MCPB
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University of Maryland Graduate Student Presentation - URSP 708 Community Planning Studio

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Description

The URSP 708 Community Planning Studio at the University of Maryland's Urban Studies and Planning Program is a "capstone" course intended to provide students with an opportunity to apply their knowledge and skills to analyze current and pressing planning issues for a selected community, plan, or relevant topic. In this case, the final product is a report containing analysis and recommendations for two BRT corridor and station areas in Montgomery County. In essence, two student teams have acted as consultants to prepare plans focusing on the Montgomery County Countywide Transit Corridors Functional Master Plan.

Summary

- One team focused on the Aspen Hill Bicycle Pedestrian Priority Area, located near the juncture of Georgia and Connecticut Avenues. It is an area slated to be served by a BRT line and station areas on Georgia Avenue.
- The second team focused on the Montgomery Mall/Rock Spring Bicycle Pedestrian Priority Area, near the I-270 and Democracy Boulevard interchange. It is planned for BRT service with a terminal station at the Montgomery Mall.

Staff Recommendation

Provide comments to student teams following presentations.

aspen hill bppa sector plan

ursp 708 studio | fall 2014 | final report

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Executive Summary

The Aspen Hill Bicycle and Pedestrian Priority Area (BPPA) Sector Plan lays out a framework by which to transform an aging, auto-oriented suburb into a place that is easily accessible and traversable by all modes of transportation, including transit riders, cyclists, and pedestrians. The Plan envisions the redevelopment of the BPPA from a place characterized by multiple 1970's-era shopping centers into walkable, well-connected, mixed-use districts. The Bus Rapid Transit (BRT) network outlined by the 2013 Countywide Transit Corridors Functional Master Plan (CTCFMP) provides the ideal opportunity to enhance the Aspen Hill BPPA. Recommendations in this Plan are predicated on the construction of this BRT system, and all Land Use, Transportation, Environmental and Urban Design principles promoted herein are compatible with the BRT system implementation and seek to encourage high levels of ridership. This Plan also contains guidelines for BRT system design and operations deemed most suitable for the Georgia Avenue North Corridor line that runs through the Aspen Hill BPPA.

The goal of this Plan is to prioritize pedestrian and bicycle activity through the provision of high quality transit facilities, and to recommend land uses and zoning that complement an area characterized by multi-modal transit. To achieve this goal and best prepare the community for BRT implementation, key recommendations in the Aspen Hill BPPA Sector Plan include:

Land Use and Zoning that:

- identifies five emerging districts for redevelopment and focuses increased density near proposed BRT stations
- proposes zoning that promotes a balanced mix of uses and is flexible to market demand
- provides appropriate transitions between increased density in the BPPA's core and existing single-family homes in adjacent neighborhoods

Transportation guidelines that promote:

- a well-connected street grid that enhances walkability and accessibility in the BPPA
- treatments that make walking and cycling safe, convenient, and enjoyable
- best-practice BRT design and implementation that will meet Institute for Transportation and Development Policy Bronze-standard BRT guidelines
- new multi-modal connections to BRT stations

Environmental Sustainability recommendations that:

- integrate appropriate stormwater management strategies to enhance watershed health
- reduce impervious surface runoff in the highly-paved BPPA
- provide new open spaces for public enjoyment and increased greenspace

Urban Design Guidelines that recommend treatments to:

- create a sense of place in residential and mixed-use districts
- promote an active and visually interesting mixed-use core with ground floor retail
- recommend sidewalk treatments that create safe and functional spaces for pedestrian passage

While Plan vision and recommendations are best suited for an Aspen Hill BPPA anchored by a BRT network, the Implementation guidelines consider alternative development patterns for the planning area, such as the possibility that no BRT system is developed in the BPPA. The Aspen Hill BPPA Sector Plan does more than offer a simple remedy for issues in the community. Rather, it offers a comprehensive vision for a future of high quality transit, improved pedestrian and cyclist connections, and BRT-compatible land uses and design that result in an enhanced sense of place and better multi-modal accessibility in the Aspen Hill BPPA.

Vision

The Aspen Hill Bicycle Pedestrian Priority Area (BPPA) Sector Plan establishes guidelines and policies to transform the community from its current auto-centric suburban form into a walkable, mixed-use center in Montgomery County. Over the next few decades, Aspen Hill has the potential to redevelop into a transit-oriented community that residents and consumers can access safely and conveniently via bus, bicycle, vehicle, or even on foot. Mixed-use development will focus retail in the core of the BPPA, where pedestrians can traverse short, walkable blocks rather than dodge cars in busy parking lots to get from one store to the next. New residential communities of varying types and densities will offer residents an urban living environment that is convenient to amenities, retail goods, and transit. Green space in the Aspen Hill BPPA will be plentiful, expanded to include new public plazas, neighborhood parks, and civic greens that provide the opportunity for hosting various events and gatherings. The goal of this Plan is to prioritize pedestrian and bicycle activity through the provision of high quality transit facilities, and to recommend land uses complementary to an area characterized by multi-modal transit.

Currently, the BPPA is a destination to which the majority of visitors must drive to do their shopping. Although located just two miles from the Glenmont Metrorail Station and close to very desirable urban centers, such as Silver Spring and Rockville, Aspen Hill remains a heavily auto-dependent community along Georgia Avenue (MD-97). The area surrounding the Aspen Hill BPPA is a mature suburban community, featuring successful retail in a core that is surrounded by modest yet stable residential communities. Four shopping plazas within the Aspen Hill BPPA boundary shape the area into a bustling commercial hub with an impressively low vacancy rate of two percent. The greatest challenges in Aspen Hill are mobility and access, which are currently very poor, particularly for pedestrians and bikers. The area is characterized by heavy levels of congestion on Connecticut Avenue (MD-185) and Georgia Avenue, no bike network, and narrow, buffer-less sidewalks directly adjacent to busy arterial roadways.

The pending Montgomery County Bus Rapid Transit (BRT) system offers this community a catalyst for change from suburban community to a walkable, mixed-use center. The system's proposed Georgia Avenue North line runs from Montgomery General Hospital to the Wheaton Metrorail station and is slated to run in a dedicated lane through Aspen Hill, stopping at two proposed stations within the BPPA boundary. This investment in a high quality, high speed public transit system should act as a springboard for development in Aspen Hill, bringing about change in urban form, land uses, and infrastructure for non-vehicular modes of transportation.

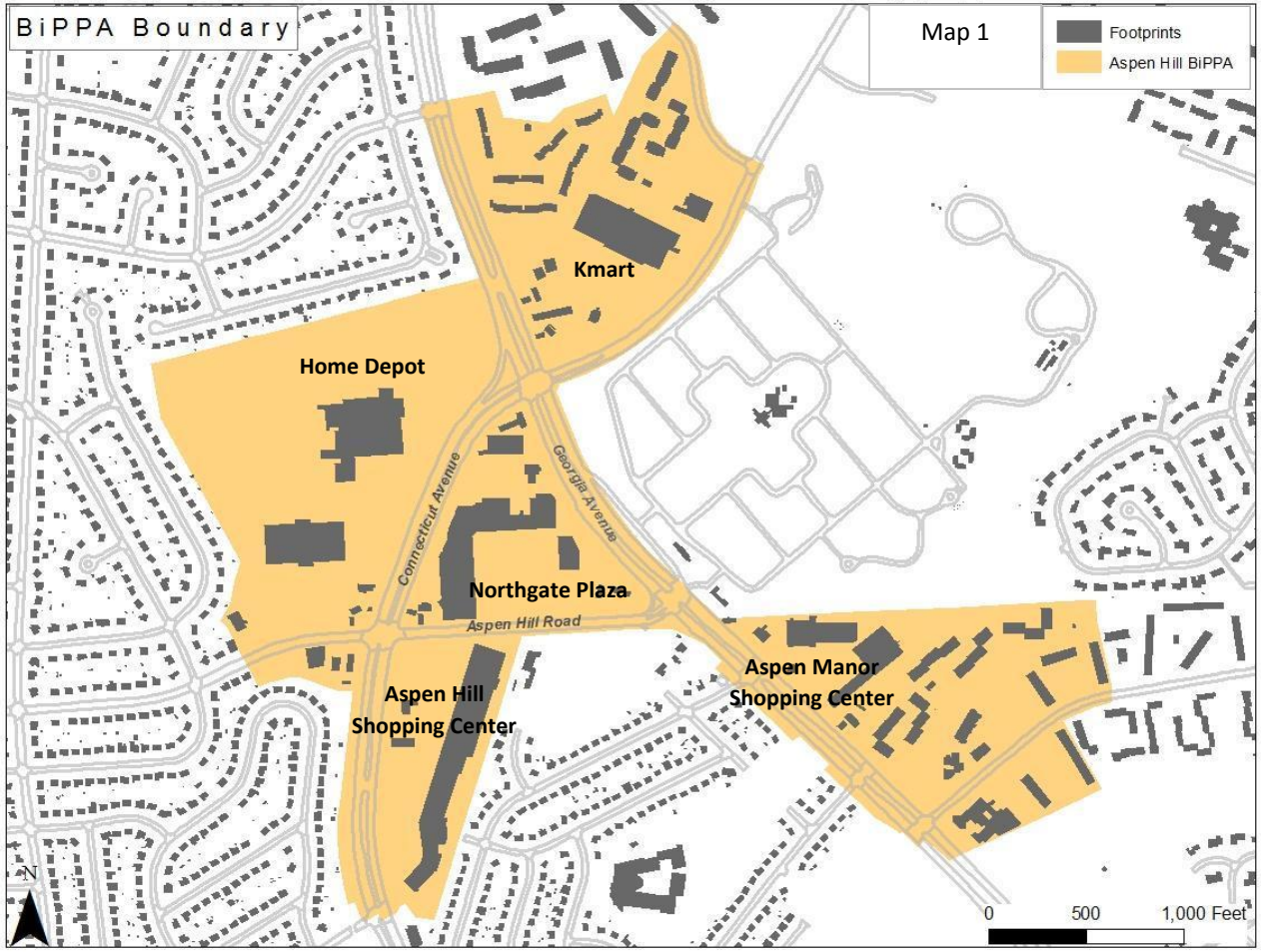
Recommendations in this sector plan emphasize:

- Creating a walkable street grid made up of short, mixed-use blocks
- Determining best location and alignment of proposed BRT stations and lanes
- Establishing pedestrian and sidewalk treatments that encourage non-vehicular modes of transportation
- Promoting density and massing that complement the character of the Aspen Hill community while maximizing BRT ridership
- Establishing urban design guidelines that enhance visual appearance, liveliness, and sense of place in Aspen Hill
- Zoning for a successful mixed-use node that remains flexible to market demands

Background of the Aspen Hill BPPA

Planning History

Following its rural beginnings, Aspen Hill saw a surge in development in the decades following World War II. The majority of single family homes surrounding the BPPA today were constructed in the 1960's. The Georgia Avenue – Connecticut Avenue intersection also became a retail destination around this time, and the three shopping plazas in the planning area – the Aspen Hill Shopping Center, Northgate Plaza, and Aspen Manor Shopping Center – were built between 1954 and 1971. Although some renovations to these retail plazas have been undertaken in the last ten years, the shopping centers have changed little in scale or location since construction.



Aspen Hill was first identified as a place distinct from the Upper Rock Creek Watershed and Upper Northwest Branch area in 1970, when the first area master plan was written. In light of the community's well-established suburban character and successful retail and office market, the 1994 Aspen Hill Master Plan proposed an "evolutionary rather than revolutionary vision for Aspen Hill" and recommended only small refinements to enhance the community's character and update its infrastructure.

More recently, Aspen Hill has been a focus of two planning efforts: The Aspen Hill Minor Master Plan Amendment and the Countywide Transit Corridors Functional Master Plan. The minor master plan amendment recommends zoning and uses for the former Vitro/BAE office site, which has sat vacant near the intersection of Aspen Hill Road and Connecticut Avenue since 2010. Finding that office is no longer feasible based on the market in Aspen Hill, the minor master plan amendment recommends that the site be developed with a big box

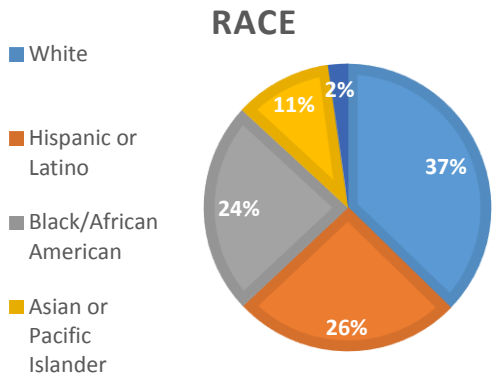
retailer that offers general merchandise/grocery, shaping Aspen Hill into a more regional destination for retail. This amendment anticipates County Council approval in early 2015. However, residents of Aspen Hill have expressed their opposition to large scale retail in the Vitro site, and initial plans for a potential big box retailer to develop the site have been shelved.

The Maryland-National Capital Park and Planning Commission adopted the Countywide Transit Corridors Functional Master Plan (CTCFMP) on December 18, 2013. This plan outlines recommendations for the development and implementation of a BRT system along eleven routes running through some of the most developed areas and areas ripe for redevelopment in Montgomery County. The proposed Georgia Avenue North BRT corridor runs along Georgia Avenue through Aspen Hill to the Glenmont Metro Station. The CTCFMP also designates nine areas along proposed BRT corridors throughout the county, including one in Aspen Hill, as "Bicycle-Pedestrian Priority Areas," which are to be the foci of improvements to walkability and bicycling facilities in the County.

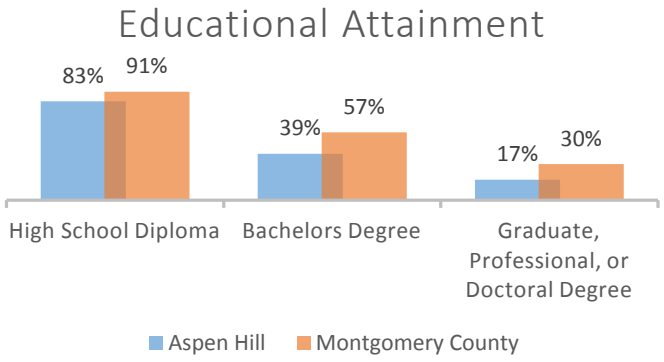
The Aspen Hill BPPA Sector Plan addresses issues of land use, transportation, walkability, biking, and environmental sustainability within the 188 acres of the County-designated, BPPA of Aspen Hill. Our recommendations build upon the work of the CTCFMP Plan to create a vision and guidelines for the Aspen Hill BPPA that are compatible with a thriving BRT corridor, and provide access to transit riders, bicyclists, pedestrians, and drivers alike.

Demographics

While the population of the BPPA planning area is quite small, represented only through a few multifamily developments on the eastern edge of the BPPA boundary, the population of the greater Aspen Hill community is very racially diverse. Over a quarter of Aspen Hill's population is Hispanic or Latino, and another quarter identifies as Black/African American. The Aspen Hill population is only 37% white, compared with Montgomery County's much greater 49% white population.



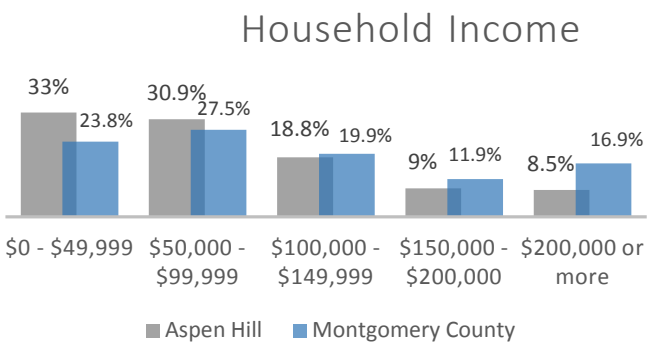
Source: ACS 5-year 2008-2012 Data



Source: ACS 5-year 2008-2012 Data

The Aspen Hill population is younger and less educated than Montgomery County overall. The median age in Aspen Hill is 37.4, and only 39% of the population has obtained a four-year Bachelors degree. As a result, the Aspen Hill population consists largely of working-age family households employed in lower-skilled jobs than the average County employee. Consequently, Aspen Hill residents also have lower incomes than Montgomery County residents overall. The median household income in Aspen Hill is $75,420, which is 22% lower than the Montgomery County median income of $96,985. Less

disposable income in the community suggests that redevelopment in the Aspen Hill BPPA should maintain some level of price-sensitive retail that will appeal to the current working class population.



Source: ACS 5-year 2008-2012 Data

Currently, the cost of housing in Aspen Hill is also significantly less than in the County at large. In spite of this relative affordability, nearly half of Aspen Hill residents living within half a mile of the proposed BRT stations are cost-burdened, defined by HUD as paying 30% or more of their monthly income on housing expenses.

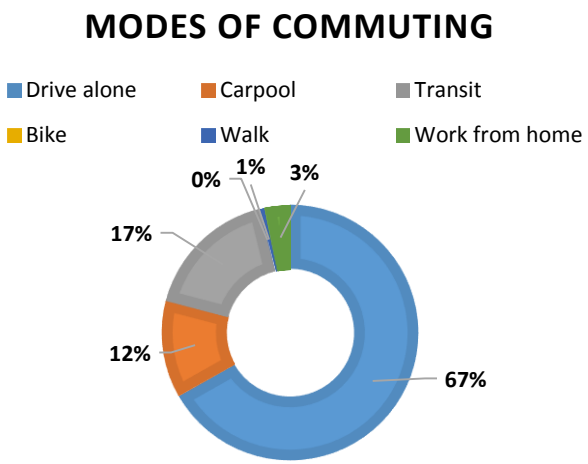
In light of this reality, planning and redevelopment in the Aspen Hill BPPA should focus on housing affordability in order to meet the needs of current residents while planning for the future. While redevelopment of aged properties in the BPPA will certainly draw new residents and retail to the study area, planners must remain cognizant of this vulnerable group currently living in the community and strive to enhance their quality of life as well. The goal of redevelopment is to balance quality and affordability in all recommendations and development scenarios in an effort to maintain the relative affordability of the study area while promoting new housing and retail. All multi-family and townhome development greater than 20 units occurring within the planning area should follow the guidelines set forth by Montgomery County's Moderately Priced Dwelling Unit (MPDU) program. These units, which must be affordable for residents earning roughly 80% or less of the HUD- determined area median income (AMI) of $107,000, should be made available both to working class homebuyers and renters seeking to live within the BPPA. Based on our plan vision and development potential, we anticipate the opportunity for 4,435 units in multifamily buildings. If all units are developed in groups of 20 or greater at a time, up to 550 affordable units could be provided in the BPPA, assuming that 12.5% of each development are set aside as affordable as the MPDU calls for.

Table 1: Housing Affordability

	Aspen Hill	Montgomery County
Housing Value	$391,100	$455,800
Monthly Rent	$1,448	$1,525
Cost-burdened	**48%**	**37%**

Source: ACS 5-year 2008-2012 Data

It is critical for the affordability of Aspen Hill that quality housing with moderate rents that are affordable to working class families earning 80% or less of the AMI are developed in the BPPA. Where possible, developers might seek funding through the Low Income Housing Tax Credit program administered by the State of Maryland Department of Housing and Community Development. Both 9% and 4% tax credits can be used to develop quality affordable and mixed-income multifamily buildings, based on financial feasibility.



Source: ACS 5-year 2008-2012 Data

The breakdown of commuting modes in Aspen Hill reflects the level of auto-dependency in the community, with nearly 80% of individuals commuting via automobile, whether alone or carpooling. Currently, 0% of workers bike to work and only 1% walk. While this is due in part to the location of employment for area residents, these auto-dependent patterns are also attributable to the poor walkability and lack of bike facilities found in the Aspen Hill area.

Issues and Opportunities

Issues:

Market limitations

- Weak office market
- Competition for high-end residential product from nearby jurisdictions, such as Rockville and Wheaton

Physical environment

- Gaps in sidewalks and pedestrian connectivity
- Outdated shopping plazas with excessive parking adjacent to street
- Excessive number of gas stations at intersections preventing more placemaking development opportunities

Transportation

- Lack of bicycle facilities
- Heavy congestion along Georgia Avenue and Connecticut Avenue
- Auto-oriented street pattern that is unfriendly to pedestrians
- Overabundance of access drives contribute to hazardous pedestrian conditions

Opportunities:

Retail

- Very successful retail market - current 2% retail vacancy rate
- Mix of business sizes, including big box and family owned

Transportation

- Wide Georgia Avenue right of way has space for BRT
- Trails provide opportunity for greenway links and park access

Physical realm

- Many parks and opportunities for open space
- Located near mature residential communities

Land Use and Zoning

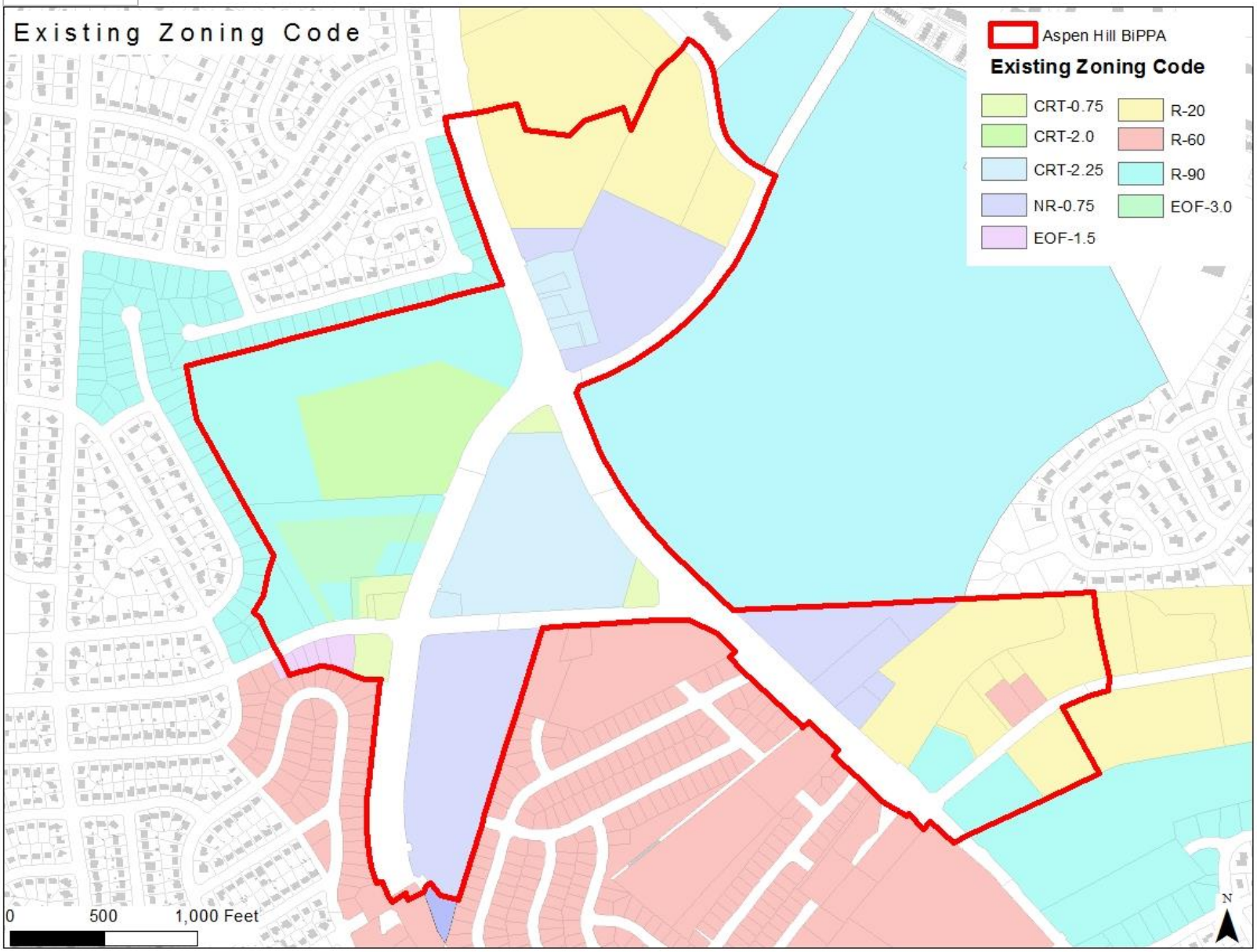
The anticipated construction of the Georgia Avenue North Corridor BRT line running from Olney to the Wheaton Metrorail station provides an opportunity to review existing land use within the BPPA and recommend zoning changes that will promote redevelopment in support of the BRT line. Parcel zoning and development standards defined under the County's newly implemented Zoning Ordinance and Map (effective October 30, 2014) will serve as the basis for calculating maximum yields of redevelopment under both existing conditions and proposed conditions based on recommended zoning for the 30-year plan horizon.

Map 2

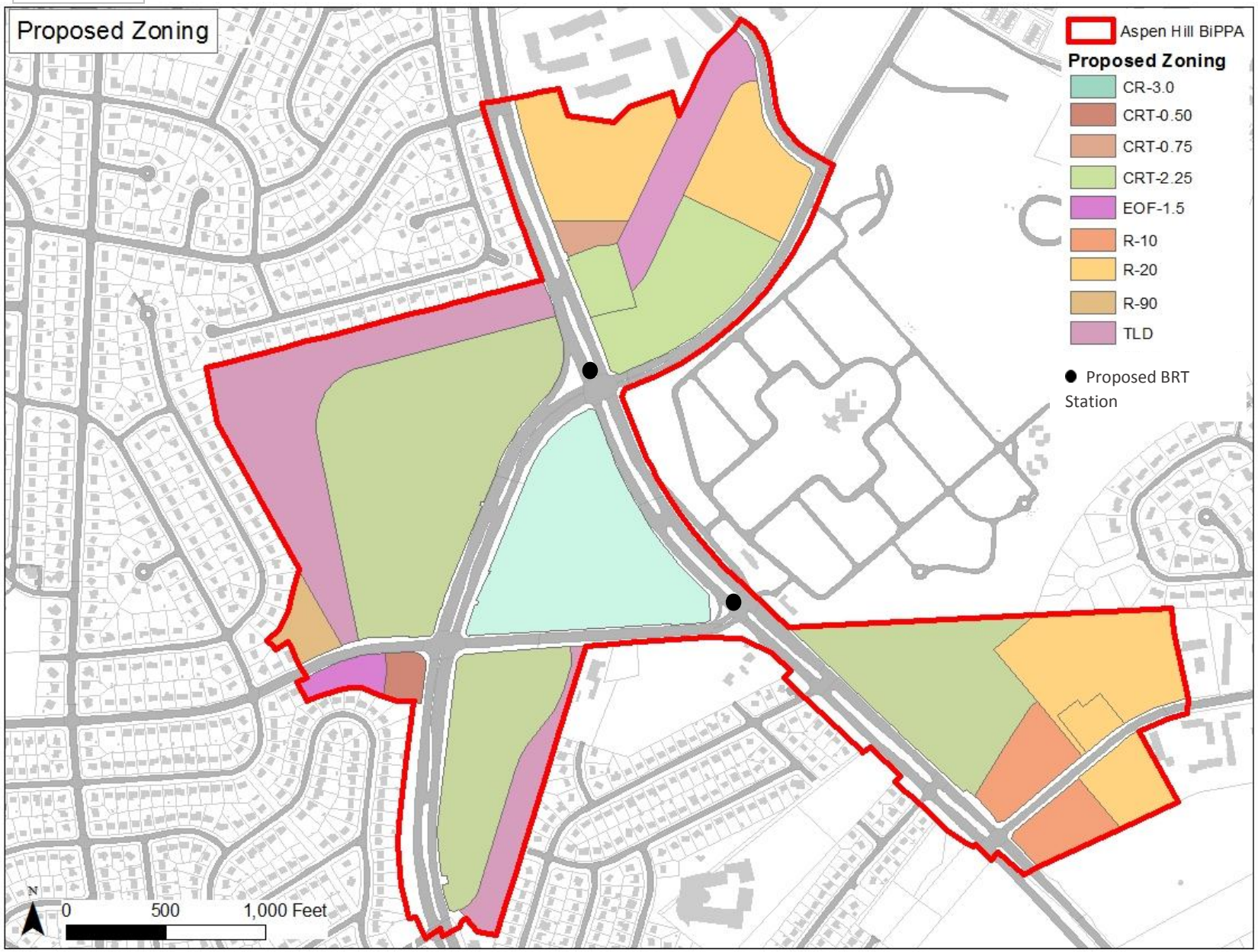
Map 3

The planning area's current versus proposed building fabric. This Plan's recommendations will transform the BPPA's current urban framework that lacks any clear development pattern into a gridded, consistent framework.

Map 4


Existing Zoning Code
Aspen Hill BiPPA
Existing Zoning Code
CRT-0.75
CRT-2.0
CRT-2.25
NR-0.75
EOF-1.5
R-20
R-60
R-90
EOF-3.0
0
500
1,000 Feet
N

Map 5


Proposed Zoning
Aspen Hill BiPPA
Proposed Zoning
CR-3.0
CRT-0.50
CRT-0.75
CRT-2.25
EOF-1.5
R-10
R-20
R-90
TLD
Proposed BRT Station
N
0
500
1,000 Feet

Zones and Density

Non-residential density in the Sector Plan is measured using Floor Area Ratio (FAR), or the ratio of total floor area of buildings on a property to the size of the property. A larger FAR permits more development on the property, though this could occur either horizontally or vertically and does not automatically translate into taller buildings. In general, increasing permitted FAR is a necessary tool to encourage redevelopment of existing, income-producing properties. As we seek to incentivize the creation of more walkable and mixed-use communities, providing owners with the opportunity for additional density is critical in order to move forward.

Depot District	48.5 +/- Acres
Northgate District	17.5 +/- Acres
Southgate District	15.4 +/- Acres
Georgia North District	32.6 +/- Acres
Georgia South District	33.4 +/- Acres
Area Outside Districts	40.8 +/- Acres
Total BPPA Area	**188.2 +/- Acres**

Table 2: Planning Area Acreage

Three categories of zones are recommended within this planning area: Commercial-Residential Zones, Employment Zones, and Residential Zones. Commercial-Residential (CR) Zones are mixed-use zones that will permit the widest range of uses and best achieve the desired vision for the BPPA districts; these are used most frequently within the Plan area and will range from 0.50 to 3.00 total FAR at heights of 45 to 120 feet. Use of Employment Zones is minimal, as they limit opportunities for residential units and therefore do not allow for the mixing of uses desired. Residential Zones are applied where transitional townhomes are recommended. All zones recommended will permit the Optional Method of Development, in which densities are increased in exchange for public benefits.

The proposed development pattern will place the highest density and tallest buildings within the Northgate District, located adjacent to the proposed BRT station at Georgia Avenue and Connecticut Avenue. Additional increases in density and height will occur at the district limits overlooking the existing Gate of Heaven Cemetery in both Georgia North and Georgia South Districts, as growth here will not conflict with smaller, existing single family homes. Outside of these locations the permitted heights and densities will be lower, ultimately transitioning down in scale where parcels abut single-family lots. More information about density and staging can be found in the Implementation section.

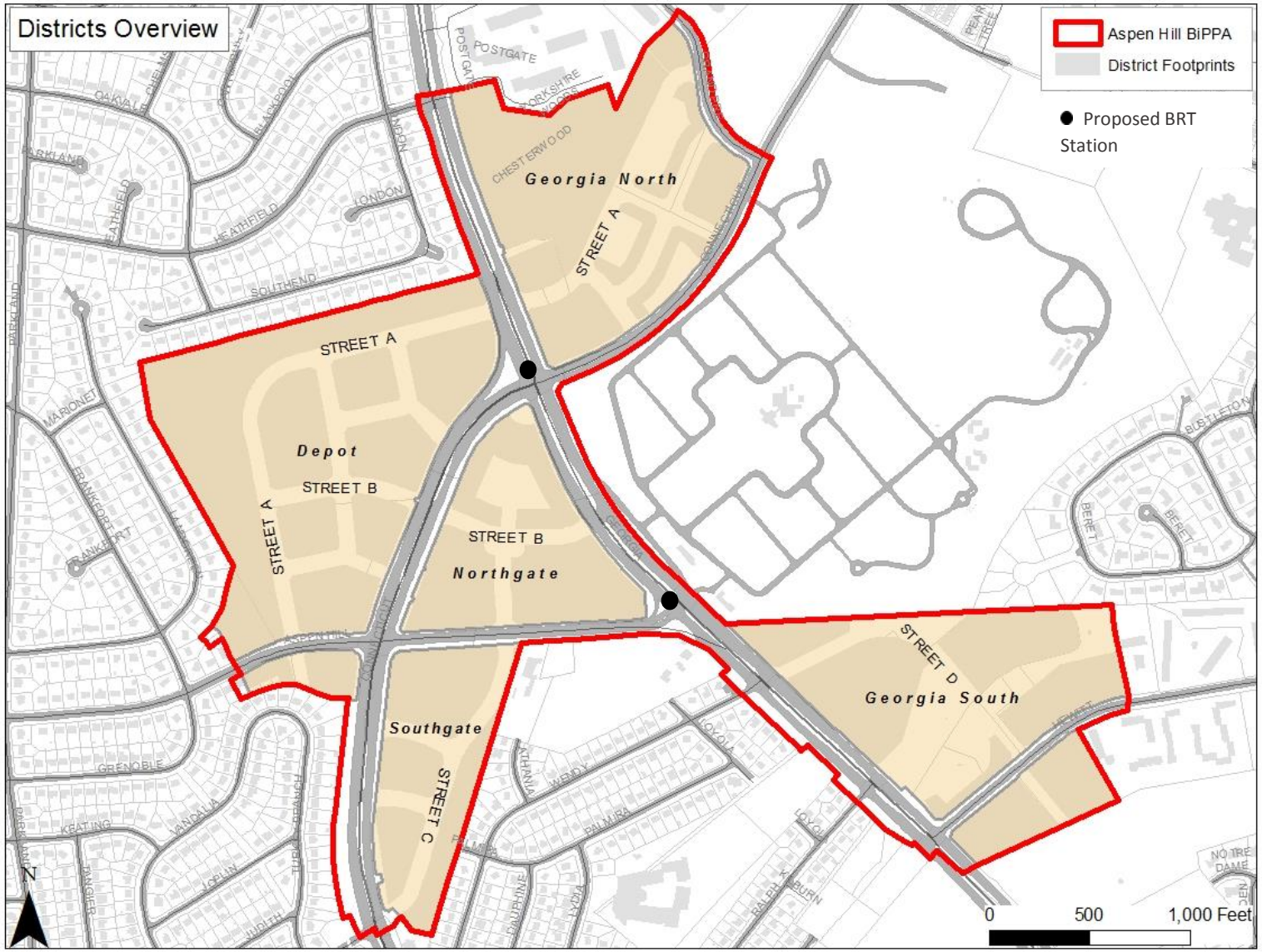
Planning Districts

The existing roadway infrastructure within the BPPA delineates five distinct planning districts: Depot, Northgate, Southgate, Georgia North, and Georgia South (Map 6). The limits of the BPPA at the edge of the Depot District have been adjusted from the original CTCFMP designation to remove the adjacent residential housing zoned R-90. The southern District and BPPA boundary line, across Aspen Hill Road, also abuts existing R-90 residential units. The Southgate District area is maintained from the CTCFMP recommended alignment, as is the Northgate District, which serves as the core of the Sector Plan. On the east side of Georgia Avenue, two districts are separated by the existing Gate of Heaven Cemetery, which is outside the planning area and serves as both a constraint to development and opportunity for promoting taller buildings adjacent to the space. The boundaries of both the Georgia North and Georgia South districts have been adjusted from those shown within the CTCFMP, in order to incorporate additional parcels currently improved with multi-family residential structures and increase the number of residents with access to the future BRT stations.

Each district has been planned in relation to both existing land use and its surroundings, and design has been coordinated with transportation recommendations to provide appropriate connections within and throughout the plan area. Several maps accompany each district section, and will specify, existing and proposed zoning, densities, heights, and proposed road alignments. The road alignments are not intended to represent specific or final locations and could shift as necessary at development. The Plan's Urban Design Guidelines will describe in greater detail the form that new

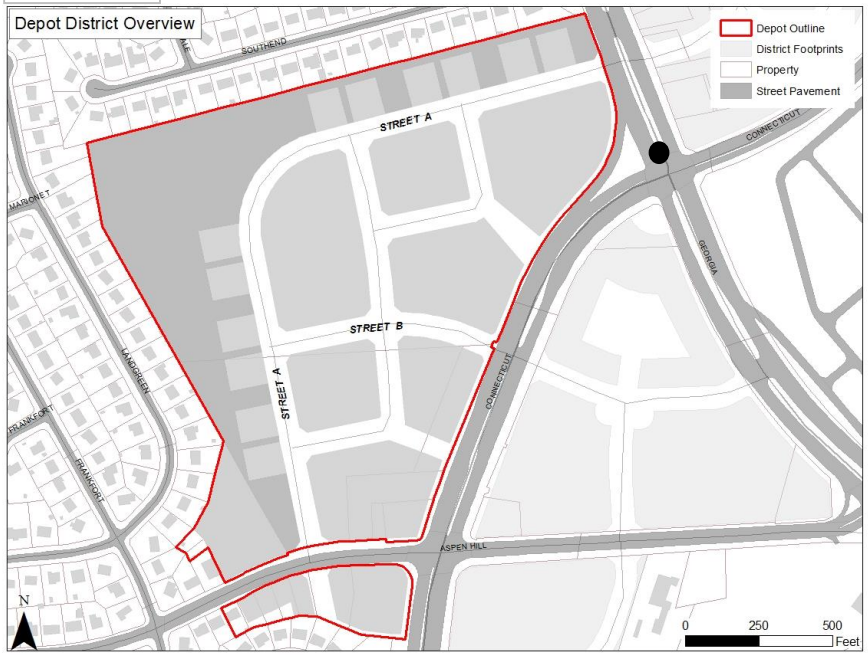
development should take to create the desired character in all districts. For a map of all parcels referenced in the Land Use and Zoning section, see Map 37 in the Plan's Appendix.

Map 6



Depot District. The Depot District is approximately 48.5 acres and is bounded by Connecticut Avenue to the east, Aspen Hill Road to the south and existing single-family residential units outside the Plan area to the north and west. A small portion of the district – 2.4 acres of the 48.5 acres total - sits on the south side of Aspen Hill Road and is bounded by Connecticut Avenue and existing single-family residential units located outside the Plan area. On the northern side, Pt. Parcel A (Property ID 13-00982523) is currently improved with a Home Depot and comprises approximately two-thirds of the district's total area. Parcel 1-B (Property ID 13-00957051) contains the empty Vitro/BAE office building – the principle catalyst for an active minor master plan amendment process– and represents approximately 19% of the district's total area. West of the Vitro/BAE site is an existing church, and additional uses within the northern section include a corner gas station, Dunkin Donuts, and parking for the former Vitro/BAE building. The district's southern portion contains a corner gas station, the Aspen View Center medical office building and associated parking, and a residential lot that has been converted for office use.

Map 7



This Plan anticipates adoption of the Aspen Hill Minor Master Plan Amendment in advance of Sector Plan adoption, and recognizes that recommendations within the amendment are generally in line with the vision identified herein, including assumption of the BRT station location at the Connecticut Avenue and Georgia Avenue intersection. This Plan proposes modifications, however, related to parcel zoning, build-to lines, and recommended street networks. This Plan will replace the pending amendment as it relates to discussed topics and will control in the event of any conflicting criteria or recommendations.

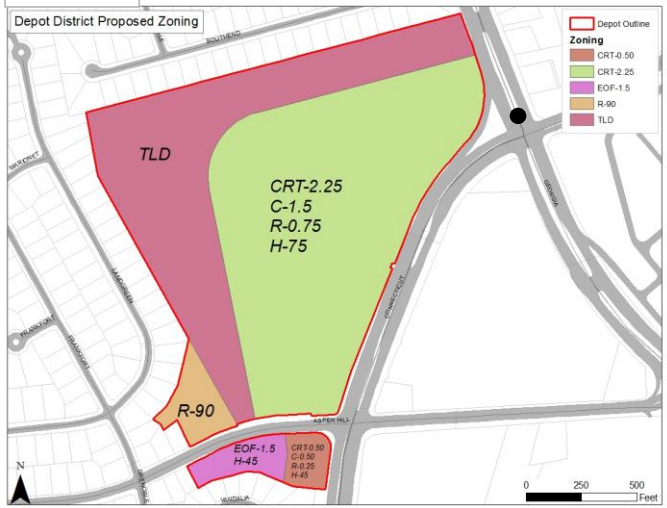
The Depot District will contain both mixed-use and residential components, as it seeks to relate to both the location within the BPPA and the adjacent single-family units outside the BPPA boundary. Some of the north-side parcels are currently split zoned (CRT-R90, EOF-R90, and EOF-CRT), and this plan will seek to simplify this by removing split-zoned parcels, with the exception of new area of TLD zoning north and west of New Street A, adjacent to the existing homes. These homes, as well as the church located within the Plan Area, are currently zoned R-90; revised zoning is not be recommended for these parcels.

The District should also have a three acre minimum public use/open space/amenity area contained within the TLD-zoned section, in the vicinity of the northwest corner of the site. This may also serve as an amenity for the existing neighborhood, with potential pedestrian point(s) of connectivity as shown on Map 7 to be reviewed during site plan stage. Zoning recommendations below utilize CRT, EOF and TLD zones to guide development towards the vision discussed above.

The Plan recommends establishment of a street network as shown on Map 7 and is discussed further in the Transportation section. While recommended roadway alignments may change with final subdivision, they reflect the Plan's intent to limit access points from the existing adjacent roadways, align with adjacent district entry points, and meet entrance spacing guidelines. The Aspen Hill Road intersection with New Street A should align with the entry to Aspen View Center on the south side of the road, and future redevelopment should seek to maintain the existing Home Depot access location from

Map 8

Map 9



Connecticut Avenue, to be aligned with New Street B from the Northgate District. The existing Home Depot access point off of Georgia Avenue (north of the Connecticut Avenue intersection) should be relocated south to improve sight distance and buffer the existing single-family units from proposed TLD-zoned townhomes. A shift of approximately 125 feet is recommended for this entry point, which should align with proposed New Street A. Limited right-in/right-out entry points may be considered as pad sites develop or as needed on an interim basis, but are generally not preferred.

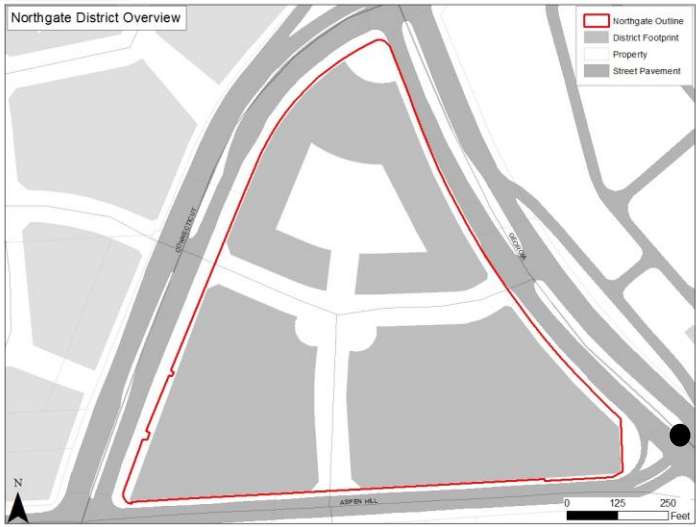
The proposed street network is contained predominantly within Pt. Parcel A and Parcel 1-B, though at final design may also be found to impact P534. Small areas of right-of-way dedications are recommended along the Aspen Hill Road frontage of Parcel 1 (Property ID 13-00952036, approximately 1,050 square feet) and Outlot A (Property ID 13-01276955, approximately 1,600 square feet) to provide the street's desired 80 foot public right-of-way width. This plan also notes that additional right-of-way along adjacent residential lots addressed as 4207, 4209, and 4211 Aspen Hill Road (north side Aspen Hill Road, outside the Plan area) may be recommended to meet the 80' preferred right-of-way section. An increase of seven feet at each lot is recommended, though this should be reviewed and finalized as the Aspen Hill Road section is designed. Some assembly of parcels or combined development would assist in best creating the proposed Depot District street grid.

The Plan provides the following notes and recommendations for the Depot District:

- A split rezoning of Pt. Parcel A from the current split zone CRT-2.00 C-0.50 R-1.50 H-65 T and R-90 to CRT-2.25 C-1.5 R-0.75 H-75 and TLD. The zoning split shall occur at the ultimate centerline of New Street A; TLD zone shall be applied to the north and west of the centerline, to the backs of existing lots zoned R-90.
- A split rezoning of Parcel 1-B from the current split zone EOF-3.0 H-60 and R-90 to CRT-2.25 C-1.5 R-0.75 H-75 and TLD. The zoning split shall occur at the ultimate centerline of New Street A; TLD zone shall be applied to the west of the centerline, to the backs of existing lots zoned R-90.
- Rezoning of P534 from the current split zone EOF-3.0 H-60 and R-90 to CRT-2.25 C-1.5 R-0.75 H-75
- Rezoning of Parcel 1-C from the current split zone EOF-3.0 H-60 and CRT-0.75 C-0.75 R-0.25 H-45 to CRT-2.25 C-1.5 R-0.75 H-75
- Rezoning of N644 and Parcel 1 from CRT-0.75 C-0.75 R-0.25 H-45 to CRT-2.25 C-1.5 R-0.75 H-75
- Confirm existing R-90 zoning of Outlot A and PT. 53, currently utilized as a church.
- Rezoning of Lot 49 from CRT-0.75 C-0.75 R-0.25 H-35 to CRT-0.50 C-0.50 R-0.25 H-45 to confirm recommendation within the Aspen Hill Minor Master Plan Amendment.
- Rezoning of Lot 48 from EOF-1.5 H-75 to EOF-1.5 H-45 to confirm recommendation within the Aspen Hill Minor Master Plan Amendment.

- Rezoning of Lots 43, 44, 45, 46, and 47 from EOF-1.5 H-60 to EOF-1.5 H-45 to confirm recommendation within the Aspen Hill Minor Master Plan Amendment.
- Redevelopment should promote build-to lines a minimum of 5' from the right-of-way of Aspen Hill Road. This may be adjusted where deemed beneficial for pedestrian use; including but not limited to restaurant seating, breaking of building massing or connectivity to and/or through the district.
- The build-to line along the east side of the district (west side of Connecticut Avenue) should be a minimum of 17', again with modification permitted for the benefit of pedestrians. The 12 extra feet from the 'typical' district build-to is for construction of the Connecticut Avenue Cycle Trail as discussed in the Plan's transportation section.
- The desired effect shall be development framing the adjacent roadways of Aspen Hill Road and Connecticut Avenue, with appropriate breaks for pedestrian access, articulation, and in accordance with the Urban Design Guidelines section of this Plan. Townhomes within TLD are anticipated to be alley loaded off connections from New Street A, though this may be adjusted to front units to the street at site plan stage.

Map 10

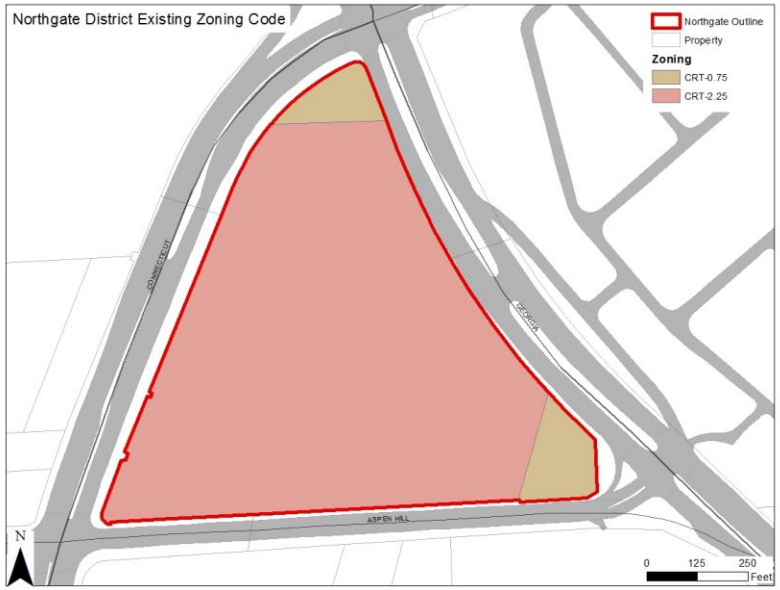


Northgate District. The Northgate District is approximately 17.5 acres and is bounded by Aspen Hill Road to the south, Connecticut Avenue to the west and Georgia Avenue to the east. Connecticut and Georgia intersect at the northern edge of the district, where the Sector Plan's northern BRT station is proposed. The district is comprised of four parcels, the largest of which represents approximately 90% of the area and currently serves as the Northgate Plaza Shopping Center, anchored by Kohl's Department Store. The northernmost parcel is under the same ownership as the retail plaza and is currently improved with an office building; the two remaining parcels – at the district's southwest and southeast corners – are currently operated as gas stations, under different ownerships.

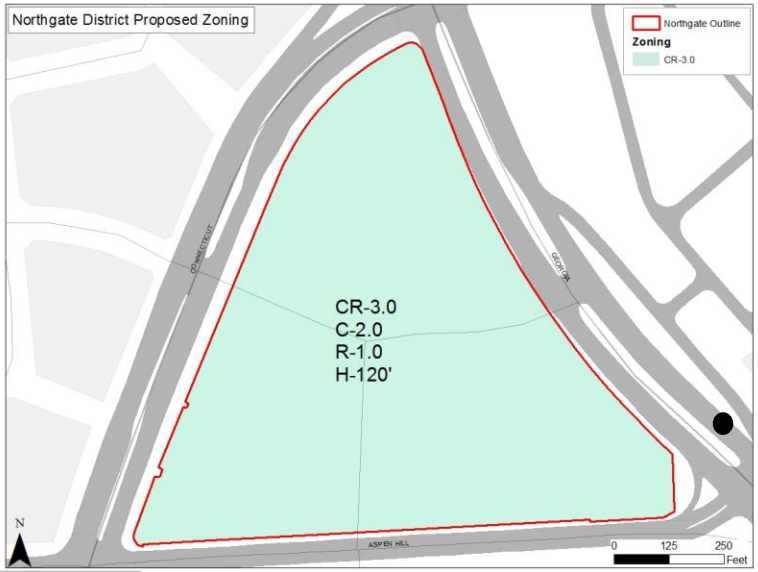
The site's predominant use as a sprawling retail center lacks street frontage and is unfriendly to pedestrians traversing the surrounding streets, with multiple curb cuts and poor connectivity into the district. With the proposed adjacent BRT station and the district's central location, the area presents an ideal opportunity for increased allowable FARs and height limitations that will permit market-driven growth and provide for potential residential units, while maintaining the existing retail functionality the neighborhood relies on. The CR zone best meets this vision and will be recommended for properties within this district as noted below. The Plan recommends establishment of a street network as shown on Map 10 and is discussed further in the Transportation section. While recommended roadway alignments may change with final subdivision, they reflect the Plan's intent to limit access points from the existing adjacent roadways, align with adjacent district entry points, and meet entrance spacing guidelines. Limited right-in/right-out entry points may be considered as pad sites develop or as needed on an interim basis, but are generally not preferred. The proposed street network is contained wholly within the Northgate Plaza site (Parcel F, Property ID 13-03126511); a small area of approximately 875 square feet of right-of-way dedication is recommended along the Aspen Hill Road frontage of Pt. Parcel A (Property ID 13-00961383) to provide the street's desired 80 foot public right-of-way width.

The Plan provides the following notes and recommendations for the Northgate District:

- Rezoning of Parcels F & C-2 from CRT-2.25 C-1.50 R-0.75 H-75’ to CR-3.00 C-2.00 R-1.00 H-120’
- Rezoning of Pt. Parcels A & D from CRT-0.75 C-0.75 R-0.25 H-45 to CR-3.00 C-2.00 R-1.00 H-120’
- Redevelopment should promote build-to lines a minimum of 5’ from the right-of-ways of Connecticut Avenue and Aspen Hill Road. These may be adjusted where deemed beneficial for pedestrian use; including but not limited to restaurant seating, breaking of building massing or connectivity to and/or through the district.
- The build-to line along the east side of the district (west side of Georgia Avenue) should be 17’, again with modification permitted for the benefit of pedestrians. The 12 extra feet from the ‘typical’ district build-to is for construction of the Georgia Avenue Cycle Trail as discussed in the Plan’s transportation section.
- Frame the three adjacent roadways, with appropriate breaks for pedestrian access, building articulation and in accordance with the Urban Design Guidelines section of this Plan.
- Highlight the strong retail potential of redevelopment along the frontages of Connecticut Avenue and Georgia Avenue, traveling from the roadway intersection/BRT station heading southwest and southeast to each roadway’s intersection with New Street B.
- Promote pedestrian connectivity throughout the district to and from the BRT station location. Particularly, it should ensure that the redevelopment of the southwestern pad site(s) provides a reasonable route from the district corner up to and through the northern component.
- Provide an entrance plaza at the northern district edge, adjacent to the BRT station location. Consolidation of the office parcel with the large Parcel F may ultimately be appropriate but is not required for either parcel to redevelop.
- Seek to provide interior and other corner plaza spaces along the pedestrian route(s) through the district.



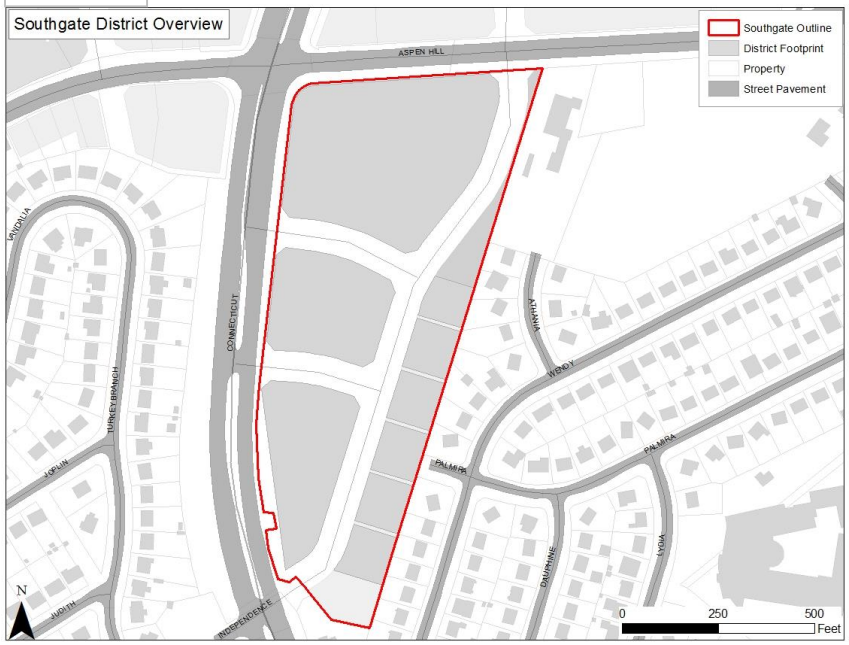
Map 11



Map 12

Southgate District. The Southgate district is approximately 15.4 acres and is bounded by Aspen Hill Road to the north, Connecticut Avenue to the west, and single family homes and a historic pet cemetery to the east. The southern portion of the district is adjacent to an existing commercial parcel located outside the BPPA area and zoned as CRN-0.50 C-0.50 R-0.25 H-35; the adjacent eastern properties are zoned as R-60 and are outside the BPPA area as well, but will inform land use and zoning recommendations within the district, as we seek to guide appropriate scale development adjacent to the established neighborhood. Application of the CRT and TLD zones will best promote the vision for the Southgate District.

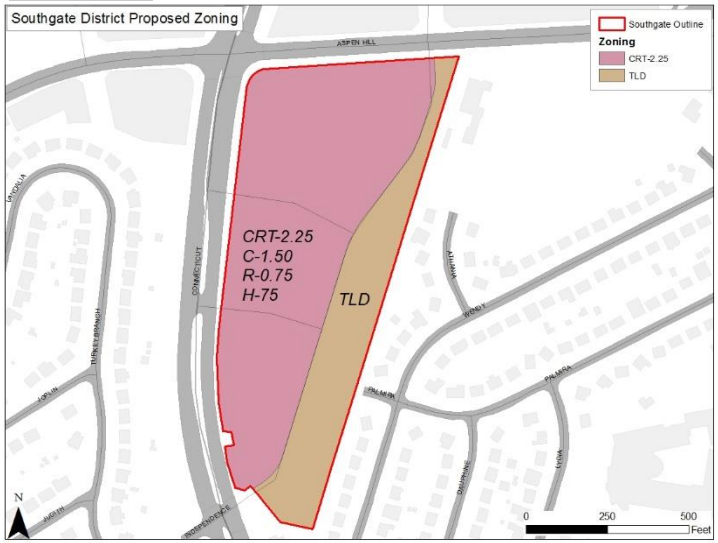
Map 13

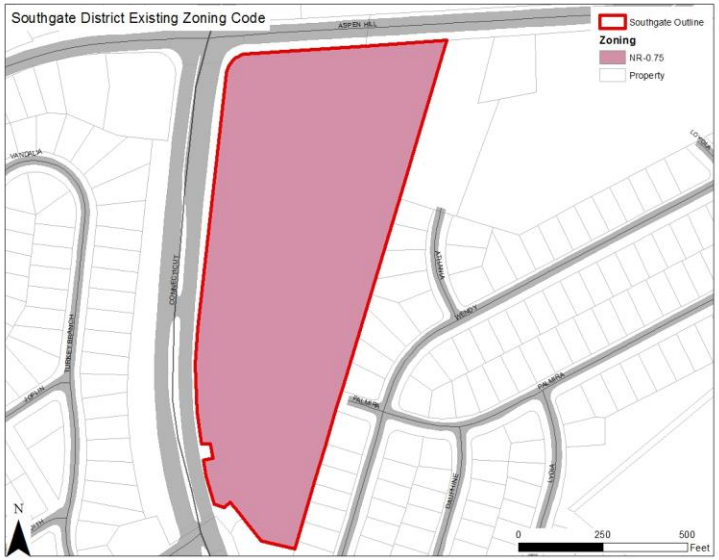


The district is comprised of a single existing parcel and is currently developed as the Aspen Hill Shopping Center. The center, approximately 98% leased as of Plan preparation, is well setback from Connecticut Avenue, with large areas of surface parking fronting the single level retail building. Based on the district's location within the plan area and relation to BRT station locations, it is expected to develop as a more 'self-contained' section of the Plan. Establishment of building frontage along Connecticut Avenue is desired, but this Plan recognizes and accepts that the market will likely not support ground level retail along the entirety of the district's Connecticut Avenue frontage; the southern portion may therefore be expected to develop as primarily residential, possibly at a smaller scale. Establishment of neighborhood-serving retail is desired internal to the district's new streets, and areas of public amenities, such as playgrounds, open space and a public dog park should be promoted for the benefit of the district residents and those of the adjacent established neighborhood. The area east of New Street C shall be zoned for development of townhomes with provision of open space area, and will serve as a transition to the existing single family homes east of the district/BPPA boundary.

The Plan recommends establishment of a street network as shown on Map 13 and discussed further in the transportation section. While recommended roadway alignments may change with final subdivision, they reflect the Plan's intents to utilize existing access locations off of Connecticut Avenue into the Aspen Hill Shopping Center for the redeveloped district. Partial demolition of the existing retail center could occur starting on either the northern or southern end, while surface parking serving the other side would remain in place. The Plan additionally calls for a north/south portion of New Street C to connect the southernmost Connecticut Avenue access point up to Aspen Hill Road (aligning with the Northgate District entrance). This road could likewise be built in stages as the retail is taken offline, and will also serve – at its final centerline location – as the delineation for proposed split zoning, as recommended below. The anticipated construction of portions of New Street C with potential partial redevelopment of the district's parcel will provide an entrance loop and should preclude construction of any additional access points from Connecticut Avenue or Aspen Hill Road.

Map 14





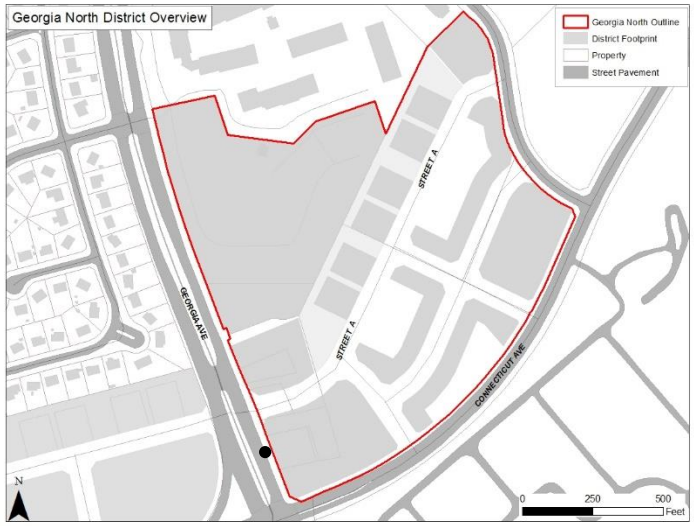
Map 15

The Plan provides the following notes and recommendations for the Southgate District:

- A split rezoning of the district's parcel (Property ID 13-02767580) from NR-0.75 H-45 to CRT-2.25 C-1.5 R-0.75 H-75 and TLD. The zoning split shall occur at the ultimate centerline of New Street C; TLD zone shall be applied to the east of the centerline.
- Redevelopment should promote build-to lines of a minimum of 5' from the right-of-ways of Connecticut Avenue and Aspen Hill Road. These may be adjusted where deemed beneficial for pedestrian use; including but not limited to restaurant seating, breaking of building massing or connectivity to and/or through the district.
- Development should frame the adjacent roadways of Aspen Hill Road and Connecticut Avenue, with appropriate breaks for pedestrian access, articulation and in accordance with the urban design guidelines section of this Plan. Townhomes within TLD are anticipated to front New Street C.
- The existing pedestrian connection located at the end of Palmira Lane shall be maintained. A minimum 20' wide access area is required between townhome lot lines, to align with the center of the existing Palmira Lane right-of-way or shifted as reasonably dictated by existing path locations.
- Consider the potential for new pedestrian connections from the north limits of Athania Street and the southernmost portion of the district's TLD zone (adjacent to existing residential lot addressed as 3913 Wendy Lane). These connections are to be discussed with the adjacent and impacted neighbors, and, if implemented, shall consist of a minimum 10' wide access area within the TLD zone.
- Pedestrian connection(s) from the adjacent neighborhood are to extend west as appropriate to the Connecticut Avenue sidewalk. Alignments may be adjusted to connect within the right-of-ways of proposed new streets.

Georgia North District. The Georgia North District is approximately 32.6 acres and is bounded by Georgia Avenue to the west, Grand Pre Road, adjacent multi-family units to the north, and Connecticut Avenue to the south. The area on the south side of Connecticut Avenue contains the existing Gate of Heaven Cemetery and is outside the BPPA area. It is assumed that this cemetery will remain in place for the duration of this

Map 16



Plan. The northwestern portion of the district, along Georgia Avenue, contains existing multi-family housing and is zoned R-20. South of this development, along Georgia Avenue, is a PEPCO owned parcel, currently wooded and zoned NR-0.75 H-45. Continuing south along the Georgia Avenue frontage, relatively small parcels – max 1.25+/- acres but most under ½ acre – include a county-owned building that formerly served as the Kensington Volunteer Fire Department (since relocated elsewhere in Aspen Hill, outside the Plan area), a 7-Eleven, retail, and two gas stations. East along Connecticut Avenue is parcel 1 (Property ID 13-01512310), a 10.15+/- acre site improved with a Kmart, Wendy's and associated surface parking. The remaining parcels within the district, at the corner of Connecticut Avenue and Grand Pre Road and along Grand Pre Road, contain the USPS Aspen Hill Carrier Annex and multi-family residential units.

The Georgia North District will contain both mixed-use and residential components, in consideration of both the location within the BPPA, and its adjacency to both a proposed BRT station and multi-family homes both inside and outside the Plan area. Establishment of building frontages along Georgia Avenue and Connecticut Avenue is desired, but this Plan recognizes and accepts that the market will likely not support ground level retail along the entirety of the district's frontages, particularly moving away from the BRT station location. Smaller scale development, primarily residential, may be expected outside the station's vicinity. Establishment of neighborhood-serving retail is desired internal to the district's new streets, and areas of public amenities – such as, but not limited to, playgrounds, open space and a public dog park - should be promoted for the benefit of the district residents and those of the adjacent established units. A community facility should be considered for the northeastern portion of the district.

The Plan notes an area of steep topography that separates the northernmost multi-family units from the remainder of the district to the south. This may be expected to serve as a limiting factor when seeking connectivity with future redevelopment. As such, the northern parcel may remain 'self-contained', with the existing access off of Georgia Avenue at the northern limits of the Plan area maintained during future redevelopment. Pedestrian connectivity should be considered to this parcel, if feasible.

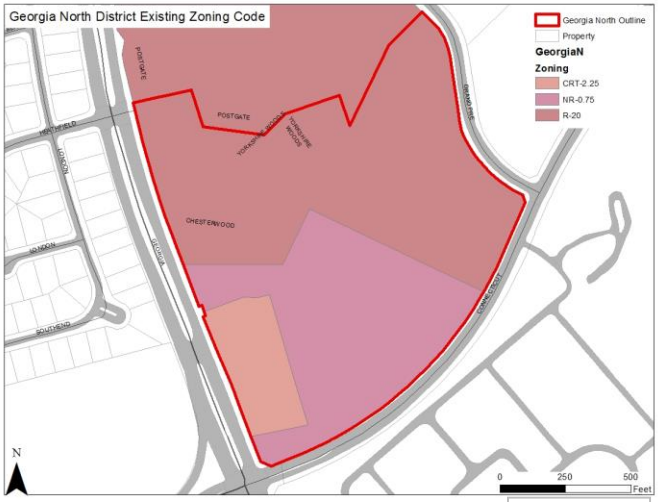
The Plan recommends establishment of a street network as shown on Map 16 and discussed further in the transportation section. While recommended roadway alignments may change with final subdivision, they reflect the Plan's intent to align the intersection of New Street A at Georgia Avenue with the road's extension into the Depot District, and to limit access points from the existing adjacent roadways and meet entrance spacing guidelines. Limited right-in/right-out entry points may be considered as pad sites develop or as needed on an interim basis, but are generally not preferred. The ultimate road centerline of New Street A, from the intersection with parcel N176 (Property ID 13-01654915) heading east through Parcels 1 (Property ID 13-01512310) and 6 (Property ID 13-02010168) to Grand Pre Road, will serve as the delineation of proposed split zoning, as identified in recommendations to follow.

The proposed network shall generally follow parcel lines where feasible to limit the impacts of required right-of-way dedications so as to avoid overburdening individual parcels. Nevertheless, some impacts to the parcels fronting Georgia Avenue are likely unavoidable, and the Plan in particular notes that that the required dedication through Parcel N230 (Property ID 13-00981288) – the Sunoco Gas Station – to provide connectivity to Georgia Avenue amounts to nearly 50% of the parcel area. It may be necessary to adjust the alignment of New Street A, or otherwise remove the district's

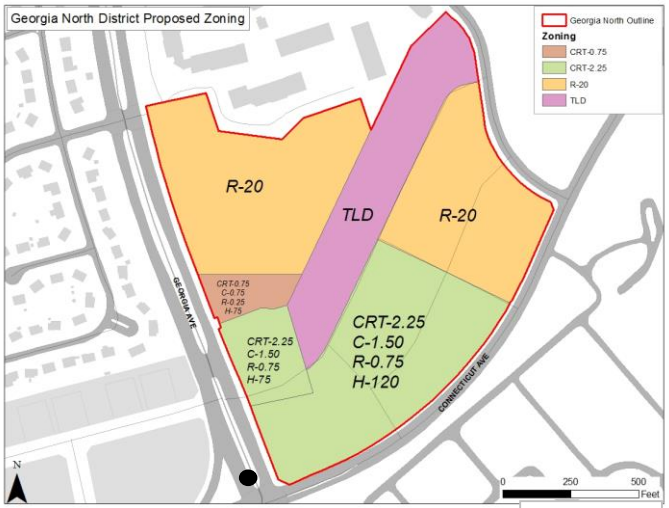
connection to Georgia Avenue, though the latter option is not preferred. Some assembly of parcels or combined development would best form the proposed Georgia North District street grid.

The Plan provides the following notes and recommendations for the Georgia North District:

- Confirm existing R-20 zoning of the condo parcel C000591 at the northwestern section of the district.
- Rezoning of the PEPCO parcel A from NR-0.75 H-45 to CRT-0.75 C-0.75 R-0.25 H-75.
- Rezoning of Parcels N176 (Property ID 13-01654915), N204 (Property ID 13-00984806), and N230 (Property ID 13-00981288) from CRT-2.25 C-1.50 R-0.75 H-45 to CRT-2.25 C-1.50 R-0.75 H-75.
- Rezoning of Parcels N256 (Property ID 13-00952470), N257 (Property ID 13-00964284), and P285 (Property ID 13-00964273) from CRT-2.25 C-1.50 R-0.75 H-45 to CRT-2.25 C-1.50 R-0.75 H-120. The 120' height maximum shall apply for buildings with frontage along Georgia Avenue; buildings without Georgia Avenue frontage are to have a maximum height of 75'.
- A split rezoning of Parcel 1 (Property ID 13-01512310) from NR-0.75 H-45 to TLD and CRT-2.25 C-1.50 R-0.75 H-120. The zoning split shall occur at the ultimate centerline of New Street A; TLD zone shall be applied to the west of the centerline, to the backs of the adjacent R-20 zoned condo lot. The 120' height maximum shall apply for buildings with frontage along Georgia Avenue or Connecticut Avenue. Buildings without frontage along one or both of these streets are to have a maximum height of 75'.
- Confirm existing R-20 zoning of Parcel A (Property ID 13-01688178).
- A split rezoning of Parcel 6 (Property ID 13-02010168) from R-20 to R-20 and TLD. The zoning split shall occur at the ultimate centerline of New Street A; TLD zone shall be applied to the west of the centerline, to the backs of the adjacent R-20 zoned condo lot.
- Recommend location of a community facility (i.e. recreation center, library, or other) at the northeast corner of the district – within the TLD zoned redevelopment and adjacent to Grand Pre Road.
- Redevelopment shall promote build-to lines of 5' from the right-of-ways of Georgia Avenue and Connecticut Avenue, where permitted by zoning. This may be adjusted where deemed beneficial for pedestrian use; including but not limited to restaurant seating, breaking of building massing or connectivity to and/or through the district.
- The desired effect shall be development framing adjacent Georgia Avenue and Connecticut Avenue, with appropriate breaks for pedestrian access, articulation and in accordance with the urban design guidelines section of this Plan.
- Highlight the strong retail potential of redevelopment along the frontages of Connecticut Avenue and Georgia Avenue immediately in the vicinity of the



Map 17

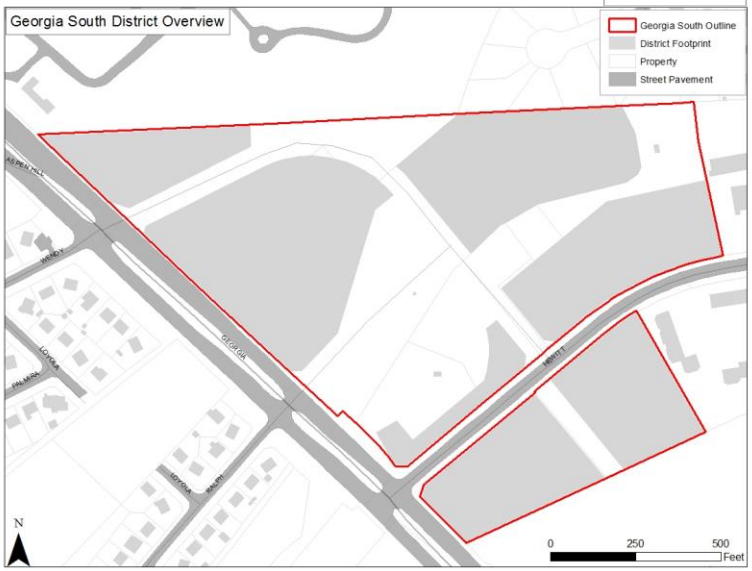


Map 18

intersection and BRT station location, while understanding that this retail is expected to tail off traveling east along Connecticut Avenue and north along Georgia Avenue

- Promote pedestrian connectivity throughout the district to and from the BRT station location.

Map 19



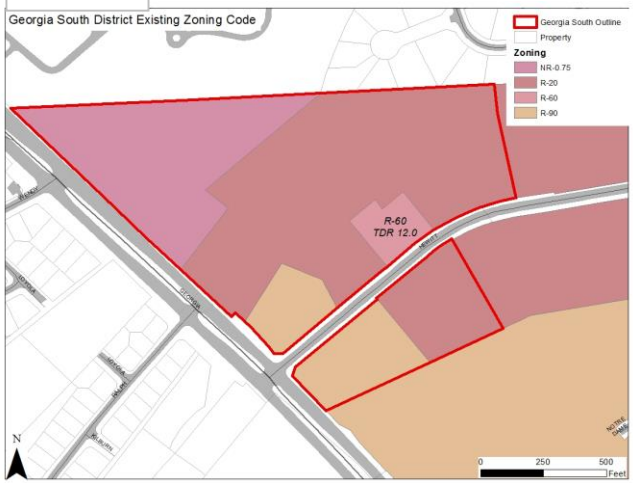
Georgia South District. The Georgia South District is approximately 33.4 acres and is bounded by Georgia Avenue to the west, existing multi-family residential units outside the BPPA area that are zoned as R-20 to the east, Hewitt Avenue to the south and the existing Gate of Heaven Cemetery to the north, which is outside the BPPA area and is assumed to remain in place for the duration of this plan. Two parcels within the Plan area lie on the south side of Hewitt Avenue and are bounded by existing multi-family residential zoned R-20 to the east and Montgomery-County owned parkland – containing the Matthew Henson Trail - to the south. These areas comprise 5.7 acres out of the 33.4 acres district total; the western parcel (Property ID 13-02828360) is currently zoned R-90 and serves as a church, and the eastern parcel (Property ID 13-00963531) is currently zoned R-20 and improved with multi-family residential units.

The north side of the district includes the Aspen Manor Shopping Center, anchored by Lotte Plaza Market (a Korean Grocer); a gas station along Georgia Avenue; a church at the intersection of Georgia Avenue and Hewitt Avenue; multiple family apartments; and residential condominiums. Existing zoning within the district is predominantly residential. The district's northwestern portion - comprised of Pt. Parcel A (Property ID 13-00959595), Parcel C (Property ID 13-00951976), Parcel B (Property ID 13-00980876), and P755 (Property ID 13-00959584) – contains the shopping center, gas station and a developable vacant parcel, totals 8.8 acres, and is currently zoned NR-0.75 H-45. The balance of the district is zoned residential: R-20, R-60 TDR: 12.0, and R-90. Two contiguous parcels within this area, totaling 1.2 acres, are zoned R-60 TDR: 12.0 and are currently undeveloped.

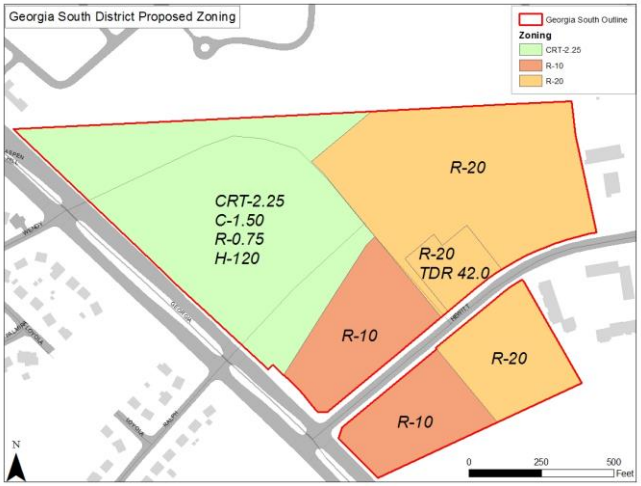
The Georgia South District should remain predominantly multi-family residential. The district is bisected by the existing Matthew Henson stream and floodplain, which is expected to constrain development while serving as an opportunity for linking new green spaces and yielding a scenic overlook for taller residential buildings abutting the stream area, up to 120 feet. The northern component fronting Georgia Avenue and development adjacent to the existing Gate of Heaven Cemetery may also include buildings to 120 feet. Internally, the maximum building heights should be 75 feet, or taller where permitted by the County's Zoning Ordinance. This Plan specifically recommends construction of apartments on the parcels zoned for TDR, and further recommends removal of the TDR's 40 foot height limitation for the purpose of achieving greater compatibility with adjacent development, in accordance with Section 4.9.15 of the Zoning Ordinance.

The Plan recommends establishment of a street network as shown on Map 19 and discussed further in the Transportation section. While recommended roadway alignments may change with final subdivision, they reflect the Plan's intent to align New Street D at Georgia Avenue with the existing Wendy Lane intersection and to center the street's alignment along parcel lines where feasible to limit impacts of required right-of-ways dedications, particularly at the intersection with Hewitt Avenue. The feasibility of the potential street connection at Georgia Avenue, currently

Map 20



Map 21



shown within this Plan as aligning with existing Ralph Road, should be reviewed upon development at site plan stage against environmental constraints caused by the floodplain. Negative environmental impacts may cause deletion of this connection to be appropriate. This Plan does not prohibit establishment of internal roadways and additional stream crossings, though crossings should follow all regulatory requirements and be avoided where possible. Limited right-in/right-out entry points may be considered as pad sites develop or as needed on an interim basis, but are generally not preferred.

This Plan recognizes that New Street D bisects Parcel A (Property ID 13-00959607) through an existing multi-family residential structure, as does the potential connection from New Street D to Georgia Avenue. The western portion of the property is recommended for increased density to offset the loss, and this plan acknowledges that some assembly of parcels or combined development would assist in best creating the proposed Georgia South District street grid.

The Plan provides the following notes and recommendations for the Georgia South District:

- Rezoning of Pt. Parcel A (Property ID 13-00959595), Parcel C (Property ID 13-00951976), Parcel B (Property ID 13-00980876), and P755 (Property ID 13-00959584) from NR-0.75 to CRT-2.25 C-1.5 R-0.75 H-120. The 120' height maximum should apply for buildings with frontage along Georgia Avenue and/or the adjacent cemetery and/or the existing floodplain. Buildings lacking this frontage are to have a maximum height of 75'.
- A split rezoning of Parcel A from R-20 to CRT-2.25 C-1.5 R-0.75 H-120 and R-20. The zoning split should occur at the ultimate centerline of New Street D; CRT-2.25 C-1.5 R-0.75 H-120 should apply west of the centerline, and R-20 should be maintained to the east.
- Rezoning of Parcel N860 from R-90 to R-10.
- Rezoning of the condominium parcel C000429 from R-20 to R-10.
- Confirm R-20 zoning of: Block A Lot P1 (Property ID 13-00959573), Block A Lot P1 (Property ID 13-00959562), Lot 17 (Property ID 13-00963542), and Lot P2 (Property ID 13-00963531).
- Rezoning of Lot P1 (Property ID 13-00952344) and Lot P15 (Property ID 13-00952355) from R-60 TDR: 12.0 to R-20 TDR: 42.0.
- Rezoning of Lot 21 (Property ID 13-02828360) from R-90 to R-10.
- Redevelopment should promote build-to lines of a minimum of 5' from the right-of-way of Georgia Avenue. This may be adjusted where deemed beneficial for pedestrian use; including but not limited to restaurant seating, breaking of building massing or connectivity to and/or through the district.
- Promote pedestrian connectivity throughout the district to and from the BRT station location.

Yield Analysis

Based on both the existing zoning and above zoning recommendations, the following tables present the changes in non-residential square footage and residential units permitted within each district and the overall Plan area:

NON-RESIDENTIAL PERMITTED SQUARE FOOTAGE		
DISTRICT:	EXISTING ZONING(MAX)	PROPOSED ZONING(MAX)
DEPOT	1,144,555	1,872,359
NORTHGATE	1,101,170	1,527,246
SOUTHGATE	503,771	728,604
GEORGIA NORTH	558,074	753,878
GEORGIA SOUTH	288,737	890,471
TOTAL:	**3,596,307**	**5,772,558**

Table 3

RESIDENTIAL UNITS PERMITTED		
DISTRICT:	EXISTING ZONING(MAX)	PROPOSED ZONING(MAX)
DEPOT	1,374	1,186
NORTHGATE	604	848
SOUTHGATE	168	443
GEORGIA NORTH	668	780
GEORGIA SOUTH	580	1,178
TOTAL:	**3,394**	**4,435**

Table 4

These numbers represent the maximum build out that can be attained within the Plan area, and are calculated in accordance with development standards specified in Article 59-4 of the Montgomery County Zoning Ordinance. Parcels zoned Commercial-Residential were computed using land areas obtained from the Maryland Department of Assessments and Taxation (SDAT) Real Property database and allowable FAR; parcels zoned within Employment Zones were also calculated using SDAT information and maximum total FAR, up to 30% of which is permitted for residential use; and parcels within Residential Zones were reviewed based on the maximum density, units per acre.

Some of the existing and proposed zones utilized – including all EOF properties – would require decreased non-residential yields to provide the maximum residential. That is, the sum of allowable non-residential and residential FARs exceeds the total maximum FAR, which must dictate the total development. The above tables do not reflect this decrease in non-residential yield. Additionally, residential units were assumed to average 900 square feet in size when calculating certain yields. It is anticipated and desired that units of varying sizes be constructed to provide a mix of housing types, and further noted that the data in the above tables are not intended as development caps within the districts or overall BPPA. All future development must occur in conformance with the latest Montgomery County Zoning Ordinance.

Transportation

This Plan seeks to improve the study area's internal circulation and regional connectivity by enhancing existing roadways as complete streets, identifying opportunities for new connections, and balancing the demands of through-traffic and pedestrian orientation. The proposed BRT network provides an opportunity for the area to grow as a transit-oriented community; however, the appropriate multimodal transportation infrastructure must be in place as redevelopment occurs if the community is to have any hope of encouraging pedestrian-scale activity and transit use.

Guiding Principles

Complete Streets. Complete Streets are roadways that accommodate all modes of transportation and all roadway users. As a design practice, this approach sets forth standards that promote safe and equitable operation of roads through appropriate engineering treatments. A context sensitive approach, complete streets does not offer prescriptive solutions and must therefore be applied to meet the demands of the local environment.

Specific design treatments that can be considered include: Lane Diets, Road Diets, Median Treatments, and high quality pedestrian/ bicycle facilities. When implemented, complete streets provide appropriate levels of separation and/ or integration between various travel modes (i.e. bicycle lanes on high volume streets or shared roadways on quiet neighborhood streets).

From a social equity perspective, complete streets are accessible to users with varying degrees of mobility, both physically and financially. This accessibility is accomplished for those with physical mobility issues by providing pedestrian infrastructure compliant with standards set forth in the Americans with Disabilities Act (ADA). For those with financial mobility issues, complete streets provide alternatives to owning and maintaining a personal vehicle, such as: pedestrian facilities and dependable transit.

Since the study area vision is predicated upon high quality rapid transit, complete streets principles are integral to all transportation recommendations. As a result, all roadways within the study area were evaluated for complete street treatments using the Goals/ Decision Matrix (Table 7). Although specific complete streets strategies are described as independent treatments, below, these treatments are not mutually exclusive and are often implemented together as part of a larger complete streets strategy along a corridor.

Road Diet. A Road Diet is a strategy used to retrofit over-sized roadways to accommodate multimodal transportation facilities, such as sidewalks, bicycle lanes, dedicated bus lanes, enhanced medians, or other complete streets facilities. This practice is defined by its use of existing roadway width, by removing travel lanes, to provide space for the desired complete streets treatment. This strategy is particularly effective on roadways that have excess traffic capacity relative to travel demand or those roadways within constrained rights-of-way. In practice, this strategy may remove a single eleven foot-wide lane and use that space for two five and one-half foot-wide bicycle lanes. Although this treatment is most practical on over-capacity roadways, it may be implemented as a policy to increase pedestrian, bicycle, and transit use and discourage single-occupancy vehicle use.

Lane Diet. A Lane Diet is similar to a Road Diet in that it appropriates existing roadway width for complete streets treatment. This practice differs from a traditional Road Diet, however, in that it does not decrease the number of lanes but instead reduces the width of those travel lanes. In practice, this strategy may narrow existing highway travel lanes from a 13' width to an 11' width. Over the distance of a six-lane roadway, this reduction typically provides enough space for bicycle lanes or a median refuge islands without negatively impacting the capacity of the roadway.

Median Treatment. Median Treatments, such as pedestrian refuge islands, improve safety for pedestrians by offering a mid-crossing refuge area and improving overall roadway safety by slowing vehicles. Studies have shown that prevailing vehicle speeds and accident rates decrease following construction of median islands due to the visual channelization (either real or perceived) of the travelled-way.

High Quality Bicycle Facilities. The most cost-effective modal facility supporting the proposed rapid transit system is a transportation-centric bicycle network. Such a network would link neighborhoods not otherwise connected to transit with a safe, accessible, and convenient means to access the BRT stations. In practice, bicycle facilities are highly context sensitive and should be applied to existing roadways with great consideration based upon average daily traffic, prevailing vehicle speed, and percentage of heavy truck traffic.

Bicycle Facility Separation. Source: Montgomery County Planning Department Bicycle Planning Guidance.

The Federal Highway Administration (FHWA) guidance on transit planning promotes integration of travel modes as a means of increasing the efficiency of each mode beyond what could be achieved for one mode independent of the other. According to this theory, a well-integrated rapid transit network would have a ridership potential based on a share of all travel modes connected to its stations.

Source: NACTO Cycletrack: Indianapolis, IN

Enhance Existing Roadways

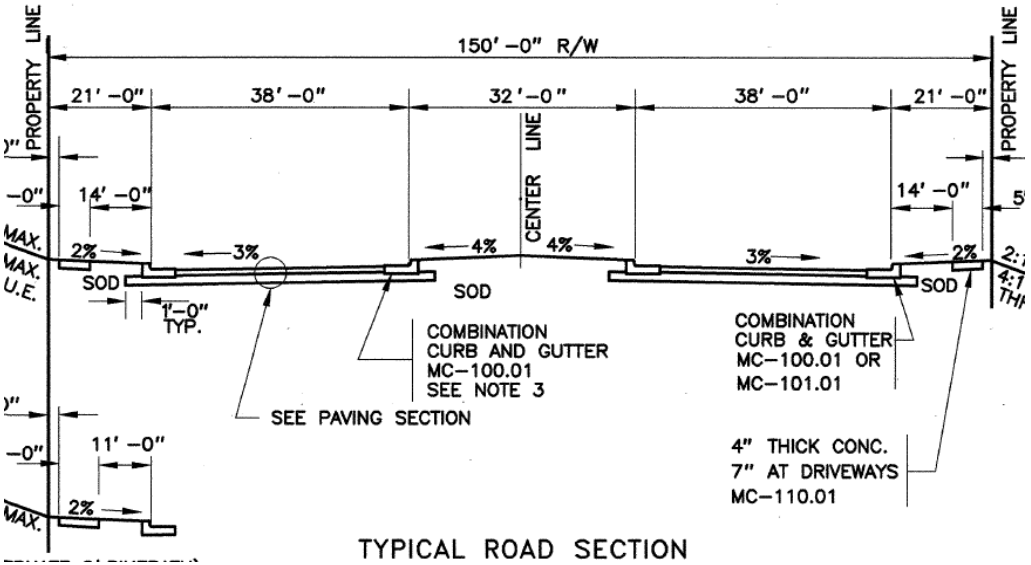
Vehicular mobility is anticipated to remain a challenge in the study area due to existing regional travel demand on Georgia and Connecticut Avenues. Since traffic is anticipated to grow over the life of the Plan, any potential retrofit of the area and its major roadways must be sensitive to high volume travel demand. Specific recommendations included in this section will consider lane diets, road diets, median treatments, and high quality bicycle facilities necessary to improve accessibility to the BRT station. The Plan will include specific typical section drawings for both new and existing street recommendations. This portion of the Plan will be coordinated closely with the related plan elements of Urban Design, Environmental Sustainability, and Land Use.

New Streets

The study area is currently comprised of auto-centric superblocks and large scale retail centers, neither of which promote the fine-grained urban fabric essential to any high quality pedestrian experience. In order to address this issue, this Plan will recommend new local street connections as a means of breaking down the superblocks into porous grids. These streets will be designed to accommodate all roadway users in a safe, practical, and efficient manner. The goal of these streets will be to promote pedestrian modality as a means of transportation in two ways:

1) make it easy to walk and use transit, and

2) make it enjoyable to walk and gather in the community's public realm.



Major Dual Highway (150' ROW)

Each of the new business district street alignments are conceptual and subject to change at the time of implementation, however, these alignments were carefully selected based on the following criteria:

1) intersection spacing requirements (minimum 600' separation on major highways)
2) existing property lines
3) topography
4) proposed BRT station locations
5) anticipated travel desire lines

Georgia Avenue at Connecticut Avenue, looking north.

As a result of the team's careful consideration of these criteria, it is assumed that the conceptual street alignments are reasonable for planning purposes if not ideal for conditions on the ground at the time of implementation.

Sector Plan Overview Recommendations

Intersection Spacing Requirements. Conceptual alignments for the new streets were first determined by establishing access points, based on minimum intersection spacing and sight distance requirements, to the surrounding major highways (Georgia Avenue and Connecticut Avenue) and arterial roadways (Aspen Hill Road). Based on these criteria, four new intersections are proposed on Georgia Avenue, six on Connecticut Avenue, and two on Aspen Hill Road:

Georgia Avenue:

1) "Street A" North of Connecticut Avenue, just south of the existing Home Depot entrance,
2) "Street B" South of Connecticut Avenue, midway between Connecticut Avenue and Aspen Hill Road,
3) "Street D" South of Aspen Hill Road, aligned with the existing Wendy Lane intersection, and
4) South of Aspen Hill Road, aligned with the existing Ralph Road intersection

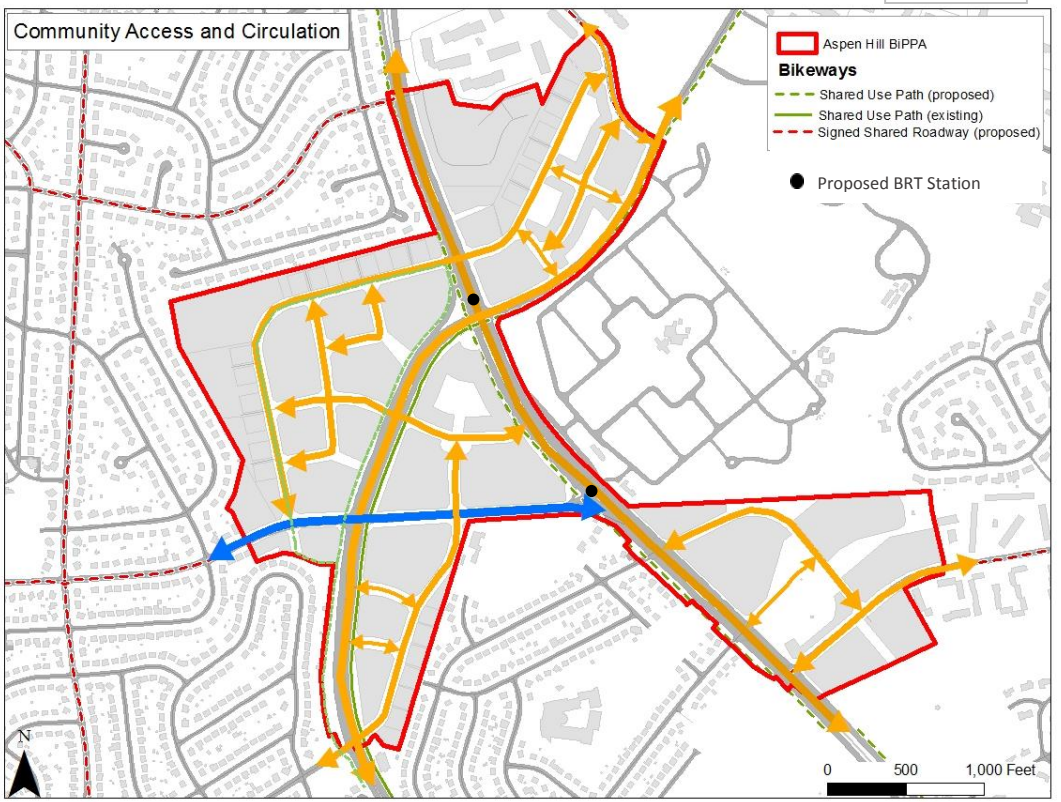
Connecticut Avenue:

1) Northeast of Georgia Avenue, generally aligned with the existing commercial driveways,
2) "Street B" West of Georgia Avenue, midway between Georgia Avenue and Aspen Hill Road (aligned with New Georgia Avenue intersection #2, above),
3) Three intersections south of Aspen Hill Road, aligned with the existing commercial driveways, the southernmost of which is "Street C"

Aspen Hill:

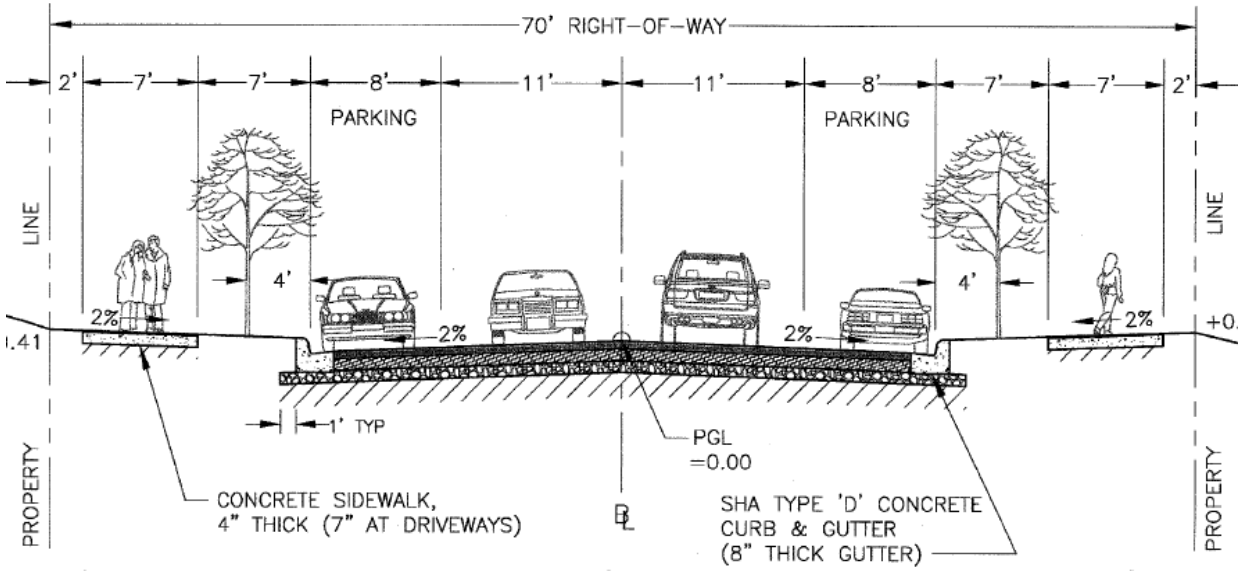
1) "Street A" West of Connecticut Avenue, aligned with existing commercial driveways
2) "Street C" midway between Connecticut Avenue and Georgia Avenue.

Map 22



After establishing the new intersection locations, the horizontal alignment of the new business district streets was developed based on existing property lines, where possible, and potential opportunities for property consolidation and redevelopment. Any property may redevelop within the study area without precluding the ultimate street grid or others' development rights. More information about implementation and staging can be found in the Implementation section of this document.

Typical Section. All new streets within the Plan are proposed as business district streets within 70’ wide rights-of-way in accordance with the Montgomery County Department of Transportation (MCDOT) design standard MC 2005.02. This roadway section includes two travel lanes (each measuring eleven foot-wide) and two parking lanes (each eight foot-wide) within a 38’ wide pavement section. At intersections, on-street parking will be restricted in favor of curb extensions that narrow the pedestrian crossing distance to no more than the 22’ wide travelled way. On either side of the right-of-way, outside the pavement, is a 16’ wide zone for tree pits, sidewalks, and public utilities. It is envisioned that these business district streets be improved with sidewalk extending from the back of curb to the building face in order to maximize pedestrian use of the public realm.



MCDOT typical section 2005.02

Ownership and Maintenance. It is the vision of this Plan that the new business district streets could be implemented as either public or private roadways. As a result, this Plan defers the decision on roadway ownership to the time of subdivision review. The benefit to allowing private ownership of these roads includes greater flexibility in pavement materials, special event street closures, and the ability to construct parking structures above and/ or below the streets. If implemented as private streets, the owner/ developer must place the streets in discrete parcels and enter into all requisite easements and maintenance agreements identified by the Montgomery County Planning Department.

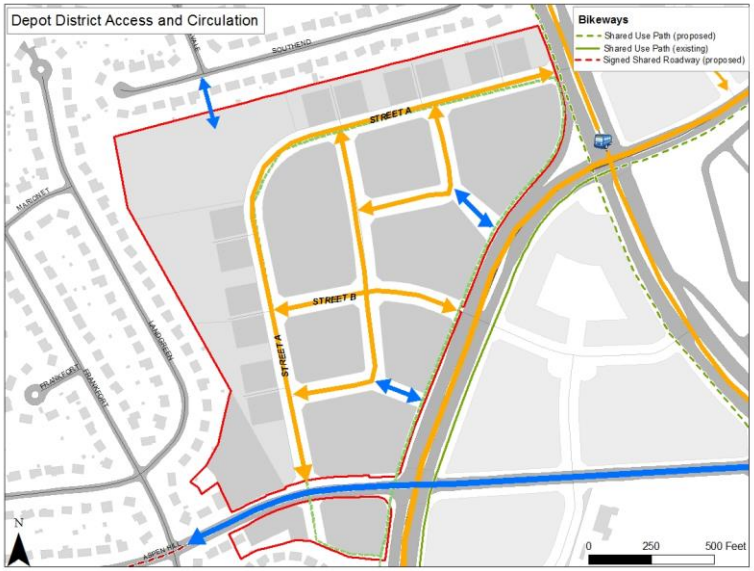
An example of a private street with a parking structure above the street is found in the Blairs Master Plan, Silver Spring, Maryland.

Character. The Plan area is intended to prioritize pedestrian and bicycle activity through the provision of high quality transit facilities, however, this provision must not stop at the BRT stations and must instead extend into adjacent neighborhoods so that pedestrians want to walk and bike through the neighborhood to the station.

In an effort to create streets that are both accommodating and desirable to pedestrians and bicyclists, this Plan promotes the use of narrow (eleven foot-wide) travel lanes and expansive (minimum 16' wide) sidewalks on its business district streets. These dimensions are expected to create a pedestrian realm of sufficient size to support street furniture, café seating, and ample space for walking. Additionally, these dimensions are anticipated to create a safe and predictable roadway with prevailing speeds at or below 25 miles per hour. When coupled with the short urban blocks included in the conceptual vision, it is the intent of this plan that all business district streets be designated "shared streets" for bicycle travel. More information on façade treatments fronting the business district streets is discussed in the Urban Design section of this document.

Photo of Maryland Avenue in Rockville Town Square

Map 23

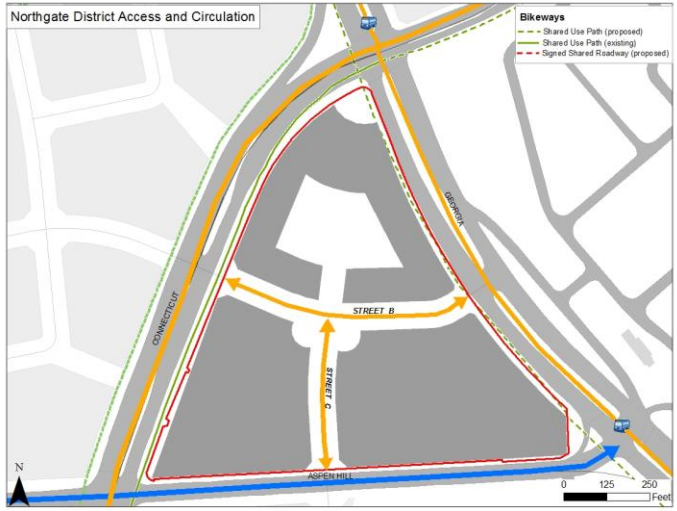


Depot District Recommendations. The street network within the Depot District is defined by Georgia Avenue and Connecticut Avenue, which comprise its eastern and southeastern boundaries, respectively. The district is bounded to the south by Aspen Hill Road. The new business district street grid within this district is oriented around Street A, which connects Georgia North (see below) with Aspen Hill Road through the Depot District. The block is further broken down by two perpendicular streets, connecting Street A with Connecticut Avenue, and one parallel street, connecting Grand Pre Road with the two perpendicular connectors.

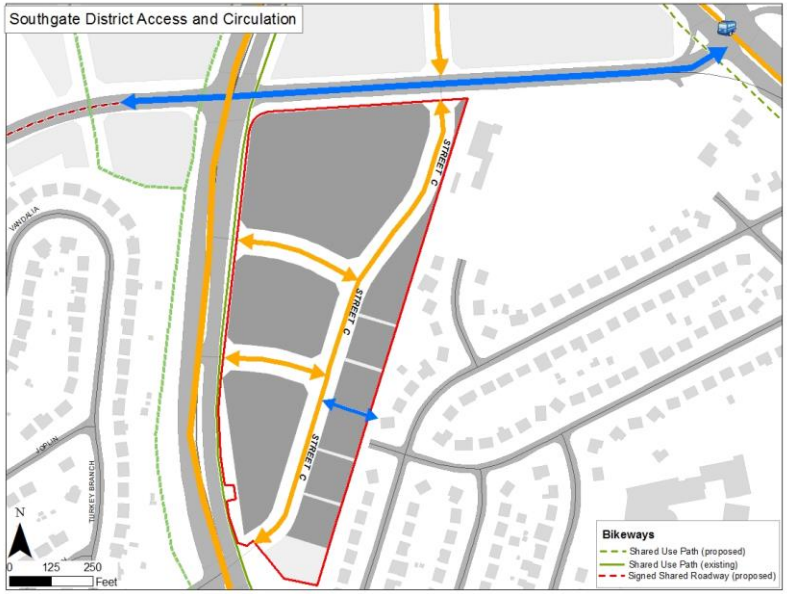
From an infrastructure design standpoint, the Depot District offers the best potential for a mixed use neighborhood within the study area due to its large scale, generous frontage on the study areas three existing major roadways, proximity to the northern BRT station, and high degree of connectivity with three other sector plan districts.

Northgate District Recommendations. The street network within the Northgate District is defined by Georgia Avenue and Connecticut Avenue, which comprise its eastern and southeastern boundaries, respectively. The district is bounded to the south by Aspen Hill Road. The new business district street grid within this district is oriented around Streets B and C, which connect Northgate with the Depot District and Southgate District, respectively.
Second only to the Depot District, Northgate offers a high potential for mixed uses due to its high visibility from all vantage points, its central location between two BRT stations, and its orientation along the proposed Aspen Hill pedestrian corridor. This district has a high degree of connectivity with the adjacent districts and proposed regional bicycle facilities along Georgia Avenue and Connecticut Avenue

Map 24



Southgate District Recommendations. The street network within the Southgate District is defined by Connecticut Avenue and Aspen Hill Road, which comprise its western and northern boundaries, respectively. The new business district street grid within this district is oriented around Street C, which connects Southgate with the Northgate District and breaks Aspen Hill into two pedestrian scale blocks between Connecticut Avenue and Georgia Avenue. Perpendicular to Street C are two proposed streets that connect Street C with Connecticut Avenue and break the districts into three pedestrian scale blocks along Connecticut Avenue.



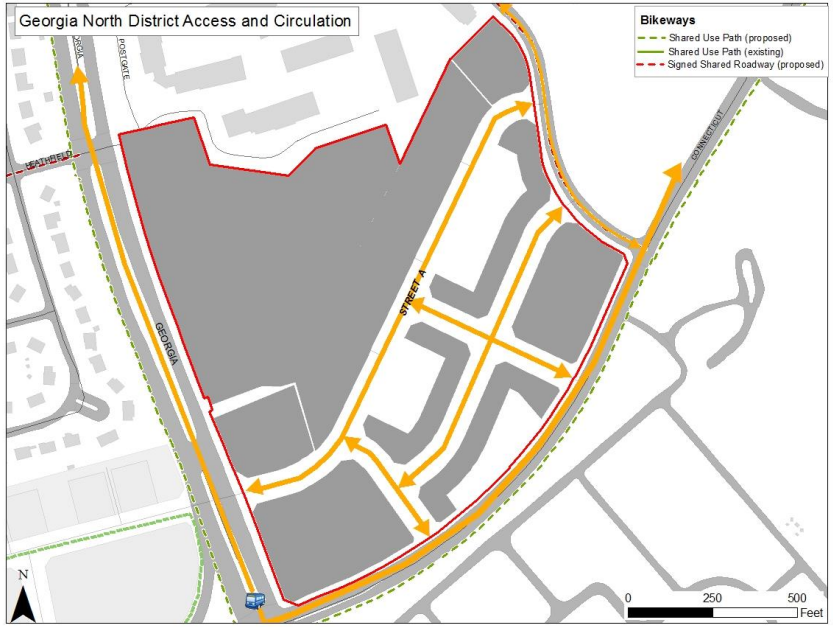
Map 25

Georgia North District Recommendations. Like the Depot District, the street network within Georgia North is defined by Georgia Avenue and Connecticut Avenue, which comprise its western and southern boundaries, respectively. The new business district street grid within this district is oriented around Street A, which connects Georgia North with the Depot District to the west and Grand Pre Road to the east. The block is further broken down by two perpendicular streets, connecting Street A with Connecticut Avenue, and one parallel street, connecting Grand Pre Road with the two perpendicular connectors.

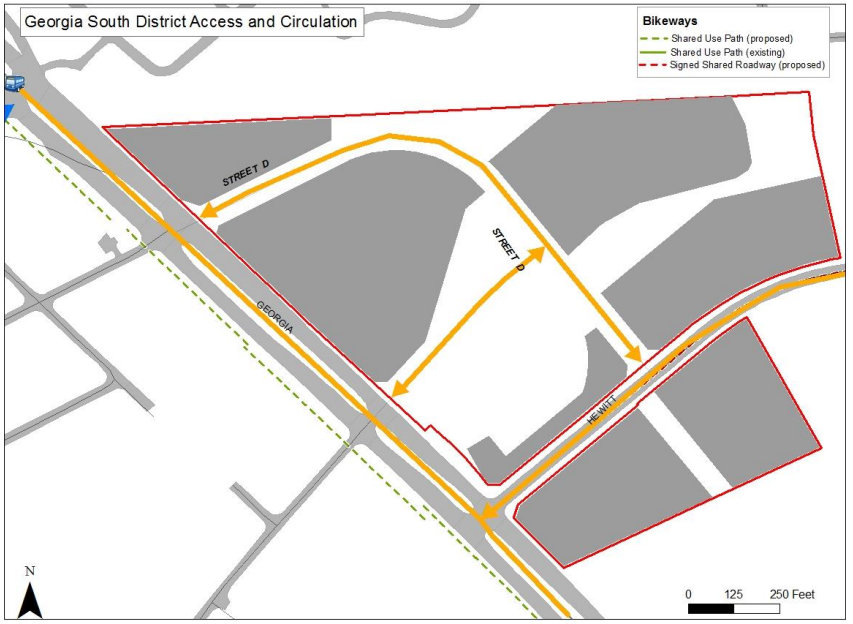
Georgia South District Recommendations. The street network within Georgia South is defined by Georgia Avenue and Hewitt Avenue, which comprise its western and southern boundaries, respectively. The new business district street grid within this district is oriented around Street D, which connects the district to both Georgia Avenue and Hewitt Avenue. The block is further broken down by one perpendicular street, connecting Street D with Georgia Avenue.

Georgia South is perhaps the most constrained district within the study area due to its shared property line with the Gate of Heaven Cemetery, to the north, the amount of property impacted by the Turkey Branch floodplain, to the south, and its total lack of connectivity with the other study area districts.

Map 26

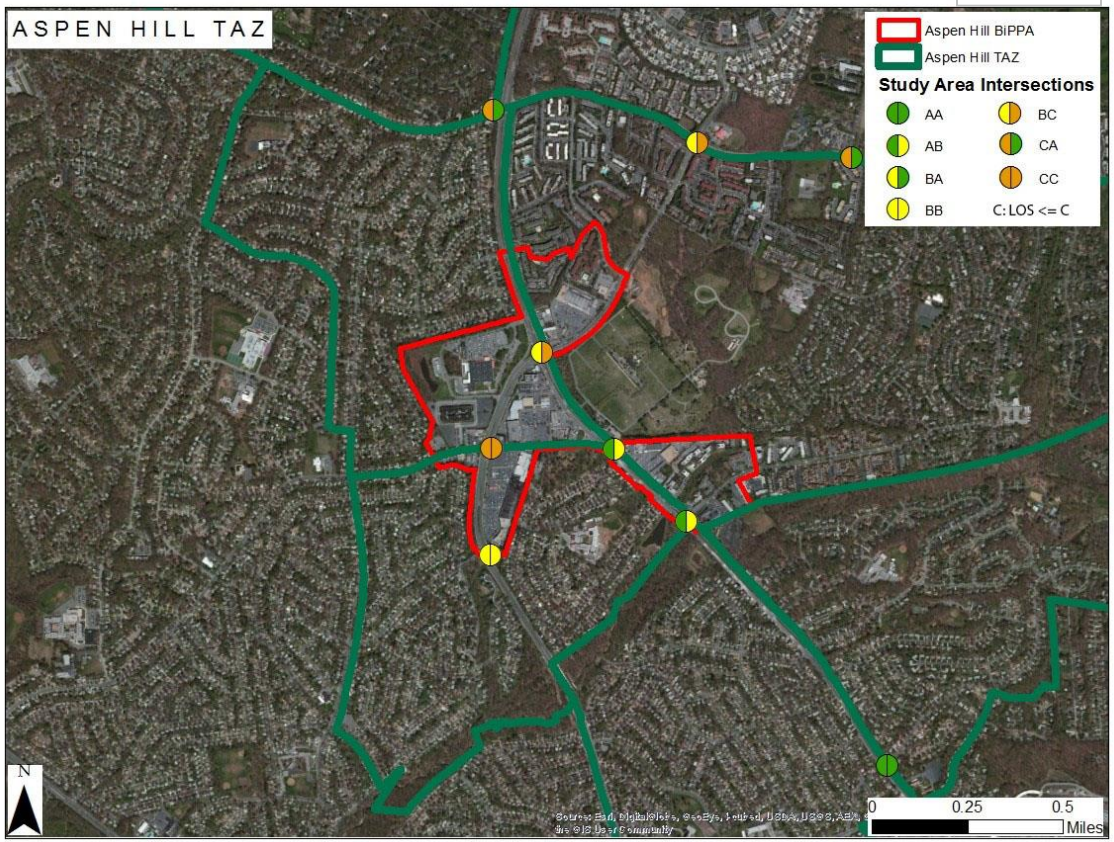


Map 27



Existing Traffic Conditions

Map 28



Intersection	CLV Standard	CLV Observed	V/C Ratio
Connecticut Ave at Aspen Hill Rd	1500	1446	0.98
Georgia Ave at Bel Pre Rd	1500	1362	0.92
Georgia Ave at Connecticut Ave	1500	1283	0.87
Bel Pre Rd at Homecrest Dr	1500	1252	0.84
Connecticut Ave at Bel Pre Rd	1500	1227	0.83
Connecticut Ave at Independence	1500	1120	0.76
Georgia Ave at Aspen Hill Rd	1500	1061	0.72
Georgia Ave at Hewitt Ave	1600	1096	0.69

Table 5: Regional Study Area Traffic Congestion

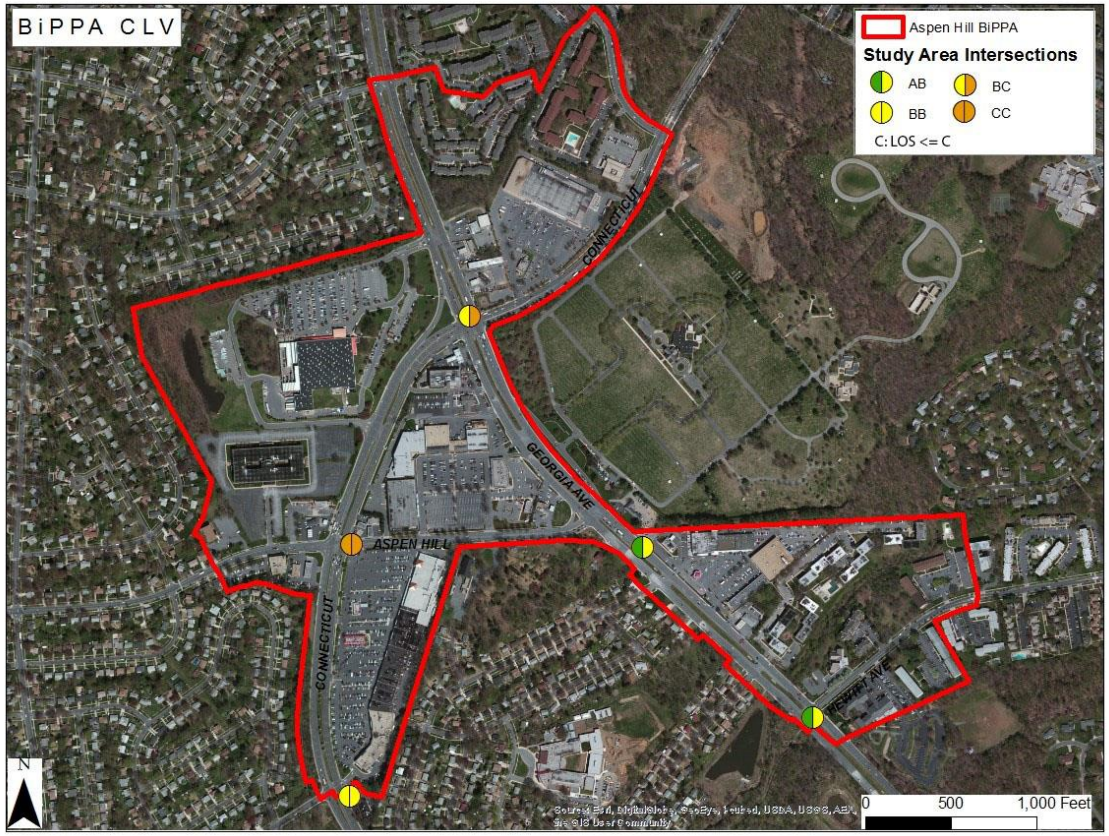
Study Area. The transportation study area for this Plan extends far beyond the established bounds of the BPPA because traffic congestion does not respect planning boundaries. It is therefore the responsibility of this Plan to identify intersections that will bear the burden of additional development and propose potential improvements to mitigate that traffic. Based on the regional study area illustrated in Map 28 and Table 5, it may be inferred that the Bel Pre Road intersections with both Georgia Avenue and Connecticut Avenue will require improvements following development. Additional study at the time of implementation is required prior to determining specific intersection improvements for the study area; however, this plan recommends that such improvements balance both the pedestrian and vehicular needs of the area.

The study area extends north to Bel Pre Road and south to Hathaway Drive due to the selection of all Transportation Analysis Zones (TAZs) within the BPPA and one contiguous ring of TAZs adjacent to the BPPA boundary. Each TAZ is established based on homogenous land use and allows traffic modelers to analyze travel patterns resulting from this plan's proposed land use. The larger study area will also allow the traffic modelers to capture all *vehicular trips distributed to important regional* intersections outside the study area.

Peak Hour Congestion. All traffic data illustrated in this plan represent vehicle turning movement counts on typical travel days during the peak-hour. A typical travel day is a weekday (Tuesday – Thursday) during a non-holiday week when school

is in session. These peaks are understood to correspond with commuting patterns and are therefore expected between 6:30 AM and 9:30 AM and 4:00 PM and 7:00 PM. The peak "hour" during the peak periods is based on the four fifteen-minute data collection blocks within the respective pe

Map 29



Existing Level of Service. Map 29 and Table 6 illustrate signalized intersection peak-hour congestion levels within the BPPA sector plan area. Based on this information, the most congested intersection is Connecticut Avenue at Aspen Hill Road. That intersection has a volume-to-capacity ratio of 0.98 (unstable flow), which represents an intersection that is at capacity (1.0). This intersection will need improvements, such as additional turn lanes or signal phasing, in order to mitigate additional development in any of the sector plan districts. The least congested intersection within the study area is Georgia Avenue at Hewitt Avenue, which has a vehicle-to-capacity ratio of 0.69 (free flow), which represents an intersection that is under capacity.

Critical Intersections. Based on preliminary review of the existing traffic data, the two most congested intersections are Connecticut Avenue at Aspen Hill (discussed above), and Georgia Avenue at Connecticut Avenue. The latter intersection has a vehicle-to-capacity ratio of 0.87, which represents an intersection that is near capacity. The existing critical movements for these two intersections are:

1. Connecticut Avenue/ Aspen Hill Road:
    a. Morning Peak: (7:45 – 8:45) Southbound Through Movement
    b. Evening Peak: (5:30 – 6:30) Northbound Through Movement
2. Georgia Avenue/ Connecticut Avenue:
    a. Morning Peak: (7:30 – 8:30) Southbound Right Movement
    b. Evening Peak: (5:15 – 6:15) Northbound Through Movement

Intersection	CLV Standard	CLV Observed	V/C Ratio
Connecticut Ave at Aspen Hill Rd	1500	1446	0.98
Georgia Ave at Connecticut Ave	1500	1283	0.87
Connecticut Ave at Independence	1500	1120	0.76
Georgia Ave at Aspen Hill Rd	1500	1061	0.72
Georgia Ave at Hewitt Ave	1600	1096	0.69

Table 6: BPPA Sector Plan Study Area

Specific recommendations for road frontage improvements - including but not limited to turn or acceleration/deceleration lanes, and traffic signalization warrants – are reserved for such time as individual site plans are reviewed. This plan acknowledges, however, that the heavy demand during the morning peak for southbound right-turns from Georgia Avenue to Connecticut Avenue may ultimately preclude elimination of the channelized right-turn lane, as recommended elsewhere in this document.

Existing Roadway Retrofit

Georgia Avenue: The portion of Georgia Avenue within the Plan area begins approximately 250 feet south of the signalized intersection with Hewitt Avenue and extends to Heathfield Road, covering a total distance of approximately nine-tenths of a mile. The street section includes three lanes in each direction - turning lanes are added at intersections – and contains a grass median throughout. Sidewalks are in place on both sides of the road, set flush with the back of curb. Retrofits to Georgia Avenue are to be in accordance with the BRT system recommendations, discussed further below.

Connecticut Avenue: Connecticut Avenue in the plan vicinity is a generally north-south road. The portion within the Plan area begins at the signalized intersection with Independence Street and extends to Grand Pre Road, covering a total distance of approximately nine-tenths of a mile. The street and sidewalk sections vary through the BPPA, and can generally be delineated by cross streets as follows:

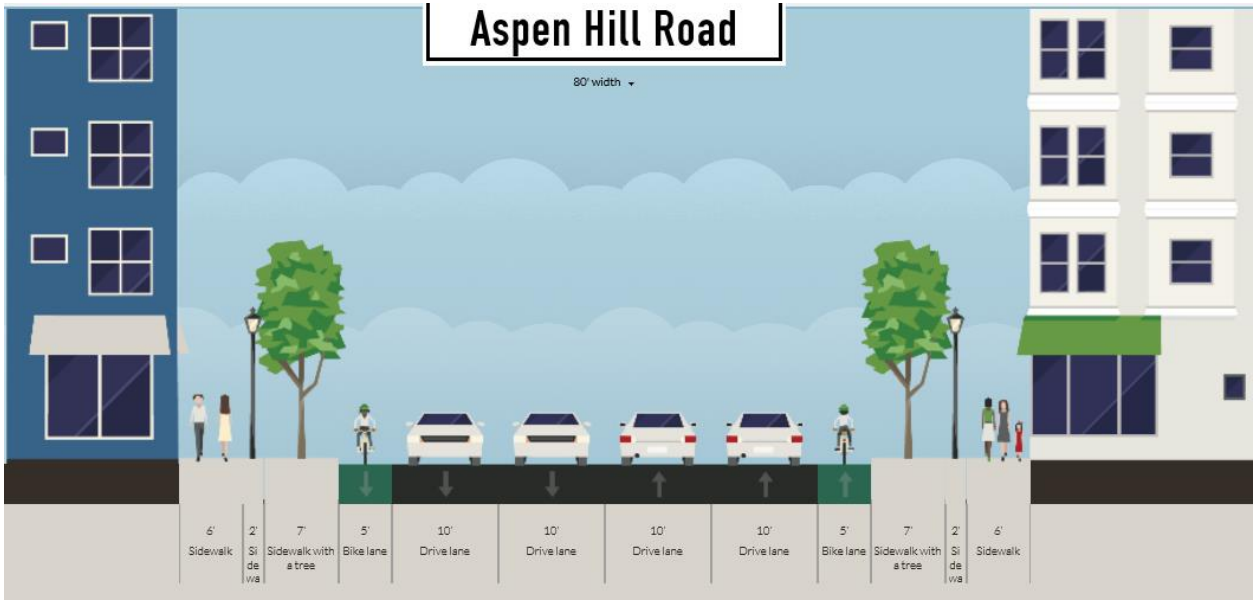
- Between Independence Street and Aspen Hill Road: Three travel lanes in each direction, a grass median, and intersection turn lanes cut from the median section. Sidewalks are provided on both sides of the road - on the west side an insignificant panel of approximately one foot width lies between the sidewalk and curb; the east side begins flush with the curb line, then transitions to a panel of approximately three foot width nearly halfway between the two intersections.
- Between Aspen Hill Road and Georgia Avenue: Three travel lanes in each direction, a grass median, and intersection turn lanes cut from the median section. The northbound left-turn movement onto Georgia Avenue is comprised of a triple left-turn. Sidewalk on both sides, again with an insignificant panel on the west and approximately three foot panel on the east.
- Between Georgia Avenue and Grand Pre Road: Two travel lanes in each direction, plus a center turn lane to access existing development on the west side of Connecticut. The west side panel expands to approximately three feet, then again to a more significant offset traveling north. The east side walk is flush with the curb from the Georgia Avenue intersection for approximately 550 feet, after which approximately three feet is provided. Approaching Grand Pre Road, the left through lane drops to left-turn only, and north of Grand Pre Road (outside the BPPA) travel is one lane each direction, with a center turn lane.

This Plan recommends a review of the lane widths throughout the corridor to identify opportunities for implementing a lane diet. While there is some excess right of way available within the section between Independence Street and Aspen Hill Road, the street is generally constrained by topography, ditches, and/or existing property lines. Formal dedication from adjacent parcels is not recommended with this Plan; however, as discussed below, a 12 foot wide shared use path is to be considered along the west side of the roadway throughout the corridor. This Plan therefore recommends prioritizing installation of a northbound bike lane within the existing curb line, upon implementation of the desired lane diet. Further analysis of the corridor is recommended, and should particularly focus on opportunities to relocate sidewalk off the curb - provided a minimum five foot wide grass panel can be created – and determination of the feasibility of a southbound bike line within the existing curb line.

Aspen Hill Road: Aspen Hill Road runs east-west between Veirs Mill Road and Georgia Avenue, and covers approximately 1.9 miles. The section within the Plan area is approximately four-tenths of a mile, beginning 300 feet east of the intersection with Grenoble Drive and extending east to the street's end at Georgia Avenue. Recommendations for Aspen Hill Road should apply back to the Grenoble Drive intersection to avoid a mid-block limit of application.

The street's paving width is currently 48 feet +/-, and it is generally striped to provide two lanes in each direction. The segment between Georgia Avenue and Connecticut Avenue includes an additional center 'suicide' lane for opposing left turns, and is also used for left turns approaching Connecticut Avenue from each direction. Portions of the roadway from Connecticut Avenue to Grenoble Drive utilize a paved shoulder, and the westbound section is a single lane with paved shoulder starting past the entrance to the existing church. The effect, approaching the existing neighborhood and Plan boundary limits, is a clear suburban feel prior to the Grenoble Drive intersection.

Sidewalks are currently installed behind a grass panel along both sides of the road for the entire portion within the BPPA, though the widths of both the walk and panel vary at points and are narrow in some locations.



Aspen Hill Road serves as a key entry point into the adjacent established neighborhood, and is expected to serve both cyclists and pedestrians seeking to access the emerging districts and Georgia Avenue BRT system. To facilitate these movements, this Plan recommends that Aspen Hill Road be upgraded to meet the Montgomery County standard for an Arterial Road, Standard Number MC-213.01. Two lanes of travel are anticipated in each direction, with five foot bike lanes contained within the paving section. Outside the curbs but within the right of way, an eight foot grass panel should be provided, followed by construction of an adjacent five foot sidewalk. This Plan acknowledges that some dedication of right of way may be required from property fronting the north side of the roadway (including residential parcels outside the BPPA area, east of Grenoble Drive). Prior to this dedication, and subject to final engineering, construction of portions of the expanded sidewalk and/or bike lanes may be delayed; however, bike lanes are not permitted to 'drop' in any mid-block situation, and any offsets in alignments (pedestrian, cyclist or vehicular) must conform to appropriate engineering practice.

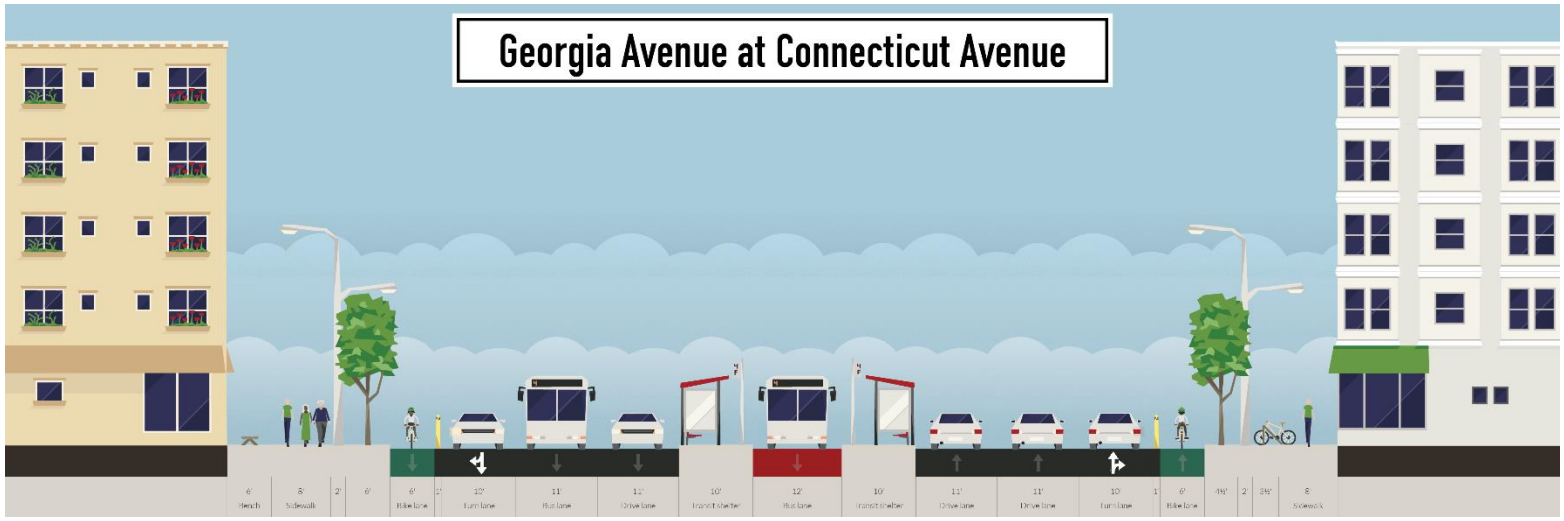
A graphic for this section is shown above for the purpose of demonstrating intent; final design is recommended to be in accordance with the approved County standard, subject to modifications with final engineering.

BRT System Design and Integration

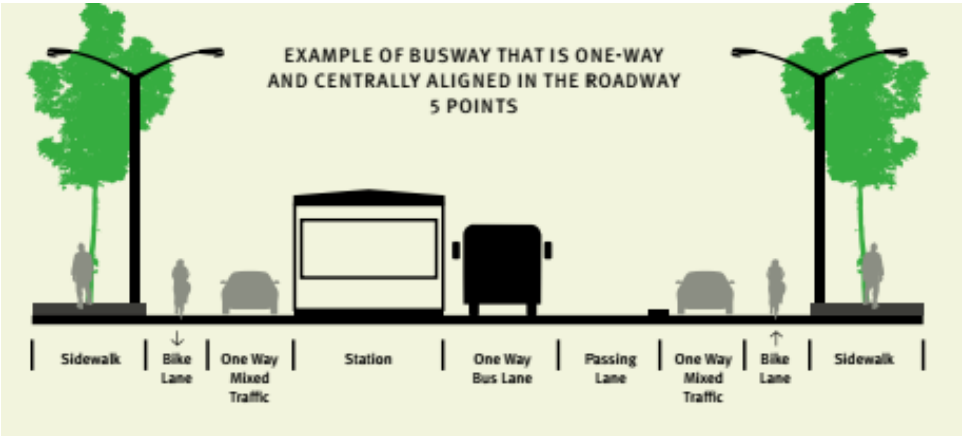
The Bus Rapid Transit Design proposed for the Georgia Avenue North Corridor should seek to receive the Bronze BRT Standard certification from the Institute for Transportation and Development Policy (ITDP). Bronze certification indicates that the corridor meets the definition of BRT and has design characteristics that elevate its operational efficiency and quality of service above basic BRT (BRT Standard 10). To attain this certification, the sum of the design characteristics discussed below must fall between 55 and 69 points.

Recommended design characteristics for the proposed Georgia Avenue North BRT corridor running through the Aspen Hill BPPA were selected with a strong awareness of context. Aspen Hill is a relatively affordable suburban community in Montgomery County with a strong convenience retail market. People from neighboring communities travel to the BPPA to purchase groceries, gasoline, or other retail products. Georgia Avenue also provides a convenient thoroughfare to denser urban centers such as Silver Spring, Olney, and Wheaton.

Georgia Avenue is used for a variety of trip types, including access to regional transit service, larger urban centers, and residential communities. This Plan recommends that the BRT system through the Aspen Hill BPPA be a closed, limited stop, trunk and feeder system. Under this design, existing Metrobus or Ride-On express or local services will serve as feeders to the limited stop BRT commuter service, running southbound during morning peak hours and northbound during afternoon peak hours, reflecting area commuting patterns. The purpose of this BRT line is to alleviate traffic within the corridor by attracting drivers out of their cars. Smaller Metrobus and Ride-On routes will continue to operate in mixed-traffic lanes, while BRT trunk vehicles will operate in an exclusive bidirectional centralized busway. Trunk and feeder systems have the ability to match supply to demand more readily than direct systems, which offer few or no transfer points between point of origin and destination. Aspen Hill will benefit from this flexibility as it phases in this Plan's land use recommendations, which are anticipated to yield an overall pattern of moderate density.



Dedicated Right of Way and Bus Way Alignment. BRT infrastructure includes a dedicated right of way, busway alignment, off board fare collection, intersection treatments, and platform level boarding. Georgia Avenue through the Aspen Hill BPPA has wide grassy medians, yet has experienced worsening levels of traffic congestion at its two major signalized intersections: Connecticut Avenue and Aspen Hill Road. This Plan implements the CTCFMP recommendation to build a 12 foot wide dedicated lane in the existing median. The use of this space will minimize impacts on the adjacent through and turning lanes, though does not preclude consideration of lane diets that would increase area road safety. To receive the maximum amount of points for the dedicated lane, this Plan proposes painting the lane a distinct color, and that pavement markings be placed to clearly designate the usage as BRT and authorized vehicles-only. As noted, the BRT alignment will be a bidirectional busway that is centrally aligned in the roadway. To reduce wear and tear on bus tires and cost of busway maintenance, this Plan recommends use of a paving section designed for a minimum 30 year service life.



Source: BRT Standard Score Card

Bus Stations and Off-Board Fare Collection. The CTCFMP proposes two BRT stops on Georgia Avenue within the BPPA – one at the intersection of Connecticut Avenue and the other at Hewitt Avenue. This Plan modifies this preliminary recommendation, proposing instead that the southern stop be placed at the intersection with Aspen Hill Road, approximately three-tenths of a mile north of Hewitt Avenue. This location is preferable due to the east-west movement provided by Aspen Hill Road, for both pedestrians and riders of the existing transit system. Additionally, the location better serves the southeastern corner of the Northgate District and northwestern corner of the Georgia South District, which has been zoned for increased density to offset the loss of development potential within the district's floodplain area. Both stations should be located on a raised platform adjacent to the busway.

Georgia Avenue's right of way width varies through the BPPA, but has been confirmed to meet the 150 foot minimum guideline contained within the CTCFMP. This Plan does not seek additional right of way within Georgia Avenue, and recommends maximum 10 foot wide BRT stations to stay within the existing boundary. Minimum shelter height should be seven and a half feet, to accommodate taller riders comfortably. Stations should protect customers from all weather, provide ample seating, be visually interesting, and have interior lighting to promote security after dark. Inside the station, a digital real time arrival board should show when the next bus arrives. Each facility should have a clearly visible unique identification number, so riders could track their bus or plan their routes via mobile applications. Printed pamphlets of routes, schedules, and other useful information should also be visible inside and outside the each station. It would be a source of pride for the local community if the stations were decorated with artwork from or depicting Aspen Hill, and this Plan encourages utilizing the aesthetics of the station in part as a marketing tool.

A mix of handicapped accessible and regular-sized smart card operated turnstiles should be used as entrances and exits for each BRT shelter, similar to WMATA Metrorail stations. The proposed BRT system is intended to integrate fully with WMATA's fare collection system, so that riders may use metro

smart cards they already possess within the Montgomery County BRT system. Existing benefits within the Metrobus system, such as senior discounted fares, should be extended to the BRT system as-well.

Sample of BRT Trunk Bus

Buses and Platform Level Boarding. BRT buses must be easily accessible to all customers, including people with visual, physical, or hearing impairment, parents with strollers, people carrying groceries, children, or the elderly. When the bus docks at the stop there should be no significant gaps between the station's platform and the bus floor. Painted alignment markers and specialized curbs that allow the driver to feel whether they are properly docking at stations are simple solutions to eliminate this gap.

To maximize potential ridership, BRT buses should also seek to offer amenities not offered when driving one's own vehicle. Varied seating configuration, Wi-Fi access, and bike racks can transform riding the bus into a more productive experience than driving to work. All buses should be designed to look distinctly different from Metrobus or Ride-On vehicles. They should have double doors to allow for rapid alighting and boarding. Environmentally friendly vehicles that minimize noise and air pollution should be purchased for the system.

Sidewalks, Bike Paths, and Intersection Treatments. To promote bike and pedestrian accessibility to proposed BRT line, this Plan recommends the inclusion of sidewalks and a bikeway that runs parallel to BRT along the length of Georgia Avenue North. The advised total width for sidewalks is 16 to 18 feet. This would allow six to eight and a half feet for pedestrians, three and a half feet for bicycle racks, and six feet for trees, trash bins, and street lamps adjacent the road. In adherence to the 1994 Aspen Hill Master Plan, the constructed bikeway should be an on-road lane.

R3-17

R3-17a

R3-17b

Source: Manual on Uniform Traffic Control Devices

State Highway Administration guidelines for bike lanes state that they should be set apart from other traffic lanes through pavement markings and/or appropriate physical barriers. This Plan recommends that the Georgia Avenue bike lane be marked with distinctive green paint and a white five-inch dividing line, upon which light reflectors or other physical barriers may be placed. To discourage encroachment into the lane by vehicles, bike lane symbols should be painted in the center of the lane; these should be accompanied by Bicycle Lane Signs such as R3-17, "Bike Lane," in accordance with the latest edition of the Maryland Manual on Uniform Traffic Control Devices (MUTCD). Because the proposed bikeway will operate on a six-lane highway with a posted speed limit of 45 MPH, this sector Plan recommends a minimum width of six feet for both northbound and southbound bike lanes – large enough for a single cyclist to overtake a second cyclist.

This Plan recommends that the proposed bike lanes, like BRT buses, receive their own traffic control. Traffic control specific to the operations of the proposed bicycle lanes would be particularly helpful in reducing potential conflicts between the heavy vehicular movement from southbound Georgia

Avenue to southbound Connecticut Avenue. The 2011 Pedestrian Road Safety Audit (PRSA) Report released by the State Highway Administration recommended eliminating right turn on red maneuvers, to reduce conflicts between turning vehicles and pedestrians. This Plan reiterates these recommendations and promotes their implementation concurrently with the BRT infrastructure.

Phasing of intersection treatments is discussed in the Plan's implementation section. To enhance safety for non-vehicular traffic, this Plan recommends that through lanes and turning lanes on Georgia Avenue be narrowed to 11 and 10 feet, respectively. The intent of this lane diet is to slow down traffic and increase awareness of the new pedestrian and bicyclist infrastructure being phased in. Slower through traffic will also reduce incidence of collisions with pedestrians using crosswalks to access retail or residential development in the BPPA.

Other recommended intersection treatments that will enhance the pedestrian and cyclist experience and accessibility to the BRT along Georgia Avenue include:

- Eliminating channelized right-turn islands
- Upgrading sidewalk ramps to meet ADA standards
- Constructing missing segments of sidewalks
- Increasing the visibility of pedestrian signage and crosswalks
- Reducing corner turn radii at intersections

Obtaining Bronze Standard Certification. The set of design characteristics listed above would receive 57 points based on the ITDP BRT Standard Ranking Score Card. Points are allocated as follows:

- Dedicated lane and full enforcement or physical segregation applied to over 75% of the busway corridor length (7 points)
- Busway that is one way and is centrally assigned in the road way (5 points)
- 100% of stations on corridor have turnstile controlled off-board fare collection (8 points)
- Most turns are prohibited across the busway (6 points)
- 100% of buses are platform level; system wide measures for reducing the gap in place (7 points)
- Two or more routes exist on the corridor, servicing at least 2 stations (4 points)
- Corridor is in one of the top ten demand corridors (2 points)
- Using US 2007 Emissions standards (2 points)
- Pavement structure designed for 30 year life over entire corridor (2 points)
- Stations are spaced on average between 0.2 to 0.5 miles apart (2 points)
- All stations are wide, attractive, and weather protected (3 points)
- 100% buses will have two wide doors on the station side and all door boarding (3 points)
- All buses, routes, and stations in corridor follow single unifying brand (2 points)

- Real time and up to date static passenger information corridor wide (2 points)
- Bicycle lanes on or parallel to entire corridor (2 points)

Total Points: 57

Pedestrian and Bicycle Accommodation

Currently, pedestrians, cyclists, and transit riders seem out of place on Georgia Avenue, due to its automobile-centric design and heavy traffic volume. The large scale of Georgia Avenue and the absence of pedestrian accommodation impart the sense that Aspen Hill is strictly an auto-centric environment where alternative modes of transport may be tolerated, but are not truly equitable.

The Georgia Avenue Bus Rapid Transit Study indicated that, although the frequency of Georgia Avenue crashes from 2009 to 2011 was on par with the Maryland average, the amount of pedestrian-related crashes was significantly higher than the state average. The primary reasons given for these collisions were “failure to give full attention” or “failure yield right of way”. To ensure a walkable environment in the BPPA, the pedestrian realm must be enhanced to improve safety and prioritize transit use. This can be done by installing facilities and design features that lower the risk of collision.

Pedestrian Treatments. Intersections should be designed to minimize crossing distance, crossing time, and exposure to traffic. The geometry of intersection design should make it clear to drivers that pedestrians use the intersection. Pedestrians should be able to view oncoming traffic and be seen by motorists. Advanced stop bars should be provided a few feet before high visibility “zebra” crosswalks to prevent vehicular encroachment into the crosswalk.

Thirty percent of the aforementioned Georgia Avenue crashes occurred at night, therefore, this plan recommends that street lighting improvements be implemented at all pedestrian crossings and controlled intersections. In addition to these lighting improvements, urban design elements that place "eyes on the street" should be pursued in accordance with recommendations contained within the Urban Design section of this Plan. A well-lit and activated corridor will have a higher perception of safety and will promote walkability at night. Blocks should be broken into a pedestrian friendly scale to encourage individuals to walk through Aspen Hill BPPA.

Traffic signal cycle length should be timed in a manner that reflects the area’s pedestrian priority as well as the regional need for vehicle through-put. In practice, this means that pedestrians should not have to wait too long for a “walk” signal. If signal lengths are too long, pedestrians may be tempted to cross the intersection while it is unsafe to do so. Each signalized intersection should be equipped with pedestrian push buttons with braille writing or audible countdowns for the visually impaired. These features are now standard at all new intersections and are currently being retrofitted at existing intersections to improve accessibility. In tandem with push button improvements, all curbs cuts should be modified for handicap accessibility. ADA compliant features include:

- Grate cover bar spacing of no greater than 12 mm wide in one direction
- If grate covers have elongated openings they should be placed so that the long dimension is perpendicular to the dominant direction of travel
- Walking surfaces should be slip resistant, with a coefficient of friction of 0.6 recommended for routes and 0.8 for ramps

Bicycle Treatments. Bicyclists add ridership to BRT corridors in a more efficient and dispersed manner than is possible with feeder buses. Additionally, bicyclists expand the reach of transit in a flexible manner that meets a wide variety of transportation needs. The best way to accommodate cyclists is to provide fully paved sections of roads and adequate space for travel. Designated bicycle lanes should be at least five feet wide, with a width of six feet preferred, and shared use paths should be at least ten feet wide. Bike racks and lockers should be provided at popular destination points in the Aspen Hill BPPA, such as adjacent to proposed bus stops, retail frontages, and places of employment. Although the Capital Bikeshare service area is not planned to expand into the BPPA, provision of high quality bicycle facilities could support its potential future implementation.

In addition to on-road bicycle accommodation, this plan recommends that a major shared use path be constructed along:

a. The west side of Georgia Avenue, between Connecticut Avenue and the Matthew Henson Trail, and on
b. The west side of Connecticut Avenue, between Grand Pre Road and the Matthew Henson Trail.

This bicycle facility should be 12 feet wide and will connect the regionally-important Matthew Henson bicycle trail to the Aspen Hill BPPA area, while also providing a bicycle route for individuals who may not otherwise be interested in bicycling for transportation. As discussed elsewhere in the transportation section, shared use paths provide an option for individuals who may be interested in bicycling but concerned about their safety and possible conflicts with traffic. Installation of the shared use paths along Connecticut Avenue and Georgia Avenue will provide an additional layer of transportation to the network and may help draw ridership to the BRT.

A robust maintenance program to remove debris and snow from designated bike facilities is necessary to both prevent accidents and promote bicycling as a viable form of transportation throughout the year. This plan recommends that the County Department of Transportation be responsible for clearing snow and debris from bicycle facilities within public rights-of-way as part of the overall transportation network. Maintenance of bicycle facilities within private streets is the responsibility of the owner. Temporary obstructions, such as parked vehicles encroaching into the bike lanes, should fall under the purview of the County Police Department, which has the authority to implement intersection and sidewalk surveillance cameras to ticket encroachment on the bike lanes.

Steps that increase the overall transportation mode share of bicycling should be pursued. Examples of such steps include wayfinding signs and citizen enthusiast groups. Wayfinding signs should be installed throughout the plan area to assist recreational bicyclists. Such signs could direct individuals to Matthew Henson State Park, scenic routes, or popular locations in Aspen Hill. These signs should be placed near the start of bikeways or in popular public spaces to promote use of the bicycle facilities. Additionally, these signs should provide estimated biking times and distance to the destination. Signs like this may encourage individuals who are interested in bicycling but unsure of how to get involved. Citizen enthusiast groups, such as the Washington Area Bicyclist Association (WABA), should be invited by the County Recreation Department to promote recreational bicycling. Together, elements such as wayfinding signs and advocacy groups can increase area residents' use of the bicycle as a mode of transportation.

Environmental Sustainability

This section envisions a walkable and green community that fully integrates all aspects of environmental sustainability. As the area redevelops, emphasis should be placed on reducing automobile dependency, reducing impervious surfaces, and improving water and air quality. While the BPPA is currently more than 90% impervious with very little stormwater management or tree canopy, the pending BRT network provides an opportunity to improve environmental conditions and create a greener community based on the ability to cluster development in a more urban development pattern, modernize stormwater management, and strategically preserve open space. Implementation of environmentally sustainable practices will occur throughout the redevelopment process.

Map 30

This aerial of the BPPA shows existing tree canopy, building footprints, and impervious surface. Source: Google Maps.

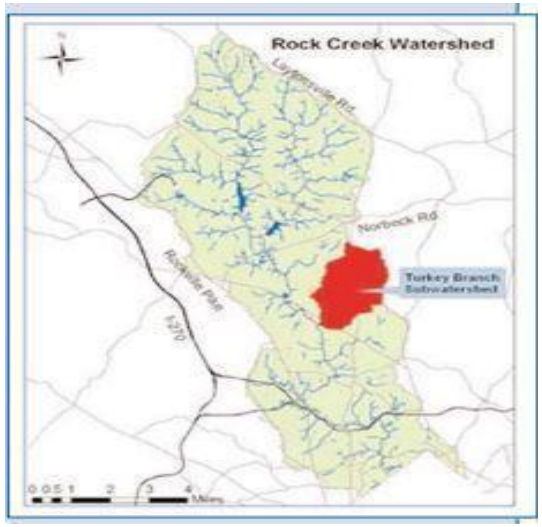
Watershed Health

The Aspen Hill BPPA is generally characterized by its low density suburban form and very high automobile dependence. Most of the development in the Rock Creek Watershed occurred prior to stormwater management regulations and contains a high percentage of impervious surface. The planning area is located in the Turkey Branch subwatershed of the Rock Creek drainage basin. The Turkey Branch Stream starts in the BPPA, along with its associated

100 year floodplain. The stream drains directly into Rock Creek watershed, which eventually flows to the Chesapeake Bay; thus, the health of the Turkey Branch Stream directly impacts the Chesapeake Bay. Currently, the watershed is in fair condition. To improve these conditions, the Turkey Branch subwatershed is included in the improvement efforts occurring within the Rock Creek watershed and is subject to the County's National Pollutant Discharge Elimination System (NPDES) Municipal Separate Stormwater System (MS4) Permit. Under the MS4 Permit, Rock Creek Watershed must meet these three major requirements:

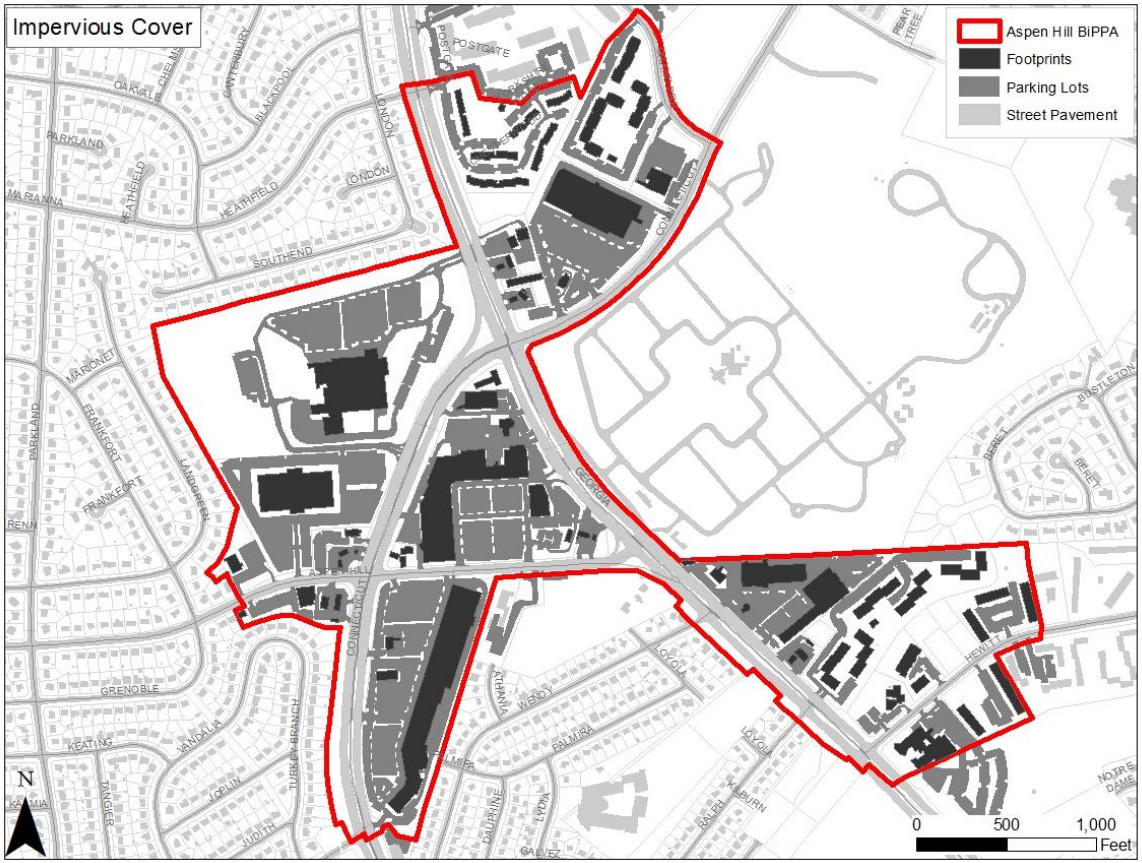
- Assigned wasteload allocations (WLAs) for EPA-approved Total Maximum Daily Loads (TMDLs)
- Watershed restoration via runoff management and impervious cover treatment
- Trash and litter management to meet the commitments of the Potomac River Watershed Trash Treaty

In order to help meet those requirements, this plan recommends using the sustainable development principles discussed below.



The Aspen Hill BPPA is located in the Turkey Branch subwatershed. Source: Maryland Department of the Environment

Map 31



Sustainable Development Principles

The Plan's Environmental Sustainability recommendations are intended to connect the built and natural environments, increase tree canopy, incorporate stormwater management into all new and redeveloped properties, and minimizing and mitigating impervious surfaces. The goals of the environmental section recommendations are stated below.

Connect the built and natural environments through:

- Reinforcing relationships to local natural resources through visual and functional connections
- Creating green links through plantings and signage along Georgia Avenue, Connecticut Avenue, and Hewitt Avenue to Matthew Henson State Park
- Using native plants and creating a habitat for appropriate urban wildlife in parks and open spaces.

Increase tree canopy cover by:

- Using advanced planting techniques such as constructed soil and interconnected tree pits to increase the soil area for tree roots around new streets and sidewalks.
- Establishing a minimum of 30% tree canopy cover for new surface parking.

Incorporate stormwater management by:

- Using environmental site design to handle stormwater management. Current techniques being used in Montgomery County include rain gardens, green streets, stormwater ponds, sand filters, permeable pavements, green roofs, bioretention gardens, conservation landscaping, grass swale with infiltration trenches, and cisterns.

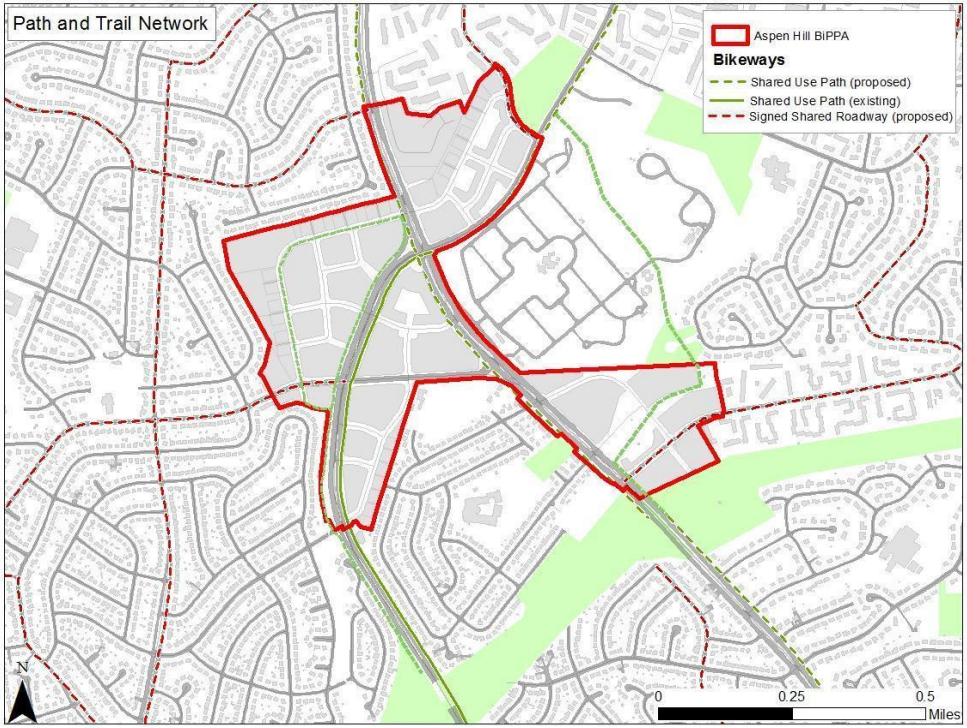
Minimize and mitigate impervious surfaces by:

- Using environmental site design to reduce runoff from all impervious surfaces, including roofs, terraces, and paving.
- Building new streets as "green streets" with urban stormwater management facilities in the right-of-way.

Top: A rain garden incorporated along a residential street

Bottom: A rain garden at the Aspen Hill Library

Source: mygreenmontgomery.org



Map 32

Connecting the Built and Natural Environments

To promote walking, hiking, and biking, a network of trails and shared use paths that connect the planning area to Matthew Henson State Park and Matthew Henson Trail should be part of the redevelopment process in the Aspen Hill BPPA. Such a connection will allow residents from the Aspen Hill area to connect to the surrounding areas and vice versa, without the need for automobiles. Consequently, these connections will provide an opportunity for residents of Aspen Hill to make use of the underutilized park.

The Plan recommends:

- A shared use path starting from the corner of Aspen Hill Road and Connecticut Avenue that runs along Connecticut Avenue and joins to the existing entrance to Matthew Henson Trail off of Connecticut.
- A pedestrian path connecting the existing residential area north of Depot District to the BPPA.
- A cycle track starting at or near the BRT station will connect to the shared use path. This cycle track will also run along Georgia Avenue and connect to the Matthew Henson Trail where it crosses Hewitt Avenue.
- Connecting Grand Pre Road to Matthew Henson Trail via a shared use path that connects from a bike path on Connecticut Avenue and runs along Turkey Branch Stream, behind Gate of Heaven Cemetery.

The Matthew Henson Trail, which runs through Aspen Hill.

Source: montgomeryparks.org

The proposed shared use paths and bike trails will be supported by an internal network of streets that promote pedestrian and bike modality. Signage directing users to the shared use paths, bike trails and leading to the Matthew Henson Trail and Park will be placed around the planning area.

Examples of shared-use paths, which are appropriate for the portion of the Matthew Henson Trail running through the Aspen Hill BPPA. From NYCDOT and Syracuse University.

Open Space

The plan recommends an open space system with open spaces that vary in size, function, and setting, including:

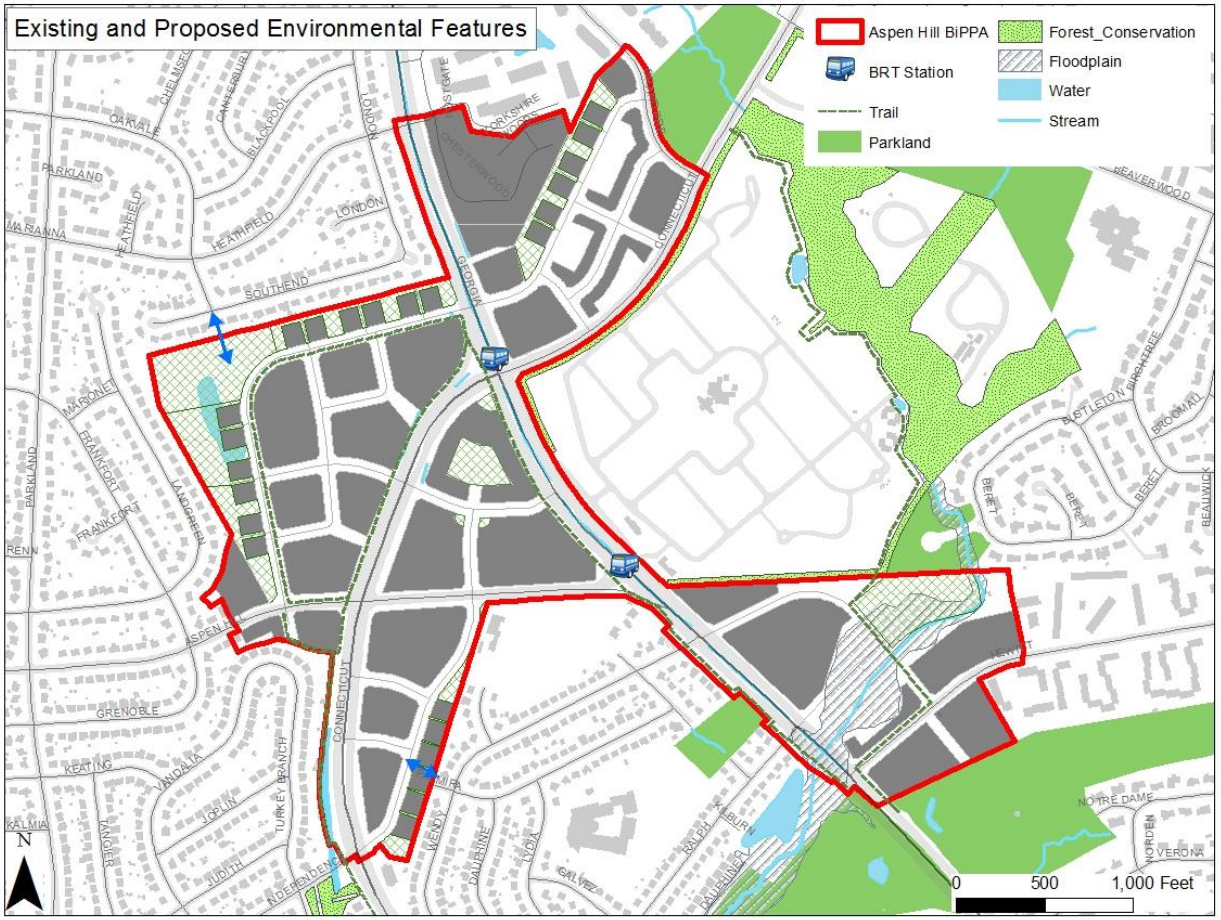
- Urban plazas
- Civic greens
- Neighborhood greens

Urban plazas are to be located in the Northgate District. Urban plazas are public use spaces surrounded by active uses and generally paved. Trees and landscaping mark edges and provide shade. More details about urban plazas in the Northgate District can be found in the Urban Design Guidelines section of this document. Civic greens should be located in the Depot and Georgia South Districts. The civic greens are intended to function as major outdoor civic spaces for public activities and gatherings.

Neighborhood greens should be provided throughout all districts in this planning area. Neighborhood greens provide open space with grass and trees and function as public gathering places. These spaces range in size from one quarter acre to one acre, depending on the type of development around the green. They should be large enough to support outdoor activities but not so large as to require costly maintenance. These spaces provide environmental and recreational benefits, including stormwater infiltration and tree canopy for shade. Some of these spaces could be located on top of parking structures.

This Plan recommends that no development occur within the 100 year floodplain located in the Georgia South District. Otherwise, development around it, as discussed in the implementation section, can be encouraged by including increased floor-to-area ratio (FAR) for developments that preserve the floodplain by providing public amenities, such as open space and affordable housing, beyond the minimum requirements of the base zoning.

Map 33



Carbon Footprint Analysis

Montgomery County Bill number 32-07 establishes a goal to stop increasing greenhouse gas emissions by the year 2010, and to reduce emissions to 20 percent of 2005 levels by the year 2050. The land use pattern proposed in the Aspen Hill BPPA is capable of significant reduction of carbon emission over the lifetime of proposed development, due to the compact building types and reduced vehicle miles traveled.

This Plan recommends further reducing the consumption of energy through site design and energy-efficient buildings that:

- Maximize natural lighting and ventilation while minimizing thermal loss
- Use awnings and overhangs to block direct summer sunlight and use light shelves to reflect natural daylight farther into the building
- Maximize use of on-site and off-site renewable energy sources
- Meet LEED or equivalent standards

urban design guidelines

Purpose of urban design guidelines

The purpose of the urban design guidelines for the Aspen Hill BPPA Sector Plan is to ensure high quality public spaces in the BPPA, which will enhance the community as a place to live, work, play, and shop. Urban design guidelines work in tandem with the recommendations found in all other Plan sections to generate aesthetically pleasing, functional, and cohesive streetscapes and connections. These concepts help determine the way that new development and redevelopment affects the public realm through specifying building façade, building mass, sidewalks, lighting, trees, furniture, and public spaces. Urban design guidelines seek to ensure compatibility in scale, form, and architectural design between new and existing development in all BPPA districts. The goals of this Plan's guidelines are to:

- Create lively and engaging streetscapes and public spaces
- Enhance paths and connections to create a BPPA that is friendly to pedestrians, cyclists, and transit riders
- Foster economically and environmentally sustainable development in distinct, walkable nodes.

This section contains two layers of design guidelines to be followed within the BPPA: one set of guidelines will cover Aspen Hill BPPA overall, specifying treatment for both residential streets and retail streets. Another set of design guidelines will address the BRT corridor along Georgia Avenue and how this corridor can use quality design to create an inviting pedestrian realm that encourages transit ridership. All new development and redevelopment should comply with the guidelines discussed in this Plan in order to maximize the quality of design and cohesiveness of development in the BPPA.

The concept for the Aspen Hill BPPA is that of a walkable, mixed-use node, with retail focused near the Northgate District and along the three primary roads in the BPPA: Georgia Avenue, Connecticut Avenue, and Aspen Hill Road. The urban design guidelines for the Aspen Hill BPPA should enhance both the form and functionality of existing and new streets and public spaces. These guidelines cover public space components of streetscapes and open spaces.

Source: NACTO

Streetscape

A high quality, well-designed streetscape is essential for creating a realm that is safe, interesting, and enjoyable for pedestrians. Currently, the Aspen Hill BPPA is auto-oriented, with narrow, disconnected sidewalks and large parking lots that make it clear that the pedestrian is second priority. The streetscape design guidelines emphasize the development of a physical realm that caters to pedestrian safety and comfort. The streetscape can be divided into three primary sections experienced by the pedestrian: (1) the frontage zone, (2) the pedestrian through-zone, and (3) the buffer zone.

Frontage zone. This area consists of the building front, as well as the sidewalk immediately in front of the building. Frontage zone guidelines address how the building interfaces with the pedestrian, both through its mass and its façade features.

Pedestrian through-zone. This area ensures that pedestrians have adequate and safe passage through the corridor. Recommended sidewalk widths may vary depending upon the intensity of uses in each corridor. All sidewalks will comply with ADA standards, creating a BPPA that is welcoming to pedestrians of all physical abilities.

A good example of appropriate massing for residential or mixed use development. Build-to lines at the sidewalk coupled with trees define the street and create a sense of pedestrian enclosure.

Curb zone: The curb or buffer zone is part of the sidewalk alongside the pedestrian-through zone that creates a barrier between the pedestrian and the street or bike lane. Various features, such as lighting, trees, and furniture, should be paced in the buffer zone to provide further protection for the pedestrian from the street, as well as to create greater sense of place on the street.

Frontage Zone

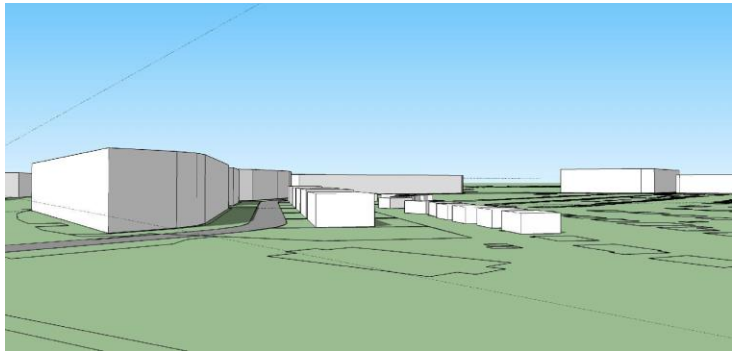
Massing. Appropriate building massing is critical for the pedestrian experience as it defines the street and creates a sense of enclosure that impresses upon the pedestrian a sense of being in a distinct place. All multifamily and mixed-use development in the Aspen Hill BPPA should:

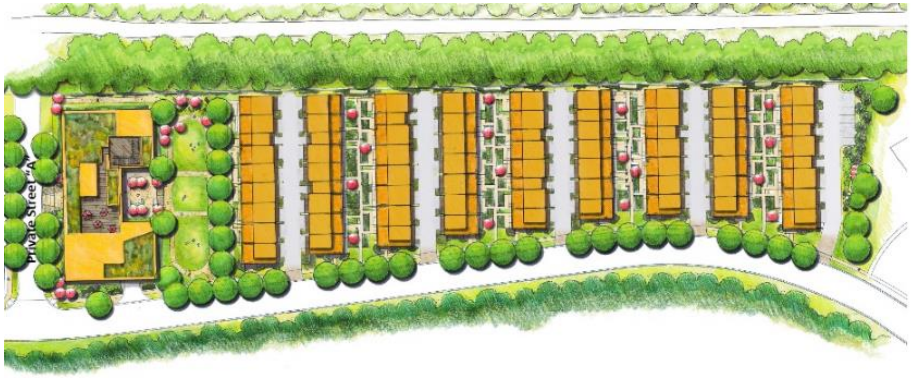
• Have a maximum building height of 75’ (typically 4-5 stories), except in the Northgate District and portions of the Georgia North and Georgia South Districts. Map 34 below shows recommended building heights by lot.

• Have consistent street walls with build-to lines at the sidewalk, (a minimum of 17’ from the right of way on most streets, and greater in retail streets and along the Georgia Avenue Corridor) to maintain a sense of enclosure for the pedestrian. If desired, variety in massing can occur through step-backs as a building ascends.

• Be broken into a series of appropriately scaled buildings so that no building is more than 300’ in length. Where a building is longer than 300’, a passageway at least 20’ wide should be inserted between buildings.

• All proposed streets that are adjacent to existing single-family communities should be developed with townhomes that have a maximum height of 40’ to create a smooth transition between the scale of the multifamily buildings and the existing single family homes, as shown in the figure to the right.





• Townhome development in the Depot and Georgia North Districts should feature double-loaded alleys to make best use of lot size and shape in these districts. Where feasible, a generous tree buffer should separate townhomes from less dense developments.

Townhome development with good tree buffer and double-loaded alleys. Source: Housing Opportunities Commission redevelopment rendering for Chevy Chase Lake.

Map 34

Facade:

- In residential neighborhoods, buildings should feature a minimum of 60% façade transparency at the ground floor. This creates a sense of "eyes on the street" and a safe environment for both pedestrians and residents. In multifamily developments, common areas or recreation rooms with transparent windows can line the ground floor to provide this transparency.
- Building materials and façade articulation should vary to create an aesthetically interesting streetscape.
- All façade features, such as articulation, architectural detail, windows and doors, should exist at a pedestrian scale to enhance visual interest and sense of place.
- Colorful paint can be used to accentuate architectural details such as window frames, cornice lines, etc.
- All residential signage should reinforce the identity of the residential complex and be visible from the street. All signs should be well integrated with the building's architecture and design.
- Exterior lighting mounted on residential buildings should be integrated with the building design, highlighting unique façade or architectural features. It should also create a sense of safety and encourage pedestrian activity after dark.

On streets with ground-floor retail, façade guidelines should activate the street and encourage pedestrian window shopping. Design guidelines specific to retail-oriented streetscapes are:

- Façade transparency on the ground floor should be at least 75% in order to create lively, engaging pedestrian environment where retail interiors are easily visible. Installing storefront doors made of glass should be encouraged to allow additional visibility into a business.
- Retail entrances should be frequent, placed approximately 50' apart to enhance activity on the street
- The continuity of storefronts should be maintained by locating loading and service entrances on the side or rear of a building where possible.
- Interior display areas should be illuminated at night to promote merchandise inside a store
- Where a retail street intersects other streets, the ground floor retail space should wrap the corner onto the intersecting streets.

Examples of good facade transparency and variation in renderings of residential developments from Silver Spring (top) and Wheaton (bottom).

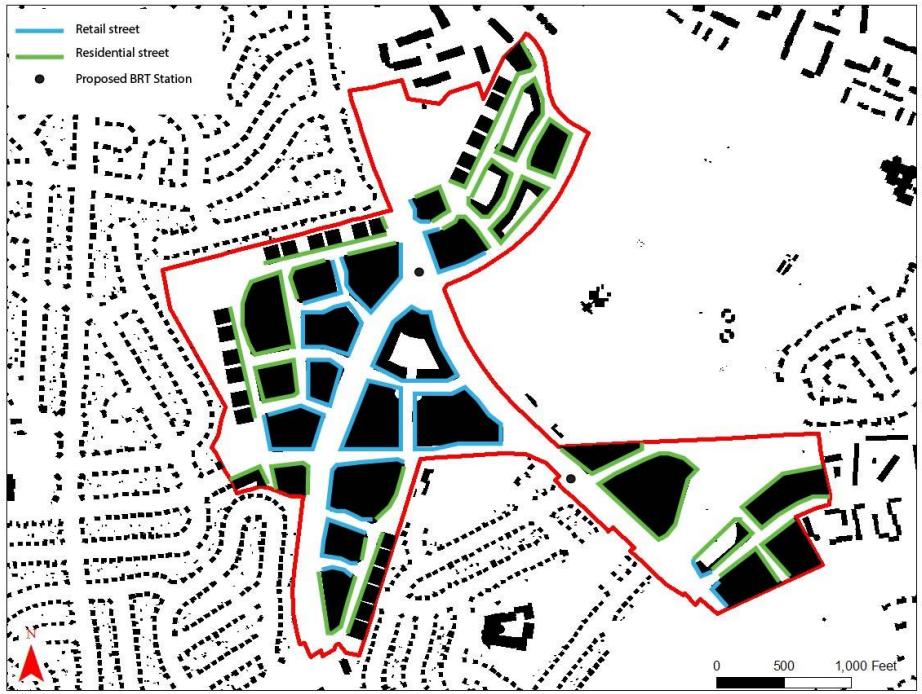
Active retail streetscapes with transparent ground floors, frequent entrances, and well-lit interiors at night. Photos from Clarendon (left) and Bethesda (right).

Retail signage and awnings. These elements contribute to the overall character of an area and reflect unique store identity. Signage and awnings on retail streets should:

- Be at least 10’ above the ground, if protruding from the building
- Appear as an integral part of the building facade and not as an afterthought
- Utilize creative graphics, materials, and colors
- On a building with multiple storefronts, awnings should be the same size and height

Examples of retail signage that is visually interesting, enhances business identity, and adds to the character of the pedestrian realm in Bethesda and Pentagon City (far right).

Map 35



- Street lights should be placed in the buffer zone, and should contribute to the pedestrian scale of the street. Lighting should provide adequate brightness to the sidewalk and promote a sense of safety for pedestrians and residents at all times of day or night.

Guidelines for retail corridors:

- Retail corridor sidewalks should be a minimum of eight feet wide to provide adequate pedestrian passage on active streets
- The buffer zone should be a minimum of seven feet along retail corridors to provide space for lighting, trees, and furniture. Alternatively, outdoor seating can be positioned in the frontage zone of the building. This creates greater separation from the vehicular traffic along a busy arterial, such as Georgia or Connecticut Avenues. Wherever seating is located, a minimum of six feet should be allocated to furniture and/or cafes to provide adequate room for dining.
- Lighting on retail streets should be at the pedestrian level and should encourage pedestrian activity and continued shopping even after dark.

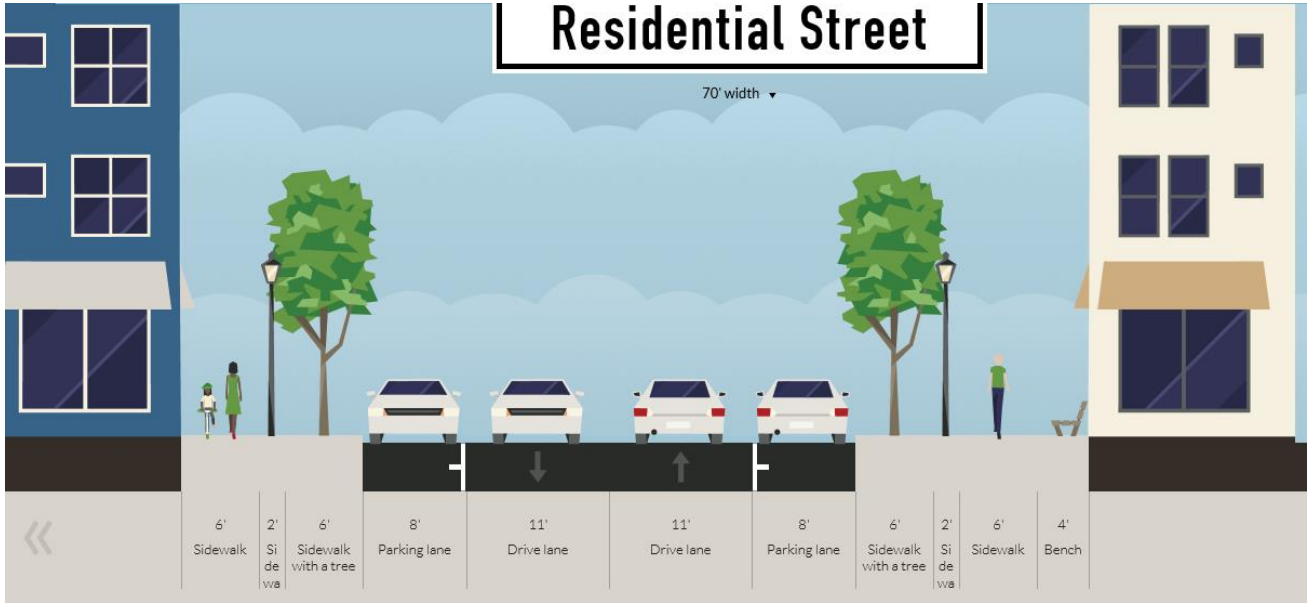
Pedestrian-Through and Buffer Zones

Sidewalk treatments. Sidewalk and buffer zone guidelines will vary depending on intensity of street uses. In the Aspen Hill BPPA, streets have been categorized as either residential or retail.

Guidelines for residential streets are:

- Residential sidewalks should be a minimum of six feet wide to provide adequate pedestrian passage.
- A minimum seven foot buffer zone between the sidewalk and street should be planted with trees, which both create shade and enhance the sense of enclosure experienced by the pedestrian. Street trees should be planted and maintained according to Montgomery County standards. Stormwater management techniques, such as small rain gardens that both enhance the aesthetics of the street and provide a vital environmental function, can also be implemented in buffer zones, particularly in curb bump-outs.

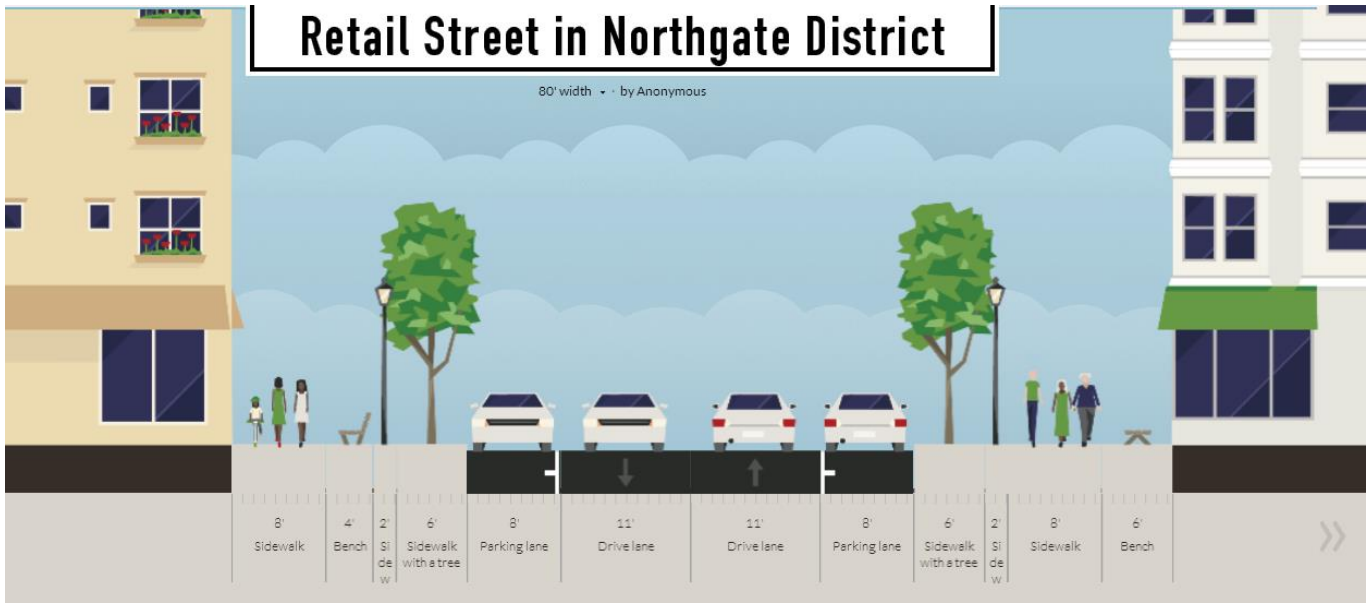
A pedestrian-friendly residential street with wide sidewalks and a buffer zone with mature trees. Photo from Silver Spring, MD.



Pedestrian treatments on a typical residential street are shown to the right, and include a minimum 6' sidewalk, minimum 7' buffer zone with lighting and trees, and buildings oriented toward the street with build-to lines at the sidewalk.

Pedestrian-scale lighting (center) and outdoor café seating in the buffer zone also contribute to an active and interesting pedestrian realm.

The Rockville Town Center (right) is an excellent example of a walkable, mixed-use node. Its wide sidewalks, trees and shrubbery in the buffer zone, and plethora of street furniture make the retail corridor an inviting place for pedestrians.



Pedestrian treatments on a typical retail street are shown to the right, and include a minimum 8’ sidewalk, minimum 7’ buffer zone with lighting and trees, street furniture, and buildings defining the street with lots of windows for ground floor retail.

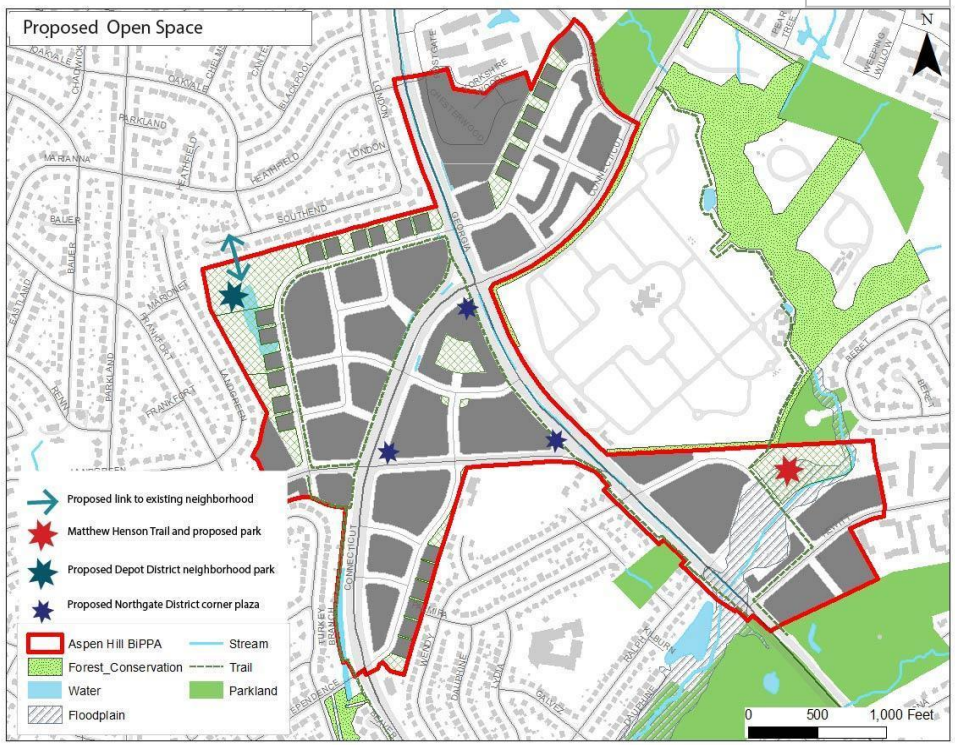
Parking

All parking facilities in the Aspen Hill BPPA should be underground or in the center of a development with access via a single driveway. This prevents a “dead zone” created by large parking structures along the street and provides continuity and character through street-oriented building frontage. Street parking should be also permitted on both sides of the street on residential streets.

Street parking can act as an additional buffer for pedestrians from traffic, as well as encourage traffic to slow down on narrower streets, as it does in this photo of Adams Morgan in Washington, D.C.

Commonly known as a “Texas donut,” this central parking structure for a single development keeps buildings oriented toward the street.

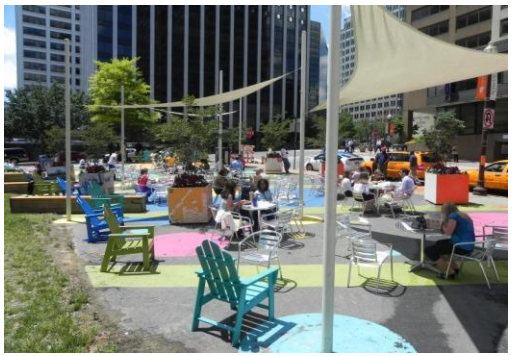
Map 36



Public space

One of the Aspen Hill BPPA's strengths is its wealth of nearby open spaces, such as Harmony Hill Neighborhood Park and the Matthew Henson Trail that cuts across the BPPA. These guidelines will enhance this community strength through promoting new open and public space in all districts that have convenient and safe access to transit, residential neighborhoods, and existing green space. Public space needs will vary from district to district depending on uses and intensity, and more specific requirements may be determined at the time of development review within each district. However, all public space should serve as an inviting gathering spot, highly visible from transit and accessible for individuals of all physical abilities. Additionally, green open space in the BPPA should be encouraged to provide environmental benefits such as those discussed in the Environmental Sustainability section.

Northgate District Plazas. The concept for the Northgate District a public plaza on the corner of Georgia and Connecticut Avenues to provide a public space as well as an additional attraction to the retail-oriented core of the BPPA. Additional interior plazas in the district or corner plazas on the Georgia-Aspen Hill and Connecticut-Aspen Hill intersections should also be considered. These pedestrian plazas may vary in features and use, while sharing common essential elements such as plentiful seating and greenery. The recommendation is that the public plaza at the



Plazas in the Northgate District can take on many forms, but all should include lots of seating and interactive elements that attract visitors of all ages and abilities. Photos are from Rosslyn (top), Bethesda (left), and Columbia Heights (right).

corner of Connecticut and Georgia Avenues features the most striking elements, as this intersection will function as the gateway to the BPPA for BRT passengers. This plaza should be highly visible from the proposed BRT station in the median of Georgia Avenue.

Uses in this plaza should include:

- Plentiful seating for pedestrians of all ages
- Interactive features, such as a water fountain or public art
- Trees that create shade and a sense of place to the pedestrian
- Placemaking elements that inform transit riders and retail consumers that they are in Aspen Hill. More about this will be discussed in the design guidelines for the Georgia Avenue BRT corridor.

Depot District. As the Depot District redevelops, a minimum of three acres should be reserved as a new neighborhood park. This proposed park will function as a large civic green not only for the proposed neighborhood, but the existing adjacent community as well. Park uses should meet community needs, including both informal and programmed and special events, such as youth recreational activities or outdoor movies. Park features should include walking paths, a central plaza for events, benches throughout, and mature tree coverage. Additionally, water features and public art that reflects community identity may be integrated into park design. A pedestrian trail should connect the existing neighborhood to this proposed civic green, linking the mature communities of Aspen Hill to the new.

Georgia South District. The Matthew Henson Trail passes through the Aspen Hill BPPA in the middle of the Georgia South District. The trail provides an excellent opportunity to improve linkage to green space in this district. Some of the land around the trail impacted by the Turkey Branch Stream floodplain should be developed into a neighborhood green, as described in the Environmental Sustainability section above. Well-lit, paved pedestrian links should connect the Matthew Henson Trail to the redeveloped Georgia South neighborhood. Improvements should also be made to the markers where the trail crosses Georgia Avenue, so that the trail is highly visible and accessible to pedestrians and cyclists.

The Matthew Henson Trai is an excellent community resource for the Aspen Hill BPPPA. Better markers, such as the one at right marking an entrance to the Mount Vernon Trail in Crystal City can promote trail usage.

Georgia Avenue BRT Corridor guidelines

The goal of the BRT corridor in Aspen Hill is to create a walkable, successful mixed use retail destination that is both walkable and accessible by transit along a major highway. To achieve this, urban design guidelines for the corridor address the pedestrian and transit rider experience in the corridor. Along the Northgate, Depot, and Georgia North Districts, all buildings fronting the corridor are envisioned to have retail on the ground floor; thus, all development in the BRT corridor should adhere to design guidelines for retail street building façade, mass, and signage discussed above. Where possible, big box retailers should be located along the BRT corridor so as to maximize visibility to transit riders and pedestrians. Currently, the BPPA has many big box retailers that make the area a popular retail destination, and keeping these stores visible and easily accessible will be key in maintaining the success of the retailers in the BPPA.

The Georgia Avenue BRT Corridor should feature:

This rendering of a BRT corridor shows a well-designed pedestrian environment that should be emulated in the Georgia Avenue BRT Corridor.

- In the Northgate District and portions of Georgia North and Georgia South Districts, the recommended maximum building height is 120 feet to increase ridership potential in locations likely to be most attractive for redevelopment. Refer to Map 34 for recommended building heights by parcel.
- Buildings oriented toward the street and forming a consistent street wall at the sidewalk
- Distinct retail signage that is easily visible from BRT stations
- Sidewalks a minimum of eight feet
- A buffer zone of at least 8 eight feet with mature trees and adequate lighting to increase the safety of transit riders traveling day or night
- Seating and outdoor cafes in a minimum 6 foot frontage zone of buildings
- Easily accessible, visible crosswalks connecting the sidewalk to the BRT stations (covered in detail in the Transportation section)

The Georgia South District concept features residential development fronting Georgia Avenue. This residential cluster should contribute to the identity of the Aspen Hill community, as it is near the proposed southern BRT stop. Developers of property in the Georgia South District should be incentivized to:

- Maximize density with 120' in height residential development where recommended and maintain a consistent street wall through build-to lines at sidewalks
- Develop property that is visually appealing and contributes to community aesthetics, with interesting materials and architectural features, such as cornice lines, friezes, or bump-outs.
- Install some public art work or small public plaza that speaks to the character of the community and is easily visible from the proposed BRT station

Residential development with varying architectural features creates a visually interesting streetscape and a sense of place. In the photo above, a Metroway bus running in a dedicated lane enters the residential portion of Potomac Yards in Alexandria, VA.

Placemaking. The Georgia Avenue BRT corridor is the entrance into the Aspen Hill BPPA for transit riders, drivers, and pedestrians alike, and placemaking efforts should focus on the proposed station locations along the transit corridor to make clear the identity of the Aspen Hill BPPA and establish a sense of place to individuals using all modes of transportation. When a BRT rider pulls into one of the proposed Aspen Hill BPPA station, it should be immediately clear that he or she has arrived in Aspen Hill. These placemaking signs should be located at the gateways of the Aspen Hill BPPA, either on the station platform or at a nearby location easily visible from the station, such as a Northgate District plaza at the corner of Georgia and Connecticut. The Aspen Hill BPPA is not a large place, but signs or maps containing directions to various retail attractions or parks could be included at the BRT station as well. Some placemaking strategies for the Aspen Hill BPPA include:

- Place signs at proposed stops that identify the location as the Aspen Hill. All signs should be well lit so they are visible both day and night
- Install navigational signs that direct transit riders and pedestrians to different retail plazas or store locations within the BPPA

Examples of gateway signs signifying entrance into a city or downtown. These should be located where they are easily visible from BRT stations.

- Consider placing an easy-to-read map covering the area of the BPPA and identifying various retail destinations at BRT stations
- Pedestrian-scale public art that contributes to the identity of Aspen Hill could be installed at plazas near BRT stations

Street signs that match the placemaking signs can also be used throughout the BPPA to create a cohesive street identification system. All placemaking elements in the BPPA should maintain a consistent design scheme, using the same colors and graphics to reiterate area identity.

Public art abounds in Bethesda, enhancing the character of the downtown streetscape. Such public art should be included in residential or mixed-use developments that are easily visible along the Aspen Hill BRT corridor.

Matching street signs in Rockville Town Center enhance the sense of place in the area through establishing a cohesive wayfinding system.

Wayfinding signs or maps located at proposed BRT stations can direct transit riders to primary retail attractions or parks in the BPPA.

Implementation

Retrofitting an existing suburban retail center into a mixed-use transit-oriented community is an ambitious target that requires public commitment and capital investment if it is to have any chance during implementation. Toward that goal, this Plan recommends specific strategies, financing, and staging that provide for a clear and measurable realization of the Plan. In addition to these strategies, it is the intent of this Plan to provide flexibility in implementation that allows use of the best available tools at the time of implementation.

First and foremost, it is the assumption of this Plan that all development density beyond the holding capacity of the existing zoning be predicated on implementation of the Georgia Avenue BRT corridor. The very momentum behind which this Plan is reliant lies with the BRT as a catalyst for development and a new means of transportation within the County. Without the BRT, Aspen Hill should remain an area oriented toward the automobile, though the mix of land uses promoted in this Plan should still be pursued independently of any enhancement to the rapid transportation network. In light of the importance this Plan places on the BRT, the study, design, and implementation should be undertaken as public infrastructure projects through the County's six-year Capital Improvement Program (CIP).

Ultimately, market forces will determine which elements of this Plan are realized and the extent to which the BRT influences incremental development through the horizon year of this Plan. As a result, some redevelopment may occur ahead of BRT implementation under one scenario while no redevelopment may occur immediately following the BRT in others. In light of these realities, this Plan recommends strategies tailored toward specific BRT system scenarios at the time of implementation. All recommendations are predicated on the initial public investment in BRT through the CIP, however, innovative financing strategies are described later in this section in an attempt to offset the financial burden of this system from public funds to private development.

Strategy

Implementation of this Plan's recommendations has the potential to be prohibitively expensive and, at times, may be so unpopular as to cease forward progress. These two potential pitfalls can be mitigated through innovative financing, specific implementation guidance, and measurable objectives. In anticipation of these potential issues, this Plan recommends:

a) Dedicated infrastructure funding sources
b) Well defined goals and objectives
c) Realistic staging guidance (including interim milestones)
d) Evaluation criteria

Without specific implementation guidance and opportunities to evaluate progress, otherwise supportive property owners may seek to maintain the status quo. In Aspen Hill, the trend toward a status quo would manifest itself in the long-term maintenance of national chain retail establishments and "big-box" anchor retailers, such as the existing Home Depot, Kohls, K-Mart, etc. Specific recommendations included in this Plan include increased floor-to-area ratio (FAR) for developments providing public amenities, such as open space and affordable housing, beyond the minimum requirements of the base zoning.

The multitude of new business district streets discussed in this Plan are anticipated to occur at the time of redevelopment and be implemented by the owner of the subject property. Each of these streets was conceptually aligned to correspond with property lines, topographic features, and roadway design elements, as described in the Transportation section of this Plan. Given these real world constraints, the proposed streets do not perfectly follow property lines and are instead laid-out along the most appropriate ultimate alignments.

Not all proposed streets within the study area have the potential to be "prime retail streets" given their relationship with and visibility to the main road, therefore it is necessary to prioritize the streets believed to have the highest probability of success as a retail street. Given the existing traffic volumes along both Georgia and Connecticut Avenues, the pedestrian orientation of Aspen Hill Road, and the anticipated pedestrian catalyst represented by the BRT, this Plan recommends that the Depot District and Northgate district be prioritized for implementation.

Financing

As previously discussed, this Plan recommends that planning, design, and construction of the BRT be funded through the County's Capital Improvement Program (CIP). This recommendation is largely due to the extensive project limits, which span miles to connect the county end-to-end. The implementing agency, however, should consider innovative financing strategies to offset capital costs and speed implementation of this much-needed facility. It is not known to what extent these alternative-financing strategies will be viable options to the study area, therefore, this Plan recommends that these strategies be considered as options by the responsible agency at the time of implementation.

Examples of innovative financing strategies that should be considered include: Tax Increment Financing (TIF), Business Improvement Districts (BID), or public-private partnerships (P3). These strategies offer the County varying degrees of financial leverage to assist in large capital improvement projects and may result in a more rapid implementation schedule than otherwise possible. The first two strategies provide a type of value capture that provides opportunities for initial public outlays to be (partially) repaid based on the positive impact on property values offered by transit system. The final strategy, P3, provides an option for the County to exchange initial public investment and operating costs for delayed revenue (fare) collection by allowing a concessionaire to build, operate, and potentially profit from the system over a set period of time.

Staging

That Aspen Hill achieves density approaching the maximum build-out described in this Plan without complete implementation of the proposed Georgia Avenue BRT corridor is both unlikely and inappropriate. The symbiotic relationship between this Plan's land use vision and the proposed Georgia Avenue BRT understands that land use and transportation infrastructure work best when one is balanced by the other. In practice, this strategy means that the BRT system benefits from the dedicated ridership of a mixed-use residential community while the community benefits from amenities made possible by higher density development. The higher density development described in this Plan is predicated upon the potential for reduced traffic congestion and higher non-auto driver mode share (NADMS) offered by an efficient BRT system.

Pre-Bus Rapid Transit Implementation. Very little change is expected prior to implementation of the BRT system because the study area lacks a "sense of place." Aspen Hill is currently a collection of profitable retail centers within properties developed under standard single use Euclidean zoning. Although the conversion of these properties under the new zoning ordinance would allow a mix of uses, it is unlikely that any substantive re-development would

take place before the BRT is implemented. As a result, this Plan anticipates that the 2040 build-out prior to implementation of the BRT does little to alter the existing state of the BPPA as a low-density retail corridor with few residential properties. Under existing zoning, the maximum possible residential units within the BPPA at buildout is 3,394 (see Table 4); however, under a status quo scenario with no BRT corridor, it is very unlikely that this many units will be produced given the area's weak residential market. Without BRT implementation, the extent of change in the Aspen Hill BPPA is likely to be only gradual enhancements to the appearance and functionality of existing retail plazas through improved mobility and more attractive façades to slowly transform retail centers into more walkable, "town center"-style shopping centers. Increased density and improved street grid connectivity are unlikely to occur. Under this pre-BRT development scenario, private funding for pedestrian and bicycle transportation improvements would likely not be available from developers. As a result, any sidewalk enhancements, new bikeways, or enhanced bus stops would be the sole responsibility of the County.

Post-Bus Rapid Transit Implementation (Georgia Avenue Corridor Only). The highest probability of change is likely following implementation of the BRT, therefore, this Plan recommends withholding higher density development capacity from the area until construction of the BRT is fully funded along Georgia Avenue. It is envisioned that properties could apply for and receive entitlements following the County's execution of a full funding agreement with construction and occupancy timed to correspond with the operational date of the Georgia Avenue BRT Corridor. Such a strategy has recently been adopted in Montgomery County's Chevy Chase Lake sector plan area, which is dependent upon funding of the Purple Line light rail facility.

Map 37

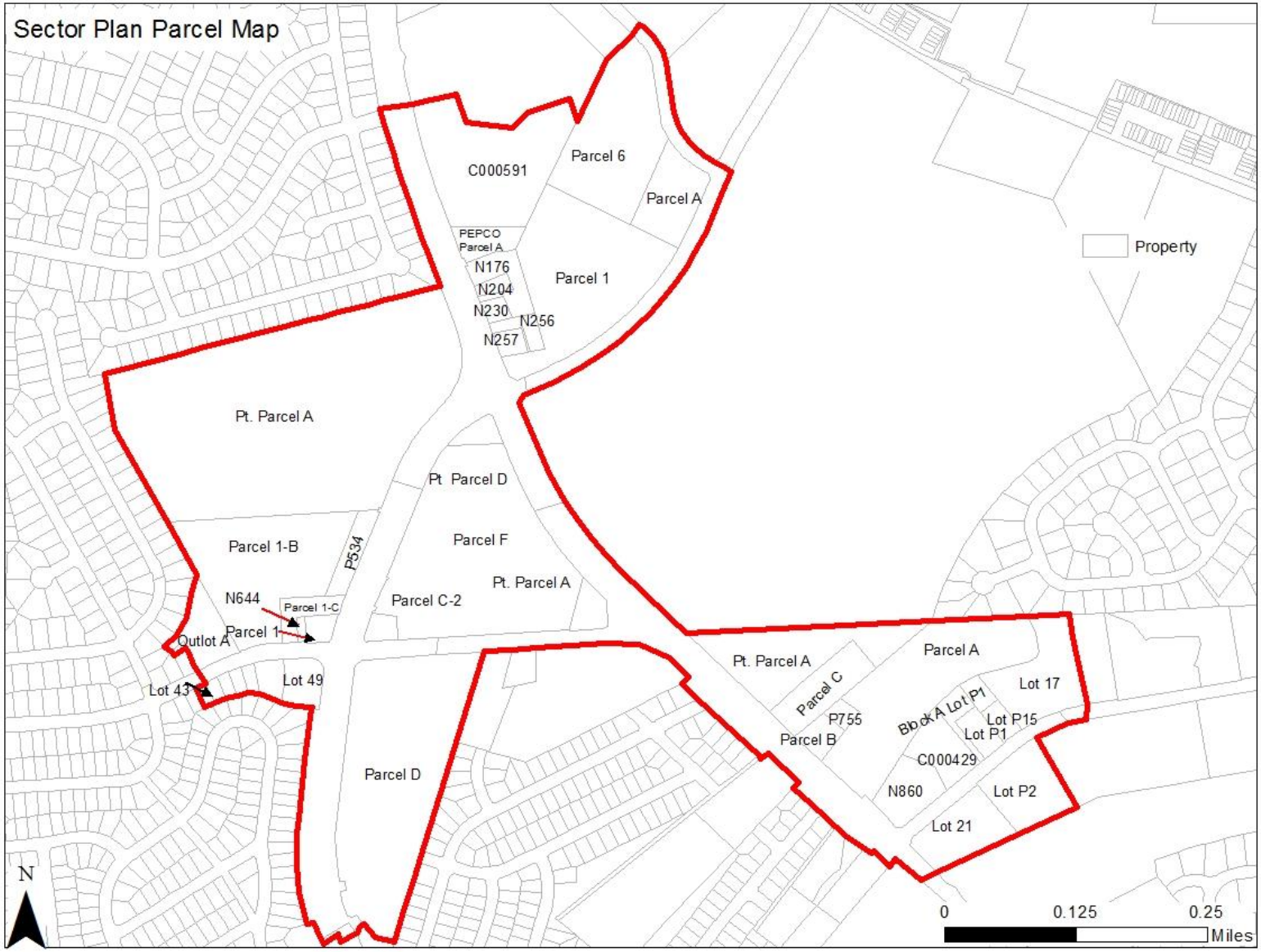

Sector Plan Parcel Map
C000591
Parcel 6
Parcel A
PEPCO Parcel A
N176
N204
N230
N256
N257
Parcel 1
Property
Pt. Parcel A
Pt Parcel D
Parcel 1-B
P534
Parcel F
Pt. Parcel A
N644
Parcel 1-C
Parcel C-2
Parcel 1
Outlot A
Lot 43
Lot 49
Parcel D
Pt. Parcel A
Parcel A
Parcel C
Lot 17
P755
Block A Lot P1
Lot P15
Parcel B
Lot P1
C000429
N860
Lot P2
Lot 21
N
0
0.125
0.25
Miles

Table 7: Goals/ Decision Matrix: Bicycle Facilities
"Interested-But-Concerned" Bicyclists

	Within ¼ Mile of BRT Station	Within ½ Mile of BRT Station	Speed Limit 25 mph	Speed Limit < 35 mph	Speed Limit > 35 mph	ADT Below 3k	ADT Between 3k – 10k	ADT Above 10k
Complete Streets								
Sidewalk	●	●	●	●	●	●	●	●
Lane Diet	●	●	●	●	●	●	●	●
Road Diet	●	●	●	●	●	●	●	•
Median Crossing Enhancement	●	●	•	•	●	•	●	●
Curb Extension	●	●	●	●	●	●	•	×
Bicycle Facilities	●	●	●	●	●	●	●	●
Bicycle Facilities								
Sidewalk	×	×	×	×	×	×	×	×
Shared Use Path	●	●	●	●	●	●	●	●
Shared Road	×	×	●	•	×	●	×	×
Bicycle Lane	•	•	●	●	●	●	●	×
Cycletrack	●	●	●	●	●	●	●	●
Transit Facilities								
Bus Stop with Sign	×	×	×	×	×	×	×	×
Bus Stop with Bench	×	×	•	•	•	•	•	×
Bus Stop with Shelter	●	●	●	●	●	●	●	●
Bus Stop with Real Time Information	●	●	●	●	●	●	●	●

× Does not achieve Goal/ Infeasible • Partially achieves Goal ● Achieves Goal

Table 8: Decision Matrix for Urban Design Guidelines

Decisions for urban design principles were made based upon the perceived perspective of different users in the Aspen Hill BPPA, and how various design elements are anticipated to impact each.

	Pedestrians	Bicyclists	Motorists	Transit	Neighbors
	Frontage Zone				
Buildings oriented toward street	◊	◊	◊	◊	◊
Variable building facades	◊	◊	◊	◊	◊
Ground floor activity	◊	◊	◊	◊	◊
Short blocks	◊	◊	◊	◊	◊
Consistent street wall	◊	◊	◊	◊	◊
Awnings	◊	◊	◊	◊	◊
	Pedestrian Through Zone				
Wide sidewalk	◊	◊	◊	◊	◊
No sidewalk obstructions	◊	◊	◊	◊	◊
Other pedestrians - eyes on the street	◊	◊	◊	◊	◊
	Buffer zone				
Buffer zone	◊	◊	◊	◊	◊
Trees providing shade	◊	◊	◊	◊	◊
Pedestrian scale lighting	◊	◊	◊	◊	◊
Street lighting	◊	◊	◊	◊	◊
Landscaping and trees	◊	◊	◊	◊	◊
Street furniture	◊	◊	◊	◊	◊
Lack of street trees	◊	◊	◊	◊	◊
On-street parking	◊	◊	◊	◊	◊

◊ - negative impact

◊ - mixed impact or use with caution

◊ - positive impact

◊ - neutral

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REIMAGINING ROCK SPRING

PREPARED BY THE UNIVERSITY OF MARYLAND FALL 2014 COMMUNITY PLANNING STUDIO | DECEMBER 4, 2014

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EXECUTIVE SUMMARY

This Plan provides a blueprint for the transformation of the Rock Spring business park into a mixed-use, transit oriented activity center. Maryland has designated Rock Spring a Bicycle Pedestrian Priority Area for statewide resource planning. Montgomery County, in its 2013 Countywide Transit Corridors Functional Master Plan, designated the North Bethesda Transitway, which runs through Rock Spring, as one of eleven corridors for a future rapid transit system. This Plan provides a complete list of action recommendations, developed in the context of the BPPA designation and new transit corridor, that will enable Montgomery County to fully capitalize on this area's potential.

The Plan's vision for Rock Spring will be achieved by accomplishing three goals: improving connectivity to the surrounding area, zoning for transit-oriented development, and modernizing the street grid. These goals will be met through the following action recommendations:

LAND USE

- Designate an Office Park Redevelopment Floating Zone
- Provide 66% increase of FAR designated for residential development & incentivize conversion of office use to residential use
- Encourage adaptive reuse of office park structures into residential or community uses, such as schools
- Implement a surface parking diet & add additional decks to existing structured parking
- Foster property owner relationships and explore potential Business Improvement District

TRANSIT & INFRASTRUCTURE

- Terminate the planned BRT line at White Flint, rather than Grosvenor
- Construct modern bicycle network facilities and connections to the regional system within the BPPA
- Prioritize pedestrian and bicycle traffic at intersections by removing channelized right turns, providing textured pavements, and tightening turning radii
- Plan for a new street grid that maximizes connections between residential, office, and retail destinations

ROCK SPRING

Rock Spring reflects an era of land development influenced by the domination of the automobile. Located where I-270 splits to meet the Capital Beltway, Rock Spring was a prime location for such development. As a result, the area today contains a separation of land uses across its 560 acres. While the area is anchored by the Rock Spring business park and the regional retail center of Westfield Mall, it also contains multifamily apartments, strip commercial, and Walter Johnson High School. Today, this stark separation of land use and auto-oriented development is antithetical to Montgomery County's stated goal of making transit a reliable alternative to driving in the County's developed core.

Montgomery County is at the forefront of Smart Growth polcies, shifting away from the suburban design typified by Rock Spring and toward transit orientated, mixed use communities. While much of this investment is occurring around the stations of Metro's red line, developers are investing in mixed-use projects in sites that do not have direct access Metro.

The Rock Spring area does not host a Metro station, or any transit besides local bus routes, but has potential for similar redevelopment due to the planned rapid transit system (RTS) through the area. Montgomery County's Functional Master Plan for Countywide Transit Corridors routes an RTS line through the heart of Rock Spring. The line will be anchored at one end by the Montgomery Mall, and at the other by the White Flint Metro station. In recognition to the economic potential of the RTS line, the state has designated Rock Spring as a Bicycle and Pedestrian Priority Area (BPPA) in order to steer future development away from auto-oriented design.

The Rock Spring area is a massive resource to the county in terms of land values, geography, and accessibility, but at present, the area is underperforming relative to its potential. This Plan presents strategies and accompanying implementation recommendations to best leverage the RTS line and BPPA designation to transform the Rock Spring Area. This transformation works towards a vision for Rock Spring that has an integration of uses, creates a built environment fit to the pedestrian scale, and supplies a transit-connected option for those with lower income levels. The strategies in this plan rely on the included analyses of challenges and opportunities facing the Rock Spring Area, draw from principles of quality transit oriented design, and aim to sustain Montgomery County's role as an innovator in community planning.

ROCK SPRING AT A GLANCE

LAND AREA

Roughly 570 acres of land area is within the Rock Spring BPPA. 46 acres remains undeveloped land. Five acres of contiguous public park space sits in the northwest corner.

It containes approximately 26,405 parking spaces.

BUILDINGS

The Rock Spring BPPA contains 5,887,780 square feet of office space. There are 1,831,216 square feet of retail and 1,194 total dwelling units.

The second-largest largest building footprint, after the Montgomery Mall, is the parking deck at the Marriott Headquarters.

TRANSIT

Rock Spring is serviced by five WMATA bus lines and five RideOn bus lines. Just 5% of Rock Spring office workers commute by transit, while 13% of the mall employees use transit.

Over 80% of Rock Spring office workers commute by driving alone. Within Rock Spring, there are zero intersections that exceed the critical lane volume to automatic traffic recorder ratio.

There are no dedicated bike lanes.

ECONOMICS

Rock Spring is a major employment center. There are approximately 21,518 jobs within Rock Spring (2011), within 8.2% of the County's office space. Rock Spring also contains a disproportionate 10% of the County's vacant office square footage due to above average vacancy rates.

SCHOOLS

Rock Spring is a part of a school cluster including six elementary schools, two middle schools, and one high school (within the BPPA) serving 8,012 total students. The school system has a planned addition to each of theschool properties, but all six are delayed.

PEOPLE

The six census tracts that contain and border Rock Spring house 26,368 total residents within 12,067 households. This represents 2% of the County's population. It is 56% multifamily housing, over 8% higher than the County average.

The area is wealthy, exceeding the County's median income by 7%. Over 71% of residents have at least a bachelor's degree. The residents are mostly white and non-hispanic, but one in ten has emigrated to the U.S. since 2010, and 40% speak a language other than English at home.

CHALLENGES

The Rock Spring BPPA has a late 20th century development pattern with **long, irregular blocks**, **minimal street frontage**, and an **abundance of surface parking lots**.

Current zoning and land use policies have reinforced a **stark separation of uses**. The office parks in the area consist of **buildings with large floorplates** that can prove both a challenge and an opportunity for change of use. The area has a **high vacancy rate**, exceeding that of the County average.

The separation of uses has led to a large number of commuters in the area, but the **residential population is too low to support neighborhood retail**.

The **transportation infrastructure provides minimal connectivity over I-270 and large arterials**. There is **little pedestrian infrastructure**, and **planned bikeways have not been implemented**.

While the buildings have generous setbacks that provide "greenspace," they are unprogrammed, and there are **few public amenities or gathering spaces**. While excellent in reputation, six **school facilities are projected to exceed capacity by 2017**.

VISION

The Rock Spring area is currently an underutilized asset for Montgomery County. The area's automobile-centric, dated urban form does not reflect the world-class multinational companies located here, and will not be conducive to development when the County makes a significant investment in a Rapid Transit system.

Research and experience in Montgomery County in recent decades has shown that the most successful and desirable neighborhoods are walkable, mixed-use, and transit-accessible. We believe that Montgomery County can capitalize on Rock Spring's central location through a transformation of the area's current urban form and segregated land uses.

The new North Bethesda RTS corridor, accompanied by the changes introduced in this plan, have the potential to revitalize the Rock Spring area.

GOAL: IMPROVE CONNECTIVITY

The Rock Spring BPPA is currently divided into three distinct areas, separated by I-270 and defined by single-use zoning. Our plan will improve connectivity between these three areas by changing land uses and improving the transportation network.

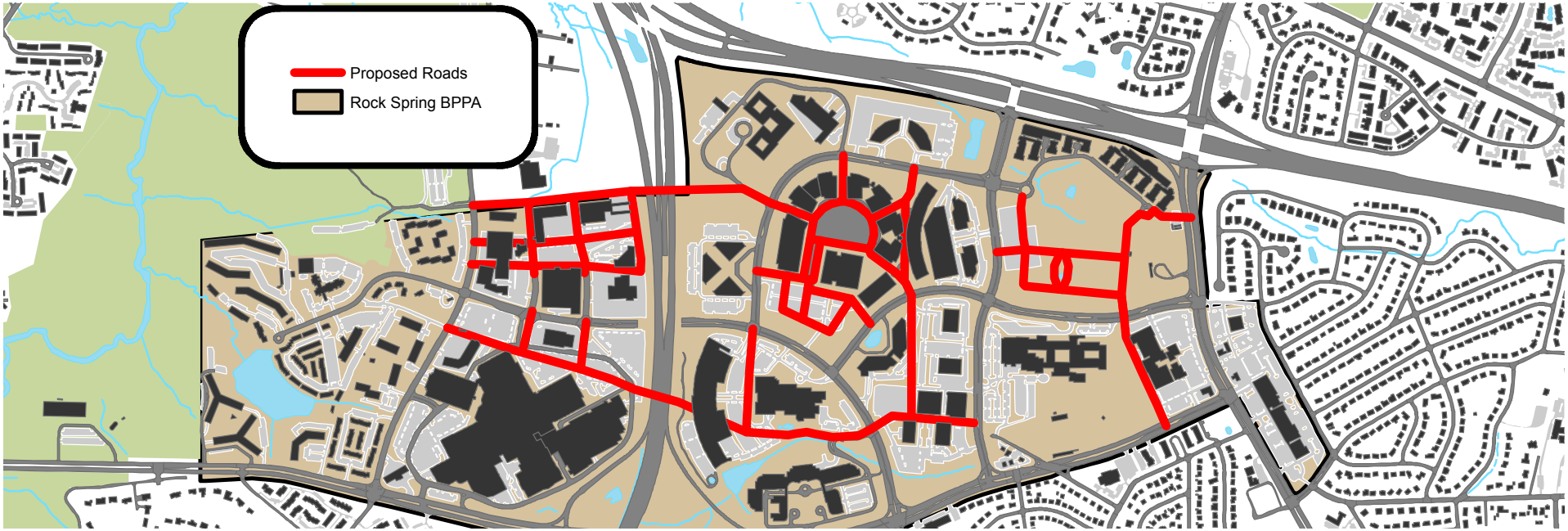
GOAL: ATTRACT TRANSIT-ORIENTED DEVELOPMENT

Montgomery County's success with activity centers such as those in Silver Spring and Bethesda have proven was transit-oriented development (TOD) policies as a catalyst for change. Our Plan will blend uses and change zoning as appropriate to create a successful TOD environment.

GOAL: FILL IN THE STREET GRID

Rock Spring's dated urban fabric impedes further development of the area. By creating a street grid, moving buildings closer to the street, and providing modern transportation amenities like bike lanes, our plan will transform the urban fabric into one designed for success.

RECOMMENDATION: COMPLETE STREETS



PROPOSED STREET GRID: NEW AND EXISTING ROADS

RECOMMENDATION ONE: INCREASE RIGHT OF WAY REQUIREMENTS TO 100 FEET TO ACCOMMODATE COMPLETE STREETS DESIGN.

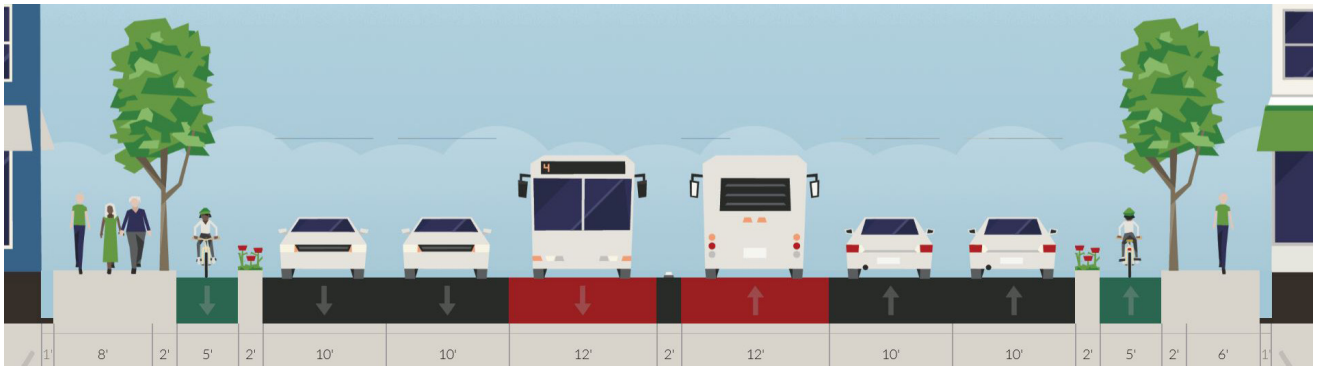
Ecisting conditions in Rock Spring do not meet the current County standards for bike and pedestrian infrastructure. Sidewalks, when present, abut the street without buffers, there are is very little bike infrastructure. The Walkscore near the Marriott is just 43, as compared to 98 in the Silver Spring central business district, another large employment center. This Plan recommends that the streetscape be improved to include buffered sidewalks and dedicated bike lanes to complement the proposed Rapid Transit System.

While the Countywide Transit Corridor Functional Plan calls for pedestrian and bike infrastructure, the amount of right of way suggested is just 80 feet. The current right of way varies within Rock Spring from 70-90 feet.

Considering the widths of the required components, lanes and maintenance, the right of way needed to create a pedestrian-friendly streetscape is approximately 100 feet.

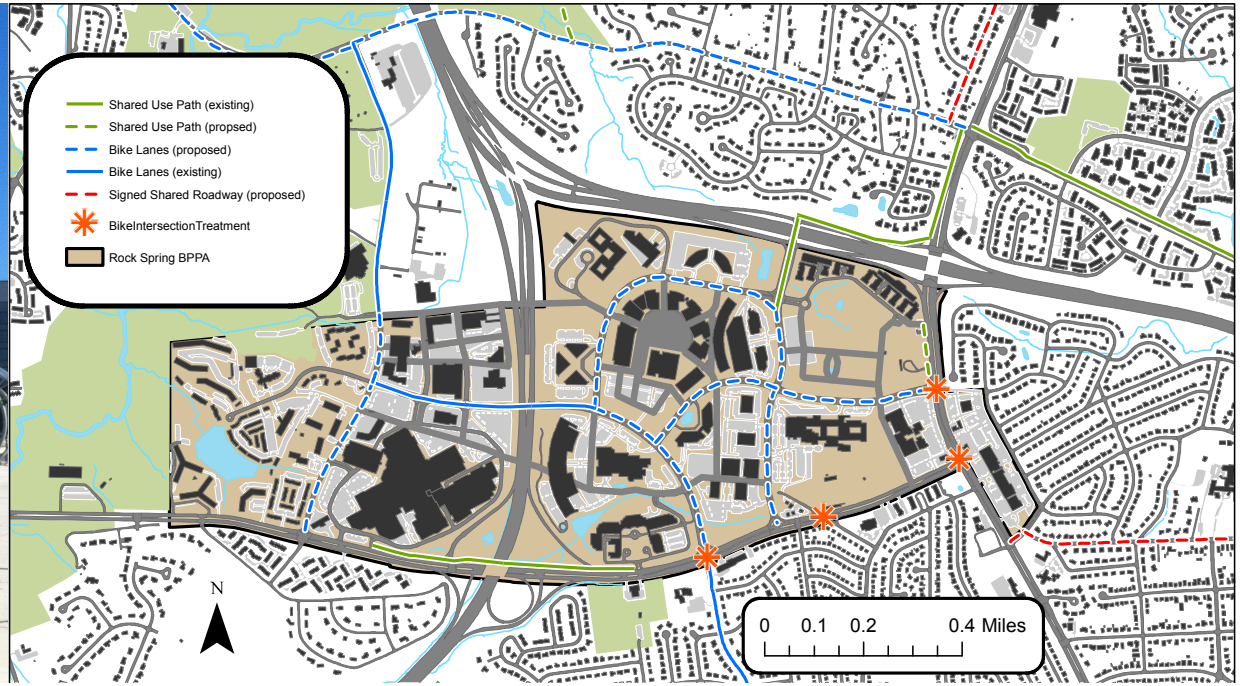
RECOMMENDATION TWO: UPDATE THE STREET GRID

The long, circuitous blocks in Rock Spring are not conducive to connectivity or developing a sense of place. This Plan recommends building connections between existing streets to increase walkability, as shown above.



RECOMMENDATION: BIKEABILITY

MARRIOTT HEADQUARTERS BICYCLE PARKING



PROPOSED BICYCLE LANES AND INTERSECTION TREATEMENTS

RECOMMENDATION: BICYCLE TRAVEL SHOULD BE ACCOMMODATED BY CONNECTING TO NEARBY REGIONAL TRAILS, PROVIDING BIKE LANES AND SIGNED MIXED TRAFFIC LANES, AND INSTALLING BICYCLE PARKING THROUGHOUT THE BPPA.

In order to improve the bikeability of Rock Spring, this Plan recommends both regionally connected bicycle corridors and abundant bicycle parking. In order to connect to regional bike paths, bike lanes along Westlake Drive and Fernwood Road are recommended where there are currently missing links in the network. Additionally, the shared use path along Democracy Boulevard is recommended to extend east to Old Georgetown Road and West to Seven Locks Road. At Old Georgetown Road, the shared use path should continue adjacent to the Wildwood Shopping Center.

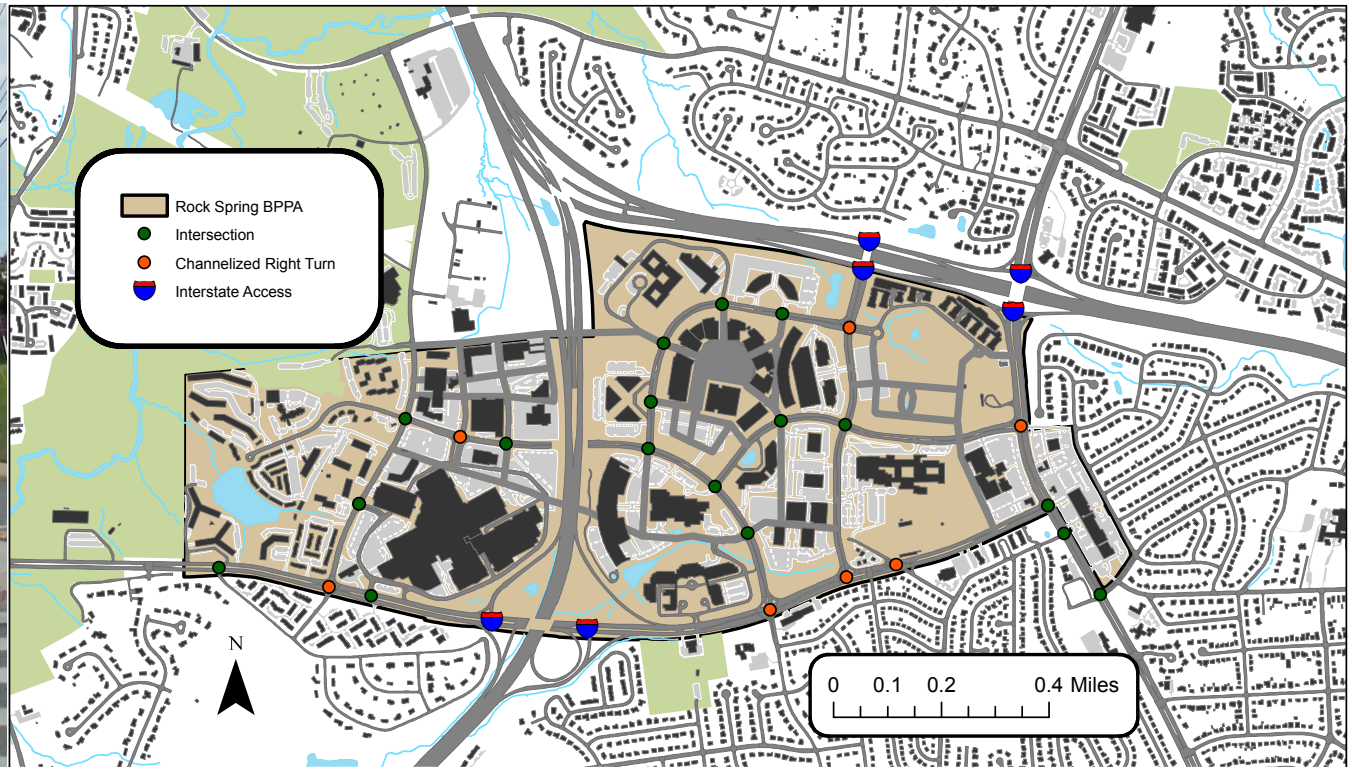
The bike path along Rockledge Boulevard should transition to a separated bike lane along both directions of Rockledge Drive. Additionally, a separated bike lane along Rock Spring Drive would connect Fernwood Road to Old Georgetown Road. The remaining streets in the Rock Spring BPPA, including the recommended planned streets should incorporate 'sharrows' to indicate mixed traffic roadways.

At key intersections along Democracy Boulevard and Old Georgetown Road, the Plan recommends painted bike paths indicating shared use with bicycles. These intersection treatments, depicted in the map above, are a key strategy to link the BPPA with the surrounding neighborhoods and the Wildwood Shopping Center. These intersections include Fernwood Road at Democracy Boulevard, Bells Mill Road at Democracy Boulevard, Democracy Boulevard at Old Georgetown Road, and Rock Spring Drive at Old Georgetown Road.

Adequate bicycle parking is also necessary to allow bike riders to stop at stores, offices, and RTS stations. This Plan recommends installing covered bike racks, similar to the facility at the Marriott Headquarters, at the RTS stations, and inverted-U bicycle racks in proximity to retail uses. Should there be interest in Capital BikeShare in the BPPA, the priority locations include the four RTS stations.

RECOMMENDATION: INTERSECTIONS

ROCK SPRING INTERSECTION



CHANNELIZED RIGHT TURNS WITHIN THE BPPA

RECOMMENDATION: PRIORITIZE PEDESTRIAN AND BICYCLE TRAFFIC AT ALL INTERSECTIONS BY REMOVING CHANNELIZED RIGHT TURNS, PROVIDING TEXTURED PAVEMENT ON CROSSWALKS, AND TIGHTENING THE TURNING RADII TO 15 FEET PER COUNTY BILL 33-13.

The Rock Spring BPPA's intersections were initially designed to prioritize automobile traffic. As seen in the map above, five of the ten intersections along the border of the BPPA have channelized right turns. Only two of the remaining fourteen intersections within the BPPA have channelized right turns. In addition to these twenty-four intersections, there are three junctions with I-270 that have access and egress lanes designed for high-speed vehicle travel.

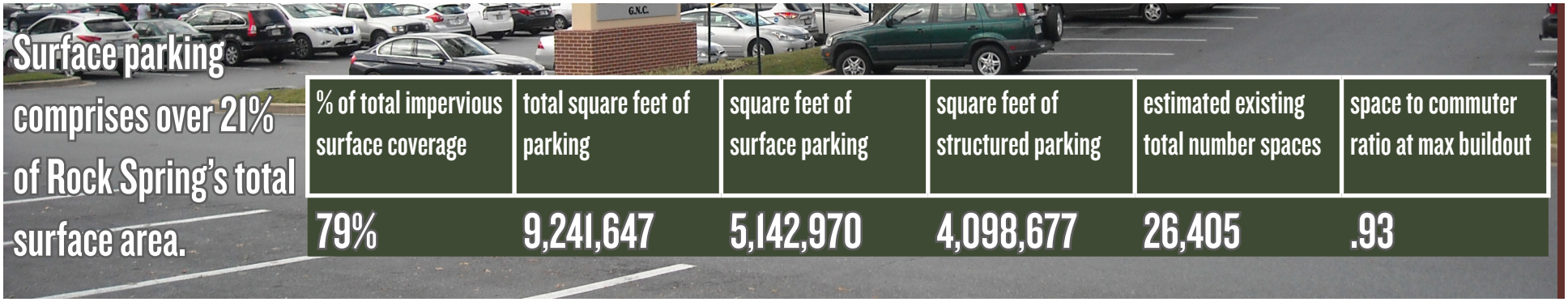
In a phased approach, the Plan recommends removing all channelized right turns for intersections in and bordering the BPPA, reducing turning radii to 15 feet, and adding textured pavement to all crosswalks. During the first phase, targeted intersections include all of those located within the interior of the BPPA. In addition, those intersections along both Georgetown Road and Democracy Boulevard will have textured pavement added to the crosswalks in Phase 1 in order to promote pedestrian connectivity with both the Wildwood Shopping Center and the residential neighborhoods to the east and south.

While the first phase of intersection alterations will be implemented by the County, the removal of channelized right turns along Democracy Boulevard and Old Georgetown Road in the second phase will only occur as those corner properties are redeveloped. Additionally, all planned roads that are built by private developers will be held to the standards of the Plan and Bill 33-13. This phased approach will allow the road network to efficiently handle the current levels of automobile traffic until the area is transformed, and maintains flexibility in case redevelopment is not achieved for many years.

RECOMMENDATION: PARKING DIET

Parking indicates quite a bit about the current and historical vitality of a community. On one hand, an abundance of parking suggests that a neighborhood functions--or once functioned--as a destination demanding enough attention to warrant a substantial supply. On the other hand, not many individuals would choose surface parking as a major selling point. Because this Plan's land use recommendations allow for the addition of large-scale residential development and moderate retail uses, this Plan must also address the issue of accommodating additional vehicles in a manner that does not discourage transit ridership.

We estimate that only 7% of the BPPA's employees and students currently commute into Rock Spring without a personal vehicle. For the area to gain public transit ridership and lose driving commuters despite additional in-commuting, this Plaan recommends placing Rock Spring on a significant parking diet. If we assume that automobile traffic will make up 75% of the commuting modeshare, Rock Spring will only need a nominal increase in parking spaces. This is beneficial insofar as adequate parking will be available in the event that developers opt to increase their site's density.



Surface parking comprises over 21% of Rock Spring's total surface area.

% of total impervious surface coverage	total square feet of parking	square feet of surface parking	square feet of structured parking	estimated existing total number spaces	space to commuter ratio at max buildout
79%	9,241,647	5,142,970	4,098,677	26,405	.93

Recommendation One: Reallocate parking spaces in surface lots into existing structured parking garages within the BPPA's activity centers by adding additional parking decks.

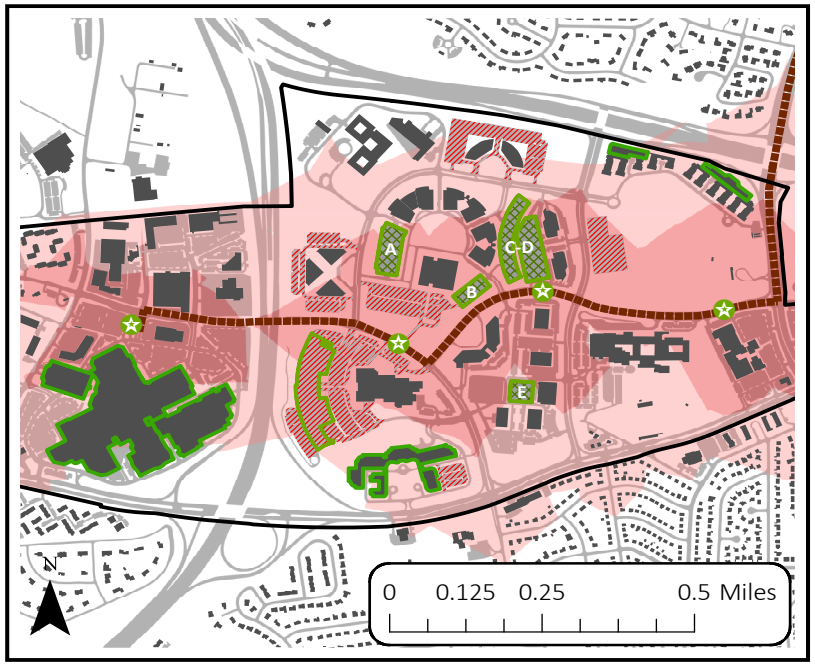
While the current amount of surface parking constrains both sense of place and potential development, the plethora of structured parking in Rock Spring serves as a community asset. The current structured facilities are plentiful and spaced in a pattern that provide access to the BPPA's main activity centers. Rather than building new additional structured parking lots to support projected development, current parking structures may be able to support additional parking decks. In this manner, ground area within the BPPA is preserved for more beneficial uses, such residential development or open space. Adding additional decks, while expensive, factors in the opportunity cost of current surface parking. Some of the more horizontally oriented structured parking garages, such as the parking garage for the Marriott headquarters, disrupt land potential and the street grid. Therefore, these structures are targeted to be repurposed.

Based on our network analyses, five particular lots have maximum potential for additional decks based on their proximity to RTS stations and activity centers. While these lots are mainly intended to serve the office uses within the BPPA, some residents of the adjacent single-family home communities may also choose to park their vehicles at these lots and ride the RTS into other employment centers in the County.

Recommendation Two: Attain "Parking Lot District" designation and implement a parkshare system with a single parking authority--preferably via a BID partnership.

Rock Spring isn't downtown Bethesda or Wheaton; however, as a major employment center it does share many characteristics with other larger Central Business Districts. As this Plan recommends reducing the modeshare of vehicle-commuting to a maximum of 75%, new development should be permitted to pay an in lieu fee rather than add unnecessary additional parking. This fee will be an integral component of the funding stream responsible for implementing recommendation one.

PARKING LOT CAPACITY ESTIMATES



BRT Station Locations

North Bethesda Transitway

Targeted for Demolition or Removal

Targeted for Additional Parking Decks

Existing Structured Parking or Buildings with Structured Parking

Walkshed

1/4 Mile Walk

1/2 Mile Walk

Current Parking Capacity Estimates

Parking Lot A Existing: 1,190 | Parking Lot B Existing: 655 | Parking Lot C-D Existing: 1,633 | Parking Lot E Existing: 470

ADDITIONAL FINANCING AND TRIGGER CONSIDERATIONS

Currently, property owners in Rock Spring do not charge their employees to park. The county requires employers with over 25 employees to submit Transportation Mitigation Plans under Montgomery County Code Section 42A-24. These plans can be used to leverage desirable outcomes. By strongly encouraging a pay-to-park system, the County will be able to foster transit use and help property owners identify a revenue stream for capital improvements.

Our plan spans a long range of time. One key consideration in the issuing of fees involves disincentivizing growth. Trigger points will be necessary and will likely depend on a number of factors involving the current needs, the number of residential projects that break ground, and countywide development trends. At this time, we cannot recommend trigger recommendations as such recommendations will depend on the how property owners choose to proceed based on the recommendations listed above.

Step 1: Undertake a parking inventory and study to confirm that additional parking need not be added, but instead reallocated to central activity points and employment centers.

Step 2: Seek and attain Parking Lot District (PLD) designation.

Step 3 - Option A - BID Management: Negotiate with current property owners to create the local Business Improvement District. Using the parking study, establish the necessary costs to transfer ownership or management of the targeted parking facilities to the BID. Establish costs necessary to finance additional parking decks. Use costs to determine BID levy.

Step 3 - Option B - Informal Shared Parking Agreement: Approach property owners to determine parking needs across the district using information from the parking study. Structure contract agreements between property owners for shared use of property. Contracts may be termed in a manner that include revenue streams from adjacent beneficiaries.

Step 3 - Option C - Public Acquisition and Fee System: This approach is the least feasible given the upfront costs associated with acquiring existing parking facilities. If current property owners are unwilling to create and fund a BID or enter into shared parking agreements, the county could designate the area as a PLD, acquire structured parking facilities piecemeal, and then issue a levy via TMD Law 36-05. This law allows the county to issue a "transportation management fee" to cover the costs of managing public transportation facilities.

RECOMMENDATION: OFFICE PARK REVITALIZATION FLOATING ZONE

Rock Spring's large quantity of vacant office space contributes to the countywide decline of commercial property values. If left unmitigated, declining values may reduce the county's commercial real estate tax revenue. Reversing the trends of Rock Spring's high vacancy rate begins with altering the area's predominant office use. This Plan recommends land use policies that improve the desirability of Rock Spring through residential infill development or through adaptive reuse of existing office space.

The present-day market dictates a demand for additional residential space. Much of Rock Spring is appropriately zoned CR or CRT, which allows residential use; however, Rock Spring's current EOF zoning is intended for office development, which the market will not easily absorb.

EOF zoning only allows 30% of a property's gross floor area to be dedicated for "household living" use. This is problematic insofar as a majority of the properties proposed for the floating zone:

A) are built at their maximum holding capacity
B) have less than 30% of FAR available, rendering little potential for large-scale residential development

Rock Spring's EOF-zoned properties typically have available open space or surface lots with unrealized development potential. This Plan recommends the creation of a "Floating Zone" to spur the revitalization of an underdeveloped employment center. The OPRZ functions as a hybrid of three land use tools: a typical floating zone, performance standards, and a revenue stream.

FLOATING ZONE

A floating zone amends the county's zoning map only after a developer receives project plan approval. In this case, the developer can either submit a site plan under the existing EOF zone, or submit a plan based on OPRZ regulations. If a plan is approved under OPRZ, the OPRZ designation replaces the EOF designation on the zoning map. This method of zoning was originally found to be a legal police power in New York State in Rodgers v. Village of Tarrytown (1951), and has been adopted by many states—including Maryland—throughout the 20th and 21st centuries.

PERFORMANCE STANDARDS

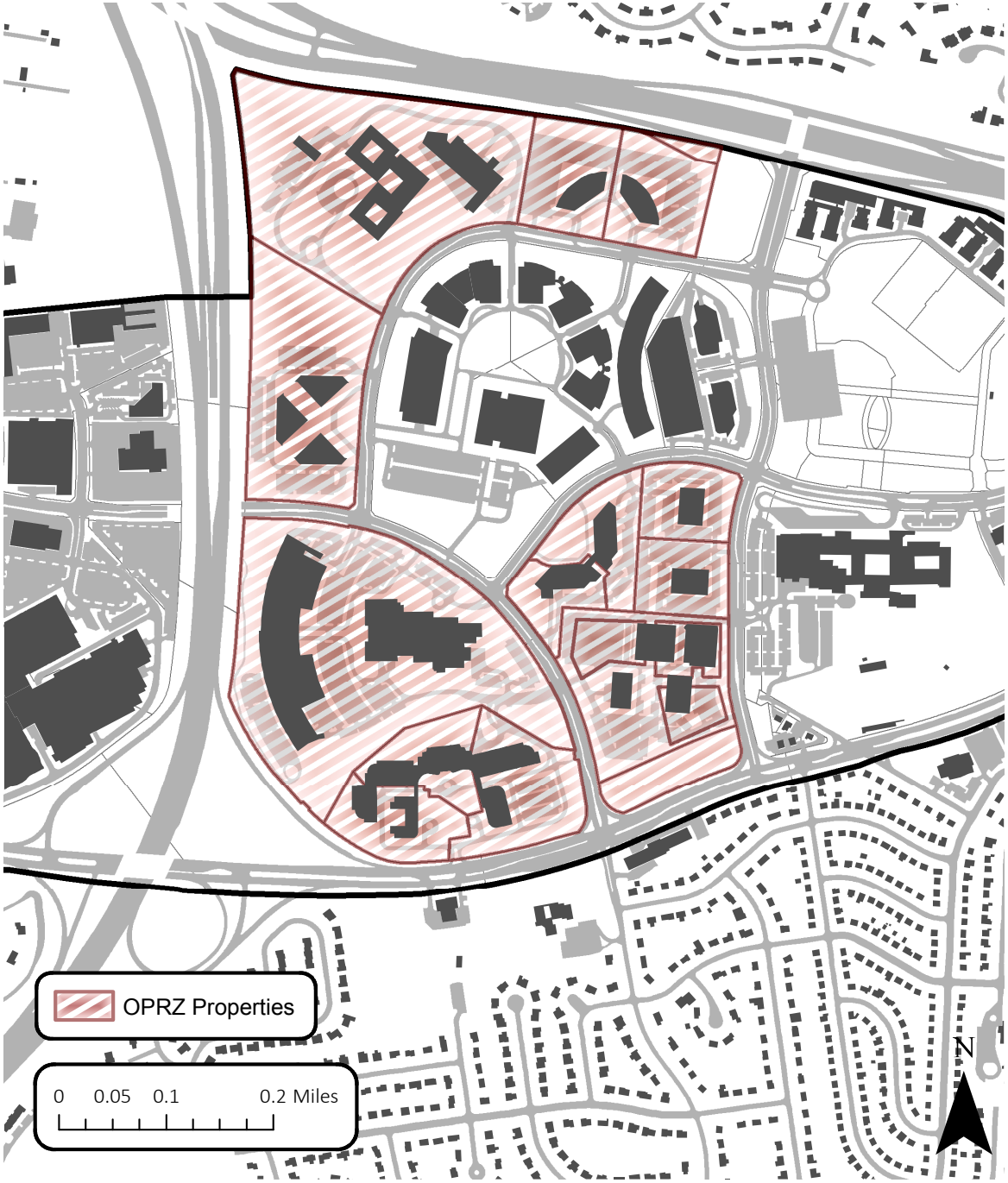
The OPRZ zone includes performance standards that set comprehensive goals, but do not mandate particular means in which to achieve these goals. The OPRZ zone operates differently in that it only adopts one goal: a maximum number of dwelling units. In short, OPRZ sets a cap on the number of residential units that can be generated within the zone. The cap assists with traffic management, but perhaps more importantly, it induces competition among property owners hoping to capitalize on the benefits of the new zoning designation. Competition serves to increase the probability of redevelopment and encourages a swift pace.

Some may question the legality of setting area-wide caps. Property owners are not, by right, entitled to particular zoning designations solely based on the fact that their land meets particular eligibility requirements. As the cap functions in service of public well-being, it would likely be found to be an appropriate use of local police power.

REVENUE STREAM

Property owners benefit from increased profit potential under the OPRZ. As these profits will likely have a major impact on the land's assessed value, developers will be assessed a "redevelopment fee" (in addition to the standard development impact fee) that funnels into a fund managed by a redevelopment authority (preferably via a Business Improvement District). In this manner, the OPRZ zone also generates a moderate, one-time revenue stream. The fund may be used as a component in financing packages for the acquisition of properties that fail to redevelop. This approach ensures holistic revitalization by capturing vacant, blighted, or underused properties that detract from the value of adjacent properties.

PROPOSED FLOATING ZONE PROPERTIES



OPRZ-OFFICE RETROFIT

LANDOWNER INCENTIVES

- INCREASES RESIDENTIAL POTENTIAL OF EXISTING STRUCTURES BY ALIGNING USE WITH MARKET DEMAND
- CHANGES IN USE MAY IMPROVE VALUE OF PROPERTY
- IMPROVES CHANCES OF A RELIABLE REVENUE STREAM VIA RENTAL DWELLING UNIT PROPERTIES

PUBLIC BENEFITS

- ADDITIONAL REDEVELOPMENT FEE SUPPORTS CAPITAL IMPROVEMENT PROJECTS WITHIN ROCK SPRING
- 1% TO 1% MPDU CREDIT ENCOURAGES ADDITION OF AFFORDABLE DWELLING UNITS
- ENCOURAGES RESIDENTIAL BASE TO SUPPORT TRANSIT RIDERSHIP AND SMART GROWTH POLICIES

REVITALIZATION BENEFITS

- VACANT/UNDERUSED STRUCTURES CONTRIBUTE RATHER THAN DETRACT FROM AREA
- COUNTY RECEIVES MORE TAX REVENUE FROM NEW RESIDENTS
- SUPPORTS RETAIL AND RESTAURANT MARKETS AT DEMOCRACY & OLD GEORGETOWN ROAD, MONTGOMERY MALL, AND WHITE FLINT
- ADDITIONAL REDEVELOPMENT FEE SUPPORTS CAPITAL IMPROVEMENT PROJECTS WITHIN ROCK SPRING
- DEVELOPMENT CAP FOSTERS SWIFT REDEVELOPMENT

"REDEVELOPMENT FEE" CALCULATION FACTORS

- NUMBER OF UNITS
- PERCENTAGE SHARE OF UNIT-TYPE (E.G. THREE-BEDROOM UNITS VS. STUDIO)
- PERCENTAGE OF ADDITIONAL AFFORDABLE UNITS
- ADVANCE ROW DEDICATIONS FOR BRT

2040 DEVELOPMENT CAP

600 NON-MPDU DWELLING UNITS

OPRZ-NEIGHBORHOOD CREATION

LANDOWNER INCENTIVES

- 66% DENSITY BONUS (MAY ONLY BE USED FOR RESIDENTIAL DEVELOPMENT; ADDITIONAL OFFICE, RETAIL WILL NOT BE PERMITTED WITHOUT VARIANCE)
- PARCELS MAY BE SUBDIVIDED AND SOLD TO RESIDENTIAL DEVELOPERS

PUBLIC BENEFITS

- OPPORTUNITY TO "PULL" BUILDING FRONTAGES TOWARD STREET TO CREATE STREET ENCLOSURE, THUS IMPROVING THE PEDESTRIAN EXPERIENCE
- ADDITIONAL REDEVELOPMENT LEVY SUPPORTS CAPITAL IMPROVEMENT PROJECTS WITHIN ROCK SPRING
- 1% TO 1% MPDU CREDIT ENCOURAGES ADDITION OF AFFORDABLE DWELLING UNITS
- ENCOURAGES RESIDENTIAL BASE TO SUPPORT TRANSIT INFRASTRUCTURE AND SMART GROWTH POLICIES

REVITALIZATION BENEFITS

- SUPPORTS OFFICE BUILDINGS THAT WILL NOT CONVERT TO RESIDENTIAL BY PROVIDING A SOURCE OF EMPLOYEES
- SUPPORTS RETAIL AND RESTAURANT MARKETS AT DEMOCRACY & OLD GEORGETOWN ROAD, MONTGOMERY MALL, AND WHITE FLINT
- ADDITIONAL TAX REVENUE FROM NEW RESIDENTS
- POTENTIALLY "FACELIFTS" EXISTING PROPERTY REMOVING SURFACE PARKING FOR MORE EFFICIENT LAND USE
- DEVELOPMENT CAP FOSTERS SWIFT REDEVELOPMENT

"REDEVELOPMENT FEE" CALCULATION FACTORS

- NUMBER OF UNITS
- PERCENTAGE SHARE OF UNIT-TYPE (E.G. ROW HOUSE VS.)
- PERCENTAGE OF AFFORDABLE UNITS
- ADVANCE R.O.W. DEDICATIONS FOR R.T.S.

2040 DEVELOPMENT CAP

2,200 NON-MPDU DWELLING UNITS

TOTAL 2040 DEVELOPMENT CAP: 2,800 NON-MPDU DWELLING UNITS

GENERAL REGULATIONS

Like the EOF zone, setbacks and lot standards are established during the site plan review process; however, the minimum number of public benefits points necessary for approval rises to 115 for any project above 10,000 SF, and the minimum number of public benefits categories remains at three. If a project is less than 10,000 SF, 60 public benefit points are required, and these must be satisfied by two different benefits categories.

The OPRZ zone offers two main development options: Office Retrofitting (OPRZ-OR) and Neighborhood Creation (OPRZ-NC). Both development options increase the housing stock. The cap allows property owners to pursue and receive development approval for both options within one property. Each development "option" is detailed in the above chart.

OPRZ: OFFICE RETROFITTING

OPRZ-OR fosters the renovation and conversion of old office uses into new residential space. Owners who receive approval of a project plan under OPRZ-OR benefit from the increased profit potential of the land at a lower cost than new construction. As original structures are retained, OPRZ-OR reduces the environmental impact otherwise felt by new construction. Per Chapter 59 4.7.3.G, OPRZ-OR satisfies one of the three required public benefit categories and immediately decreases the number of required public benefits points from 100 to 15.

The County benefits from OPRZ-OR in a number of ways. Most importantly, the one-time redevelopment fee imposed on owners supports future investments in Rock Spring. Additionally, the OPRZ-OR zone encourages the creation of affordable housing units. At a minimum, 12.5% of units must be converted to affordable units per chapter 25. MPDUs are not counted toward the development cap. Additional MPDUs beyond 12.5% reduce the one-time redevelopment fee assessed by 1% for each additional MPDU percentage point. For example, a property that provides an additional 1.5% of MPDUs to a total site reduces its one-time redevelopment fee by 1.5%.

OPRZ: NEIGHBORHOOD CREATION

OPRZ-NC envisions residential neighborhoods surrounding larger office buildings. In general, the office parks in Rock Spring were developed in patterns that retain large amounts of open space. Properties absent structured parking facilities often also host large surface parking lots, wasting valuable space. To encourage the removal of surface lots and increase investment interest in Rock Spring, the OPRZ-NC option provides applicants with a 66% increase in FAR that can only be used for residential construction. Property owners may then subdivide their properties to sell to real estate developers, or choose to develop sites themselves. Only multifamily apartment homes and single-family attached homes are permitted under OPRZ-NC.

Like the OPRZ-OR option, MPDUs are not counted against the development cap. A 1% redevelopment fee credit is provided for every 1% of MPDUs achieved above the required 12.5% amount of MPDUs.

STEP ONE: INITIATE THE MINOR MASTER PLAN AMENDMENT PROCESS FOR ROCK SPRING. THIS AMENDMENT WILL IMPACT THE NORTH BETHESDA/GARRET PARK MASTER PLAN.

STEP TWO: ENGAGE THE OWNERS OF PROPERTIES PROPOSED FOR THE FLOATING ZONE DESIGNATION TO DISCUSS THE BENEFITS OF THE ZONE AND SOLICIT FEEDBACK.

STEP THREE: DURING THE PLANNING PROCESS, SOLIDIFY ELIGIBILITY REQUIREMENTS, PUBLIC BENEFIT POINTS SYSTEM, AND OTHER REGULATIONS ASSOCIATED WITH THE NEW FLOATING ZONE. HIRE LEGAL CONSULTANTS OR USE INTERNAL LEGAL STAFF TO ASSESS NEW REGULATIONS.

STEP FOUR: SECURE APPROVAL FROM THE PLANNING BOARD AND ADOPT MINOR MASTER PLAN AMENDMENT TO ADD OPRZ ZONE TO MAP.

RECOMMENDATION: ADAPTIVE REUSE

Adaptive reuse is a viable and increasingly popular alternative to new construction. The adaptation of buildings has several prominent advantages, especially in the Rock Spring area.

ECONOMIC BENEFITS

There are several economic benefits of using a building that is vacant and has lost its demand in the marketplace. The first advantage is that it does not require a complete build which is usually much cheaper than demolishing and redeveloping a site. Second, a building wit less rental demand can be leased or bought for a discount. There is also infrastructure in place which allows for new uses to be quickly implemented. Finally, builders and developers may also be able to more easily secure a loan due to the the lower cost of development.

ENVIRONMENTAL BENEFITS

Environmental concerns range from both internal and external environmental improvements. A building from 1985 will have some of the most basic necessities for a more environmentally-friendly building, including the advantages of modern HVAC systems and safety requirements.

TECHNICAL BENEFITS

By utilizing existing space the renovation process will be completed much sooner and with less expense. The existing infrastructure may be upgraded but the foundations, basic services, and enclosures have already been completely leading to an easier technical layout for the renovation process.

THE ADVANTAGE OF ROCK SPRING

Most buildings in Rock Spring were built in the modern era, after 1980. This is a major advantage because there is much more flexiblity in newer buildings, giving Rock Spring's building stock an advantage for adaptive reuse. The buildings' large floorplates can help with changing uses, as do generous story heights and access floors. The buildings also have bigger, more accessible ducts, more cooling capacity, finely zoned air conditioning, and more capacity for cellularization.

RESIDENTIAL APPLICATION

Montgomery County is a desirable place to live with its strong employment opportunities and superior schools in the region. Unfortunately, housing is incredibly expensive in the county and there is high demand for affordable housing. Consistent with the Montgomery County Housing Policy (see right), this Plan recommends capitalizing on the overbuilt office market to provide affordable housing opportunities.

With only four percent (14,000 acres) of the County land available for development under current zoning laws the County must come up with creative ideas to increase supply of affordable housing. The current track of traditional patterns of low-density development is unsustainable in Montgomery County. There are many competing demands including the environment, transportation, and land-use considerations that need to be examined to develop a sustainable housing plan.

The large amount of vacant office space in the Rock Spring area allows for opportunities to adaptively reuse buildings that are underserved and transform them into buildings that better match the Rock Spring area. Developers and builders are discovering that the tremendous supply of vacant or underused buildings could be converted effectively into apartments to meet housing demand in Montgomery County.

In order for Montgomery County to continue promoting a diverse and thriving community there needs to be a well-balanced economy, adequate services and schools, and resources that meet the needs of all county residents. A key factor is to make sure that there is availability of housing. This Plan provides recommendations in the Rock Spring Area that can take advantage of adaptive reuse or converting underutilized buildings into apartments or condominiums.

In the late 70's and early 80's the County saw an overbuilding of office space, a weakening economy in the late 80's and a soft real estate market allowed for many tenants to upgrade to better office space closer to industry cluster or the supply chain, as well as desired amenities like public transit. With the continuing hardship of the economic downturn starting in 2007 and 2008, Rock Spring is seeing above-average vacancy rates. This Plan seeks to provide developers and builders with the flexibility and incentives necessary to facilitate conversions of office space into sustainable residential spaces.

The Montgomery County Housing Policy seeks to:

1. Preserve the existing regulated affordable housing stock, striving for no net loss of income-restricted affordable housing;
2. Increase the number of affordable housing units;
3. Conserve and care for Montgomery County's residential neighborhoods, and develop and invest in quality communities;
4. Strive to prevent homelessness and find homes for the homeless; and
5. Support the development of new housing, especially in transit-oriented areas.

The County's population projections exceeded 1 million residents in 2013

Between 2010 and 2040, an additional 172,000 residents are expected

The County will need to produce an additional 75,500 housing units

Just 4% of the County land zoned for development remains undeveloped: roughly 14,000 acres

EDUCATION APPLICATION

According to the Educational Facilities Master Plan, Walter Johnson High School will exceed capacity for students beginning in the 2017 – 2018 academic year. By 2023, the high school will operate at 120% capacity. Reaching capacity and exceeding capacity will have negative consequences if they are not addressed appropriately. With the County's current budget consraints, no programmed funds, and no start date for the classroom addition at Walter Johnson High School, the use of the vacant office space adjacent to the high school may be a viable option in the short-run.

The Rock Spring area currently houses 10% of the county's vacant office square footage. The vacant office space in the Rock Spring area is due to the area not being easily accessible by transit. This large vacancy rate provides an opportunity for a public-private partnership where Montgomery County Public Schools can lease and renovate existing office space adjacent to the high school to relieve the excess capacity in the coming years.

However, there is a demand for the high school, and families are willing to drive to the area from the surrounding cluster to attend the high school. Moreover, Walter Johnson High School is the public high school that serves this area of Montgomery County.

In the long-run, with the incoming rapid transit system and other capital improvements the Rock Spring area will realize its full potential as a major economic corridor for the county and State of Maryland. However, there are opportunities in the short-term to utilize space that is currently underutilized. This would be the office space near the high school.

The owners of the vacant office space will have the revenue benefit in the interim while the Rock Spring Office Park goes through its transformation in the next twenty years.

PROCESS

The Walter Johnson High School will be at capacity by the 2017-2018 academic year. It is imperative that the County begins to plan for the excess capacity. The high school is in a unique position to expand because the campus is directly adjacent to an office park that has high vacancy rates.

A 2000 study by Montgomery County Public Schools entitled "Elementary, Middle & High School Space Requirement Standards & Capacity Size Standards," set space and capacity requirements that should be met when evaluating if a space is adequate for students. For

every one hundred high school students the site requires an additional acre. For every student this equates to 436.6 square feet per student.

By 2023, the Walter Johnson High School site will have an estimated total of 2800 students. The high school will be over capacity by 464 students. This means to accommodate additional students, there will need to be a standard requirement of 202,500 square feet.

The estimate calculated by the Montgomery County Public School system includes outdoor physical education athletic areas, outdoor learning areas, stadiums, and greenspace. Since the above facilities can be shared with the existing high school the actual necessary square footage will be less.

The revised estimate calculates that each additional student will require 150 square feet. This will require a space that has at least 69,600 square feet of available space. This number could be further reduced if the auditorium and gymnasium space is shared with the existing high school. This would reduce the necessary square footage needs by an additional 30,000 square feet.

An estimated total area of 39,600 square feet of space would be needed to accommodate an additional 464 students at Walter Johnson High School in the next 10 years.

This Plan recommends that the County leases the space instead of buying the property. This would work effectively because the Rock Spring Office Park area is directly adjacent to the existing high school and can use a lot of the existing space that the County has available. A long-term lease will allow predictability and security of the space, but will allow flexibility for the County to program funds towards the Walter Johnson High School campus expansion in the future. Leasing in this area may also be highly lucrative because of the high vacancy rate in the Rock Spring area which will allow for negotiations on rent and space renovations.

SITE SELECTION

There are several sites that would be able to accommodate the expansion of Walter Johnson High School. The space that is recommended is located at 6430 Rockledge Drive. There is currently 49,592 square feet of space available with 14,000 square feet of contiguous space. This space is directly adjacent to the high school and has walking access between the proposed expansion site and the high school. Moreover, the outdoor space located at the high school is less than 1/10th of a mile from the proposed site. Issues with this space includes the high asking rent and the lack of contiguous space.

If the recommended location is not available due to circumstances beyond the control of the County, the Plan recommends that the County and Montgomery County Public Schools should acquire a building and retrofit into a permanent space for the high school to use. The new location could house a complete grade which is recommended under the standards released by MCPS. A building that can be bought and renovated is located at 6560 Rock Spring Drive and is currently 100% vacant.

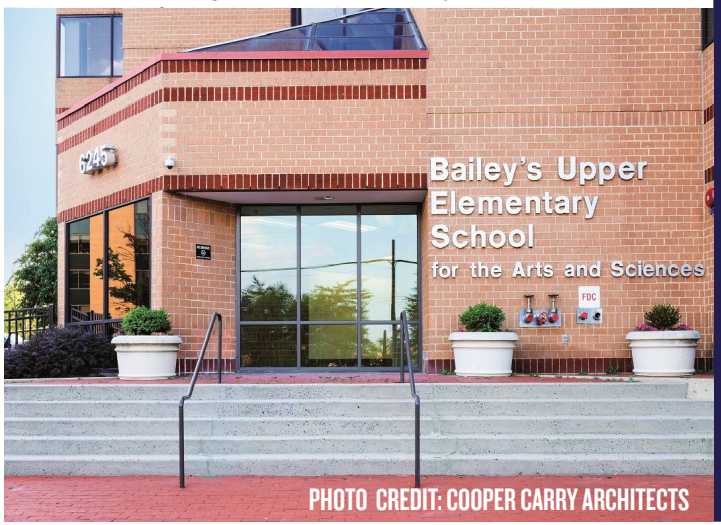


PHOTO CREDIT: COOPER CARRY ARCHITECTS

ACROSS THE RIVER

Fairfax County has recently purchased an old vacant office building for $11 million and put in an additional $9 million to renovate it as a school. The County bought the building, renovated, and is now using it as an additional campus for the upper elementary campus (see photo, left). Instead of leasing the space, the County acquired the building through a negotiated purchase. The campus is self-contained, has administrative offices and each floor is dedicated to a grade. There is also space for play both inside the building and outside.

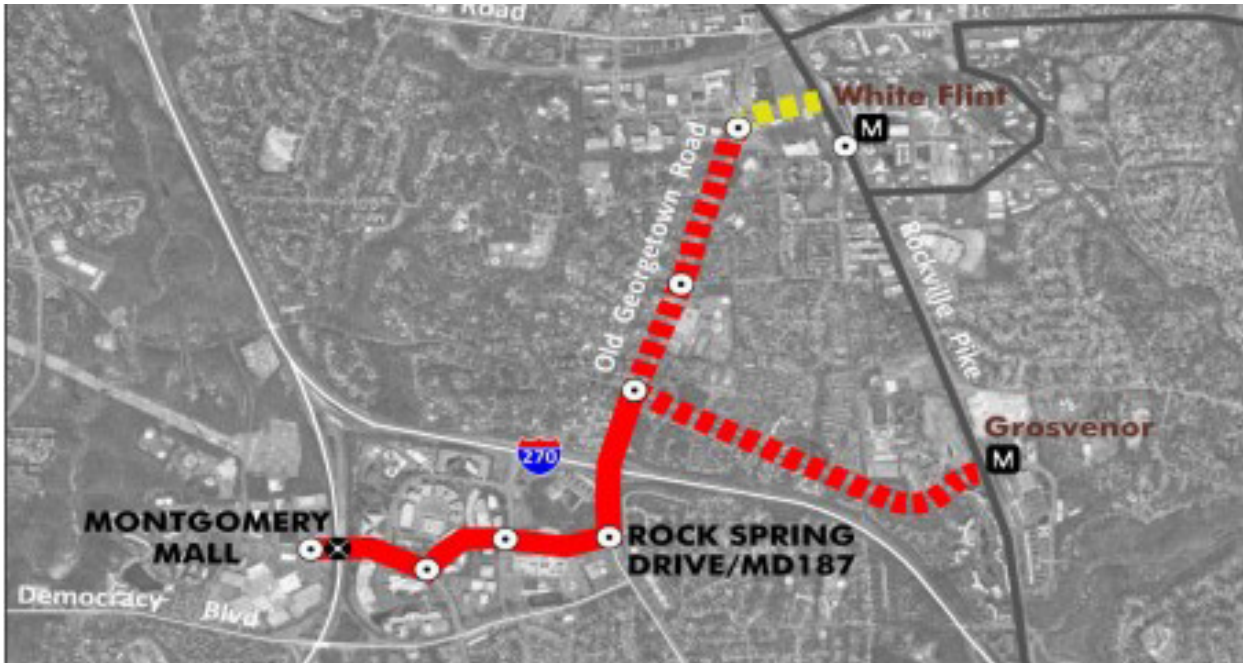
The Fairfax County model was completed in isolation from the school's main campus. In the case of Walter Johnson High School, students will still have access to all of the on-campus amenities located at the high school thus making it a uniquely qualified school to test campus expansion using the surrounding community.

RECOMMENDATION: WHITE FLINT TERMINUS

The Countywide Transit Corridors Functional Master Plan, which routes a Rapid Transit Service route (the "North Bethesda Transitway") through the Rock Spring BPPA, did not designate a final alignment for the complete route of the RTS line. The plan designated two potential corridors for the RTS alignment: one ending north at the White Flint metro station along Old Georgetown Road, and another ending east to the Grosvenor metro station along Tuckerman Lane.

The final choice of alignment for the North Bethesda Transitway will have important implications for the ridership of the RTS line and the transformation of Rock Spring. We have determined that the County will attract the most development and ridership along this RTS corridor by routing the line to White Flint. The White Flint alignment is the best choice for Montgomery County for several reasons. White Flint is growing as a transportation and mixed-use activity center, while Grosvenor has little potential to change from its auto-oriented residential setting. The White Flint alignment has significantly more square feet of commercial and residential development, which will generate more ridership than the Grosvenor Alignment. Routing the alignment to White Flint allows for connectivity to the planned east-west RTS line along Randolph Road in addition to the Rockville Pike route, which would also be accessible from Grosvenor.

At right is an excerpt from the "Alignment Scenario Scorecard," found in the RTS Alignment Choice appendix. A variety of factors including demographics, the technical capabilities of the alignment, and more were scored. For each alignment, it was determined if the factor: represented a potential drawback to RTS ridership (-1), represented a neutral factor (0), or represented a positive attribute for RTS ridership (+1). The appendix presents details on all factors, but the White Flint alignment proved the better choice for Montgomery County and Rock Spring.



WHITE FLINT

+ INTEGRATION WITH OTHER RTS LINES
+ INTEGRATION WITH BIKE/PED INFRASTRUCTURE
+ RETAIL SQUARE FOOTAGE
+ OFFICE SQUARE FOOTAGE
+ WALKABILITY WITHIN 1 MILE

- DEDICATED LANES
- NUMBER OF SIGNALIZED INTERSECTIONS

GROSVENOR

+ DEDICATED LANES
+ RESIDENT DEMOGRAPHICS

- WALKABILITY WITHIN 1 MILE

RECOMMENDATION: STOPS SERVICING ROCK SPRING

The Countywide Transit Corridors Functional Plan designates four stops within the Rock Spring BPPA along the North Bethesda Transitway. Displayed in 'Alternative 1' of image 1, these stops include the Montgomery Mall Transit Center, Rock Spring Drive and Fernwood Road, Rockledge Drive and Rock Spring Drive, and Rock Spring Drive and MD 187.

The terminus at the Montgomery Mall Transit Center provides needed access to the commercial anchor of Westfield Mall, and is an important intermodal transfer point to both the RideOn and WMATA MetroBus lines. The remaining stops within the BPPA provide access to the Rock Spring business park, Walter Johnson High School, the commercial development along Old Georgetown Road, and the surrounding residential areas. The Plan's analysis compares three alternatives for the locations of the remaining BRT stations within the BPPA.

Alternative 1 offsets stations 2-4 from the designated intersections. These stations are located in order to fall within the recommended .2 mile - .5 mile threshold of station separation. According to The Institute for Transportation and Development Policy's BRT Standard, the optimal distance between stations is .27 miles. While customers will save time walking if the stations are located closer together, that time is offset by the slower bus system speeds. Conversely, if the stations are located farther away, any gains in bus runtime efficiency are offset by the increased walk time of customers.

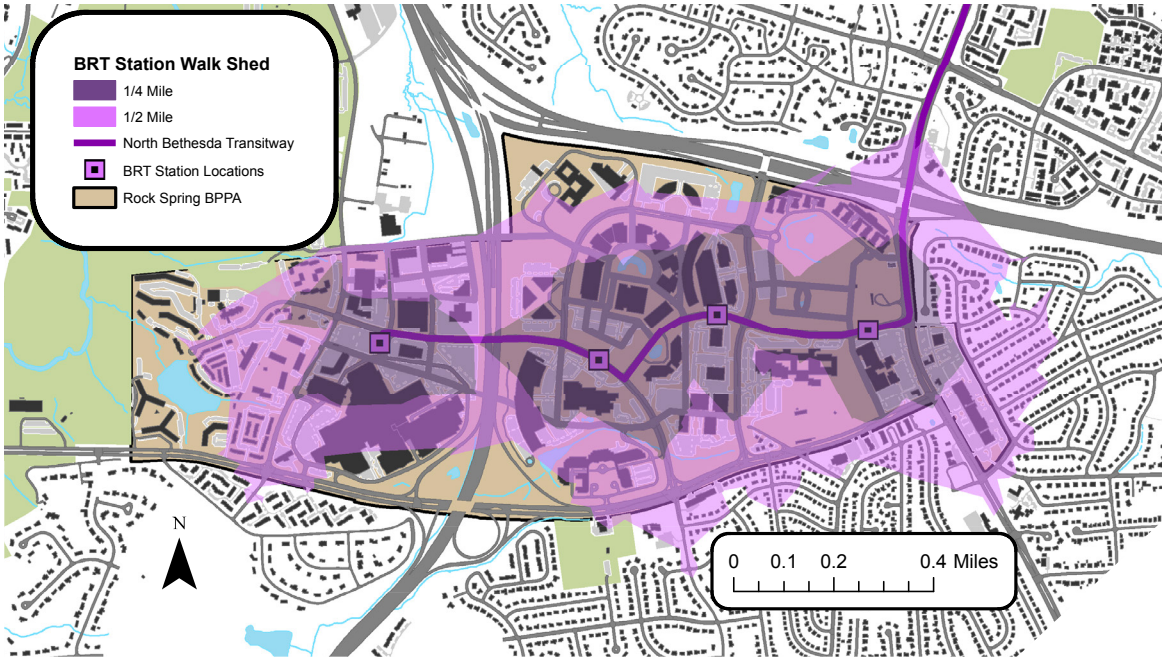
Alternative 2 proposes only three stations within the BPPA in order to improve the service efficiency and reduce the cost of construction of the RTS line. However, the average distance between stations within the BPPA is above the .2 mile - .5 mile threshold.

Alternative 3 proposes four stations, but does not include a station on Old Georgetown Road. Old Georgetown road has the highest traffic volumes of all the roads along the BPPA, and a station in the median could lead to highly dangerous situations for pedestrians and higher traffic impacts from station construction. The average distance between stations in Alternative 3 is within The BRT Standard's threshold, and is closest to the optimal .27 miles.

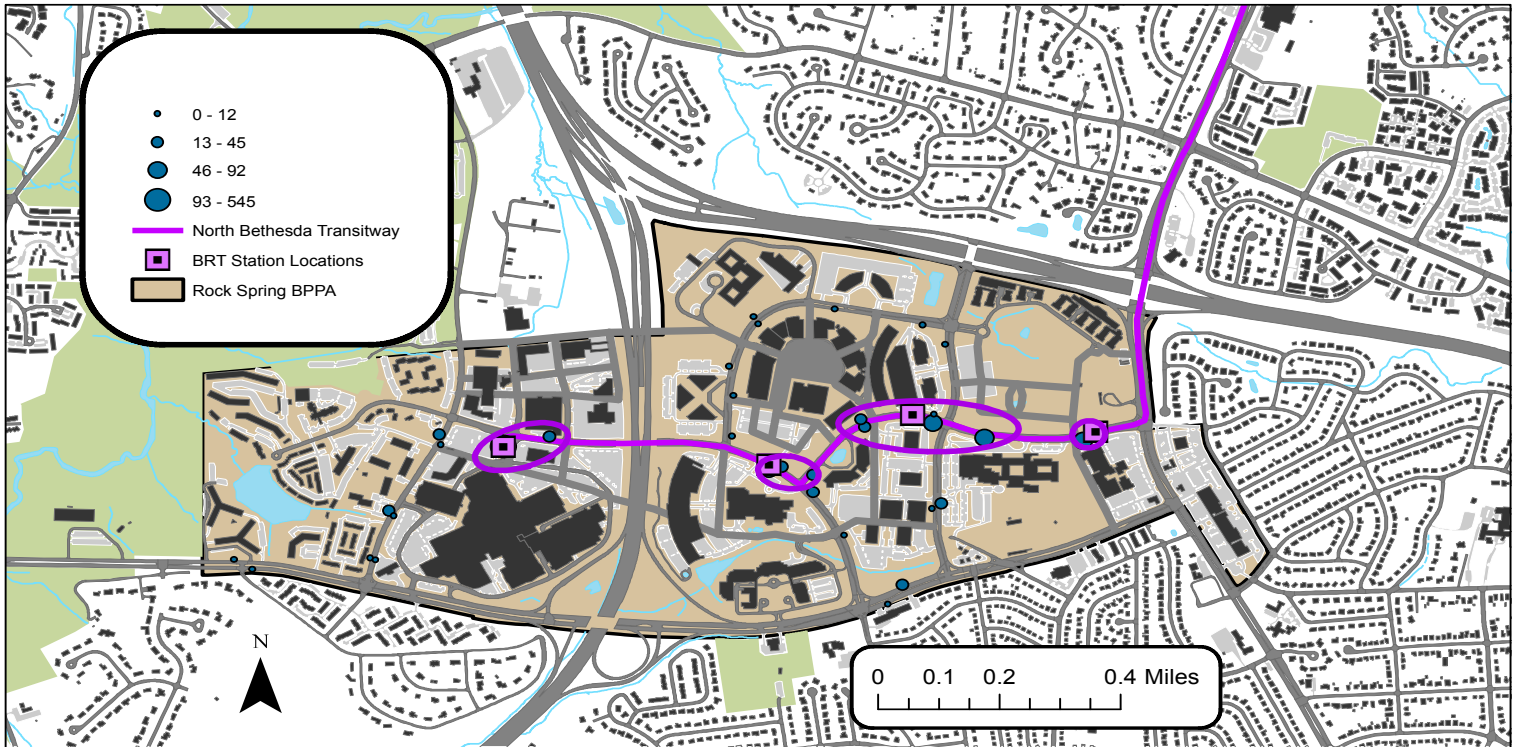
STATION LOCATIONS	WALKSHED COVERAGE		AVERAGE DISTANCE BETWEEN STATIONS
	.25 MILES	.5 MILES	
ALTERNATIVE I	.34 MILES	.92 MILES	.4 MILES
ALTERNATIVE 2	.26 MILES	.84 MILES	.54 MILES
ALTERNATIVE 3	.33 MILES	.88 MILES	.36 MILES

A walkshed analysis of the three alternatives revealed that the stations in Alternative 2 had significantly less reach than the other alternatives. Alternatives 1 and 3 had almost identical quarter mile walksheds. While the half-mile walkshed of Alternative 1 was larger than that of Alternative 3, the added area was located outside of the BPPA in the low-density neighborhoods to the north and east.This marginal gain in walking access to potential riders with Alternative 1 is not significant enough to offset the more optimal station spacing of Alternative 3. After analyzing the three station location alternatives, The Plan recommends Alternative 3.

WALKSHED: ALTERNATIVE 3



RECOMMENDATION: TRANSIT INTEGRATION



BUS STOPS: AVERAGE DAILY RIDERSHIP

RECOMMENDATION: INTEGRATE THE PROPOSED RAPID TRANSIT SYSTEM WITH EXISTING PUBLIC TRANSIT ROUTES TO BENEFIT CURRENT AND FUTURE RIDERSHIP

An important feature of a successful BRT system is integration with any existing local transit. For the North Bethesda Transitway (NBT), intersecting local transit includes the Montgomery County RideOn service, WMATA MetroBus, and WMATA MetroRail systems. At the eastern terminus, the BRT line will intersect with the WMATA Metro's Red Line at the White Flint Station. Within the BPPA, the BRT line will intersect with RideOn routes 6, 26, 42, 47, and 96 and WMATA Metro Bus routes J1, J2, J3, 14C, 14D, and N7. While the NBT intersects with these buses throughout the BPPA, all but the 14D stop at the NBT's terminus at the Montgomery Mall Transit Center.

Within the BPPA, The RideOn and WMATA Metro Bus stop locations along Fernwood Road and Rock Spring Drive will be shifted to co-locate with the BRT stations. This shift removes any transfer distance between the systems and also allows the local systems to utilize the dedicated lane of the BRT system. According to the Countywide Transit Corridors Functional Master Plan, sharing the dedicated lane with local bus service is necessary to boost peak hour peak direction ridership above the 1,000 rider threshold needed to justify dedicated lanes.

Shifting the local bus stop locations will cause customers to walk slightly farther distances to use those local transit services. An analysis of the boarding and alighting numbers at all of the existing stops within the BPPA shows that two highly frequented bus stops to shift are the stops in front of the Home Depot on Westlake Terrace and in front of Walter Johnson High School on Rock Spring Drive. Transit riders boarding and alighting near the Home Depot will have to use the Montgomery Mall Transit Center, and riders at the high school could choose either of the two adjoining BRT stations. This diminution of coverage is necessary for the efficiency of a dedicated lane in the median for both BRT and local bus services and removal of transfer distances between the BRT and local transit lines.

IMPLEMENTATION

RECOMMENDATION: CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program (CIP) provides a multi-year long-range plan roadmap to improve the county's infrastructure. The CIP will provide guidance and direction on how to effectively manage the county's capital and infrastructure assets. In order to make sure that the plan is feasible, it needs to be backed by strong fiscal policies that guide the plan through completion. The CIP will help promote with coordination of capital projects that are similar. For example, a major capital project is the proposed rapid transit system that will be going through multiple jurisdictions within Montgomery County. Effectively planning, coordinating, and scheduling finances will be important to make sure the Plan is on a trajectory for implementation and completion.

The recommended CIP will be a typical 5-year horizon and will include street construction, park improvements, mass transit, and schools infrastructure projects. Most of the costs within the CIP will be for street and landscape improvements to accommodate the new proposed RTS line in the Bicycle Pedestrian Priority Area (BPPA).

The CIP will be integral part of the planning implementation process, and will need to be crafted and carefully linked to the Plan to guide implementation efforts. The CIP should also be part of Montgomery County's annual budgetary process to make sure that implementation will be taken seriously. Finally, the CIP should focus on program planning that prioritizes the most important projects first and thus it should look at the implementation program in the next section to guide its funding sources.

NOTE: The recommended CIP will have a five-year horizon and is not attached to the current year's fiscal budget. The plan is in its draft phase and is not able to dictate how the current year's budget is structured nor will it be able to be part of the budget until it is passed by the Montgomery County Planning Board and the Montgomery County Council.

BENCHMARKS, TARGETS, AND PRIORITIES

The plan will focus on setting priorities on how to proceed effectively to make sure that the plan will be implementable by 2030. The system that will be used in this plan will be a simple "1-2-3" priority system. One means the step is a top-priority, which is critical to achieving the plan's objectives or a piece of the plan that needs to be completed immediately to make sure the next steps can successfully move forward; 2 means an important but not critical or immediate priority; finally 3 means a necessary supporting task, that will support 1- and 2-priority items.

There will also be other considerations when setting the priorities. These include making sure that the plan is politically realistic for the current environment. Moreover, the Plan will attempt to ensure the plan is financially realistic.

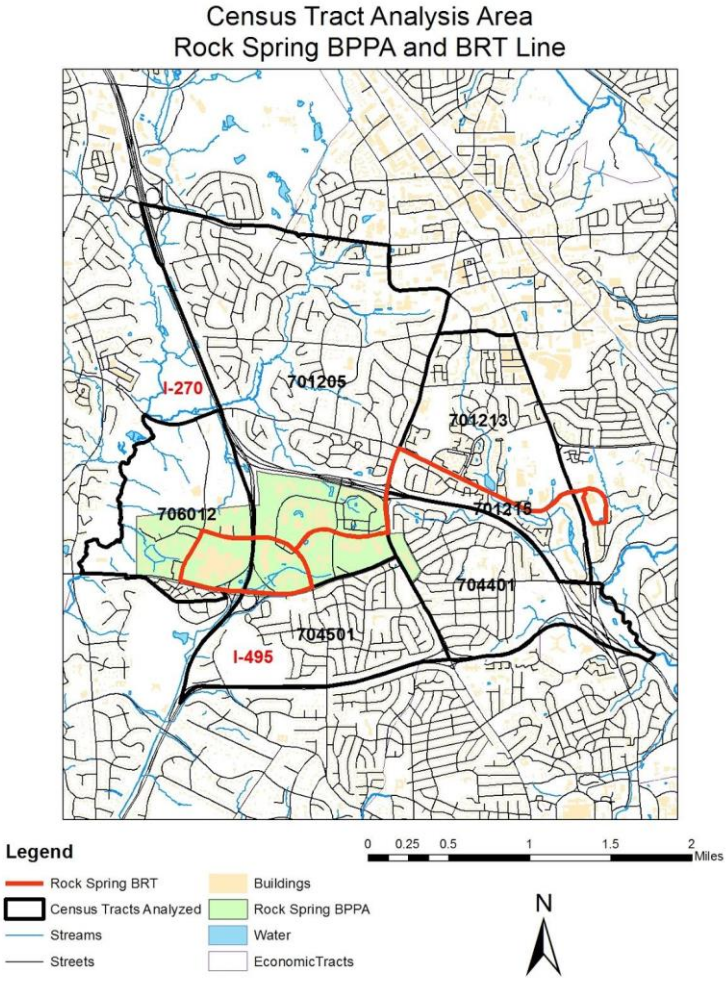
In addition to prioritization, the Plan will also provide its users with a phasing approach to implementation. This will include making sure that items that are most important to building the foundation of the plan are included in the initial phases so there is a strong foundation for future implementation. The planning process will also include taskforces and stakeholders that will guide the implementation of the plan. Furthermore, the plan will task agencies with responsibilities and targets to make sure that there is accountability behind each of the action steps within the plan. By giving agencies the responsibilities of seeing through the plan implementation, they are now accountable to the plan, its citizens, stakeholders, and public officials.

Appendices

Contents:

Demographics

Our team analyzed the demographic composition of the Rock Spring area by slightly extending the boundaries of the BPPA. The BPPA itself is contained within three census tracts, which were the most useful scale of geography for this demographic analysis. The map below, "Census Tract Analysis Area," shows the six census tracts that are adjacent to the BPPA.



Three additional tracts were analyzed in addition to the tracts that contain the BPPA. The additional three tracts either bordered the BPPA or were generally well connected to it, representing an "activity area" that we felt the BPPA would draw from. Statistics from these six census tracts, where residents likely interact with the amenities of Rock Spring in some way, are representative of the environment that Rock Spring is contained within. This six-tract area will be referred to as the "Rock Spring study area" in this discussion.

To gain the greatest possible understanding of this area while minimizing statistical error, our team utilized 5-year 2007-2012 American Community Survey (ACS) data from the US Census. This data, while it does average over time, and a particularly volatile economic time at that, provides the best statistical analysis of a small area given the limited sampling methodology of the ACS. The available ACS data for the Rock Spring area was separated into 4 general categories: economic, social, demographic, and housing. This appendix will present data gathered from the ACS on these four topics, and discuss implications for planning for the future of this area in the context of the plan and BRT introduction. Where appropriate, demographic data for various areas will be compared to countywide averages.

Economic Data

The best general indicator of an area's economic health can be found in income statistics. Montgomery County is one of the richest counties in the country in terms of annual household income, and the area studied for this plan is no exception to this trend. Table One, Income Data, shows that the area-wide median household income is actually higher than the countywide average by about $8,000, but there is significant variation within the various tracts. In particular, note that tracts 701215 and 706012 have significantly lower median incomes. These tracts consist of mostly multifamily housing (see the housing data section), in contrast to the other tracts, which are mostly single-family homes. By definition, incomes should be higher in suburban areas with single-family homes than in neighboring suburban areas that are mostly apartments or condominiums. Generally, suburban areas with very high incomes will use transit less than areas with low incomes, but the important conclusion to draw from this data is that the area does have significant diversity in median income, which supports transit usage.

Table One: Income Data

		Percentage of households annually earning:				
Census Tract	**Median Household Income**	**< $10,000**	**$10,000 - $14,999**	**$15,000-$24,999**	**$25,000-$34,999**	**Total less than $35,000**
704401	$144,700	3.6%	1.0%	1.7%	1.8%	8.1%
701213	$117,813	4.1%	1.5%	1.9%	2.9%	10.4%
701215	$79,153	2.5%	1.7%	5.6%	5.7%	15.5%
701205	$168,472	2.9%	0.4%	4.3%	2.4%	10.0%
704501	$120,417	2.3%	0.0%	3.5%	4.2%	10.0%
706012	$66,029	9.3%	3.6%	5.9%	9.7%	28.5%
Area Average	$116,097	4.1%	1.4%	3.8%	4.5%	13.8%
Countywide Average	$108,488	3.1%	2.0%	4.3%	4.9%	14.3%

The remaining columns of this table show the percentage of households that annually earn various amounts of income. The final column aggregates these numbers to show the percentages of households that earn less than $35,000 annually. This figure is a commonly used metric to define a "low-income" (but necessarily poverty-stricken) household that would be more likely to use public transportation due to the high costs of automobile ownership and maintenance. The Rock Spring study area actually has a

lower average than the county as whole for the percentage of households earning less than this amount, but only slightly. All tracts except for the two mentioned in the previous paragraph with lower incomes are beneath the county average. Tract 706012 has a particularly high total number of low-income households, which aligns with our knowledge that this tract has a significant number of public housing units. This tract is adjacent to the Montgomery Mall, near the planned terminus of the BRT line, providing some justification for increased transit accessibility for this portion of the Rock Spring area.

The ACS also tracks the commuting patterns of workers, based on the mode of travel they used for the longest portion of their trip to work. It is useful to compare this data against the income data to try to understand why certain populations are using particular modes of travel. Table Two: Commuting Modeshare displays this data. The Rock Spring study area sees higher public transportation usage and low rates of automobile commuting than the County as a whole.

Table Two: Commuting Modeshare

Census Tract	Drove Alone	Carpool	Public Transportation	Other	Worked at Home
704401	64.6%	3.6%	21.1%	0.3%	1.5%
701213	59.7%	4.0%	22.0%	1.7%	3.9%
701215	55.1%	3.7%	31.9%	1.6%	0.0%
701205	62.9%	3.2%	15.5%	1.3%	0.0%
704501	66.7%	5.6%	9.5%	1.1%	1.9%
706012	71.3%	3.3%	11.0%	2.6%	1.5%
Area Average	63.4%	3.9%	18.5%	1.4%	1.5%
Countywide Average	65.6%	4.8%	15.3%	2.2%	1.3%

There are some interesting points in this data that warrant further discussion. Predictably, the tracts that are closer to the Rockville Pike, where the WMATA red line runs, see higher public transit usage. The lower transit usage further from these high-frequency corridors suggests that increasing transit service to the west could improve the public transportation modeshare there. Tract 706012, the aforementioned low-income tract, actually sees much lower public transit usage and higher driving rates. This could be due to a problem of job accessibility - jobs for low wage workers who live in this tract may not be easily accessible, forcing these individuals into their cars.

We draw two conclusions from the economic data presented in this section. First, this area of Montgomery County is exceptionally wealthy, and expecting very wealthy residents to abandon their cars for transit may be unrealistic; however, there are pockets of low-income workers who need better access to transit, which BRT could provide. Second, this area already has higher public transportation usage than the

countywide average, likely due to the location of the WMATA red line; this fact, however, indicates that expanded rapid transit could increase public transit usage in the part of the area that is further from Metro.

Social Data

The ACS data informs us about the social characteristics of households in the Rock Spring study area. Table three: households and social characteristics, introduces us to the composition of households in the area. There are roughly 12,000 households in the study area, and many of them have children, but the percentage of households with children is significantly lower than the countywide average.

Table 3: Households and Social Characteristics

	Households		Percent of individuals who are:				
Census Tract	Total Households	Percent with Children under 18	Foreign Born	Immigrated before 2010	Immigrated after 2010	Non-english speaking at home	Spanish speaking at home
704401	1062	34.3%	32.0%	94.0%	6.0%	36.7%	12.6%
701213	3192	20.4%	28.8%	90.6%	9.4%	34.2%	10.5%
701215	2528	15.2%	37.5%	79.9%	20.1%	39.5%	12.3%
701205	2328	32.8%	22.8%	84.3%	15.7%	28.5%	5.2%
704501	1225	37.4%	31.9%	96.0%	4.0%	41.2%	13.9%
706012	1732	15.1%	54.5%	96.7%	3.3%	62.2%	11.3%
Area Average		25.9%	34.6%	90.3%	9.7%	40.4%	11.0%
Countywide Average		33.9%	31.1%	96.5%	3.5%	37.6%	14.8%

The Rock Spring study area is home to a significant percentage of immigrants. Countywide, 31.1% of residents were born in a different country, compared to 34.6% in the study area. The vast majority of these immigrants came to the US before the year 2010, but in the study area, nearly 10% arrived after 2010, compared to only 3.5% in the County. These immigration statistics are further reflected in the language spoken at home - over 40% of the study area residents speak a language other than English at home, more than the county average. There are, however, fewer spanish speakers at home as a percentage of the population. These immigration statistics, and especially the language statistics, are critical for public information and outreach for a new transit system. Planners must ensure that all residents understand how to use and access the new transportation system. On a general level, the higher percentage of immigrants in this area may be a good thing for transit, as immigrants may be more familiar with bus and other transit systems; however, more specific conclusions about the impact on transit are difficult to draw.

Another important social characteristic is the educational attainment of the population. Table 4: Educational Attainment of Individuals shows the amount of education that individuals over age 25 have. Note that “Some College” counts an associate’s degree or some completed college coursework. On average, the study area is better educated

than the county as a whole, as it exceeds the percentages of both bachelor's and advanced degree holders. This result is expected, given the higher levels of income in the study area.

Table 4: Educational Attainment of Individuals

Census Tract	Less than High School	High School	Some College	Bachelor's Degree	Advanced Degree
704401	7.2%	11.7%	10.8%	30.9%	39.5%
701213	0.9%	4.6%	12.4%	36.8%	45.2%
701215	2.1%	9.7%	12.0%	34.9%	41.2%
701205	2.0%	3.9%	18.2%	31.6%	44.4%
704501	6.2%	11.3%	19.1%	24.6%	38.8%
706012	3.2%	16.7%	17.7%	31.9%	30.6%
Area Average	3.6%	9.7%	15.0%	31.8%	39.9%
Countywide Average	8.7%	14.0%	19.6%	26.6%	31.0%

This data on social characteristics cannot be stretched in a particular direction to justify or eliminate the need for transit in Rock Spring. It does, however, indicate that Rock Spring is a well educated area with many immigrants, which may pose problems for outreach and planning. A well educated population is more likely to be engaged in the political process, and thus stronger opposition to public infrastructure could be a possibility. Planners must also carefully plan their interactions with the large immigrant population of the area to ensure that the ground truth of projects is understood by the public.

Demographic Data

The ACS also allows for a distributional analysis of the age of the population. Table 5: Age Distribution of the Population, presents the percentages of the population in three groups along with the median age. The study area, judged by median age, is actually older than the county as a whole, which is an expected result due to the large number of expensive single family homes, and the age of the neighborhoods. However, there is a fairly extensive amount of variance between the tracts in terms of the population distribution: the tracks that are in single-family neighborhoods are much more likely to have more people under the age of 20, while the tracts with multifamily housing have an older population.

Table 5: Age Distribution of the Population				
Census Tract	% under 20	% 20 - 59	% 60 and over	Median age
704401	24.9%	47.3%	27.7%	46.5
701213	16.5%	60.7%	22.9%	40.6
701215	15.2%	57.5%	27.3%	37.8
701205	27.4%	47.8%	24.8%	46.0
704501	25.6%	49.7%	24.8%	44.0
706012	18.1%	51.1%	30.8%	43.9
Area Average	21.3%	52.4%	26.4%	43.1
Countywide Average	25.4%	55.6%	19.0%	39.7

The age distribution has important implications for transit that further justify routing of a bus rapid transit line through this area. Older populations are generally more transit dependent, given their decreased incomes and potential physical limitations on driving. Montgomery County is currently in the process of planning for the aging of its established population and increased transit accessibility for elderly populations is a crucial aspect of this plan.

Less important for transit, but interesting nonetheless, is the racial distribution of the population of the area, which is shown in Table 6: Race and Ethnicity Statistics. Unsurprisingly given the high incomes of the area, Rock Spring is significantly more white than the county as a whole. This high percentage of white residents limits the numbers of black and hispanic residents, who live in higher proportion elsewhere in the county. The percentage of asian and pacific islanders is similar to the county average.

Table 6: Race and Ethnicity Statistics						
	Race					Ethnicity
Census Tract	% white	% black	% native american	% asian or pacific islander	% other	Hispanic (any race)
704401	81.5%	7.9%	0.6%	9.0%	1.0%	14.0%
701213	81.9%	3.9%	1.5%	12.4%	0.3%	8.8%
701215	72.3%	12.1%	0.4%	13.5%	1.8%	13.8%
701205	87.0%	2.9%	0.4%	9.4%	0.4%	3.3%
704501	83.1%	4.0%	0.0%	12.3%	0.6%	12.3%
706012	62.0%	13.9%	0.0%	18.3%	5.8%	12.0%
Area Average	78.0%	7.4%	0.5%	12.5%	1.6%	9.7%
Countywide Average	61.6%	17.0%	0.4%	13.9%	7.1%	17.0%

The ACS demographic data indicates that Rock Spring is a relatively less diverse, older area of Montgomery County. These factors do not have a major bias on the impact of transit, but serve as indicators that Montgomery County must continue to track and understand as the County changes in the future. The median age of this area will likely continue to rise as single-family homeowners age in place, and the high home values, as discussed in the next section, may preclude future increases in racial diversity.

Housing Data

The ACS tracks the composition of the housing units that surveyed residents live in. Table 7, Housing Units by Type of Structure, shows the total number of housing units per tract, and whether they are detached single family homes, attached single family homes, or part of multi-unit apartment buildings of two or more units. Census tracts are divided along neighborhood lines to show single family neighborhoods such as 704401 and 704501, versus 706012 and 701213, which are mostly multifamily units. This data is interesting because it shows the relative density of housing construction in the Rock Spring area - there are many more multifamily units on average in Rock Spring than in an average tract in the County. This density of housing construction supports transit in theory, but without including observations on the built environment and other factors, few conclusions can be drawn.

Table 7: Housing Units, by Type of Structure

Census Tract	Total Units	Detached	Attached	Multi-Unit
704401	1120	946	142	32
701213	3237	185	924	2128
701215	2730	89	402	2194
701205	2428	1920	143	352
704501	1262	1105	148	9
706012	1874	35	258	1581
Area Average	2109	713	336	1049
Countywide Average	1749	848	318	580

The ACS also provides information on home values and housing costs for residents. The Rock Spring study area, like Montgomery County as a whole, is very expensive in terms of housing costs, as seen in Table 8: Selected Information on Housing Costs. Note that the average median home value for the area is higher than the countywide number, even with two relatively low-value census tracts included in the calculation. These two low-value tracks are the same multifamily, dense tracts that mostly consist of multifamily housing units, which are of lower value than single-family homes, which dominate the very expensive tracts like 701205. A smaller percentage of the housing stock in Rock Spring is valued over one million dollars than the county as a whole, but this is likely due to the inclusion of the dense, lower value tracts.

Table 8: Selected Information on Housing Costs			
Census Tract	Median Home Value	% of homes worth > $1 million	% of residents paying over 35% of income for housing
704401	$643,700	13.9%	25.0%
701213	$444,900	3.6%	33.6%
701215	$295,500	0.7%	25.2%
701205	$785,700	21.4%	14.7%
704501	$624,200	0.0%	27.7%
706012	$303,500	2.8%	33.1%
Area Average	$516,250	7.1%	26.5%
Countywide Average	$492,643	7.6%	27.9%

The above table also shows the percentage of residents in the various tracts who pay more than 35% of their income in their total monthly housing payment. The average for the area roughly matches the county as a whole, but there is significant variation within the tracts. The tracts with higher home values seem to perform better in this metric, suggesting those who live there earn enough money to cover their housing payments. The lower-valued tracts show a significant housing cost burden for up to and over one third of the population.

Montgomery County faces interesting policy choices based on this information. Research has shown that improved access to public transit increases land values, which would further increase the home prices in this area. This could increase housing cost burdens for already burdened residents. On the other hand, increasing transportation options could reduce transportation costs such as car ownership for area residents, washing out some of the effect of increased housing costs.

Office and Retail Market

Office

Montgomery County has an ongoing contract with Partners for Economic Solutions (PES), a local consulting firm, to analyze the conditions of the commercial office market within the county. This report will not rehash what has already been made available to county policymakers, but a few key facts from that report should be reinforced to better understand the future of Rock Spring's office market. This report will also not replicate the analysis conducted in the PES study, and the conclusions drawn about the future of the commercial office market within Montgomery County are based on the PES data.

The most important fact drawn from the PES study is the differentiation between office markets in walkable, transit accessible locations such as Bethesda or Silver Spring, and office markets in auto-oriented business parks like Rock Spring. Across the county from the I-270 corridor to Route 29, these auto-oriented business parks are facing increasing vacancy rates, often in excess of 15 or even 20%. These auto-oriented business parks contribute significantly to the county's 11 million square feet of vacant office space. In fact, fully 10% of the vacant office space within Montgomery County is in Rock Spring, which has roughly 6 million square feet of total space, and about 1.1 million of that is vacant.

A quick analysis of data from PES shows that "mixed use business districts" contain about 22 million square feet of office space, and "office parks/clusters" contain about 26 million square feet. The difference in vacant space between the two areas is striking: 2 million and 5 million square feet, respectively (or 9% versus 20%). These different vacancy rates across types of commercial office development, and PES's presentation of the increasing vacancy trend in office parks, provides a clear implication: firms desire to locate near transit and other amenities. Mixed-use districts provide numerous benefits, at a slightly higher cost, that make location decisions much easier for firms in this age of higher transportation costs and changing social norms on transportation and residential location choices.

The PES study also provides a clear conclusion about the future of the commercial office market in Montgomery County: vacancy rates will remain high, especially in business parks. The Rock Spring area, in short, is not a desirable location for increased office development. The lack of interest from firms in business park locations provides justification for several aspects of this plan. First, adding quality, high-frequency transit service through a BRT line will increase desirability of the office space in the Rock

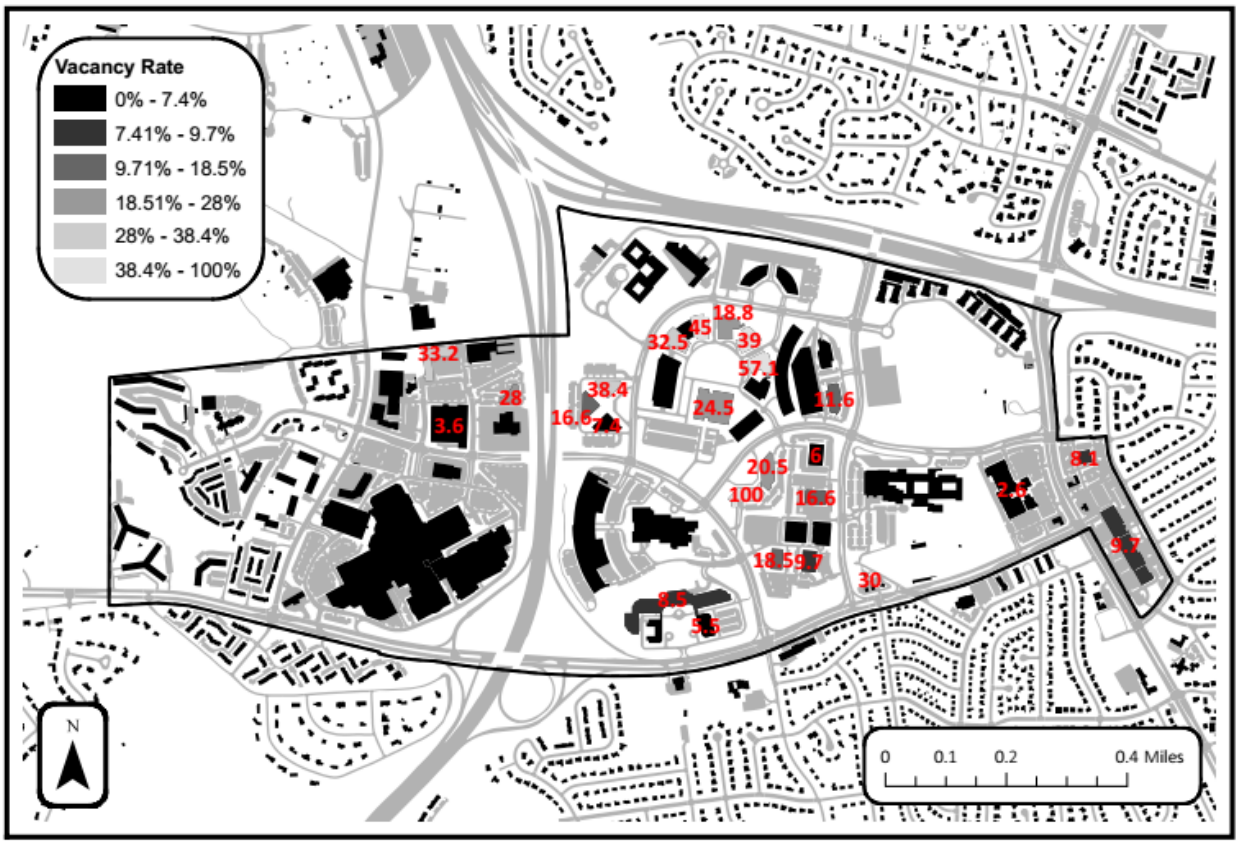
Spring area. Second, the lack of interest in office space and increasing vacancy rates make residential or even school/community space conversions viable.

Retail

Mostly due to the regional retail center of the Westfield Montgomery Mall, the Rock Spring BPPA is already home to 1.8 million square feet of retail use. While the mall makes up more than half of this retail space, there is significant retail space in the Home Depot adjacent to the mall, and in two neighborhood retail destinations near the intersection of Democracy Boulevard and Old Georgetown Road.

In short, given the current lack of residential development in Rock Spring, the retail market is saturated. Any new residents in the Rock Spring area, through office-residential conversions or new development, would have ample shopping choices. The shopping centers along Old Georgetown Road provide grocery, pharmacy, and restaurant options. The mall provides dining, entertainment, and significant retail options. The one retail category that is perhaps lacking in the immediate vicinity of the Rock Spring BPPA is “big box” retail, but a 10-15 minute drive to the Rockville Pike provides significant choices. Additionally, the Rock Spring area is close to the extensive retail options available in the densifying mixed-use centers of White Flint, Bethesda, and Rockville. New retail development in southwestern Montgomery County is mostly occurring in these mixed-use, transit accessible districts.

Vacancy Rates for Retail and Office Buildings with Available Space



Data courtesy of CoStar, Accessed November 19th, 2014

Choice of Bus Rapid Transit Alignment

The Rock Spring plan steps outside of its boundaries to make a choice that has yet to be made by Montgomery County. The Functional Master Plan designates two potential corridors for the Bus Rapid Transit line, and it was deemed to be within our scope of work to choose an alignment. The choice of alignment, to White Flint rather than Grosvenor, has important implications for Rock Spring's transformation from a suburban office park to a successful activity center. This appendix details the history of the North Bethesda Transitway, and presents a justification for the choice of alignment to White Flint.

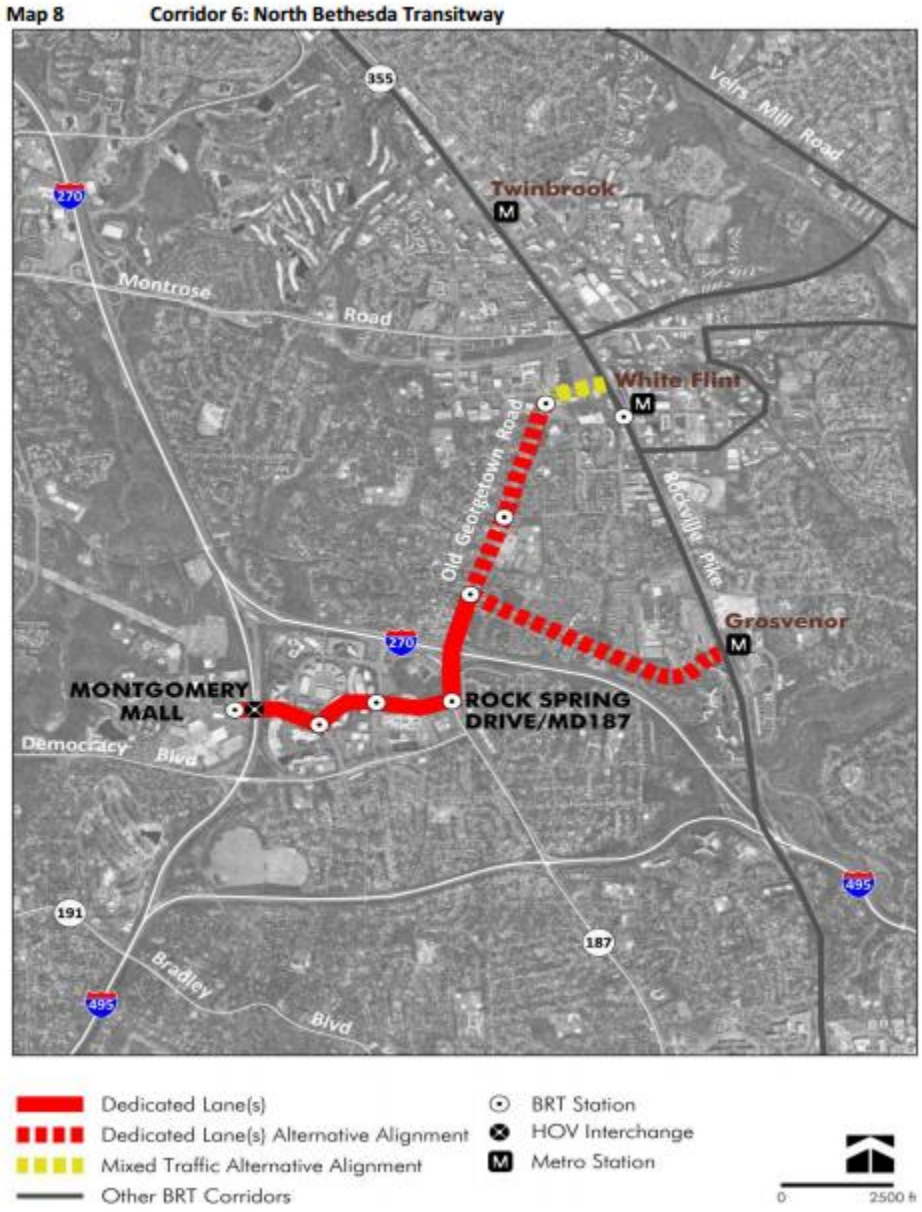
The origins of the planned BRT line through Rock Spring can be traced to the 1992 North Bethesda/Garrett Park Master Plan. This plan recommended a "transitway" of non-specified mode type be constructed from the Grosvenor Metro station, through the Rock Spring office park, to the Montgomery Mall. This recommendation in the master plan was based off of the County's "North Bethesda Transitway Feasibility Study," conducted by a private firm in 1992.

This report, which investigated the feasibility of light rail and monorail modes, found that implementing a transit system in the North Bethesda corridor would be feasible. This conclusion was made based on numerous factors, such as: low impacts to the surrounding neighborhood due to existing ROW, limited impact to the natural environment, increased efficiency of metrorail service, increased accessibility to the entire area, and granting of a competitive advantage to employers in the office park.

The County decided not to pursue construction of the North Bethesda Transitway in the 1990s and 2000s, but the alignment and justification for transit in Rock Spring were not forgotten. The 2013 Countywide Transit Corridors Functional Master Plan recommends implementing a 102-mile bus rapid transit network, comprising 11 total corridors. One of the corridors chosen matched the original 1992 North Bethesda Transitway exactly, but with one major caveat.

The new proposal for the BRT line through Rock Spring presented two possible alternatives for alignment of the BRT corridor. Figure 1 shows these two possible alignments. The original route of the transitway from the Montgomery Mall, through the office park, to the intersection of Old Georgetown Road and Tuckerman Lane remained the same, but at this point, two potential options are given.

Figure 1: North Bethesda Transitway, Potential Alignments



The original 1992 plan called for the transitway to head east and terminate at the Grosvenor Metro station. This option was kept, but a new option was added: an alignment which headed north on Old Georgetown road before turning east to meet the Rockville Pike at the White Flint Metro station. The functional plan does not offer a preferred route, or even comparative statistics about the two routes, besides information on right of way along the potential alignments.

Our planning group determined that the choice of alignment for the BRT system in the Rock Spring area would be crucial for the transit system's eventual success. We

created an objective “alignment scorecard,” which incorporated various statistics about the two alignments. The scorecard’s scoring system followed a simple scale, where points were issued for each individual statistic. If a statistic represented a positive or beneficial attribute for BRT, the corridor gained one point. If a statistic was deemed to be irrelevant or neutral in terms of BRT impacts, the corridor received no points. If a statistic was determined to have potential negative impacts on BRT, the corridor lost a point. This procedure avoided a complicated weighting mechanism, but remains objective, as the team tried to include as many relevant factors for which data was available.

Table one, presented below, displays the 25 factors measured, the relevant statistic for each alignment, and the score of +1, 0, or -1 granted to each alignment. The factors are grouped into three categories which were deemed necessary to quantify for their impacts on BRT: market, demographics, and transit compatibility. Note that for the various factors, a quarter-mile buffer along the alignment was used to aggregate the data. A justification of the scoring for each alignment follows. It is important to note that this is by no means a complete, scientific method of determining an alignment, as that was far outside of the scope of this project. Our team was interested in analyzing these two alignments, and we believe that our results can serve as an indicator for what would be found by a more thorough study.

Table One: Alignment Scenario Scorecard

Table One: Alignment Scenario Scorecard				
	Alignment One (Grosvenor)	Alignment Two (White Flint)	Alignment One Points	Alignment Two Points
Demographics				
Current # of Dwelling Units within Half Mile of Alignment	9,150	8,143	1	1
Number of Multifamily Properties Source: Montgomery County Property Layer (Spatial SDAT)	20	23	1	1
28 f% Recent Migrant (foreign born, entered 2010 or later)	1.70%	12.10%	0	1
% Under $35k (household income) (county average is 14.7%)	17.87%	15.78%	1	1
Households with Children (inverse correlation)	13.10%	11.80%	0	0
Zero Car Households (cars available at residence)	6.50%	12.80%	0	1
Percent Commuting by Public Transportation (workers age 16+)	38.60%	29.00%	1	1
Transportation				
Dedicated Lane Feasibility	Yes	No*	1	-1
Integration with other BRT Lines	1 line (355 Corridor)	2 Lines (355 corridor and randolph road corridor)	0	1
Integration with other transit systems and bike/shared use paths	Metro - Grosvenor	Metro - White Flint	1	1
Distance to Metro from Tuckerman and Old Georgetown Intersection	1.25 miles	1.25 miles	0	0
Number of Signalized or Impeded Intersections	3 (signalized)	5 (signalized)	0	-1
Market				
Retail Firms	15	55	0	1
Retail sqft	1,840,731	3,202,296	0	1
Office Firms	32	65	0	1
Office sqft	6,001,378	10,270,741	0	1
Community/Institutional Facility Employers (e.g. libraries, churches, schools)	19	16	1	1
Walkability within Mile of Termini	42	89	-1	1
Total Points			6	12
* The White Flint Alignment will run in mixed traffic for roughly one eighth of a mile near the White Flint metro station.				
Sources: Montgomery County Property Layer (Spatial SDAT), US Census 2007-2012 ACS data				

In the demographics category, both alignments scored one point for both total dwelling units and the number of multifamily properties along the alignment. The numbers suggest dense development along the corridors, and they were not drastically different across the alignments, especially given future development planned at White Flint. The White Flint alignment is host to a significant number of recent immigrants, who are more likely to be transit riders due to cultural differences. The Grosvenor alignment has few recent immigrants, but this does not count against it. Both alignments have significant proportions of households that have children (who we judge as less likely to be transit riders), but this does not count against either alignment. The White Flint alignment has a large proportion of households that are “car-free,” more than double the Grosvenor

alignment, for which we granted it one point. Both areas are already have strong public transit usage for trips to work, which we count as a positive factor.

In the transportation category, the White Flint alignment loses a point because it runs in mixed traffic (according to the Functional Master Plan) for several blocks near the White Flint metro. The Grosvenor alignment could run in dedicated lanes for its entire length, for which we grant it a point. The White Flint alignment could possibly allow for two connections to other BRT lines: the Rockville Pike line and Randolph Road Line. We grant the White Flint line a point for this connectivity, while the Grosvenor alignment is comparatively granted no points for only having one connection, also to the Rockville Pike line. Both alignments directly connect to a metro station on the Red Line, and not shown in the table is the fact that both alignments intersect with the Bethesda Trolley Trail (or nearby bike lanes): this connectivity to metro and bike facilities is counted as a point for each alignment. From the "branch point" at the intersection of Tuckerman Lane and Old Georgetown Road, both alignments travel 1.25 miles to their end points, so we count this category as neutral. The White Flint alignment faces 5 signalized intersections, potentially delaying travel times by more than on the 3-intersection Grosvenor alignment, so we subtract a point for White Flint.

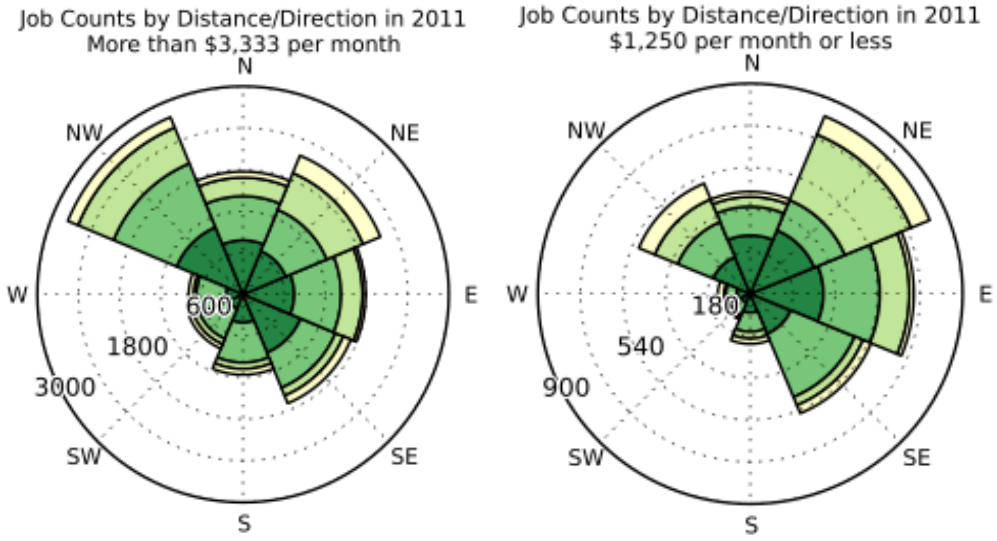
The market category is where the White Flint alignment pulls ahead of the Grosvenor alignment, as it greatly exceeds that alignment in number of retail and office firms and associated square footage of development. There is also the uncounted factor of future additional retail and office development in White Flint. Both areas have similar numbers of institutional facilities such as churches and schools. We used the "walkscore" metric available on the internet to compare the two areas (centered at the metro station). White Flint's walkscore is more than double Grosvenor's, due to the street-grid pattern and much larger number of retail amenities. Grosvenor's auto-oriented development structure lacks a street grid and there are few retail amenities, which are the main component of the walkscore metric.

For the final accounting, the White Flint alignment significantly outscores Grosvenor, despite its mixed traffic alignment that takes it through more signalized intersections. We believe that trip generation is highly dependent on both nearby residences but also commercial use, and by any metric, White Flint wins in the commercial use category. Montgomery County's continued investments into converting White Flint into a walkable, urban place stand in stark contrast to the stagnant, established land use plan at Grosvenor, which is stuck in the 1960s. Because of better connectivity and potential for greater trip generation, Montgomery County must be willing to take the risk of planning the more difficult alignment to White Flint.

Outside of the scorecard, our team also investigated Longitudinal Employer-Household Dynamics (LEHD) data, from the US Census. This data can be manipulated to present commuting patterns, by direction, into an employment area. The data can be further dissected to show these commuting patterns by income.

The two charts below show commuting into the Rock Spring area by two income categories. The income categories represent the highest and lowest annual incomes that the LEHD data can be divided into - $40,000 annually and $15,000 annually. We used these categories to approximate for professional and service employees, respectively. The radial distance from the center of each chart represents the number of employees coming from each direction - note that there are significantly more employees earning over $40,000. Unfortunately, the LEHD data does not allow for more distinct distributions of income to be defined.

Figure Two: Commuting Patterns by Direction and Income into Rock Spring



Regardless of the data constraints, the difference in commuting patterns to the Rock Spring area by income are striking. Low-wage employees come mostly from the eastern portions of the county, where housing is cheaper. The professional employees show more of an even distribution, but a notably larger portion comes from the wealthy NW portion of the county.

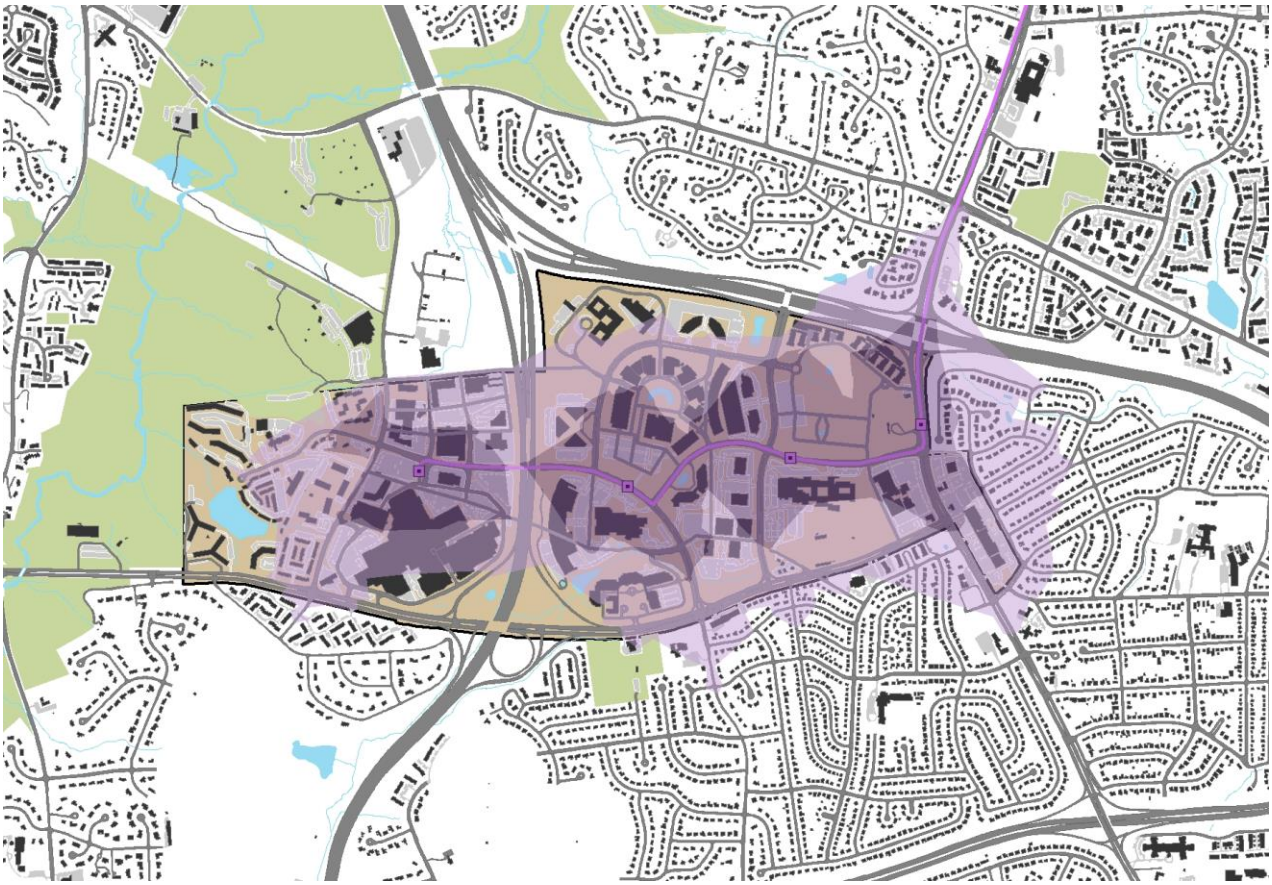
Both of these charts could be used to support construction of a BRT corridor to the east, to increase transit accessibility for low-wage workers. We believe that the alignment to White Flint may be crucial because of the significant number of low-wage employees coming from the northeast, which is oriented to the Aspen Hill/Olney area. This area could potentially connect to White Flint along the Randolph Road BRT corridor. The

high number of professional employees also coming from the east shows that better transit accessibility to the Rock Spring area could draw in these employees as well.

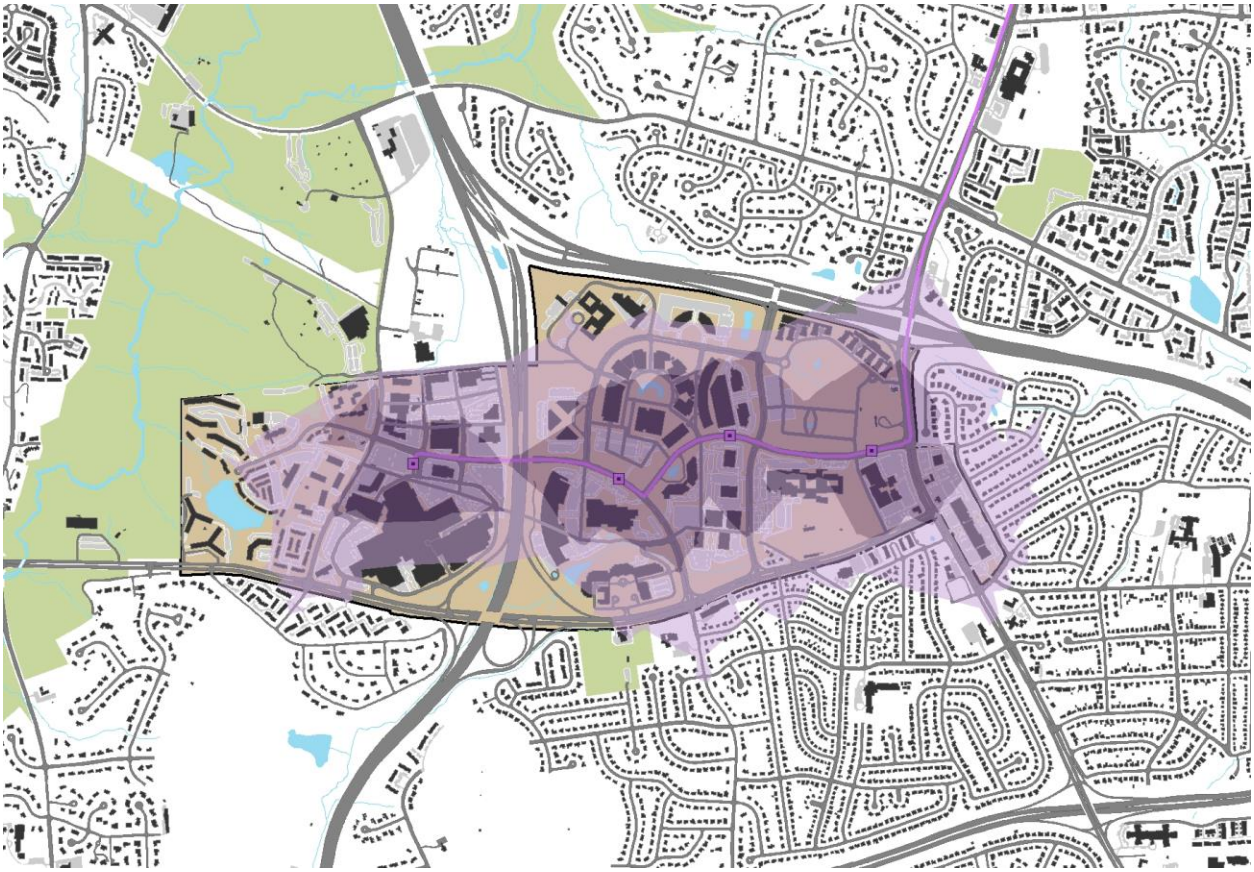
Transportation

Table One: Station Location Alternatives			
Station Locations	**Station Walkshed Area (square miles)**		**Average Distance between Stations (miles)**
	Quarter-Mile	**Half-Mile**	
Alternative 1	0.34	0.92	0.40
Alternative 2	0.26	0.84	0.54
Alternative 3	0.33	0.88	0.36

Map One: Alternative One with Walkshed



Map Two: Alternative Two with Walkshed



Map Three: Alternative Three with Walkshed

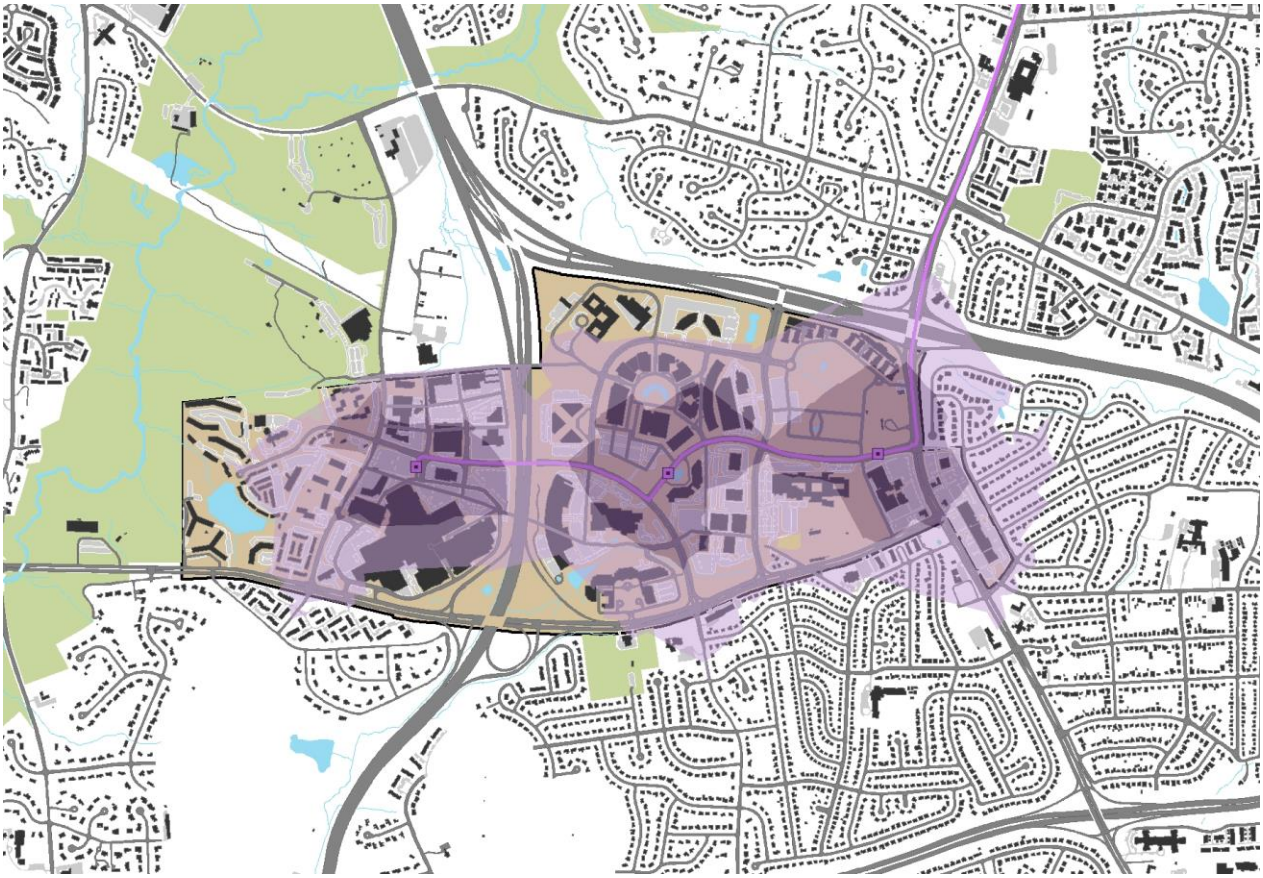
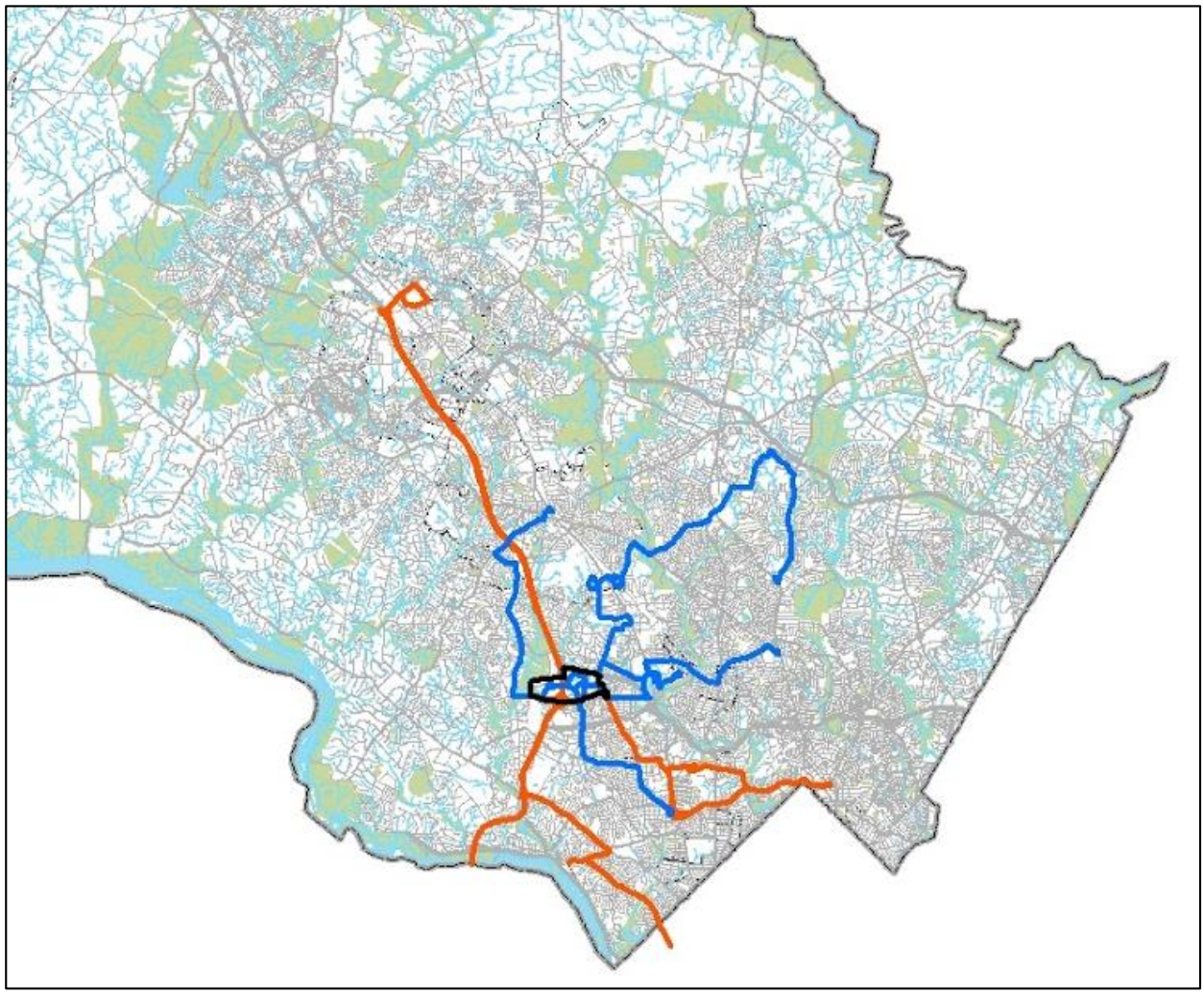


Table Two: Current Bus Ridership (RideOn and WMATA)	
RideOn Route	**Daily Ridership (FY2013)**
Route	**Boardings**
6	209
26	3753
42	399
47	1746
96	644
WMATA Route	**Average Weekday (May 2014)**
J1,2,3	6,725

Map Four: Current Bus Service



Red = WMATA
Blue = RideOn

Parking

Existing Calculations

The current state of parking is estimated using parking ratio requirements for the amount of existing square feet by land use type.

Table One: Parking Calculations

	square feet	minimum spaces required per 1000 sqft	minimum number of spaces	maximum spaces allowed per 1000 sqft	maximum number of spaces
office	5,887,780	2	11,776	3	17,663
retail	1,831,216	3.5	6,409	6	10,987
industrial	0	-	-	-	-
other	677,959	1.5	1,017	2.25	1,525
residential/dwelling units	1,372,647	1	1,373	1.5	2,059
total	9,769,602	-	20,574	-	32,235

The numbers above assume that all residential dwelling units are two bedroom multifamily units, which generally aligns with the current type residential dwellings in the BPPA. The calculations also assume that “other” uses are private club or service organizations. As there are no religious institutions within the BPPA, the team did not factor in minimum and maximums for places of worship, which would significantly skew the “other” category.

To determine a rough estimate of the number of spaces currently in the BPPA, we average the minimum and maximum number of required spaces. This suggests that there are roughly 26,405 spaces in the Rock Spring BPPA. As the numbers above use current parking requirements, which permit fewer spaces than historical patterns of development, it is likely that 26,405 may be a conservative estimate. In general, Costar suggests that most of the office developments provide parking at or above the current maximum of 3.00 spaces per employee.

Using the averaging method described above, we are able to estimate the number of spaces devoted to residential use to get a general idea of the number of spaces provided for the area’s current workforce:

Table Two: Spaces	
approximate number of spaces	26,405
approximate number of residential	1,716
approximate number of workforce	24,689

Using existing square feet totals for office and retail uses, we estimate the number of people currently working in the BPPA:

Table Three: Estimated Number of Employees			
	square feet	**employee per square feet**	**total number of employees**
office	5,887,780	1/258	22,821
retail	1,831,216	1/510	3,590
total	-	-	26,411

If we divide the current estimated number of workforce spaces (calculated above) by the number of the BPPA's employees, we end up with a current ratio of .93 spaces per employee. This suggests that roughly 7% of the area's workforce carpools, bikes, walks, or uses public transportation to get to work.

Buildout Requirements – 2040

We use the following table to calculate parking requirements based on our buildout assumptions:

Table Four: Projected Parking Calculations					
	existing	**pragmatic buildout**		**tweaked pragmatic**	
	square feet	**square feet**	**% increase**	**square feet**	**% increase**
office	5,887,780	7,266,475	18.97	7,266,475	18.97%
retail	1,831,216	5,733,666	68.06	2,746,824	33.33%
industrial	0	76,902	100.00%	0	0%
other	677,959	954,118	28.94	954,118	28.94%
residential	1,372,647	8,024,659	82.89	9,816,911	86.02%
dwelling units	1,194	6,856	82.58	6,392	81.32%
total	9,769,602	22,055,821	55.71	20,784,328	53.00%

Both the pragmatic and tweaked pragmatic scenarios assume relatively the same holding capacity as currently allowed. Rather than increase density, density is shifted to different uses—mainly residential. For employee requirements, parking estimates follow:

Table Five: Projected Number of Future Employees			
Tweaked Pragmatic Scenario	**square feet**	**Employee per Square Feet**	**total number**
office	7,266,475	1/258	28,165
retail	2,746,824	1/510	5,386
total employees	-	-	33,551

For planning employee parking demands, we choose to plan by design rather than by typical need. We deem this method rational as the North Bethesda Transitway BRT will provide quality service that will link with both the Metro and the 355 BRT line.

The current modeshare data suggests that those who drive to work alone constitute 80.9% for Office Park employees and 73% for Mall employees respectively. Given this, it seems appropriate to shoot for modest gains with BRT service. If we assume that 75% of *all* the BPPA's employees will drive alone and require one single space, only 25,162 parking spaces are required. This number is only slightly larger than our estimate for the current parking facilities within the BPPA, an estimate that we again believe to be quite conservative. Given this, the issue for the BPPA isn't an adequate amount of parking, but moreover parking location and parking management.

Walter Johnson High School Current Conditions

Walter Johnson High School is a sought-after high school serving several areas in Montgomery County including northern Bethesda, Garrett Park, southern Kensington, and southern Rockville. The school is located in an area with high-tech and hospitality based companies providing opportunities for the high school and surrounding businesses to work in synergy. Some of the major employers in the area include IBM, Lockheed Martin, the National Institutes of Health, the Bethesda Naval Hospital, and Marriott.

Starting in the fall of 2007, ⅓ of the high school was placed under construction. The Montgomery County Public Schools (MCPS) replaced the classrooms going through the renovation process with 44 portables. The modernization project was completed in 2010. The modernization was contracted to the Henley Construction Company. The project had a $60,000,000 budget and was completed through five separate contracts. The project was split into three distinct phases which provided a mix of additional classroom space, outdoor space improvements, renovation of the auditorium space, and modernizing the exterior of the high school.

Despite these renovations the high school will reach capacity once again beginning in the 2017-2018 school year[1]. Although the excess capacity will be small at first, by 2023 the school will be at 120% capacity or over capacity by 464 students.

A major criticism in local community plans and school plans is the lack of coordination between the plans[2]. This plan seeks to alleviate this criticism and build into the plan ways in which Montgomery County Schools can work towards adhering to local urban plans that work towards community building and Smart Growth goals in the County. Although the Montgomery Planning Department looks at consistency between M-NCPPC approved and master plans; more needs to be done including implementing innovative design practices outlined in this Plan.

[1] Montgomery County Public Schools
[2] Infrastructure Planning and Finance, Vicki Elmer & Adam Leigland

Land Use

Rationale for OPRZ Designation

The properties chosen for OPRZ designation all fall within the central region of Rock Spring. These properties are all currently zoned EOF, which only allows 30% of a given property's gross floor area to be used for residential space. None of the properties within the zone currently host residential uses. Our consultant team analyzed these properties by comparing each property's current FAR with the max FAR allowed by the EOF zone. Seven of the eighteen properties recommended for the floating zone are overbuilt or have no remaining FAR for residential development. Six of the eighteen properties have development potential that exceeds 30% of allowed FAR. This means that, per current zoning, after space is maxed out for residential development, the property will still retain some development potential *that cannot be used for additional residential space*. Finally, the remaining properties have development potential, but residential development is unlikely given the low amount of remaining allowable density. In short, additional residential use may improve land value and utility, but the current EOF zone limits land potential and value across these eighteen properties.

As the floating zone map indicates, we do not recommend a number of properties in the current EOF zone's center for floating zone designation. These properties have neither the space to accommodate new additional residential uses nor the age requisite of a financially viable retrofit.

Holding Capacity and Buildout

Detailed holding capacity scenarios, calculated by tax account, are available via GoogleDrive through the following link:

https://drive.google.com/file/d/0B54P9qrboPctUDcxV2ZkdEg3Z3M/view?usp=sharinghttps://drive.google.com/file/d/0B54P9qrboPctUDcxV2ZkdEg3Z3M/view?usp=sharing
https://drive.google.com/file/d/0B54P9qrboPctUDcxV2ZkdEg3Z3M/view?usp=sharing
The last sheet of in the .xls file details assumptions and rules associated with the buildout scenarios.

Projected Buildout Scenario – Pragmatic & Tweaked Pragmatic

We accept the "tweaked pragmatic" scenario for our employment and housing calculations. This scenario borrows from the "Max Trends" scenario, was revised to account for present and likely development, and then tweaked again based on floating

zone and market conditions. For the tweaked pragmatic scenario, some density was shifted across uses as allowed by the flexible zones. The team deemed this necessary per current market conditions.

Table One: Existing, Pragmatic, and Tweaked Pragmatic Buildout Scenarios

	existing square feet	pragmatic buildout square feet	% increase	tweaked pragmatic square feet	% increase
office	5,887,780	7,266,475	18.97	7,266,475	18.97%
retail	1,831,216	5,733,666	68.06	2,746,824	33.33%
industrial	0	76,902	100.00%	0	0%
other	677,959	954,118	28.94	954,118	28.94%
residential	1,372,647	8,024,659	82.89	9,816,911	86.02%
Dus	1,194	6,856	82.58	6,392	81.32%
total	9,769,602	22,055,821	55.71	20,784,328	53.00%

Holding Capacity with Expected Floating Zone Changes

The floating holding capacity allows for a great deal of flexibility and additional density. The following numbers represent maximum potential within the floating zone based on the “Max Trends” scenario. The discrepancies between the original “Max Trends” buildout scenario can be accounted for by the additional 66% FAR increase within floating zone properties. In addition, office square feet rises due to the substitution of actual (existing on the ground today) office uses for floating zone properties (rather than countywide trends). Thus, table one below does not accurately project use space beyond residential.

Residential dwelling units are projected assuming that some properties as multifamily (1,150 square feet per apartment) and some new development will be small townhomes (2,000 square feet per townhouse). As shown, we project the addition of 5,198 total units, 2,736 of which will occur as floating zone developments. For the table results, Residential square feet are accepted as likely, and thus accepted for the “Tweaked Pragmatic” Scenario.

Table Two: "Max Trends" with "OPRZ Substitutions".	
Total Square Feet	25,947,882
Office	9,524,984
Retail	5,577,254
Industrial	76,902
Other	988,227
Residential	9,816,911
Dwelling Units	6,392
Existing	1,194
New Additional	5,198
Within Floating Zone	2,736
Outside of Floating Zone	2,461*
* Residential development outside of the floating zone is unlikely, except potentially within the CRT zones north of Montgomery Mall.	

Holding Capacity Scenarios "Thought Experiments" Based on Current Zoning

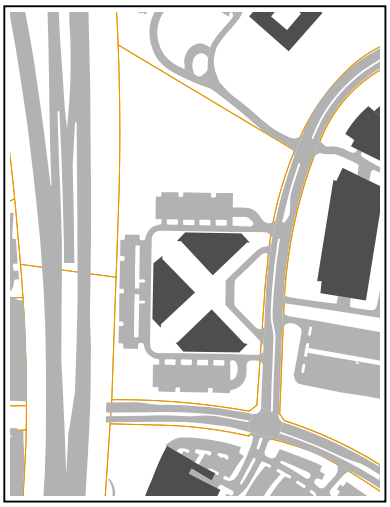
The following scenarios were developed using current zoning and do not consider the floating zone. They assume no zoning changes and do not factor in variances or likely development. As current zoning allows flexibility, each scenario pushes either office, retail, residential to its max capacity. The "Max Trends" scenario is based on average proportions of use for existing properties with the same zones. This "thought experiment" informed both the "pragmatic buildout" scenario and "tweaked pragmatic" scenario above.

Table Three: Holding Capacity Buildout Scenarios					
	No Change	**Max Trends**	**Office Glut**	**Surplus Shopping**	**Overly Neighborly**
Office	5,887,780	6,240,166	17,233,597	3,295,111	3,295,111
Retail	1,831,216	6,296,383	0	11,467,152	9,467,391
Industrial	0	76,902	0	0	0
Other	677,959	636,238	0	0	0
Residential	1,372,647	8,545,776	4,561,868	7,033,202	9,032,963
DUs	1,194 DUs	7,433 DUs	3,129 DUs	5,494 DUs	10,001 DUs
Total Square Feet	9,769,602	21,795,465	21,795,465	21,795,465	21,795,465

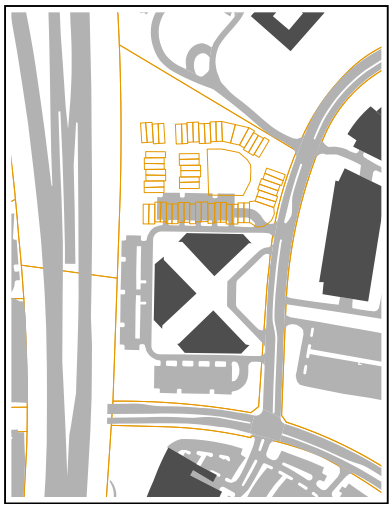
Property Transformation Maps

The following series demonstrates a selected EOF's property's redevelopment within the regulatory framework of the OPRZ.

existing



subdivision/site plan



post-development