MEMORANDUM: Station Area Planning

To:	Howard County Office of Transportation, Department of County Administration
From:	Sabra, Wang & Associates, Inc.
Subject:	Howard County BRT Phase II Station Area Planning Overview
Date:	September 24, 2015

1 Purpose

The purpose of this memorandum is to document the character of the surrounding development for each of the 16 proposed Bus Rapid Transit (BRT) stations within Howard County (as of November 25, 2014), and to provide an overview of station access considerations stemming from the development pattern of each station and the role of each station within the larger Howard County BRT system.

2 Station Area Evaluations

Each station area has been evaluated by Sabra, Wang and Associates (SWA) based upon the role that the station would play within the overall BRT system and the development pattern in the vicinity of each station with a particular emphasis on walkability. For each station, the key connections that should be the focus of future station access planning efforts have been identified. The assessments below are summarized in Appendix A: Station Summaries by Line.

The access priorities for a transit station are largely determined by the role that the station will play as part of a larger network. A balanced transit system will necessarily need a balance of station roles, from stations that are heavily focused on providing access to the system in the AM rush for commuters who arrive by car or feeder bus from a wide capture area (*Collector* stations), to stations more focused on providing access to a variety of destinations within a walkable distance (*Mixed-Use Activity Center* stations). For the purpose of this technical memorandum, SWA has categorized all stations within the following five roles. In some cases, both primary and secondary roles have been defined for stations that are expected to perform multiple functions on a consistent basis. In those cases, the station access priorities would be a blend of the needs identified for the primary and secondary roles.

It should be noted that final station locations are not known with a high degree of specificity at this time. The initial analyses conducted to date for the Howard County BRT system, including ridership estimation, utilized general locations for stations (for example, *US 29 & MD 32 Interchange*) which are meant to stand in for any viable station location within the immediate vicinity. This technical memorandum includes discussion of what specific locations within the previously identified general locations could conceivably accommodate BRT station facilities. Additional analysis will be required to fully evaluate these potential station sites in terms of available land to construct required infrastructure, vehicle routing efficiency, pedestrian access, and other considerations. The pedestrian walkshed maps included here are centered on points near the center of the generalized station areas that may or may not prove viable as station locations, and are meant to illustrate general walkability within the overall station areas. Pedestrian walkshed maps are included in Appendix A.

Table 1: Station Roles

Station Roles	Description	Ridership Pattern	Importance of Access Facilities for: Park & Ride/ Kiss & Ride	Connecting Bus Routes	Pedestrian/ Bike
Collector	• Focused on providing peak-period access to the transit system for commuters. • Access emphasis is on parking facilities and transfers from feeder bus to BRT.	• High boardings in AM peak • High alightings in PM peak • Little ridership outside of peak periods	●	●	○
Distributor	• Similar to Collector, but at the employer end of commute trips. • Focus is on providing transfers to last-mile feeder bus service to major employment centers.	• High alightings in AM peak • High boardings in PM peak • Little ridership outside of peak periods		●	○
Mixed-Use Activity Center	• Stations in densely developed areas with a mix of uses including employment, retail, and possibly entertainment. • Destinations are within walking distance of the station.	Ridership more distributed throughout the day, with less pronounced peak periods		○	●
Minor Activity Center	Similar to mixed-use activity center on a smaller scale, with less complete mix of uses.	Ridership more distributed throughout the day, with less pronounced peak periods		○	●
Transfer Point	Location with opportunities to transfer to other major regional transit service, such as subway, light rail or commuter rail.	Dependent on the service pattern of the connecting transit service	○	●	●

● = primary importance; ○ = secondary importance

2.1 US 29 Corridor Stations

2.1.1 Mount Hebron

Mount Hebron Station, as the northern terminus of the US 29 line, would serve primarily as a ridership collector. As such, parking facilities and feeder bus services would be of particular importance for this location. A park & ride facility is currently planned directly north of the intersection of US 29 and Rogers Avenue, which would be the logical location for a future Mount Hebron BRT station. That location provides excellent access to both US 29 and I-70, and its direct access to those highways affords the possibility of minimizing traffic impacts to the surrounding neighborhoods.

Development Pattern

The immediate vicinity of the likely Mont Hebron Station site (within ½ mile) consists of single-family home neighborhoods laid out in a suburban pattern that lacks sidewalks or any sort of street grid. As a result, the effective station walkshed is considerably constrained by the development pattern. The only no-residential land-use within a one-mile radius of the station site are four schools (one high school, one middle school, and two elementary schools), which are unlikely to generate any transit trips, but whose traffic patterns would need to be accounted for in planning a BRT station.

Additional residential development very similar to the existing pattern is planned for slated for the area directly to the east of the station site. The estates of Patapsco Park will consist of 195 single-family housing units on 123 acres of land, with a single neighborhood entrance to Rogers Avenue.

Key Connections

The most critical connection for this site will be for park & ride passengers traveling from the east and west along I-70, as well as from residential areas to the north such as Randallstown and Milford Mill. Feeder bus service from these same areas will be an essential component of station access for this terminal station. MTA local bus service, which currently extends only as far as the Woodlawn area, could be extended to the Mount Hebron BRT station in order to provide access from the entire Baltimore region.

While the station will likely be heavily weighted to trip originations in the AM peak, the high employment areas around Security Square Mall, the Social Security Administration, and Windsor Mill could provide a strong market for shuttle service for workers to and from the BRT station. The proximity of the Patapsco State Park creates the potential for weekend shuttle service to and from the park, if enough potential ridership can be identified.

Pedestrian amenities linking the neighborhoods immediately surrounding the station to the station location should be improved in order to facilitate pedestrian and bicycle access and avoid “close-in” auto commuting to the station from within a mile. A direct pedestrian/bike connection to Patapso State Park would possibly encourage access to the park even more than potential shuttle service.

2.1.2 US 40 West

The US 40 station area is characterized by large, auto-oriented shopping centers, and as such, walkability is minimal. Several of the shopping centers present potential station locations, most notably the Chatham Station, Village Green, or Golden Triangle shopping centers. Each would need to be evaluated in terms of their ease of access from US 29, the potential to provide circulator service to nearby destinations, and the availability of parking to be allocated to transit customers.

Development Pattern

Land use within one-half mile of the US 29/US 40 interchange is dominated by large strip mall shopping centers and standalone big box retailers. Beyond that distance, the area is primarily characterized by single family home residential neighborhoods, with a concentration of multifamily housing to the northeast centered on Town and County Boulevard and Ridge Road.

Pedestrian connectivity within the area is very limited. Both US 29 and US 40 are major barriers to pedestrians, essentially splitting the area into four potential station areas. The potential to improve pedestrian connectivity through improved infrastructure is likely limited, and therefore circulator bus service, potentially a combined circulator serving the Mount Hebron and Long Gate stations as well, would be critical to providing access to nearby trip generating land uses.

Key Connections

Nearby residential areas are the most critical connection for this station, followed closely by the numerous shopping centers in the area. Less than two miles to the east is the small downtown of Ellicott City, which includes the Howard County Courthouse, as well as shopping and dining opportunities in an historic downtown setting. The US 40 station may provide a better opportunity to establish a connection to MTA local bus service via Woodlawn or Catonsville, as US 40 is a more suitable bus service corridor than either I-70 or the local roads that serve the Mount Hebron station location.

2.1.3 Long Gate

The Long Gate Station would serve primarily as a ridership collector, with a secondary role as retail activity center. The Long Gate Shopping Center is the presumed station location, perhaps with a shared park & ride facility serving the BRT on weekdays and the retail center on weekends.

Development Pattern

The Long Gate station area is dominated by single-family home neighborhoods, which are laid out in a suburban pattern with no street grid. Major highways (US 29 and MD 100) break up the area and present significant barriers to walkability. Other land uses include the Long Gate Shopping Center itself, as well as three schools and the Meadowbrook public park. A townhouse development slated to be built adjacent to the shopping center will not change the overall character of the area, but will provide more potential passengers within the walkable radius of the station.

Key Connections

Park & ride facilities and feeder bus service are the most important access needs for the station. Shuttle service to the nearest employment centers on Red Branch Road and Columbia 100 Parkway would help to balance the ridership pattern of the Long Gate station, facilitating more AM alightings and PM boardings. The Dorsey's Search shopping center is another logical destination for shuttle service from Long Gate.

The residential neighborhoods of Dunloggin, Autumn Hill, & Wheatfield are close enough for effective pedestrian and bicycle access to Long Gate, but are not well connected to the Long Gate shopping center. Improved pedestrian connections to these areas could bolster BRT ridership from those areas and avoid "close-in" auto commuting to the station from within a mile.

2.1.4 Columbia Town Center

Columbia Town Center represents the most developed mixed use activity center on the Us 29 corridor, and likely the station most tilted towards the destination trip end as opposed to trip origin. There are several possible station locations within the overall Columbia Town Center area, with a location close to the Columbia Mall and the Lakefront area being ideal.

Development Pattern

The dominant land use in the Columbia Town Center is the Columbia Mall itself. Surrounding the Mall are a variety of potential ridership generating land uses, including multifamily residential neighborhoods, educational facilities, office buildings, and the Merriweather Post Pavilion. Walkability is strong in the Columbia Town Center area. While there are a number of large parking lots surrounding the Mall, the area features a fairly well-developed street grid, and excellent sidewalks throughout.

The approved Downtown Columbia Master Plan envisions a redesign of the area as a true downtown area, with a complete street grid, ground-level retail facing the street on all blocks, and parking relocated to decks in the interior of blocks. Realization of the master plan would increase the degree of walkability and transit supportiveness beyond the relatively high level currently found there.

Key Connections

As a mixed-use town center, pedestrian connections are the most vital in the Columbia Town Center area. Direct pedestrian connectivity to all parts of the town center is vital, although connectivity to the Mall and Lakefront areas are of primary importance. Merriweather Post Pavilion represents another strong ridership generator during its event season, and strong pedestrian connections to that facility, and/or shuttle service between the BRT station and the arena, should be provided. Other areas to the west of Columbia Town Center warrant shuttle service as well, including Howard Community College, the Wilde Lake Village Center, and the Joseph Square Shopping Center.

2.1.5 MD 32

There are are few viable locations for a station location in the vicinity of the US 29/MD 32 interchange, due to the lack of easy access off of and then onto US 29, unless land can be acquired near the Seneca Drive interchange for a station site. A station in this area would function as a collector primarily, due to the lack of major activity centers nearby.

Development Pattern

The MD 32 station area is dominated by single-family home neighborhoods, which are laid out in a suburban pattern with no street grid. Major highways (US 29 and MD 32) break up the area and present significant barriers to walkability. Other land uses include the Atholton Shopping Center, as well as two schools and a low-density office park to the southeast.

Key Connections

The most critical access need for this station would be park & ride facilities which can accommodate transfers from feeder bus service. Improved pedestrian connections to the surrounding neighborhoods would help to avoid “close-in” auto commuting to the station from within a mile.

2.1.6 Maple Lawn

The Maple Lawn Station area represents the second most intense mixed-use activity center on the US 29 corridor. One possible stop location exists at the Scaggsville Park & Ride facility, but as the area is a missed-use activity center, it may be more appropriate to site a station in the midst of the Maple Lawn business district. A second stop in the Maple Lawn Midtown District or at the JHU Applied Physics Laboratory may also be warranted, assuming that stops can be made with a minimum of delay.

Development Pattern

The Maple Lawn development is a large new urbanist style development laid out in a pod pattern. It consists of two residential districts, and a business district, with three more residential districts under construction. Directly to the north of the Maple Lawn development is the Johns Hopkins University Applied Physics Laboratory, which employs 5,300 staff in a 400-acre campus. The remainder of the area is comprised of low-density residential development and parkland.

Key Connections

The most critical access connection for this station area is to the JHU Applied Physics Laboratory. If a BRT stop is not located there, access should be facilitated by improved pedestrian connections, shuttle bus service, or both. Circulator service between the Maple Lawn neighborhoods should also be considered. The parking lots of the Maple Lawn Business District may present an opportunity for a small, shared park & ride facility.

2.2 US 1 Corridor Stations

2.2.1 Elkridge

Since US 1 is not a limited access highway, there is considerable flexibility in siting a station, as theoretically any location with sufficient room for bus bays to be added to the right-of-way will suffice. However, Elkridge Station would serve primarily as a ridership collector as the northern terminus of the US 1 line. As such, parking facilities and feeder bus services would be of particular importance for this location, and the best station sites are those which will afford sufficient room to create a park & ride facility and bus bay facilities to facilitate transfers from feeder bus routes. One possible location would be on the west side of US 1 north or south of Greenfield Road. An alternative location could be within the Green Valley Marketplace Shopping Center, sharing parking with the businesses there.

Development Pattern

The Elkridge station area is dominated by single-family home and townhouse neighborhoods, which are laid out in a suburban pattern with very little street grid. Major highways (US 1 and I-95) break up the area and present significant barriers to walkability, although US 1 does have accommodation for pedestrian crossing at a few intersections. Other land uses include the strip mall shopping centers, as well as light industrial and warehouse uses on the east side of US 1.

Key Connections

One of the most critical connections for this site will be for park & ride passengers traveling from residential areas to the north and east, such as Halethorpe and Linthicum. Feeder bus service from these same areas will be an essential component of station access for this terminal station. MTA local bus service, which currently extends only as far as the Halethorpe MARC Station (the area is served by MTA Commuter Bus and CMRT service), could be extended to the Elkridge BRT station in order to provide access from the entire Baltimore region. Shuttle service to the UMBC campus, which is less than five miles to the north, should also be considered. If the BRT line does not extend to BWI airport, shuttle service should be provided from the Elkridge station to provide access to the Airport as well as the MARC Penn Line and Amtrak rail service.

Pedestrian amenities linking the neighborhoods immediately surrounding the station to the station location should be improved in order to facilitate pedestrian and bicycle access and avoid “close-in” auto commuting to the station from within a mile.

2.2.2 Dorsey

The Dorsey station would be co-located with MARC commuter rail service at the Dorsey MARC station, which has a large (802 spaces) park & ride facility. This station location would function as both a collector for BRT riders, as well as a transfer point to the MARC Camden Line.

Development Pattern

The Dorsey station area is dominated by light industrial and warehouse uses, office parks, as well as a few small single-family home neighborhoods. The neighborhoods and office parks are generally walkable, but major highways (MD 100 and the Baltimore-Washington Parkway) break up the area and present significant barriers to walkability. Walkability from the station is severely limited, as MD 100, the MARC rail line, and Deep Run Creek present impassable barriers.

Key Connections

If the Dorsey MARC park & ride is projected to be at or near capacity in the future, expansion to the facility would be of primary importance in order to accommodate the combined parking demand of

MARC and BRT. A bus loop with greater capacity, both in terms of bus bays and passenger waiting area, is equally important. The station currently only is served by the CMRT Silver and Purple Lines, and as such the bus facilities are minimal. Shuttle service to nearby office parks on Parkway Drive and Troy Hill Drive (as well as the new Troy Hill Park) should be considered. If the BRT line does not extend to BWI airport, the Dorsey station would be a viable alternative location from which to provide shuttle service to the Airport as well as the MARC Penn Line and Amtrak rail service.

The neighborhood on the opposite side of Deep Run is not large, but a direct pedestrian/bicycle connection to that neighborhood would be a simple improvement that would improve overall connectivity in the area.

2.2.3 Jessup North

Since US 1 is not a limited access highway, there is considerable flexibility in siting a station, as theoretically any location with sufficient room for bus bays to be added to the right-of-way will suffice. Two possible locations would be at the East Columbia Marketplace, or adjacent to the future grocery store to be added to the Howard Square development. While the Howard Square and Blue Stream developments will add density to and improve the walkability of the area, the development pattern will not be sufficiently mixed-use to label the station as an activity center. Its role within the overall US 1 line is likely to be as a ridership collector, providing access to the BRT line from the surrounding residential neighborhoods.

Development Pattern

The Howard Square and Blue Stream developments are high-density residential developments consisting of townhouse, apartment and single-family neighborhoods. The inherent walkability in their design will significantly increase the walkshed of the Jessup North station, which otherwise is categorized by non-walkable land-use patterns, including strip malls and auto-oriented businesses. Current walkability is further hindered by US1, MD 175, and I-95, which pose significant barriers to connectivity.

Key Connections

The primary focus for improving station access at the Jessup North Station should be continued improvement to pedestrian connectivity. Of primary importance would be pedestrian treatment on US 1, and to a lesser extent MD 175. Facilitating pedestrian crossings of these roadways should be the focus, allowing the station to draw passengers from an ever increasing walkshed. A secondary concern could be the creation of a small park & ride facility, possible shared with retail parking at either of the potential station locations mentioned above.

2.2.4 Jessup South

The Jessup South Station would be the northernmost opportunity for transfers between the US 1 BRT line and the Broken Land Parkway line, which would run concurrently on US 1 from the abandoned rail right-of-way south of Patuxent Range Road to the interchange with MD 32. Transfers between the two BRT lines would be the primary function of the Jessup South station, which could also serve as a ridership collector if park & ride facilities are included in the station design. There is an area of undeveloped land where the abandoned rail right-of way that is the presumed route for the Broken Land Parkway line intersects with US 1. A station location in this area, including park & ride facilities, would provide quick and easy access to and from the US 1 mainline.

Development Pattern

The area around the Jessup South station area is dominated by warehouse and light industrial land use on the east side of US 1 and an open-pit mining operation on the west side. There are some residential neighborhoods nearby, including a dense single-family home neighborhood (Brentwood Manor) roughly ½ mile to the northeast from the presumed Jessup South station location, as well as larger and less dense neighborhoods along Guilford Road to the west of the station area.

Key Connections

The primary focus for improving station access at the Jessup South Station should be improvement to pedestrian connectivity. Of primary importance would be pedestrian treatment on US 1, allowing the station to draw passengers from an ever increasing walkshed. Direct Pedestrian/bike connections to the residential neighborhoods to the west are also logical investments to greatly expand the station's walkshed. A secondary concern could be the creation of a park & ride facility, although the most important design consideration for the station layout is facilitating easy bus-to-bus transfers.

2.2.5 Savage

The Savage Station would function primarily as a transfer point between the US 1 and Broken Land Parkway BRT corridors, and if the station includes park & ride facilities, Savage could also serve a secondary role as a ridership collector. Due to the lack of easy egress from and access to both US 1 and MD 32, station locations are problematic for this station location. A park & ride facility is planned for the area north of the US 1/MD 32 interchange, making that the most logical station location. In order for that site to afford quick access from both routes, direct access to MD 32 southbound would be required, perhaps via a bridge over MD 32 and new access ramps. Even with such an improvement, accessing the station would represent a significant deviation from the BRT mainline for both US 1 and Broken Land Parkway buses.

Development Pattern

The area around the Savage station area is dominated by warehouse and light industrial land use on the east side of US 1 and low- to moderate-density residential neighborhoods on the west side. The Town of Savage directly to the west features an historic mill building and estate house, and is bounded by a large area of park land on its west side. A few strip malls and auto-oriented businesses are present along both sides of US 1.

Key Connections

With other BRT stations to its north, south, east and west, the area from which the Savage Station would draw riders via auto and feeder bus access modes would not be large, unless the access facilities at those other stations were not sufficient.

2.2.6 North Laurel

The North Laurel station area has enough intensity of development to qualify as a mixed-use activity center, bolstered by a fairly walkable development pattern. It has elements of a street grid, providing the possibility of increasing walkability as the auto-oriented businesses in the area are redeveloped. The likely station location would be a split station (northbound and southbound separate) on Washington Boulevard and Second Street between Davis Avenue and Columbia Street.

Development Pattern

The predominant land uses in the North Laurel area are medium-density residential neighborhoods and drive-up businesses. The Laurel Racetrack to the southeast takes up a considerable amount of land, and includes a very large parking area abutting the North Laurel station area. A sizable mixed-use

development (252 residential units) is slated to be built between US 1 and Laurel Racetrack, increasing the potential ridership base for the station.

Key Connections

Pedestrian connections are most important for a mixed-use activity center such as North Laurel. In particular, the sidewalk network in the area needs to be completed, and pedestrian connections to the neighborhoods on the west side of US 1 should be improved. Pedestrian connections to the Laurel Racetrack should be improved as well, in order to make the BRT system a viable mode of access for events there. Feeder bus service should be provided to the North Laurel station from the Maryland City and Russett areas.

2.3 Broken Land Parkway Corridor Stations

2.3.1 Columbia Town Center (covered under US 29 Corridor)

2.3.2 Stevens Forest

The likely location for the Stevens Forest station is somewhere within the office park that is centered on Stevens Forest Road and Woodside Court, as this represents the most notable ridership generating land use in the area. This station would fill a minor activity center role within the overall BRT network, likely with a ridership pattern balanced between trip originations and destinations.

Development Pattern

The immediate vicinity of the Stevens Forest Station site consists of a standard suburban office park layout, with single-family home neighborhoods beyond. The neighborhoods are laid out in a suburban pattern that lacks any sort of street grid, constraining pedestrian connectivity.

Key Connections

The Stevens Forest Station potentially has a large ridership catchment area, including the residential areas of Arrowhead, Oakland Mills, and Owen Brown. Peak period feeder bus service through those areas would be among the primary connections needed to improve station access, as would a direct pedestrian connection across the Little Patuxent River to the Arrowhead area. An additional access point for Woodside Court at its southern end onto Broken Land Parkway would simplify bus access to the station.

2.3.3 Snowden River Parkway

Two potential station locations exist for the Snowden River Parkway Station, each with advantages and drawbacks. If the station were located close to the intersection of Broken Land Parkway and Snowden River Parkway, the most direct, least time-intensive routing would be preserved. On the other hand, space would be very limited, and the station itself may be limited to an improved bus stop layout. If the station were located at the Broken Land Parkway Park & Ride, it would provide not only provide a large park & ride facility, but also transfers to several CMRT and MTA Commuter Bus routes. This location is essentially within a highway interchange, however, and its chief drawback would be that the station walkshed would be reduced to nearly zero as a result. The BRT route would also be lengthened by at least 0.6 miles as well, not to mention three additional turns at signalized intersections.

If the station is located at the existing park & ride facility, it would be most accurate to consider it a ridership collector station. If located at the intersection of Broken Land and Snowden River, it would be more accurate to term the station a minor activity center.

Development Pattern

The Snowden River Parkway Station area is dominated by light industrial and warehouse uses and office parks. The walkability for the area is limited. While the office parks and light industrial parks are generally walkable, these areas are auto-focused and separated by highways (Broken Land Parkway and MD 32)

Key Connections

The most important access priority for the Snowden River Parkway Station would be circulator bus service among the commercial and business uses in the immediate vicinity, as well as to the larger business parks and retail centers approximately two miles to the east on Snowden River Parkway.

2.3.4 Columbia Gateway

The presumed route for the Broken Land Parkway Corridor follows an abandoned rail right-of-way between Berger Road and US 1. That right-of-way passes very close to the southern edge of the very large (over 12,000 employees) Columbia Gateway office park, providing an opportunity to serve that major employment center effectively. Located in an area where the single, dominant land use is office buildings, the station would definitely function in a distributor role.

Development Pattern

The only land use that would be walkable from a future Columbia Gateway Station would be the office park itself. While all streets within the office park have sidewalks, it is very widely dispersed (over 600 acres), meaning that effective walkability is limited. The other side of the rail right-of-way is a large area of undeveloped land, separating the station area from the small town of Guilford.

Key Connections

The most important access connection for this station would be circulator service to provide access throughout the Columbia Gateway office park, since only a portion would truly be walkable from the station. The conversion of the rail right-of way provides an opportunity to create a multi-use pathway in addition to the busway from Berger Road to US 1, improving the overall connectivity of the area for pedestrians and cyclists.

2.3.5 Jessup South (covered under US 1 Corridor)

2.3.6 Savage / US1 (covered under US 1 Corridor)

2.3.7 Savage MARC Station

The Savage MARC Station would be co-located with the MARC Camden Line, and would function as both a collector for BRT riders as well as a transfer point to commuter rail service and shuttle bus service providing access to major employment hubs. The Savage MARC Station, with its large (704 spaces) decked park & ride facility, is the natural location for a BRT station in this locale, and is currently undergoing redevelopment as a mixed-use development (Annapolis Junction Town Center).

Development Pattern

The Savage MARC station area is dominated by light industrial and warehouse uses and office parks. The nearby land uses office parks are generally walkable, but are divided by MD 32 and the MARC rail lines. The redevelopment of the MARC station will improve the walkability of the immediate station vicinity and supply a base of transit-supportive land use, including 416 residential units, 100,000 square feet of office space, and 17,500 square feet of retail.

Key Connections

With 49,000 military and civilian employees, Ft. Meade is one of the largest employment centers in the Baltimore-Washington region. The Savage BRT station would be the closest station to Ft. Meade, and as such providing shuttle service to the base is the primary access consideration at that location. Shuttle service to nearby office parks on National Business Parkway, and to the Russett neighborhood to the south, should be provided as well.

The MARC station currently only is served by the CMRT Purple Line and the MTA 202 commuter route, and as such the bus facilities are minimal. A bus loop at the MARC station, or bus bays along Dorsey Run Road are equally important in order to provide sufficient vehicle flow and passenger waiting area.

If the Savage MARC park & ride is projected to be at or near capacity in the future, it may be necessary to investigate shared use of the parking being built for the residential, office, and retail uses in the development, which total more than 1,100 spaces, in order to accommodate the combined parking demand of MARC and BRT.

Russett, the neighborhood on the opposite side of the MARC tracks, is relatively dense, and could provide significant ridership if well linked to the station area. A direct roadway to that neighborhood, complete with high-quality pedestrian/bicycle amenities, would be a simple improvement that would improve overall connectivity in the area.

3 Summary

Tables 2 through 4 summarize the station access considerations for all stations in Howard County by line. All told, eleven of the sixteen stations fit into the role of Collector. Park & Ride facilities may not be necessary at all collector stations, but will no doubt be a major consideration for access planning over the system as a whole, as will bus-to-bus transfer facilities.

The most widespread category of access need, cited at thirteen of sixteen stations, is actually improvements pedestrian network. Many of the areas in Howard County that have been identified as station locations have been developed in a very auto-centric pattern, leaving a legacy of missing pedestrian connections. Providing a complete, inviting sidewalk network will be a priority for those stations that fit into the activity center roles, and providing direct, safe pedestrian/bike connections to surrounding neighborhood and destinations should be a focus of all other stations.

Table 2: Summary of Station Access Characteristics for US 29 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Mount Hebron	Collector	Junction of 29 & Rogers	Single-family residential, schools	Limited (I-70 presents a barrier, no sidewalks)	No change to development pattern.	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to residential areas to the north & east
US 40	Collector	Chatham Station, Village Green, or Golden Triangle shopping centers	Strip malls, multi-family residential, single-family residential	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	Some additional residential, no significant change to development pattern.	● Connection to MTA local bus service ● Park & Ride facility, possibly shared parking with shopping center ● Circulator service within the immediate station area, connecting the various shopping centers ● Shuttle service to downtown Ellicott City
Long Gate	Collector, Minor Activity Center	Long Gate Shopping Center	Single-family residential, Long Gate Shopping Center, schools	Limited (some sidewalks, no street grid, highways split up the area)	New townhouse development adjacent to shopping center will be walkable to station.	● Park & Ride facility, possibly shared parking with shopping center ● Improved pedestrian connections to Dunloggin, Autumn Hill, & Wheatfield neighborhoods, Meadowbrook Park ● Shuttle service to Dorsey's Search, Red Branch Road, Columbia 100 Pkwy areas.
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
MD 32	Collector	Few possibilities provide easy access to/from US 29, perhaps off of Seneca Drive, if land is available for a park & ride lot, or at Atholton Shopping Center	Single-family residential, schools, low-density office park to SE	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods
Maple Lawn	Mixed-Use Activity Center	Scaggsville Park & Ride, Maple Lawn Midtown District or Business District, perhaps multiple stops	New Urbanist-style neighborhoods, JHU campus	Good. Pod layout of dense, walkable neighborhoods.	Three additional neighborhoods are included in the Maple Lawn plan, which will not change the character of the area, but will increase the intensity of development.	● Shuttle service to JHU Applied Physics Laboratory ● Circulator service connecting to the Maple Lawn neighborhoods ● Possible Park & Ride facility sharing parking with Maple Lawn Business District

Table 3: Summary of Station Access Characteristics for US 1 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Elkridge	Collector	Ideally located on US 1 where land can be dedicated for park & ride, perhaps north or south of Greenfield Road. Alternatively at Green Valley Marketplace	Single-Family and townhouse neighborhoods, light industrial	Moderate (Little street grid, but most streets have sidewalks, no limited-access highways)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to UMBC ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension)
Dorsey	Collector, Transfer point	Dorsey MARC station	Light industrial, office parks, some single-family home neighborhoods	Limited (Neighborhoods, office parks, light industrial areas are walkable, but separated by highways)	n/a	● Possible park & ride facility expansion ● Improved pedestrian connections to neighborhood south of the station ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension) ● Shuttle service to office park, hotels on Parkway Drive ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup North	Collector	Anywhere with easy access on/off US 1, such as East Columbia Marketplace or future grocery store in Howard Square development	Apartment, townhouse and dense single-family residential; strip malls, drive up businesses.	Limited (Neighborhoods are walkable, but US 1 and MD 17% have little pedestrian accommodation and are difficult to cross.)	Dense, walkable residential neighborhoods increasing in size.	● Possible small park & ride facility, possibly sharing parking with a shopping center ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway. ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
North Laurel	Mixed-Use Activity Center	Split station (NB & SB) on Washington Boulevard and 2nd Street, between Davis Avenue and Columbia Street	Moderate-density residential, drive-up businesses, Laurel Racetrack	Moderate (Many parking lots, but elements of a street grid exist, sidewalks coverage is hit and miss)	Mixed use development (primarily apartment) to be built between US 1 and Laurel Racetrack	● Complete the sidewalk network ● Improve pedestrian connections to neighborhoods west of US 1. ● Improve pedestrian connections to Laurel Racetrack. ● Shuttle service to Maryland City, Russett neighborhoods

Table 4: Summary of Station Access Characteristics for Broken Land Parkway Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
Stevens Forest	Collector, Minor Activity Center	In Stevens Forest Business Park	Single-Family and townhouse neighborhoods, business park	Limited (Neighborhoods, business parks are walkable, but not connected. US 29, Little Patuxent River are barriers to circulation)	n/a	● Possible small park & ride facility, possibly within Stevens Forest Business Park ● Improved pedestrian connections between neighborhoods and Stevens Forest Business Park ● Shuttle service to Arrowhead, Oakland Mills, Owen Brown neighborhoods
Snowden River Parkway	Collector, Distributor	At Broken Land Park & Ride	Office parks, light industrial, some single-family home neighborhoods	Poor (few sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Shuttle service to nearby business parks and retail centers on Snowden River Parkway
Columbia Gateway	Distributor	South of office buildings on Samuel Morse Drive	Office parks, undeveloped land, some single-family home neighborhoods, open pit mining	Poor (office parks have sidewalks, but are auto-oriented and widely dispersed)	n/a	● Shuttle service throughout Columbia Gateway business park and retail centers on Snowden River Parkway ● Multi-use path adjacent to BRT right-of-way from Berger Road to US 1
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
Savage MARC Station	Transfer Point, Distributor	Along Dorsey Run Road or within Annapolis Junction Town Center	Light industrial, office parks, some single-family home neighborhoods	Poor (Auto-oriented development pattern. MD 32, Baltimore-Washington Parkway, MARC tracks are barriers to circulation.)	n/a	● Direct access to MARC station ● Shuttle service to Ft. Meade ● Pedestrian connection to Russett neighborhood to the south

Appendix A: Station Area Walkshed Maps

Figure 1: Mount Hebron Station Area Walkshed

Figure 2: Columbia Town Center Walkshed

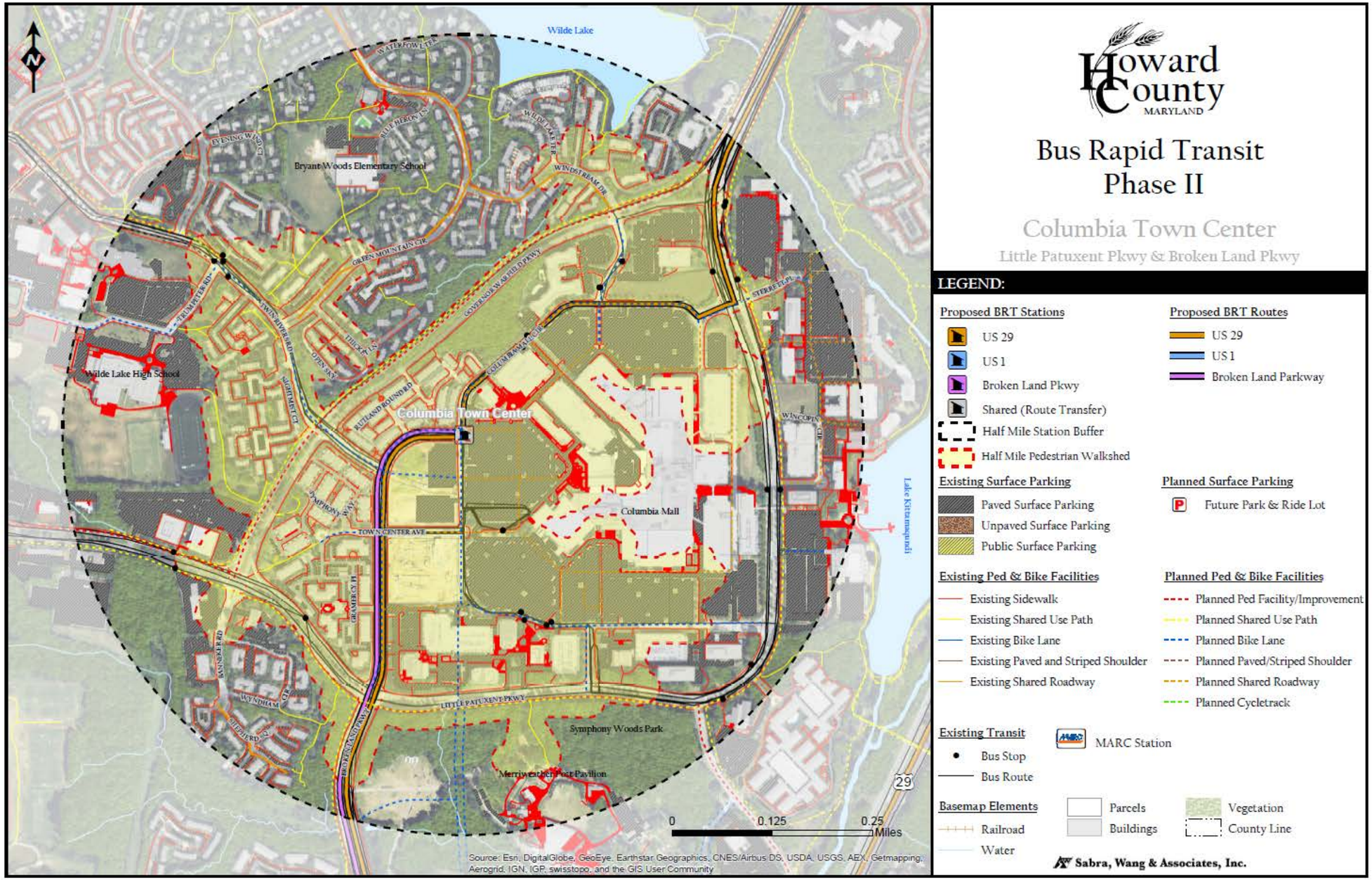

Figure 3: Jessup South Station Area Walkshed

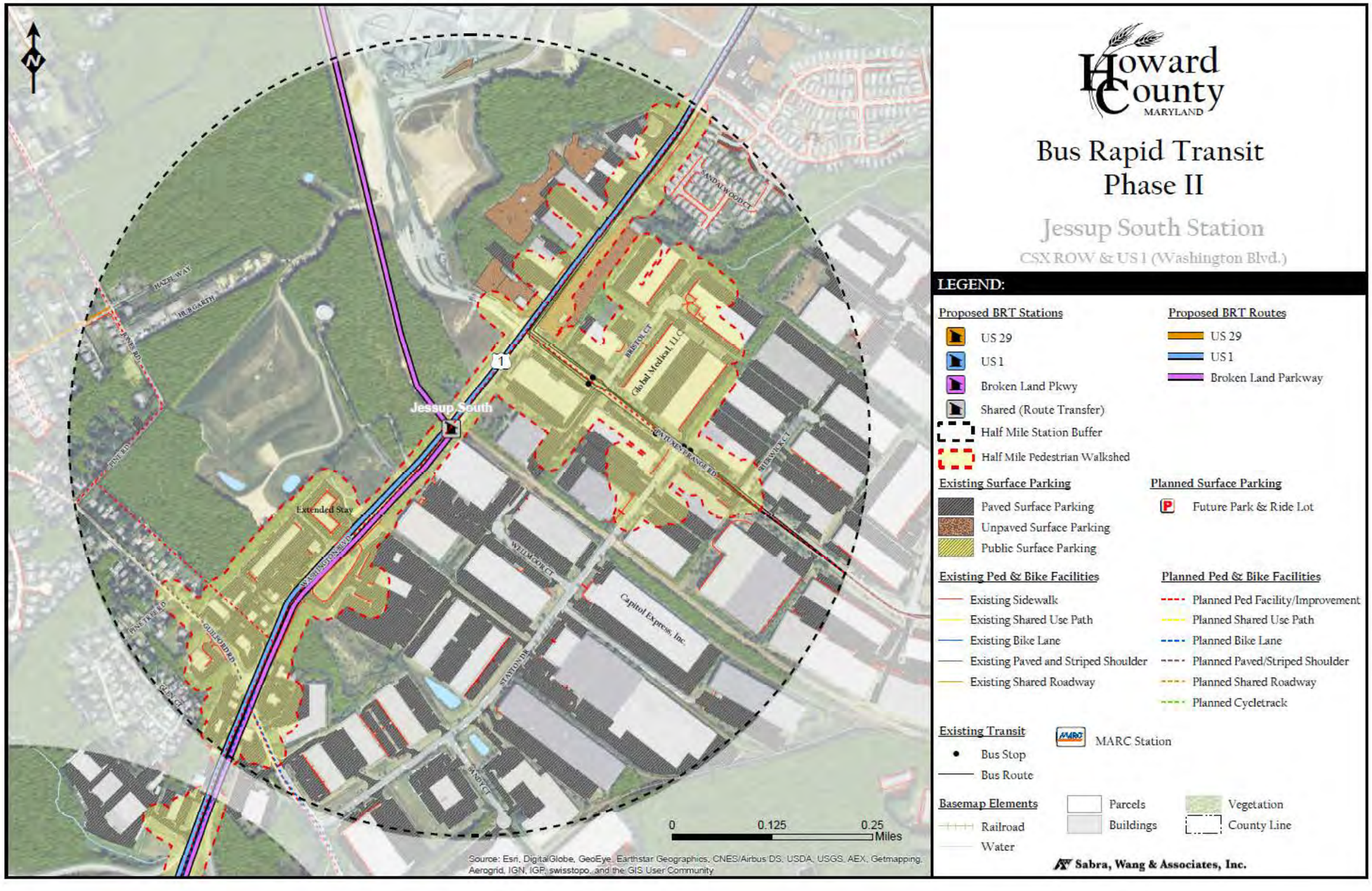

Figure 4: Savage Station Area Walkshed

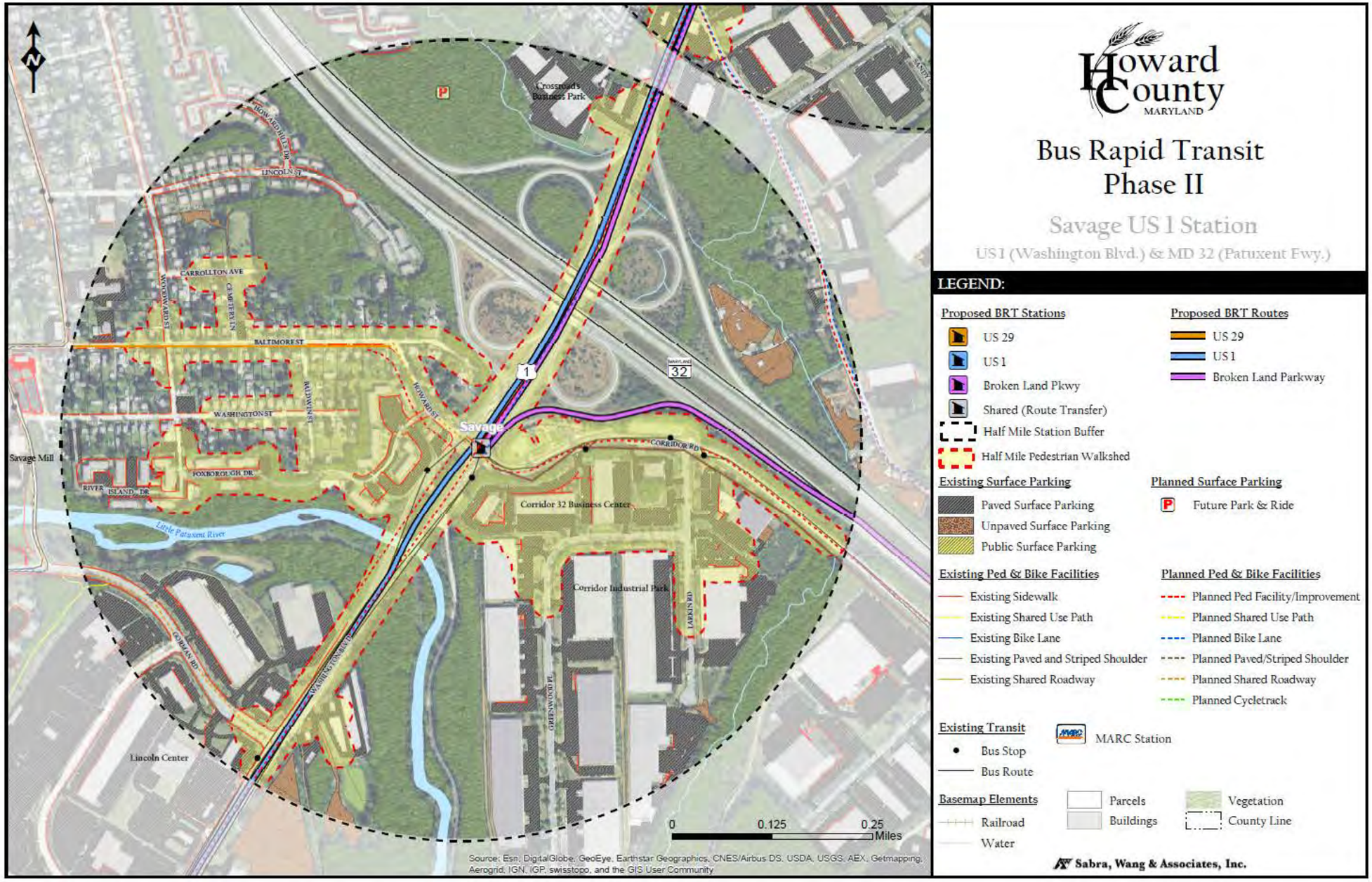

Figure 5: Elkridge Station Area Walkshed

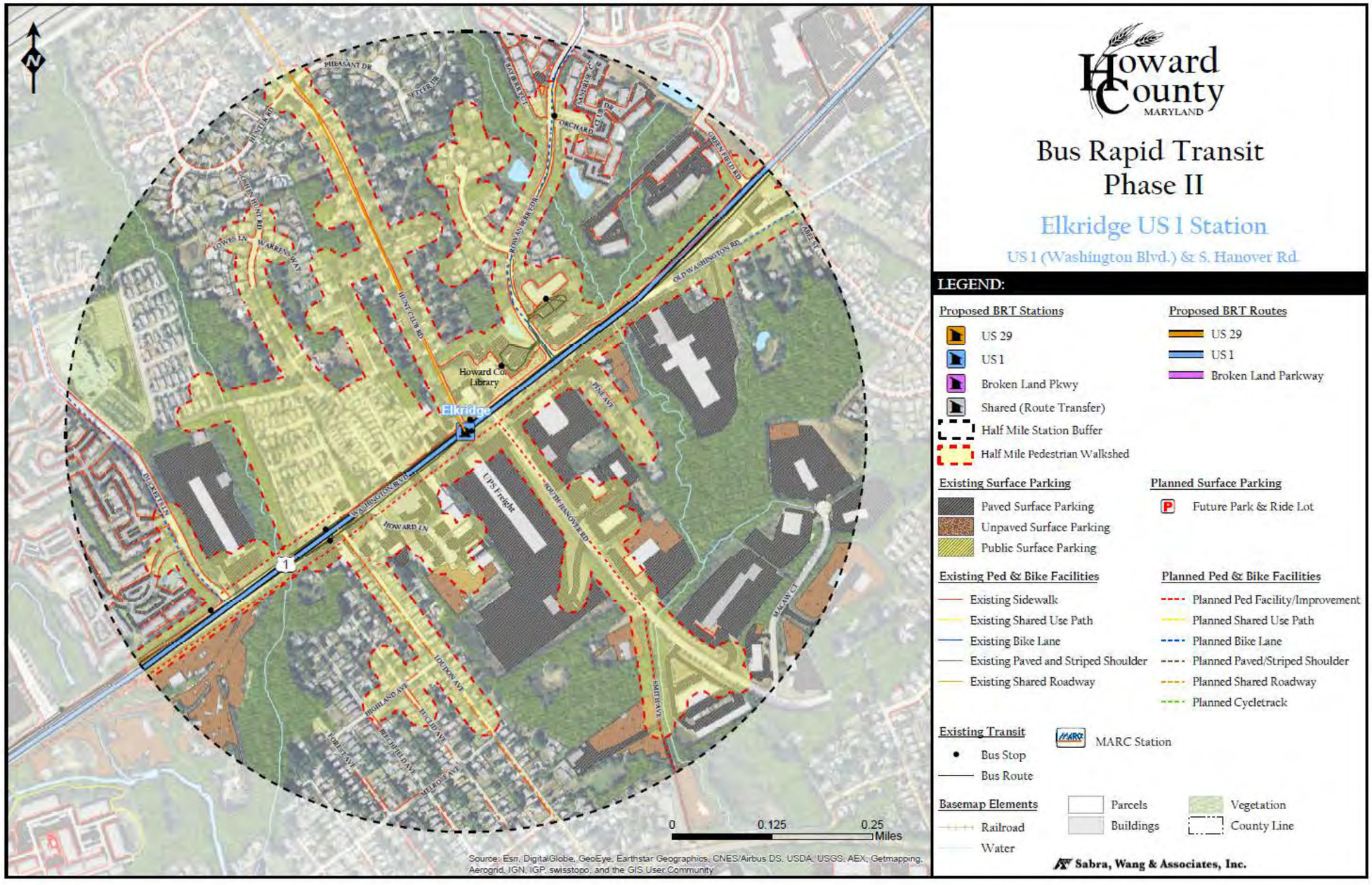

Figure 6: Dorsey Station Area Walkshed

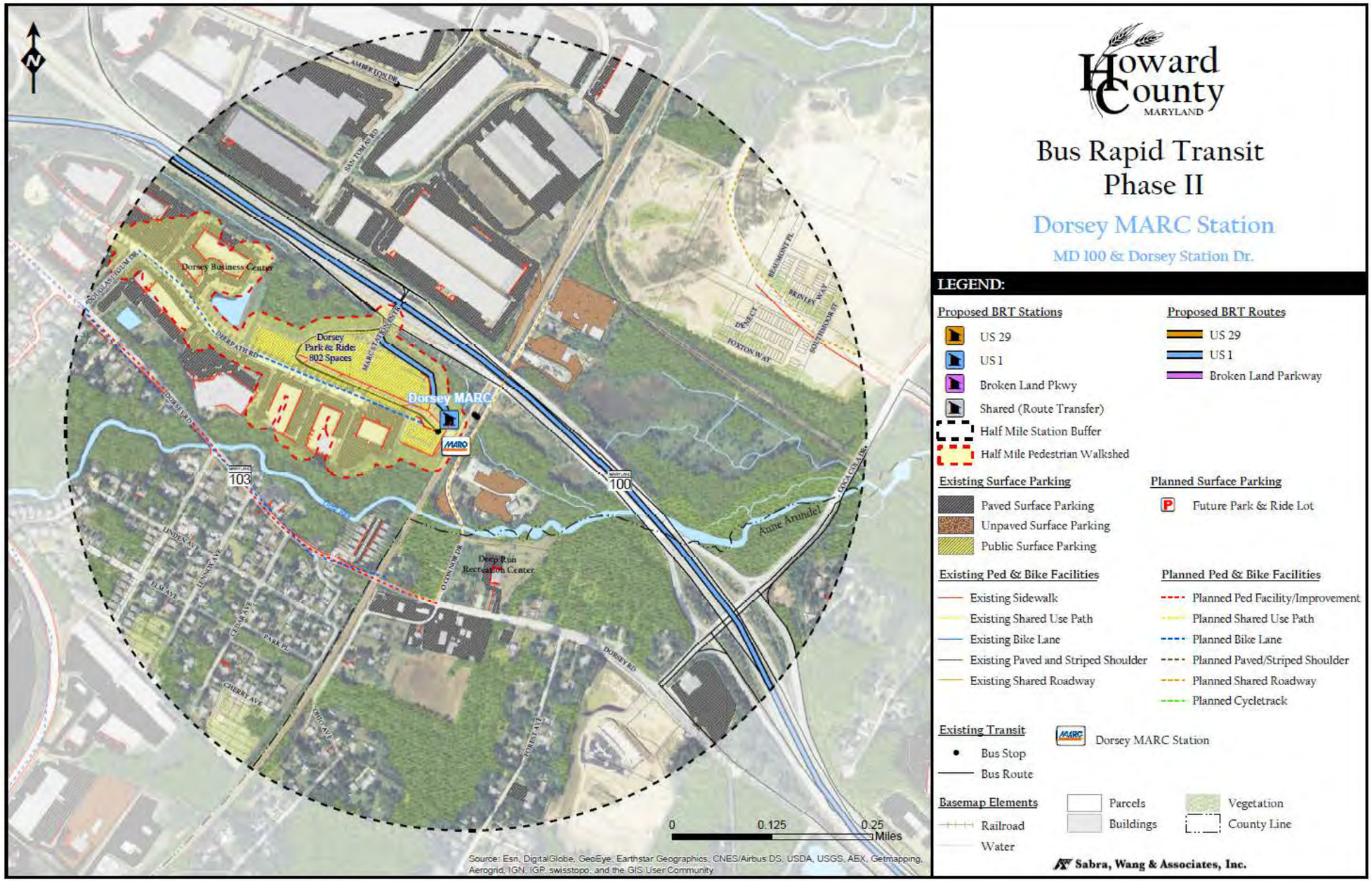

Figure 7: Jessup North Station Area Walkshed

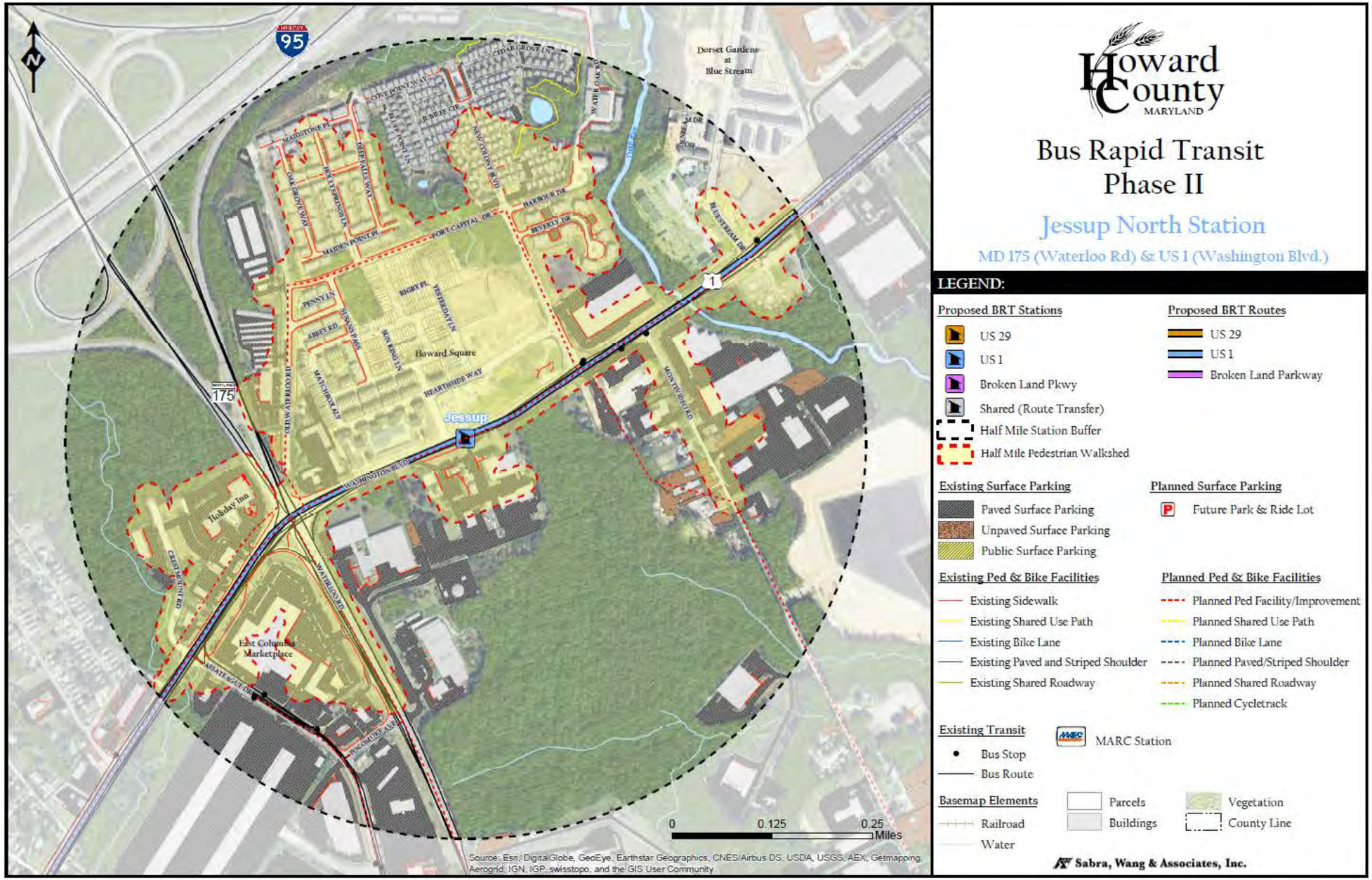

Figure 8: North Laurel Station Area Walkshed

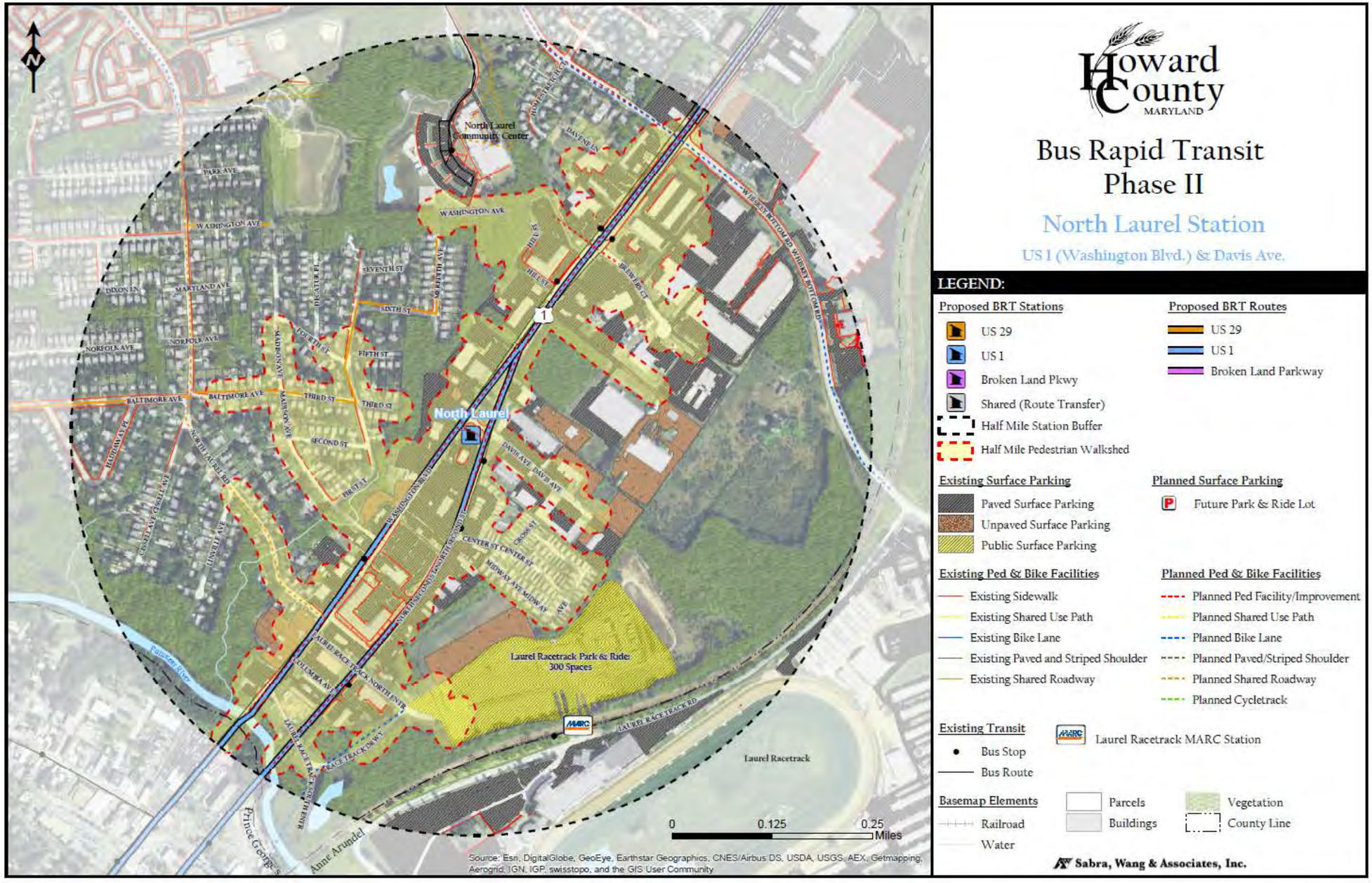

Figure 9: Stevens Forest Station Area Walkshed

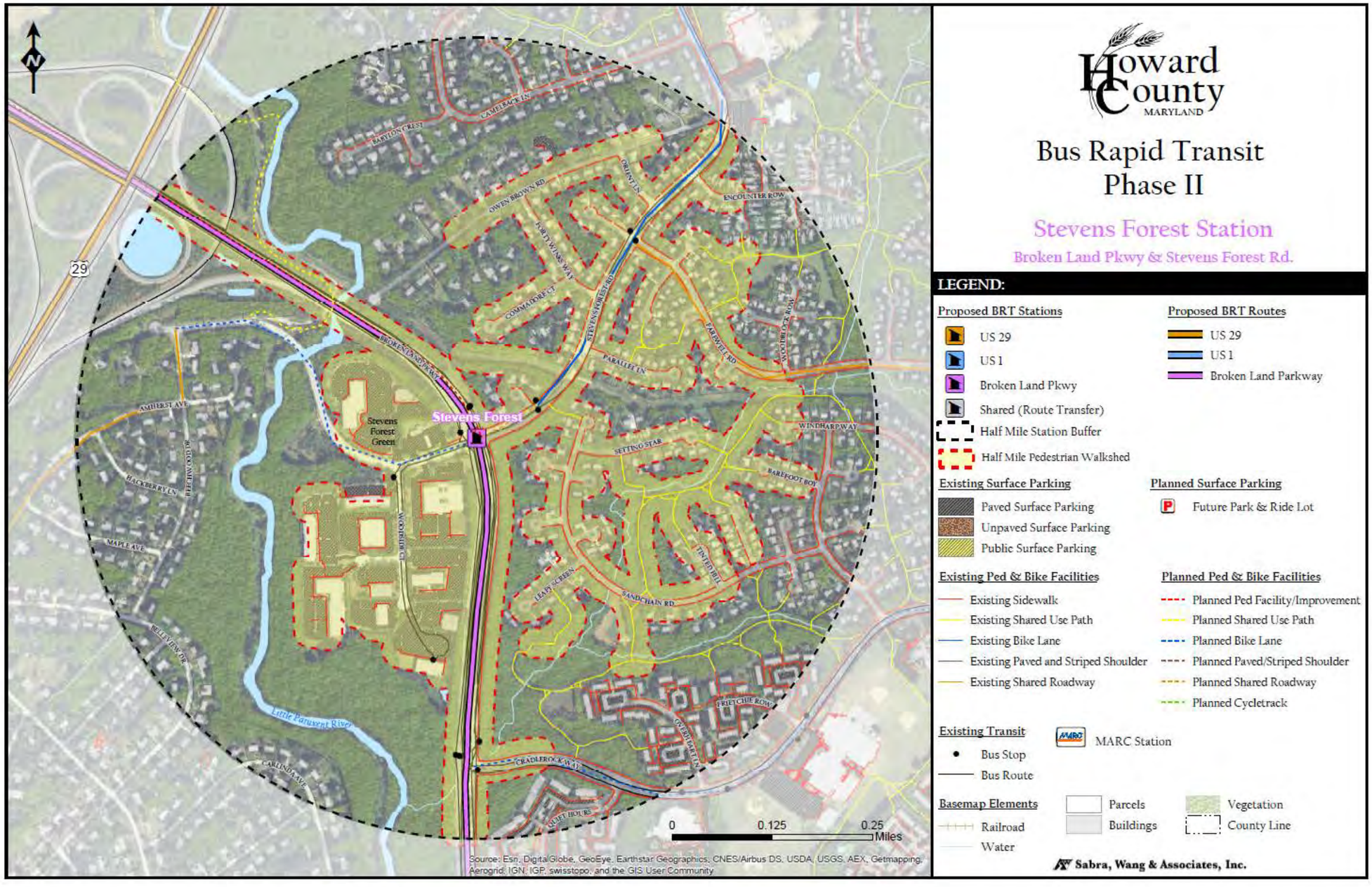

Figure 10: Snowden River Parkway Station Area Walkshed

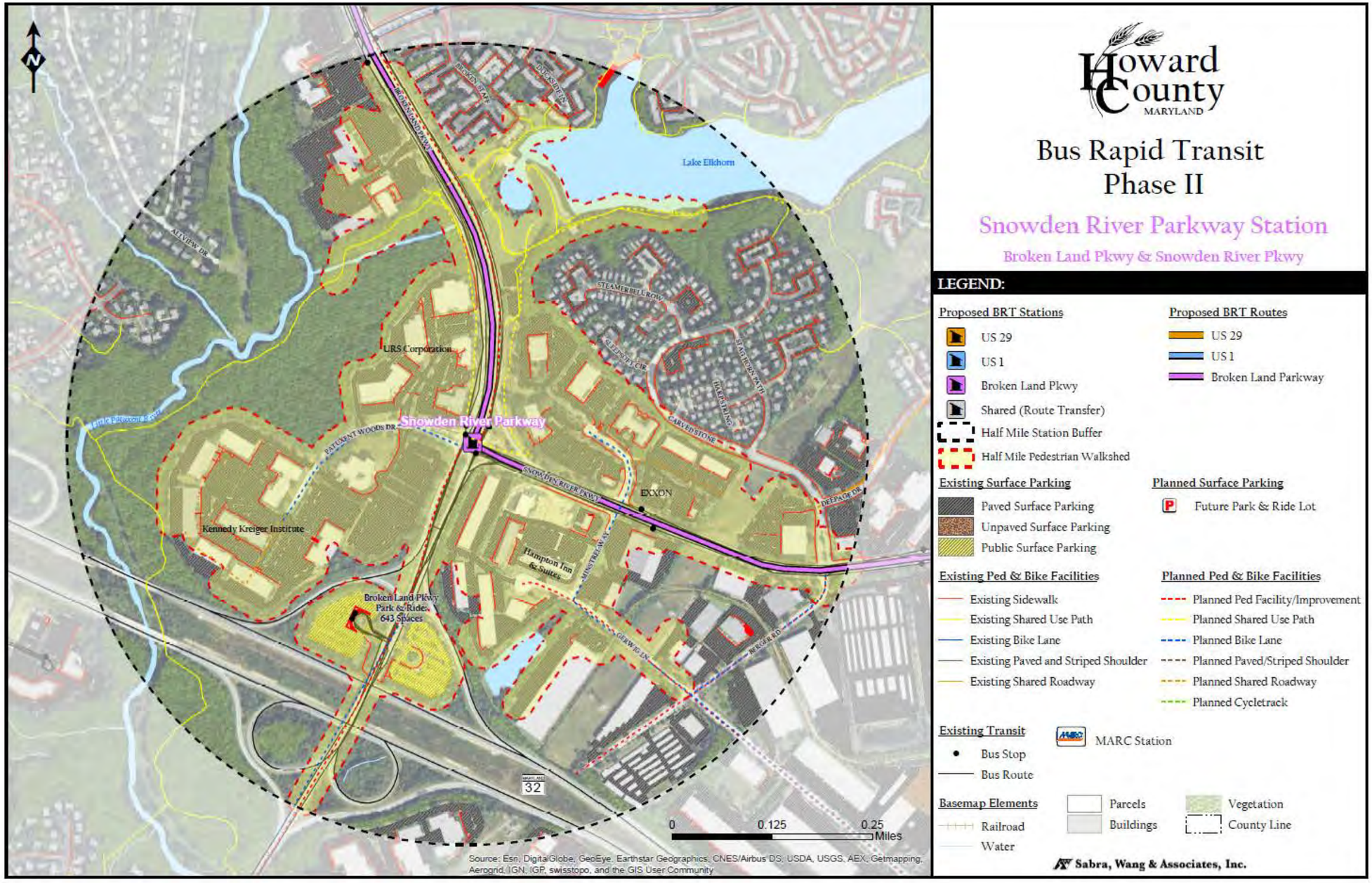

Figure 11: Savage MARC Station Area Walkshed

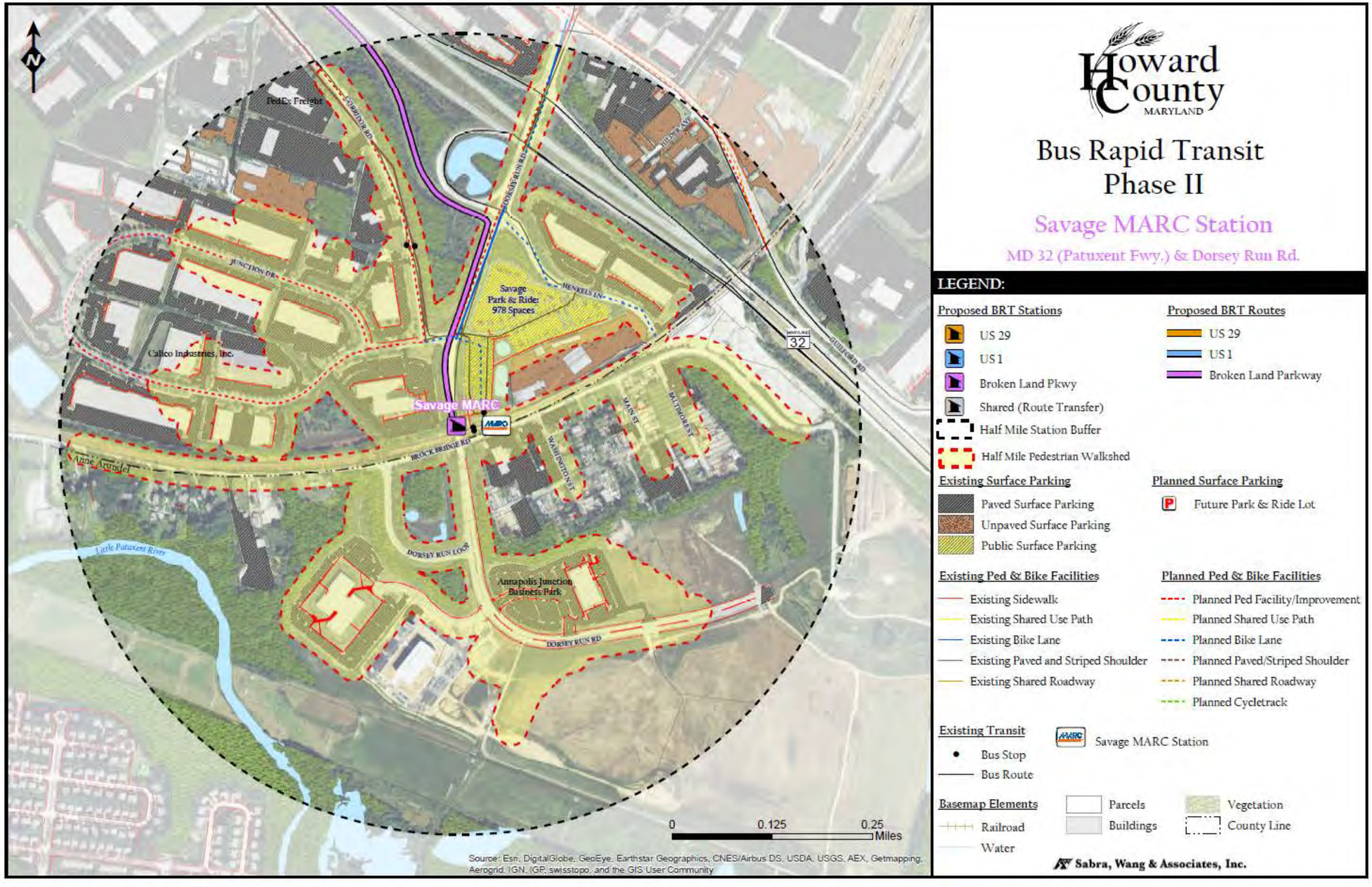

Table 2: Summary of Station Access Characteristics for US 29 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Mount Hebron	Collector	Junction of 29 & Rogers	Single-family residential, schools	Limited (I-70 presents a barrier, no sidewalks)	No change to development pattern.	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to residential areas to the north & east
US 40	Collector	Chatham Station, Village Green, or Golden Triangle shopping centers	Strip malls, multi-family residential, single-family residential	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	Some additional residential, no significant change to development pattern.	● Connection to MTA local bus service ● Park & Ride facility, possibly shared parking with shopping center ● Circulator service within the immediate station area, connecting the various shopping centers ● Shuttle service to downtown Ellicott City
Long Gate	Collector, Minor Activity Center	Long Gate Shopping Center	Single-family residential, Long Gate Shopping Center, schools	Limited (some sidewalks, no street grid, highways split up the area)	New townhouse development adjacent to shopping center will be walkable to station.	● Park & Ride facility, possibly shared parking with shopping center ● Improved pedestrian connections to Dunloggin, Autumn Hill, & Wheatfield neighborhoods, Meadowbrook Park ● Shuttle service to Dorsey's Search, Red Branch Road, Columbia 100 Pkwy areas.
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
MD 32	Collector	Few possibilities provide easy access to/from US 29, perhaps off of Seneca Drive, if land is available for a park & ride lot, or at Atholton Shopping Center	Single-family residential, schools, low-density office park to SE	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods
Maple Lawn	Mixed-Use Activity Center	Scaggsville Park & Ride, Maple Lawn Midtown District or Business District, perhaps multiple stops	New Urbanist-style neighborhoods, JHU campus	Good. Pod layout of dense, walkable neighborhoods.	Three additional neighborhoods are included in the Maple Lawn plan, which will not change the character of the area, but will increase the intensity of development.	● Shuttle service to JHU Applied Physics Laboratory ● Circulator service connecting to the Maple Lawn neighborhoods ● Possible Park & Ride facility sharing parking with Maple Lawn Business District

Table 3: Summary of Station Access Characteristics for US 1 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Elkridge	Collector	Ideally located on US 1 where land can be dedicated for park & ride, perhaps north or south of Greenfield Road. Alternatively at Green Valley Marketplace	Single-Family and townhouse neighborhoods, light industrial	Moderate (Little street grid, but most streets have sidewalks, no limited-access highways)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to UMBC ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension)
Dorsey	Collector, Transfer point	Dorsey MARC station	Light industrial, office parks, some single-family home neighborhoods	Limited (Neighborhoods, office parks, light industrial areas are walkable, but separated by highways)	n/a	● Possible park & ride facility expansion ● Improved pedestrian connections to neighborhood south of the station ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension) ● Shuttle service to office park, hotels on Parkway Drive ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup North	Collector	Anywhere with easy access on/off US 1, such as East Columbia Marketplace or future grocery store in Howard Square development	Apartment, townhouse and dense single-family residential; strip malls, drive up businesses.	Limited (Neighborhoods are walkable, but US 1 and MD 17% have little pedestrian accommodation and are difficult to cross.)	Dense, walkable residential neighborhoods increasing in size.	● Possible small park & ride facility, possibly sharing parking with a shopping center ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway. ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
North Laurel	Mixed-Use Activity Center	Split station (NB & SB) on Washington Boulevard and 2nd Street, between Davis Avenue and Columbia Street	Moderate-density residential, drive-up businesses, Laurel Racetrack	Moderate (Many parking lots, but elements of a street grid exist, sidewalks coverage is hit and miss)	Mixed use development (primarily apartment) to be built between US 1 and Laurel Racetrack	● Complete the sidewalk network ● Improve pedestrian connections to neighborhoods west of US 1. ● Improve pedestrian connections to Laurel Racetrack. ● Shuttle service to Maryland City, Russett neighborhoods

Table 4: Summary of Station Access Characteristics for Broken Land Parkway Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
Stevens Forest	Collector, Minor Activity Center	In Stevens Forest Business Park	Single-Family and townhouse neighborhoods, business park	Limited (Neighborhoods, business parks are walkable, but not connected. US 29, Little Patuxent River are barriers to circulation)	n/a	● Possible small park & ride facility, possibly within Stevens Forest Business Park ● Improved pedestrian connections between neighborhoods and Stevens Forest Business Park ● Shuttle service to Arrowhead, Oakland Mills, Owen Brown neighborhoods
Snowden River Parkway	Collector, Distributor	At Broken Land Park & Ride	Office parks, light industrial, some single-family home neighborhoods	Poor (few sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Shuttle service to nearby business parks and retail centers on Snowden River Parkway
Columbia Gateway	Distributor	South of office buildings on Samuel Morse Drive	Office parks, undeveloped land, some single-family home neighborhoods, open pit mining	Poor (office parks have sidewalks, but are auto-oriented and widely dispersed)	n/a	● Shuttle service throughout Columbia Gateway business park and retail centers on Snowden River Parkway ● Multi-use path adjacent to BRT right-of-way from Berger Road to US 1
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
Savage MARC Station	Transfer Point, Distributor	Along Dorsey Run Road or within Annapolis Junction Town Center	Light industrial, office parks, some single-family home neighborhoods	Poor (Auto-oriented development pattern. MD 32, Baltimore-Washington Parkway, MARC tracks are barriers to circulation.)	n/a	● Direct access to MARC station ● Shuttle service to Ft. Meade ● Pedestrian connection to Russett neighborhood to the south

Table 4: Summary of Station Access Characteristics for Broken Land Parkway Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
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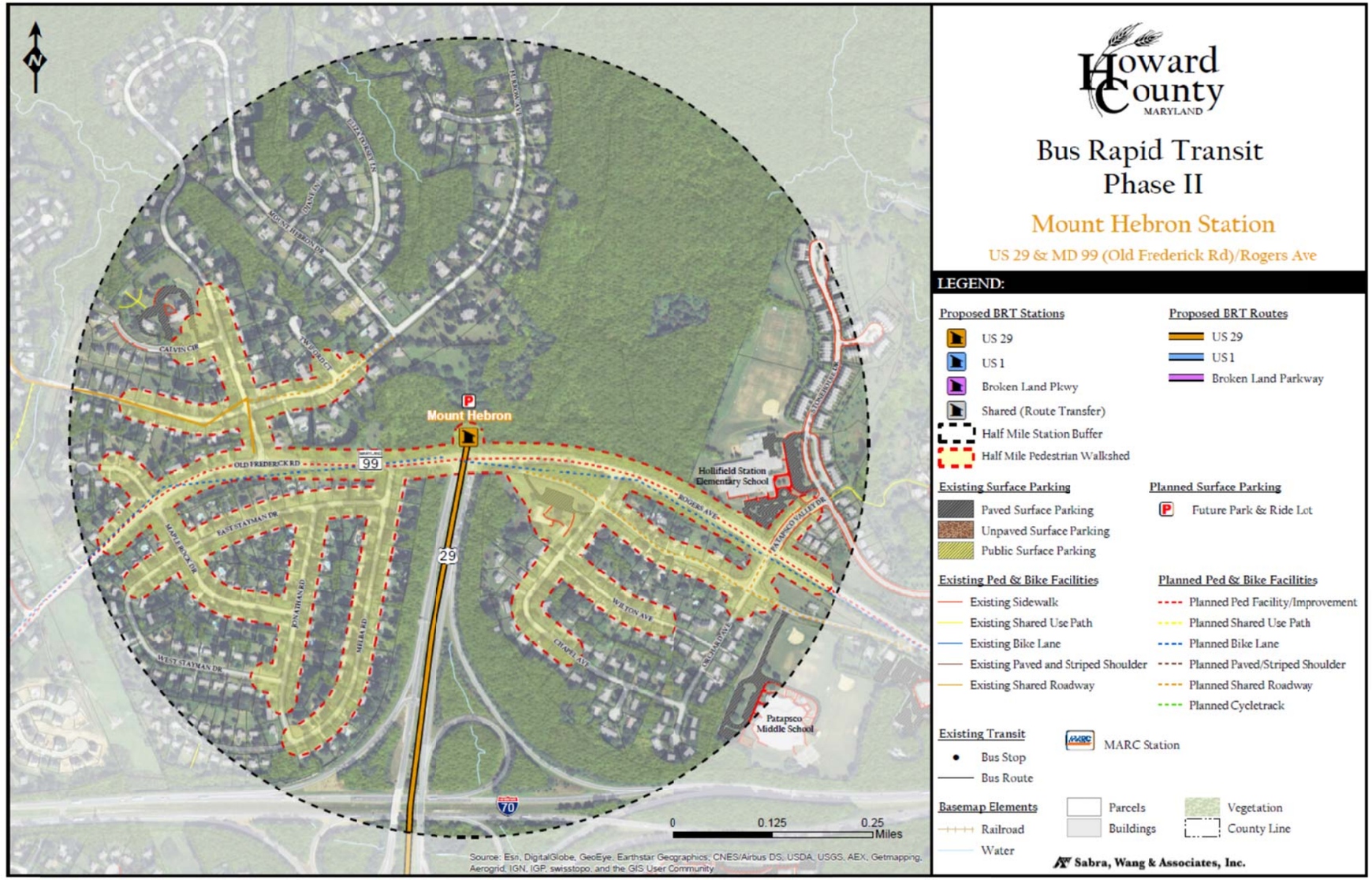
Stevens Forest	Collector, Minor Activity Center	In Stevens Forest Business Park	Single-Family and townhouse neighborhoods, business park	Limited (Neighborhoods, business parks are walkable, but not connected. US 29, Little Patuxent River are barriers to circulation)	n/a	● Possible small park & ride facility, possibly within Stevens Forest Business Park ● Improved pedestrian connections between neighborhoods and Stevens Forest Business Park ● Shuttle service to Arrowhead, Oakland Mills, Owen Brown neighborhoods
Snowden River Parkway	Collector, Distributor	At Broken Land Park & Ride	Office parks, light industrial, some single-family home neighborhoods	Poor (few sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Shuttle service to nearby business parks and retail centers on Snowden River Parkway
Columbia Gateway	Distributor	South of office buildings on Samuel Morse Drive	Office parks, undeveloped land, some single-family home neighborhoods, open pit mining	Poor (office parks have sidewalks, but are auto-oriented and widely dispersed)	n/a	● Shuttle service throughout Columbia Gateway business park and retail centers on Snowden River Parkway ● Multi-use path adjacent to BRT right-of-way from Berger Road to US 1
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
Savage MARC Station	Transfer Point, Distributor	Along Dorsey Run Road or within Annapolis Junction Town Center	Light industrial, office parks, some single-family home neighborhoods	Poor (Auto-oriented development pattern. MD 32, Baltimore-Washington Parkway, MARC tracks are barriers to circulation.)	n/a	● Direct access to MARC station ● Shuttle service to Ft. Meade ● Pedestrian connection to Russett neighborhood to the south

Appendix A: Station Area Walkshed Maps

Figure 1: Mount Hebron Station Area Walkshed



Howard County MARYLAND

Bus Rapid Transit Phase II

Mount Hebron Station

US 29 & MD 99 (Old Frederick Rd)/Rogers Ave

LEGEND:

Proposed BRT Stations
- US 29
- US 1
- Broken Land Pkwy
- Shared (Route Transfer)
- Half Mile Station Buffer
- Half Mile Pedestrian Walkshed

Proposed BRT Routes
- US 29
- US 1
- Broken Land Parkway

Existing Surface Parking
- Paved Surface Parking
- Unpaved Surface Parking
- Public Surface Parking

Planned Surface Parking
- Future Park & Ride Lot

Existing Ped & Bike Facilities
- Existing Sidewalk
- Existing Shared Use Path
- Existing Bike Lane
- Existing Paved and Striped Shoulder
- Existing Shared Roadway

Planned Ped & Bike Facilities
- Planned Ped Facility/Improvement
- Planned Shared Use Path
- Planned Bike Lane
- Planned Paved/Striped Shoulder
- Planned Shared Roadway
- Planned Cycletrack

Existing Transit
- Bus Stop
- Bus Route

MARC Station

Basemap Elements
- Railroad
- Water
- Parcels
- Buildings
- Vegetation
- County Line

Sabra, Wang & Associates, Inc.

Figure 2: Columbia Town Center Walkshed

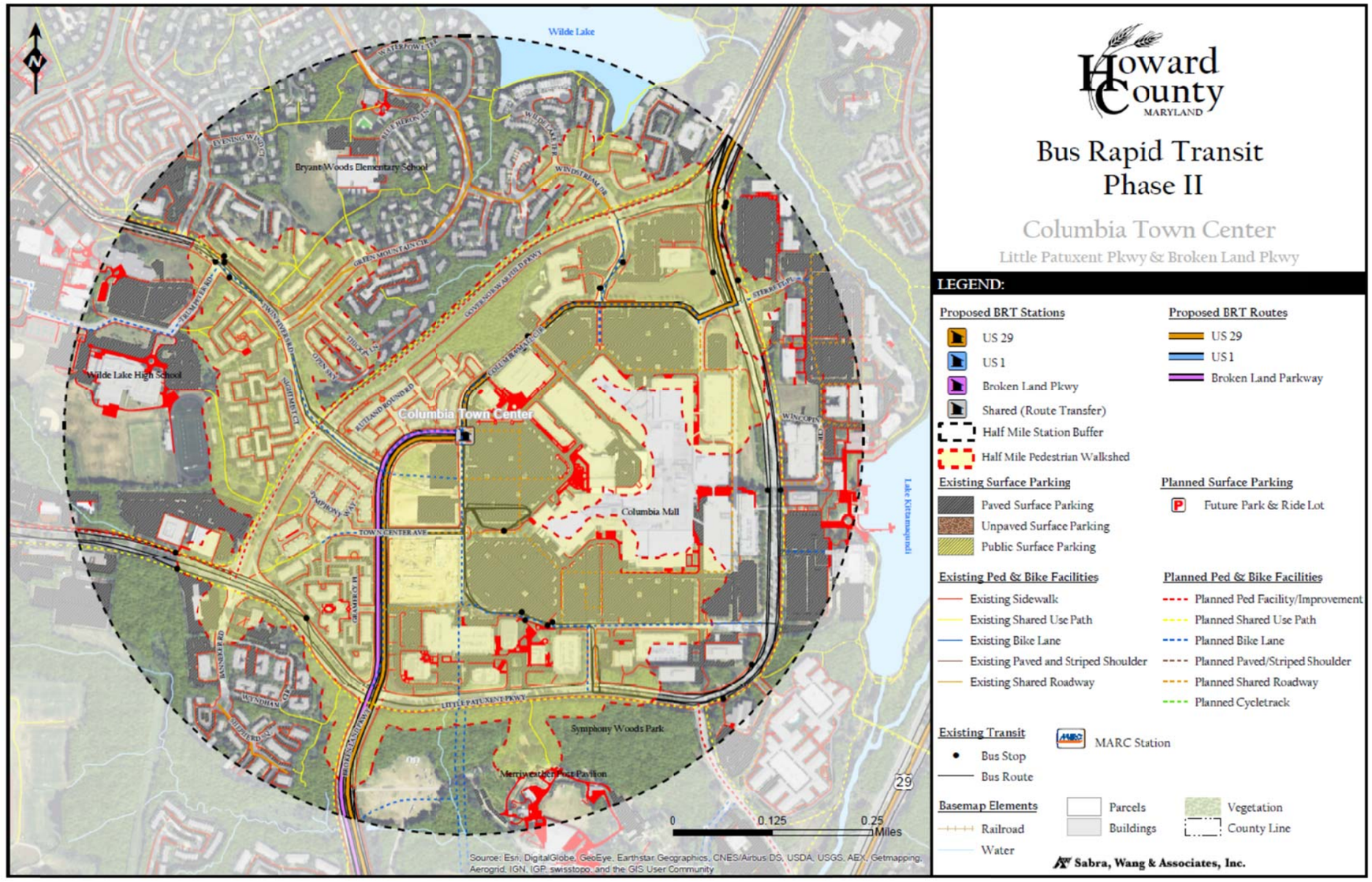


Figure 3: Jessup South Station Area Walkshed

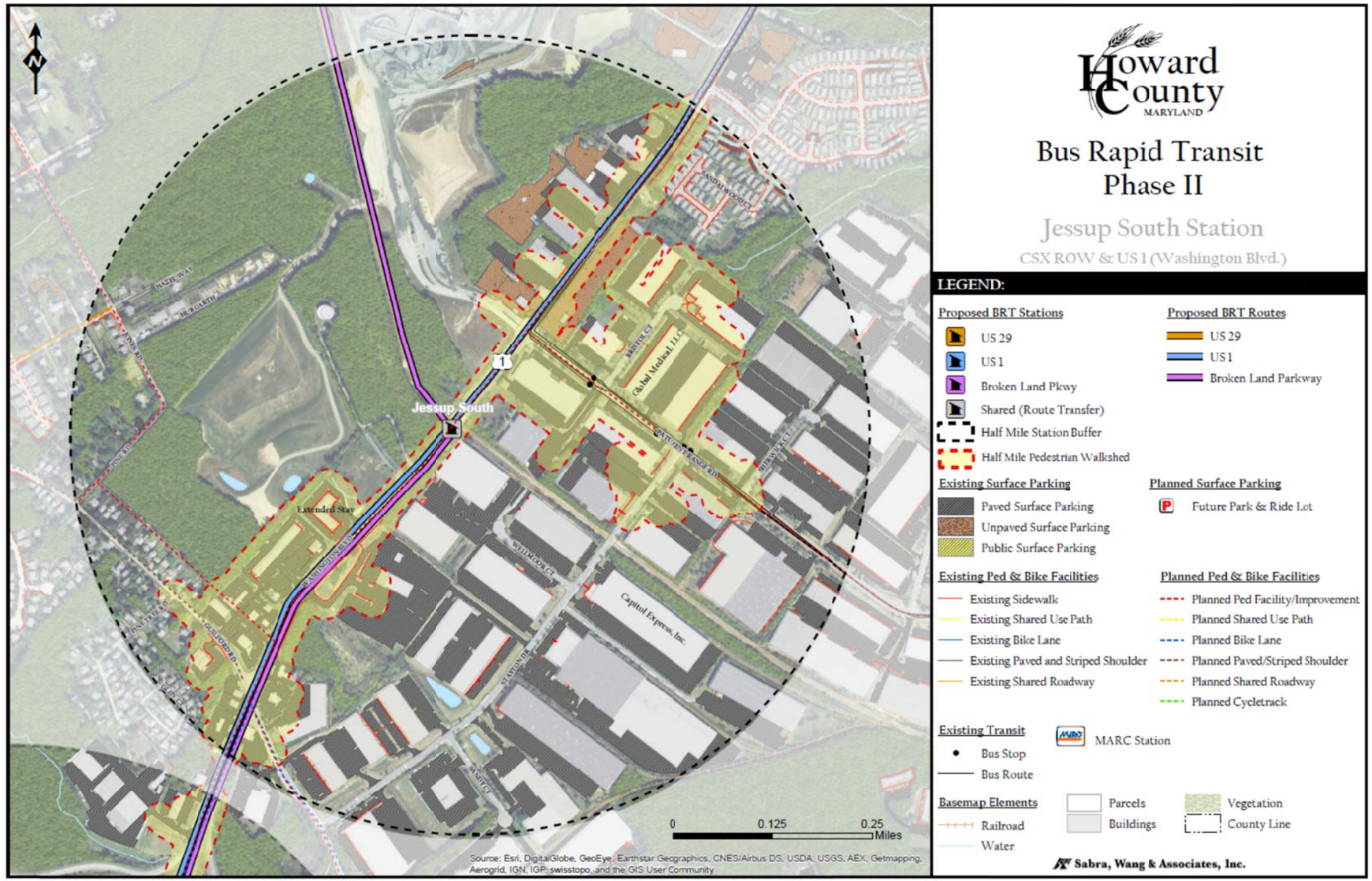


Figure 4: Savage Station Area Walkshed

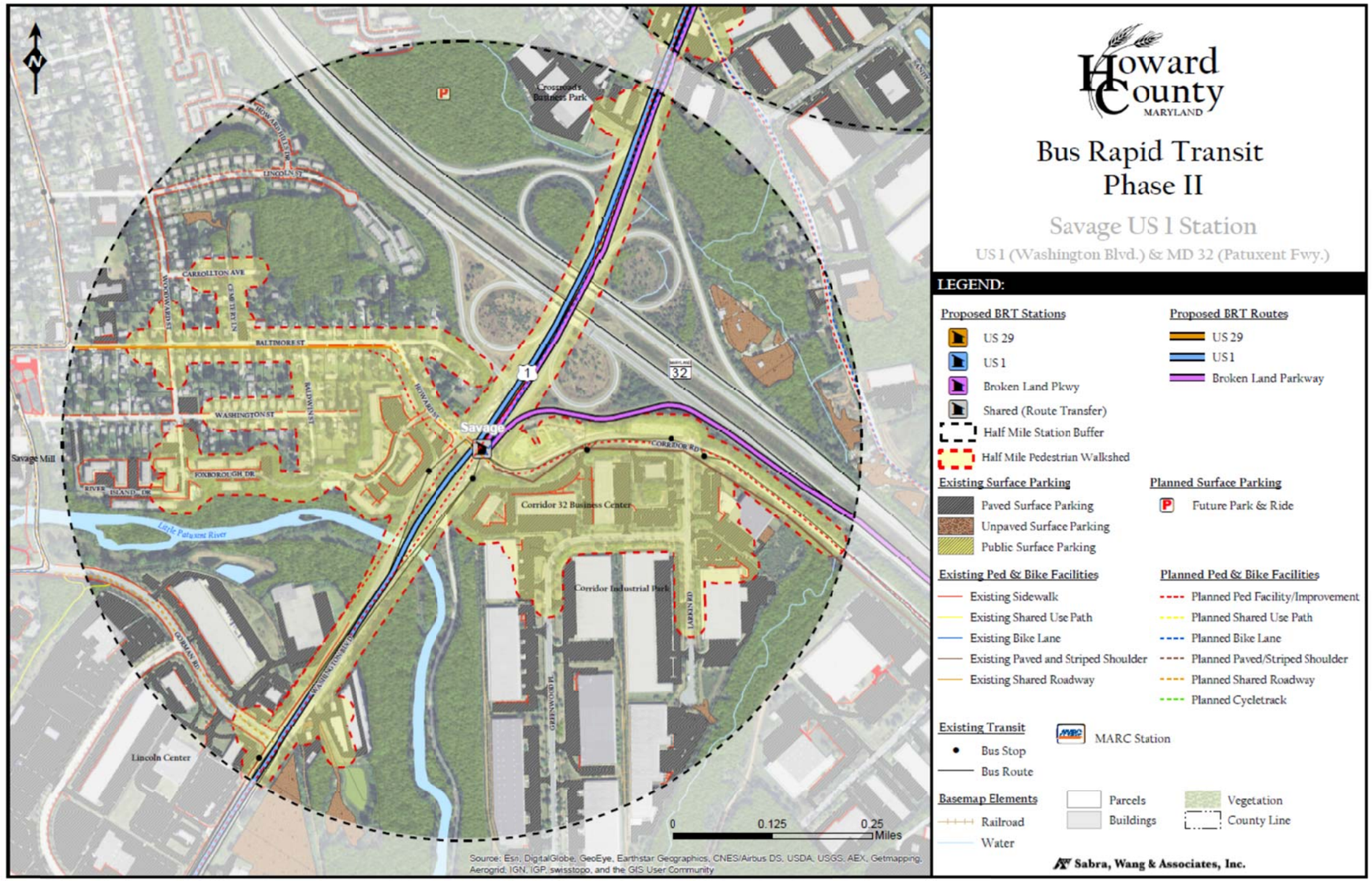


Figure 5: Elkridge Station Area Walkshed

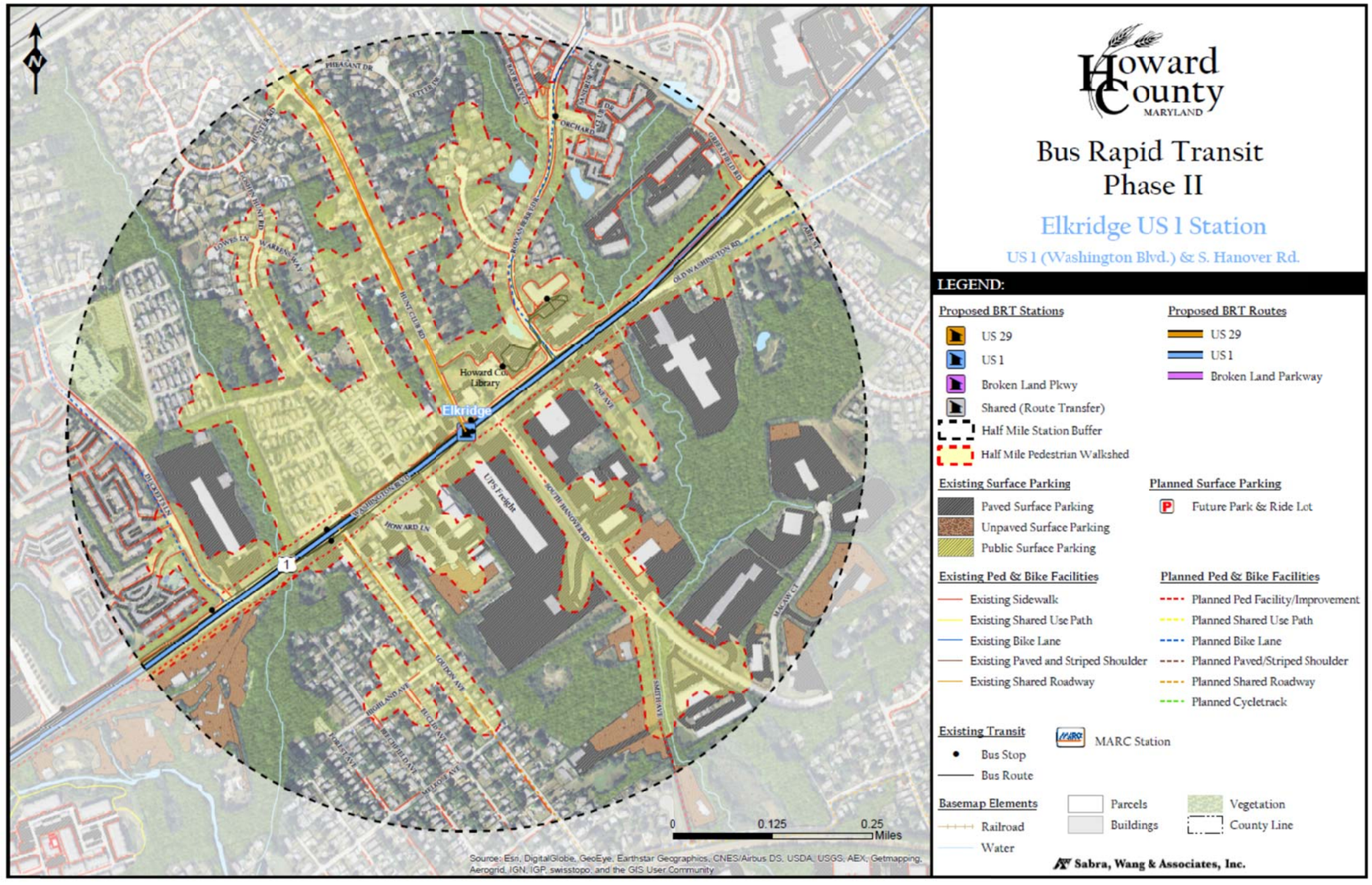


Figure 6: Dorsey Station Area Walkshed

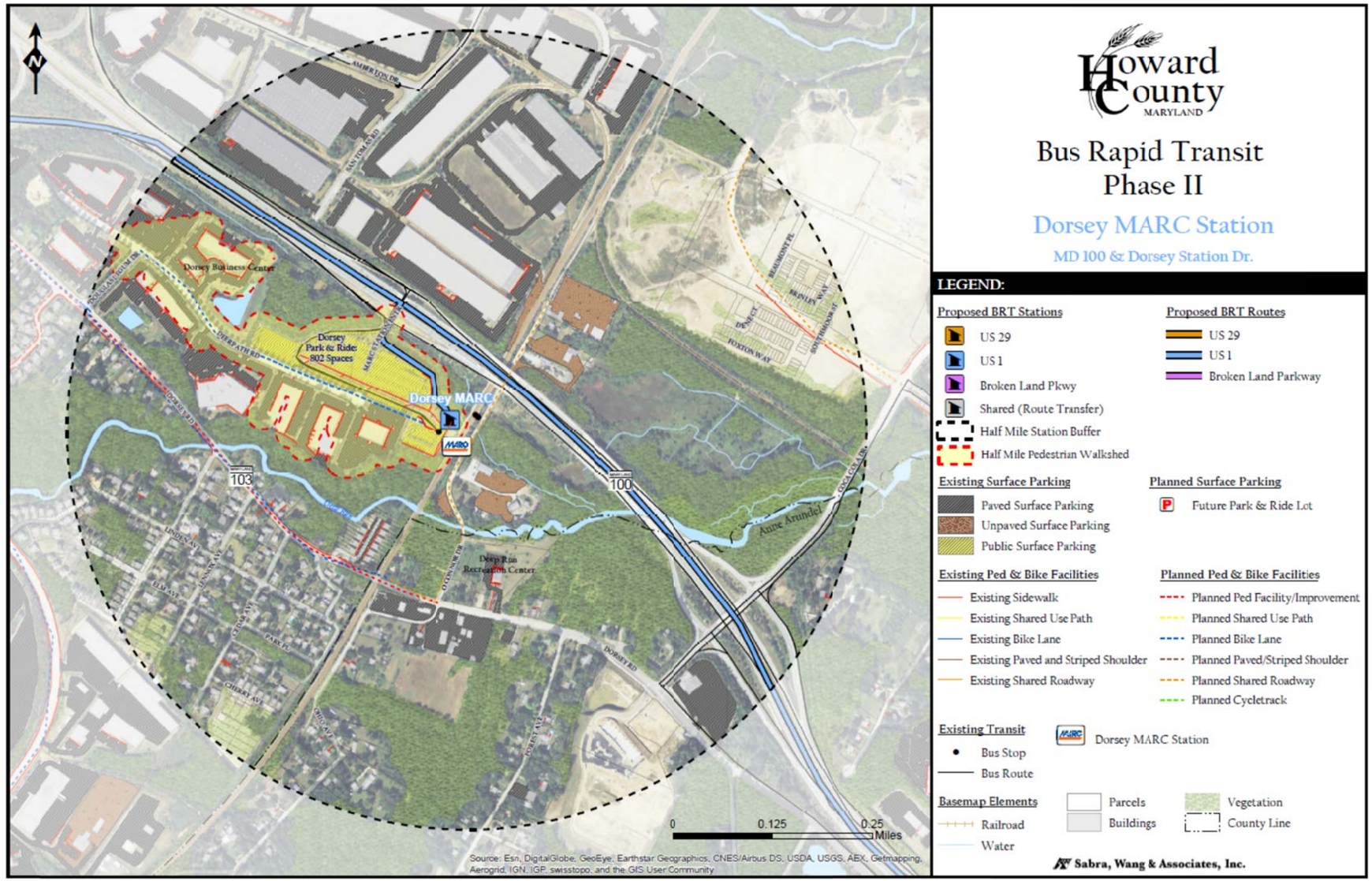


Figure 7: Jessup North Station Area Walkshed

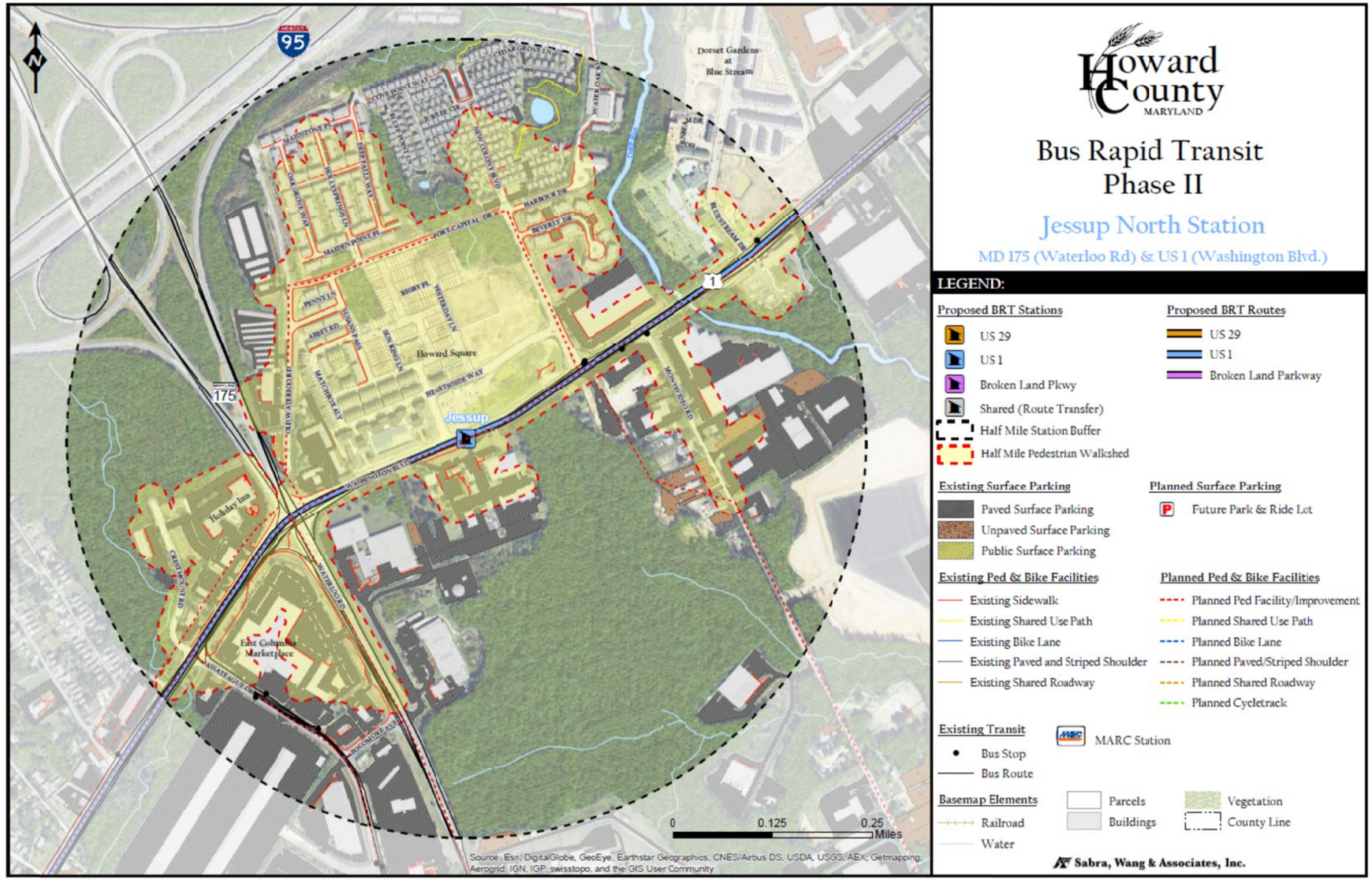


Figure 8: North Laurel Station Area Walkshed

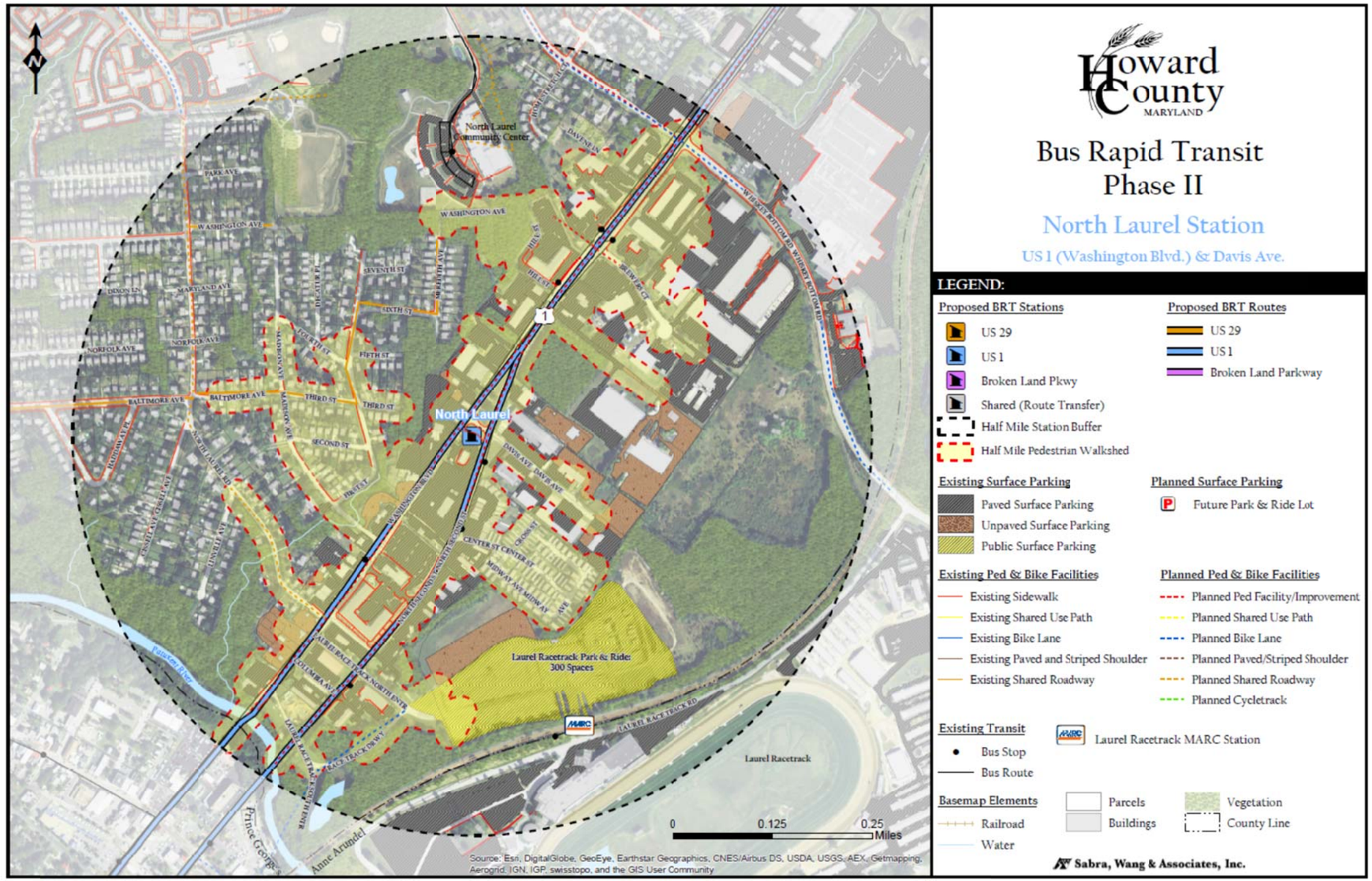
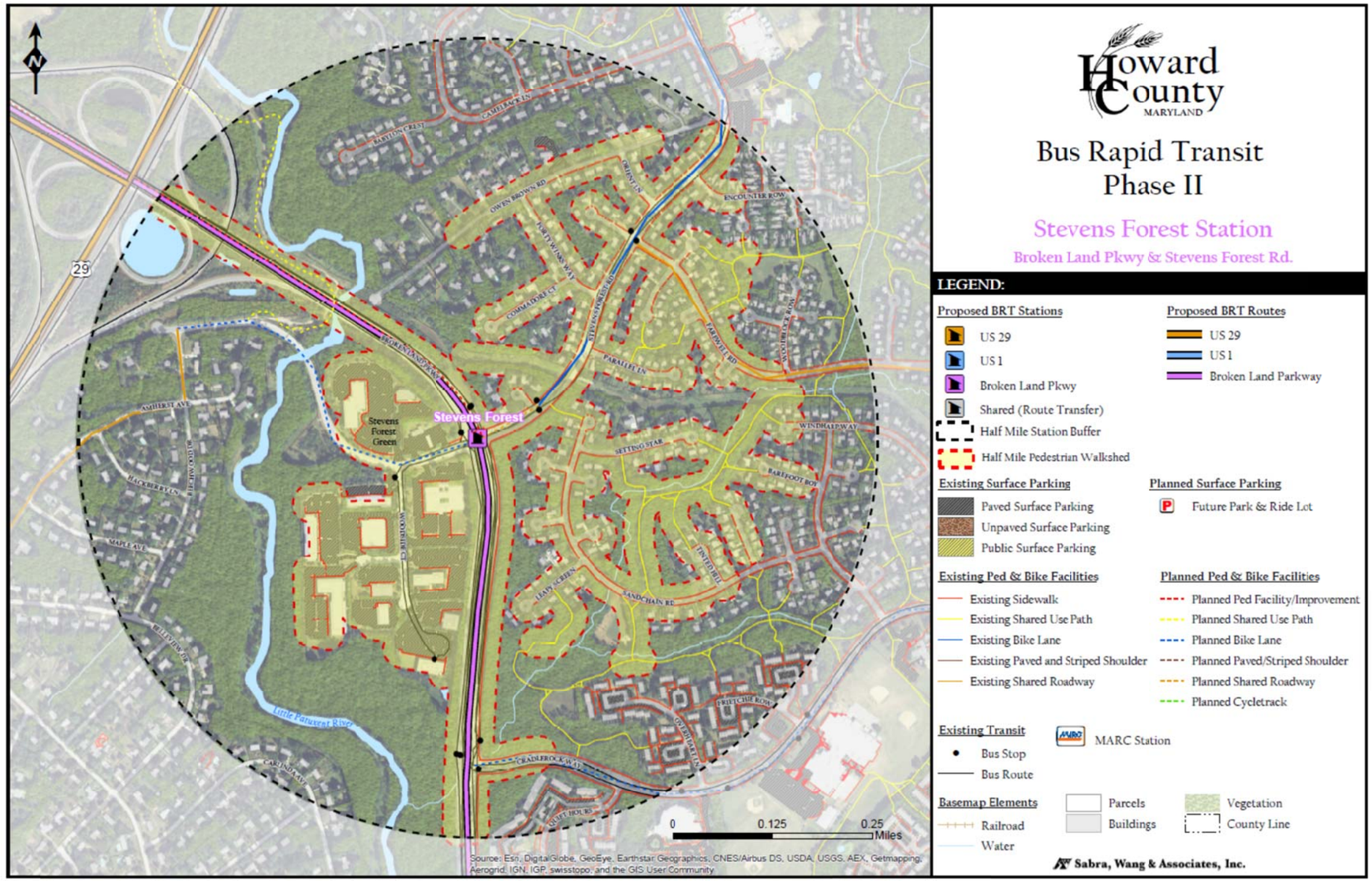
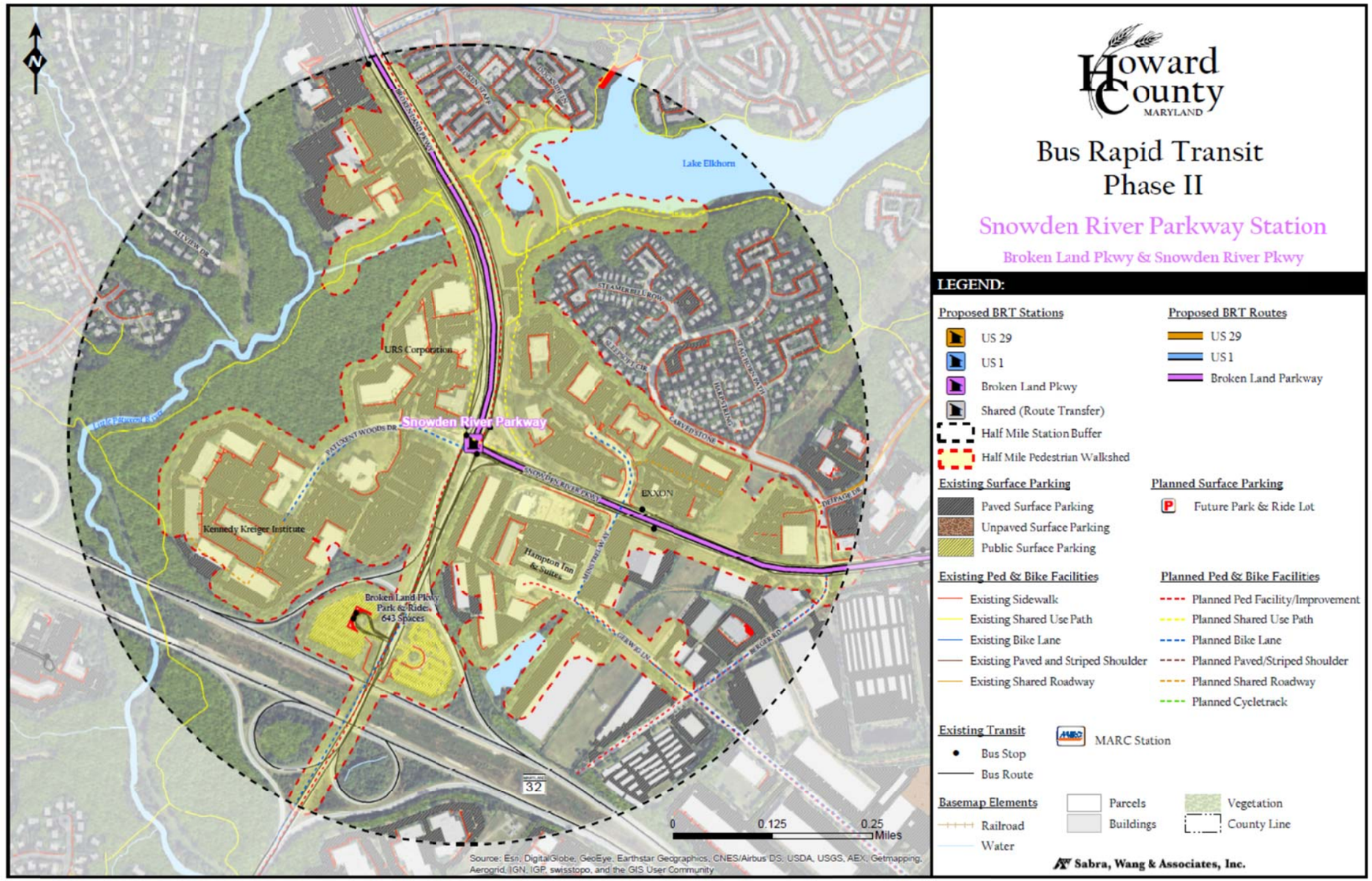


Figure 9: Stevens Forest Station Area Walkshed



Comment [BL4]: If we take the time to update the network for these, I think this one needs updating. Broken Land Parkway is not really walkable near the interchange with 29.

Figure 10: Snowden River Parkway Station Area Walkshed



Comment [BL5]: I think this one needs a network update. Broken Land Parkway south of Snowden River Parkway is not really walkable.

Figure 11: Savage MARC Station Area Walkshed

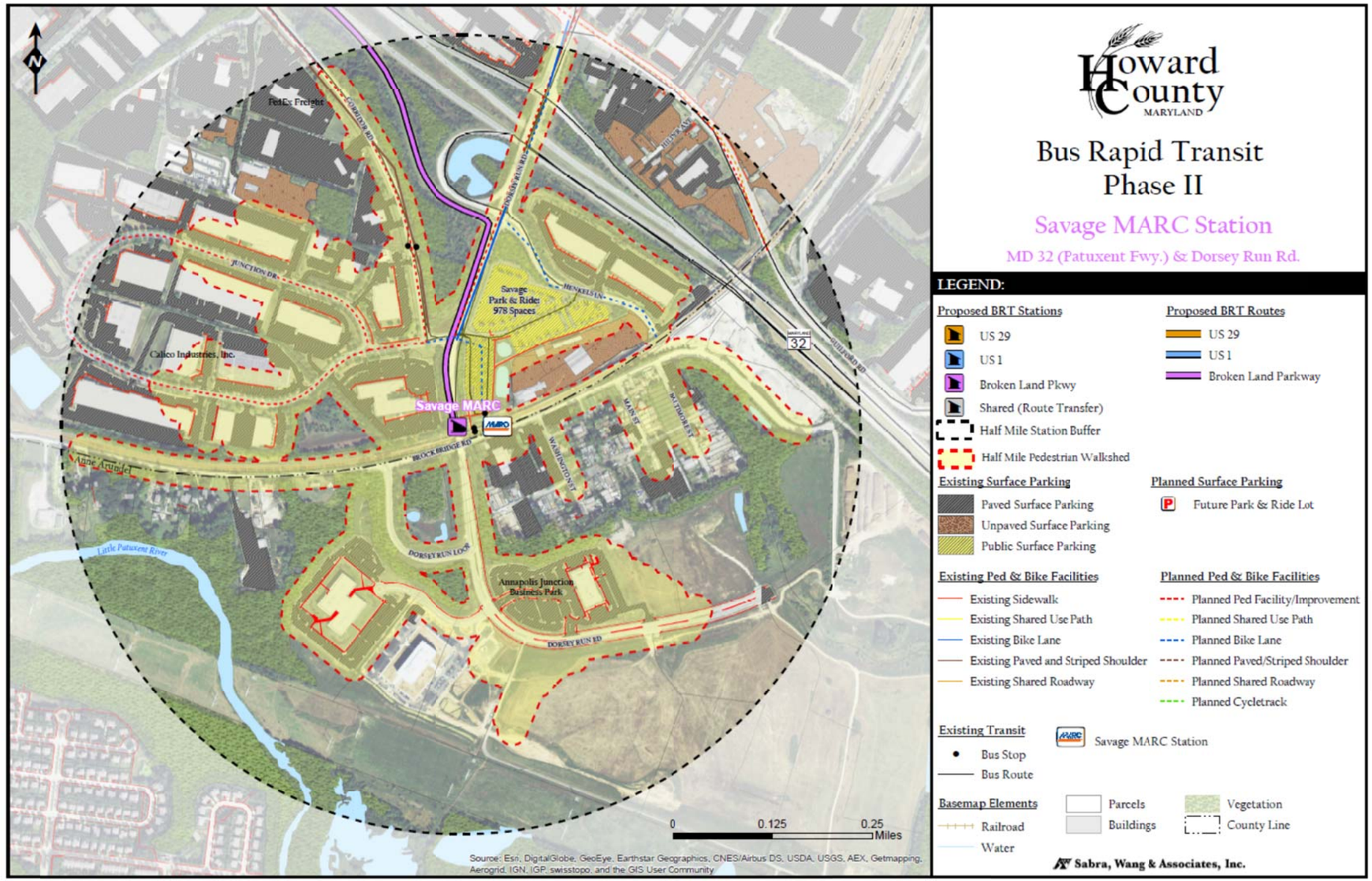


Table 2: Summary of Station Access Characteristics for US 29 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Mount Hebron	Collector	Junction of 29 & Rogers	Single-family residential, schools	Limited (I-70 presents a barrier, no sidewalks)	No change to development pattern.	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to residential areas to the north & east
US 40	Collector	Chatham Station, Village Green, or Golden Triangle shopping centers	Strip malls, multi-family residential, single-family residential	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	Some additional residential, no significant change to development pattern.	● Connection to MTA local bus service ● Park & Ride facility, possibly shared parking with shopping center ● Circulator service within the immediate station area, connecting the various shopping centers ● Shuttle service to downtown Ellicott City
Long Gate	Collector, Minor Activity Center	Long Gate Shopping Center	Single-family residential, Long Gate Shopping Center, schools	Limited (some sidewalks, no street grid, highways split up the area)	New townhouse development adjacent to shopping center will be walkable to station.	● Park & Ride facility, possibly shared parking with shopping center ● Improved pedestrian connections to Dunloggin, Autumn Hill, & Wheatfield neighborhoods, Meadowbrook Park ● Shuttle service to Dorsey's Search, Red Branch Road, Columbia 100 Pkwy areas.
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
MD 32	Collector	Few possibilities provide easy access to/from US 29, perhaps off of Seneca Drive, if land is available for a park & ride lot, or at Atholton Shopping Center	Single-family residential, schools, low-density office park to SE	Poor (some sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods
Maple Lawn	Mixed-Use Activity Center	Scaggsville Park & Ride, Maple Lawn Midtown District or Business District, perhaps multiple stops	New Urbanist-style neighborhoods, JHU campus	Good. Pod layout of dense, walkable neighborhoods.	Three additional neighborhoods are included in the Maple Lawn plan, which will not change the character of the area, but will increase the intensity of development.	● Shuttle service to JHU Applied Physics Laboratory ● Circulator service connecting to the Maple Lawn neighborhoods ● Possible Park & Ride facility sharing parking with Maple Lawn Business District

Table 3: Summary of Station Access Characteristics for US 1 Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Elkridge	Collector	Ideally located on US 1 where land can be dedicated for park & ride, perhaps north or south of Greenfield Road. Alternatively at Green Valley Marketplace	Single-Family and townhouse neighborhoods, light industrial	Moderate (Little street grid, but most streets have sidewalks, no limited-access highways)	n/a	● Park & Ride facility ● Improved pedestrian connections to surrounding neighborhoods ● Shuttle service to UMBC ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension)
Dorsey	Collector, Transfer point	Dorsey MARC station	Light industrial, office parks, some single-family home neighborhoods	Limited (Neighborhoods, office parks, light industrial areas are walkable, but separated by highways)	n/a	● Possible park & ride facility expansion ● Improved pedestrian connections to neighborhood south of the station ● Shuttle service to BWI Airport, including BWI Penn Line Rail Station (in absence of BRT extension) ● Shuttle service to office park, hotels on Parkway Drive ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup North	Collector	Anywhere with easy access on/off US 1, such as East Columbia Marketplace or future grocery store in Howard Square development	Apartment, townhouse and dense single-family residential; strip malls, drive up businesses.	Limited (Neighborhoods are walkable, but US 1 and MD 17% have little pedestrian accommodation and are difficult to cross.)	Dense, walkable residential neighborhoods increasing in size.	● Possible small park & ride facility, possibly sharing parking with a shopping center ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway. ● Shuttle service to Troy Park & Troy Hill Business Park
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
North Laurel	Mixed-Use Activity Center	Split station (NB & SB) on Washington Boulevard and 2nd Street, between Davis Avenue and Columbia Street	Moderate-density residential, drive-up businesses, Laurel Racetrack	Moderate (Many parking lots, but elements of a street grid exist, sidewalks coverage is hit and miss)	Mixed use development (primarily apartment) to be built between US 1 and Laurel Racetrack	● Complete the sidewalk network ● Improve pedestrian connections to neighborhoods west of US 1. ● Improve pedestrian connections to Laurel Racetrack. ● Shuttle service to Maryland City, Russett neighborhoods

Table 4: Summary of Station Access Characteristics for Broken Land Parkway Corridor Stations

Station	Station Role(s) (Primary, Secondary)	Potential Station Sites	Current Development Pattern		Future Development Impacts	Key Access Needs
			Dominant Land Uses	Walkability		
Columbia Town Center	Mixed-Use Activity Center	Many possibilities within the downtown Columbia area, close to Mall or Lakefront ideal, may warrant two stations if full planned density is realized	Columbia Mall, Merriweather Post Pavilion, multifamily residential, educational	Good. Many large parking lots, but elements of a street grid exist, almost all streets have sidewalks	The Downtown Columbia Master Plan envisions a strengthened street grid, with mixed-use development replacing parking lots, and improved connections between the Mall, the waterfront, and surrounding areas.	● Direct pedestrian connectivity to Mall, Lakefront ● Direct pedestrian connectivity or shuttle to Merriweather Post Pavilion ● Circulator service to Howard Community College, Wilde Lake Village Center, Joseph Square Shopping Center
Stevens Forest	Collector, Minor Activity Center	In Stevens Forest Business Park	Single-Family and townhouse neighborhoods, business park	Limited (Neighborhoods, business parks are walkable, but not connected. US 29, Little Patuxent River are barriers to circulation)	n/a	● Possible small park & ride facility, possibly within Stevens Forest Business Park ● Improved pedestrian connections between neighborhoods and Stevens Forest Business Park ● Shuttle service to Arrowhead, Oakland Mills, Owen Brown neighborhoods
Snowden River Parkway	Collector, Distributor	At Broken Land Park & Ride	Office parks, light industrial, some single-family home neighborhoods	Poor (few sidewalks, auto-oriented land uses, highways split up the area)	n/a	● Shuttle service to nearby business parks and retail centers on Snowden River Parkway
Columbia Gateway	Distributor	South of office buildings on Samuel Morse Drive	Office parks, undeveloped land, some single-family home neighborhoods, open pit mining	Poor (office parks have sidewalks, but are auto-oriented and widely dispersed)	n/a	● Shuttle service throughout Columbia Gateway business park and retail centers on Snowden River Parkway ● Multi-use path adjacent to BRT right-of-way from Berger Road to US 1
Jessup South	Collector, Transfer point	Anywhere where a park & ride facility can be implemented with easy access on/off US 1, perhaps south of Patuxent Range Road	Warehouse/light industrial, low-density residential, open-pit mining.	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Improved pedestrian amenities on US 1, particularly to facilitate crossing the roadway.
Savage	Collector, Transfer point	Future park & ride facility planned north of MD 32	Warehouse/light industrial, moderate-density residential	Limited (Neighborhoods, shopping centers, light industrial areas are walkable, but not connected. US 1, MD 32 are barriers to circulation)	n/a	● Park & Ride facility ● Pedestrian connection across MD 32 between US 1 and Vollmerhausen Road.
Savage MARC Station	Transfer Point, Distributor	Along Dorsey Run Road or within Annapolis Junction Town Center	Light industrial, office parks, some single-family home neighborhoods	Poor (Auto-oriented development pattern. MD 32, Baltimore-Washington Parkway, MARC tracks are barriers to circulation.)	n/a	● Direct access to MARC station ● Shuttle service to Ft. Meade ● Pedestrian connection to Russett neighborhood to the south

Appendix A: Station Area Walkshed Maps

Figure 1: Mount Hebron Station Area Walkshed

Figure 2: Columbia Town Center Walkshed

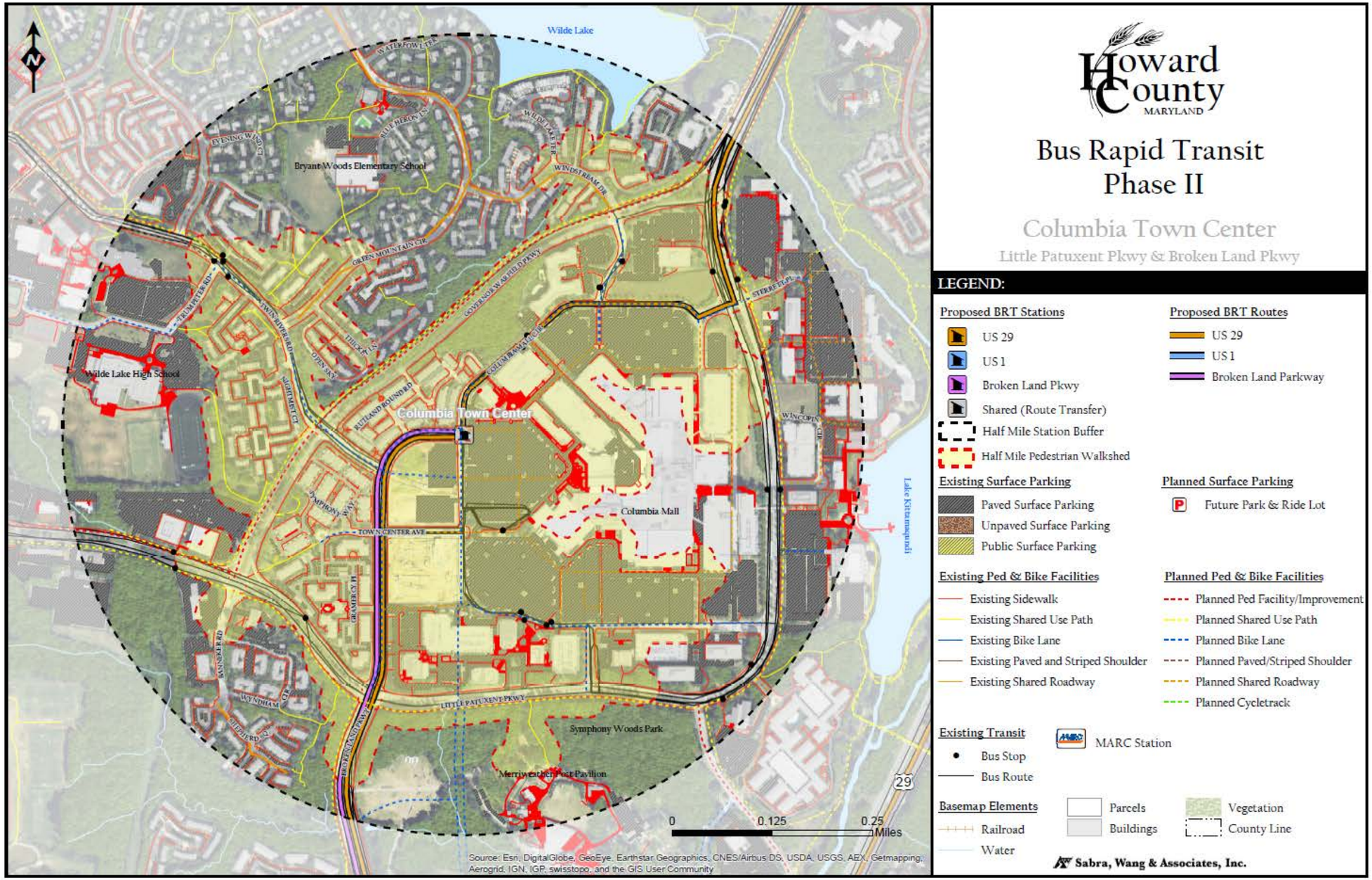


Figure 3: Jessup South Station Area Walkshed

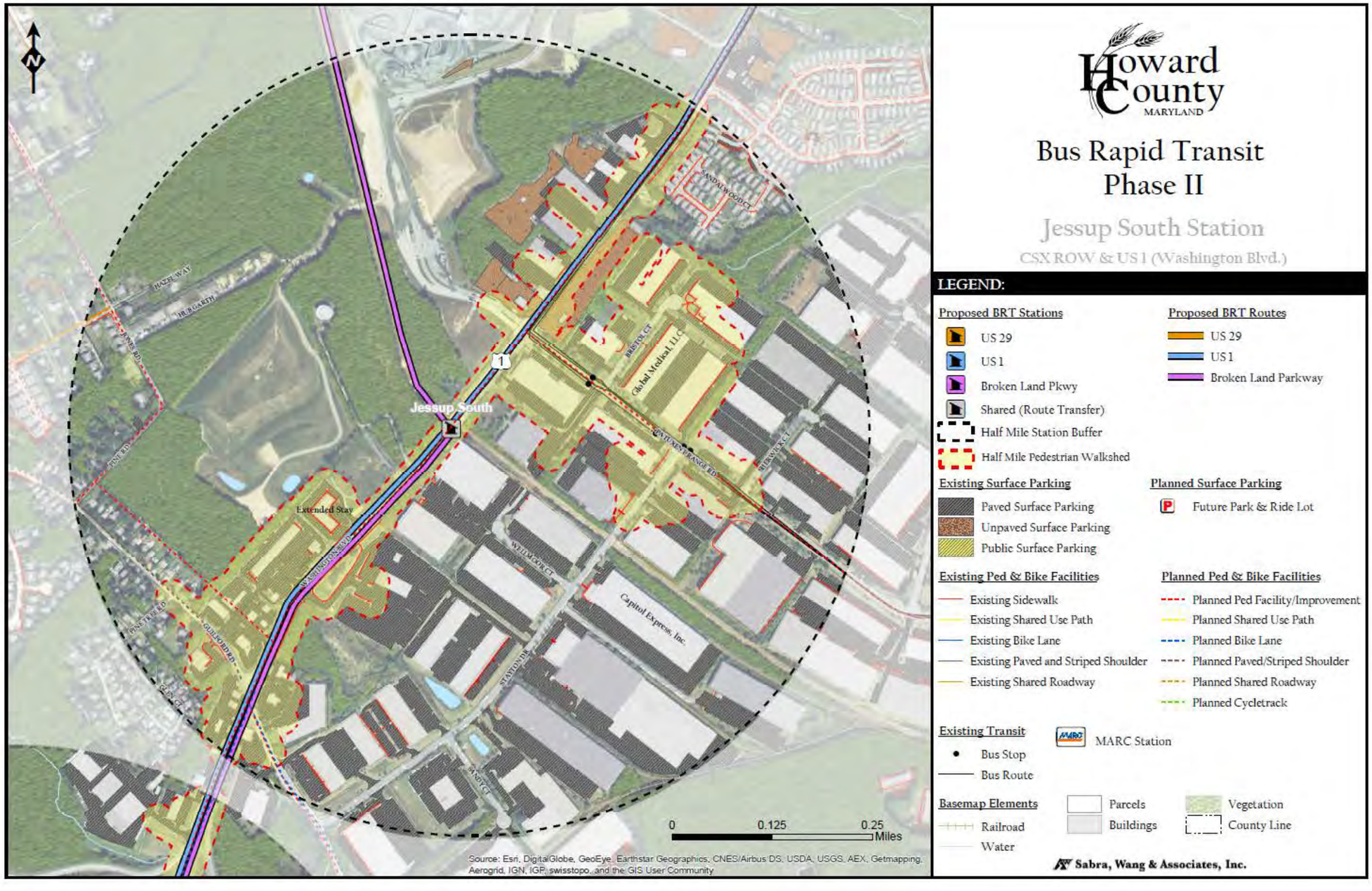


Figure 4: Savage Station Area Walkshed

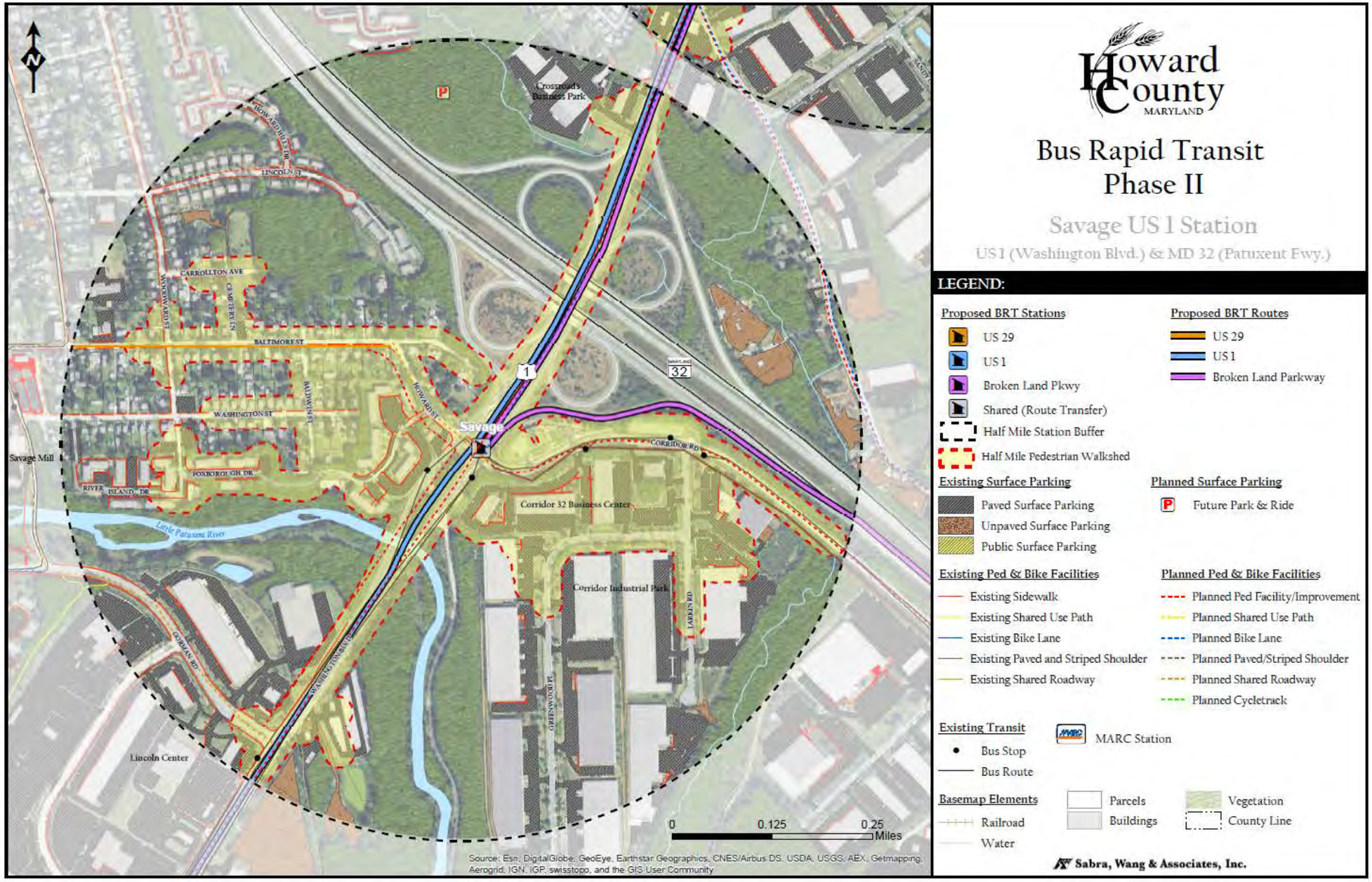


Figure 5: Elkridge Station Area Walkshed

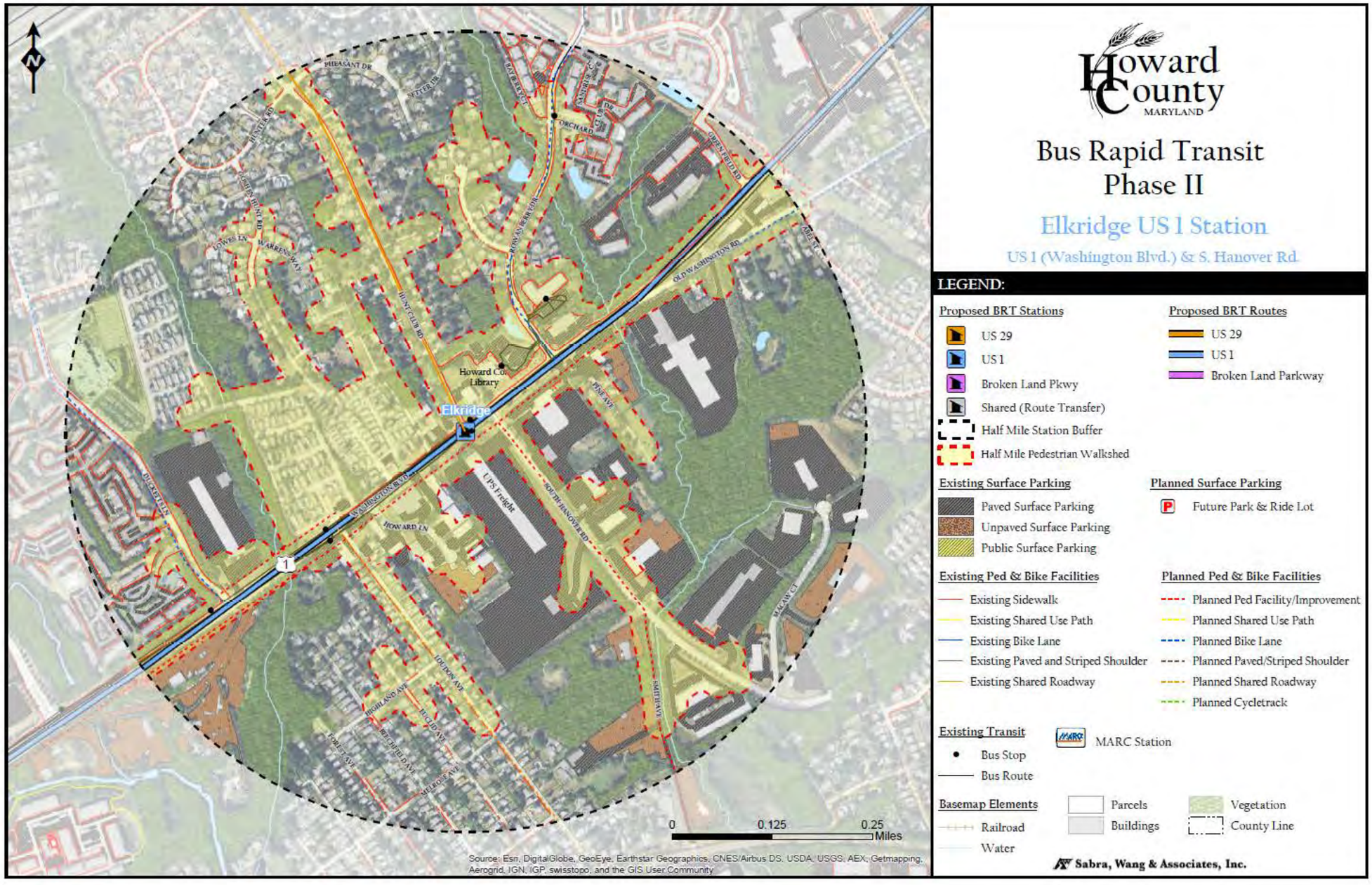


Figure 6: Dorsey Station Area Walkshed

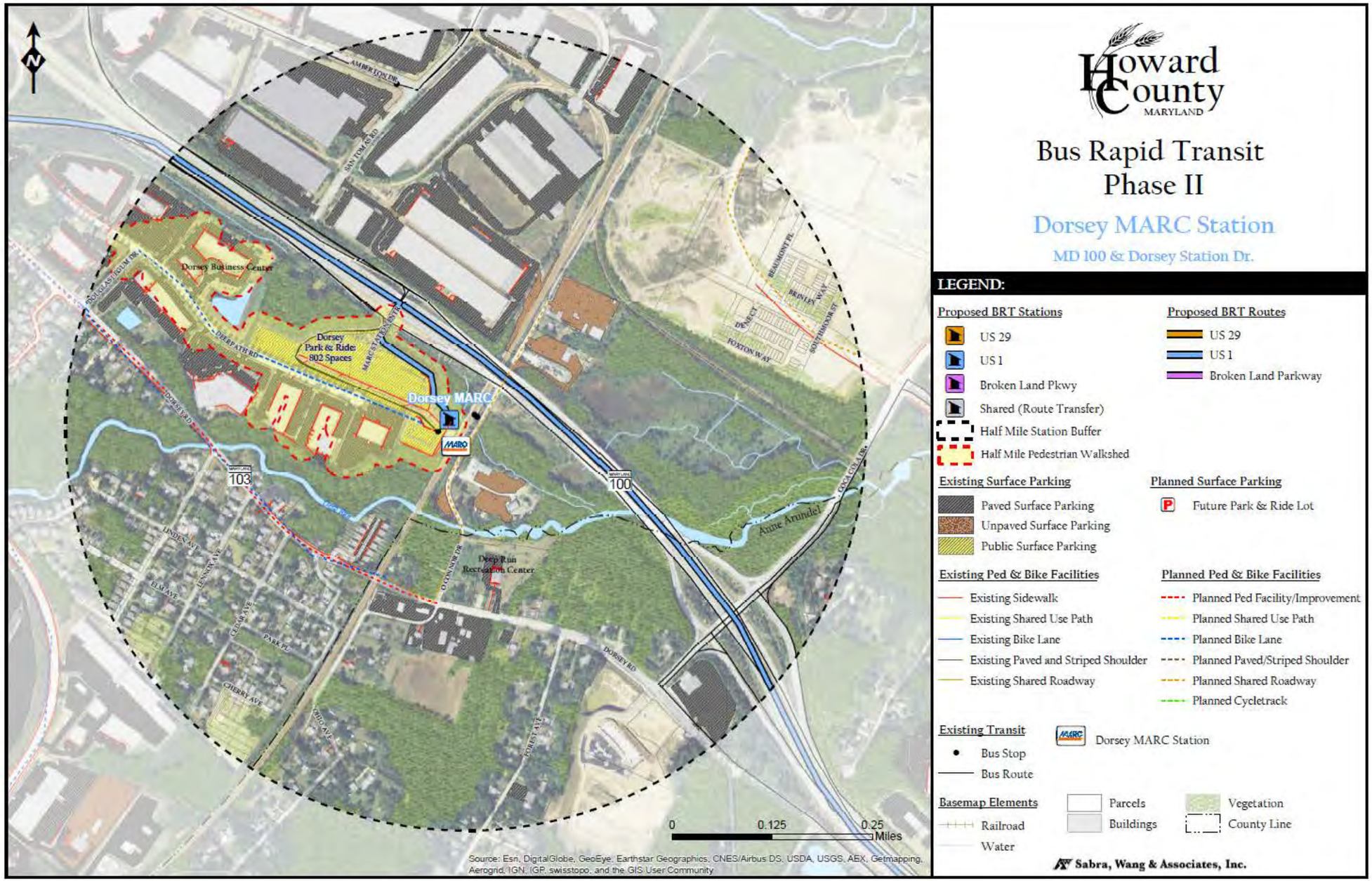


Figure 7: Jessup North Station Area Walkshed

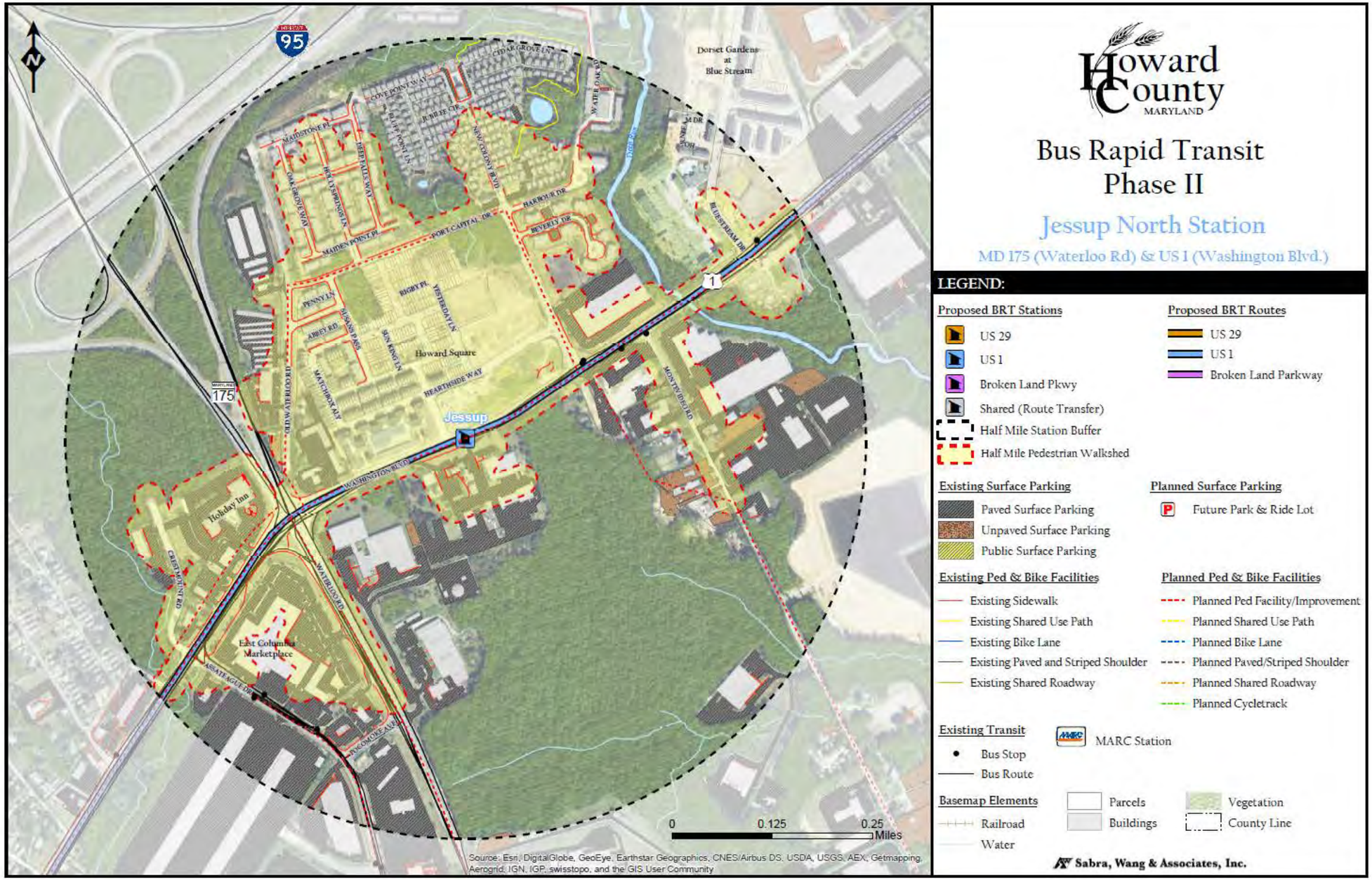


Figure 8: North Laurel Station Area Walkshed

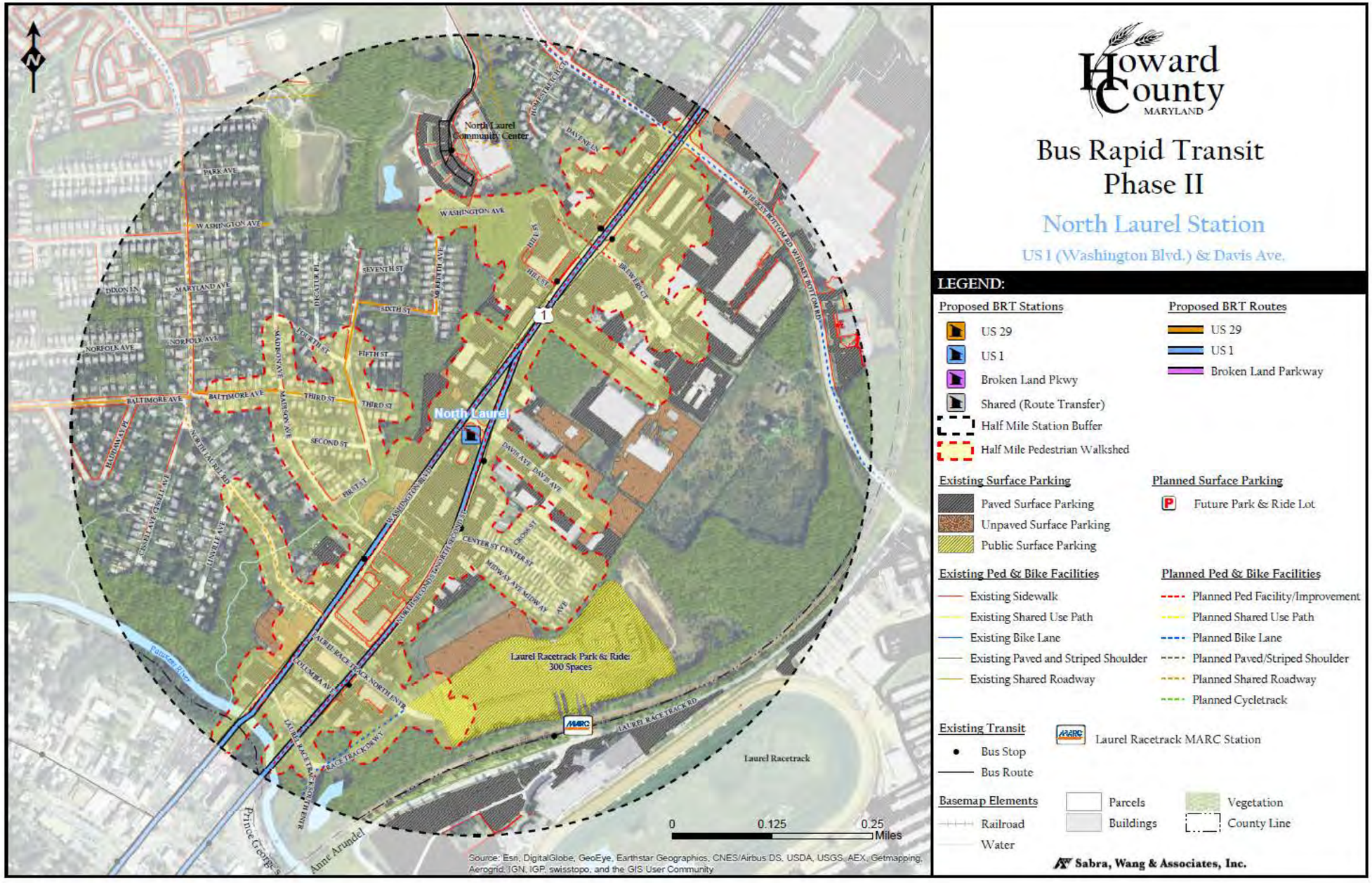


Figure 9: Stevens Forest Station Area Walkshed

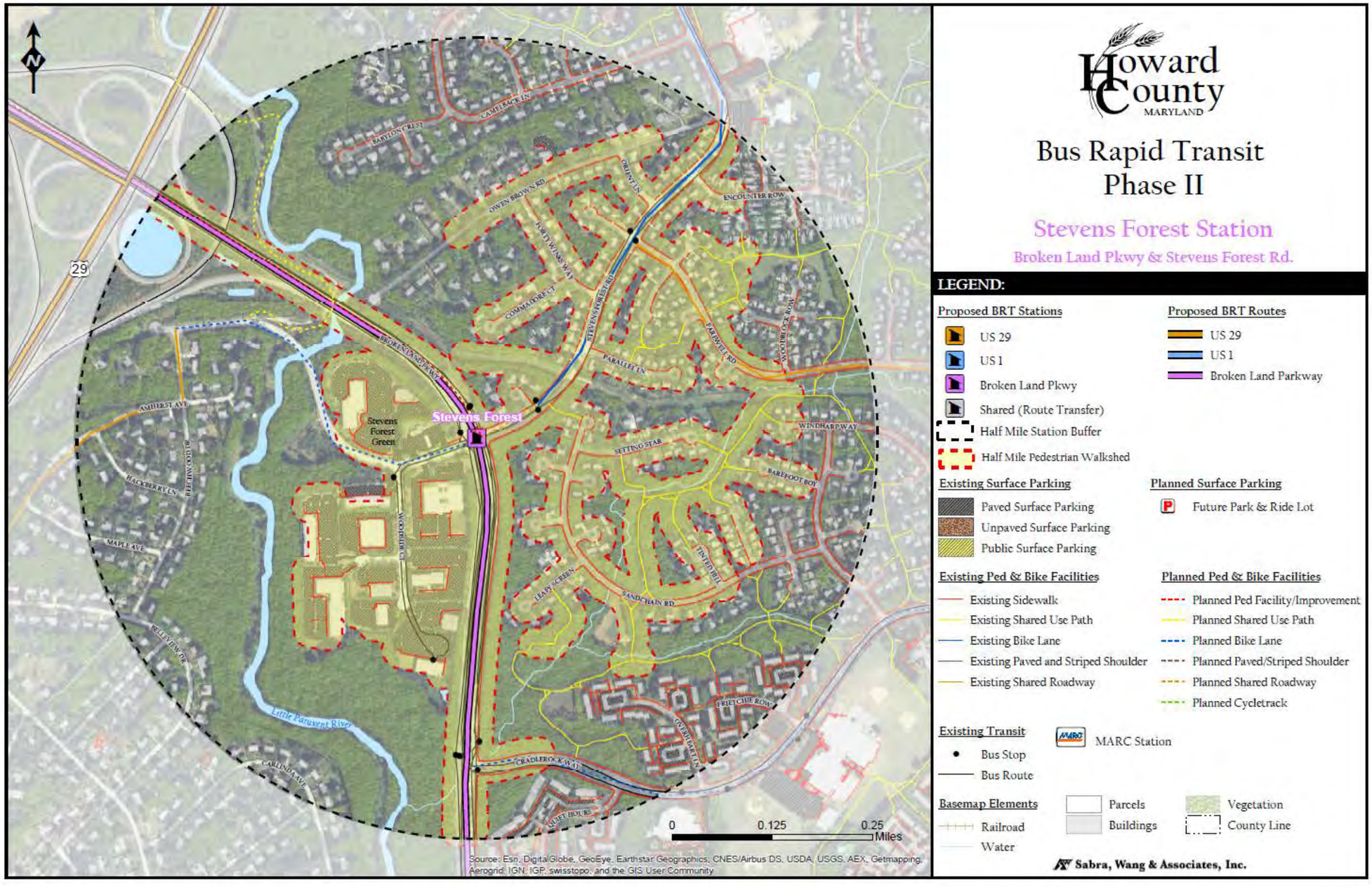


Figure 10: Snowden River Parkway Station Area Walkshed

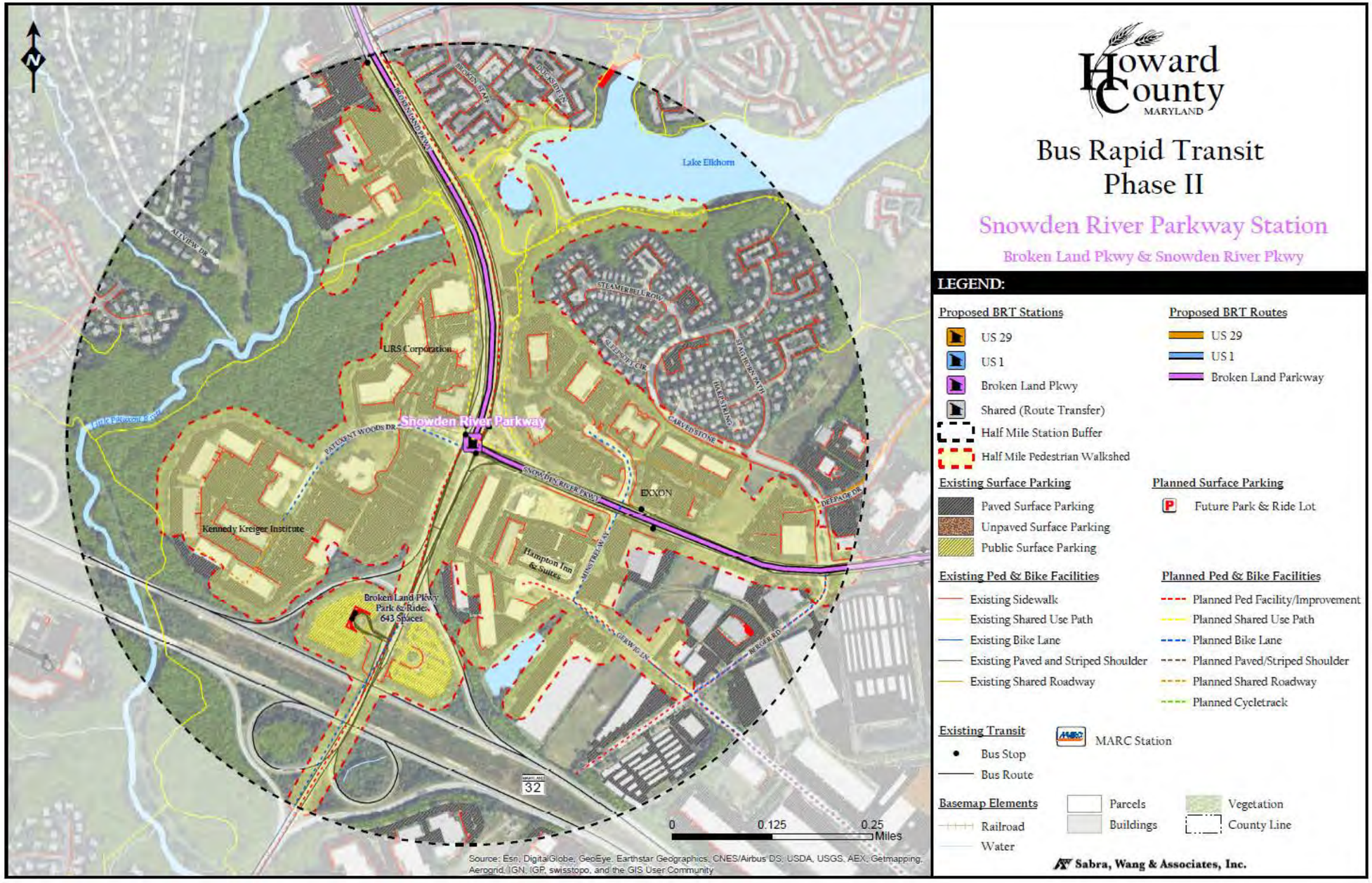
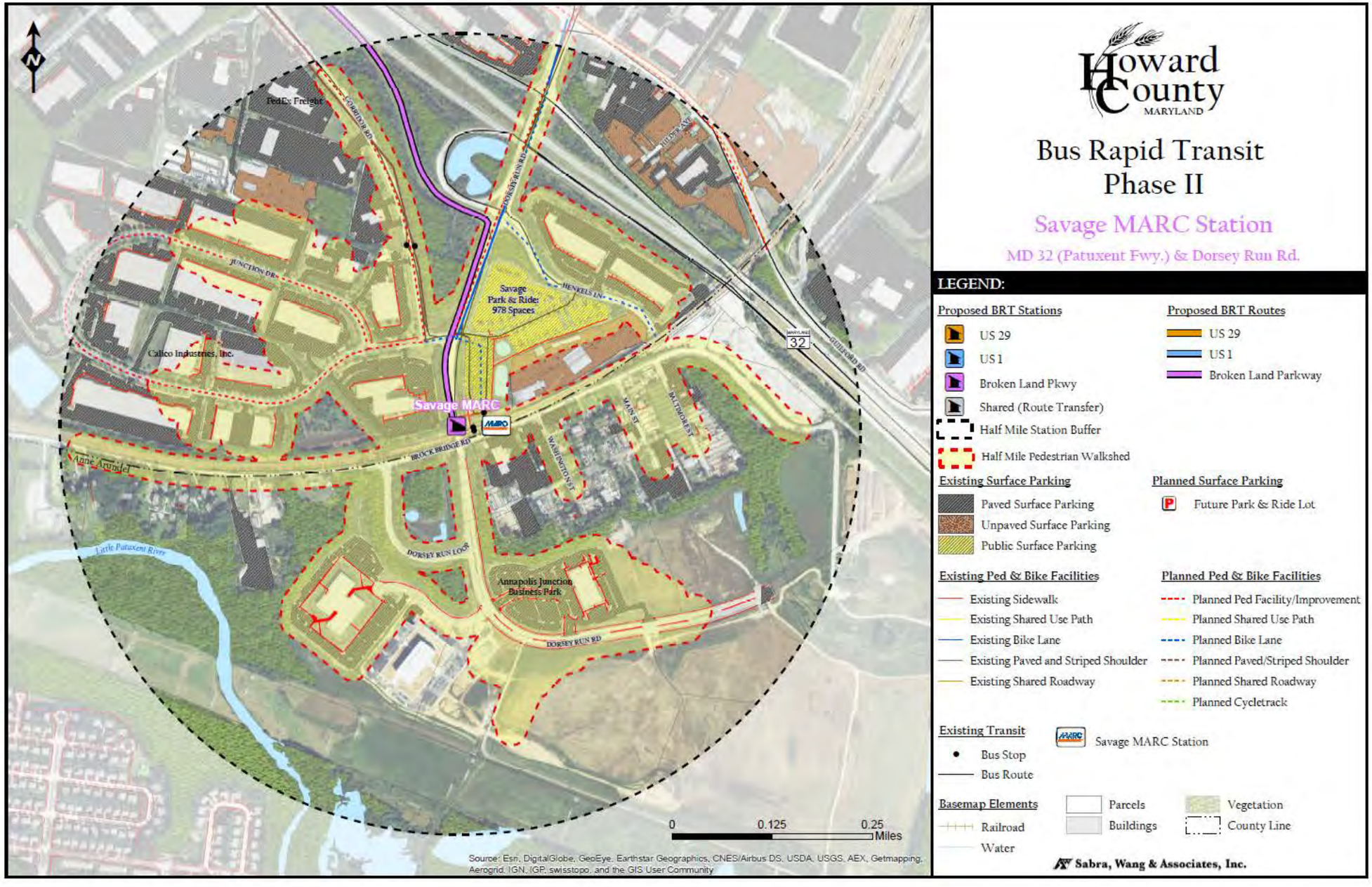
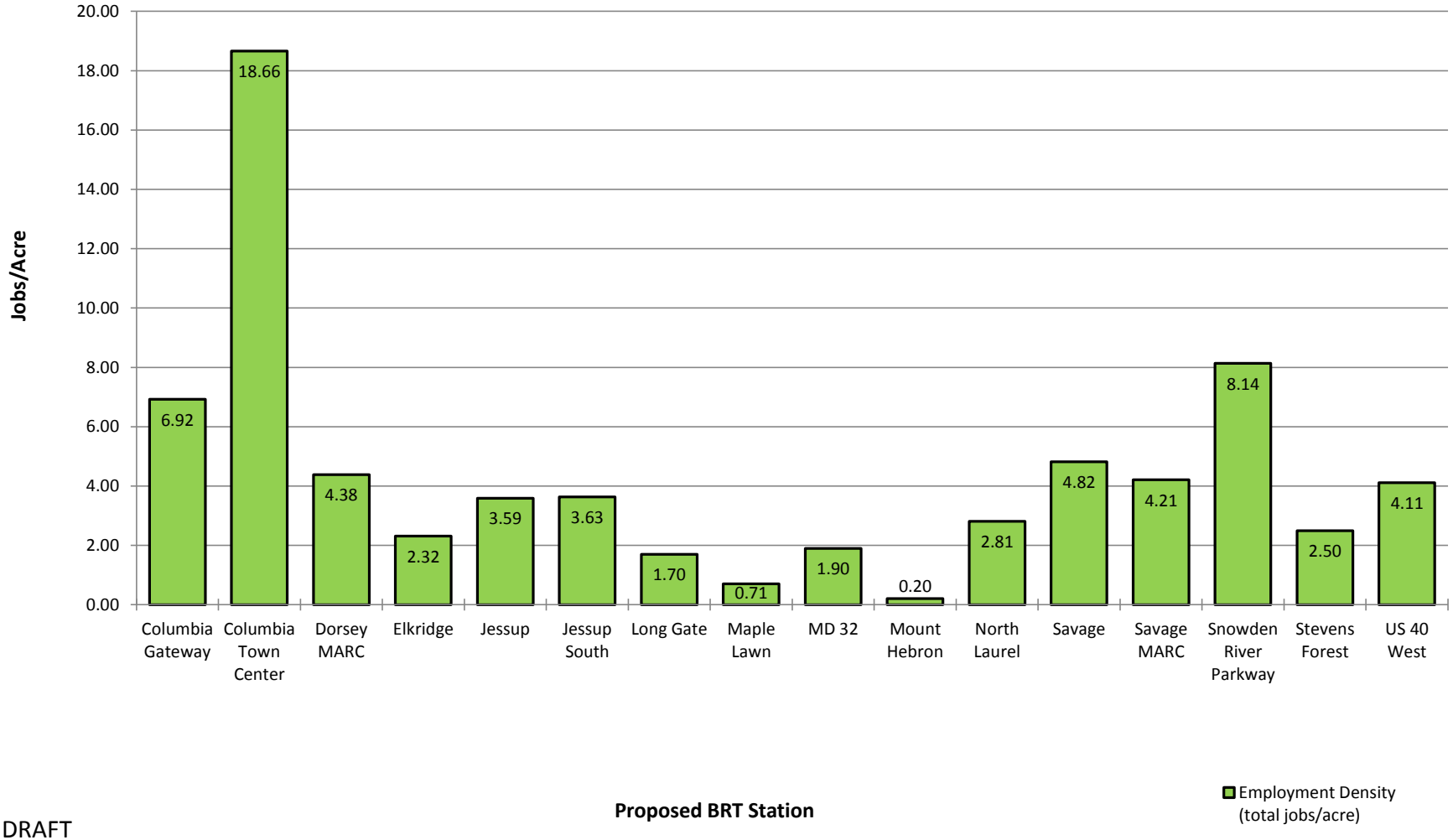


Figure 11: Savage MARC Station Area Walkshed



Employment Density



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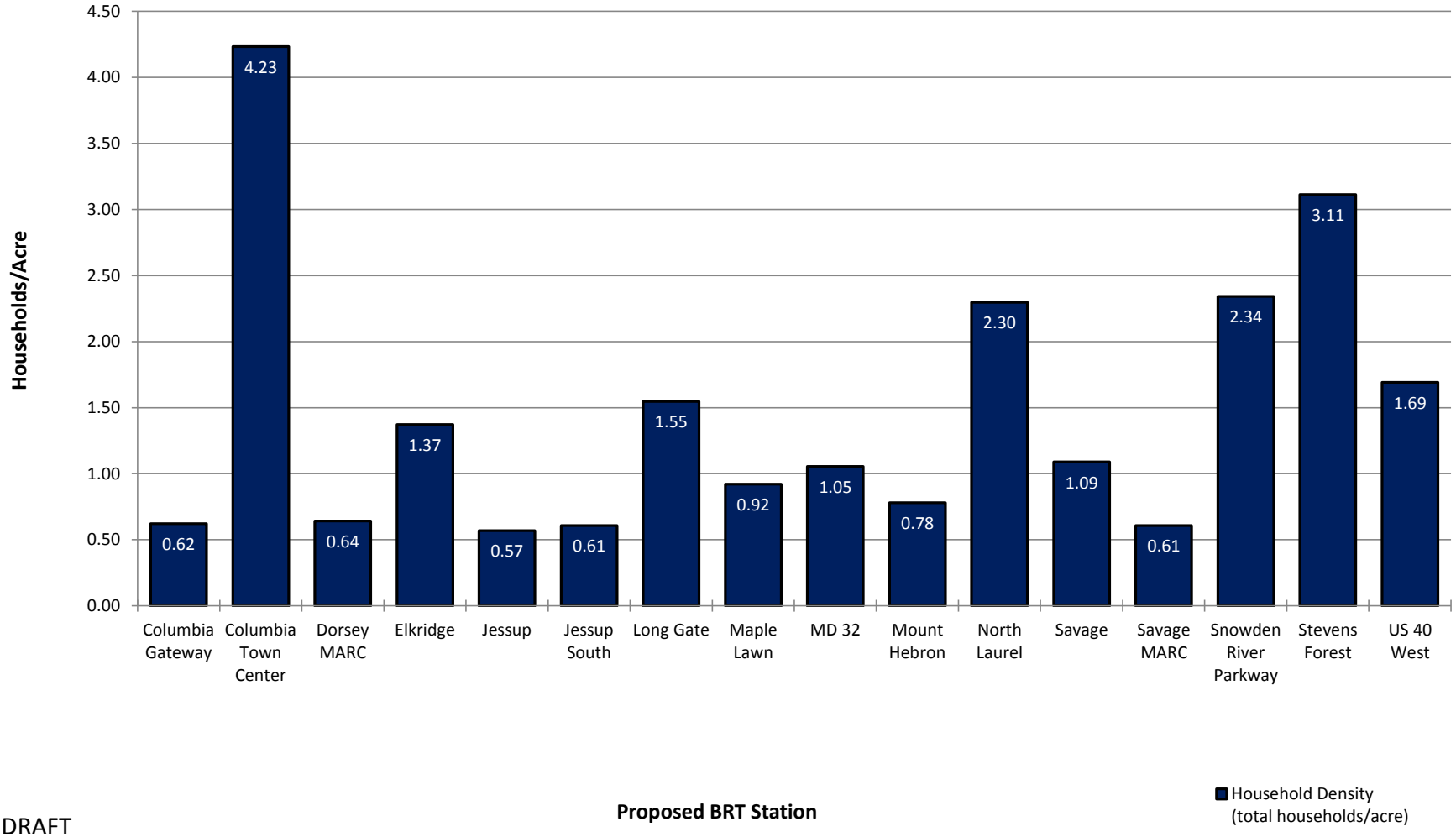
Source: BMC 4.3 TAZ and Round 8 Cooperative Forecasts 2010 Demographics

Household Density



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Source: 2014 Total Households by Census Tract - ESRI