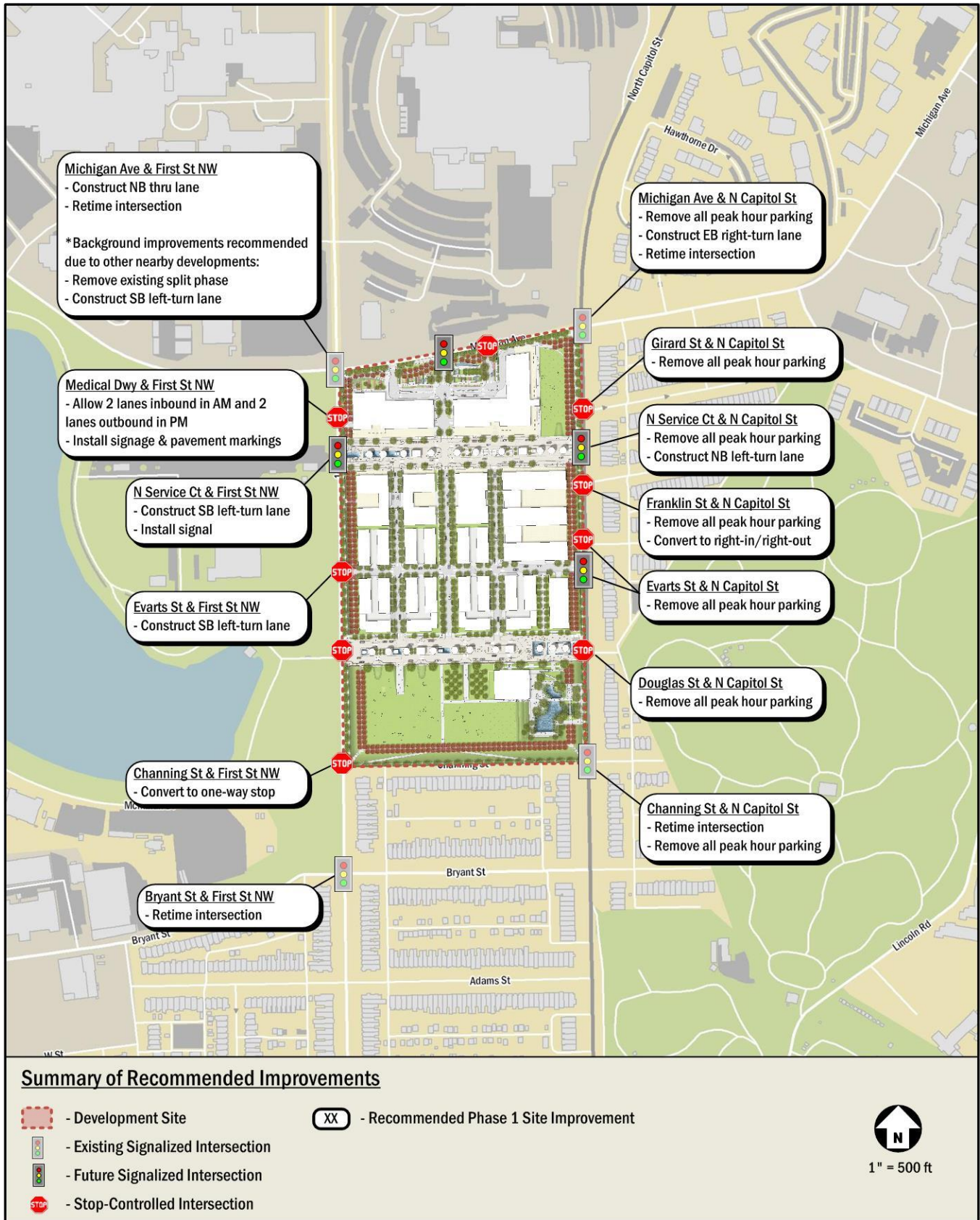


Figure ES 2: Summary of Recommended Vehicular Improvements



Pedestrian

The TIS includes a review of pedestrian facilities surrounding the site, including reviewing whether they meet DDOT standards, and evaluating them using methodologies from the Highway Capacity Manual 2010 (HCM 2010) on perceived quality by pedestrians. The evaluation concluded that the external pedestrian network meets standards and will not need any improvements, other than those made directly by the McMillan development.

There are several pedestrian deficiencies within the existing site. The existing layout in place for many years creates a disconnect between the surrounding neighborhoods due to fencing around the perimeter and grade differentiations. Under existing conditions, there is no sidewalk provided along Channing Street on the south side of the site and sidewalks conditions along North Capitol Street do not meet DDOT standards. Additionally, free-flowing vehicular traffic along the high-speed, high-volume North Capitol Street creates intimidating crossing conditions for pedestrians.

These concerns are addressed through the McMillan development, which includes several improvements proposed that will benefit the overall pedestrian environment including the following:

- A new roadway grid that provides more prominent east-west pedestrian connectivity between First Street and North Capitol Street and north-south pedestrian connectivity within the site. This results in an extensive network of pedestrian facilities that include reestablishment of the historic “Olmstead Walk” along the perimeter of the site.
- The development will provide conveniently located pedestrian access points at all buildings.
- New signalized intersections along Michigan Avenue and North Capitol Street allow for exclusive pedestrian signals resulting in an increase of safe and convenient pedestrian crossings to access the site. These new signals allow for the relocation of bus stops in coordination with the pedestrian crossings to improve walking conditions to and from bus stops.

Bicycle

The PUD location is not directly serviced by District bicycle facilities; although there are some close by and District plans include expanded facilities near the PUD site (by 2015 per the

2005 Bike Master Plan). Near the site, there is a one-way pair of bike lanes along Warder Street and Park Place west of the site and a bike lane along 4th Street east of the site.

First Street will likely prove to be the most effective bike route in accessing the site, due to the high volumes and speeds along Michigan Avenue and North Capitol Street that make these roadways less attractive to cyclists. The TIS includes a review of the perceived quality of bike routes using HCM 2010 methodology that confirms that First Street is perceived by cyclists as the safest roadway directly surrounding the site. Evaluation of the current Capital Bikeshare system shows that there is a connectivity gap near the McMillan site, as there is only one Capital Bikeshare station location near the site at the Washington Medical Center and it is over a quarter mile away.

The PUD plans improve upon the existing bicycle conditions described above through the following:

- The added roadway network within the site will offer additional bicycle circulation with lower speeds and fewer cars than some of the surrounding roadways, thus providing improved conditions for cyclists.
- Long term bicycle parking, intended for residents and employees, will be located in the parking garages at Parcel 1 and Parcel 4 (long-term bicycle parking at Parcel 2 and Parcel 3 will be determined during their Stage 2 PUD process). The Applicant is committing to a minimum amount of bicycle parking that will exceed the minimum required by the Zoning Regulations and the DC Zoning Regulations and Bicycle Commuter and Parking Expansion Act of 2007. The minimum proposed by the Applicant is for Parcel 1 to contain at least 200 bicycle spaces, 4 showers with 50 lockers, and allow for patient/visitor bicycle valet parking if vehicular valet parking is provided. Parcel 4 will contain at least 100 bicycle spaces for residents and retail employees, and 2 showers with 20 lockers for employees. Long-term parking will not be necessary for the row houses (as they will have individual garages) or the community center.
- Short-term bicycle parking, intended for retail patrons and visitors, will be provided throughout the site, and several rack locations are identified on internal streets in the Stage 1 PUD plans. Prior to the hearing the Applicant will provide revised plans with the details on these racks, including identifying amounts. At minimum Parcel 1 and Parcel 4 will contain at least 20 short-term spaces each



near their pedestrian access points. The Applicant will explore adding racks on Evarts Street outside of the row houses to accommodate visitors, and providing 24 parking spaces should be surrounding the community center and park. In addition to the locations shown in the Stage 1 PUD plans, the Applicant will also explore adding racks to the southern edge of the site where the park can be accessed from Channing Street.

- As part of the development, space for three Capital Bikeshare stations will be provided within the site. The Stage 1 plans show one located on the north side of the site near the health care office building and the other should be located on the south side of the site near the community center. This report recommends reserving one additional space near the grocery store on Parcel 4.

Transportation Demand Management

In order to help minimize the amount of vehicular trips generated by the site and their traffic related impacts, this TIS recommends that the McMillan PUD include a Transportation Demand Management (TDM) plan. A TDM plan includes strategies and management practices that reduce vehicular trips during the peak hours of traffic. The following is a list of TDM measures recommended for the PUD:

- The PUD shall designate a TDM coordinator, who is responsible for organizing and marketing the TDM plan and who will act as a point of contact for the development.
- All parking on site will be priced at market rates at minimum, defined as the average cost for parking in a 0.25 mile radius from the site. All residential parking (other than the row houses) will be unbundled from the costs of leasing apartments or purchasing condos.
- All office employers and the grocery store will provide SmartBenefits for their employees.
- Bicycle parking and shower accommodations will be provided meeting the minimums listed above.
- On-street parking spaces will be reserved for car-sharing services, as needed throughout the development.
- Office and residential building lobbies will display transit and other alternate mode information, through the use of electronic messaging boards.
- The PUD will work with nearby institutions to promote transit improvements in the area and explore the concept of a shared shuttle service.

Summary of Recommendations

As stated above, the following TIS concludes that **the PUD will not have a detrimental impact** to the surrounding transportation network as long as the report's recommendations and mitigation measures are incorporated into the PUD application or made a condition of approval, including:

- Prior to the hearing, submit additional details on the loading and bicycle parking plans as described above
- Construct the following roadway improvements
 - Install new traffic signals at the following locations:
 - Michigan Avenue NW and Half Street NW
 - North Capitol Street and the North Service Court
 - North Capitol Street and Evarts Street NW
 - First Street and the North Service Court
 - Extend peak hour parking restrictions to both sides of North Capitol Street between Michigan Avenue and Bryant Street.
 - Construct an eastbound right turn at the intersection of Michigan Avenue and North Capitol Street.
 - Construct a northbound left turn lane at the intersection of North Capitol Street with the North Service Court.
 - Construct a northbound left turn lane at the intersection of North Capitol Street with Evarts Street NW.
 - Construct a northbound through lane at the intersection of Michigan Avenue NW and First Street NW.
 - Construct a southbound left turn lane at the intersection of First Street NW and the North Service Court.
 - Construct a southbound left turn lane at the intersection of First Street NW and Evarts Street NW.
 - Convert the intersection of Channing Street NW and First Street NW to one-way stop controlled intersection.
- That the Applicant coordinate with DDOT, nearby institutions, and the community to help bring significant increases in transit capacity to the area. Preferably, these are WMATA and DDOT's already planned improvements to the bus and streetcar systems. If these improvements do not come to fruition by full build-out of Phase 1 of the



PUD, the Applicant will implement a private shuttle service to serve site generated transit demand in the interim.

- That the Applicant will coordinate with DDOT and the community to review bus stop locations and develop a plan to use the new pedestrian crossings to improve transit accessibility.
- A commitment to a TDM plan per the outline above.
- A commitment to the grocery store having a loading dock manager.



INTRODUCTION

This report is a Transportation Impact Study (TIS) for the McMillan Sand Filtration Site Planned Unit Development (McMillan PUD) Application, Case Number 13-14. It includes a review of the of the transportation components of the application and the development's transportation impacts.

PROJECT SUMMARY

The McMillan Sand Filtration Site PUD (McMillan) is located in the Northwest portion of Washington, DC, in Ward 5. The site, as shown in Figure 1 is bounded by North Capitol Street to the east, First Street NW to the west, Michigan Avenue NW to the north, and Channing Street NW to the south.

The existing McMillan site is a twenty-five acre vacant parcel, which previously contained a (now decommissioned) water-treatment plant. The site was designated as an Historic Landmark by the D.C. Historic Preservation Review Board (HBRB) in 1991. The proposed PUD will build on the existing site, while preserving 24 above-ground sand filtration structures. The proposed PUD will contain a mix of healthcare and office uses; multi-family apartments and townhomes; a grocery store and on-street retail uses; and an eight-acre public park with a pool, recreation center, and community center.

The proposed PUD seeks to re-establish the roadway network grid in the study area by constructing four east-west roadways and one north-south roadway within the site. Access to the McMillan site will primarily occur along the internal roadway network, which will connect to the existing, external network. A full description of the project is presented later in this report.

PURPOSE OF STUDY

This report reviews the transportation elements of the McMillan PUD, supplementing material provided in the Site Plan Package that accompanied the PUD Application.

Additionally, this report determines if the proposed development of the McMillan site will lead to adverse impacts on the transportation network. This is accomplished by comparing two future scenarios: (1) without the proposed application being approved (referred to as the future background conditions) and (2) with the application approved and constructed (referred to as total future conditions).

The methodologies and analyses contained within are tailored to reach a conclusion on the impact of the PUD, and thus this report is not a general neighborhood study that makes recommendations to solve all existing and predicted transportation concerns near the PUD. Although some discussions within this report do discuss non-PUD generated impacts including planning level suggestions on improvements.

This TIS bases what it considers acceptable conditions for transportation services on typical standards for urban environments. This means that during a roadway's (or other piece of infrastructure) peak hours of use, it is processing users efficiently and generating the most positive impact for resources dedicated. In other words, when a road has the most cars on it, the desire is for that road to be just under (or at) its capacity limit. Unacceptable conditions result when a roadway is not operating efficiently, either through too high of a delay at peak times, or having unused capacity at peak times.

In addition, this TIS attempts to strike a balance between modes of travel when making recommendations on transportation improvements. For example, roadway widening including turn lanes will typically have negative impacts to pedestrian and bicycle modes, and sometimes to transit. This report approaches its recommendations with this context in mind, only suggesting improvements when it is necessary to mitigate unnecessary conditions on one mode without negatively impacting another.

CONTENTS OF STUDY

This report contains seven sections as follows:

- *Study Area Overview*
This section reviews the area near and adjacent to the proposed PUD and includes an overview of the site location. This section also includes a summary of the transportation and population characteristics of the study area and of future regional projects located in the area.
- *Project Design*
 - This section reviews the transportation components of the PUD, including the site plan and access. It describes how each land use within the PUD will access the site and includes detailed descriptions of the PUD's vehicular access, loading, parking, bicycle, and pedestrian facilities.
- *Site Transportation Demand*
This section outlines the travel demand of the proposed PUD. It summarizes the proposed trip generation of the

project by mode and forms the basis for the individual chapters that follow.

- Roadway and Vehicular Impacts

This section provides a summary of the existing roadway facilities and an analysis of the existing and future roadway capacity in the study area. This section highlights the vehicular impacts of the proposed PUD, including presenting mitigation measures for minimizing impacts.

- Transit

This section summarizes the existing and future transit service adjacent to the site, reviews how the PUD’s projected transit ridership will be accommodated, outlines impacts, and presents recommendations.

- Walking

This section summarizes existing and future pedestrian access to the site, reviews walking routes to and from the PUD, outlines impacts, and presents recommendations.

- Biking

This section summarizes existing and future bicycle access to the site, reviews the quality of cycling routes to and from the site, outlines impacts, and presents recommendations.

- Safety/Crash Analysis

This section reviews the potential impacts development of the PUD would have on safety. This includes a review of crash data at intersections in the study area and a qualitative discussion on how the PUD will influence safety.

- Transportation Demand Management

This section outlines and summarizes the Transportation Demand Management (TDM) recommendations contained within the report.

- Summary and Conclusions

This section presents a summary of the recommended mitigation measures by mode and presents overall report findings and conclusions.

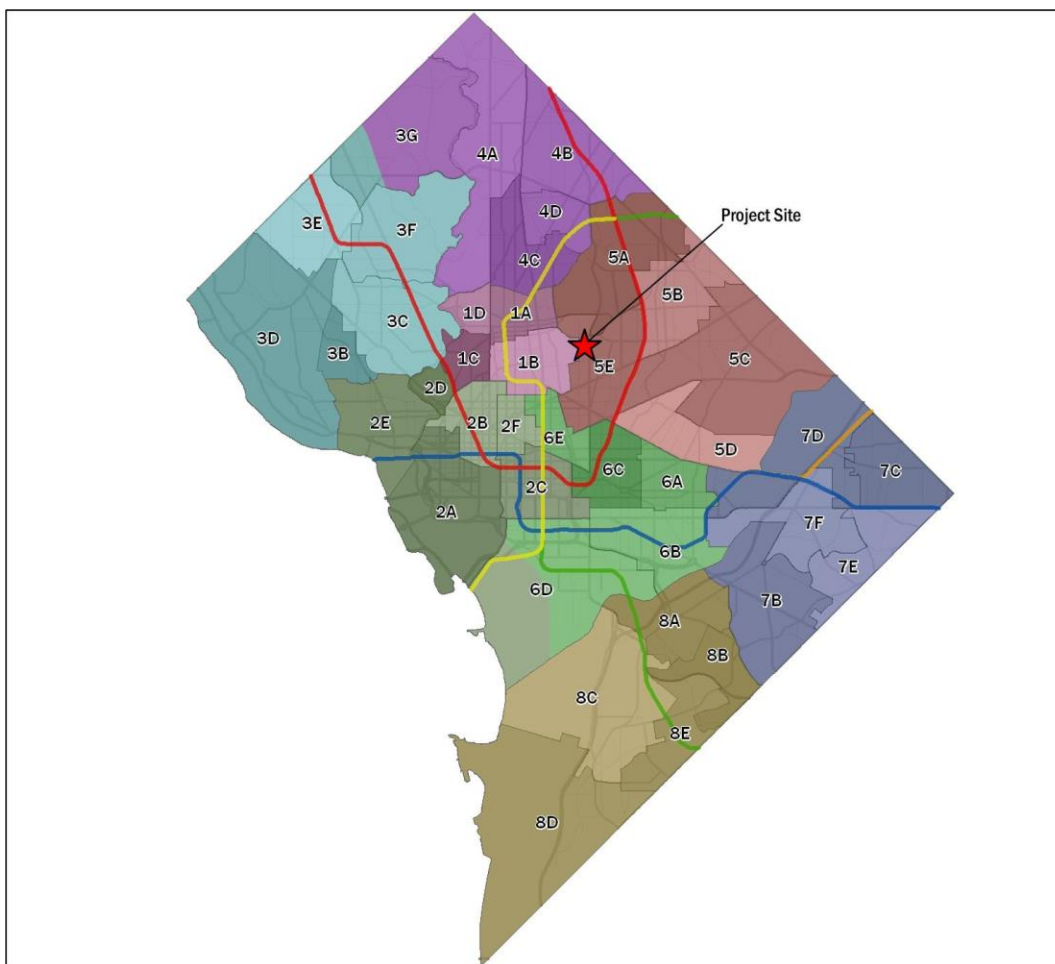


Figure 1: Site Location



STUDY AREA OVERVIEW

This section reviews the study area and includes an overview of the site location. This section also includes a summary of the major transportation and population characteristics of the area and of future regional projects.

MAJOR TRANSPORTATION FEATURES

Overview of Regional Access

The McMillan site has ample access to regional vehicular- and transit-based options, as shown in Figure 2, that connect the site to destinations within the District, Virginia, and Maryland.

The site is accessible from several Interstate and US highways, including I-395, I-695, I-295, US-50 (New York Avenue), US-1 (Rhode Island Avenue), and US-29 (Georgia Avenue). These roadways also connect the site to the Capital Beltway (I-495) that surrounds Washington, DC and its inner suburbs. All of these roadways bring vehicular traffic within two miles of the site, at which point major arterials can be used to access the site directly.

The McMillan site has access to the Red, Yellow, and Green Metrorail Lines. These lines provide connections to many areas of the District, Virginia, and Maryland. The Red Line connects Rockville, MD with Glenmont, MD while providing access to the District core. Of particular importance, the Red Line provides a connection to Union Station, which is a hub for commuter rail—such as AMTRAK, MARC, and VRE—in addition to Metrorail. The Yellow Line travels southbound from Fort Totten and provides access to Arlington and Alexandria, VA. The Green Line travels between Greenbelt and Suitland, MD, traveling through several major neighborhoods within the District. The nearest Metrorail stations to the site are U Street-African American Civil War Memorial-Cardozo station on the Yellow/Green Line and Brookland station on the Red Line; both stations are just over a mile from the site.

Overall, the site has access to several regional roadways and transit options, making it convenient to travel between the site and destinations in the District, Virginia, and Maryland.

Overview of Local Access

There are several local transportation options near the site that serve vehicular, transit, walking, and cycling trips, as shown on Figure 3.

The site is served by a local vehicular network that includes several primary and minor arterials such as North Capitol Street and Michigan Avenue. In addition, there is an existing network of connector and local roadways that provide access to the site, particularly in the neighborhoods south of the site along First Street NW.

The Metrobus system provides local transit service in the vicinity of the site. As shown in Figure 3, there are seven bus lines traveling along four main corridors near the site; existing bus stops along the perimeter of the development are highlighted. Currently, two of the eight bus stops that surround the development site include a shelter. These bus lines connect the site to many areas of the District in addition to the Brookland Metrorail station on the Red Line and the Columbia Heights Metrorail station on the Green/Yellow Line.

There are some existing bicycle facilities surrounding the site that connect to the greater District bicycle network, although some cycling barriers exist that limit bicycle mobility. North-south connectivity is provided by a pair of one-way bicycle lanes on Warder Street NW and Park Place NW to the west of the site. East of the site there is a bike lane along 4th Street NE and the Metropolitan Branch Trail, which runs parallel to the Metrorail Red Line. There are few bicycle facilities that provide east-west connectivity; however there are several low-volume, low-speed local roadways that provide safe cycling conditions. A detailed review of bicycle access is provided in a later chapter in this report.

The site is surrounded by a pedestrian network consisting of sidewalks, crosswalks, and curb ramps. The site is also within walking distance of many transit options. However, there are some existing gaps and areas of concern. There are some blocks that have either inadequate sidewalks or none at all and some intersections that lack crosswalks. Additionally, there are some high-speed roadways and large intersections that reduce the overall quality of the walking conditions. A detailed review of pedestrian access and infrastructure is provided in a later chapter in this report.

Overall the McMillan site is surrounded by an extensive local network that allows for relatively efficient transportation options via transit, bicycle, walking, or vehicular modes.

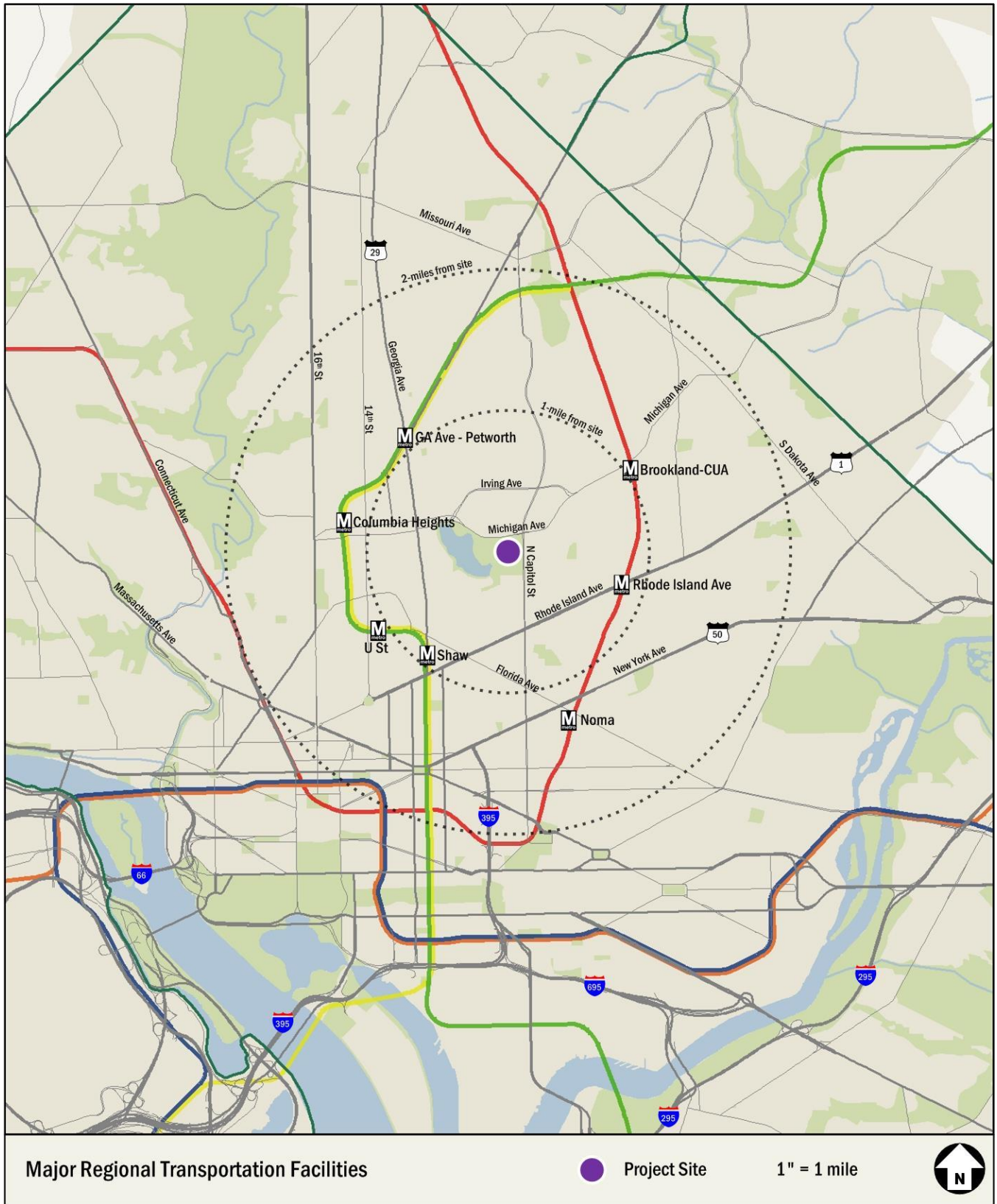


Figure 2: Major Regional Transportation Features

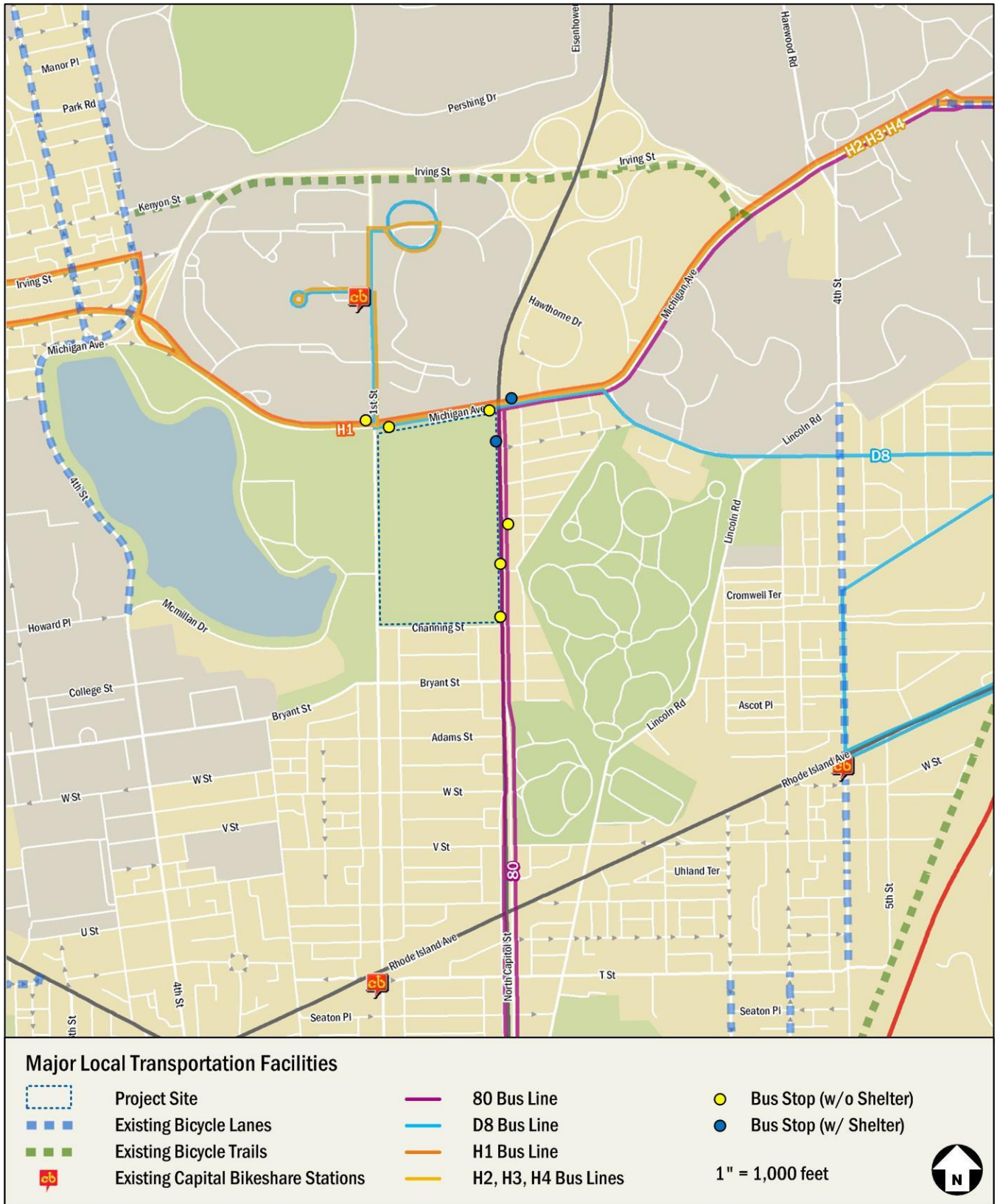


Figure 3: Major Local Transportation Facilities



Car Sharing

Four car-sharing companies provide service in the District: Zipcar, Hertz on Demand, Enterprise Carshare, and Car2Go. All four services are private companies that provide registered users access to a variety of automobiles. Currently there are no Zipcar, Hertz on Demand, or Enterprise Carshare vehicles located within a half mile radius of the site; however, car-sharing is also provided by Car2Go, which provides point-to-point car sharing. Unlike Zipcar, Enterprise, or Hertz on Demand, which require two-way trips, Car2Go can be used for one-way rentals. Car2Go currently has a fleet of vehicles located throughout the District. Car2Go vehicles may park in any non-restricted metered curbside parking space or Residential Parking Permit (RPP) location in any zone throughout the defined “Home Area”. Members do not have to pay the meters or pay stations. Car2Go does not have permanent designated spaces for their vehicles; however availability is tracked through their website, which provides an additional option for car-sharing patrons.

Walkscore

Walkscore.com is a website that provides scores and rankings for the walking, biking, and transit conditions within neighborhoods of the District. Based on this website, the McMillan PUD is located on the southern tip of the Catholic University neighborhood and lies adjacent to Edgewood to the east and Bloomingdale to the south. Table 1 shows the walk, transit, and bike scores for each neighborhood on a scale of 0 to 100 and comments on the overall pedestrian environment. Figure 4 shows the neighborhood borders in relation to the site location and displays a heat map for walkability.

As shown in Table 1, and represented in Figure 4, the site is situated in an area that borders between good and poor walkability. However, based on the site’s proximity to Bloomingdale and Edgewood (neighborhoods that maintain an urban layout) it is likely than the site is more comparable to these areas than the Catholic University neighborhood. Poor

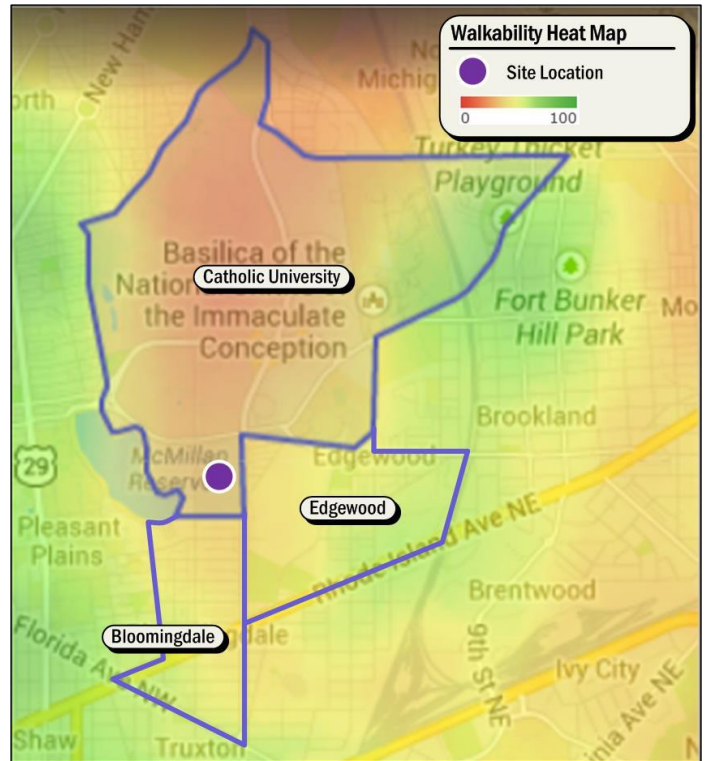


Figure 4: Walkability Heat Map

walkability in this neighborhood comes primarily from the disconnection associated with the layout of North Capitol Street in this area. High-volumes, high-speeds, and an overall impression of a highway do not allow for a friendly pedestrian environment and result in a separation between the neighborhoods on either side. The McMillan site is situated in an area where North Capitol Street is still easily traversable; thus, the site is much more connected to stores, restaurants, and other daily necessities.

Overall, the site location may have poorer scores due to its transit accessibility and current lack of development, which results in farther distances to primary retail establishments. However, as this area continues to develop, particularly due to

Table 1: Neighborhood Non-Auto Mode Scores (walkscore.com)

Neighborhood	Walk Score	Transit Score	Bike Score	Comments
Catholic University	61	65	63	Some errands can be accomplished on foot. Neighborhood has good public transportation and is somewhat bikeable.
Edgewood	77	70	70	Most errands can be accomplished on foot. Neighborhood has excellent public transportation and is very bikeable.
Bloomingdale	80	74	73	Most errands can be accomplished on foot. Neighborhood has excellent public transportation and is very bikeable.



the McMillan development, walkability in the area will improve and result in a more pedestrian friendly neighborhood.

POPULATION CHARACTERISTICS

The American Community Survey (ACS), a nationwide survey is designed to collect information including age, income, and commute time to work and is an invaluable resource in determining the population characteristics of a development site. Census data can be aggregated to develop conclusions on census tracts, zip codes, and even entire cities. A census tract generally has a population range from 1,500 to 8,000 people with an average of 4,000 people, which allows for more pinpointed population data from. The McMillan site is located in Census Tract 33.01, which primarily consists of the site in addition to a small portion of the Bloomingdale neighborhood to the south.

Utilizing the 2011 US Census data, many conclusions can be drawn about the transportation characterizes of the site. One important aspect of this is the commuting mode share. Figure 5, Figure 6, and Figure 7 show the transit, walking, and biking mode split, respectively, for Census Tract 33.01 and the surrounding area. As shown, the census tract for the site results in a mode share of 28% transit, 6% walking, and 4% biking. Although not shown, it should also be noted that this census tract has a fairly high amount of telecommuting employees at approximately 10% of the mode share. Thus, nearly half of the commuting mode share can be attributed to non-auto modes of transportation.

Another important data source from the 2011 US Census data is the percent of households that do not own a car. As shown in Figure 8, 33.3% of households in the census tract do not own cars. Based on this information, it can be concluded that a vehicle is not necessary for a significant portion of day to day activities in this area. Many people are able to work, shop, and live by utilizing alternative forms of transportation such as transit, walking, or bicycling.

FUTURE REGIONAL PROJECTS

There are several transportation improvements and background developments located in the vicinity of the site. These planned and proposed projects are summarized below and displayed in Figure 9.

Local Initiatives

North Capitol Street Cloverleaf Feasibility Study

The *North Capitol Street Cloverleaf Feasibility Study*¹ evaluates the North Capitol Street corridor from Michigan Avenue to Hawaii Avenue in order to transform the current suburban-style infrastructure into a more urban friendly design. The plan has three main objectives:

- Replace the existing cloverleaf interchange at North Capitol Street and Irving Street NE/NW with a more multi-modal alternative. Three options are currently under consideration that incorporate a community park, a memorial site, and developable land space into the 19-acre interchange.
- Re-characterize the north part of the corridor from a highway to an urban parkway with added transit/HOV dedicated lanes and more pedestrian/bicycle accommodations.
- Upgrade the portion of North Capitol Street south of the cloverleaf by improving the streetscape and creating an urban boulevard that results in a more active and safe environment for pedestrians and bicyclists.

DC's Transit Future System Plan

The *Transit Future System Plan*² analyzes the purpose and need for proposed expansions, improvements, and additions to the existing transit network. The main elements of the plan include:

- Re-establishment of streetcar service in the District;
- Implementation of limited-stop bus service along major corridors; and
- Creation of a dedicated transitway on K Street NW.

Construction of the Streetcar system has begun and will be implemented over three phases. Full build-out of the system is expected in 2030 with a total of eight Streetcar Lines. The limited-stop bus service or Metro Express service will provide service to high-ridership bus stops along 13 corridors.

¹ *North Capitol Street Cloverleaf Feasibility Study*, 2013, National Capitol Planning Commission

² *DC's Transit Future System Plan Final Report*, April 2010, District of Columbia Department of Transportation

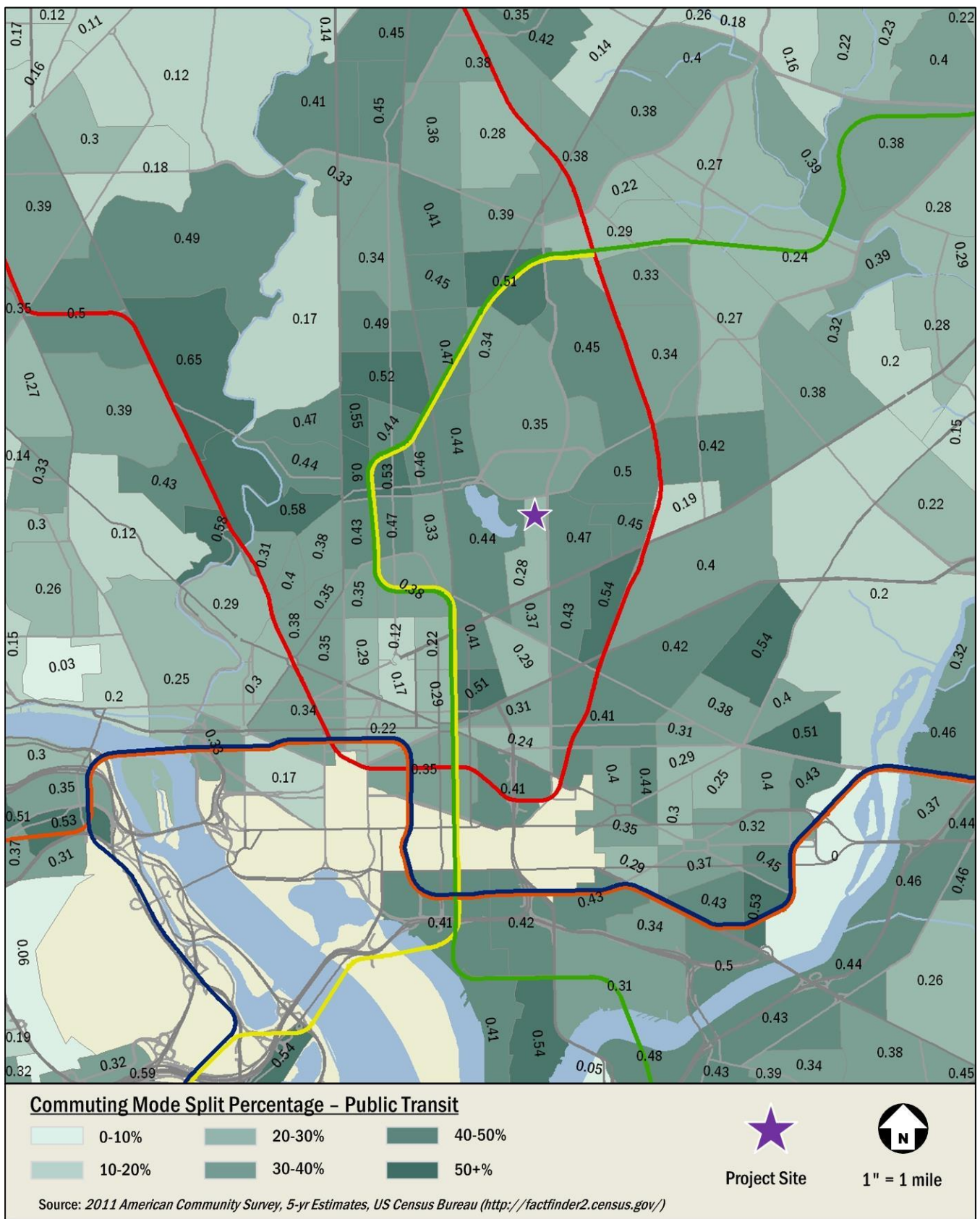


Figure 5: Commuting Mode Split Percentage - Public Transit

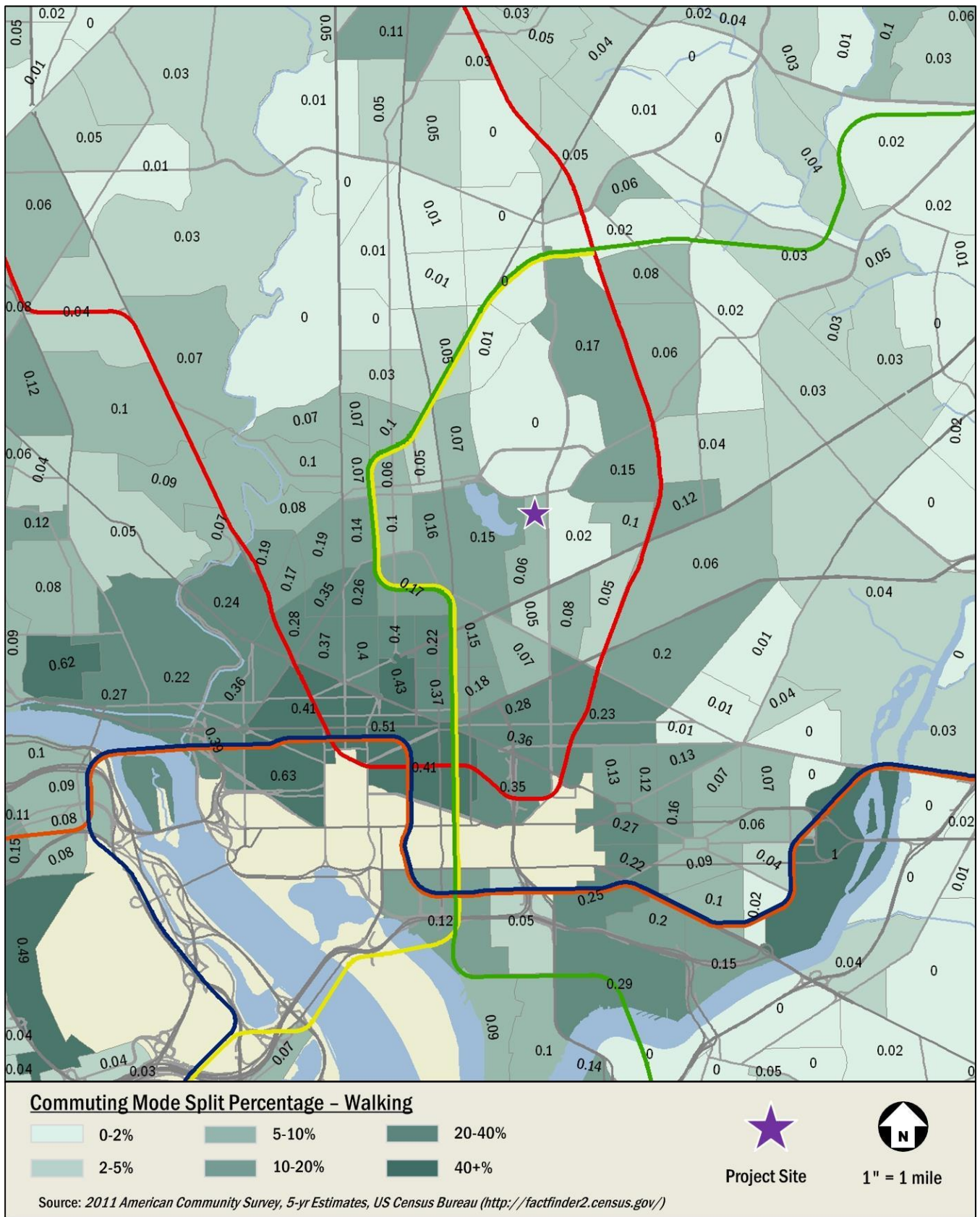


Figure 6: Commuting Mode Split Percentage - Walking

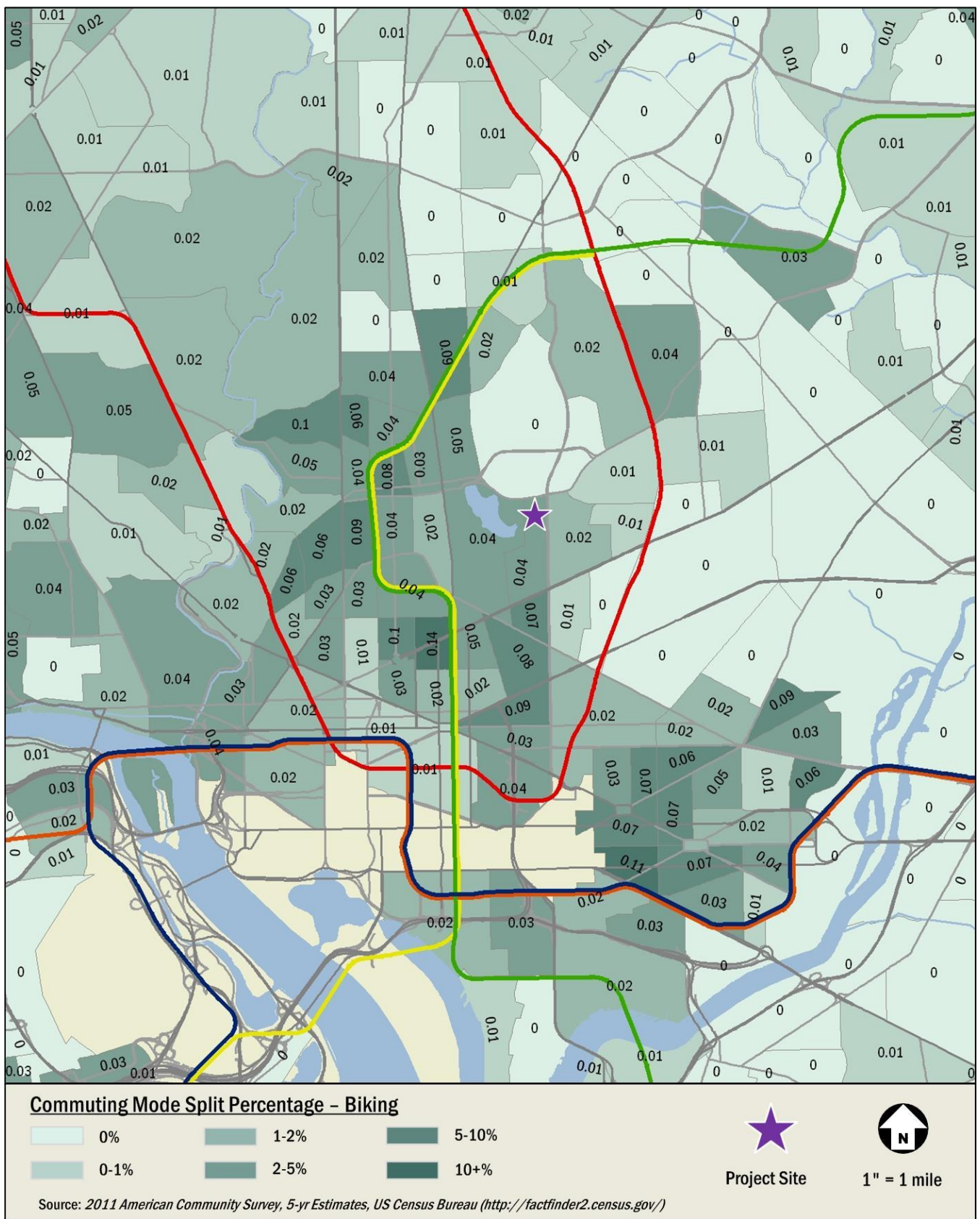


Figure 7: Commuting Mode Split Percentage – Biking

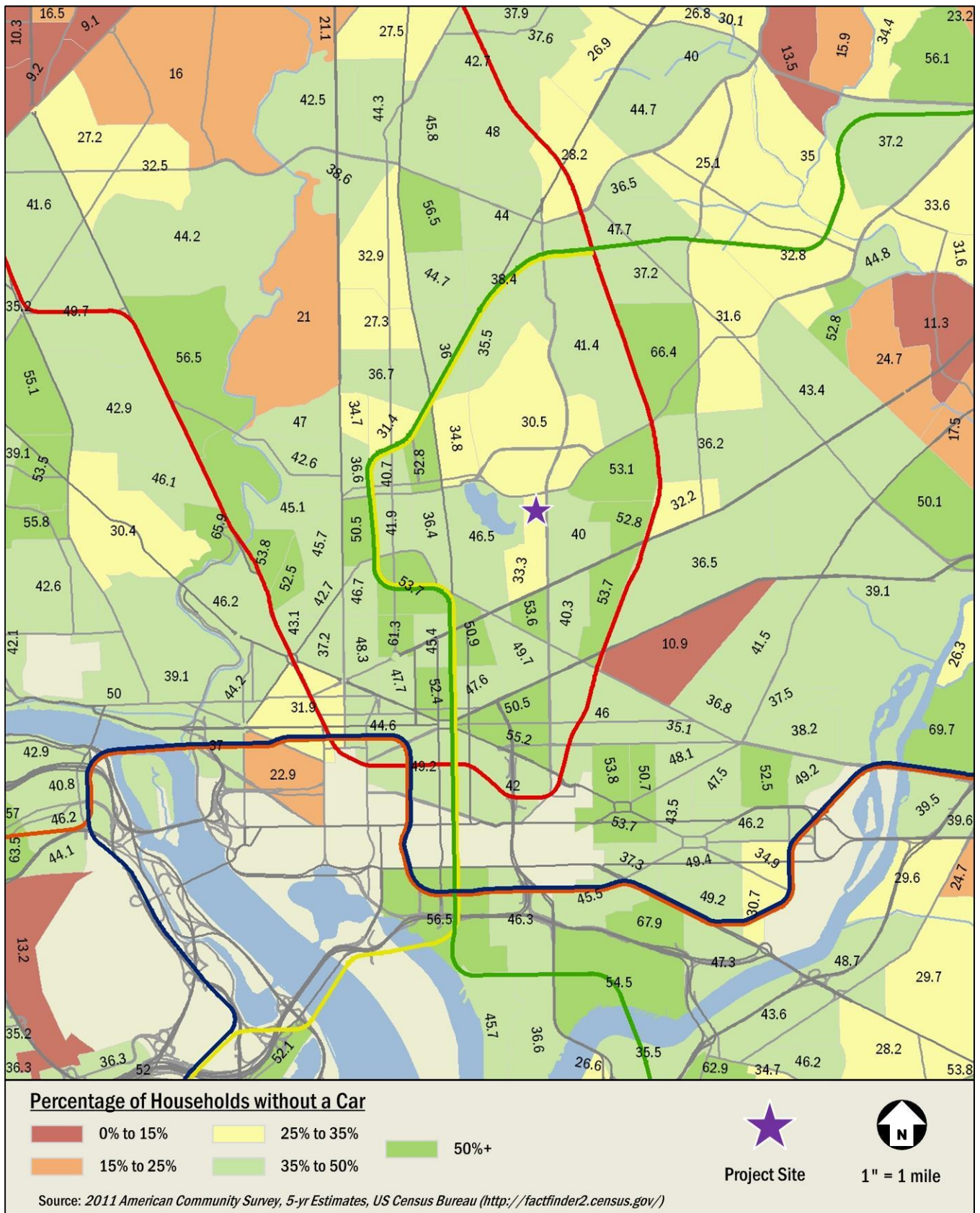


Figure 8: Percentage of Households without a Car



Background Developments and Roadway Improvements

NOT TO SCALE



1. Catholic University of American Master Plan
2. Catholic University of America South Campus Redevelopment
3. Veterans Affairs Medical Center Master Plan
4. Armed Forces Retirement Home – Zone A
5. Trinity University Campus Plan
6. Michigan at Irving PUD
7. Washington Hospital Center
8. Howard University Campus Master Plan

- A. Replace North Capitol Street and Irving Street Interchange
- B. Improve Michigan Avenue & First Street NW
- C. Improve Michigan Avenue & Irving Street NW
- D. Potential off-street bike trail along North Capitol Street
- E. Improve pedestrian facilities at Michigan Avenue & North Capitol Street

Figure 9: Background Developments and Roadway Improvements



DC Circulator Transit Development Plan

The *DC Circulator Transit Development Plan*¹ examines the existing Circulator system and develops strategies for expansion based on projections of demographic growth, economic development, and anticipated transit need. The study identifies 11 corridors for expansion to be implemented over three phases. This expansion is slated for completion in 2020.

Planned Developments

Catholic University

The *Catholic University Master Plan*² integrates several changes and upgrades that promote the use of alternative transportation modes. In addition, the Catholic University is redeveloping the South Campus to incorporate 720 residential units, 45 townhomes, 80,000 square feet of street-level retail, 15,000 square feet of artist studio space, a 3,000 square-foot community center, and 850 parking spaces.

Trinity University

The *Trinity University Master Plan*³ examines the needs, goals, and plans for Trinity University between the years 2006 and 2016. Enrollment is expected to increase from 1,600 to 2,700 students in this time, with proposed campus developments adding approximately 270,000 square feet of new building space.

Howard University

The *Howard University Campus Master Plan*⁴ (HUCMP) examines the overall transportation impacts due to new development on campus. The HUCMP calls for 17 new buildings or major renovations including 11 general University buildings, four residence halls, a recreation center, a workforce housing development, and approximately 67,500 square feet of ground floor retail along Georgia Avenue. Additionally, the plan includes construction of the Howard Town Center, which consists of 445 apartments and ground-floor retail, including a grocery store.

Veteran Affairs Medical Center (VAMC)

The *DC VAMC Master Plan*⁵ proposes construction of new buildings and parking structures surrounding the existing hospital core building, with an ultimate build-out date of 2029. Due to the increase in building space, employment is expected to increase from 2,400 to 3,000 and the amount of patient activity is expected to grow by 20% over the next 10 years.

Armed Forces Retirement Home

The *Armed Forces Retirement Home Transportation Management Program*⁶ examines the transportation impacts associated with the additions planned for Zone A, a 77-acre portion of the 272-acre campus. This portion of the campus is expected to undergo considerable changes, amounting to approximately 4.3 million gross square feet of development. The development includes residential, commercial, medical, retail, assisted living, and hotel space.

Michigan at Irving PUD

The *Michigan at Irving PUD*⁷ is a mixed-use development which incorporates over 500 hotel rooms, 120 residential apartment units, a 30,000 square feet conference center, and 23,000 square feet of retail. This development is expected to be complete in 2016.

Washington Hospital Center

Per discussions with WHC staff, the WHC's plans for expansion are currently on hold, and they do not plan to move forward with the plans developed over ten years ago which gained PUD approval. The financial infeasibility of consolidating surface parking into structures to create viable development parcels is limiting the expansion plans. If and when the WHC develops new plans, they will be required to go through the PUD process.

¹ *DC Circulator Transit Development Plan Final Report*, April 2011, District of Columbia Department of Transportation

² *Catholic University Campus Master Plan Transportation Study*, March 2012, Vanasse Hangen Brustlin, Inc.

³ *Trinity (Washington) University Campus Master Plan*, September 2006, SmithGroup

⁴ *Howard University Central Campus Master Plan*, June 2011, HOK Planning Group

⁵ *DC VAMC – Master Plan Final Submission*, April 2010, A. Morton Thomas & Associates

⁶ *Armed Forces Retirement Home Transportation Management Program*, July 2008, Michael Baker Jr., Inc.

⁷ *Michigan Avenue at Irving Street Mixed-Use Planned Unit Development*, December 2008, Gorove/Slade Associates



PROJECT DESIGN

This section reviews the transportation components of the McMillan PUD, including the proposed site plan and access. It describes how each land use within the PUD will access the site and includes detailed descriptions of the site's vehicular access, loading, parking, bicycle, and pedestrian facilities.

The PUD's master plan provides two significant transportation benefits. First, it opens up a fenced off area of the District and replaces it with a porous set of streets and blocks. Second, the master plan and individual parcels are all designed to take advantage of the new street and blocks in a way that meshes with the high-quality surrounding transportation network.

A key feature of the plan maintains the historic North and South Service Courts, while integrating them into practical transportation infrastructure serving the project. These historic Service Courts will serve as major frontages and pedestrian entries for many parcels, while also providing secondary vehicular access. The new Evarts and Half Streets provided in the Master Plan form a hierarchy with the Service Courts by providing more vehicular-oriented internal streets to access parcels and distribute vehicular traffic. These new internal roadways all connect to the local street grid.

PARCEL OVERVIEW

This section provides a quick summary of each Parcel, focusing on a general overview of program and access. Following this overview are detailed sections on parking, loading, and bicycle parking. Figure 10 provides a summary of the development program, and Figure 11 provides a summary of the PUD's vehicular access.

Parcel 1

Located at the northernmost section of the site, Parcel 1 is a health-care related office building with ground-floor retail that includes:

- 860,000 square feet of office space;
- 15,000 square feet of retail space;
- Up to 1,900 parking spaces in a single parking garage;
- Loading docks with four berths for trucks and four service/delivery vehicle spaces; and
- A pick-up/drop-off court serving taxis, shuttles, and patient/visitor pick-up and drop-off activity.

The North Service Court, which forms the southern edge of the Parcel, will serve as the primary pedestrian access location. This allows the vehicular activity not to conflict with most pedestrian activity, as the primary vehicular access to the parking garage is located on First Street NW. The garage has three access points in total: the primary access point on First Street NW will serve regular users of the garage, such as office workers; retail patrons will have a secondary, lower-volume vehicular access point located on the North Service Court; and patients and visitors will have a third garage access off the pick-up/drop-off court at the Healing Gardens accessed via Michigan Avenue NW. Loading docks and delivery spaces are located off Half Street NW.

The access design of Parcel 1 allows for a clear separation of user types and keeps the employee traffic clear of the pedestrian and patient/visitor traffic. This will create simpler and clearer traffic flows with less overlap of user types. Clearly defined, designated spaces for taxis, shuttles, and other uses (such as valet parking for guests) are located on the pick-up/drop-off court adjacent to the Healing Gardens. In addition, the Healing Gardens, located off Michigan Avenue NW will provide a front door for transit riders using routes that traverse Michigan Avenue NE/NW, with an inviting and direct way to access the entire PUD via Half Street NW. The employee access point will be located on First Street NW, away from the highest areas of pedestrian activity.

Parcels 2 and 3

As the only parcels requesting Stage 1 PUD approval in the PUD submission, Parcel 2 and 3 do not have as detailed plans as the remainder of the PUD. The Stage 1 PUD application is requesting approval for:

- 26,250 square feet of retail space;
- 311,700 square feet of residential space (258 units);
- 170,000 square feet of office space;
- 507 underground parking spaces; and
- Loading docks with four loading berths and two loading delivery spaces.

Details of the access plan for these Parcels will be developed during the Stage 2 process. The Stage 1 PUD Master Plan identifies the North Service Court frontage for both Parcels to have on-street retail with pedestrian access. Vehicular access is planned to occur off the north-south streets that run adjacent to the Parcels.

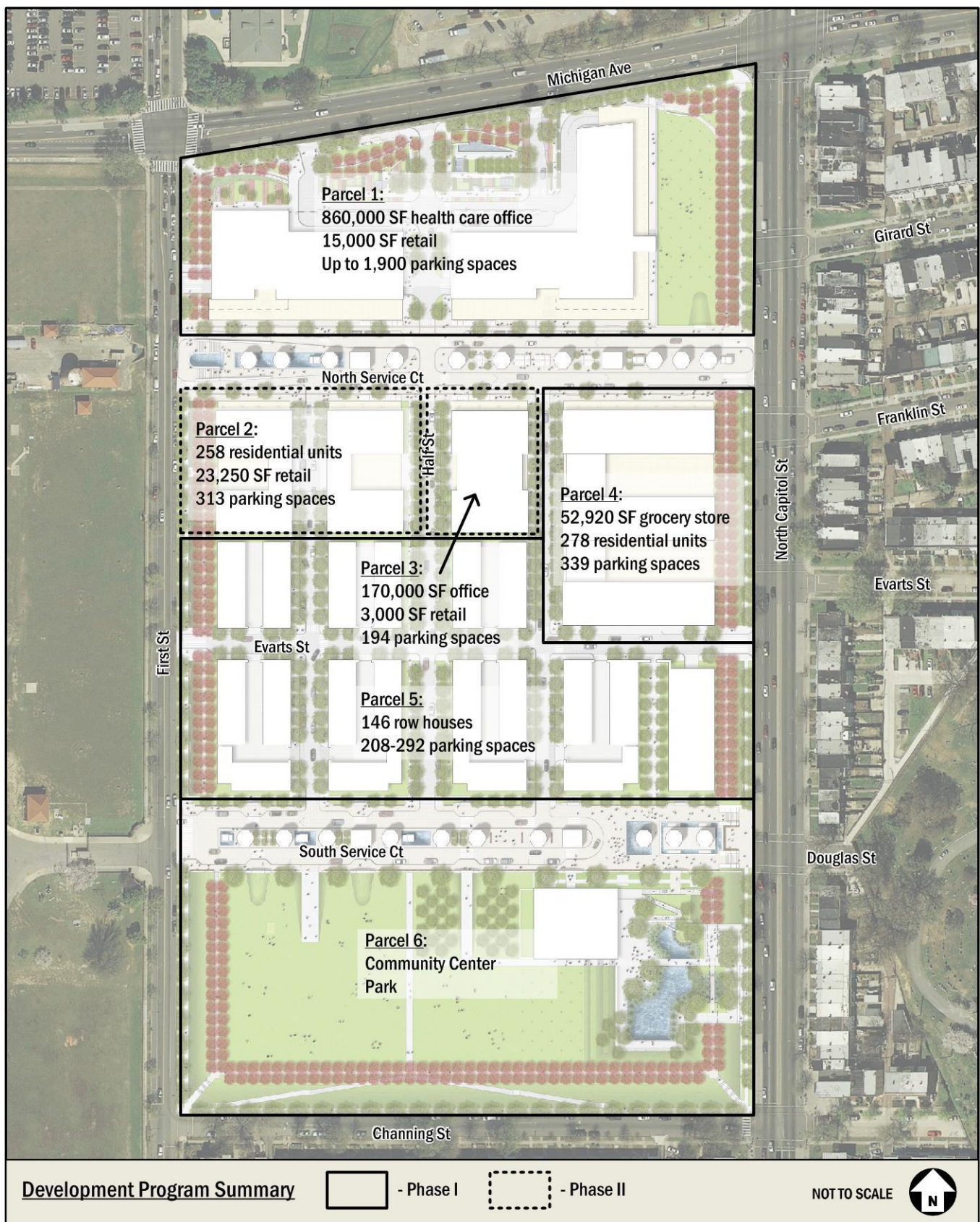


Figure 10: Summary of Development Program



Vehicular Access Summary **P** - Parking Garage Access **pu/do** - Pick-up/Drop-off **L** - Loading Docks

Figure 11: Summary of Proposed Vehicular Access



Parcel 4

Located adjacent to North Capitol Street, Parcel 4 contains a grocery store on the ground floor with residential units above. The proposed plan includes:

- 52,920 square feet of retail space (grocery store);
- 255,230 square feet of residential space (278 units);
- 339 underground parking spaces; and
- Loading docks with four loading berths, including two berths sized to accommodate all grocery deliveries off-street.

Vehicular access to the site will occur at two locations: a shared parking garage entrance from Quarter Street NW and a shared loading dock area on Evarts Street NW. Pedestrian entrances will primarily be located along the North Service Court and Quarter Street NW. There are two residential lobbies on Quarter Street NW. Outside of these lobbies on Quarter Street NW is on-street parking; some of these spaces are expected to be reserved for resident loading/unloading, including taxis and pick-up/drop-off activity.

Positive aspects of the design include how no vehicular access occurs on North Capitol Street and the North Service Court. In part, this is because there are only two vehicular access points for three uses (residential, senior residential, and grocery store).

Parcel 5

Consisting entirely of row homes, Parcel 5 contains 146 dwelling units of various types. The majority of these are individually served row houses with traditional parking garages. In some of the units, the initial owners will have the option of one- or two-car garages. A small portion of the units are back-to-back units with a small parking garage. Thus, the total amount of parking will be between 208 and 292 spaces.

Visitors to the row houses, which do not use one of the row house spaces, are expected to use the on-street parking that is available on the internal streets within Parcel 5.

Parcel 6

At the southern end of the project is Parcel 6, which contains a community center within a park. Parcel 6 encompasses the entire southern portion of the site and is bordered by North Capitol Street on the east, First Street NW on the west, Channing Street on the south, and the South Service Court on the north. Vehicular access to the park and community center

will occur from the South Service Court, including on-street spaces for parking and a pick-up/drop-off area where the Southern Service Court terminates near North Capitol Street.

PARKING

The Stage 1 PUD contains 2,721 to 3,038 off-street parking spaces and approximately 97 on-street parking spaces on the internal streets. This is an appropriate amount of parking for an urban mixed-use project, and it represents only 60% to 67% of standard suburban parking¹. This decrease in parking relative to suburban standards is representative of the multi-modal design of the McMillan PUD, which minimizes impacts to the surrounding neighborhoods.

Table 2 provides a review of the proposed parking provided for each land use by parcel, including a comparison of the parking proposed versus standard suburban rates. Table 2 also includes a review of the proposed parking supply and outlines any recommendations.

The majority of parking spaces provided by the PUD are within Parcel 1 (the healthcare office building) with 1,650 to 1,883 spaces reserved for the building's use. However, this amount of parking is appropriate for the size and use of the building proposed. The remaining consolidated PUD parcels have an appropriate amount of parking; a discussion for each is included in Table 2. The Phase 2 parcels (Parcels 2 and 3) will need to be reexamined during their Stage 2 applications once more detail on these types of tenants is fully defined.

LOADING

The proposed loading facilities in the PUD should accommodate all delivery demand without detrimental impacts. Table 3 contains a breakdown of the loading facilities for each consolidated parcel, including estimates on truck activity expected on a daily basis. These estimates are based on discussions Gorove/Slade has had with property managers for various land uses, including prior work with residential management companies and operators of grocery stores. The loading dock facilities as shown in the Stage 2 plans were not dimensioned nor were platforms identified. The Applicant will provide updated plans prior to the hearing with dimensions and details on loading platforms.

As grocery stores can have significant deliveries of large vehicles, and Parcel 4 is located adjacent to residential land

¹ Institute of Transportation Engineers' (ITE) *Parking Generation*, 4th Edition



uses, it is recommended that the grocery store have a loading dock manager. This is common practice in urban locations to manage deliveries so that they do not negatively impact the adjacent street.

Trucks are expected to access the PUD from Michigan Avenue NE/NW and North Capitol Street. Both streets are designated as truck routes by DDOT. Trucks will enter the internal street network from these streets and take the shortest viable path back towards the DDOT designated truck routes to exist the site. The North and South Service Courts are not expected to handle traffic from large vehicles.

Several maneuvering diagrams were provided in the Stage 2 PUD plans, showing how the docks can accommodate truck maneuvers. Prior to the hearing, the Applicant will present maneuvering plans showing routing through the internal streets to and from District truck routes, to ensure that the design of the internal streets and intersections can handle movements from the trucks, notably the large trucks serving the grocery store.

BICYCLE PARKING

The PUD plans identified multiple locations for short-term bicycle parking throughout the internal street network. The plans also determined that long-term parking for residents and employees will be located in parking garages. Prior the hearing, the Applicant will supplement the PUD plans with drawings showing more detail on the location of these spaces, including tabulations per parcel.

The Applicant is committing to a minimum amount of bicycle parking that will exceed the minimum required by the Zoning Regulations and the *DC Zoning Regulations and Bicycle Commuter and Parking Expansion Act of 2007*.

Table 4 reviews the bicycle parking proposed by each land use for each parcel. The PUD will contain an adequate supply of bicycle parking, and the Applicant will submit additional plans clearly identifying and tabulating the bicycle parking provided for each parcel.



Table 2: Review of Parking Supply by Loading

Parcel	Land Use	Amount (square feet, no. of units)	Zoning Requirement	Proposed Supply	Proposed Ratio	Suburban Ratio	Percent Proposed vs. Suburban	Review/Recommendations
1	Health Care Office	860,000	953	1650 (min) 1883 (max)	1.91 (min) 2.19 (max)	3.38	56% (min) 65% (max)	Typically, an office building in this location in the District would provide about 50% of suburban standard; the amount proposed equates to 56% to 65%. However, when considering the healthcare orientation of the building, the amount of parking is appropriate. The nature of the healthcare industry is in flux and evolving toward a more out-patient and clinical service mode, which has increased the amount of traffic and parking these buildings generate on a square footage basis. Thus, basing recommendations on the typical suburban rates presented in ITE's Parking Generation may not be applicable. The applicant has indicated that the amount of spaces proposed was reached after significant internal discussions and discussions with potential future tenants on how best to 'right-size' the parking in order to accommodate all demand while not encouraging driving as a mode.
1	Retail	15,000	16	17	1.13	2.55	44%	The proposed supply is adequate. Ground floor retail does not need a substantial amount of parking - an amount around 25% of suburban standard is fine, and the proposed is close to that amount.
2	Residential	258	86	218	0.84	1.27	66%	The proposed supply is adequate. A parking ratio of less than one space per apartment is typical in the District, and lower ratios would only be appropriate in an area with greater transit accessibility.
2	Retail	23,250	27	95	4.09	2.55	160%	A retail parking supply of 4 spaces per thousand square feet is typically used for retail tenants with a regional draw. This amount should be revisited during the Stage 2 application for this parcel, when tenants are fully defined.
3	Office	170,000	187	194	1.16	2.66	44%	The proposed supply is adequate. A parking ratio around 50% of suburban standard is appropriate for the project's location. As stated above, this Parcel may be able to share office parking supply with Parcel 1, which should be considered during its Stage 2 application.
3	Retail	3,000	0	0	0.00	2.55	0%	The proposed supply is adequate for the small amount of ground floor retail on the Parcel. Adjacent retail parking and on-street parking provide an adequate supply.
4	Residential	278	93	179	0.64	0.97	66%	The proposed supply is adequate. A parking ratio of less than one space per apartment is typical in the District, and lower ratios would only be appropriate in an area with greater transit accessibility.
4	Retail	52,920	67	160	3.02	4.21	72%	The proposed supply is adequate, as grocery stores attract a more auto-oriented and regional draw relative to other urban retail types. A ratio of 3 spaces per thousand square feet is adequate to handle all demand.
5	Residential	146	146	208 (min) 292 (max)	1.42 (min) 2.00 (max)	1.32	108% (min) 151% (max)	The proposed parking supply within the row houses is adequate. This report is not concerned about a potential oversupply of parking for two reasons: first, the parking spaces are controlled individually by each unit, and thus excess supply is less likely to induce new parking demand; second, residents can convert a garage parking spot into storage space, effectively reducing the supply as needed to account for use of non-auto modes.
6	Community Center	17,500	9	27 (approx. on-street spaces)	1.54	3.20	48%	The proposed parking supply for the community center is adequate. A large majority of the users are expected to be local and walking to the site, which means it should easily accommodate all drivers within the on-street parking on the South Service Court, and the adjacent on-street parking on 1st Street.
Other Parking Sources: Approx. 29 on-street spaces on North Service Court to serve retail patrons and office visitors Approx. 14 on-street spaces adjacent to Parcels 2 through 4 to serve retail patrons and office visitors Approx. 27 on-street spaces within Parcel 5 adjacent to row houses expected to serve row house guest parking								
Total Parking on site: Minimum: 2,818 Maximum: 3,135								

Note: Parcel 1 is requesting approval for a maximum of 1,900 spaces, which is reflected in this table. All suburban ratios calculated using ITE's Parking Generation 4th Edition. Parcel 4's residential parking demand calculation incorporates the different suburban ratio for senior housing as part of the total blend of unit types. Parcel 6 is expected to use metered parking along the South Service Court. Exact amounts of on-street parking won't be known until detailed signing and marking plans are prepared.



Table 3: Review of Loading Facilities by Parcel

Parcel	Land Use	Amount (square feet, Zoning Requirement no. of units)	Proposed Loading	Delivery Estimate (Daily)	Review/Recommendations	
Parcel 1 - Shared Loading Dock						
1	Health Care Office	860,000	3 berths of 30' each 3 platforms of 100 SF each 1 20' delivery space	4 berths 2 30' trucks per day 7 van/car deliveries per day	The proposed loading facilities appear adequate to accommodate expected demand in the loading docks without difficulty. The Applicant plans to supplement the drawings in the PUD application to dimension and clarify the loading facilities, but from a capacity/demand standpoint they will accommodate all demand.	
1	Retail	15,000	1 berths of 30' each 1 platforms of 100 SF 1 20' delivery space			
Parcel 2 -TBD at Stage 2 PUD process						
Parcel 3 -TBD at Stage 2 PUD process						
Parcel 4 - Separate Loading Docks						
4	Residential	258	3 berths @ 30' each 3 platforms of 100 SF each 1 20' delivery space	1 berth 1 30' truck per day 2 Van/car deliveries per day	The proposed loading dock is adequate to accommodate all demand, although the Applicant plans to supplement the drawings in the PUD application to dimension and clarify the loading facilities. This report recommends on-street parking in front of the residential building lobbies be reserved for loading/unloading use so that they can handle deliveries such as UPS and FedEx vans.	
4	Retail	52,920	1 berth of 30' 1 platform of 100 SF 1 berth of 55' 1 platform of 200 SF 1 20' delivery space	2 berths 1 delivery space 16 30' trucks per day 6 55' trucks per day	Grocery stores have a relatively high amount of deliveries compared to other uses, and the estimates of daily use can vary greatly depending on the retailer. The proposed loading dock appears large enough to accommodate all demand assuming a grocery store loading manager works to schedule deliveries to make sure they don't impact surrounding roadways, which is standard practice in the industry for urban areas. he Applicant plans to supplement the drawings in the PUD application to dimension and clarify the loading facilities, but from a capacity/demand standpoint they will accommodate all demand.	
Parcel 5						
5	Residential	146	None	None	Less then one 30' truck per day 2 Van/car deliveries per day	After initial move-in, the row houses won't have a significant amount of truck deliveries. Moving trucks can park adjacent to houses, or reserve on-street parking within Parcel 5.
Parcel 6						
6	Community Center	17,500	None	None	None	After initial move-in, the community center is expected to have minimal delivery activity. If any does occur, it can be accommodate in the South Service Court.