

**APPENDIX III**  
**Transportation**



**West 108<sup>th</sup> Street WSFSSH Development**  
**Transportation Planning Factors (TPF) / Travel Demand Forecast (TDF)**  
**TECHNICAL MEMORANDUM**

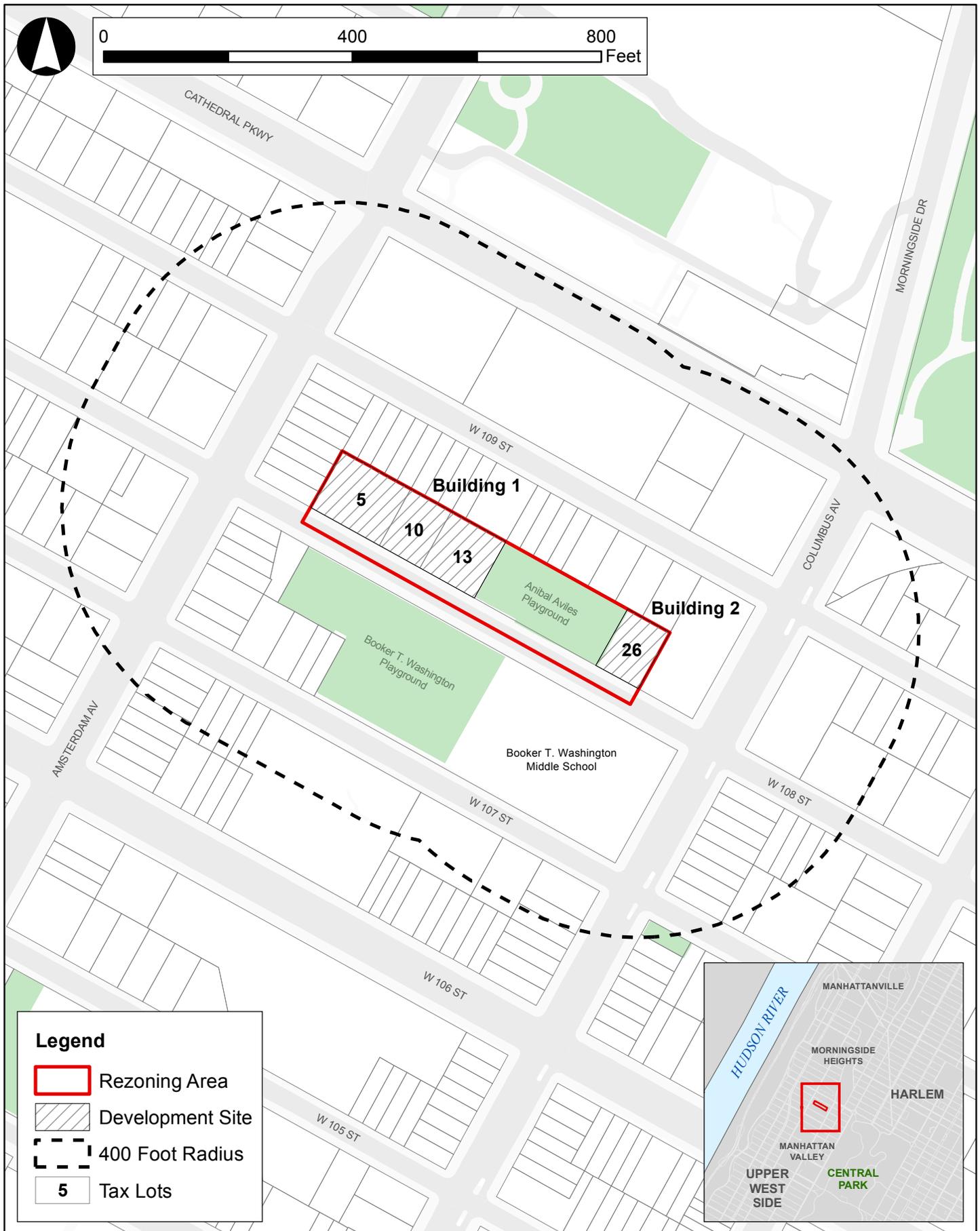
**INTRODUCTION**

The City of New York – Department of Housing Preservation and Development (HPD) and the project sponsor, the West Side Federation for Senior and Supportive Housing (WSFSSH), are seeking approval of several discretionary actions subject to City Planning Commission (CPC) approval (collectively, the “Proposed Actions”) to facilitate the construction of two new buildings consisting of affordable and supportive housing and community facility (medical office) uses on West 108<sup>th</sup> Street in the Manhattan Valley neighborhood of Manhattan Community District (CD) 7 (refer to Figure 1). The Proposed Actions include designation of an Urban Development Action Area (UDAA), approval of an Urban Development Action Area Project (UDAAP), disposition of City-owned property, a zoning map amendment to change the Project Area zoning from R8B to R8A, and a zoning text amendment to Appendix F of the NYC Zoning Resolution to map a Mandatory Inclusionary Housing (“MIH”) Area on the Project Area. The project sponsor may seek construction financing from HPD and other agencies at a later date.

The Proposed Actions would facilitate the development of approximately 281 affordable dwelling units (DUs), an approximately 31,000 gross square foot (gsf) transitional housing facility for older adults with approximately 110 shelter beds, and an additional approximately 6,400 gsf community facility (medical office) use (the “Proposed Project”). This proposed development would consist of two buildings: the Western Development (Lots 5, 10, and 13) with approximately 193,000 gsf, and the Eastern Development (Lot 26) with approximately 45,000 gsf. This memorandum summarizes the transportation planning factors to be used for the analyses of traffic, transit, pedestrian, and parking conditions for the Proposed Project.

**REASONABLE WORST CASE DEVELOPMENT SCENARIO (RWCDS)**

In order to assess the potential effects of the Proposed Actions, a Reasonable Worst-Case Development Scenario (RWCDS) for both the “future without the Proposed Actions” (No-Action) and the “future with the Proposed Actions” (With-Action) conditions is analyzed for an analysis year of 2025. In the absence of the Proposed Actions, it is expected that no disposition of City-owned property and no changes to zoning or land use would occur within the Development Site. Currently, Lot 5 is occupied by a four-story parking garage containing 250 parking spaces, Lot 10 is occupied by a five-story building that houses the Valley Lodge Shelter which contains 92 beds for the homeless, Lots 13 and 26 are also occupied by five- and three- story public parking garages containing 300 and 125 parking spaces, respectively. Under the No-Action condition, the three off-street public parking garages (with a total of 675 parking spaces) would continue to operate.



Under the With-Action condition, the Proposed Actions would facilitate development within the Project Area. By 2025, the Proposed Actions would result in the development of Building 1 (the “Western Development”) and Building 2 (the “Eastern Development”) on the Development Site (Block 1863, Lots 5, 10, 13, and 26). For CEQR analysis purposes, the Proposed Project described above represents the RWCDs.

Table 1 below provides a comparison of the 2025 No-Action and 2025 With-Action conditions identified for analysis purposes. As shown, by 2025 the incremental (net) change that would result from the Proposed Actions is the addition of 281 affordable units (approximately 200,600 gsf), approximately 18 shelter beds, approximately 6,400 gsf of community facility uses (predominantly medical office - excluding the shelter facility), and approximately 0.2 acres (9,000 sf) of private open space for tenants, as well as a reduction of 675 public parking spaces.

**Table 1  
Comparison of 2025 No-Action and 2025 With-Action Conditions**

Use		No-Action Scenario	With-Action Scenario	Increment
Residential	Affordable Housing (Including Supportive Senior Housing)	--	281 units	<b>+281 units</b>
Community Facility	Shelter beds	92 beds	110 beds	<b>+18 beds</b>
	Medical Office	--	6,400 gsf	<b>+6,400 gsf</b>
Public Parking (spaces)		675 spaces	-	<b>- 675 spaces</b>
Accessory/Private Open Space		--	0.2 acres (9,000 sf)	<b>+0.2 acres (9,000 sf)</b>

Construction of Building 1 (Block 1863, Lots 5, 10, and 13) is expected to begin in 2018, with all building elements complete and fully operational by the end of 2020; construction of Building 2 (Block 1863, Lot 26) is expected to begin in 2023, with all building elements complete and fully operational by the end of 2025. Accordingly, the EIS will assume a 2025 Build Year (a.k.a. analysis year), as it represents full build-out of the Proposed Project. As the incremental development resulting from the Proposed Actions would exceed the densities in Table 16-1 of the *City Environmental Quality Review (CEQR) Technical Manual* analysis thresholds, a preliminary travel demand forecast was prepared.

**TRANSPORTATION PLANNING FACTORS**

In order to conduct a Level 1 Trip Generation Screening Assessment for the Proposed Actions in 2025, a travel demand forecast was prepared for a typical peak hour during the weekday AM, midday, and PM and Saturday midday periods. The transportation planning factors shown below in Table 2 were developed based on standard criteria as per the 2014 *CEQR Technical Manual*, census data, and studies that have been used in previous EISs for projects with similar uses. These include trip generation rates, temporal and directional distributions, mode choice factors, and vehicle occupancies for the With-Action increment of 281 affordable DUs, 18 new transitional shelter beds (a total of 110 shelter beds to be provided, replacing the existing 92 beds), and 6,400 gsf of community facility (medical office) space. The 281 affordable DUs and the 18 shelter beds were conservatively analyzed, for transportation purposes, as typical dwelling units (a total of 299 DUs).

**Table 2  
Transportation Planning Factors**

<b>Land Use:</b>	<b><u>Residential</u></b>	<b><u>Medical Office (Staff)</u></b>	<b><u>Medical Office (Visitors)</u></b>
<b>Size/Units:</b>	299 DU	6,400 gsf	6,400 gsf
<b>Trip Generation:</b>	(1)	(4,5)	(4,5)
Weekday	8.075	10.0	33.6
Saturday	9.600	4.3	14.5
	per DU	per 1,000 gsf	per 1,000 gsf
<b>Temporal Distribution:</b>	(1)	(4,5)	(4,5)
AM	10.0%	24.0%	6.0%
MD	5.0%	17.0%	9.0%
PM	11.0%	24.0%	5.0%
SatMD	8.0%	17.0%	9.0%
<b>Modal Splits:</b>	(2)	(6)	(5)
	All Periods	All Periods	All Periods
Auto	7.4%	17.4%	25.0%
Taxi	1.4%	0.2%	25.0%
Subway	67.7%	51.4%	29.0%
Bus	6.3%	12.9%	11.0%
Walk/Other	17.2%	18.1%	10.0%
	100.0%	100.0%	100.0%
<b>In/Out Splits:</b>	(3)	(4,5)	(4,5)
	In      Out	In      Out	In      Out
AM	16.0%    84.0%	100%    0%	90%    10%
MD	50.0%    50.0%	50%    50%	50%    50%
PM	67.0%    33.0%	0%    100%	30%    70%
Sat MD	53.0%    47.0%	50%    50%	50%    50%
<b>Vehicle Occupancy:</b>	(2,3)	(5,6)	(5)
	All Periods	All Periods	All Periods
Auto	1.10	1.15	1.65
Taxi	1.40	1.40	1.20
<b>Truck Trip Generation:</b>	(1)	(4,5)	
Weekday	0.06	0.04	N/A
Saturday	0.02	0.00	N/A
	per DU	per 1,000 sf	
	(1)	(4,5)	
AM	12.0%	9.7%	N/A
MD	9.0%	7.8%	N/A
PM	2.0%	5.1%	N/A
Sat MD	9.0%	0.0%	N/A
	In      Out	In      Out	In      Out
AM/MD/PM	50.0%    50.0%	50.0%    50.0%	N/A

**Notes:**

- (1) Based on data from the 2014 *CEQR Technical Manual*.
- (2) Based on American Community Survey 2011-2015 Means of Transportation to Work data for Manhattan Census Tracts 189, 191, 193, 195, 197.01, 197.02, 199, and 216.
- (3) Based on the 2012 *West Harlem Rezoning FEIS*.
- (4) Based on data from the 2007 *Jamaica Plan Rezoning FEIS*.
- (5) Based on the 2012 *Saint Vincent's Campus Redevelopment FEIS*.
- (6) Based on 2006-2010 AASHTO CTPP Reverse Journey to Work 5-Year Data for Manhattan Census Tracts 189, 191, 193, 195, 197.01, 197.02, 199, and 216.

## Residential

The forecast of travel demand for the residential use used a weekday trip generation rate of 8.075 person trips per DU, a Saturday trip generation rate of 9.6 person trips per DU, and temporal distributions of 10%, 5%, 11%, and 8% for the weekday AM, midday, and PM and Saturday midday peak hours, respectively, as per the 2014 *CEQR Technical Manual*. The residential modal splits were estimated to be 7.4%, 1.4%, 67.7%, 6.3%, and 17.2% mode shares for private auto, taxi, subway, bus, and walk-only modes, respectively, as per 2011-2015 *American Community Survey (ACS) Means of Transportation to Work* data Manhattan Census Tracts 189, 191, 193, 195, 197.01, 197.02, 199, and 216 (the tracts located within a ¼-mile radius of the Project Area). Directional splits (in/out) shown in Table 2 were based on the 2012 *West Harlem Rezoning FEIS*. The vehicle occupancy of 1.10 persons per vehicle was also assumed based on ACS data, while the taxi occupancy of 1.40 persons per taxi was based on the 2012 *West Harlem Rezoning FEIS*.

## Community Facility (Medical Office)

Travel demand for the proposed medical office use was forecasted separately for employees and patients/visitors. The forecast of travel demand for medical office employees used a weekday trip generation rate of 10 person trips per 1,000 sf, a Saturday employee trip generation rate of 4.3 persons per 1,000 sf, and temporal distributions, and temporal distributions of 24%, 17%, 24%, and 17% for the weekday AM, midday, and PM and Saturday midday peak hours, respectively, as per the 2007 *Jamaica Plan Rezoning FEIS* and the 2012 *Saint Vincent's Campus Redevelopment FEIS*. The employee modal splits were estimated to be 17.4%, 0.2%, 51.4%, 12.9%, and 18.1% for private auto, taxi, subway, bus, and walk-only modes, respectively, as per the 2006-2010 American Association of State Highway and Transportation Officials (AASHTO) Census Transportation Planning Products (CTPP) Reverse Journey to Work data for Manhattan Census Tracts 189, 191, 193, 195, 197.01, 197.02, 199, and 216. The directional (in/out) splits shown in Table 3 were based on directional splits from the 2007 *Jamaica Plan Rezoning FEIS* and the 2012 *Saint Vincent's Campus Redevelopment FEIS*. Additionally, the vehicle occupancy of 1.18 and taxi occupancy of 1.40 were based on AASHTO CTPP data and the 2012 *Saint Vincent's Campus Redevelopment FEIS*, respectively.

The forecast of travel demand for the medical office visitors used a weekday trip generation rate of 33.6 trips per 1,000 sf, a Saturday visitor trip generation rate of 14.5 trips per 1,000 sf, and temporal distributions of 6%, 9%, 5%, and 9% for the weekday AM, midday, and PM and Saturday midday peak hours, respectively, as per the 2007 *Jamaica Plan Rezoning FEIS* and the 2012 *Saint Vincent's Campus Redevelopment FEIS*. Similarly, the visitor modal splits were estimated to be 25%, 25%, 29%, 11%, and 10% for private auto, taxi, subway, bus, and walk-only modes, respectively, as per the 2007 *Jamaica Plan Rezoning FEIS*. The directional (in/out) splits were also based on the 2007 *Jamaica Plan Rezoning FEIS* and the 2012 *Saint Vincent's Campus Redevelopment FEIS*. The vehicle occupancy rates of 1.65 visitors per auto and 1.2 visitors per taxi were based on the 2012 *Jamaica Plan Rezoning FEIS*.

## TRIP GENERATION

According to the 2014 *CEQR Technical Manual* guidelines, a two-tier screening process is used to determine whether quantified analyses of any technical areas of the transportation system are necessary. A Level 1 screening is typically necessary if a proposed project has the potential to exceed either 50 vehicle trips, 200 transit trips, or 200 pedestrian trips during any given peak hour. If these thresholds are exceeded, a Level 2 screening assessment is required in order to ensure that there are not 50 vehicle trips, 50 bus trips, 200 subway/rail trips, or 200 pedestrian trips assigned to an individual transportation element (intersections, bus routes, subway stations, etc.) during any analysis peak hour. Based on the planning factors shown in Table 2,

a travel demand forecast (Level 1 screening) was prepared for the Proposed Project, and is shown in Table 3, below.

**Table 3  
Travel Demand Forecast**

Land Use:	Residential		Medical Office (Staff)		Medical Office (Visitors)		Total	
Size/Units:	299 DU		6,400 gsf		6,400 gsf			
<b>Peak Hour Person Trips:</b>								
AM	242		16		14		272	
MD	122		12		20		154	
PM	266		16		12		294	
Sat MD	230		6		10		246	
<b>Person Trips:</b>								
	In	Out	In	Out	In	Out	In	Out
AM								
Auto	3	15	3	0	3	0	9	15
Taxi	1	3	0	0	3	0	4	3
Subway	26	137	7	0	4	1	37	138
Bus	2	13	2	0	1	0	5	13
Walk/Other	7	35	3	1	2	0	12	36
Total	39	203	15	1	13	1	67	205
MD								
Auto	5	5	1	1	3	3	9	9
Taxi	1	1	0	0	3	3	4	4
Subway	41	41	3	3	3	3	47	47
Bus	4	4	1	1	1	1	6	6
Walk/Other	10	10	1	1	0	0	11	11
Total	61	61	6	6	10	10	77	77
PM								
Auto	13	6	0	3	1	2	14	11
Taxi	2	1	0	0	1	2	3	3
Subway	121	59	0	8	1	2	122	69
Bus	12	7	0	2	0	1	12	10
Walk/Other	31	15	0	2	1	1	32	19
Total	179	88	0	16	4	8	183	112
Sat MD								
Auto	9	8	1	1	1	1	11	10
Taxi	2	2	0	0	1	1	3	3
Subway	82	72	1	1	1	1	84	74
Bus	8	7	0	0	1	1	9	8
Walk/Other	21	19	1	1	1	1	23	21
Total	122	108	3	3	5	5	130	116
<b>Vehicle Trips :</b>								
	In	Out	In	Out	In	Out	In	Out
AM								
Auto (Total)	3	14	3	0	2	0	8	14
Taxi	1	2	0	0	3	0	4	2
Taxi Balanced	3	3	0	0	3	3	6	6
Truck	1	1	0	0	0	0	1	1
Total	7	18	3	0	5	3	15	21
MD								
Auto (Total)	5	5	1	1	2	2	8	8
Taxi	1	1	0	0	3	3	4	4
Taxi Balanced	2	2	0	0	6	6	8	8
Truck	1	1	0	0	0	0	1	1
Total	8	8	1	1	8	8	17	17
PM								
Auto (Total)	12	5	0	3	1	2	13	10
Taxi	1	1	0	0	1	1	2	2
Taxi Balanced	2	2	0	0	2	2	4	4
Truck	0	0	0	0	0	0	0	0
Total	14	7	0	3	3	4	17	14
Sat MD								
Auto (Total)	8	7	1	1	1	1	10	9
Taxi	1	1	0	0	1	1	2	2
Taxi Balanced	2	2	0	0	2	2	4	4
Truck	0	0	0	0	0	0	0	0
Total	10	9	1	1	3	3	14	13
<b>Total Vehicle Trips</b>								
	In	Out	Total					
AM	15	21	36					
MD	17	17	34					
PM	17	14	31					
Sat MD	14	13	27					

## Traffic and Parking

Based on the factors outlined above, the Proposed Project would generate approximately 36, 34, 31, and 27 vehicle trips (in and out combined) during the weekday AM, midday, and PM and Saturday midday peak periods, respectively (refer to Table 3). However, as previously mentioned, there are currently three parking garages located at the Development Site (Block 1863, Lots 5, 13, and 26), which would be displaced in the future with the Proposed Actions. In order to assess the existing conditions at the Development Site, vehicle counts were conducted at the entrances to each of the three parking garages during the weekday AM, midday, and PM peak periods in November 2016. These counts are summarized below in Table 4.

**Table 4**  
**Vehicle Counts at Existing Garages**

Time Period		Garage 1 (Lot 5)			Garage 2 (Lot 13)			Garage 3			Total
		In	Out	Total	In	Out	Total	In	Out	Total	
7:30 AM	8:30 AM	2	5	7	1	11	12	1	2	3	22
7:45 AM	8:45 AM	4	6	10	2	9	11	0	1	1	22
8:00 AM	9:00 AM	5	6	11	2	7	9	0	1	1	21
8:15 AM	9:15 AM	8	7	15	2	4	6	0	1	1	22
<b>8:30 AM</b>	<b>9:30 AM</b>	9	12	21	2	4	6	1	1	2	<b>29</b>
<b>12:00 PM</b>	<b>1:00 PM</b>	7	11	18	3	2	5	1	1	2	<b>25</b>
12:15 PM	1:15 PM	6	10	16	2	1	3	1	3	4	23
12:30 PM	1:30 PM	7	9	16	1	2	3	1	2	3	22
12:45 PM	1:45 PM	4	4	8	1	4	5	1	2	3	16
1:00 PM	2:00 PM	4	2	6	1	4	5	0	3	3	14
5:00 PM	6:00 PM	6	10	16	2	0	2	3	3	6	24
5:15 PM	6:15 PM	7	13	20	2	4	6	3	1	4	30
5:30 PM	6:30 PM	10	9	19	4	4	8	3	1	4	31
<b>5:45 PM</b>	<b>6:45 PM</b>	12	7	19	5	5	10	3	1	4	<b>33</b>
6:00 PM	7:00 PM	10	7	17	6	6	12	3	0	3	32

**Notes:**

1. Based on PHA counts (November 2016).
2. **Bold** indicates peak hour volume

As shown in Table 4, a total of 29, 25, and 33 vehicle trips (in and out combined) were generated by the three parking garages during the weekday AM, midday, and PM peak hours, respectively. As previously mentioned, the Proposed Project would generate 36, 34, and 31 vehicle trips (in and out combined) during the weekday AM, midday, and PM peak hours (refer to Table 3). Accounting for the vehicle trips generated by the existing parking garages that would be displaced in the With-Action condition, the Proposed Project would result in a net reduction of two vehicle trips during the weekday PM peak hour, with only seven and nine incremental vehicle trips generated during both the weekday AM and midday peak hours, respectively. As the *CEQR Technical Manual* Level 1 screening threshold of 50 vehicle trips per peak hour is not exceeded during any of the four peak hour periods, significant adverse impacts would be unlikely and a Level 2 screening analysis is not warranted.

As per the *CEQR Technical Manual*, a detailed parking assessment is not needed if the threshold for traffic analysis is not exceeded. However, as the Proposed Actions would eliminate a combined 675 parking spaces, and may result in a significant parking shortfall in the surrounding area. Therefore, a detailed parking analysis will be included in the EIS.

## **Transit**

According to the general thresholds used by the Metropolitan Transportation Authority (MTA) specified in the 2014 *CEQR Technical Manual*, detailed transit analyses are not required if the proposed development is projected to result in fewer than 200 peak hour subway/rail or bus transit riders.

As shown in Table 3, the Proposed Project would generate 175, 94, 191, and 158 subway (in and out combined) trips during the weekday AM, midday, and PM and Saturday midday peak periods, respectively. Similarly, the Proposed Project would generate 18, 12, 22, and 17 bus trips during the weekday AM, midday, and PM and Saturday midday peak hours, respectively. Therefore, the transit thresholds are not met in any of the four analyzed peak hours, and a detailed transit analysis would not be warranted as no significant adverse impacts are expected.

## **Pedestrians**

According to the *CEQR Technical Manual*, detailed pedestrian analyses are not required if the proposed development is projected to result in less than 200 peak hour pedestrian trips. As shown in Table 3, the Proposed Project would generate 48, 22, 51, and 44 walk-only trips (in and out combined) during the weekday AM, midday, and PM and Saturday midday peak periods, respectively (refer to Table 3). In addition to the walk-only trips, accounting for the walk portions of the subway and bus trips generated by the Proposed Project, the Proposed Project would generate a total of 241, 128, 264, and 219 walk trips in the weekday AM, midday, and PM and Saturday peak periods respectively. As the total walk trips exceed the *CEQR Technical Manual* threshold during the weekday AM, weekday PM, and Saturday midday peak hours, a more detailed analysis is warranted for these peak hours. The subsequent Level 2 pedestrian assignment is shown below in Figure 2 for the weekday AM and PM and Saturday midday peak hours.

As shown in Figure 2, pedestrian trips would be distributed eastbound and westbound between the entrances to Buildings 1 and 2, and no single pedestrian element is expected to experience an increase of greater than 200 person trips during any of the peak hour periods. Therefore, no significant adverse impacts are expected, and a detailed pedestrian analysis is not warranted.

## **CONCLUSIONS**

The incremental trips generated by the Proposed Project would be less than the 2014 *CEQR Technical Manual* thresholds during all peak periods, and detailed traffic, parking, transit, and pedestrian analyses are not warranted as impacts are not likely. However, as the Proposed Actions would eliminate three public parking garages containing a combined 675 parking spaces, which may result in a significant parking shortfall in the surrounding area, a detailed parking analysis will be included in the EIS.

