

TECHNICAL MEMORANDUM

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Date: January 9, 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: <ul style="list-style-type: none"> ▪ 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: 10 th Street, NE; Bryant Street, NE; 12 th Street, NE; Saratoga Avenue, NE; Douglas Street, NE; Brentwood Road, NE; 14 th 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 15 th 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 15 th Street extended, and determine if a left turn lane from Rhode Island Avenue onto 15 th 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 18 th 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 12 th Street and 18 th 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: <ul style="list-style-type: none"> ▪ 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.

<p>amount of parking and potential spillover impacts);</p> <ul style="list-style-type: none">▪ 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	
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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
<i>Auto</i>	12 veh/hr	47 veh/hr	59 veh/hr	47 veh/hr	25 veh/hr	72 veh/hr
<i>Transit</i>	13 ppl/hr	53 ppl/hr	67 ppl/hr	53 ppl/hr	28 ppl/hr	81 ppl/hr
<i>Bike</i>	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
<i>Walk</i>	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
<i>Auto</i>	13 veh/hr	36 veh/hr	49 veh/hr	39 veh/hr	24 veh/hr	63 veh/hr
<i>Transit</i>	14 ppl/hr	41 ppl/hr	55 ppl/hr	44 ppl/hr	27 ppl/hr	71 ppl/hr
<i>Bike</i>	0 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	1 ppl/hr	2 ppl/hr
<i>Walk</i>	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
<i>Auto</i>	1 veh/hr	-11 veh/hr	-10 veh/hr	-8 veh/hr	-1 veh/hr	-9 veh/hr
<i>Transit</i>	1 ppl/hr	-13 ppl/hr	-12 ppl/hr	-9 ppl/hr	-1 ppl/hr	-10 ppl/hr
<i>Bike</i>	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr	0 ppl/hr
<i>Walk</i>	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, as shown in Figure 6. 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.

As shown on Figure 5, 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.



Figure 3: Existing Alley Conditions

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 constructed to meet DDOT and ADA standards and improved over existing conditions. Along Saratoga Avenue, 8' wide concrete sidewalks will be constructed with 6' wide landscaped buffers; along Brentwood Road, 8' wide concrete sidewalks will be constructed with 8' wide landscaped buffers; and along 14th Street, 8' wide concrete sidewalks will be constructed with 6' wide landscaped buffers.

Curb extensions will be constructed 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.

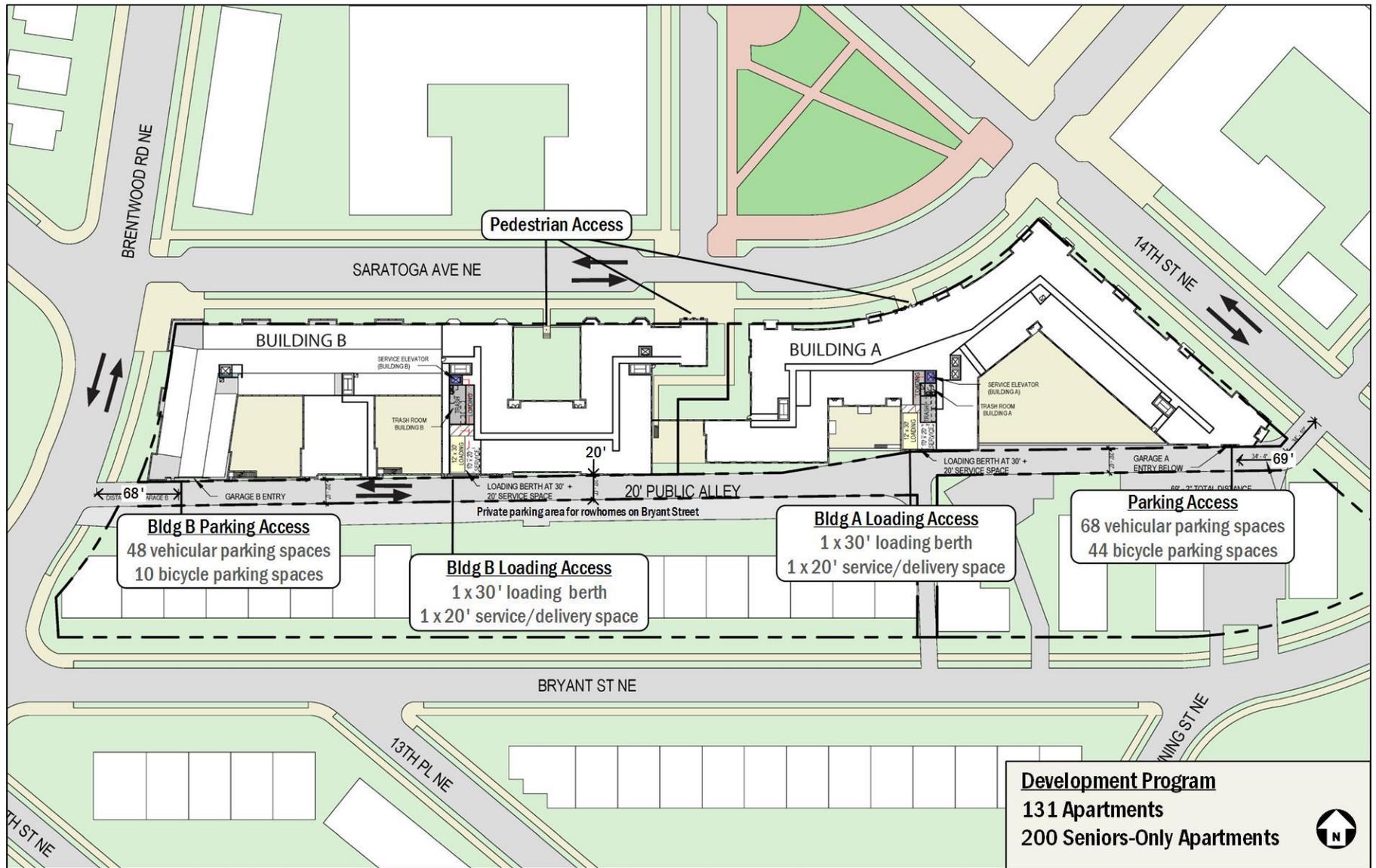


Figure 4: Block 7 Stage 2 Site Plan (per ZC Case 14-18A)



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

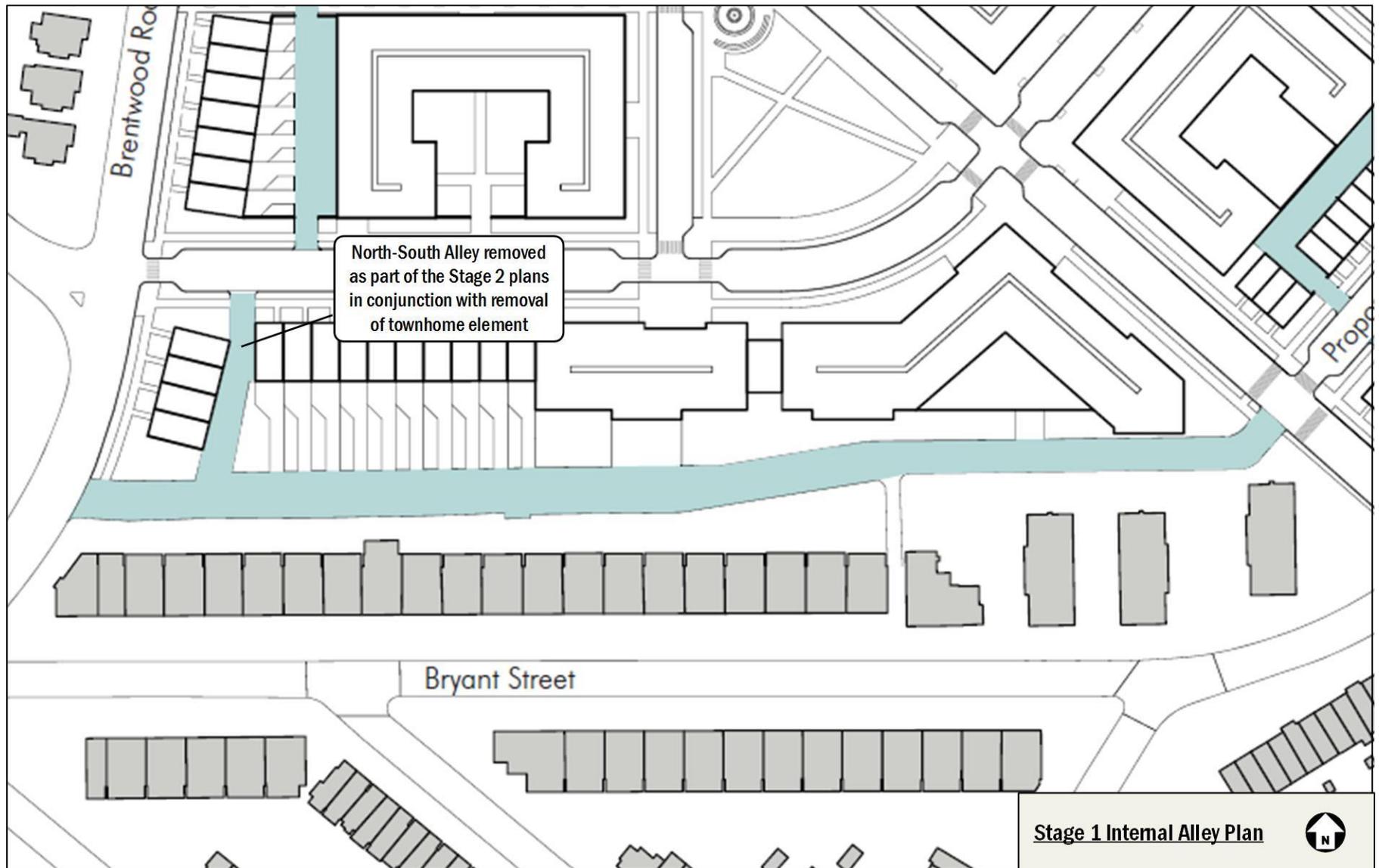


Figure 6: Stage 1 Internal Alley Plan (per ZC Case 14-18)

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.

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 <i>Suburban-Inside the Beltway</i>)	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
<i>Calculation Details:</i>			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
<i>Calculation Details:</i>			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	220	200 du	14 veh/hr	26 veh/hr	40 veh/hr	27 veh/hr	23 veh/hr	50 veh/hr
<i>Calculation Details:</i>			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

