GOVERNMENT OF THE DISTRICT OF COLUMBIA
DEPARTMENT OF TRANSPORTATION

d. Policy, Planning and Sustainability Administration

MEMORANDUM

TO: Sara Bardin
Director, Office of Zoning

FROM: Jamie Henson
Systems Planning Manager

DATE: February 17, 2017

SUBJECT: ZC Case No. 14-18A – Brookland Manor, Block 7

PROJECT SUMMARY

Mid-City Financial Corporation (the "Applicant") seeks second stage approval for Block 7 of the overall Brookland Manor mixed-use development. This portion of the project includes two residential buildings; Building A houses 131 mixed-income dwelling units and Building B contains 200 seniors-only dwelling units. This project is located south of Saratoga Avenue NE between Brentwood Road and 14th Street (Square 3953, Lots 1, 2, and 3) (the "Site"). There are 68 proposed residential vehicular parking spaces for Building A and 48 for Building B. For long-term bicycle parking, Building A proposes 44 spaces and Building B 10 spaces. For short-term bicycle parking, Building A will provide seven spaces, and Building B ten spaces. Overall, Block 7 consists of:

- 331 residential units, 131 of which are mixed-income and 200 seniors-only;
- 116 vehicular parking spaces; and
- 54 long-term and 17 short-term bicycle parking spaces.

SUMMARY OF DDOT REVIEW

The District Department of Transportation (DDOT) is committed to achieve an exceptional quality of life in the nation's capital by encouraging sustainable travel practices, safer streets, and outstanding access to goods and services. As one means to achieve this vision, DDOT works through the zoning process to ensure that impacts from new developments are manageable within and take advantage of the District's multimodal transportation network.

The purpose of DDOT's review is to provide an overview of the potential safety and capacity impacts of the proposed action on the District's transportation network and, as necessary, propose additional mitigations that are commensurate with the action. DDOT's review responds to the application filed as

well as the Comprehensive Transportation Review (CTR), final version dated February 10, 2017, which provides a comprehensive overall analysis of the Stage 2 proposal. This updated CTR is included as an attachment to this report for insertion into the public record.

After an extensive, multi-administration review of the case materials submitted by the Applicant, DDOT finds:

Site Design

- The Block 7 Site is surrounded by a robust transportation network, fronting on Saratoga Avenue with Brentwood Parkway and 14th Street on each side of the block and a full access alley proposed at the rear;
- This street and alley network will disperse site traffic in a way that minimizes the action's impact on the external road network;
- Sufficient bicycle and pedestrian connections utilizing the existing street network are proposed through the Site;
- Loading for the multi-family residential buildings is proposed to occur from the rear alley network, which is consistent with DDOT standards and approach;
- The proposed street and public space layout concepts for the Site as shown in the February 10, 2017 CTR submittal are consistent with DDOT standards and provide the multimodal accessibility sought in Stage 1 dialogue. For Saratoga Avenue, two options for street layout are presented—Option 1 provides parking on only one side of Saratoga while Option 2 provides it on both sides. DDOT will seek Option 2; and
- As design level details for remaining phases are defined in their Stage 2 processes, additional traffic analysis will be required.

Travel Assumptions

- The action is expected to generate new vehicle, transit, bicycle, and pedestrian trips in a manner similar to projections;
- The number of vehicle trips generated by the Site is reasonable, and has slightly declined from Stage 1 assumptions due to a more refined analysis; and
- Mode split and trip generation assumptions proposed by the Applicant and as vetted via the prior zoning case are reasonable considering the transportation network and TDM measures.

Analysis

- The Applicant utilized sound methodology to perform the analysis;
- No significant changes to traffic impacts are anticipated due to the Stage 2 refinement;
- Building B proposes ten long-term bicycle parking spaces, which does not meet zoning regulations, but less bicycle usage is anticipated in the senior building; and
- The Applicant proposes an adequate Transportation Demand Management (TDM) intended to promote non-auto trips.

DDOT has no objection to the requested Stage 2 approval, presuming the TDM program is effectively implemented.

Continued Coordination

Given the complexity and size of the overall development, the Applicant is expected to continue to work with DDOT on the following matters:

- For each subsequent Stage 2 PUD submission, an updated CTR for the specific Stage 2 action while also presenting updated analysis for the entire PUD as appropriate. It is expected that each major submission will present findings in terms of the entire PUD, which should include elements already completed;
- Further coordination is expected to determine the appropriateness of curb bulbouts, the proposed curbside management, and the exact width dimensions for the Saratoga street layout at this location in conjunction with final approval during public space permitting;
- All roadway and public space infrastructure should be designed according to DDOT standards;
- Design of the public realm for Block 7, including utility vault location and treatment, and bike rack locations; and
- All public space, including curb and gutter, street trees and landscaping, street lights, sidewalks, and other features within the public rights of way, are expected to be designed and built to DDOT standards, and will be coordinated during the public space permitting process.

TRANSPORTATION ANALYSIS

DDOT requires applicants who request PUD approval from the Zoning Commission complete a Comprehensive Transportation Review (CTR) in order to determine the PUD's impact on the overall transportation network. Accordingly, an applicant is expected to show the existing conditions for each transportation mode affected, the proposed impact on the respective network, and any proposed mitigations, along with the effects of the mitigations on other travel modes. A CTR should be performed according to DDOT direction. The Applicant and DDOT coordinated on an agreed-upon scope for the CTR that is consistent with the scale of the action.

The review of the analysis is divided into four categories: site design, travel assumptions, analysis, and mitigations. The following review provided by DDOT evaluates the Applicant's CTR to determine its accuracy and assess the action's consistency with the District's vision for a cohesive, sustainable transportation system that delivers safe and convenient ways to move people and goods, while protecting and enhancing the natural, environmental, and cultural resources of the District.

Site Design

Site design, which includes site access, loading, and public realm design, plays a critical role in determining a proposed action's impact on the District's infrastructure. While transportation impacts can change over time, the site design will remain constant throughout the lifespan of the proposed development, making site design a critical aspect of DDOT's development review process. Accordingly, new developments must provide a safe and welcoming pedestrian experience, enhance the public realm, and serve as positive additions to the community.

Site Access

The planned Block 7 Site is located south of Saratoga Avenue NE between Brentwood Road and 14th Street. Two residential buildings are proposed within this block fronting on Saratoga Avenue, with Brentwood Parkway and 14th Street on each side of the block, and a full access alley proposed at the rear. This alley will consist of an improvement to a portion of the existing alley and an extension that provides through access between Brentwood and 14th Street. Both the vehicular parking facilities and

loading docks will be served via the modified alley network, which is designed appropriately. Figure 1 shows the proposed roadway network.

Pedestrians and bicyclists are anticipated to access the buildings from the Saratoga entrances. Details on proposed curbside management, including potential curb bulbouts, at the Site are anticipated during public space permitting.

Figure 1. Proposed Block 7 Site Conditions (Source: Applicant)

Loading

DDOT's practice is to accommodate vehicle loading in a safe and efficient manner, while at the same time preserving safety across non-vehicle modes and limiting any hindrance to traffic operations. For new developments, DDOT requires that loading take place in private space and that no back-up maneuvers occur in the public realm. This often results in loading being accessed through an alley network, as proposed in this action.

The Applicant's proposed loading locations within an alley network would comply with DDOT's loading requirements. Loading and trash collection via the Site alleys would allow these activities to occur off the street network. The design of the loading facilities and the alley is appropriate. The Applicant provided truck turning movement analyses that show the proposed alley will function. The Applicant noted during Stage 1 that in order to access some of the other loading docks on the Site it is anticipated that current truck restrictions in place on Saratoga Avenue between Brentwood Road and Montana Avenue may be lifted. This change could also be necessitated by trucks servicing this building, and should be coordinated with the local ANC and community representatives, and will require further coordination with DDOT to finalize.

Streetscape and Public Realm

In line with District policy and practice, any substantial new building development or renovation is expected to rehabilitate streetscape infrastructure between the curb and the property lines. This includes curb and gutters, street trees and landscaping, street lights, sidewalks, and other appropriate features within the public rights of way bordering the Site.

This PUD proposes a comprehensive reconstruction of these elements on their Site, and as part of this Stage 2 application, details on the street and public space reconfiguration surrounding Block 7 were proposed. The Applicant provided typical sections illustrating anticipated changes for the streets surrounding this block. Along Brentwood Road and 14th Street, the typical section is expected to stay the same, which is appropriate. Along Saratoga Avenue, more extensive changes are envisioned to support the changing character of this street and facilitate multimodal access through the Site.

Two options are presented for Saratoga, which include interim improvements before final conditions are ultimately implemented as part of future project phases. These options show improved streetscape design as well as bike accommodations, which DDOT desired to support the proposed new bike route through the Site. Both options could make sense and meet minimum DDOT standards. DDOT will seek Option 2, however, which maintains parking lanes on both sides of the street.

Accordingly, the Applicant must continue to work closely with DDOT and the Office of Planning during public space permitting to ensure that the design of the public realm meets current standards and will substantially upgrade the appearance and functionality of the streetscape for public users needing to access the property or circulate around it. In conjunction with the District of Columbia Municipal Regulations, DDOT's *Design and Engineering Manual* will serve as the main public realm references for the Applicant. DDOT staff will be available to provide additional guidance during the public space permitting process.

All tree removal issues should be addressed immediately, and the Applicant should submit an application to DDOT for removal of street trees and any special or heritage trees. Tree planting can be handled as part of the public space permitting process. Lastly, DDOT expects utility vaults to be accommodated on private property. All proposed curb cuts are subject to the public space permitting process. Final overall design of the public space, including decisions on the street layout, will be determined during DDOT's public space permitting process.

Travel Assumptions

The purpose of the CTR is to inform DDOT's review of a proposed action's impacts on the District's transportation network. To that end, selecting reasonable and defensible travel assumptions is critical to developing a realistic analysis.

Background Developments and Regional Growth

As part of the analysis of future conditions, DDOT requires applicants to account for future growth in traffic on the network or what is referred to as background growth. The Applicant coordinated with DDOT on the appropriate background developments to include in the analysis during Stage 1. The

following projects were considered for inclusion in the analysis: Rhode Island Avenue Gateway, Brookland Square, Life Learning Center, Square 4268, and Hecht's Warehouse.

DDOT also requires applicants account for regional growth. This can be done by assuming a general growth rate or by evaluating growth patterns forecast in MWCOG's regional travel demand model. The Applicant coordinated with DDOT on use of the regional travel demand model as an appropriate tool to assess regional growth that accurately accounted for background developments. The travel assumptions included growth as well as trip distribution assumptions based on the regional model.

Off-Street Vehicle Parking

The overall parking demand created by the development is primarily a function of land use, development square footage, and price/supply of parking spaces. However, in urban areas, other factors contribute to the demand for parking, such as the availability of high quality transit, frequency of transit service, and proximity to transit.

There are 68 proposed residential vehicular parking spaces for Building A and 48 for Building B, which meets the zoning requirement of 77 for this block. This represents a decline from parking volume estimates produced during Stage 1. DDOT does not object to this level of parking provision.

Curbside Parking

For parking relief actions or larger developments that may have a greater impact on the local neighborhood, the evaluation of the supply of and demand for curbside parking spaces is appropriate. Based on the quantitative analysis provided, the CTR should provide an evaluation of the adequacy of curbside parking to accommodate excess demand generated by an action.

The provision of on-street parking on streets adjacent to Block 7 is not expected to change, except for on Saratoga Avenue, which could have one parking lane removed in the first option presented. DDOT will seek to see both parking lanes remain.

Trip Generation

The Applicant provided updated Stage 2 trip generation estimates utilizing the Institute of Traffic Engineers (ITE) Trip Generation Manual for land use codes specific to these buildings and the assumed mode split to convert base vehicular trips to base person trips using average auto occupancy data and then back to vehicular trips. The Applicant utilized the following ITE land uses in their trip generation estimation:

- Residential: Multistory buildings and townhouses; Apartment (Code 220); and
- Residential: Senior Adult Housing (Code 252);

DDOT generally finds the use of these ITE codes appropriate, but notes the lack of dependable information on trip generation in urban contexts. Thus, the methodology was supplemented to account for the urban nature of the Site and to split the trips into the appropriate mode. Existing trips were also based on ITE trip generation rates to calculate the volume of added trips based on the proposed development.

Each trip a person makes is made by a certain means of travel, such as vehicle, bicycle, walking, etc. The means of travel is referred to as a 'mode' of transportation. A variety of elements impact the mode of travel, including density of development, diversity of land use, design of the public realm, availability and cost of parking, among many others.

The Applicant developed the following mode split assumptions informed by the *Census Transportation Planning Products* (CTPP) data, which remained the same as Stage 1.

Table 1. Mode Split Assumptions (Source: Applicant)

Area	Mode			
	Drive	Transit	Bike	Walk
Residential	45%	45%	1%	9%

Based on the trip generation and mode split assumptions discussed above, the Applicant predicted the updated level of weekday peak hour trip generation for Block 7, as shown in Table 2. This level of trip generation closely matches that presumed in Stage 1.

Table 2. Multimodal Trip Generation Summary (Source: Applicant)

Brookland Manor Block 7 - Stage 1 Trip Generation

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr
Transit	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Walk	3 ppl/hr	11 ppl/hr	13 ppl/hr	11 ppl/hr	6 ppl/hr	16 ppl/hr

Brookland Manor Block 7 - Stage 2 Trip Generation

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	13 veh/hr	36 veh/hr	49 veh/hr	39 veh/hr	24 veh/hr	63 veh/hr
Transit	14 ppl/hr	41 ppl/hr	55 ppl/hr	44 ppl/hr	27 ppl/hr	71 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Walk	3 ppl/hr	8 ppl/hr	11 ppl/hr	9 ppl/hr	5 ppl/hr	14 ppl/hr

Change in Trip Generation from Stage 1 to Stage 2

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	1 veh/hr	-11 veh/hr	-10 veh/hr	-8 veh/hr	-1 veh/hr	-9 veh/hr
Transit	1 ppl/hr	-13 ppl/hr	-12 ppl/hr	-9 ppl/hr	-1 ppl/hr	-10 ppl/hr
Bike	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
Walk	0 ppl/hr	-3 ppl/hr	-2 ppl/hr	-2 ppl/hr	0 ppl/hr	-2 ppl/hr

The overall proposed action is expected to generate a significant number of transit, vehicular, and walking trips during the morning and evening peak hours. However, additional traffic analysis was not conducted as no significant changes to Stage 1 analysis were present.

Further consideration of these items, as well as additional adjustments to mode split assumptions may also be necessary during future Stage 2 processes. For each subsequent Stage 2 PUD submission, DDOT expects the Applicant to evaluate its consistency with the Stage 1 analysis, and DDOT may request additional updated trip generation analysis accordingly.

Study Area and Data Collection

The Applicant in conjunction with DDOT identified 24 intersections where detailed vehicle, bicycle, and pedestrian counts would be conducted and a level of service analysis would be performed. These intersections are immediately adjacent to the Site and include intersections radially outward from the Site that have the greatest potential to see moderate to significant increases in vehicle delay. DDOT acknowledges that not all affected intersections are included in the study area and there will be intersections outside of the study area which realize new trips. However, DDOT expects minimal to no increase in delay outside the study area as a result of the proposed action. The Applicant collected weekday intersection data in December 2014. In general, DDOT agrees with the timeframe and collection dates.

As analysis continues in Stage 2, it is expected additional intersections internal to the Site will be analyzed further, and adjustments to the study area intersections analyzed may be appropriate. No such adjustments were made for this block.

Trip Distribution and Assignment

The Applicant assumed that trips related to each of the land uses would travel to and from different parts of the region in a manner specific to the land use. Therefore, the Applicant created unique trip distribution rates for retail and residential trips. The Applicant estimated trip distribution for the Site based on: (1) CTPP TAZ flow data, and (2) existing traffic volumes and travel patterns in the study area. This flow information showed significant commuting patterns to downtown DC, Washington Hospital Center, and suburban Maryland.

DDOT is in agreement with the methodology used to determine trip distribution. However, in conjunction with potential trip generation changes in future Stage 2 processes, it is possible trip distribution patterns may need to be updated as a fuller understanding of the Site layout details and component uses and anticipated demographics become better specified.

Analysis

To determine the action's impacts on the transportation network, a CTR includes an extensive multi-modal analysis of the existing baseline conditions, future conditions without the proposed action, and future conditions with the proposed development. The Applicant completed their analysis based on the assumptions described above.

Roadway Capacity and Operations

DDOT aims to provide a safe and efficient roadway network that provides for the timely movement of people, goods and services. As part of the evaluation of travel demand generated by the Site, DDOT requests analysis of traffic conditions for the agreed upon study intersections for the current year and

after the facility opens both with and without the site development or any transportation changes. For this development, there remain three phases anticipated:

- Phase I – Block 7, which includes a senior residential and a mixed-income residential building,
- Phase II – Blocks 2, 3, 5, 6, and 8, which will include the main retail component and central community park and additional residential, and
- Phase III – The final two multi-family residential Blocks 1 and 4.

The block and program summary provided in Stage 1 is shown in Figure 2. At this time, only minor details on Block 7 are changed.

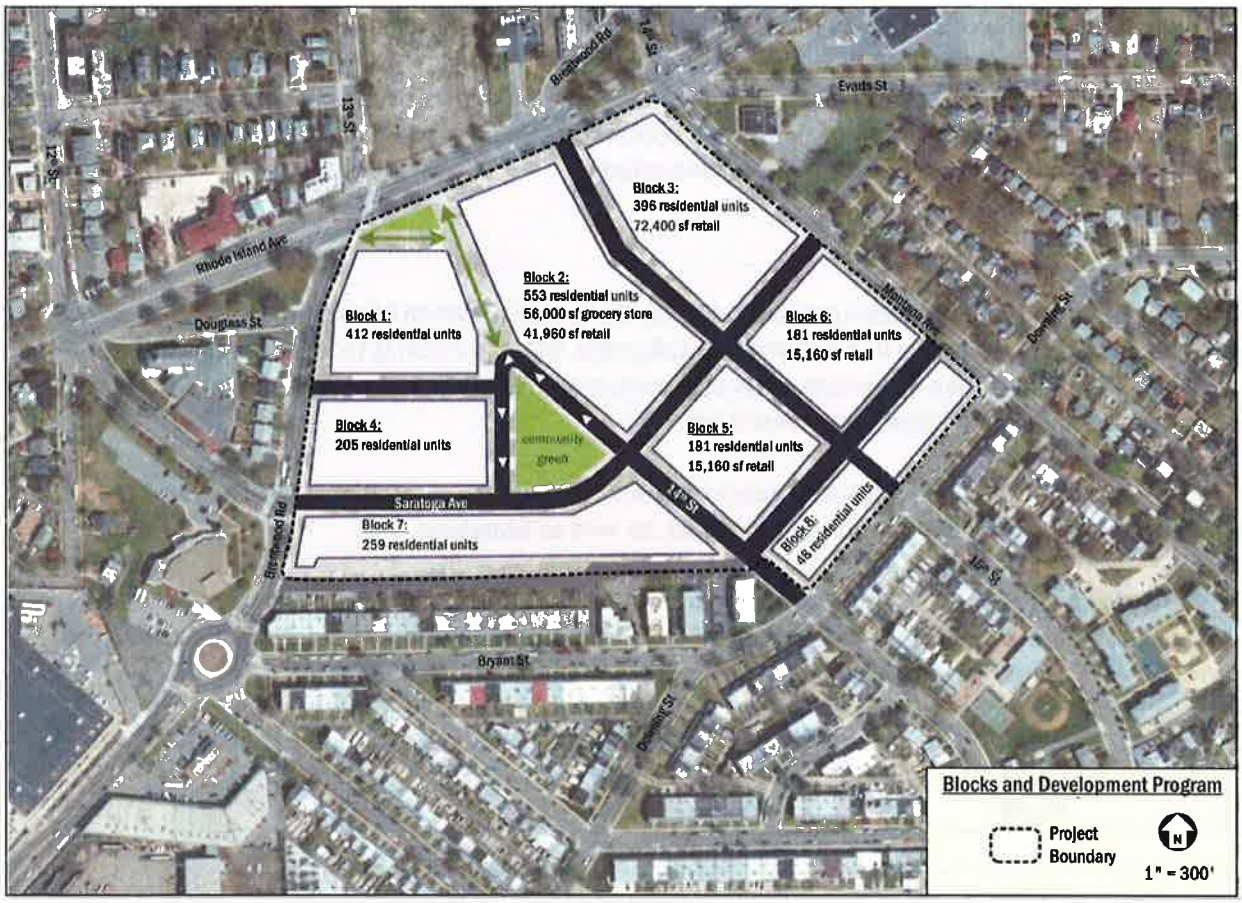

Figure 2. Stage 1 Block and Program Summary (Source: Applicant)

Based on these phases, eight traffic scenarios were assumed for capacity analyses. These scenarios included:

1. 2014 Existing Conditions
2. 2019 Background Conditions (without the PUD)
3. 2019 Future Conditions (with Phase 1 of the PUD)
4. 2022 Background Conditions (with Phase 1 of the PUD)
5. 2022 Future Conditions (with Phase 1 and 2 of the PUD)
6. 2025 Background Conditions (with Phase 1 and 2 of the PUD)
7. 2025 Future Conditions (with full build-out of the PUD)
8. 2040 Horizon Conditions (with full build-out of the PUD)

Analysis provided by the Applicant shows that vehicle traffic impacts from the action will impact the operations of intersections in the study area as measured by Level of Service (LOS). These impacts are unaffected by this Stage 2 program. Impacted intersections in each respective year of analysis include:

- 2019 – none
- 2022 – Five intersections (Rhode Island Avenue & Brentwood Road/13th Street, Rhode Island Avenue & Brentwood Road/Fire Station, Rhode Island Avenue & Montana Avenue/14th Street, Montana Avenue & Saratoga Avenue, Montana Avenue & 18th Street/W Street)
- 2025 – One intersection (Montana Avenue & 18th Street/W Street)

Intersection configurations used are existing for offsite intersections, with onsite intersections configured as currently conceptually planned. Based on the results of the analysis above, several potential geometric or operational changes may make sense to mitigate the effects of background growth as well as site impacts. However, no adjustments to the analysis were made for this Stage 2 plan. As future Stage 2 processes commence, it is anticipated that analysis will be updated. At that time, full exploration of the detailed proposals will be conducted.

Transit Service

The District and Washington Metropolitan Area Transit Authority (WMATA) have partnered to provide extensive public transit service in the District of Columbia. DDOT's vision is to leverage this investment to increase the share of non-automotive travel modes so that economic development opportunities increase with minimal infrastructure investment.

The northern edge of the Site is located approximately 0.6 miles from the Rhode Island Metro Station on the Red Line, which provides access to Downtown, as well as Maryland.

The Site is also well-served by high-frequency bus routes. These routes are adjacent to the Site, and generally terminate at the Rhode Island Metro Station. No bus stops are currently located within the interior of the Site, but several exist along the perimeter. Bus routes include:

Route Number	Route Name
81,82,83,86	College Park Line
B8,B9	Fort Lincoln Shuttle Line
D8	Hospital Center Line
E2,E3	Military Road-Crosstown Line
H6	Brookland-Fort Lincoln Line
H8,H9	Park Road-Brookland Line
P6	Anacostia-Eckington Line
T14	Rhode Island Ave-New Carrollton Line
T18	Annapolis Road Line

The Applicant considered whether the added volume of transit riders from this development would impact the transit options available based on anticipated usage. The Rhode Island Metrorail station is not expected by WMATA[1] to have high volume-to-capacity ratios nor are any nearby buses operating

[1] *DC's Transit Future System Plan* (2010, DDOT), as per the Applicant

with near unacceptable load factors. The Applicant thus concludes that the added trips will not negatively impact transit services, and bus routes serving the Site have sufficient capacity under current conditions to accommodate the expected increase. However, additional analysis will be necessary in the Phase II Stage 2 to verify existing transit service has capacity to accommodate future site demand, and new demands may warrant transit adjustments.

Pedestrian Facilities

The District is committed to enhancing pedestrian accessibility by ensuring consistent investment in pedestrian infrastructure on the part of both the public and private sectors. DDOT expects new developments to serve the needs of all trips they generate, including pedestrian trips. Walking is expected to be an important mode of transportation for this development.

The proposed Site design includes many opportunities to promote walking. New sidewalks that accompany the Site's street network as well as additional pedestrian connections provided offer excellent pedestrian facilities internal to the Site. The Applicant also performed an inventory of the pedestrian infrastructure in the vicinity and noted any substandard conditions. Improvement to pedestrian routes towards key destinations is pertinent to this project. Potential pedestrian pathways are shown in Figure 4.

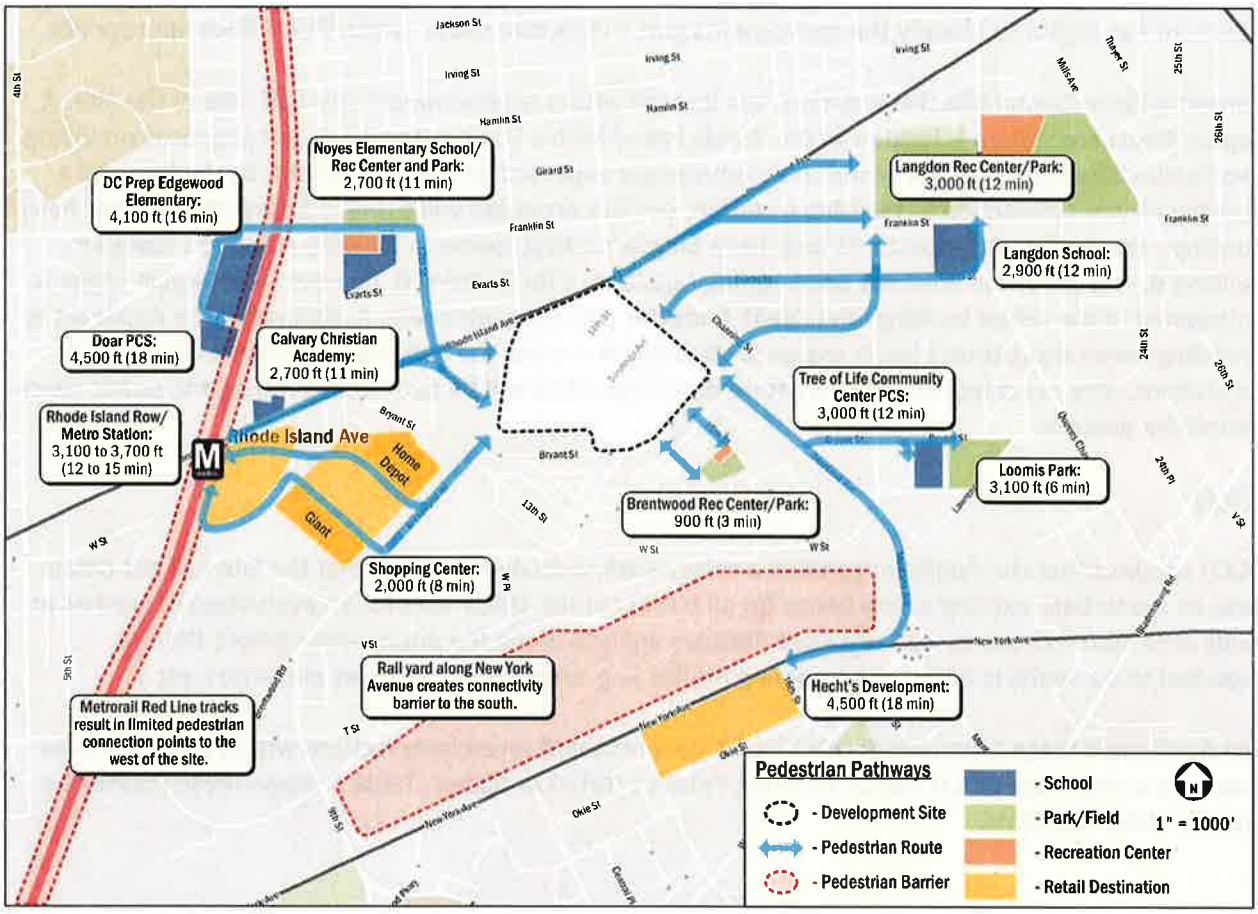

Figure 4. Pedestrian Pathways (Source: Applicant)

As discussed in the Site Access section, the Applicant is expected to work with DDOT through the public space permitting process and/or street dedication process to ensure that pedestrian access points provide safe and convenient Site access, with a focus on connecting to adjacent neighborhoods and connections to major trip production or attraction areas such as the Metro station. DDOT expects the Applicant to meet all DDOT standards for pedestrian facilities.

In this area, the key destinations are the Metrorail station as well as the local elementary school. DDOT expects the Applicant improve the pedestrian infrastructure along these routes to DDOT standards during the upcoming Stage 2 processes. For this phase, the Applicant has committed to improving the sidewalk along Saratoga adjacent to their Site, which DDOT finds appropriate.

Bicycle Facilities

The District of Columbia is committed to enhance bicycle access by ensuring consistent investment in bicycle infrastructure on the part of both the public and private sectors. DDOT expects new developments to serve the needs of all trips they generate, including bicycling trips. The Site is currently located 0.6 miles from the Metropolitan Branch Trail along the Red Line, however there are limited other bicycle facilities in the area. The Applicant proposes a new bike route along Saratoga Avenue, connecting the 12th Street and 18th Street bicycle facilities, with corollary improvements at the Brentwood Road/Saratoga Avenue intersection and through the Site. As part of this Stage 2 process, the Applicant has begun to identify the components part of this bike route, which DDOT finds appropriate.

Currently three Capital Bikeshare stations are located within approximately one-half mile of the Site. A Capital Bikeshare station is located at the Rhode Island Metro Station. The Applicant proposes providing two Capital Bikeshare stations onsite to accommodate expected demand generated by the Site and a possible bicycle connection to the Metro station, but this provision will come in future phases. For these buildings, the Applicant proposes 44 long-term bicycle parking spaces in Building A and ten spaces in Building B. This provision does not meet zoning regulations for Building B, however less bicycle usage is anticipated in the senior building, and DDOT finds this provision adequate. Additionally, the Applicant is providing seven short-term bicycle spaces for Building A and ten for Building B, which meets zoning regulations. The exact location of short-term bicycle facilities will be determined during the public space permitting process.

Safety

DDOT requires that the Applicant conduct a safety analysis to demonstrate that the Site will not create new, or exacerbate existing safety issues for all travel modes. DDOT asks for an evaluation of crashes at study area intersections as well as a sight distance analysis along the public space where there is expected to be conflicts between competing modes (e.g. crosswalks, driveway entrances, etc.)

The Applicant's Stage 1 analysis of DDOT crash data revealed seven intersections within the study area that have a crash rate of 1.0 Million Entering Vehicles (MEV) or higher. Table 3 shows these crashes by type for these locations.

Table 3. Intersection Safety (Source: Applicant)

Intersection	Rate per MEV	Right Angle	Left Turn	Right Turn	Rear End	Side Swiped	Head On	Parked	Fixed Object	Ran Off Road	Ped. Involved	Backing	Non-Collision	Under/Over Ride	Unspecified	Total
Rhode Island Ave & Reed St/ Washington Pl NE	2.12	4 5%	9 12%	4 5%	22 29%	18 24%	1 1%	4 5%	3 4%	0 0%	6 8%	1 1%	1 1%	0 0%	3 4%	76
Franklin St & 14th St NE	1.16	3 18%	3 18%	0 0%	3 18%	3 18%	1 6%	1 6%	0 0%	0 0%	1 6%	0 0%	0 0%	0 0%	2 12%	17
Brentwood Rd & Saratoga Ave NE	1.26	1 3%	0 0%	3 10%	9 30%	6 20%	1 3%	6 20%	2 7%	0 0%	0 0%	2 7%	0 0%	0 0%	0 0%	30
Montana Ave & Downing St/Douglas St NE	1.68	7 35%	0 0%	1 5%	4 20%	2 10%	0 0%	2 10%	1 5%	0 0%	0 0%	1 5%	0 0%	0 0%	2 10%	20
Montana Ave & W St/18th St NE	1.85	2 6%	3 9%	0 0%	6 18%	13 39%	1 3%	1 3%	3 9%	0 0%	1 3%	1 3%	1 3%	0 0%	1 3%	33
Saratoga Ave & 14th St NE	3.57	1 10%	0 0%	0 0%	1 10%	5 50%	0 0%	1 10%	0 0%	0 0%	1 10%	0 0%	0 0%	0 0%	1 10%	10
Downing St/Bryant St & 14th St NE	1.88	0 0%	0 0%	0 0%	0 0%	2 67%	0 0%	0 0%	0 0%	0 0%	1 33%	0 0%	0 0%	0 0%	0 0%	3

The proposed site design and operations may result in a reduction of the vehicle crash rates along the perimeter of the Site. Specific geometric improvements to mitigate safety concerns at these seven intersections should be detailed during future Stage 2 processes. The Applicant will be required to coordinate with DDOT during the public space permitting process to ensure that safe design is incorporated into new streets and vehicular access points.

Mitigations

As part of all major development review cases, DDOT requires the Applicant to mitigate the impacts of the development in order to positively contribute to the District's transportation network. The mitigations must sufficiently diminish the action's vehicle impact and promote non-auto travel modes. This can be done through Transportation Demand Management (TDM), physical improvements, operations, and performance monitoring.

DDOT preference is to mitigate vehicle traffic impacts first through establishing an optimal site design and operations to support efficient Site circulation. When these efforts alone cannot properly mitigate an action's impact, TDM measures may be necessary to manage travel behavior to minimize impact. Only when these other options are exhausted will DDOT consider capacity-increasing changes to the transportation network because such changes often have detrimental impacts on non-auto travel and are often contrary to the District's multi-modal transportation goals.

The following analysis is a review of the Applicant's proposed mitigations and a description of DDOT's suggested conditions for inclusion in the PUD.

Transportation Demand Management

As part of all major development review cases, DDOT requires the Applicant to produce a comprehensive Transportation Demand Management (TDM) plan to help mitigate an action's transportation impacts. TDM is a set of strategies, programs, services, and physical elements that

influence travel behavior by mode, frequency, time, route, or trip length in order to help achieve highly efficient and sustainable use of transportation facilities. In the District, this typically means implementing infrastructure or programs to maximize the use of mass transit, bicycle and pedestrian facilities, and reduce single occupancy vehicle trips during peak periods. The Applicant's proposed TDM measures play a role in achieving the desired and expected mode split.

The specific elements within the TDM plan vary depending on the land uses, site context, proximity to transit, scale of the development, and other factors. The TDM plan must help achieve the assumed trip generation rates to ensure that an action's impacts will be properly mitigated. Failure to provide a robust TDM plan could lead to unanticipated additional vehicle trips that could negatively impact the District's transportation network.

The Applicant has offered potential TDM measures. Per the Applicant, the proposed TDM program includes the following:

- "The Applicant shall designate a TDM coordinator for each building, who is responsible for organizing and marketing the TDM plan and who will act as a point of contact with DDOT.
- All parking on site will be priced at market rates at minimum, defined as the average cost for parking in a 0.25 mile radius from the site, and unbundled from the costs of leasing apartments.
- The Applicant will provide TDM materials to new residents in the Residential Welcome Package materials.
- The Applicant will supply long-term and short-term bicycle parking at both Building A and Building B.
- The Applicant will install a Transportation Information Center Display (electronic screen) within each residential lobby (one for each building) containing information related to local transportation alternatives.
- The Applicant will dedicate two (2) parking spaces within the garage for car-sharing services to use with right of first refusal."

These types of TDM measures are appropriate, and DDOT finds the TDM plan adequate for these buildings. Additional TDM measures may be necessary during future Stage 2 processes.

JH:rw

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TECHNICAL MEMORANDUM

To:	Michael Meers	Mid-City Financial Corporation
CC:	Paul Tummonds	Goulston & Storrs
From:	Maris E. Fry, P.E. Robert B. Schiesel, P.E. Daniel B. VanPelt, P.E., PTOE	
Date:	January 9, 2017 **(Revised February 10, 2017)**	
Subject:	Brookland Manor Block 7 Stage 2 Transportation Statement	

Introduction

This memorandum presents the findings of a transportation statement conducted for Block 7 of the Brookland Manor project in support of its Stage 2 Planned Unit Development (PUD) application (ZC Case Number 14-18A). The Brookland Manor project is located in the Northeast quadrant of DC, as shown in Figure 1, and is generally bounded by Rhode Island Avenue to the north, Montana Avenue to the east, Downing Street/14th Street/Saratoga Avenue to the south, and Brentwood Road to the west. Figure 2 shows a breakdown of the overall development by block and by phase. Block 7, which makes up Phase 1, is located in the southwest corner of the development, as shown.

The Stage 2 plans for Block 7 consist of two residential buildings: Building A will be a four-story apartment building containing 131 mixed-income dwelling units and 68 below-grade parking spaces and Building B will be a four-story apartment building containing 200 seniors-only dwelling units and 48 below-grade parking spaces. This Statement serves as an update to the information regarding Block 7 that was provided in the Brookland Manor Stage 1 Transportation Impact Study (TIS) and to review the transportation-related site design elements, particularly those that were not available at the time of the Stage 1 TIS.

As such, this statement includes the following four sections:

- Review of Stage 1 PUD Conditions: This section reviews the PUD conditions outlined in the Zoning Commission Order as part of the Stage 1 PUD and determines the applicability of these conditions in conjunction with Block 7.
- Project Update: This section provides a comparison of the Stage 1 and Stage 2 development programs and subsequent trip generation comparisons.
- Design Review: This section reviews the transportation components of the Brookland Manor Block 7 project, including the proposed site plan. It includes descriptions of the site's vehicular access, loading, parking, pedestrian, and bicycle accommodations, including a discussion of public space improvements along Saratoga Avenue and details of the alley operations.

- Transportation Demand Management: This section outlines the proposed TDM plan for Block 7 based on specific needs of the site.

Of note, no supplementary capacity analysis is included as part of this memorandum as there is no significant change to the projected trip generation of the site.

This Statement concludes that:

- The overall development plan is consistent with the Stage 1 PUD.
- The alley operations will be improved over existing conditions as a result of the development. Porosity throughout the block will be improved and the effective width of the alley will be increased. The improved alley allows for the site to have all of its vehicular access from the alley, with no curb cuts required.
- The projected trip generation of the site is less than what was analyzed during the Stage 1 PUD.
- The parking supply has significantly decreased from what was proposed during the Stage 1 PUD and is appropriate for the uses proposed on-site.
- The proposed loading facilities will sufficiently meet the loading demands of the site.
- Given the minimal trip generation and low parking supply, the proposed Transportation Demand Management plan adequately promotes non-auto modes of travel that are consistent with the specific needs of the site.
- The amount of proposed bicycle parking is adequate to serve the specific needs of the site.

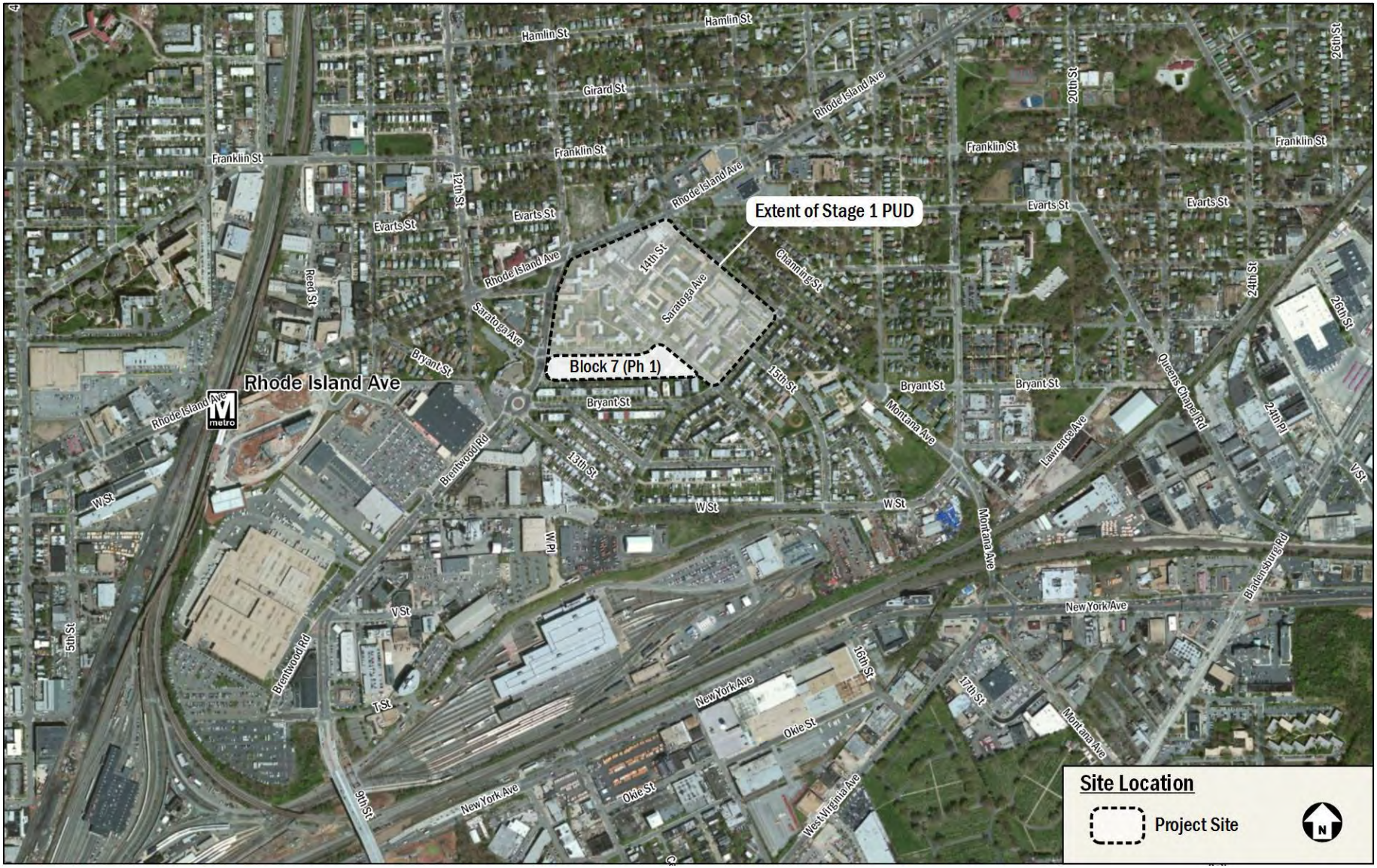


Figure 1: Site Location

Figure 2: Brookland Manor Development by Blocks and Phase

Review of Stage 1 PUD Conditions

Block 7 was approved as a Stage 1 PUD in September of 2015 (ZC 14-18) as part of the overall Brookland Manor development. During the approval process, the District Department of Transportation (DDOT) submitted a report in support of the application on March 6, 2015, public hearings were held on March 16, 2015, May 7, 2015, and May 11, 2015, and the Zoning Commission took final action to approve the application on September 10, 2015.

The transportation-related conditions outlined in the Zoning Commission Order during the Stage 1 PUD approval process are outlined in Table 1. This table also describes the applicability and subsequent action of these conditions in conjunction with the Block 7 Stage 2 Application and/or outlines the future Stage 2 actions associated with these conditions. Other conditions were outlined in the Zoning Commission Order, but do not directly relate to transportation.

Table 1: Summary of PUD Conditions and Stage 2 Actions

Condition	Necessary Stage 2 Actions
The Applicant shall provide the Pedestrian Walk between Blocks 1 and 2 with the features stated at Exhibit 2, at page 10 and Exhibit 76A-76M, and the Community Green with the features stated at Exhibit 2, at page 13 and Exhibit 104.	No action is necessary as part of Block 7. The Pedestrian Walk and Community Green are slated to be constructed as part of Phase 2A and in conjunction with Block 2. Therefore, these elements will be discussed in detail in future Stage 2 CTRs.
The Applicant shall pay for sidewalk repaving at the following locations along the eastbound sidewalk of Rhode Island Avenue, NE: ▪ Two locations between Washington Place, NE and 10th Street NE ▪ One location between Bryant Street, NE and 12th Street, NE ▪ Two locations between Brentwood Road, NE and Montana Avenue	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, this public space improvement must be proven to be complete prior to issuance of a certificate of occupancy for the buildings approved in the second-stage PUD application that include buildings with frontage on Rhode Island Avenue, NE. Therefore, this condition will be discussed in future Stage 2 CTRs, particularly those that include Blocks 1, 2, and 3, which are the only Blocks that front Rhode Island Avenue.
The Applicant shall pay for the restriping of the crosswalks located at the intersections of Rhode Island Avenue, NE and the following streets: 10th Street, NE; Bryant Street, NE; 12th Street, NE; Saratoga Avenue, NE; Douglas Street, NE; Brentwood Road, NE; 14th Street, NE; and Montana Avenue, NE.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, this public space improvement must be proven to be complete prior to issuance of a certificate of occupancy for the buildings approved in the second-stage PUD application that include buildings with frontage on Rhode Island Avenue, NE. Therefore, this condition will be discussed in future Stage 2 CTRs, particularly those that include Blocks 1, 2, and 3, which are the only Blocks that front Rhode Island Avenue.
The Applicant shall pay for the ADA ramp reconstruction at the intersection of Rhode Island Avenue, NE and Brentwood Road, NE.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, this public space improvement must be proven to be complete prior to issuance of a certificate of occupancy for the buildings approved in the second-stage PUD application that include buildings with frontage on Rhode Island Avenue, NE. Therefore, this

	condition will be discussed in future Stage 2 CTRs, particularly those that include Blocks 1, 2, and 3, which are the only Blocks that front Rhode Island Avenue.
The Applicant shall install a traffic signal at the intersection of Saratoga Avenue and Montana Avenue.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, this condition must be met prior to issuance of a certificate of occupancy for the buildings constructed in Phase 2B. Therefore, this condition will be discussed in future Stage 2 CTRs, particularly those for Blocks 5, 6, and 8.
Prior to the issuance of a certificate of occupancy for the buildings constructed in Phase 2A, The Applicant shall incorporate 15th Street extended as the fourth leg of the intersection of Rhode Island Avenue with Brentwood Road.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, this condition must be met prior to issuance of a certificate of occupancy for the buildings constructed in Phase 2A. Therefore, this condition will be discussed in future Stage 2 CTRs, particularly those for Blocks 2 and 3.
During the second-stage PUD application for Phases 2A and 2B, work with DDOT and WMATA to relocate the bus stop, determine the need for separate right and left turn lanes on 15th Street extended, and determine if a left turn lane from Rhode Island Avenue onto 15th Street extended is necessary.	No action is necessary as part of Block 7. These conditions will be addressed in future Stage 2 CTRs, particularly those for Blocks 2, 3, 5, 6 and 8.
The Applicant shall install lane marking and striping changes at two intersections: Rhode Island Avenue and Montana Avenue, and 18th Street and Montana Avenue.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, these conditions must be met prior to the issuance of certificate of occupancy for the buildings constructed in Phase 2B. Therefore, these conditions will be discussed in future Stage 2 CTRs, particularly those for Blocks 5, 6, and 8.
The Applicant shall install lane markings, striping, and signing improvements as needed to establish an official bike route between 12th Street and 18th Street through the site.	No action is necessary as part of Block 7. As stated in the Zoning Commission Order, these conditions must be met prior to the issuance of certificate of occupancy for the buildings constructed in Phase 2B. Therefore these conditions will be discussed in future Stage 2 CTRs, particularly those for Blocks 5, 6, and 8.
Coordinate with DDOT during all second-stage PUD applications on the following issues: ▪ Amount and size of loading facilities; ▪ Maneuvering analyses of trucks to and from loading facilities; ▪ Amount of off-street parking (this may require an inventory and occupancy count on on-street facilities to help determine the appropriate	This Statement will address all of these design elements as they pertain to Block 7, to be reviewed by DDOT. For Block 7 specifically, no Capital Bikeshare stations are proposed thus the location of such a station will not be discussed. Two Capital Bikeshare stations are proposed for the overall Brookland Manor development: one in Phase 2 and one in Phase 3. Thus the placement of Capital Bikeshare stations will be discussed further in subsequent Stage 2 CTRs.

amount of parking and potential spillover impacts); ▪ Layout of internal streets, including curbside management; ▪ Transportation Demand Management plans for each building; ▪ Amount of secure off-street bicycle parking for each building; ▪ Locations and amount of on-street bicycle racks: and ▪ Locations for Capital Bikeshare stations	

Project Update

This section outlines the progression of the development program for Brookland Manor Block 7 and the subsequent update to the projected vehicular trip generation.

Development Program Modifications

As part of the September 30, 2014 Stage 1 PUD submission, Block 7 was proposed to include 229 seniors-only apartments, 30 townhomes, and 202 parking spaces. Based on comments made during the March 16, 2015 Zoning Commission hearing, the Brookland Manor development program was modified to include a lower number of dwelling units overall, but a higher concentration of dwelling units in the earlier phases in order to offset the residential units removed as part of the redevelopment. As such, plans submitted on April 10, 2015, and ultimately approved as part of the PUD, included 286 apartments (with 150 to 200 units dedicated to senior housing), 28 two-flats, and 245 parking spaces for Block 7.

The development program for Block 7 has been further modified as part of the Stage 2 PUD Application to include a mix of traditional apartments and seniors-only apartments. Building A will be a four-story apartment building containing 131 mixed-income dwelling units and Building B will be a four-story apartment building containing 200 seniors-only dwelling units. The two buildings will supply a total of 116 parking spaces - 68 for Building A and 48 for Building B. As shown in Table 2, the previously analyzed and approved plans include a lower number of overall residential units, but a much higher number of parking spaces.

Table 2: Summary of Block 7 Development Program

Plan Component	Block 7 plans as analyzed during the Stage 1 PUD (ZC Case 14-18)	Block 7 plans as approved during the Stage 1 PUD (ZC Case 14-18)	Block 7 plans per Stage 2 PUD Application (ZC Case 14-18A)
Residential Space	229 seniors-only apartments 30 townhomes	286 apartments (including 150 to 200 seniors-only apartments) 28 townhomes	131 apartments 200 seniors-only apartments
Vehicular Parking	172 apartment parking spaces (0.75 spaces per unit) 30 townhome parking spaces (1 space per unit)	215 apartment parking spaces (0.75 spaces per unit) 30 townhome parking spaces (1 space per unit)	68 apartment parking spaces (0.52 spaces per unit) 48 seniors-only parking spaces (0.24 spaces per unit)
Bicycle Parking	Specific amounts of bicycle parking were not given, but the development agreed to meet Zoning Requirements, at a minimum.	Specific amounts of bicycle parking were not given, but the development agreed to meet Zoning Requirements, at a minimum.	Apartment building: 44 long-term spaces and 7 short-term spaces Seniors-only building: 10 long-term spaces (relief requested) and 10 short-term spaces
Loading Facilities	The specific number of loading bays was not determined, but the access location was determined to from an extension of an existing alley on the south side of the site.	The specific number of loading bays was not determined, but the access location was determined to from an extension of an existing alley on the south side of the site.	Two (2) 30’ loading berths Two (2) 20’ service spaces (meets zoning requirements)

Trip Generation Update

The updated trip generation projections for Block 7 were calculated using the same methodology that was used in the Stage 1 study, in which the Institute of Transportation Engineers' (ITE) Trip Generation, 9th Edition was supplemented to account for the urban nature of the site. Trips were split into four modes: transit (consisting of both Metrorail and Metrobus), walking, biking, and vehicle. The mode split estimates were developed using survey information contained within several sources, including WMATA's 2005 *Development-Related Ridership Survey*, Commuter Connections' 2010 *State of the Commute Survey* Report, and U.S. Census Data (using Census Transportation Planning Products software). Although the overall parking ratio for Block 7 has significantly decreased from Stage 1, the same mode split, shown in Table 3, was used for comparison purposes.

Table 3: Mode Split Assumptions

Land Use	Mode			
	Drive	*Transit*	*Bike*	*Walk*
Residential	45%	45%	1%	9%

Although it has always been assumed that Block 7 will include seniors-only housing, during the Stage 1 analysis, all residential trip generation was calculated based on ITE land use 220, Apartment, to provide flexibility within the specific residential uses. This resulted in a conservative trip generation projection for Block 7, as seniors-only dwelling units generate less trips. For the purpose of the updated trip generation comparison a combination of ITE land use 220, Apartment, and ITE land use 252, Senior Housing, was used.

Based on the above methodology and the development program from the original Stage 1 PUD plans and the proposed Stage 2 PUD plans, the following changes to the Block 7 trip generation were determined:

- AM trip generation decreases by 10 vehicular trips (from 59 to 49 trips)
- PM trip generation decreases by 9 vehicular trips (from 72 to 63 trips)

Table 4 summarizes the Block 7 trip generation for the Stage 1 Application, the current Stage 2 Application, and the difference between the two trip generation projections. Detailed trip generation calculations are included in the Technical Attachments. It should be noted that the Phase 1 (Block 7) analysis performed in the Stage 1 TIS also included the removal of existing trips generated by the residential uses currently located on the site that will be relocated during Phase 1 of the development. Existing residential trip generation was estimated instead of collected in the field because of the high use of on-street parking by existing residents and the possibility of cut-through traffic through the site that could lead to too many trips being removed from the network. The number of existing trips removed from the network is not expected to change as a result of the modifications to the Block 7 development program.

Table 4: Summary of Trip Generation Comparison

Brookland Manor Block 7 - Stage 1 Trip Generation

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr
Transit	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Walk	3 ppl/hr	11 ppl/hr	13 ppl/hr	11 ppl/hr	6 ppl/hr	16 ppl/hr

Brookland Manor Block 7 - Stage 2 Trip Generation

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	13 veh/hr	36 veh/hr	49 veh/hr	39 veh/hr	24 veh/hr	63 veh/hr
Transit	14 ppl/hr	41 ppl/hr	55 ppl/hr	44 ppl/hr	27 ppl/hr	71 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Walk	3 ppl/hr	8 ppl/hr	11 ppl/hr	9 ppl/hr	5 ppl/hr	14 ppl/hr

Change in Trip Generation from Stage 1 to Stage 2

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	1 veh/hr	-11 veh/hr	-10 veh/hr	-8 veh/hr	-1 veh/hr	-9 veh/hr
Transit	1 ppl/hr	-13 ppl/hr	-12 ppl/hr	-9 ppl/hr	-1 ppl/hr	-10 ppl/hr
Bike	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
Walk	0 ppl/hr	-3 ppl/hr	-2 ppl/hr	-2 ppl/hr	0 ppl/hr	-2 ppl/hr

Design Review

This section provides an overview of the on-site transportation features for Block 7 of the Brookland Manor development. This section reviews updates to the proposed site facilities discussed during the Stage 1 PUD and provides detailed site design information that was not yet determined during Stage 1. The Stage 2 plans for Block 7 consist of two residential buildings: Building A will be a four-story apartment building containing 131 mixed-income dwelling units and 68 below-grade parking spaces and Building B will be a four-story apartment building containing 200 seniors-only dwelling units and 48 below-grade parking spaces. A detailed ground-floor site plan is shown on Figure 4.

Vehicular Access and Circulation

As was discussed during the Stage 1 PUD, the existing roadway configuration internal to the overall site will be significantly modified as part of the overall redevelopment. As was assumed during the Stage 1 analysis, the only internal roadway modification that will occur with construction of Block 7 is the removal of a portion of 14th Street, as shown on Figure 5. The internal roadway configuration upon full build-out of the project can be seen previously in Figure 2. The Stage 1 analysis determined that the removal of this portion of 14th Street, combined with the removal of existing site trips and the addition of Block 7 trips, will not have detrimental impacts to the overall vehicular operations surrounding the site.

The vehicular access and circulation specific to Block 7 has not changed significantly as part of the Stage 2 Application. The approved Stage 1 site plan for Block 7 called for the extension and expansion of an existing alley along the south side of the site, apartment loading and parking access from the alley, and an additional north-south alley to provide access to the proposed townhomes. This access plan resulted in the removal of two curb cuts: one along Brentwood Road and one along 14th Street; and the addition of two curb cuts: one along Saratoga Avenue and one along 14th Street.

The access scheme employed in the Stage 2 plan generally remains consistent with this plan; however, the townhome element of the plan has been eliminated such that the proposed north-south alley through the site, as well as the curb cut on Saratoga Avenue, will no longer be necessary. Additionally, there are now separate garage access points and loading areas to serve the two different buildings, all of which are accessible from the public alley that runs along the south side of the site. Overall, the revised site plan is an improvement over the Stage 1 plan as the curb cut along Saratoga Avenue has been eliminated, thus reducing the potential for conflicts between vehicle, bicycle, and pedestrian modes.

Alley Operations

As part of the development, overall operations of the existing alley will be improved for both existing and future residents of the block. Porosity through the site will be improved as a result of a new connection to 14th Street and the primary east-west alley will be widened to ease turning maneuvers for existing and future residents.

Under existing conditions, the alley is 16 feet wide with one access point on Brentwood Road and one access point on Bryant Street. The primary use of the alley is to provide parking access to the townhomes along Bryant Street, which have parking pads in private space adjacent to the alley, as shown on Figure 3. As part of the development, the alley will be widened to 20 feet and extended east such that an additional access point will be constructed along 14th Street to create additional porosity throughout the block, for both existing and future residents. The alley will be concrete and designed to meet DDOT construction and drainage standards.

As stated above, parking and loading access for both buildings will be from this alley. Use of the alley ensures that all loading activity takes place entirely in the alley, with no backing maneuvers required to access the alley. The loading areas will be located near the center of the block to ensure that loading maneuvers do not interfere with vehicular activity at the garage

access points. The garage access points will be located at the ends of the block, with the garage access for Building A located approximately 69 feet from 14th Street and the garage access for Building B located approximately 68 feet from Brentwood Road, providing sufficient spacing between the adjacent intersections. Figure 4 illustrates the locations of parking and loading access points and the proposed dimensions throughout the alley. As shown, vehicular operations associated with Block 7 will remain within the 20-foot alley and will not encroach upon the private parking pads of the townhomes to the south.

Included in the Technical Attachments is a dimensioned diagram outlining the locations of existing and proposed new pavement for the alley, showing where the alley will be expanded. A subsequent diagram overlays truck and passenger car turning maneuvers on the new pavement, demonstrating that the alley is sufficiently wide to accommodate all maneuvers. Of note, the current alley traverses a section of private property near where the short north-south alley meets the east-west alley. The design of the new alley allows for all turning maneuvers to occur without infringing on private property.

Figure 3: Existing Alley Conditions

Roadway Cross-Sections

The Stage 1 PUD included proposed cross-sections for the three streets adjacent to Block 7, Brentwood Road, Saratoga Avenue, and 14th Street. During discussions with DDOT after their initial review of the PUD Plans, it was determined that modifying the cross-sections of the roadways per the Stage 1 PUD would not be the appropriate for this project. This is because changing the street cross-sections for partial blocks on only one-side of the street would lead to inconsistent and awkward cross-sections and transitions. Thus, for Brentwood Avenue and 14th Street, the Applicant now proposes to maintain the existing dimensions of the tree boxes and sidewalks, so they will match adjacent properties.

For Saratoga Avenue, maintaining the existing cross-section was considered but since it will eventually be too narrow for the full build-out of the Stage 1 PUD, alternatives were considered. After several discussions with DDOT, multiple alternatives for a phased implementation of a new cross-section for Saratoga Avenue were developed, although at this time the Applicant does not want to make a final decision, and would prefer to wait until the public space permitting process to work out all of the design details.

The Technical Attachments include diagrams showing the existing, interim (with Block 7), and permanent (with the full PUD) proposed conditions for the three adjacent roadways. This includes multiple options for Saratoga Avenue. The final decision on Saratoga Avenue's cross-section and functionality will be determined during the public space permitting process.

Parking

The amount of parking proposed for Block 7 has significantly decreased as part of the Stage 2 Application. During the Stage 1 PUD, a parking ratio of 0.75 spaces per unit was used for apartments and a parking ratio of 1 space per unit was used for townhomes, amounting to a total of 202 spaces assumed in the Stage 1 analysis and 245 spaces ultimately approved.

The Stage 2 plans call for a total of 118 parking spaces: 68 parking spaces for the apartment component of the site and 48 parking spaces (including two (2) van spaces) for the seniors-only component of the site. This results in a parking ratio of 0.52 spaces per traditional apartment and 0.24 spaces per seniors-only apartment. This amount of parking complies with ZR16 requirements and is sufficient to support the parking needs of the site without encouraging driving as a travel mode.

Loading

Under the proposed development plan, Building A and Building B are each proposed to provide one (1) 30' loading berth and one (1) 20' service/delivery space. Truck routing to and from these loading areas will be focused on designated truck routes. The nearest designated truck route to the site is Brentwood Road, therefore it is assumed that all trucks will access and egress the loading areas from Brentwood Road. AutoTURN software was used to test 30 foot single-unit (SU-30) trucks and 20 foot service trucks in and out of both loading areas. The turning maneuvering diagrams, included in the Technical Attachments, show that the design of the alley will appropriately accommodate the anticipated truck activity without detrimental impact to the other users of the alley or non-vehicular roadway users.

The amount of loading expected at the site is estimated as follows:

- As a baseline, it is expected that there will be three (3) daily truck deliveries (covering trash, general delivery, and mail) at each building.
- Residential loading activity is estimated assuming an expected rental turnover of 18 months, with two (2) trucks per move – one move-in and one move-out

Using these estimates, the anticipated loading activity for each building is as follows:

- Building A (which includes 131 apartments) is expected to generate a loading demand of 3 to 4 trucks per day (of which 1 is expected to be a single-unit truck of 24 to 30 feet in length and 3 are expected to be 20' service vehicles).
- Building B (which includes 200 seniors-only apartments) is expected to generate a loading demand of 3 to 4 trucks per day (of which 1 is expected to be a single-unit truck of 24 to 30 feet in length and 3 are expected to be 20' service vehicles).

Figure 4 shows the layout of the loading areas within each building. Based on the above projections, the proposed amount of loading facilities will be sufficient to accommodate the demand generated by the development.

Bicycle Facilities

The project will include both short- and long-term bicycle parking. Building A will supply 44 long-term bicycle parking spaces and 7 short-term bicycle spaces, which complies with ZR16 requirements. Building B, which includes the seniors-only apartments, is requesting relief from the number of long-term bicycle parking spaces. There is no separate long-term bicycle requirement for senior housing, therefore the number of spaces required was calculated to be 58 based on a residential land use. Given the demographic served by Building B, it is expected that the need for long-term bicycle parking will be less than that of traditional residential uses. Therefore the Applicant is proposing to include a total of 10 long-term bicycle parking spaces. Building B will meet the short-term bicycle requirements by supplying 10 short-term bicycle parking spaces. The short-term spaces for both buildings will include inverted U-racks, or similar racks, placed in high-visibility areas. The Applicant will work with DDOT to determine the exact location of bicycle racks in public space.

Of note, the Stage 1 TIS and Zoning Commission Order outlined an enhanced bicycle connection through the site along Saratoga Avenue between 12th Street and 18th Street, including bicycle specific lane marking, striping, and signing improvements needed to establish an official bike route. As was determined during the Zoning Commission hearing and subsequent conditions for approval, construction of the bicycle route will be completed during a later phase of the project and will thus be detailed in future Stage 2 CTRs.

Pedestrian Facilities

As part of the development, pedestrian facilities surrounding the site will be improved over existing conditions. As stated above, the pedestrian facilities along Brentwood Road and 14th Street will remain the same dimensions, but the landscaping will be improved. Along Saratoga Avenue, although the final dimensions of the pedestrian facilities have yet to be determined, the Block 7 project will significantly improve the quality of the public space relative to existing conditions.

As per the Stage 1 PUD, curb extensions are proposed along Saratoga Avenue at Brentwood Road, 14th Street, and mid-block. The curb extensions are designed to integrate with future blocks within the Brookland Manor development to create a pedestrian-friendly environment throughout. The exact details of the pedestrian improvements, particularly those at 14th Street, will be detailed further as part of the public space permitting process.

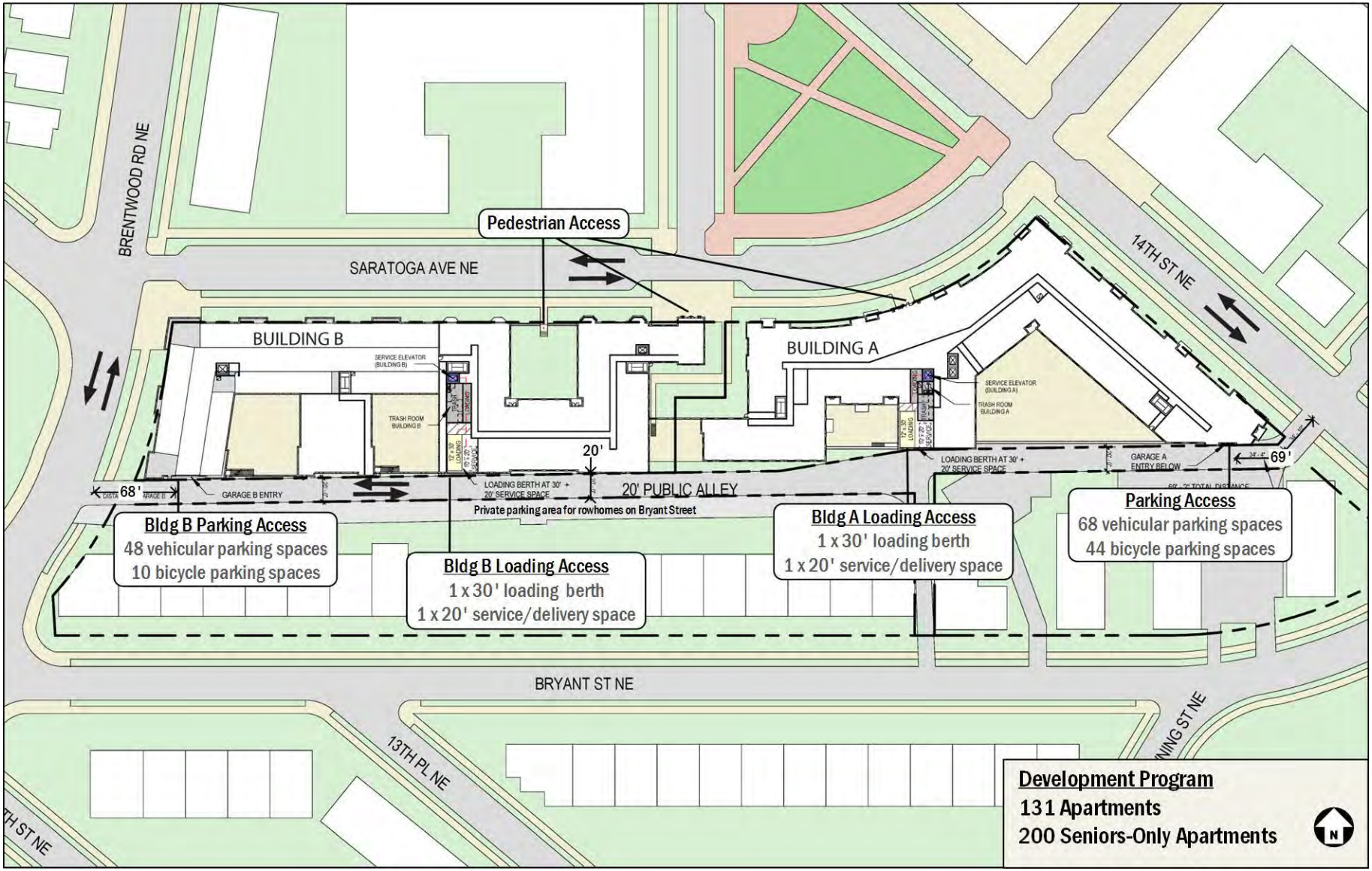


Figure 4: Block 7 Stage 2 Site Plan (per ZC Case 14-18A)

Figure 5: Brookland Manor Internal Roadway Configuration (upon completion of Block 7)

Transportation Demand Management (TDM)

TDM is the application of policies and strategies used to reduce travel demand or to redistribute demand to other times or spaces. TDM typically focuses on reducing the demand of single-occupancy, private vehicles during peak period travel times or on shifting single-occupancy vehicular demand to off-peak periods.

Block 7 will include a TDM plan in order to help minimize its potential traffic impacts to the surrounding neighborhood. The following TDM plan is based on the DDOT expectations for TDM programs, modified to fit the specific needs of Block 7 and the surrounding transportation network. The Applicant proposed that upon construction, the project incorporate several TDM measures, including the following:

- The Applicant shall designate a TDM coordinator for each building, who is responsible for organizing and marketing the TDM plan and who will act as a point of contact with DDOT.
- All parking on site will be priced at market rates at minimum, defined as the average cost for parking in a 0.25 mile radius from the site, and unbundled from the costs of leasing apartments.
- The Applicant will provide TDM materials to new residents in the Residential Welcome Package materials.
- The Applicant will supply long-term and short-term bicycle parking at both Building A and Building B.
- The Applicant will install a Transportation Information Center Display (electronic screen) within each residential lobby (one for each building) containing information related to local transportation alternatives.
- The Applicant will dedicate two (2) parking spaces within the garage for car-sharing services to use with right of first refusal.

Of note, two Capital Bikeshare stations are proposed as part of the overall development as outlined in the Stage 1 TIS, but will not be included as part of Block 7. The two stations are expected to be included in Phase 2 and Phase 3, respectively, with the exact location to be determined during subsequent Stage 2 CTRs.

Summary and Conclusions

The findings of this Statement conclude the following:

- The overall development plan is consistent with the Stage 1 PUD.
- The alley operations will be improved over existing conditions as a result of the development. Porosity throughout the block will be improved and the effective width of the alley will be increased. The improved alley allows for the site to have all of its vehicular access from the alley, with no curb cuts required.
- The projected trip generation of the site is less than what was analyzed during the Stage 1 PUD.
- The parking supply has significantly decreased from what was proposed during the Stage 1 PUD and is appropriate for the uses proposed on-site.
- The proposed loading facilities will sufficiently meet the loading demands of the site.
- Given the minimal trip generation and low parking supply, the proposed Transportation Demand Management plan adequately promotes non-auto modes of travel that are consistent with the specific needs of the site.
- The amount of proposed bicycle parking is adequate to serve the specific needs of the site.

TECHNICAL ATTACHMENTS

Mode Split Assumptions

Residential Component

Pertinent Mode Split data from other sources:

Information Source	Mode						
	SOV	Carpool	Transit	Bike	Walk	Telecommute	Other
CTPP - TAZ Residents	38.6%	7.5%	44.2%	0.0%	8.4%	0.0%	1.2%
State of the Commute (of District residents)	41%	7%	41%	11%		---	
WMATA Ridership Survey (average for *Suburban-Inside the Beltway*)	39%		49%	14%		---	

Mode Split assumed in TIS:

Information Source	Mode				
	Drive	Transit	Bike	Walk	Telecommute/Other
Residential Mode Split	45%	45%	1%	9%	---

Notes: -Drive mode split is based primarily on CTPP data, since it is local
-Walk + Bike set to 10%, to match CTPP and other data sources

Trip Generation - Block 7 (Stage 1)

259 Multi-family residential units

Step 1: Base trip generation using ITEs' *Trip Generation*

Land Use	Land Use Code	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220	259 du	26 veh/hr	105 veh/hr	131 veh/hr	104 veh/hr	56 veh/hr	160 veh/hr
		Calculation Details:	*20%*	*80%*	*=0.49x+3.73*	*65%*	*35%*	*=0.55x+17.65*

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments	1.13 ppl/veh	29 ppl/hr	119 ppl/hr	148 ppl/hr	118 ppl/hr	63 ppl/hr	181 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	Auto	45%	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
Apartments	Transit	45%	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
Apartments	Bike	1%	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Apartments	Walk	9%	3 ppl/hr	11 ppl/hr	13 ppl/hr	11 ppl/hr	6 ppl/hr	16 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments	1.13 ppl/veh	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr

Trip Gen Summary for Block 7

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr
Transit	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
Walk	3 ppl/hr	11 ppl/hr	13 ppl/hr	11 ppl/hr	6 ppl/hr	16 ppl/hr

Trip Generation - Block 7 (Stage 2 - Apartments)

Step 1: Base trip generation using ITEs' *Trip Generation*

Land Use	Land Use Code	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	220	131 du	14 veh/hr	54 veh/hr	68 veh/hr	59 veh/hr	31 veh/hr	90 veh/hr
		Calculation Details:	*20%*	*80%*	*=0.49x+3.73*	*65%*	*35%*	*=0.55x+17.65*

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments	1.13 ppl/veh	16 ppl/hr	61 ppl/hr	77 ppl/hr	67 ppl/hr	35 ppl/hr	102 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Apartments	Auto	45%	7 ppl/hr	27 ppl/hr	35 ppl/hr	30 ppl/hr	16 ppl/hr	46 ppl/hr
Apartments	Transit	45%	7 ppl/hr	27 ppl/hr	35 ppl/hr	30 ppl/hr	16 ppl/hr	46 ppl/hr
Apartments	Bike	1%	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
Apartments	Walk	9%	1 ppl/hr	5 ppl/hr	7 ppl/hr	6 ppl/hr	3 ppl/hr	9 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Apartments	1.13 ppl/veh	6 veh/hr	24 veh/hr	31 veh/hr	27 veh/hr	14 veh/hr	41 veh/hr

Trip Gen Summary for Block 7

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	6 veh/hr	24 veh/hr	31 veh/hr	27 veh/hr	14 veh/hr	41 veh/hr
Transit	7 ppl/hr	27 ppl/hr	35 ppl/hr	30 ppl/hr	16 ppl/hr	46 ppl/hr
Bike	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	0 ppl/hr	1 ppl/hr
Walk	1 ppl/hr	5 ppl/hr	7 ppl/hr	6 ppl/hr	3 ppl/hr	9 ppl/hr

Trip Generation - Block 7 (Stage 2 - Senior Housing)

Step 1: Base trip generation using ITEs' *Trip Generation*

Land Use	Land Use Code	Quantity	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Senior Housing	252	200 du	14 veh/hr	26 veh/hr	40 veh/hr	27 veh/hr	23 veh/hr	50 veh/hr
		Calculation Details:	*34%*	*66%*	*=0.20x-0.13*	*54%*	*46%*	*=0.24x+1.64*

Step 2: Convert to people per hour, before applying mode splits

Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Senior Housing	1.13 ppl/veh	16 ppl/hr	29 ppl/hr	45 ppl/hr	31 ppl/hr	26 ppl/hr	57 ppl/hr

Step 3: Split between modes, per assumed Mode Splits

Land Use	Mode	Split	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Senior Housing	Auto	45%	7 ppl/hr	13 ppl/hr	20 ppl/hr	14 ppl/hr	12 ppl/hr	25 ppl/hr
Senior Housing	Transit	45%	7 ppl/hr	13 ppl/hr	20 ppl/hr	14 ppl/hr	12 ppl/hr	25 ppl/hr
Senior Housing	Bike	1%	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	1 ppl/hr
Senior Housing	Walk	9%	1 ppl/hr	3 ppl/hr	4 ppl/hr	3 ppl/hr	2 ppl/hr	5 ppl/hr

Step 4: Convert auto trips back to vehicles/hour

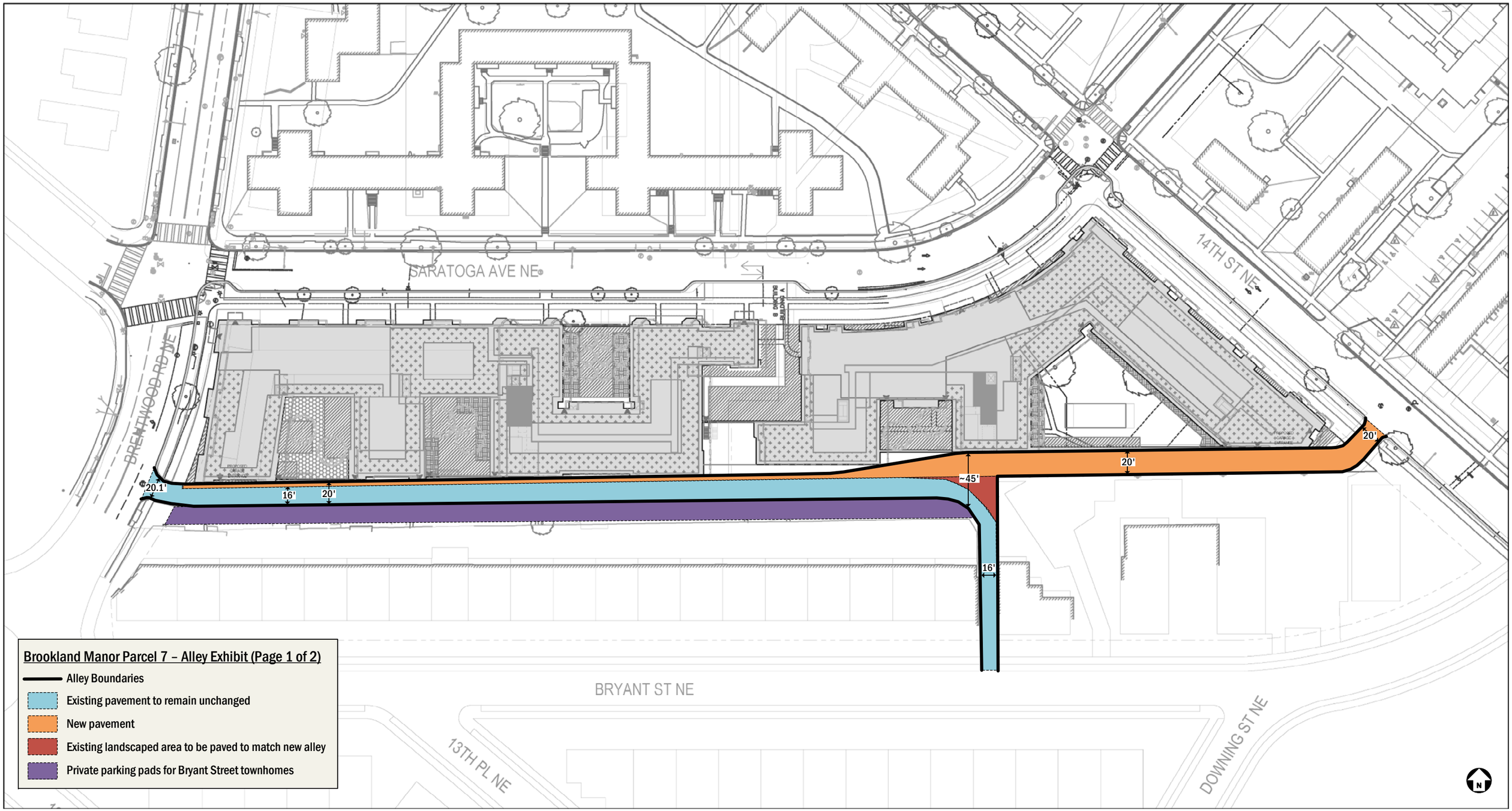
Land Use	People/Car (from 2009 NHTS, Table 16)	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Senior Housing	1.13 ppl/veh	6 veh/hr	12 veh/hr	18 veh/hr	12 veh/hr	10 veh/hr	23 veh/hr

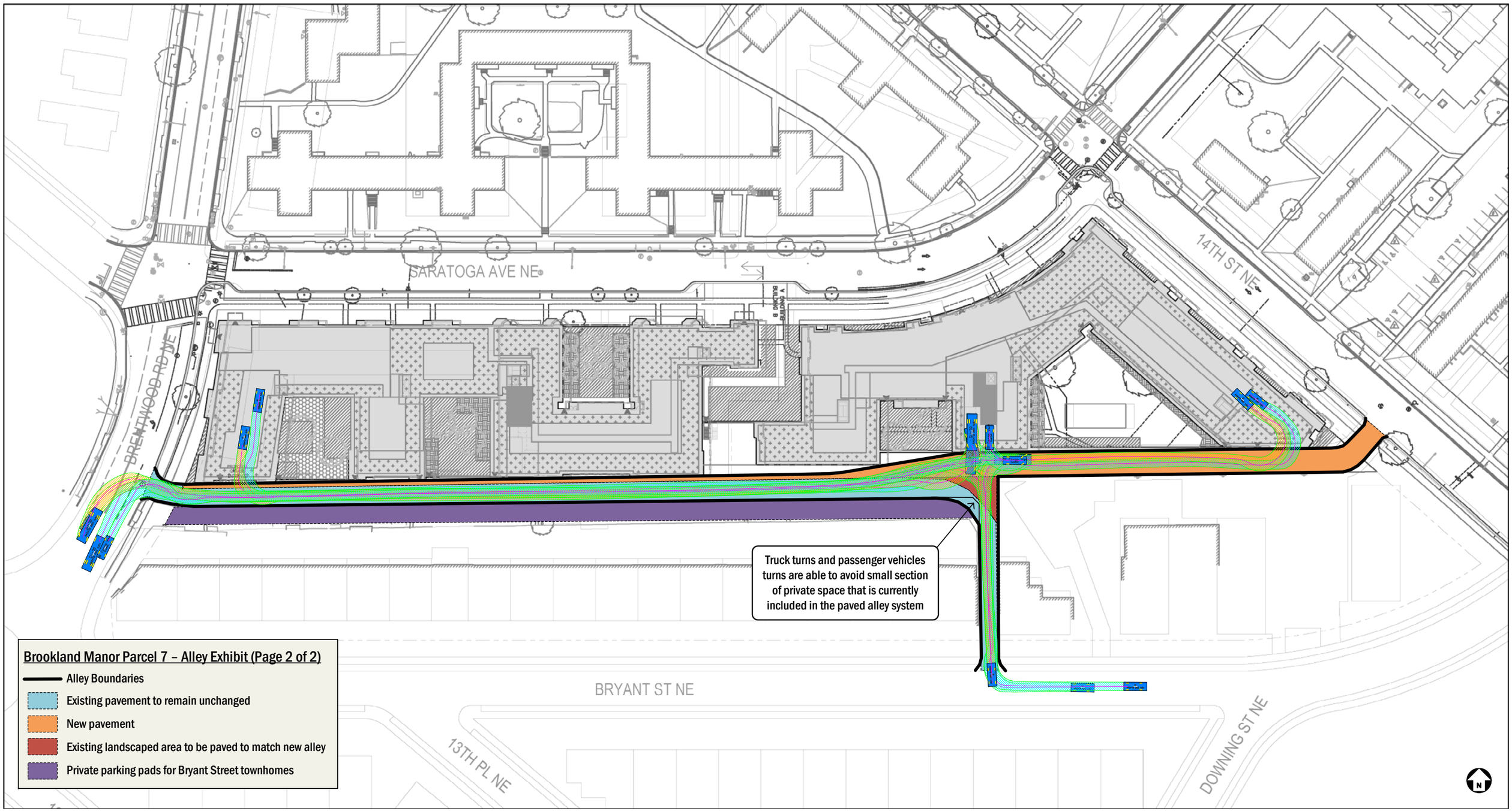
Trip Gen Summary for Block 7

Mode	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Auto	6 veh/hr	12 veh/hr	18 veh/hr	12 veh/hr	10 veh/hr	23 veh/hr
Transit	7 ppl/hr	13 ppl/hr	20 ppl/hr	14 ppl/hr	12 ppl/hr	25 ppl/hr
Bike	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	1 ppl/hr
Walk	1 ppl/hr	3 ppl/hr	4 ppl/hr	3 ppl/hr	2 ppl/hr	5 ppl/hr

Vehicular Trip Generation Summary

Analysis Scenario	AM Peak Hour			PM Peak Hour		
	In	Out	Total	In	Out	Total
Block 7 (Stage 1)	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr
Block 7 (Stage 2)	13 veh/hr	36 veh/hr	49 veh/hr	39 veh/hr	24 veh/hr	63 veh/hr
Change in Trip Generation	**1 veh/hr**	**-11 veh/hr**	**-10 veh/hr**	**-8 veh/hr**	**-1 veh/hr**	**-9 veh/hr**

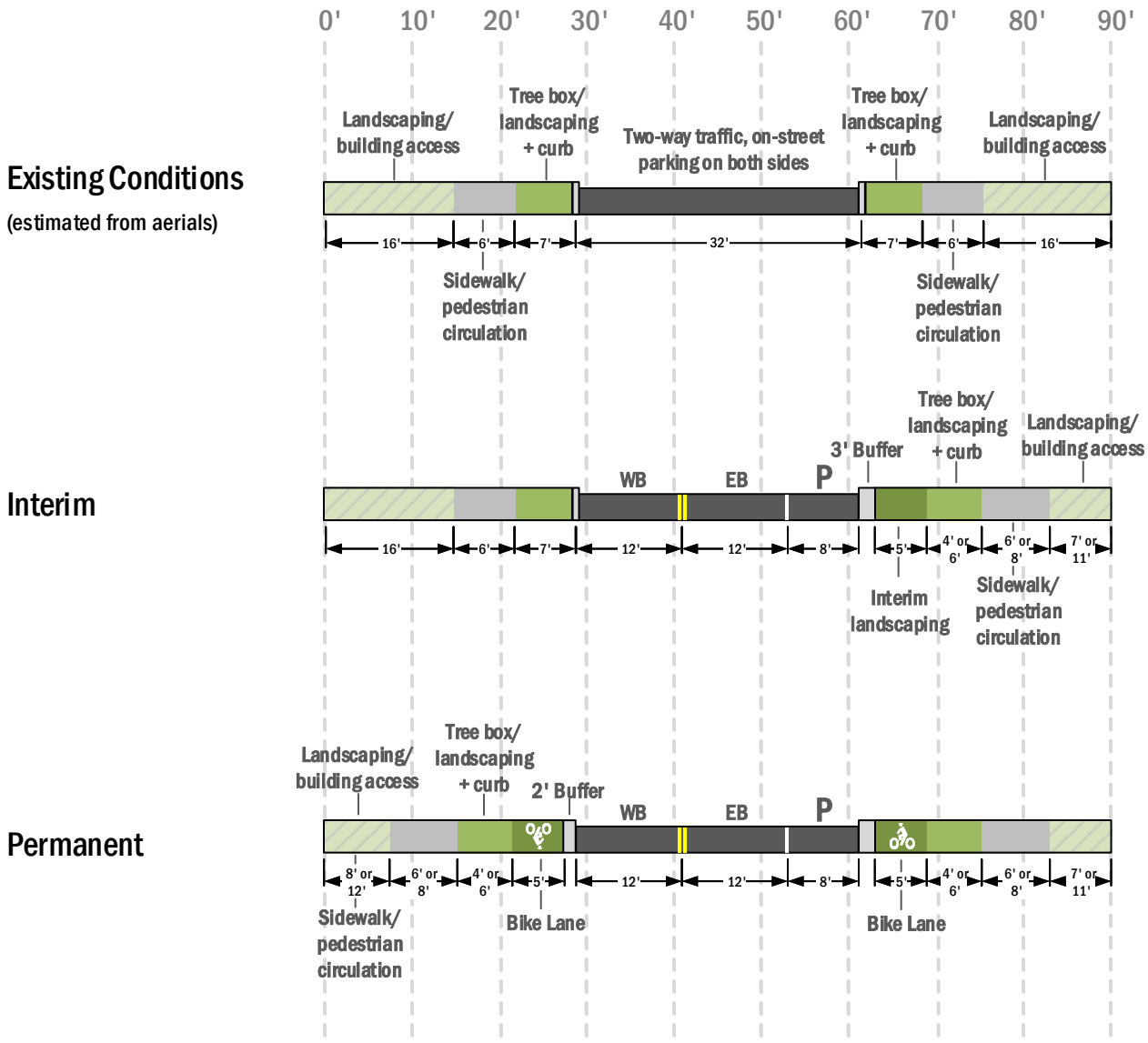

SARATOGA AVE NE
14TH ST NE
BRENTWOOD RD NE
BUILDING A
BUILDING B
20.1'
16'
20'
~45'
20'
20'
16'
BRYANT ST NE
13TH PL NE
DOWNING ST NE
Brookland Manor Parcel 7 – Alley Exhibit (Page 1 of 2)
Alley Boundaries
Existing pavement to remain unchanged
New pavement
Existing landscaped area to be paved to match new alley
Private parking pads for Bryant Street townhomes
N


SARATOGA AVE NE
14TH ST NE
BRENTWOOD RD NE
BUILDING A
BUILDING B
BRYANT ST NE
13TH PL NE
DOWNING ST NE
Truck turns and passenger vehicles turns are able to avoid small section of private space that is currently included in the paved alley system
Brookland Manor Parcel 7 – Alley Exhibit (Page 2 of 2)
Alley Boundaries
Existing pavement to remain unchanged
New pavement
Existing landscaped area to be paved to match new alley
Private parking pads for Bryant Street townhomes
N

Saratoga Avenue Right-of-Way Comparison

90' Right-of-Way Width

Option 1 – 32' curb-to-curb width, parking on one-side of street



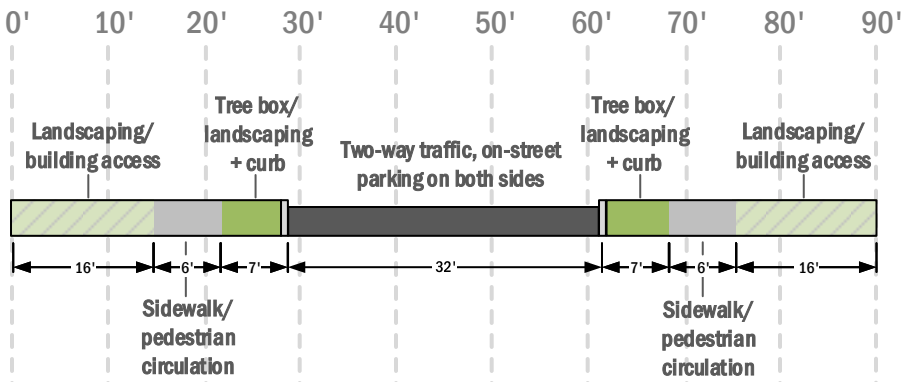
Saratoga Avenue Right-of-Way Comparison

90' Right-of-Way Width

Option 2 – 36' curb-to-curb width, parking on both sides of the street

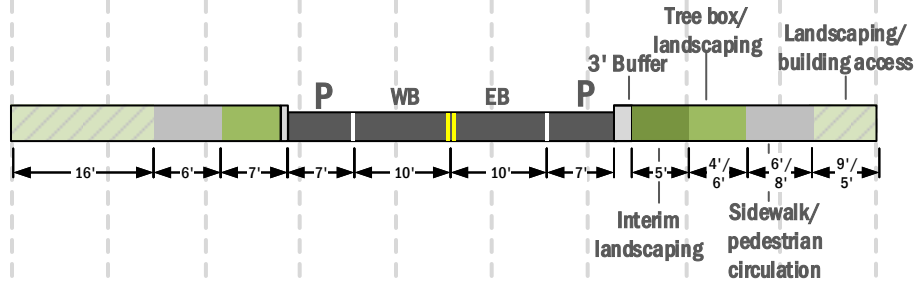
Existing Conditions

(estimated from aerials)



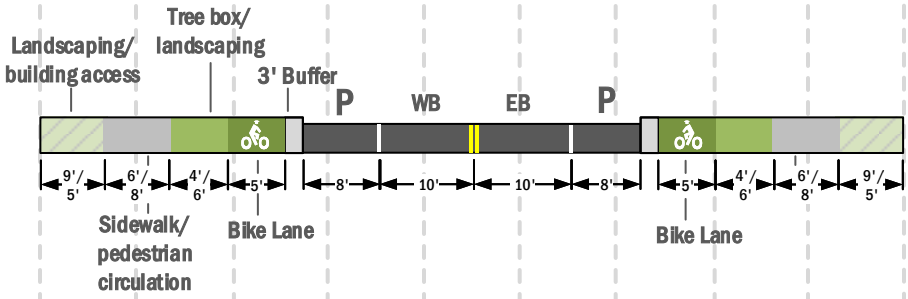
Interim

(widen 2' on south side)



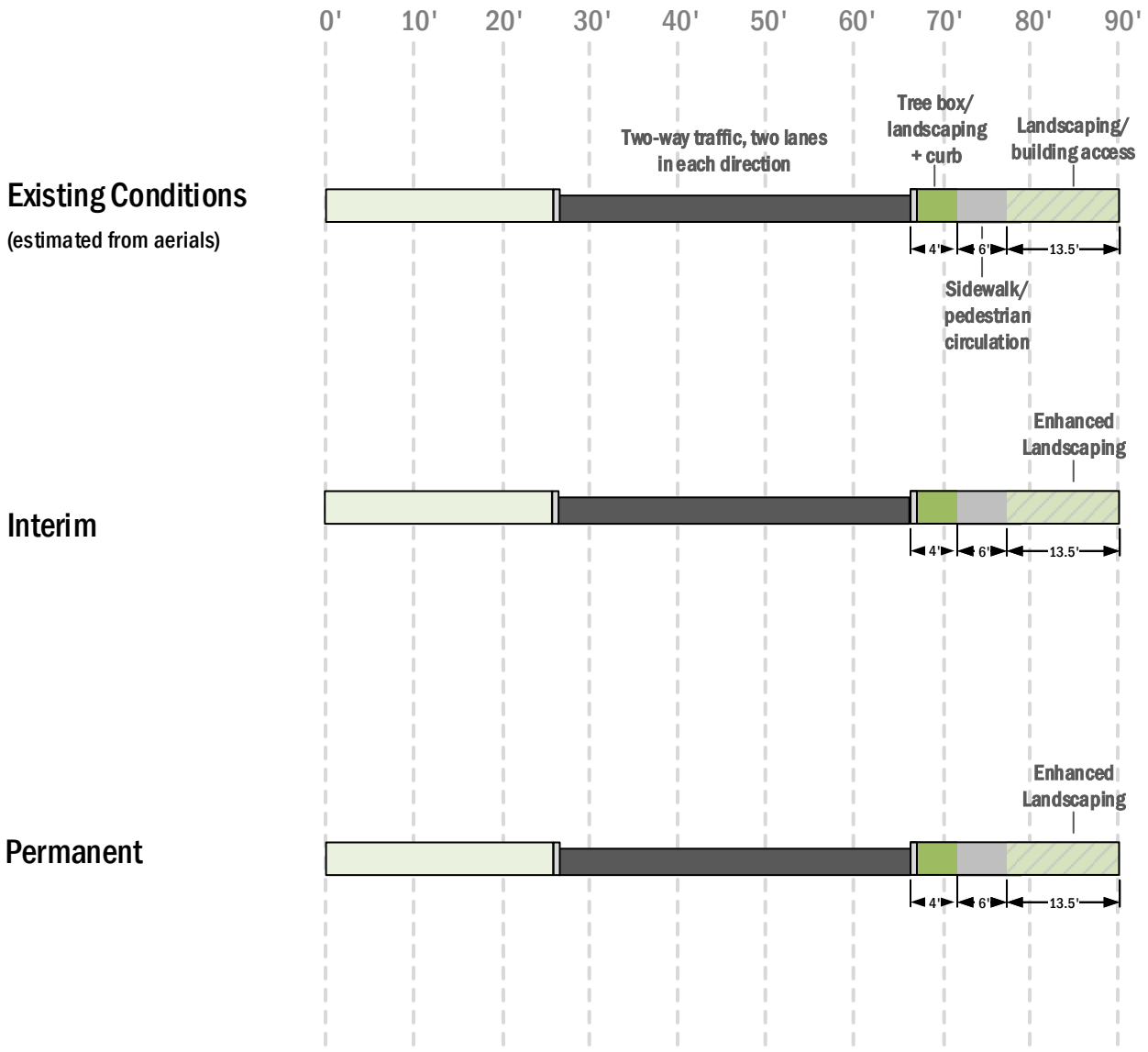
Permanent

(widen 2' on north side)



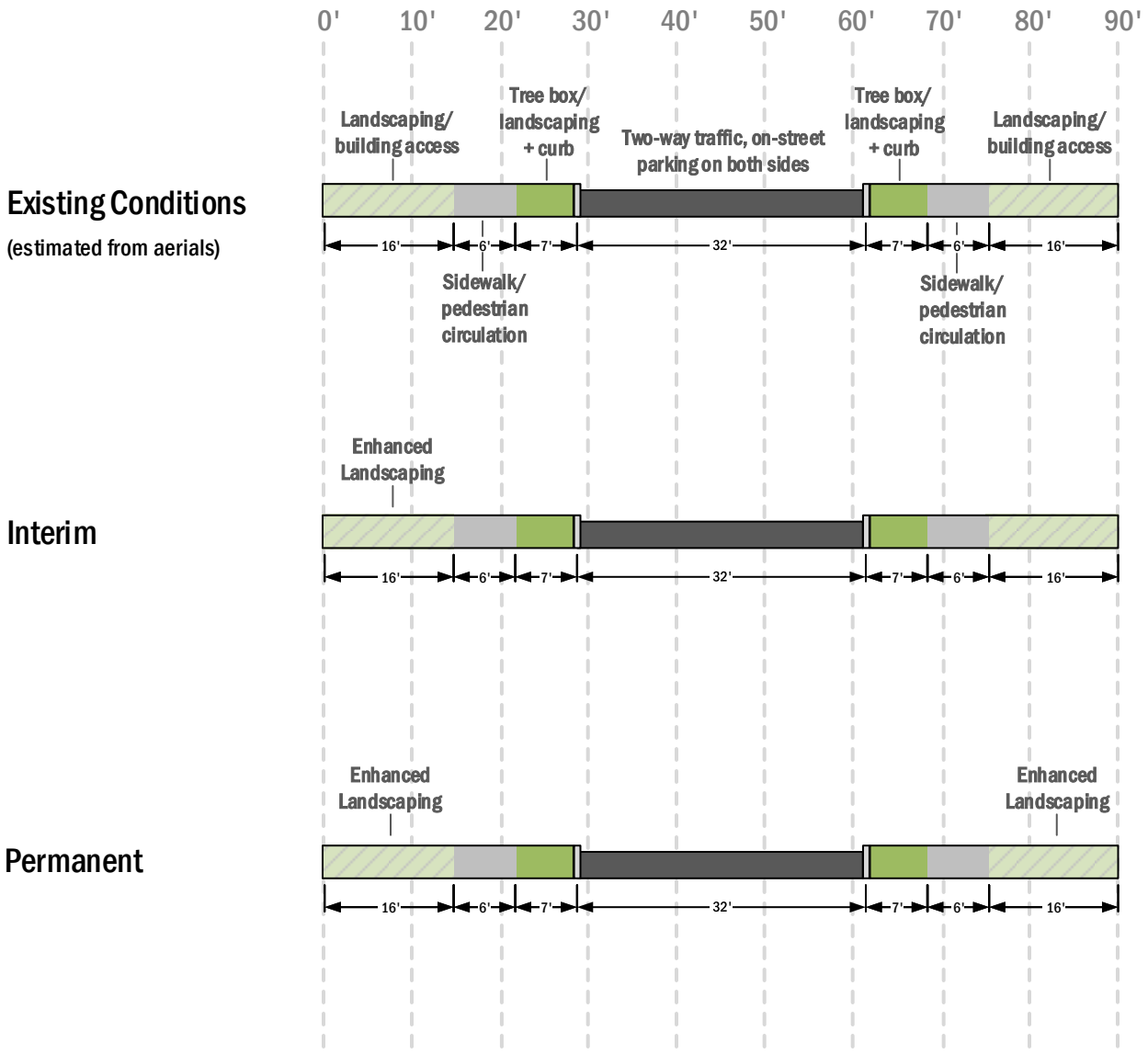
Brentwood Road Right-of-Way Comparison

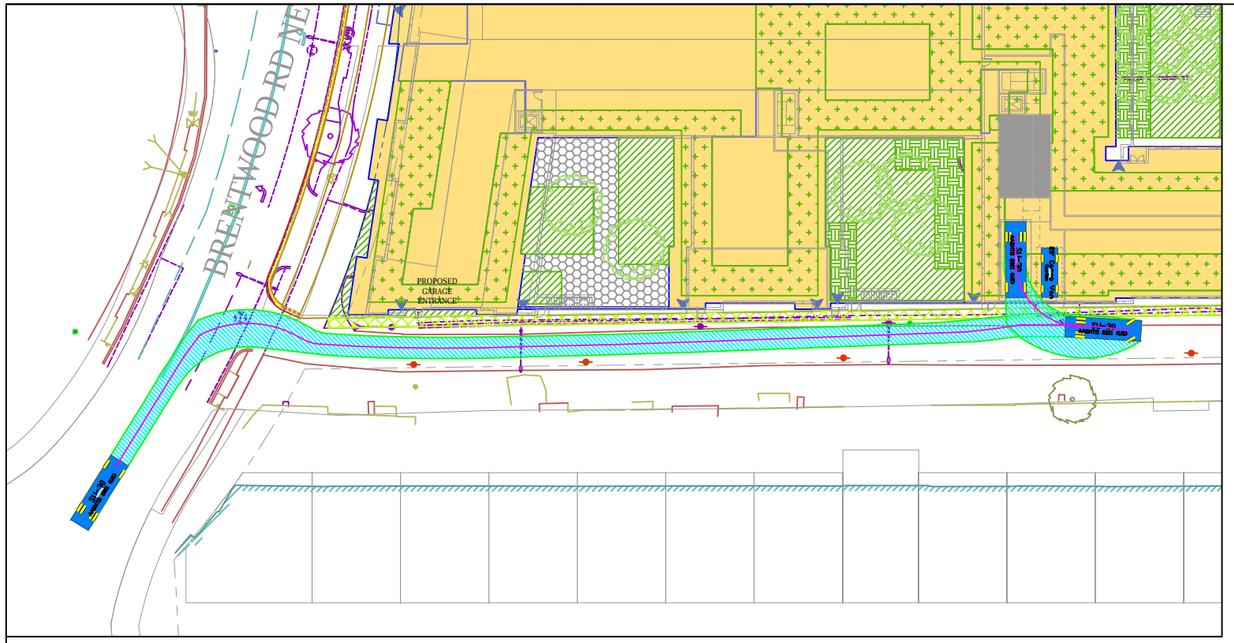
90' Right-of-Way Width

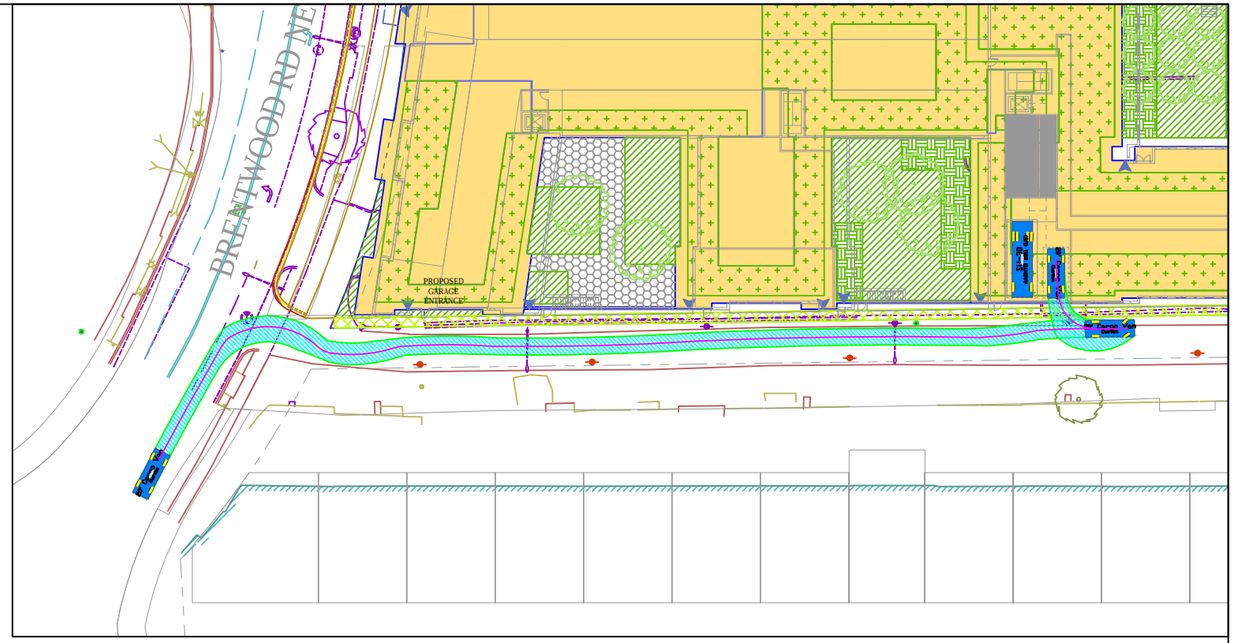


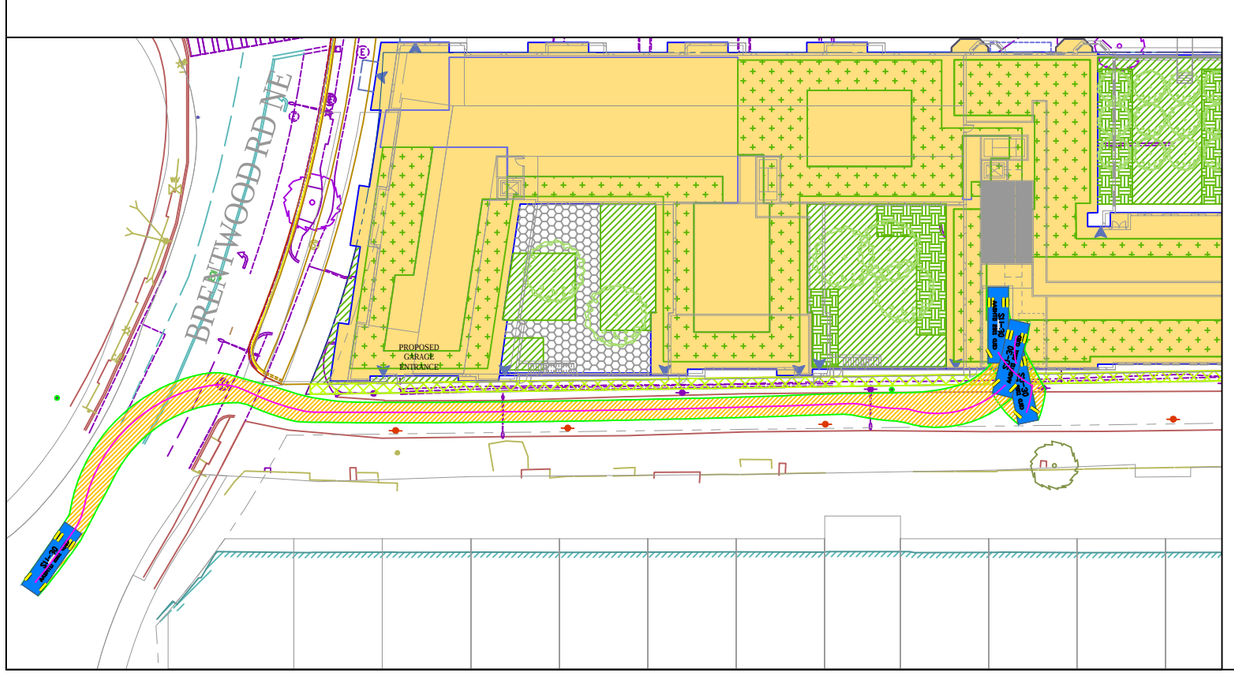
14th Street Right-of-Way Comparison

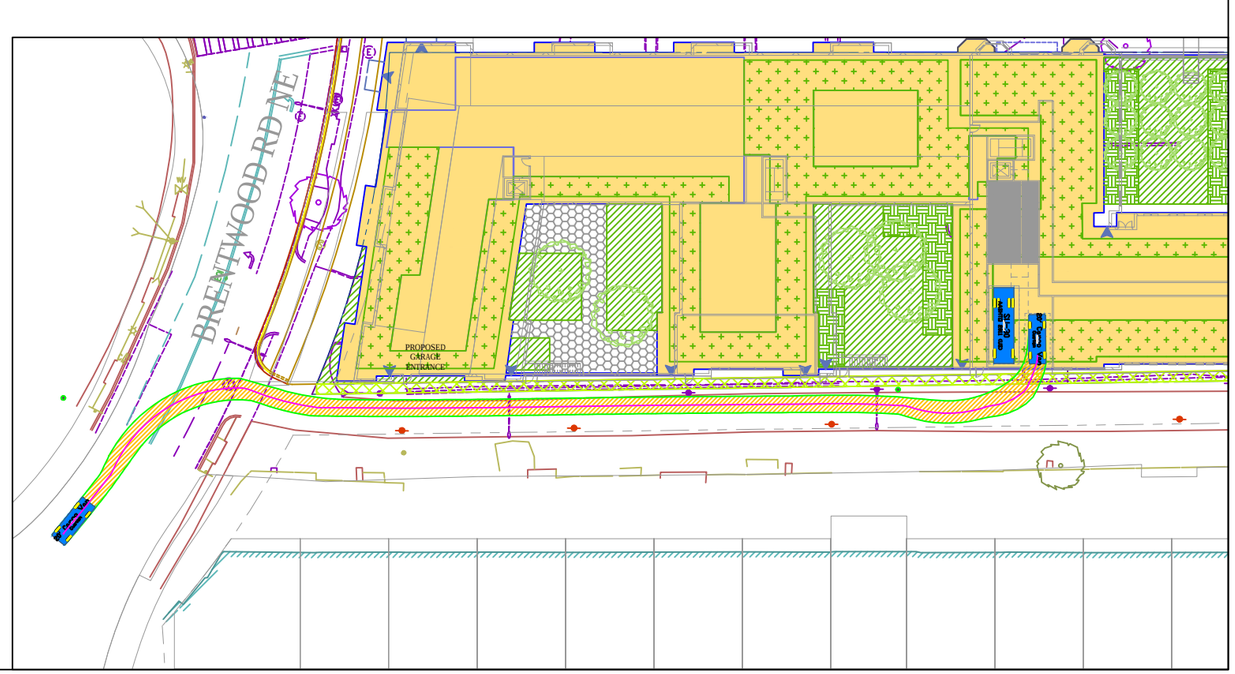
90' Right-of-Way Width











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Transportation Planners and Engineers

Brookland Manor Parcel 7 - Western Loading Berth

Torti Gallas and Partners, Inc.
Autoturn Exhibits 2/8/17
Design Vehicles: AASHTO SU-30, 20' Cargo Van

Washington, DC

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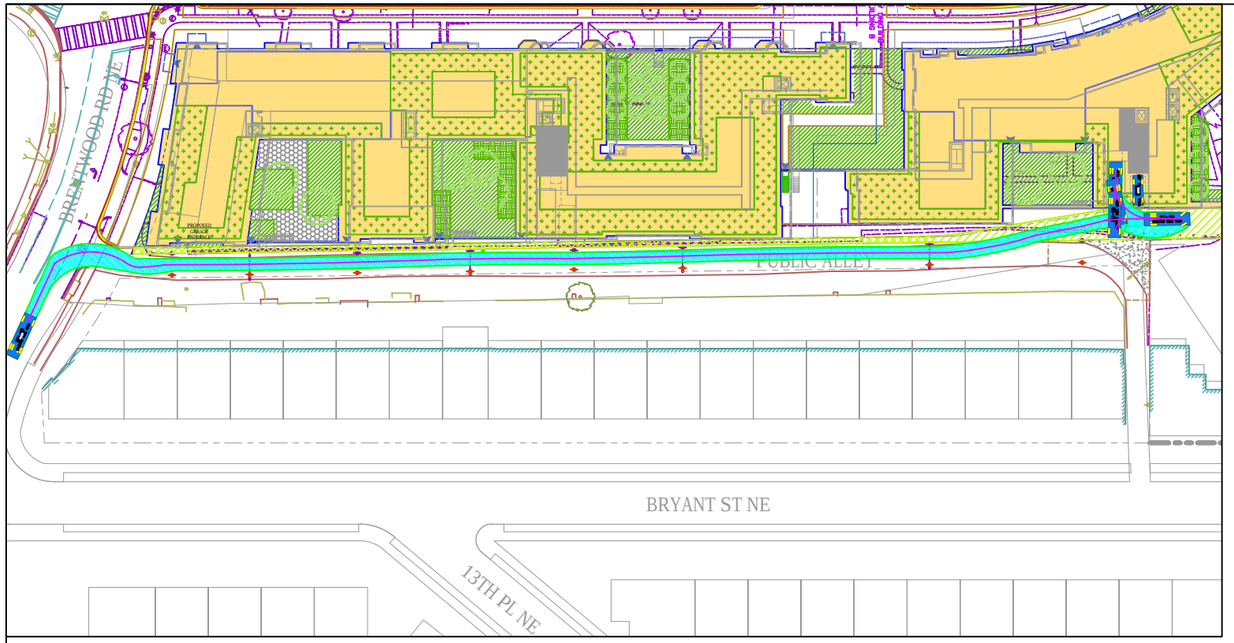

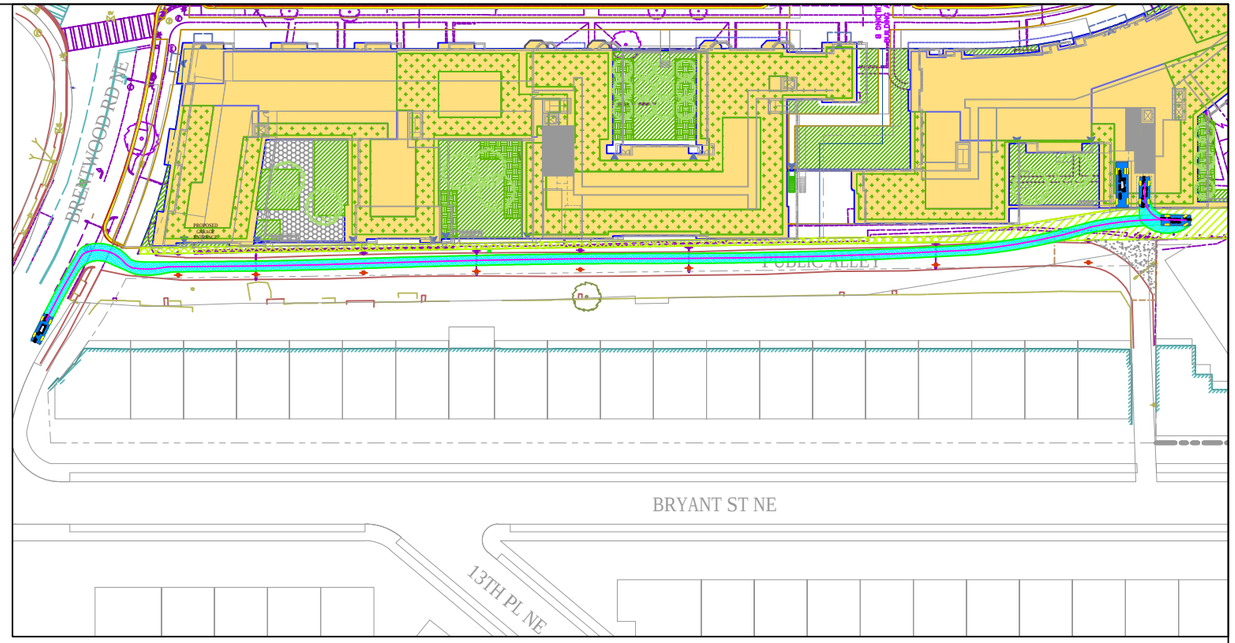

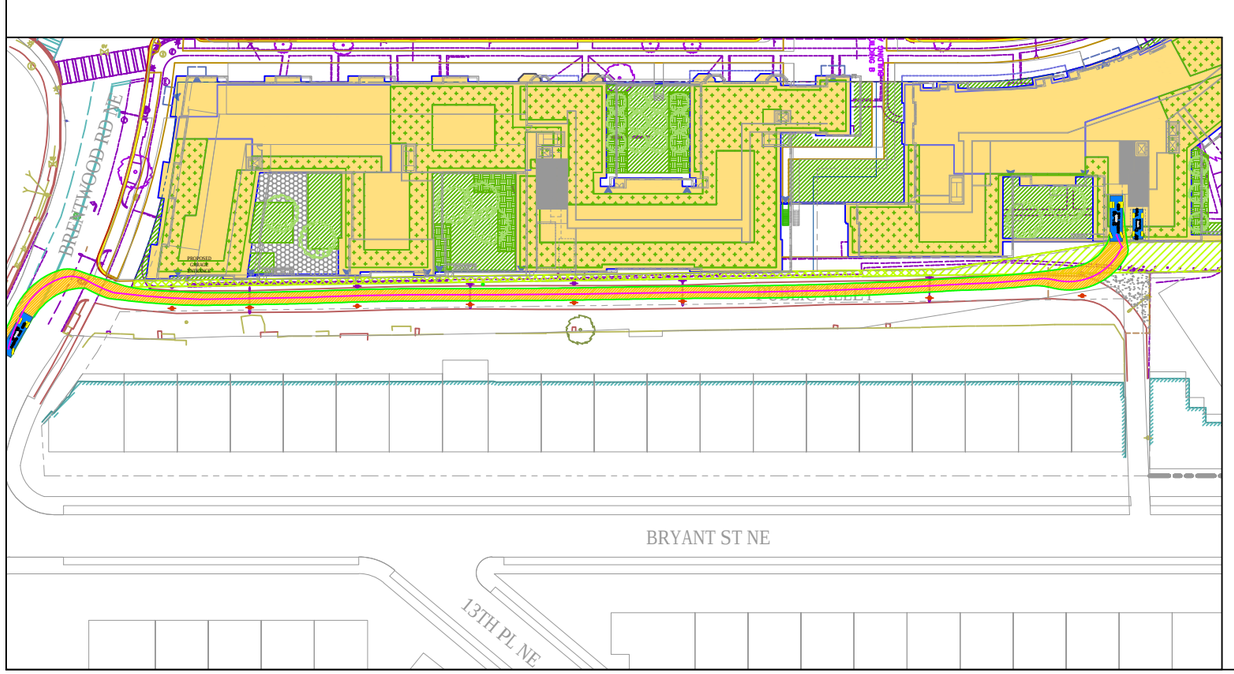

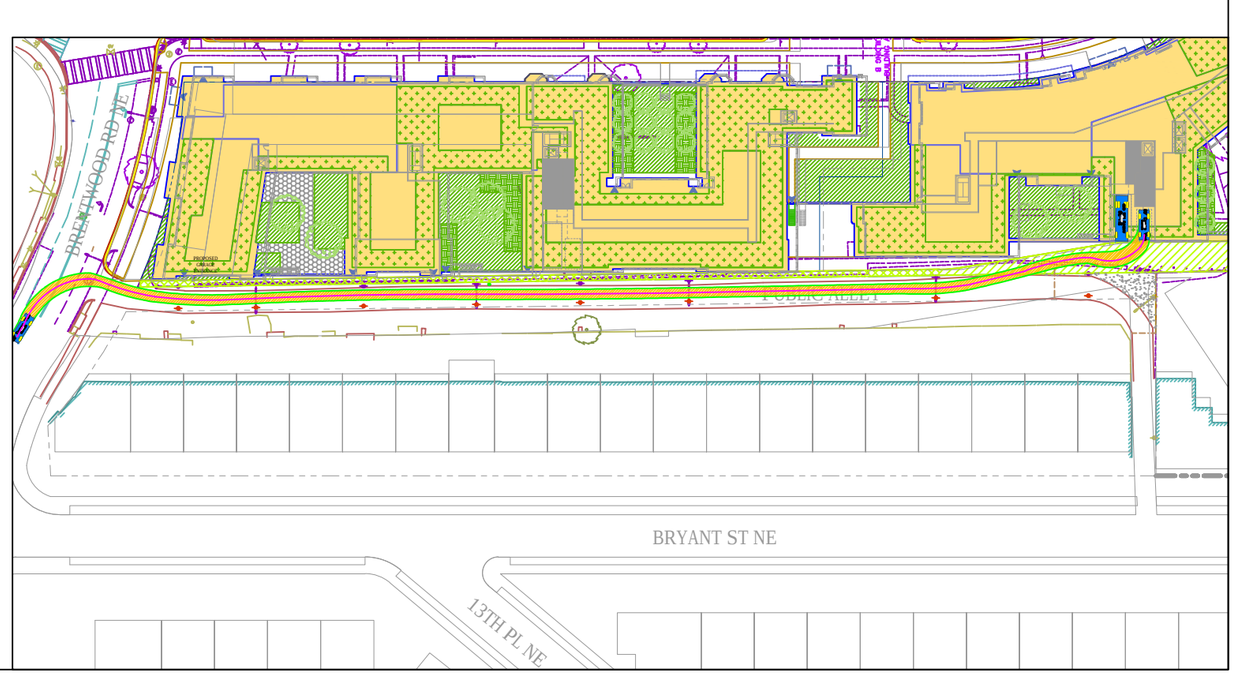

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Brookland Manor Parcel 7 - Eastern Loading Berth

Torti Gallas and Partners, Inc.
Autoturn Exhibits 2/8/17
Design Vehicles: AASHTO SU-30, 20' Cargo Van

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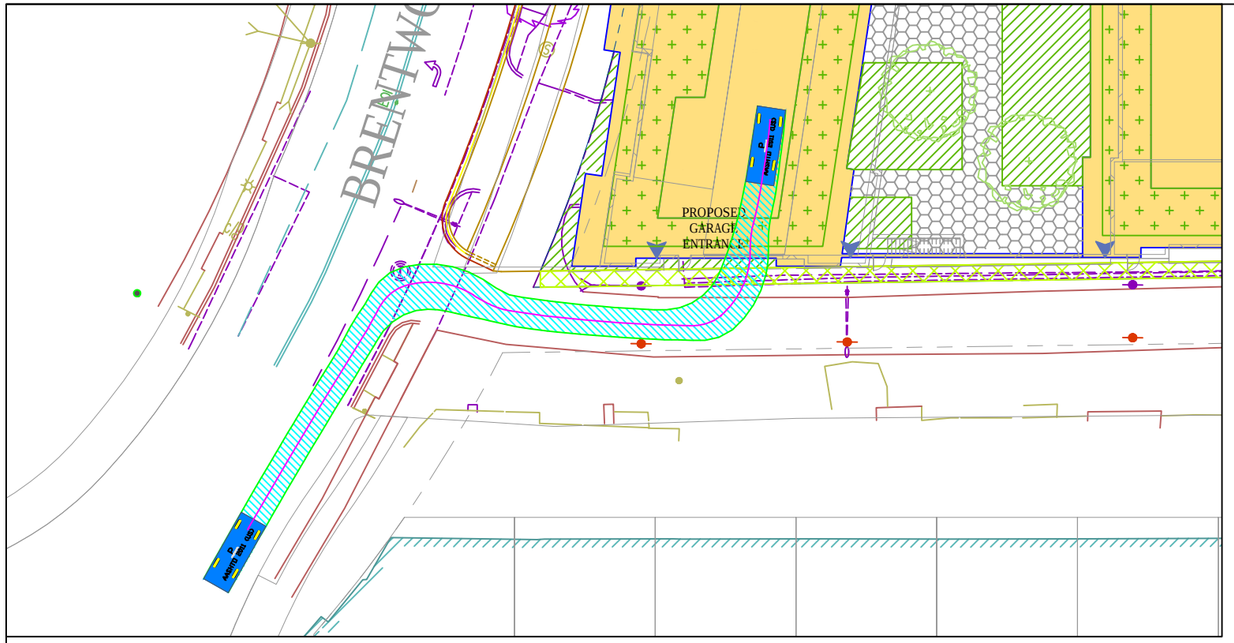
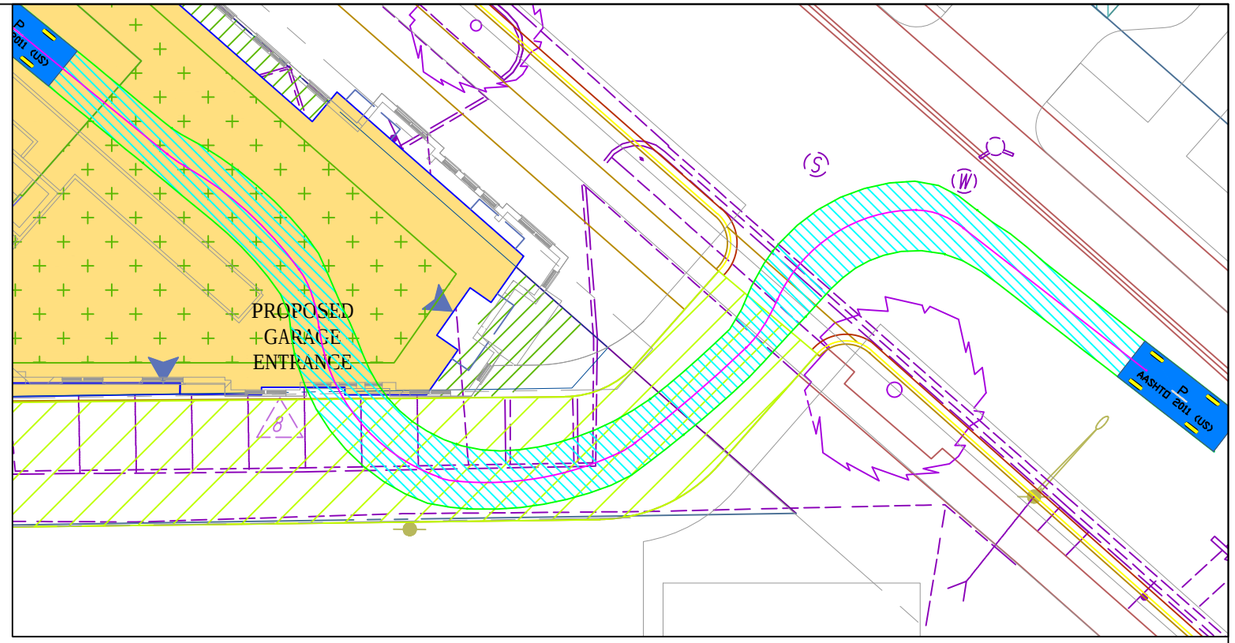
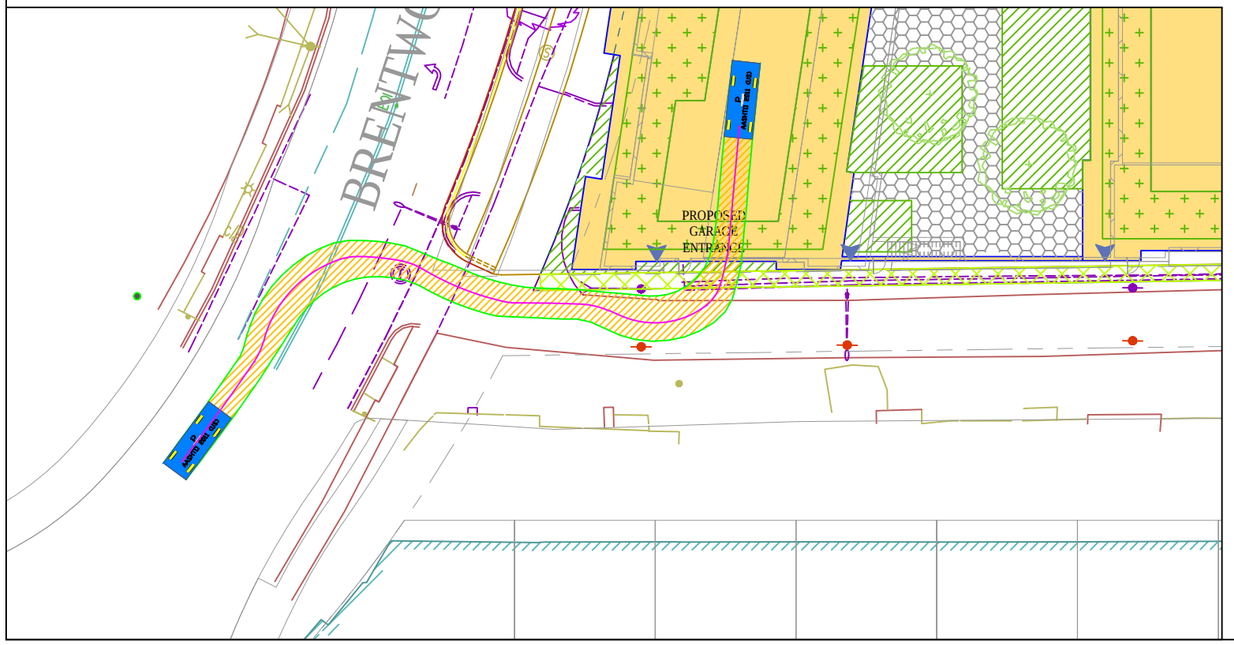
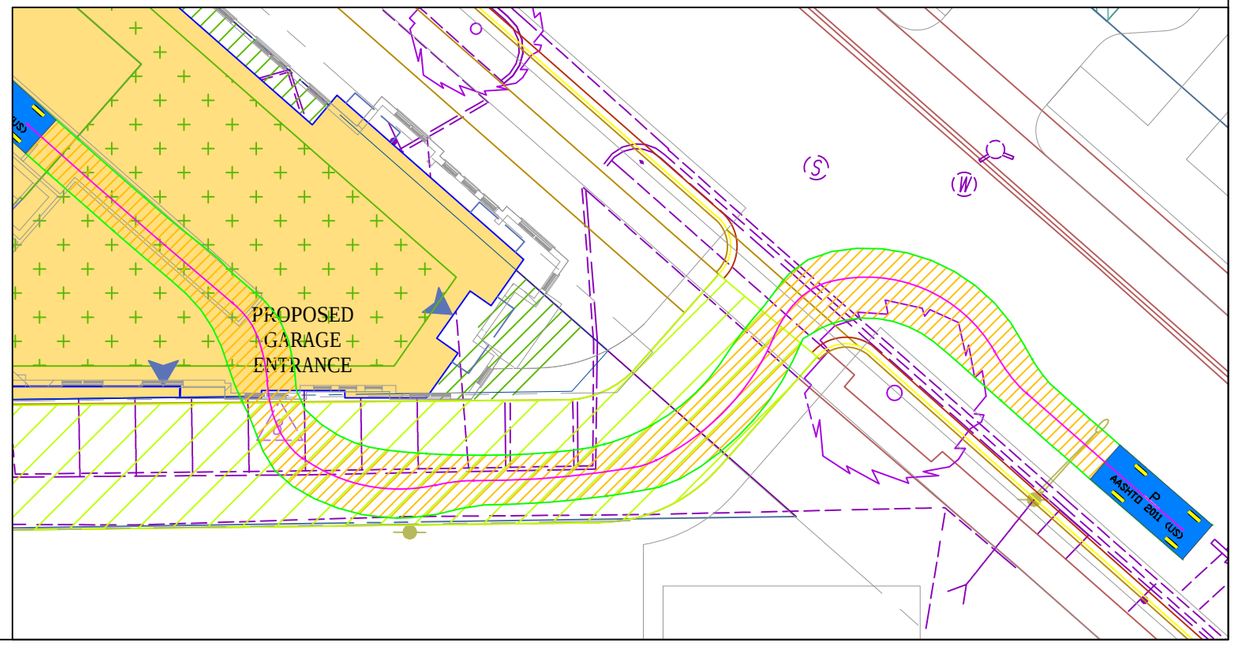
NTS









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Brookland Manor Parcel 7 - Parking Garages

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Design Vehicles: AASHTO Passenger Vehicle

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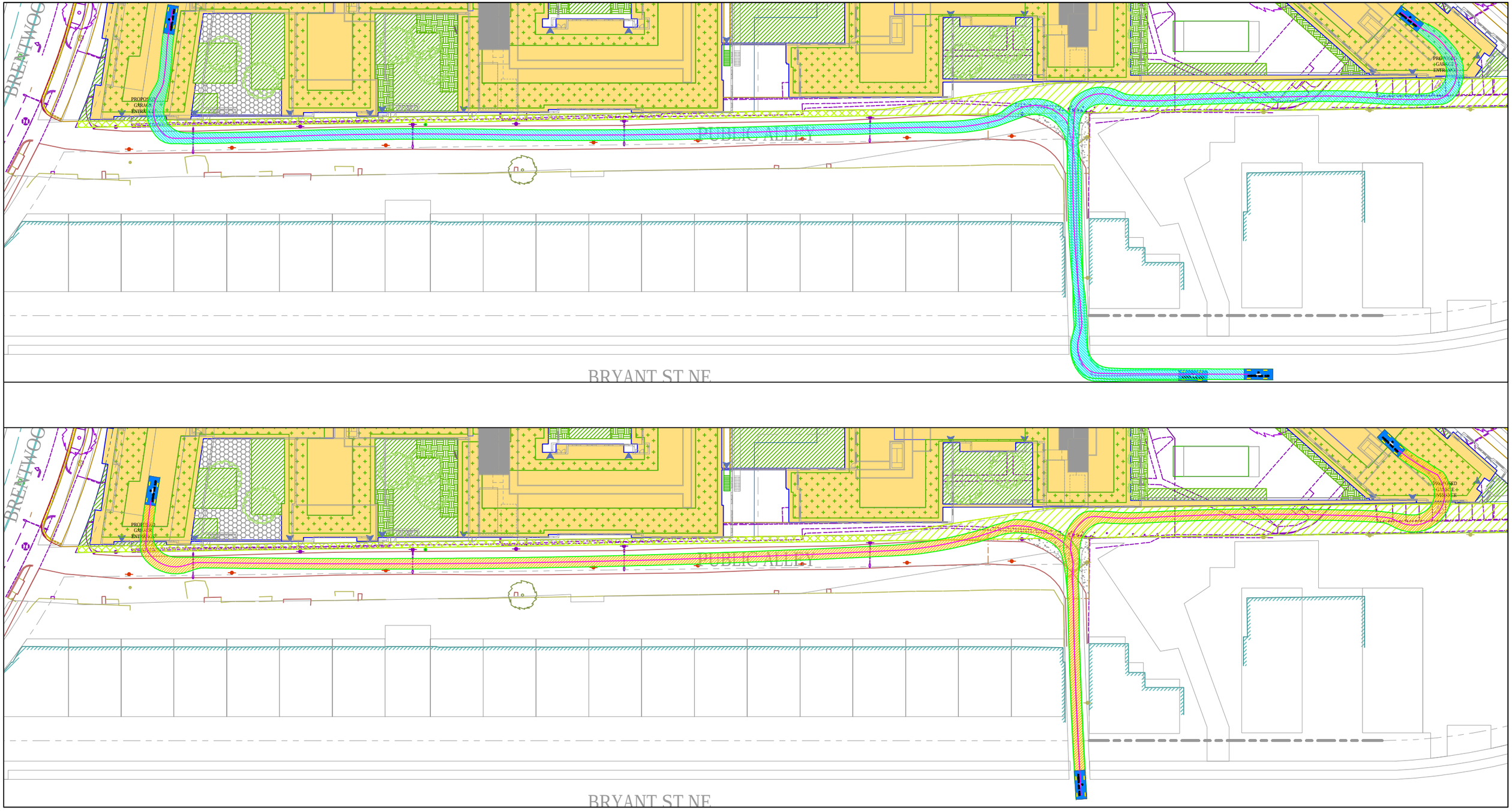

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Brookland Manor Parcel 7 - Parking Garage Alley Access

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Design Vehicles: AASHTO Passenger Vehicle

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