Chapter 7: Transportation

A. INTRODUCTION

The Trust for Governors Island (The Trust) is seeking an amendment to the Special District Zoning text as regards to the north end of Governors Island (North Island) to facilitate reuse of existing buildings by allowing specified commercial uses. The text is being developed with the Department of City Planning. There are approximately 1,350,000 square feet in existing buildings that would be affected, of which approximately 1,200,000 square feet can be redeveloped/re-tenanted. The potential land uses for redevelopment include a university, dormitories, a hotel, a movie theater, office space, cultural uses (museums, galleries, etc.), artist studios, and public schools.

In addition to the redevelopment of the North Island, Phase 1 park improvements and the Later Phases—Parks and Public Spaces, as outlined in the *Phased Redevelopment of Governors Island FGEIS* (2011 FGEIS), would be completed. The Later Phases—Parks and Public Spaces component would provide newly designed open space along the perimeter of the Island and through the center of the South Island as well as provide access to the Island from the Battery Maritime Building (BMB) ferry portal in Manhattan and Pier 6 ferry portal in Brooklyn seven days a week.

At this time, the uses associated with the Later Phases for the two South Island development zones are not specifically proposed, defined, or designed and their operations have not yet been planned. Therefore, detailed transportation analyses were conducted only for the existing conditions and the future without and with the Proposed Project (in 2022). For the full development of Governors Island (in 2030), a qualitative analysis was conducted and is presented at the end of this chapter.

The transportation analysis assumed that public access to Governors Island would remain primarily via the ferry portals at the BMB in Manhattan and Pier 6 in Brooklyn. Trips generated by the Island uses were assigned to these ferry portals.

B. PRINCIPAL CONCLUSIONS

2022 ANALYSIS YEAR

TRAFFIC

Traffic conditions were evaluated at 14 intersections in Manhattan for the weekday AM, midday, PM, and Saturday peak hours and at seven intersections in Brooklyn for the weekday AM, midday, and PM peak hours. In Manhattan, there would be the potential for significant adverse impacts at five approaches/lane groups during the weekday AM peak hour, two approaches/lane groups during the weekday midday peak hour, two approaches/lane groups during the PM peak hour, and four approaches/lane groups during Saturday peak hours. In Brooklyn, there would be the potential for significant adverse impacts at one approach/lane group during the weekday AM peak hour, three approaches/lane groups during the weekday midday peak hour, and seven

approaches/lane groups during PM peak hours. With the implementation of standard mitigation measures (including primarily signal timing changes and daylighting), the significant adverse traffic impacts identified above could be fully mitigated except at two intersections: Broad Street and South Street in Manhattan during the Saturday peak hour and at Atlantic Avenue and Columbia Street in Brooklyn during the weekday PM peak hour. Potential measures that can be implemented to mitigate these significant adverse traffic impacts are discussed in Chapter 15, "Mitigation."

Manhattan

- The eastbound approach at the signalized intersection of Whitehall Street and Water Street;
- The eastbound approach at the signalized intersection of Broad Street and Water Street;
- The southbound approach at the unsignalized intersection of Broad Street and South Street
- The westbound approach at the signalized intersection of South Street and Old Slip;
- The northbound through/right-turn lane at the signalized intersection of South Street and Old Slip;
- The southbound approach at the signalized intersection of South Street and Wall Street; and
- The eastbound approach at the signalized intersection of South Street and Maiden Lane.

Brooklyn

- The eastbound approach at the signalized intersection of Joralemon Street and Furman Street;
- The northbound approach at the signalized intersection of Joralemon Street and Furman Street;
- The southbound approach at the signalized intersection of Atlantic Avenue and Court Street;
- The eastbound approach at the signalized intersection of Atlantic Avenue and Court Street;
- The exclusive eastbound left-turn lane at the signalized intersection of Atlantic Avenue and the BQE Eastbound Ramps;
- The exclusive westbound left-turn lane at the signalized intersection of Atlantic Avenue and Columbia Street;
- The shared westbound left-turn/through lane at the signalized intersection of Atlantic Avenue and Columbia Street; and
- The southbound left-turn lane at the signalized intersection of the BQE Westbound Ramps and Columbia Street.

TRANSIT

The preliminary screening assessment summarized below concluded that a detailed bus-line analysis is not warranted. However, detailed subway-line haul analyses and analyses of station elements at the Bowling Green (Nos. 4/5 lines) and South Ferry Terminal/Whitehall Station (No. 1 and R lines) subway stations were prepared. Based on the results of the transit analyses, the proposed project would result in a significant adverse impact at the Bowling Green station stairway at the State Street entrance. A discussion of the potential mitigation measures and their feasibility of these mitigation measures is presented in Chapter 15, "Mitigation."

PEDESTRIANS

Peak period pedestrian conditions were evaluated at key sidewalk, corner reservoir, and crosswalk elements in Manhattan and Brooklyn. There were no significant impacts identified in Brooklyn, however, significant impacts due to the Proposed Project were identified at the following locations in Manhattan:

- The east and west crosswalks at State Street and Whitehall Street; and
- The east crosswalk at Whitehall Street and South Street; and
- Sidewalk along the BMB frontage.

Potential measures that can be implemented to mitigate these significant adverse pedestrian impacts and their feasibility are presented in Chapter 15, "Mitigation."

VEHICULAR AND PEDESTRIAN SAFETY

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2009 and December 31, 2011. A review of the date identified one study area intersection, the Court Street and Atlantic Avenue intersection in Brooklyn, as a high pedestrian crash location.

With modest increases in peak hour vehicular and pedestrian traffic projected for Court Street and Atlantic Avenue, the Proposed Project is not expected to result in any significant adverse pedestrian safety impacts.

2030 ANALYSIS YEAR

The full development of Governors Island would increase vehicular, transit, pedestrian, and parking demand during the weekday and weekend peak periods. Significant adverse impacts would likely result, beyond those identified as part of the quantitative analyses presented for the 2022 analysis year. The evaluation of these impacts and the identification of potential mitigation measures would be the subject of future environmental review(s) when the programming of the Later Phases–South Island Redevelopment becomes more defined.

C. PROJECT TRIP GENERATION

Trip generation estimates were developed for the project components relevant to the 2022 analysis year. The trip generation associated with the Park and Public Spaces component was developed as part of the 2011 FGEIS and is presented below. For the re-tenanting of the buildings on the North Island, **Table 7-1** presents two options for the incremental change in land use programs. The options are similar except Option A dedicates 421,970 square feet to university uses, while Option B re-assigns this university square footage to office and cultural land uses.

With these components, the Island would also provide ferry service seven days a week.

Table 7-1
North Island Re-Tenanting Options

Land Use	Option A	Option B
University	421,970 sf	0 sf
Housing - Student dorms	261,988 sf (873 beds)	261,988 sf (873 beds)
Hotel	256,227 sf (120 rooms)	256,227 sf (120 rooms)
Movie Theater	9,214 sf (700 seats)	9,214 sf (700 seats)
Office	7,026 sf	300,297 sf
Service Retail/Restaurant (Not destination, accessory to Island)	37,778 sf	37,778 sf
Cultural	0 sf	128,699 sf
Artist Studio	56,979 sf	56,979 sf
Public School (6-12)	147,948 sf (1,184 students)	147,948 sf (1,184 students)
Total New Development	**1,199,130 sf**	**1,199,130 sf**

Note: The square footages represent incremental changes in land use and do not include existing square footages currently in use.

TRAVEL DEMAND FACTORS

PARK AND PUBLIC SPACES

Table 7-2 presents the incremental trip generation associated with the Park and Public Spaces component (presented in Table 15-4 of the 2011 FGEIS). At the Pier 6 ferry portal, the Parks and Public Spaces component would result in approximately 116, 562, 562, and 282 incremental person trips during the AM, midday, PM, and Saturday peak hours, respectively. At the BMB ferry portal, the Parks and Public Spaces component would result in approximately 351, 1,518, 1,517, and 759 incremental person trips during the AM, midday, PM, and Saturday peak hours, respectively.

NORTH ISLAND RE-TENANTING

Table 7-3 presents the travel demand factors and assumptions used for each of the proposed land uses described in **Table 7-1**. Sources used include the *CEQR Technical Manual*, 2000 Census, *ACS 5-Year Estimates 2006-2010*, the *Phased Redevelopment of Governors Island FGEIS, Brooklyn Bridge Park FEIS, The World Trade Center Memorial and Redevelopment Plan FGEIS, DASNY The New School University Center, Hudson River Park FEIS, East River Esplanade and Piers FEIS, NYU Core FEIS, Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS, Western Rail Yard FEIS, Harbor School EAS, Cornell NYC Tech DEIS*, and the *Battery Park City School FEIS*.

Table 7-2
(From the 2011 FGEIS, Table 15-4)
Park and Public Spaces Incremental Trip Generation Summary

Peak Hour	In/Out	Person Trip							Vehicle Trip		
		Auto	Taxi	Subway	Bus	Ferry	Walk	Total	Auto	Taxi	Total
Pier 6 Brooklyn											
AM	In	27	0	22	9	0	58	**116**	9	0	**9**
	Out	0	0	0	0	0	0	**0**	0	0	**0**
	Total	**27**	**0**	**22**	**9**	**0**	**58**	**116**	**9**	**0**	**9**
Midday	In	80	0	66	28	0	174	**348**	28	0	**28**
	Out	49	0	41	17	0	107	**214**	17	0	**17**
	Total	**129**	**0**	**107**	**45**	**0**	**281**	**562**	**45**	**0**	**45**
PM	In	40	0	33	14	0	87	**174**	14	0	**14**
	Out	89	0	74	31	0	194	**388**	31	0	**31**
	Total	**129**	**0**	**107**	**45**	**0**	**281**	**562**	**45**	**0**	**45**
Saturday	In	21	0	14	6	0	75	**116**	7	0	**7**
	Out	30	0	20	8	0	108	**166**	10	0	**10**
	Total	**50**	**0**	**34**	**14**	**0**	**183**	**282**	**17**	**0**	**17**
Battery Maritime Building											
AM	In	25	6	199	16	6	63	**315**	9	2	**11**
	Out	3	1	22	2	1	7	**36**	1	2	**3**
	Total	**28**	**7**	**221**	**18**	**7**	**70**	**351**	**10**	**4**	**14**
Midday	In	75	19	593	47	19	188	**941**	27	8	**35**
	Out	46	12	363	29	12	115	**577**	16	8	**24**
	Total	**121**	**31**	**956**	**76**	**31**	**303**	**1,518**	**43**	**16**	**59**
PM	In	38	9	296	24	9	94	**470**	13	9	**22**
	Out	84	21	660	52	21	209	**1,047**	30	9	**39**
	Total	**122**	**30**	**956**	**76**	**30**	**303**	**1,517**	**43**	**18**	**61**
Saturday	In	19	3	193	9	6	81	**311**	7	2	**9**
	Out	27	4	278	13	9	117	**448**	10	2	**12**
	Total	**45**	**7**	**471**	**24**	**15**	**198**	**759**	**17**	**4**	**21**

The following notable assumptions were also applied to develop the trip generation factors:

- Ferry portal splits—Surveys conducted at Governors Island indicated there was a 73 percent/27 percent split between visitors using the BMB ferry portal versus the Pier 6 ferry portal. However, this split reflects the recreational nature of the Island where a majority of the Pier 6 patrons are originating from the adjacent neighborhoods. Since the North Island Redevelopment proposes non-recreational uses (academic, office, hotel), it will draw from a larger area in Brooklyn beyond the adjacent neighborhoods. Given the BMB's proximity to subway lines serving Brooklyn (No. 4, 5, and R subway lines) within a short walking distance compared to Pier 6, which has limited transit access in close proximity, visitors from the larger area in Brooklyn would travel to the BMB instead of Pier 6 to access Governors Island. In addition, based on data provided by the Harbor School, Brooklyn students attending the school currently access and would continue to access the Island via the BMB ferry portal due to its proximity to multiple subway lines. To reflect that BMB has more transit options and will be more accessible to visitors than Pier 6, a 90 percent/10 percent split was applied to the BMB/Pier 6 ferry portal splits.
- University—Since there is not a university currently associated with this land use, there is no breakdown of the university components (i.e. under-graduate versus graduate programs, faculty housing, etc.). Therefore, trips generation estimates were developed for a generic university campus based on trip factors provided by the *CEQR Technical Manual* and other approves studies.

- Service Retail/Restaurants—Given the distance and travel time between downtown Manhattan and downtown Brooklyn to and from Governors Island, it is unlikely the service retail and restaurant uses would be destinations and draw visitors strictly to access these land uses. Thus, the service retail and restaurant land uses will be accessory to the Island and a majority of the trips generated for these land uses were assumed to occur internally to the Island.
- Internal Walk Trips—Internal walk modal split percentages were developed to capture visitors that would visit multiple land uses on one trip to the Island as well as reflect visitors associated with the Parks and Public Spaces also accessing the North Island Redevelopment land uses.
- Delivery Trucks—all deliveries would occur at the BMB ferry terminal.

Travel demand factors presented in **Table 7-3** were applied to proposed land use totals to develop peak hour trip estimates. **Tables 7-4** and **7-5** summarize the weekday AM, midday, PM, and Saturday trip projections for the Option A and Option B land use programs, respectively.

OPTION A

At Pier 6, Option A would generate approximately 246, 290, 249, and 205 person trips during the AM, midday, PM, and Saturday peak hours, respectively. At the BMB, approximately 3,378, 2,648, 2,494 and 1,900 person trips during the AM, midday, PM, and Saturday peak hours, respectively, were projected. Total vehicle-trip generation was projected to range from 6 to 22 vehicle trips at Pier 6 and 52 to 283 vehicle trips at the BMB during peak hours.

OPTION B

At Pier 6, Option B would generate approximately 129, 335, 291, and 223 person trips during the AM, midday, PM, and Saturday peak hours, respectively. At the BMB, approximately 2,370, 3,059, 2,861 and 2,072 person trips during the AM, midday, PM, and Saturday peak hours, respectively, were projected. Total vehicle-trip generation was projected to range from 8 to 35 vehicle trips at Pier 6 and 71 to 260vehicle trips at the BMB during peak hours.

TOTAL TRIP GENERATION INCREMENT

Based on the above trip generation estimates, Option A would be the representative reasonable worst-case development scenario for analysis during the AM peak hour while Option B would be the worst-case scenario during the midday, PM, and Saturday peak hours. Project-generated trips estimated from Option A for the AM peak hour and Option B for the midday, PM, and Saturday peak hours were added to the trip generation estimates from the Parks and Public Spaces. **Table 7-6** presents the total incremental trips generated by both the Park and Public Spaces component and the North Island Re-tenanting.

Under the worst case scenarios for each peak hour, the re-tenanting of the North Island and the completion of the Parks and Public spaces would generate approximately 362, 897, 853, and 505 incremental person trips during the AM, midday, PM, and Saturday peak hours, respectively, at the Pier 6 ferry portal. At the BMB ferry portal, approximately 3,729, 4,622, 4,424, and 2,831 person trips during the AM, midday, PM, and Saturday peak hours, respectively, were projected. Total incremental vehicle-trip generation was projected to range from 31 to 80 vehicle trips at Pier 6 and from 92 to 297 vehicle trips at the BMB ferry portal.

Table 7-3
North Island Re-Tenanting Travel Demand Factors

Program	Artist Studios (Office)								University								Service Retail/Restaurant							
Daily Person Trip Generation Rate	Weekday (2) 18.0 Person Trips / KSF						Saturday (2) 3.9 Person Trips / KSF		Weekday (2) 26.6 Person Trips / KSF						Saturday (2) 13.5 Person Trips / KSF		Weekday (2) 205.0 Person Trips / KSF						Saturday (2) 240.0 Person Trips / KSF	
Absentee Rate	0%						0%		0%						0%		0%						0%	
Portal Split	(1) 10%	(1) Brooklyn 10%	(1) 10%	(1) 90%	(1) Manhattan 90%	(1) 90%	(1) Brooklyn 10%	(1) Manhattan 90%	(1) 10%	(1) Brooklyn 10%	(1) 10%	(1) 90%	(1) Manhattan 90%	(1) 90%	(1) Brooklyn 10%	(1) Manhattan 90%	(1) 10%	(1) Brooklyn 10%	(1) 10%	(1) 90%	(1) Manhattan 90%	(1) 90%	(1) Brooklyn 10%	(1) Manhattan 90%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(2) 12%	(2) 15%	(2) 14%	(2) 12%	(2) 15%	(2) 14%	(2) 17%	(2) 17%	(20) 16%	(20) 8%	(20) 7%	(20) 16%	(20) 8%	(20) 7%	(20) 8%	(20) 8%	(2) 3%	(2) 19%	(2) 10%	(2) 3%	(2) 19%	(2) 10%	(2) 10%	(2) 10%
Directional Distribution	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(5)	(7)	(7)	(14)	(7)	(7)	(14)	(8)	(8)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(4)
In	96%	39%	5%	96%	55%	5%	58%	57%	94%	45%	13%	94%	45%	13%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	4%	61%	95%	4%	45%	95%	42%	43%	6%	55%	87%	6%	55%	87%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(24)	(9)(3)	(24)	(24)	(9)(4)	(24)	(24)	(24)	(25)	(25)(9)	(25)	(25)	(25)(9)	(25)	(10)	(10)	(22)	(22)	(22)	(22)	(22)	(22)	(10)	(10)
Auto (Drive)	30%	2%	30%	14%	2%	14%	30%	14%	6%	5%	6%	6%	5%	6%	6%	6%	2%	0%	2%	1%	0%	1%	2%	1%
Auto (Pick-up/Drop-off)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Taxi	1%	1%	1%	2%	2%	2%	1%	2%	3%	2%	3%	3%	2%	3%	3%	3%	0%	0%	0%	0%	0%	0%	0%	0%
Subway	43%	7%	43%	67%	7%	67%	43%	67%	78%	5%	78%	77%	5%	77%	78%	77%	2%	0%	2%	3%	0%	3%	2%	3%
Bus	12%	7%	12%	12%	2%	12%	12%	12%	10%	1%	10%	9%	1%	9%	10%	9%	1%	0%	1%	1%	0%	1%	1%	1%
School Bus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ferry	0%	0%	0%	2%	1%	2%	0%	2%	0%	0%	0%	3%	0%	3%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
Walk (External to Island)	14%	5%	14%	3%	5%	3%	14%	3%	3%	5%	3%	2%	5%	2%	3%	2%	0%	0%	0%	0%	0%	0%	0%	0%
Walk (Internal to Island)	0%	78%	0%	0%	82%	0%	0%	0%	0%	82%	0%	0%	82%	0%	0%	0%	95%	100%	95%	95%	100%	95%	95%	95%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(4)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(4)
Auto (Drive)	1.15	1.15	1.15	1.20	1.20	1.20	1.15	1.20	1.42	1.42	1.42	1.60	1.60	1.60	1.42	1.60	1.42	1.42	1.42	1.60	1.60	1.60	1.42	1.60
Auto (Pick-up/Drop-off)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	1.15	1.15	1.15	1.40	1.40	1.40	1.15	1.40	1.42	1.42	1.42	1.40	1.40	1.40	1.42	1.40	1.42	1.42	1.42	1.40	1.40	1.40	1.42	1.40
School Bus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Daily Delivery Trip Generation Rate	(2) 0.32 Delivery Trips/ KSF						(2) 0.01 Delivery Trips/ KSF		(15) 0.06 Delivery Trips/ KSF						(15) 0.03 Delivery Trips/ KSF		(2) 0.35 Delivery Trips/ KSF						(2) 0.04 Delivery Trips/KSF	
Portal Split	(6) 0%	(6) Brooklyn 0%	(6) 0%	(6) 100%	(6) Manhattan 100%	(6) 100%	(6) Brooklyn 0%	(6) Manhattan 100%	(6) 0%	(6) Brooklyn 0%	(6) 0%	(6) 100%	(6) Manhattan 100%	(6) 100%	(6) Brooklyn 0%	(6) Manhattan 100%	(5) 0%	(5) Brooklyn 0%	(5) 0%	(5) 100%	(5) Manhattan 100%	(5) 100%	(5) Brooklyn 0%	(5) Manhattan 100%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(2) 10%	(2) 11%	(2) 2%	(2) 10%	(2) 11%	(2) 12%	(2) 11%	(2) 11%	(15) 10%	(15) 9%	(15) 5%	(15) 10%	(15) 9%	(15) 5%	(15)(16) 10%	(15)(16) 10%	(2) 8%	(2) 11%	(2) 2%	(2) 8%	(2) 11%	(2) 2%	(2) 11%	(2) 11%
Directional Distribution	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Program	Student Dorm								Hotel							
Daily Person Trip Generation Rate	Weekday (7) 4.75 Person Trips / Bed						Saturday 5.6 Person Trips / Bed		Weekday (2) 9.4 Person Trips / Room						Saturday (2) 9.4 Person Trips / Room	
Absentee Rate	0%						0%		0%						0%	
Portal Split	(1) 10%	(1) Brooklyn 10%	(1) 10%	(1) 90%	(1) Manhattan 90%	(1) 90%	(1) Brooklyn 10%	(1) Manhattan 90%	(1) 10%	(1) Brooklyn 10%	(1) 10%	(1) 90%	(1) Manhattan 90%	(1) 90%	(1) Brooklyn 10%	(1) Manhattan 90%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(14) 4%	(14) 6%	(14) 11%	(14) 4%	(14) 6%	(14) 11%	(2) 8%	(2) 8%	(2) 8%	(2) 14%	(2) 13%	(2) 8%	(2) 14%	(2) 13%	(2) 9%	(2) 9%
Directional Distribution	(14)	(14)	(14)	(14)	(14)	(14)	(8)	(8)	(14)	(14)	(14)	(14)	(14)	(14)	(3)	(5)
In	36%	51%	53%	36%	51%	53%	50%	50%	39%	54%	65%	39%	54%	65%	35%	56%
Out	64%	49%	47%	64%	49%	47%	50%	50%	61%	46%	35%	61%	46%	35%	65%	44%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(17)(11)	(17)(11)	(17)(11)	(17)(11)	(17)(11)	(17)(11)	(18)(11)	(18)(11)	(3)(17)	(3)(17)	(3)(17)	(14)(17)	(14)(17)	(14)(17)	(3)(18)	(4)(18)
Auto (Drive)	5%	5%	5%	3%	3%	3%	8%	4%	15%	15%	15%	5%	5%	5%	23%	3%
Auto (Pick-up/Drop-off)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Taxi	1%	1%	1%	1%	1%	1%	1%	2%	5%	5%	5%	9%	9%	9%	8%	5%
Subway	35%	35%	35%	29%	29%	29%	52%	43%	5%	5%	5%	12%	12%	12%	8%	16%
Bus	1%	1%	1%	1%	1%	1%	2%	2%	5%	5%	5%	2%	2%	2%	8%	8%
School Bus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ferry	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%	1%	0%	1%
Walk (External to Island)	9%	9%	9%	17%	17%	17%	14%	26%	20%	20%	20%	23%	23%	23%	30%	43%
Walk (Internal to Island)	50%	50%	50%	50%	50%	50%	25%	25%	50%	50%	50%	50%	50%	50%	25%	25%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(3)	(3)	(3)	(14)	(14)	(14)	(3)	(4)
Auto (Drive)	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.37	1.37	1.37	1.40	1.40	1.40	1.37	1.40
Auto (Pick-up/Drop-off)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Taxi	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.30	1.80	1.80	1.80	1.80	1.80	1.80	1.80	1.80
School Bus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Daily Delivery Trip Generation Rate	(7) 0.03 Delivery Trips/ Bed						(5) 0.00 Delivery Trips/ Bed		(3) 0.12 Delivery Trips/ Room						(3) 0.12 Delivery Trips/ Room	
Portal Split	(6) 0%	(6) Brooklyn 0%	(6) 0%	(6) 100%	(6) Manhattan 100%	(6) 100%	(6) Brooklyn 0%	(6) Manhattan 100%	(6) 0%	(6) Brooklyn 0%	(6) 0%	(6) 100%	(6) Manhattan 100%	(6) 100%	(6) Brooklyn 0%	(6) Manhattan 100%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(7) 10%	(7) 8%	(7) 5%	(7) 10%	(7) 8%	(7) 5%	(2) 9%	(2) 9%	(3) 12%	(3) 9%	(3) 0%	(3) 12%	(3) 9%	(3) 0%	(3) 0%	(3) 0%
Directional Distribution	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Table7-3 (cont'd)
North Island Re-Tenanting Travel Demand Factors

Program	Movie Theater								Office								Cultural								6 -12 Student								6 -12 Staff							
Daily Person Trip Generation Rate	Weekday (2) 3.3						Saturday (15) 6.3		Weekday (2) 18.0						Saturday (2) 3.9		Weekday (2) 27.0						Saturday (2) 20.6		Weekday (14) 2.0						Saturday 0.0		Weekday (14) 2.0						Saturday 0.0	
	Person Trips / seat						Person Trips / seat		Person Trips / KSF						Person Trips / KSF		Person Trips / KSF						Person Trips / KSF		Person Trips/Student						Person Trips/Student		Person Trips/Employee						Person Trips/Employee	
Absentee Rate	0%						0%		0%						0%		0%						0%		5%						5%		0%						0%	
Portal Split	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan
	10%	10%	10%	90%	90%	90%	10%	90%	10%	10%	10%	90%	90%	90%	10%	90%	10%	10%	10%	90%	90%	90%	10%	90%	0%	0%	0%	100%	100%	100%	0%	100%	10%	10%	10%	90%	90%	90%	10%	90%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(2) 1%	(2) 3%	(2) 8%	(2) 1%	(2) 3%	(2) 8%	(2) 5%	(2) 5%	(2) 12%	(2) 15%	(2) 14%	(2) 12%	(2) 15%	(2) 14%	(2) 17%	(2) 17%	(2) 1%	(2) 16%	(2) 13%	(2) 1%	(2) 16%	(2) 13%	(2) 17%	(2) 17%	(14) 50%	(14) 0%	(14) 10%	(14) 50%	(14) 0%	(14) 10%	(14) 0%	(14) 0%	(14) 45%	(14) 0%	(14) 10%	(14) 45%	(14) 0%	(14) 10%	(14) 0%	(14) 0%
Directional Distribution	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(4)	(4)	(4)	(3)	(5)	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
In	0%	0%	100%	0%	0%	100%	50%	50%	96%	39%	5%	96%	55%	5%	58%	57%	94%	45%	42%	94%	45%	42%	45%	45%	100%	50%	0%	100%	50%	0%	0%	0%	100%	50%	0%	100%	50%	0%	50%	50%
Out	0%	0%	0%	0%	0%	0%	50%	50%	4%	61%	95%	4%	45%	95%	42%	43%	6%	55%	58%	6%	55%	58%	55%	55%	0%	50%	100%	0%	50%	100%	0%	0%	0%	50%	100%	0%	50%	100%	50%	50%
Total	0%	0%	100%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%
Modal Split	(17)(19)	(17)(19)	(17)(19)	(12)(17)	(12)(17)	(12)(17)	(17)(19)	(12)(17)	(24)	(9)(3)	(24)	(24)	(9)(4)	(24)	(24)	(24)	(17)(19)	(17)(19)	(17)(19)	(17)(19)	(17)(19)	(17)(19)	(17)(19)	(17)(19)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(23)	(3)	(3)	(3)	(26)	(26)	(26)	(3)	(26)
Auto (Drive)	12%	12%	12%	3%	3%	3%	12%	3%	30%	2%	30%	14%	2%	14%	30%	14%	12%	12%	12%	3%	3%	3%	12%	3%	0%	0%	0%	0%	0%	0%	0%	0%	12%	2%	12%	13%	2%	13%	12%	13%
Auto (Pick-up/Drop-off)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	7%	7%	5%	7%	7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Taxi	0%	0%	0%	5%	5%	5%	0%	5%	1%	1%	1%	2%	2%	2%	1%	2%	0%	0%	0%	5%	5%	5%	0%	5%	2%	3%	3%	2%	3%	3%	0%	0%	1%	1%	1%	2%	2%	2%	1%	2%
Subway	10%	10%	10%	11%	11%	11%	10%	11%	43%	7%	43%	67%	7%	67%	43%	67%	10%	10%	10%	11%	11%	11%	10%	11%	59%	69%	69%	59%	69%	69%	0%	0%	69%	7%	69%	69%	7%	69%	69%	69%
Bus	4%	4%	4%	3%	3%	3%	4%	3%	12%	7%	12%	12%	2%	12%	12%	12%	4%	4%	4%	3%	3%	3%	4%	3%	6%	8%	8%	6%	8%	8%	0%	0%	12%	7%	12%	10%	2%	10%	12%	10%
School Bus	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Ferry	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2%	1%	2%	0%	2%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	1%	4%	0%	4%
Walk (External to Island)	25%	25%	25%	29%	29%	29%	25%	29%	14%	5%	14%	3%	5%	3%	14%	3%	25%	25%	25%	29%	29%	29%	25%	29%	18%	14%	14%	18%	14%	14%	0%	0%	6%	83%	6%	3%	87%	3%	6%	3%
Walk (Internal to Island)	50%	50%	50%	50%	50%	50%	50%	50%	0%	78%	0%	0%	82%	0%	0%	0%	50%	50%	50%	50%	50%	50%	50%	50%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	0%	0%	100%	100%	100%	100%	100%	100%	100%	100%
Vehicle Occupancy	(3)	(3)	(3)	(12)	(12)	(12)	(3)	(12)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(24)	(3)	(3)	(3)	(12)	(12)	(12)	(3)	(12)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(26)	(26)	(26)	(26)	(26)	(26)	(26)	(26)
Auto (Drive)	2.90	2.90	2.90	1.90	1.90	1.90	2.90	1.90	1.15	1.15	1.15	1.20	1.20	1.20	1.15	1.20	2.90	2.90	2.90	2.80	2.80	2.80	2.90	2.80	-	-	-	-	-	-	-	-	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
Auto (Pick-up/Drop-off)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1.72	1.72	1.72	1.72	1.72	1.72	1.72	1.72	-	-	-	-	-	-	-	-
Taxi	3.00	3.00	3.00	2.10	2.10	2.10	3.00	2.10	1.15	1.15	1.15	1.40	1.40	1.40	1.15	1.40	3.00	3.00	3.00	2.80	2.80	2.80	3.00	2.80	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
School Bus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	-	-	-	-	-	-	-	-
Daily Delivery Trip Generation Rate	(3) 0.01 Delivery Trips/ KSF						(3) 0.01 Delivery Trips/ KSF		(2) 0.32 Delivery Trips/ KSF						(2) 0.01 Delivery Trips/ KSF		(13) 0.10 Delivery Trips/ KSF						(13) 0.10 Delivery Trips/ KSF		(14) 0.1 Delivery Trips/ KSF						(14) 0.0 Delivery Trips/ KSF		(14) 0.00 Delivery Trips/ KSF						(14) 0.0 Delivery Trips/ KSF	
Portal Split	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan	Brooklyn			Manhattan			Brooklyn	Manhattan
	0%	0%	0%	100%	100%	100%	0%	100%	0%	0%	0%	100%	100%	100%	0%	100%	0%	0%	0%	100%	100%	100%	0%	100%	0%	0%	0%	100%	100%	100%	0%	100%	0%	0%	0%	100%	100%	100%	0%	100%
	AM	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**	**AM**	**MD**	**PM**	**AM**	**MD**	**PM**	**SAT**	**SAT**
Temporal Distribution	(3) 6%	(3) 6%	(3) 1%	8) 6%	(3) 6%	(3) 1%	(3) 0%	(3) 0%	(2) 10%	(2) 11%	(2) 2%	(2) 10%	(2) 11%	(2) 12%	(2) 11%	(2) 11%	(13) 6%	(13) 11%	(13) 1%	(13) 6%	(13) 11%	(13) 1%	(13) 1%	(13) 1%	(14) 10%	(14) 11%	(14) 1%	(14) 10%	(14) 11%	(14) 1%	(14) 0%	(14) 0%	(14) 10%	(14) 11%	(14) 1%	(14) 10%	(14) 11%	(14) 1%	(14) 0%	(14) 0%
Directional Distribution	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
In	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Out	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%	50%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Sources:
(1) Based on discussions with Governors Island Trust and reflect the transit options available at the BMB compared to Pier 6
(2) CEQR Technical Manual
(3) Brooklyn Bridge Park FEIS
(4) The World Trade Center Memorial and Redevelopment Plan FGEIS
(5) Western Rail Yard FEIS
(6) Assumes all deliveries processed through BMB ferry portal
(7) DASNY The New School University Center
(8) Assumes Saturday peak hour experiences equal direction distributions
(9) Assumes during the midday peak hour five percent of the walk trips occur off island, while the remaining walk trips occur on island between other land uses
(10) Assumes similar modal splits as weekday
(11) ACS 5-Year Estimates 2006-2010
(12)Battery Park City FEIS
(13) East River Waterfront Esplanade and Piers FEIS
(14) NYU Core FEIS
(15) Proposed Manhattanville in West Harlem Rezoning and Academic Mixed-Use Development FEIS
(16) Assumes Saturday temporal distribution is similar to weekday AM peak hour
(17) Assumes 50 percent of the trips occur on the Island between other Island land. The remaining 50 percent was allocated based on modal splits from sources material
(18) Assumes 25 percent of the trips occur on the Island between other Island land uses. The remaining 75 percent was allocated based on modal splits from sources material
(19) August 2010 Governors Island Travel Surveys
(20) NYU Core FEIS (based on discussion with NYCDOT)
(21) Assumes majority of staff arrives before peak hour
(22) Assumes service retail/restaurant are accessory to the Island thus all trips are internal from other uses on the Island except for employees
(23) Weighted average based on Harbor School EAS and Battery Park City School EIS
(24) 2000 Census Reverse Journey To Work Data
(25) Cornell NYC Tech DEIS
(26) Harbor School EAS

Table 7-4
Option A Incremental Trip Generation Summary

Peak Hour	In / Out	Person Trip										Vehicle Trip					
									Walk								
		Auto (Drive)	Auto (Pick-up / Drop-off)	Taxi	Subway	Bus	School Bus	Ferry	External	Internal	Total	Auto (Drive)	Auto (Pick-up / Drop-off)	Taxi	School Bus	Delivery	Total
Pier 6 Brooklyn																	
AM	In	26	0	2	128	22	0	0	14	16	**208**	18	0	1	0	0	**19**
	Out	3	0	0	12	1	0	0	3	19	**38**	2	0	1	0	0	**3**
	Total	**29**	**0**	**2**	**140**	**23**	**0**	**0**	**17**	**35**	**246**	**20**	**0**	**2**	**0**	**0**	**22**
MD	In	3	0	0	7	3	0	0	5	122	**140**	3	0	0	0	0	**3**
	Out	3	0	0	8	4	0	0	4	131	**150**	3	0	0	0	0	**3**
	Total	**6**	**0**	**0**	**15**	**7**	**0**	**0**	**9**	**253**	**290**	**6**	**0**	**0**	**0**	**0**	**6**
PM	In	6	0	0	18	2	0	0	10	63	**99**	5	0	0	0	0	**5**
	Out	16	0	1	63	10	0	0	9	51	**150**	13	0	0	0	0	**13**
	Total	**22**	**0**	**1**	**81**	**12**	**0**	**0**	**19**	**114**	**249**	**18**	**0**	**0**	**0**	**0**	**18**
Sat	In	8	0	0	29	3	0	0	8	54	**102**	6	0	0	0	0	**6**
	Out	7	0	0	29	3	0	0	9	55	**103**	5	0	0	0	0	**5**
	Total	**15**	**0**	**0**	**58**	**6**	**0**	**0**	**17**	**109**	**205**	**11**	**0**	**0**	**0**	**0**	**11**
Battery Maritime Building																	
AM	In	122	55	71	1,994	234	106	51	252	142	**3,027**	82	32	53	6	5	**178**
	Out	12	0	7	115	13	0	3	29	172	**351**	9	32	53	6	5	**105**
	Total	**134**	**55**	**78**	**2,109**	**247**	**106**	**54**	**281**	**314**	**3,378**	**91**	**64**	**106**	**12**	**10**	**283**
MD	In	14	0	12	70	14	0	2	64	1,125	**1,301**	9	0	11	0	6	**26**
	Out	14	0	13	70	14	0	2	63	1,171	**1,347**	10	0	11	0	6	**27**
	Total	**28**	**0**	**25**	**140**	**28**	**0**	**4**	**127**	**2,296**	**2,648**	**19**	**0**	**22**	**0**	**12**	**53**
PM	In	17	0	15	177	22	0	4	113	565	**913**	13	9	20	0	3	**45**
	Out	46	15	23	819	104	0	28	95	451	**1,581**	35	9	20	0	3	**67**
	Total	**63**	**15**	**38**	**996**	**126**	**0**	**32**	**208**	**1,016**	**2,494**	**48**	**18**	**40**	**0**	**6**	**112**
Sat	In	23	0	14	284	34	0	8	102	494	**959**	15	0	10	0	1	**26**
	Out	21	0	14	278	33	0	8	96	491	**941**	15	0	10	0	1	**26**
	Total	**44**	**0**	**28**	**562**	**67**	**0**	**16**	**198**	**985**	**1,900**	**30**	**0**	**20**	**0**	**2**	**52**

Table 7-5
Option B Incremental Trip Generation Summary

Peak Hour	In / Out	Person Trip										Vehicle Trip					
									Walk								
		Auto (Drive)	Auto (Pick-up/ Drop-off)	Taxi	Subway	Bus	School Bus	Ferry	External	Internal	Total	Auto (Drive)	Auto (Pick-up / Drop-off)	Taxi	School Bus	Delivery	Total
Pier 6 Brooklyn																	
AM	In	24	0	1	35	8	0	0	14	18	**100**	19	0	1	0	0	**20**
	Out	3	0	0	5	0	0	0	2	19	**29**	2	0	1	0	0	**3**
	Total	**27**	**0**	**1**	**40**	**8**	**0**	**0**	**16**	**37**	**129**	**21**	**0**	**2**	**0**	**0**	**23**
MD	In	6	0	0	8	3	0	0	11	127	**155**	4	0	0	0	0	**4**
	Out	7	0	0	11	5	0	0	12	145	**180**	4	0	0	0	0	**4**
	Total	**13**	**0**	**0**	**19**	**8**	**0**	**0**	**23**	**272**	**335**	**8**	**0**	**0**	**0**	**0**	**8**
PM	In	8	0	0	15	2	0	0	15	72	**112**	6	0	1	0	0	**7**
	Out	32	0	1	48	12	0	0	22	64	**179**	27	0	1	0	0	**28**
	Total	**40**	**0**	**1**	**63**	**14**	**0**	**0**	**37**	**136**	**291**	**33**	**0**	**2**	**0**	**0**	**35**
Sat	In	10	0	0	20	2	0	0	14	64	**110**	8	0	0	0	0	**8**
	Out	10	0	0	19	2	0	0	15	67	**113**	6	0	0	0	0	**6**
	Total	**20**	**0**	**0**	**39**	**4**	**0**	**0**	**29**	**131**	**223**	**14**	**0**	**0**	**0**	**0**	**14**
Battery Maritime Building																	
AM	In	108	55	45	1,193	163	106	16	248	157	**2,091**	88	32	35	6	9	**170**
	Out	9	0	5	56	7	0	0	29	173	**279**	8	32	35	6	9	**90**
	Total	**117**	**55**	**50**	**1,249**	**170**	**106**	**16**	**277**	**330**	**2,370**	**96**	**64**	**70**	**12**	**18**	**260**
MD	In	21	0	24	95	21	0	3	132	1,261	**1,557**	13	0	16	0	11	**40**
	Out	19	0	25	91	19	0	3	137	1,208	**1,502**	11	0	16	0	11	**38**
	Total	**40**	**0**	**49**	**186**	**40**	**0**	**6**	**269**	**2,469**	**3,059**	**24**	**0**	**32**	**0**	**22**	**78**
PM	In	23	0	23	144	21	0	1	162	650	**1,024**	17	9	24	0	8	**58**
	Out	123	15	36	782	124	0	17	171	569	**1,837**	98	9	24	0	8	**139**
	Total	**146**	**15**	**59**	**926**	**145**	**0**	**18**	**333**	**1,219**	**2,861**	**115**	**18**	**48**	**0**	**16**	**197**
Sat	In	36	0	21	207	30	0	2	154	585	**1,035**	25	0	12	0	0	**37**
	Out	32	0	23	190	27	0	3	159	603	**1,037**	22	0	12	0	0	**34**
	Total	**68**	**0**	**44**	**397**	**57**	**0**	**5**	**313**	**1,188**	**2,072**	**47**	**0**	**24**	**0**	**0**	**71**

Table 7-6
North Island Re-Tenanting[1] and Park and Public Spaces
Incremental Trip Generation Summary

		Person Trip										Vehicle Trip					
									Walk								
Peak Hour	In / Out	Auto (Drive)	Auto (Pick-up / Drop-off)	Taxi	Subway	Bus	School Bus	Ferry	External	Internal	Total	Auto (Drive)	Auto (Pick-up / Drop-off)	Taxi	School Bus	Delivery	Total
Pier 6 Brooklyn																	
AM	In	53	0	2	150	31	0	0	72	16	**324**	27	0	1	0	0	**28**
	Out	3	0	0	12	1	0	0	3	19	**38**	2	0	1	0	0	**3**
	Total	**56**	**0**	**2**	**162**	**32**	**0**	**0**	**75**	**35**	**362**	**29**	**0**	**2**	**0**	**0**	**31**
MD	In	86	0	0	74	31	0	0	185	127	**503**	32	0	0	0	0	**32**
	Out	56	0	0	52	22	0	0	119	145	**394**	21	0	0	0	0	**21**
	Total	**142**	**0**	**0**	**126**	**53**	**0**	**0**	**304**	**272**	**897**	**53**	**0**	**0**	**0**	**0**	**53**
PM	In	48	0	0	48	16	0	0	102	72	**286**	20	0	1	0	0	**21**
	Out	121	0	1	122	43	0	0	216	64	**567**	58	0	1	0	0	**59**
	Total	**169**	**0**	**1**	**170**	**59**	**0**	**0**	**318**	**136**	**853**	**78**	**0**	**2**	**0**	**0**	**80**
Sat	In	31	0	0	34	8	0	0	89	64	**226**	15	0	0	0	0	**15**
	Out	40	0	0	39	10	0	0	123	67	**279**	16	0	0	0	0	**16**
	Total	**71**	**0**	**0**	**73**	**18**	**0**	**0**	**212**	**131**	**505**	**31**	**0**	**0**	**0**	**0**	**31**
Battery Maritime Building																	
AM	In	147	55	77	2,193	250	106	57	315	142	**3,342**	91	32	55	6	5	**189**
	Out	15	0	8	137	15	0	4	36	172	**387**	10	32	55	6	5	**108**
	Total	**162**	**55**	**85**	**2,330**	**265**	**106**	**61**	**351**	**314**	**3,729**	**101**	**64**	**110**	**12**	**10**	**297**
MD	In	96	0	43	688	68	0	50	320	1,261	**2,526**	40	0	24	0	11	**75**
	Out	65	0	37	454	48	0	32	252	1,208	**2,096**	27	0	24	0	11	**62**
	Total	**161**	**0**	**80**	**1,142**	**116**	**0**	**82**	**572**	**2,469**	**4,622**	**67**	**0**	**48**	**0**	**22**	**137**
PM	In	61	0	32	440	45	0	25	256	650	**1,509**	30	9	33	0	8	**80**
	Out	207	15	57	1,442	176	0	69	380	569	**2,915**	128	9	33	0	8	**178**
	Total	**268**	**15**	**89**	**1,882**	**221**	**0**	**94**	**636**	**1,219**	**4,424**	**158**	**18**	**66**	**0**	**16**	**258**
Sat	In	55	0	24	400	39	0	8	235	585	**1,346**	32	0	14	0	0	**46**
	Out	59	0	27	468	40	0	12	276	603	**1,485**	32	0	14	0	0	**46**
	Total	**114**	**0**	**51**	**868**	**79**	**0**	**20**	**511**	**1,188**	**2,831**	**64**	**0**	**28**	**0**	**0**	**92**

Note: 1. Reflects Option A for the AM peak hour and Option B for the midday, PM, and Saturday peak hours to represent a reasonable worst-case development scenario for analysis

D. CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) SCREENING ANALYSES

The 2012 *CEQR Technical Manual* identifies procedures for evaluating a proposed project's potential impacts on traffic, transit, pedestrian, and parking conditions. This methodology begins with the preparation of a trip generation analysis to determine the volume of person and vehicle trips associated with the proposed project. The results are then compared with 2012 *CEQR Technical Manual*-specified thresholds (Level 1 screening analysis) to determine whether additional quantified analyses are warranted. If the proposed project would result in 50 or more peak hour vehicle trips or 200 or more peak hour transit or pedestrian trips, a Level 2 screening analysis would be undertaken.

For the Level 2 screening analysis, project-generated trips would be assigned to specific intersections, transit routes, and pedestrian elements. If the results of this analysis show that the proposed project would generate 50 or more peak hour vehicle trips through an intersection, 50 or more peak hour riders on a bus route in a single direction, 200 or more peak hour subway passengers at a single subway station or on a single subway line, or 200 or more peak hour pedestrian trips per pedestrian element, further quantified analyses may be warranted to evaluate the potential for significant adverse traffic, transit, pedestrian, and parking impacts.

LEVEL 1 SCREENING ANALYSIS RESULTS

TRAFFIC

As summarized in **Table 7-6**, the peak hour incremental vehicle trip estimates for the Proposed Project at Pier 6 exceed the 50 vehicle-trip analysis threshold during the weekday midday and PM peak hours. At the BMB ferry portal, the weekday AM, midday, PM, and Saturday peak hour incremental vehicle trips would exceed the 50 vehicle-trip analysis threshold. Thus a Level 2 trip distribution and assignment screening analysis at both ferry portals is required.

PEDESTRIANS

The 2012 *CEQR Technical Manual* states that if a proposed land use program results in 200 or more peak hour pedestrian trips, a Level 2 screening assessment should be conducted before undertaking a detailed pedestrian analysis. As summarized in **Table 7-6**, the projected trips for the proposed land use program would exceed the 200 peak hour pedestrian-trip threshold during all peak periods at both portal locations. Hence, a Level 2 screening assessment, involving the distribution and assignment of the projected trips to various pedestrian elements, would be required to determine the need for further detailed analyses.

TRANSIT

The 2012 *CEQR Technical Manual* states that if a proposed project is expected to generate fewer than 200 peak hour subway/rail transit trips or fewer than 50 peak hour bus trips in one direction along a bus route, it is unlikely to result in significant adverse transit impacts and further analyses would not be warranted. For visitors accessing Governors Island via Pier 6, the Proposed Project would generate 162, 126, 170, and 73 subway trips and 68, 81, 96, and 34 bus trips[1] during the weekday AM, midday, PM, and Saturday peak hours, respectively. The peak hour subway would not exceed the 2012 *CEQR Technical Manual* thresholds. The peak hour bus trips would be divided over two bus routes (B61 and B63) and thus would also not exceed the 2012 *CEQR Technical Manual* thresholds. Therefore, detailed subway and bus-line haul analyses are not warranted in Brooklyn. However, to remain consistent with the 2011 FGEIS, an analysis at the Borough Hall station stairway at the southwest corner of Court Street and Joralemon Street was conducted.

For visitors accessing Governors Island via the BMB, the Proposed Project would generate 2,318, 1,142, 1,882, and 868 subway trips and 278, 116, 221, and 79 bus trips during the weekday AM, midday, PM, and Saturday peak hours, respectively. Since the peak hour subway trip estimates and bus trip estimates exceed the 2012 *CEQR Technical Manual* thresholds during each peak hour, a Level 2 screening was conducted to determine if there is a need to prepare detailed analyses for affected facilities.

LEVEL 2 SCREENING ANALYSIS RESULTS

TRAFFIC

As described above, the projected peak hour vehicle-trip increments at Pier 6 exceed the 50 vehicle-trip analysis threshold during the weekday midday and PM peak hours. At the BMB ferry portal, the weekday AM, midday, PM, and Saturday peak hour incremental vehicle trips

[1] Includes bus trips from Table 6 and assumes 22 percent of the subway trips will transfer to bus.

would exceed the 50 vehicle-trip analysis threshold. Vehicles trip assignments were prepared to identify if the Proposed Project would result in 50 or more vehicle trips through any intersection.

As shown in **Figures 7-1** to **7-4**, in Brooklyn the projected vehicle-trip increments would not result in 50 or more vehicle trips through any intersection during the weekday or Saturday peak hours. While not warranted based on CEQR thresholds, to retain consistency with the analysis conducted in the 2011 FGEIS, the following Brooklyn intersections will be analyzed during the weekday AM, midday, and PM peak hours:

- Joralemon Street and Court Street
- Joralemon Street and Furman Street
- Atlantic Avenue and Court Street
- Atlantic Avenue and Brooklyn-Queens Expressway eastbound ramps
- Atlantic Avenue and Columbia Street
- Atlantic Avenue and Furman Street
- Brooklyn-Queens Expressway westbound ramps and Columbia Street

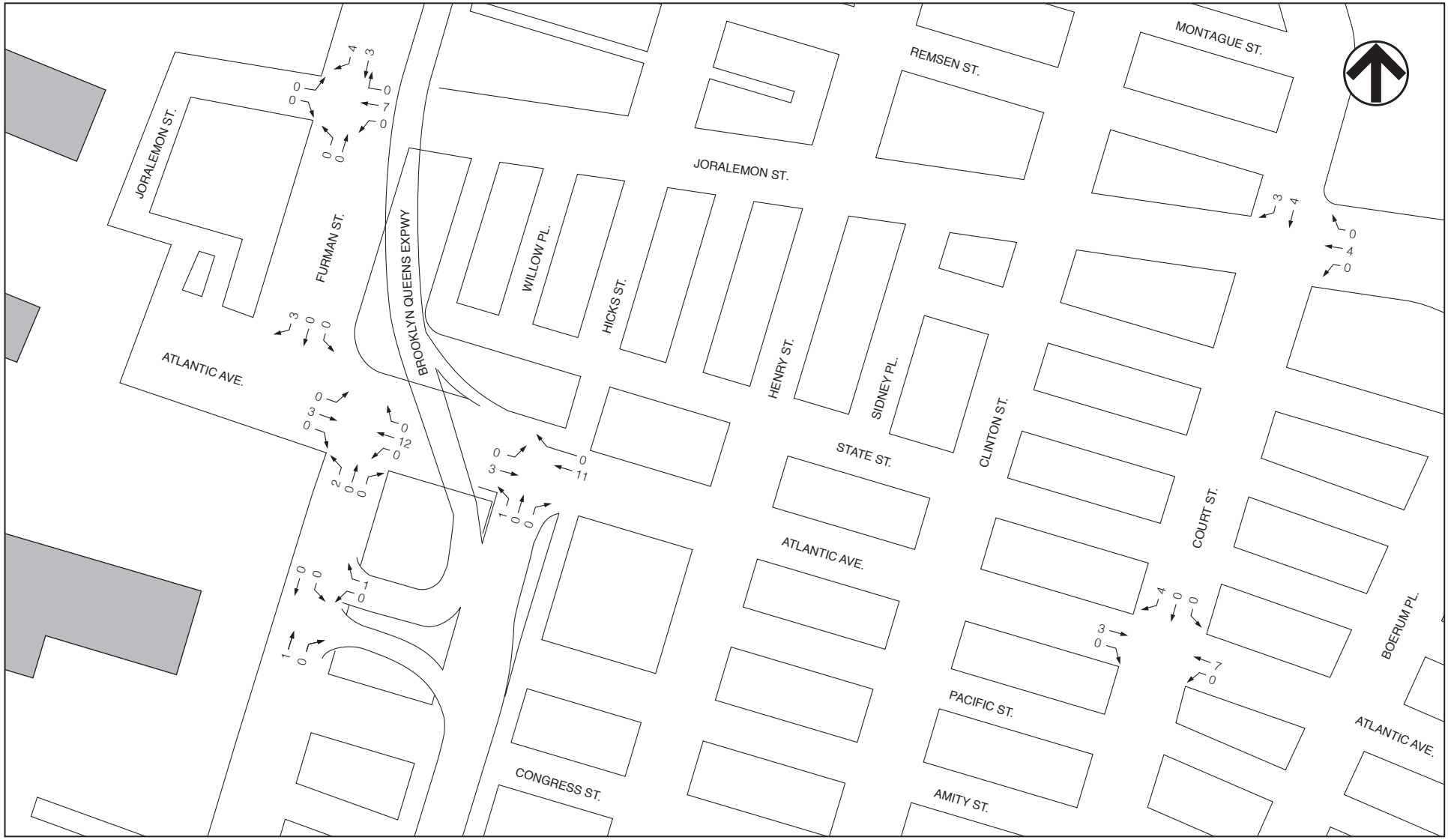
In Manhattan, as shown in **Figures 7-5** to **7-8**, the CEQR threshold would be exceeded at the following intersections which will be analyzed during the weekday AM, midday, PM, and Saturday peak hours:

- Battery Place and Broadway
- Pearl Street and State Street
- State Street and Peter Minuit Plaza
- Whitehall Street and Water Street
- Broad Street and Water Street
- South Street and Whitehall Street
- South Street and Broad Street
- South Street and Old Slip
- Battery Place and Greenwich Street
- Battery Place and Washington Street
- Battery Place and West Street (Route 9A)
- South Street and Wall Street
- South Street and Maiden Lane

TRANSIT

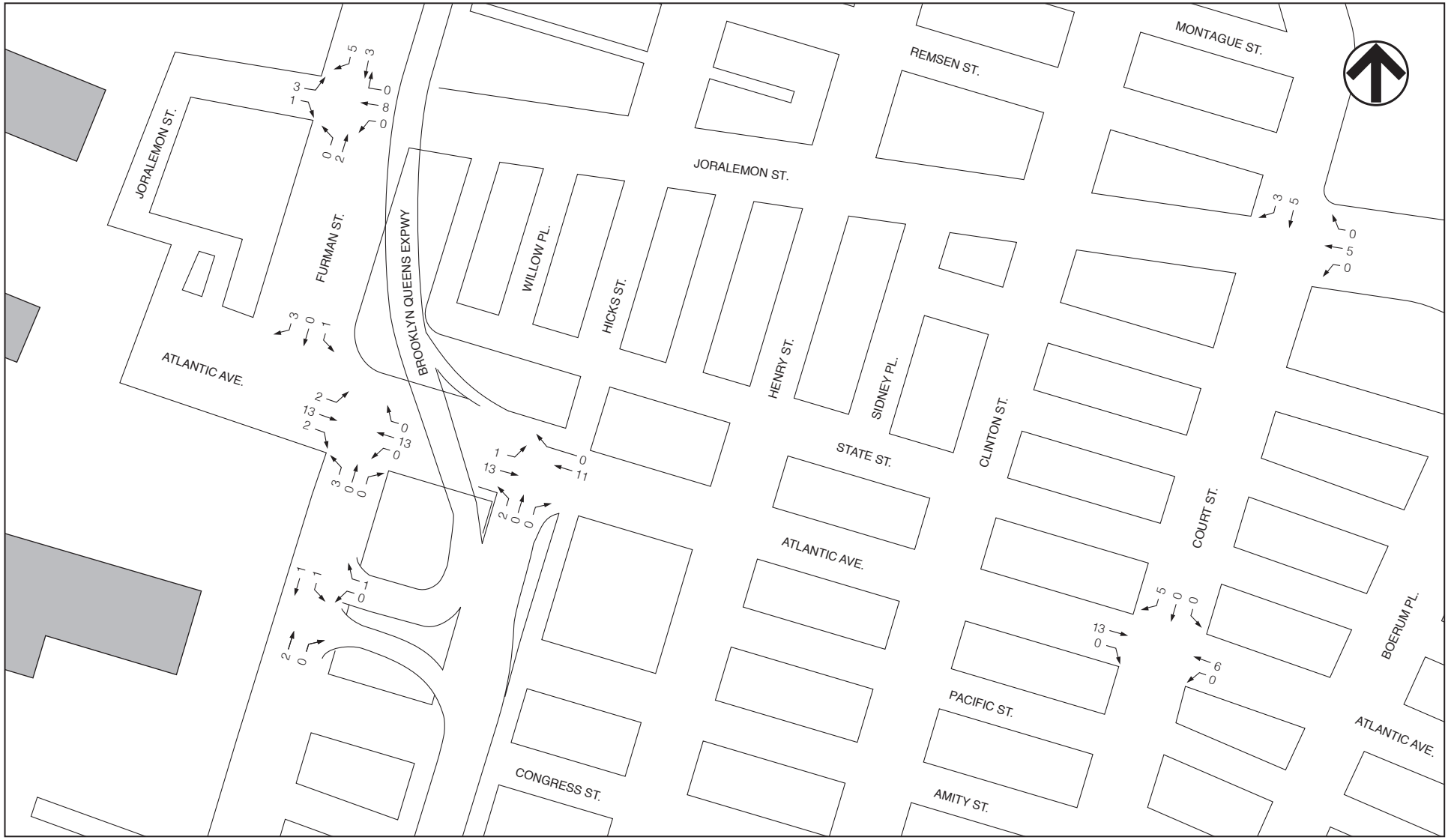
As discussed above, the projected peak hour incremental subway trips for the Pier 6 portal are not expected to exceed the CEQR analysis threshold. While not warranted based on CEQR thresholds, to retain consistency with the analysis conducted in the 2011 FGEIS, the southwest corner stairway at the Court Street station in Brooklyn for both the AM and PM peak hours was be included for analysis.

For the BMB portal, projected incremental subway trips are expected to exceed the CEQR analysis threshold. Based on the distribution of these trips to the nearby subway stations, the following subway station elements were identified to require a detailed analysis:



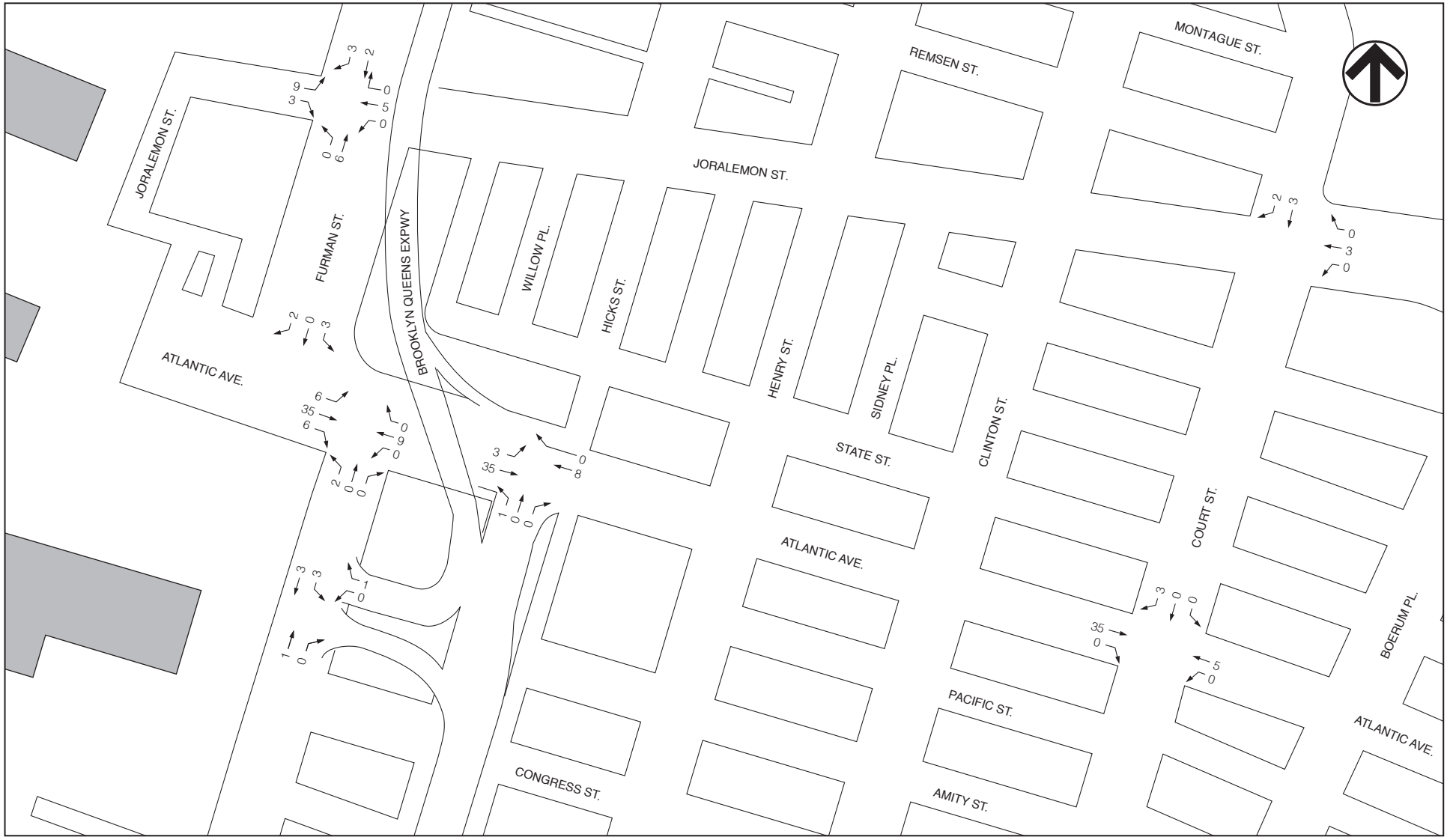
NOT TO SCALE

Pier 6 2022 Project-Generated Traffic Volumes
Weekday AM Peak Hour
Figure 7-1



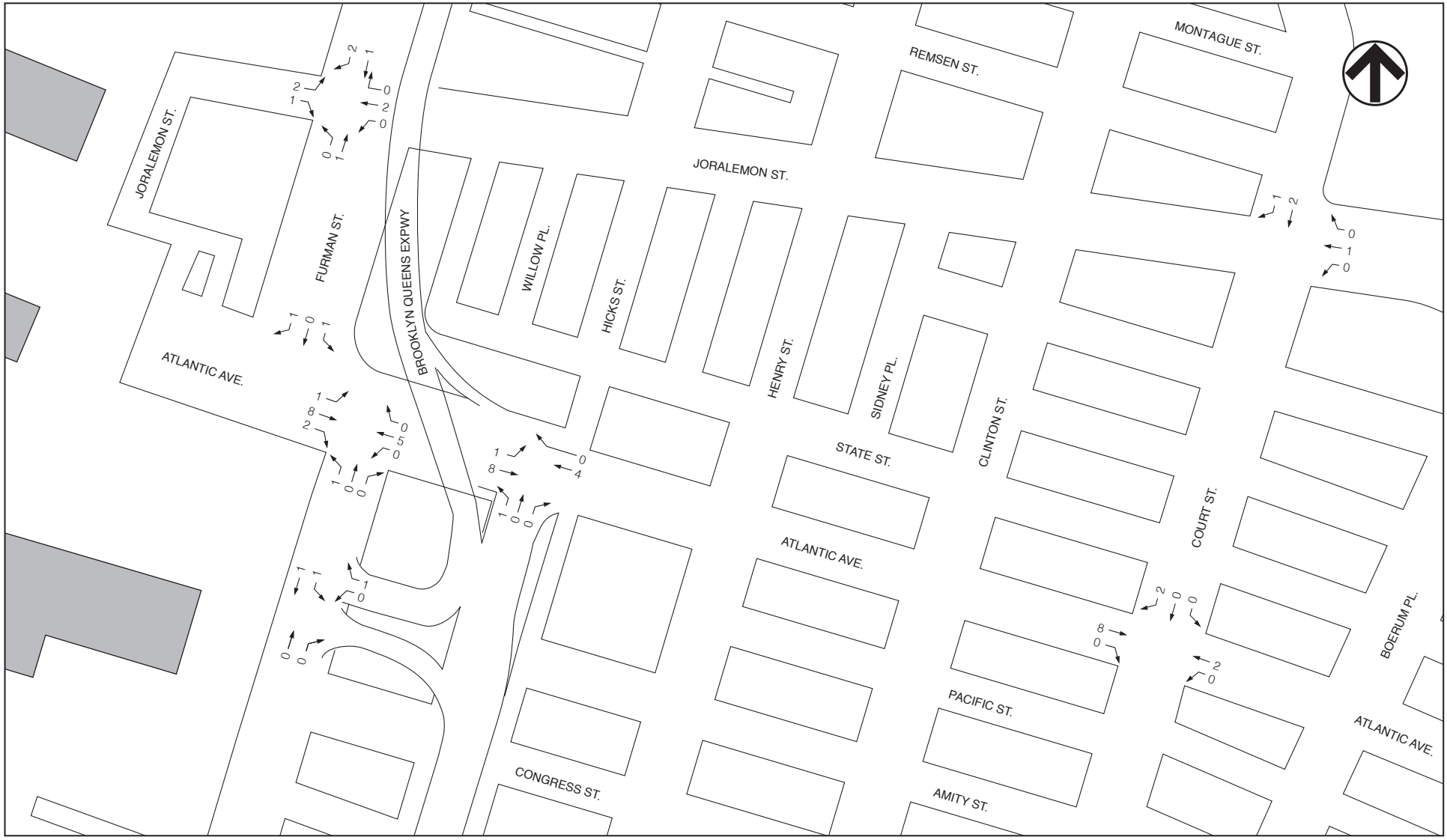
NOT TO SCALE

Pier 6 2022 Project-Generated Traffic Volumes
Weekday Midday Peak Hour
Figure 7-2



NOT TO SCALE

Pier 6 2022 Project-Generated Traffic Volumes
Weekday PM Peak Hour
Figure 7-3



NOT TO SCALE

Pier 6 Project-Generated Traffic Volumes
Saturday Peak Hour
Figure 7-4

NOT TO SCALE

BMB 2022 Project-Generated Traffic Volumes
Weekday AM Peak Hour
Figure 7-5

NOT TO SCALE

BMB 2022 Project-Generated Traffic Volumes
Weekday Midday Peak Hour
Figure 7-6

NOT TO SCALE

BMB 2022 Project-Generated Traffic Volumes
Weekday PM Peak Hour
Figure 7-7

NOT TO SCALE

BMB 2022 Project-Generated Traffic Volumes
Saturday Peak Hour
Figure 7-8

- Bowling Green station stairways and control area
- South Ferry station stairways, escalators, and control area

SUBWAY AND BUS LINE HAUL CAPACITIES

- In accordance with the 2012 *CEQR Technical Manual*, line haul capacities (i.e., the ability of transit systems to accommodate passenger loads) are evaluated when a proposed action is anticipated to generate a perceptible number of passengers to particular subway and bus routes. For subways, if a subway line is expected to incur 200 or more passengers in one direction of travel during the commuter peak hours, a detailed review of ridership levels at the maximum load point and/or other project-specific load points would be required to determine if the route's guideline (or practical) capacity would be exceeded. Subway/Rail trips were distributed to local subway routes serving the BMB and Pier 6 ferry portals. In Manhattan the projected subway-trips would exceed the 200 passengers in one direction of travel on the Nos. 1, 4, 5 and R subway lines. A detailed subway line-haul analysis of the Nos. 1, 4, 5, and R subway lines was performed for the AM and PM peak hours to identify potential subway line impacts.
- In Brooklyn, the projected subway-trips would not exceed the CEQR subway analysis threshold on any subway line. Therefore, quantified line-haul analyses would not be warranted for the Brooklyn subway lines and there would not be a potential for any significant adverse subway line-haul impacts.
- Transit trips were also distributed to local bus routes serving the BMB and Pier 6 ferry portals; however, no individual bus route would experience 50 or more peak hour bus trips in one direction—the CEQR-recommended threshold for undertaking a quantified bus line-haul analysis. Therefore, a detailed bus line-haul analysis would not be required to address potential transit impacts on the bus system associated with the Proposed Project and there would not be a potential for any significant adverse bus line-haul impacts.

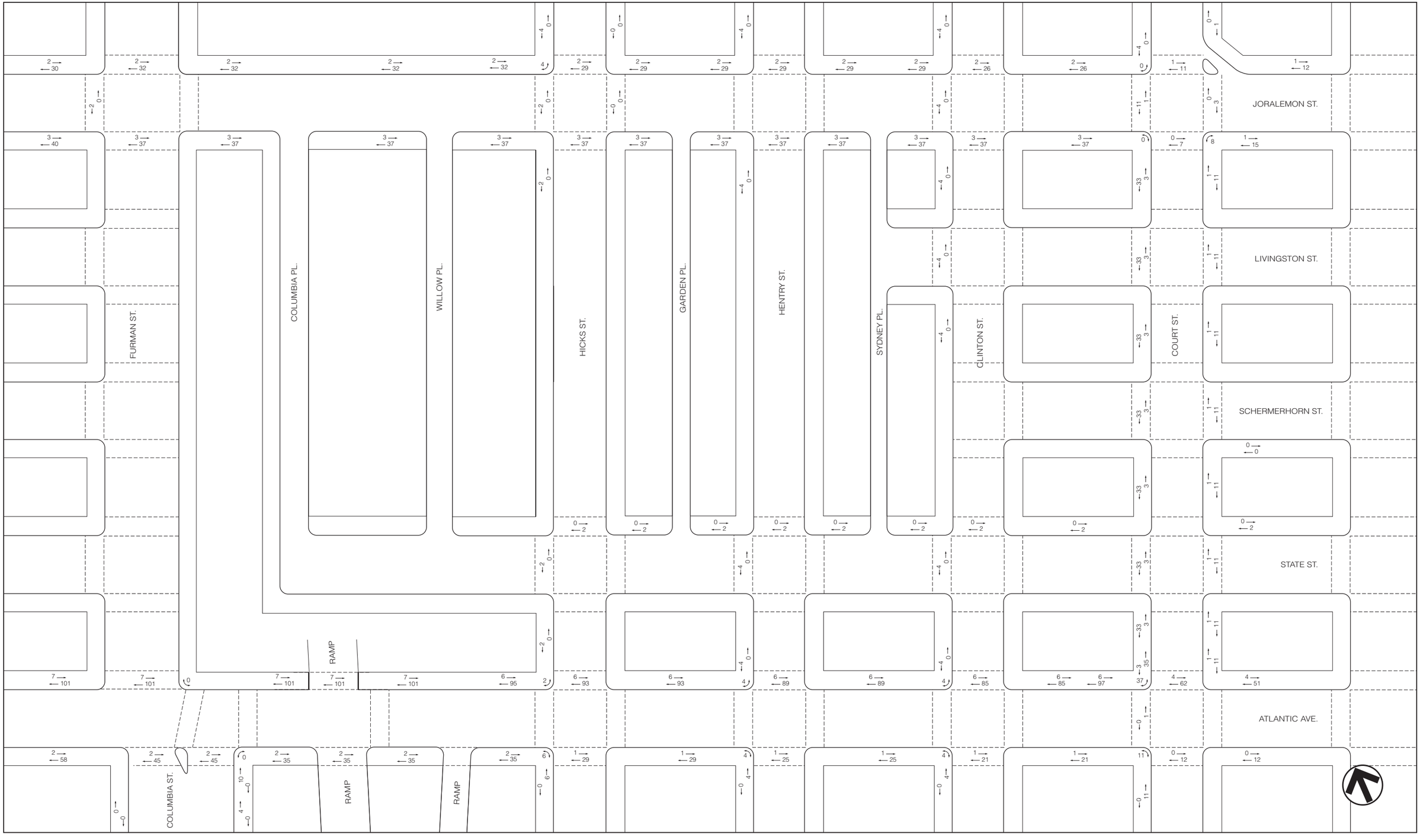
PEDESTRIANS

As described above, the projected peak hour pedestrian increments would exceed the CEQR analysis threshold of 200 pedestrian at both ferry portals. Pedestrian trip assignments were developed by distributing person trips generated by the Proposed Project to pedestrian facilities surrounding the Pier 6 and BMB ferry portals.

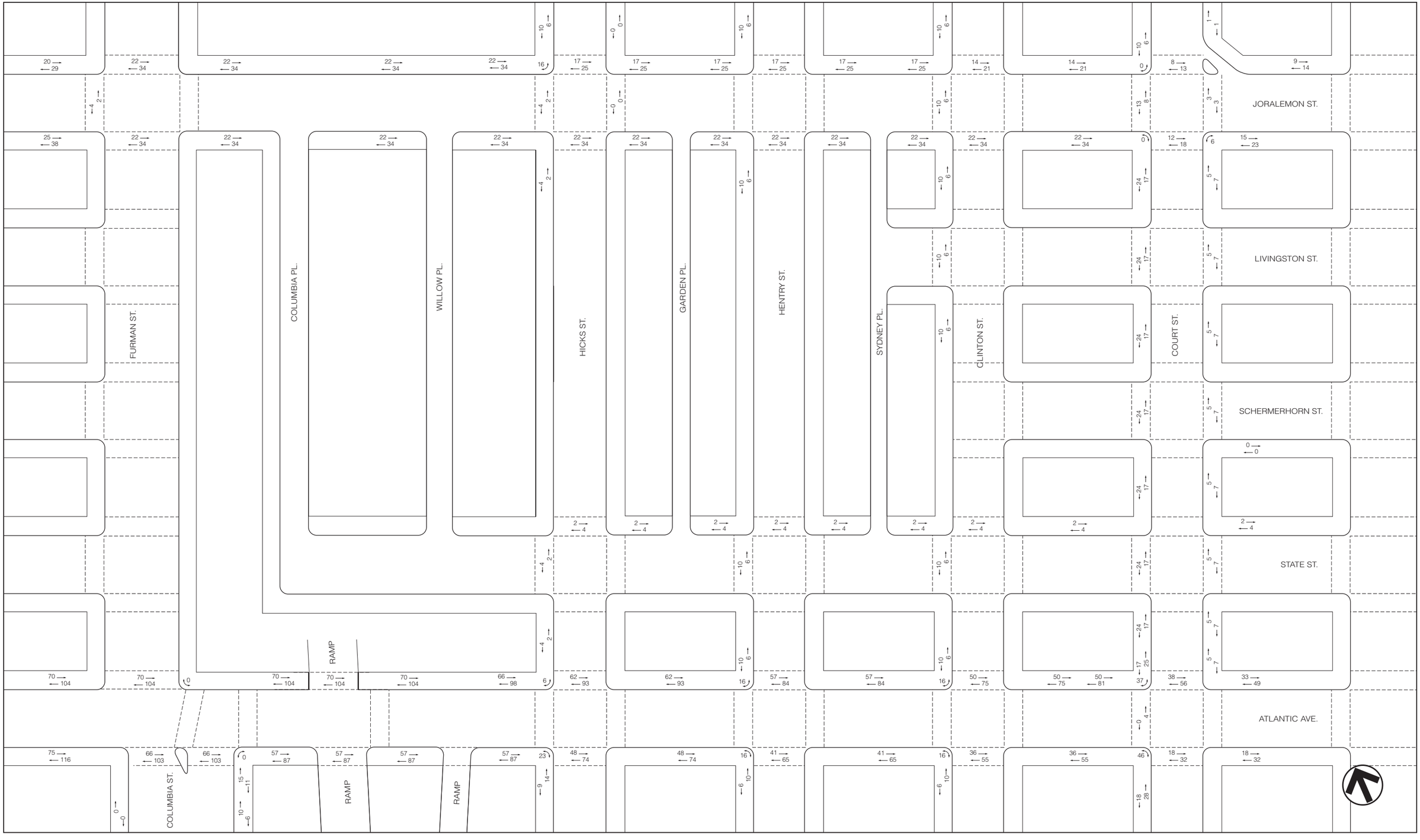
The project-generated pedestrian trip assignments at the Pier 6 ferry portal are shown in **Figures 7-9 to 7-12.** The following Brooklyn pedestrian elements surrounding the Pier 6 ferry portal would exceed the CEQR pedestrian analysis threshold and warrant a detailed analysis to identify potential pedestrian impacts.

Sidewalk Locations

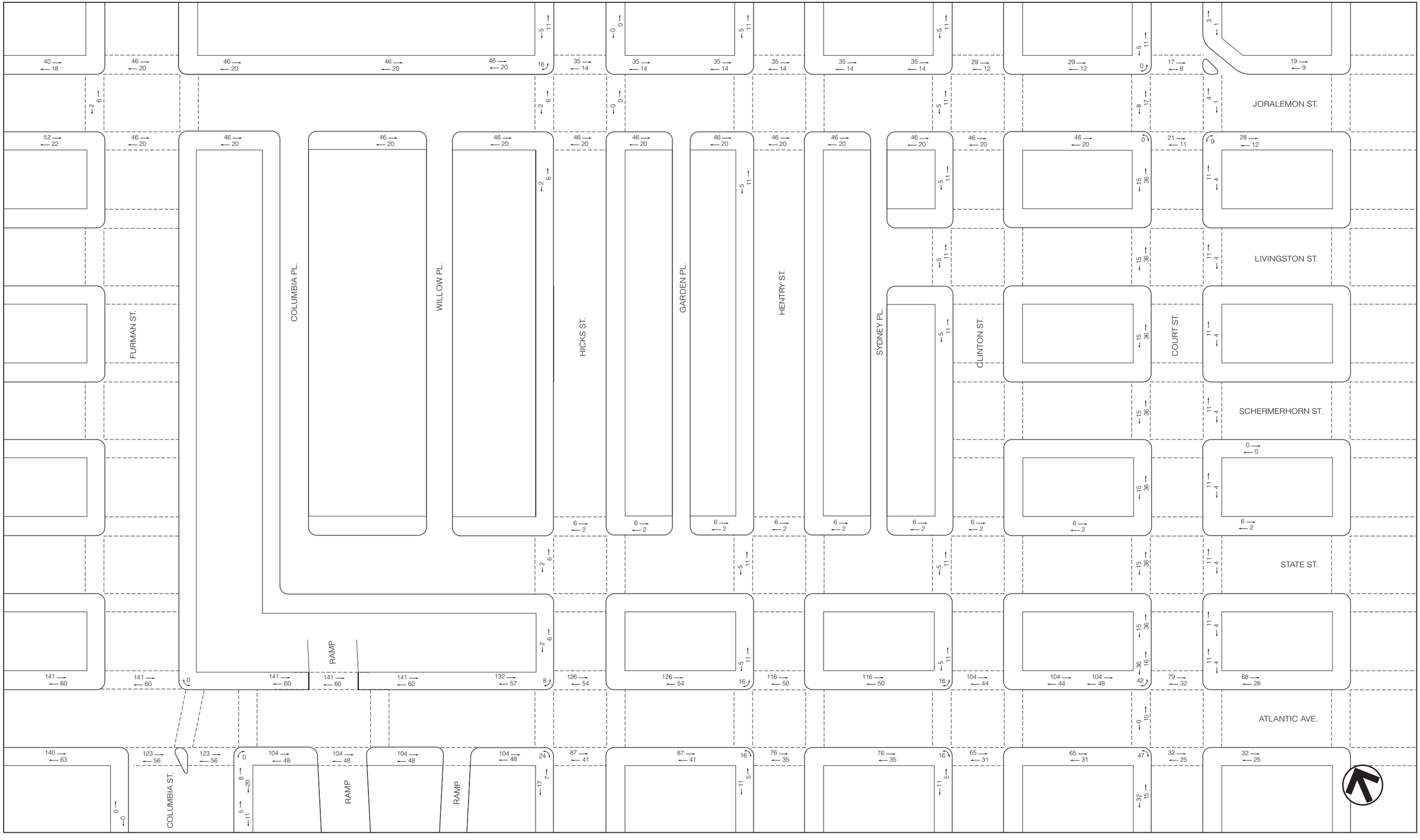
- North and south sidewalks of Atlantic Avenue west of Furman Street (weekday PM peak hour)
- North sidewalk of Atlantic Avenue between Furman Street and the Brooklyn-Queens Expressway On-Ramp (weekday PM peak hour)
- North sidewalk of Atlantic Avenue between the Brooklyn-Queens Expressway On-Ramp and Hicks Street (weekday PM peak hour)



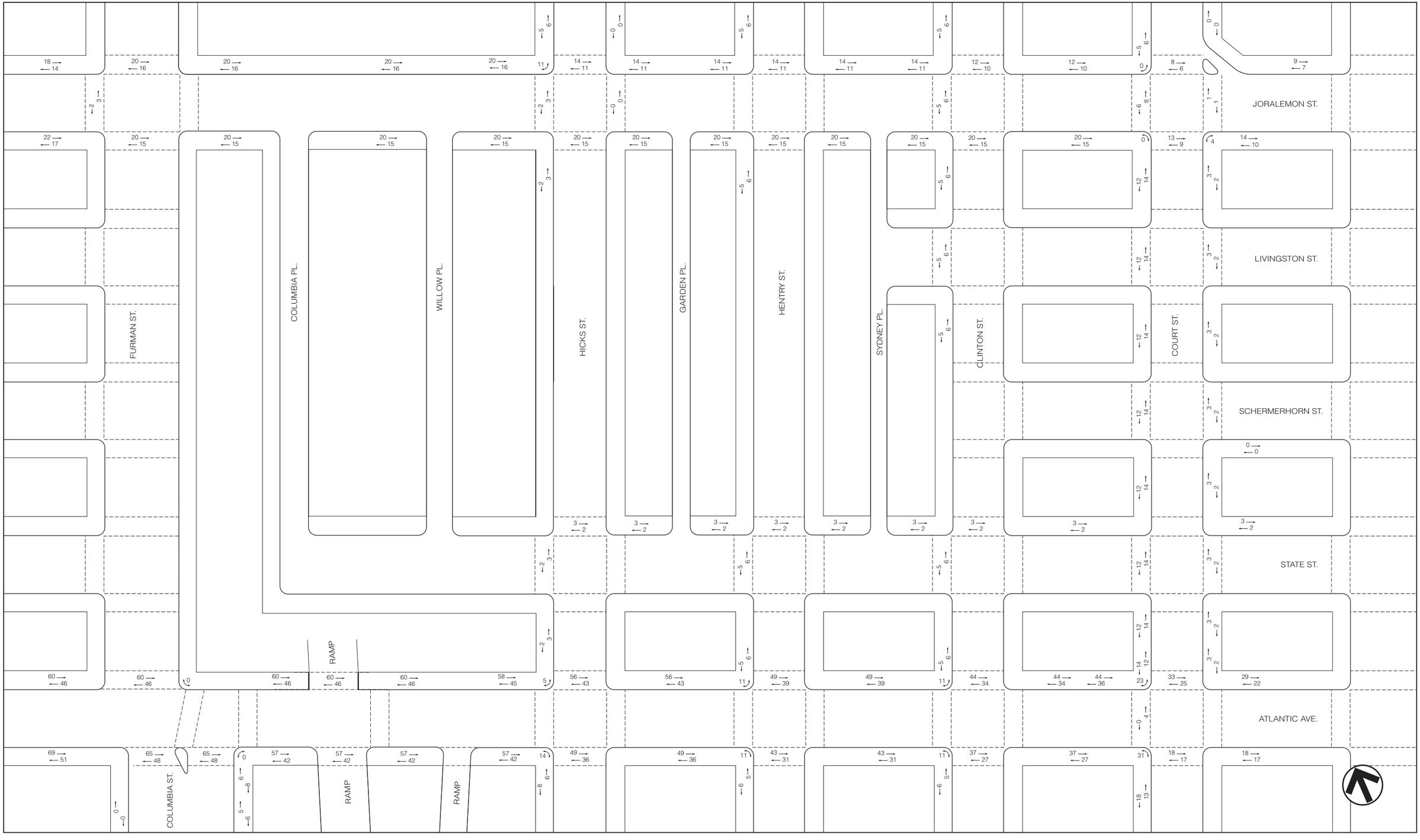
Pier 6 Project-Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 7-9



Pier 6 Project-Generated Pedestrian Volumes
Weekday Midday Peak Hour
Figure 7-10



Pier 6 Project-Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 7-11



Pier 6 Project-Generated Pedestrian Volumes
Saturday Peak Hour
Figure 7-12

While not warranted, to retain consistency with the analysis conducted in the 2011 FGEIS, the above locations will also be analyzed for the weekday AM and midday peak hours. In addition, the following locations will be analyzed:

- All sidewalks at the Court Street and Joralemon Street intersection
- South sidewalk of Atlantic Avenue between Columbia Street and the Brooklyn-Queens Expressway Off-Ramp

Corner Locations

- Northeast corner of the Atlantic Avenue and Furman Street intersection (weekday PM peak hour)

While not warranted, to retain consistency with the analysis conducted in the 2011 FGEIS, the above locations were also analyzed for the weekday AM and midday peak hours. In addition, the following locations were also analyzed:

- Northwest, southeast, and southwest corners at the Court Street and Joralemon Street intersection
- Southeast corner of Atlantic Avenue and Columbia Street

Crosswalk Locations

- North crosswalk of the Atlantic Avenue and Furman Street intersection (weekday PM peak hour)
- North crosswalk of the Atlantic Avenue and Brooklyn-Queens Expressway intersection (weekday PM peak hour)

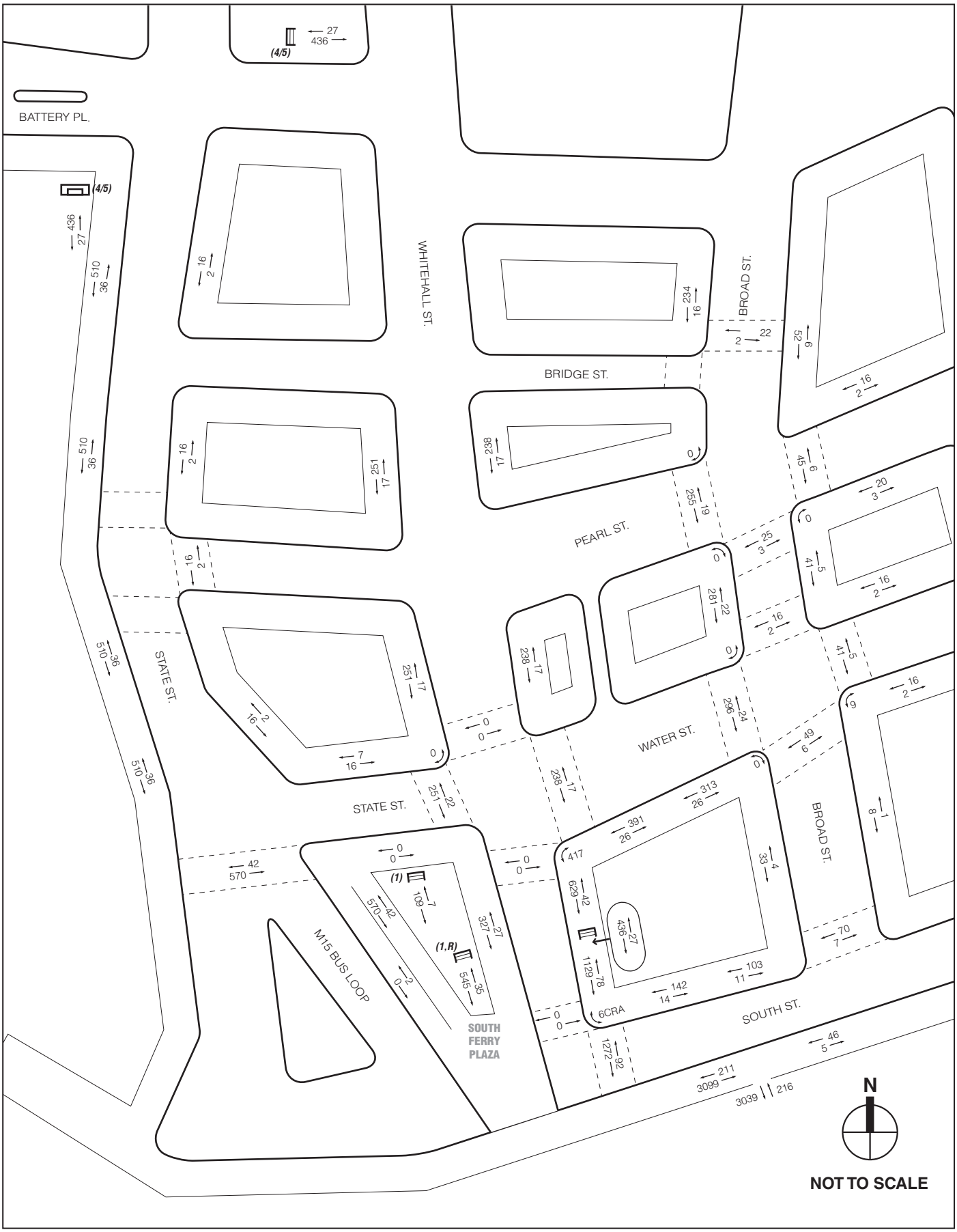
While not warranted, to retain consistency with the analysis conducted in the 2011 FGEIS, the above locations were also analyzed for the weekday AM and midday peak hours. In addition, the following locations were also analyzed:

- All crosswalks at the Court Street and Joralemon Street intersection
- South crosswalk at the Atlantic Avenue and Columbia Street intersection

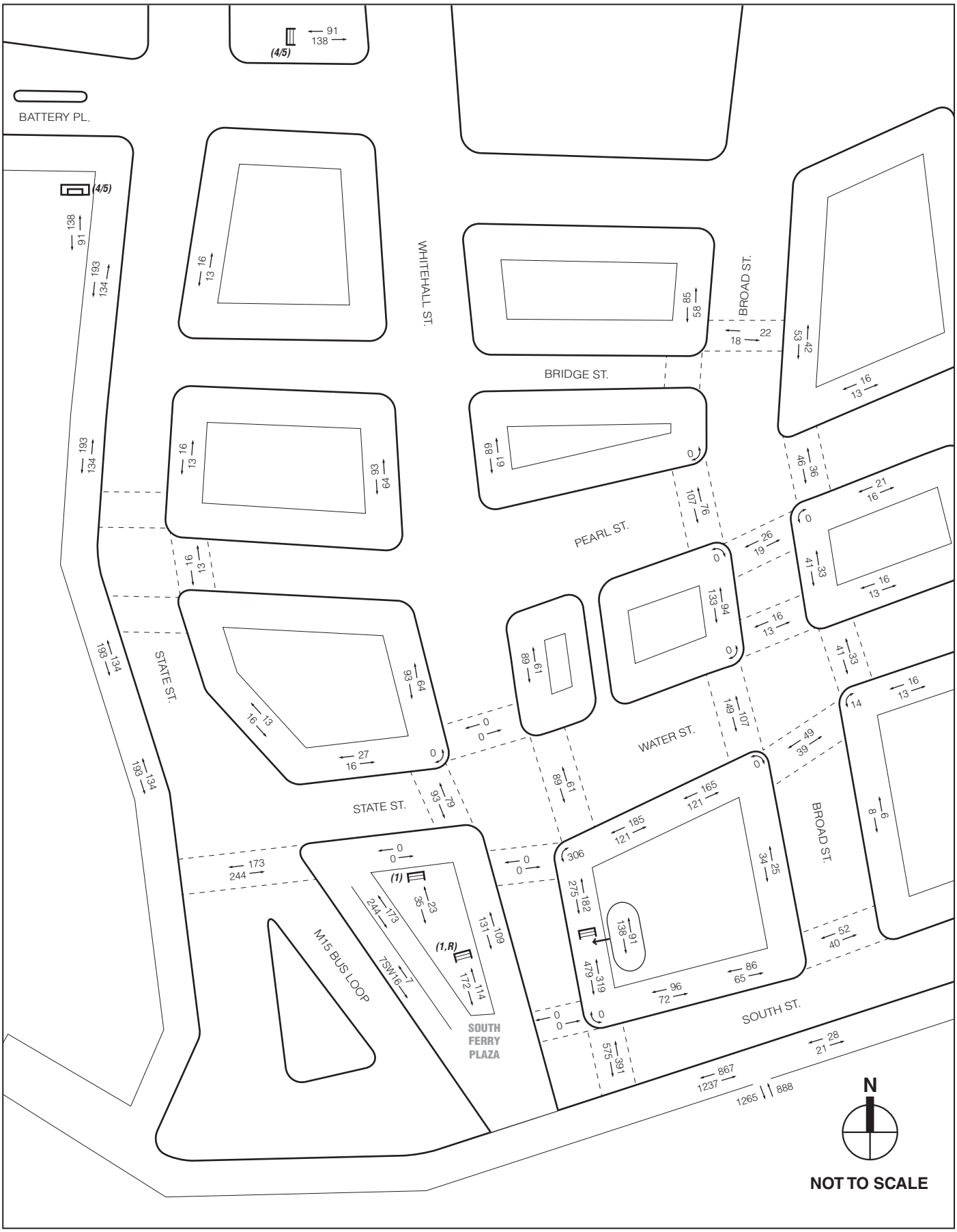
The project-generated pedestrian trip assignments for the BMB ferry portal are shown in **Figures 7-13 to 7-16.** The following Manhattan pedestrian elements surrounding the BMB would exceed the CEQR pedestrian analysis threshold and warrant a detailed analysis to identify potential pedestrian impacts.

Sidewalk Locations

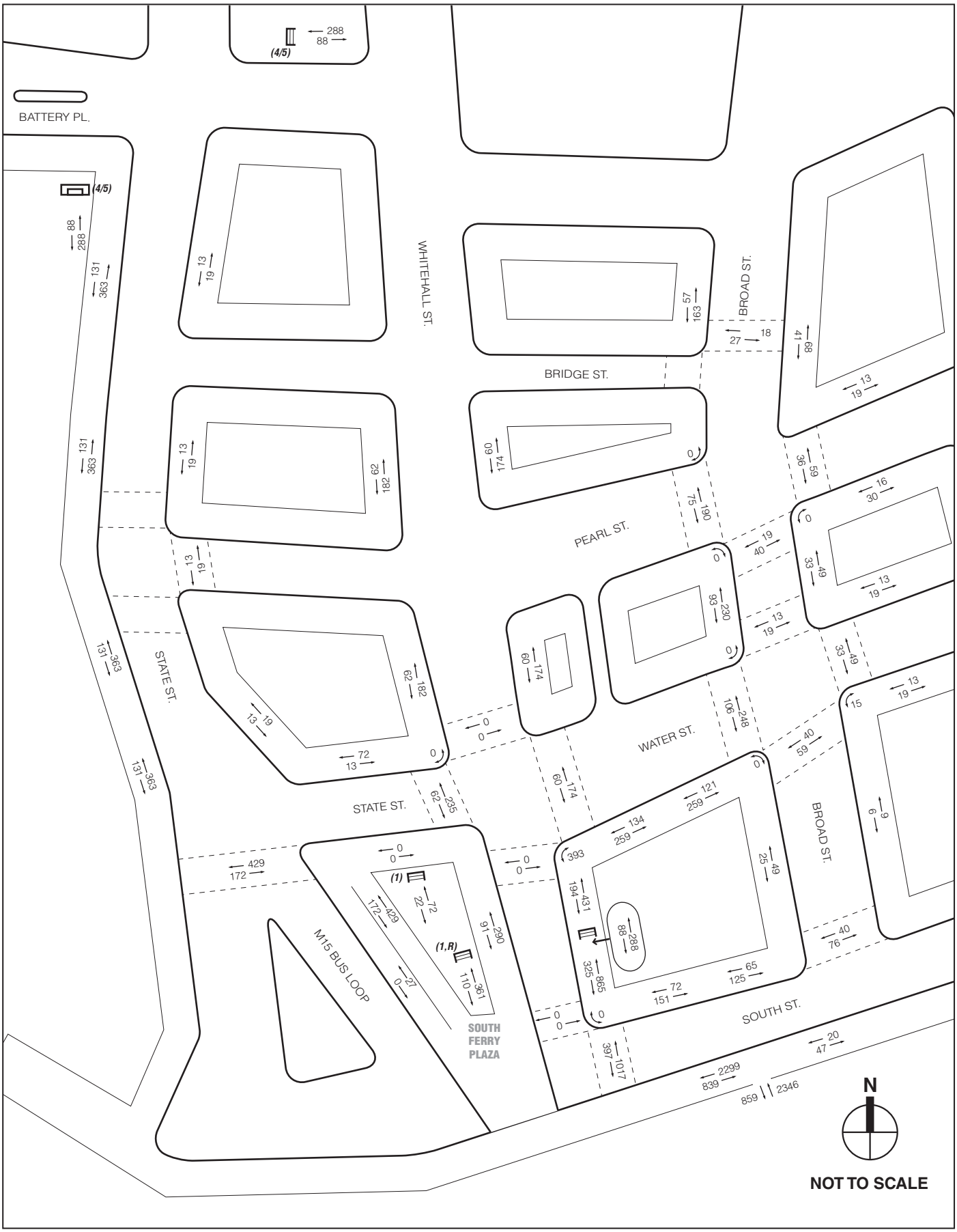
- West sidewalk along State Street between Battery Place and Peter Minuit Plaza (weekday AM, midday, PM and Saturday peak hours)
- West sidewalk of Peter Minuit Plaza (weekday AM, midday, PM and Saturday peak hours)
- West sidewalk along Whitehall Street between Bridge Street and Pearl Street (weekday AM and PM peak hours)
- West sidewalk along Whitehall Street between Pearl Street and Water Street (weekday AM and PM peak hours)
- South sidewalk along Water Street between Whitehall Street and Broad Street (weekday AM, midday, PM and Saturday peak hours)



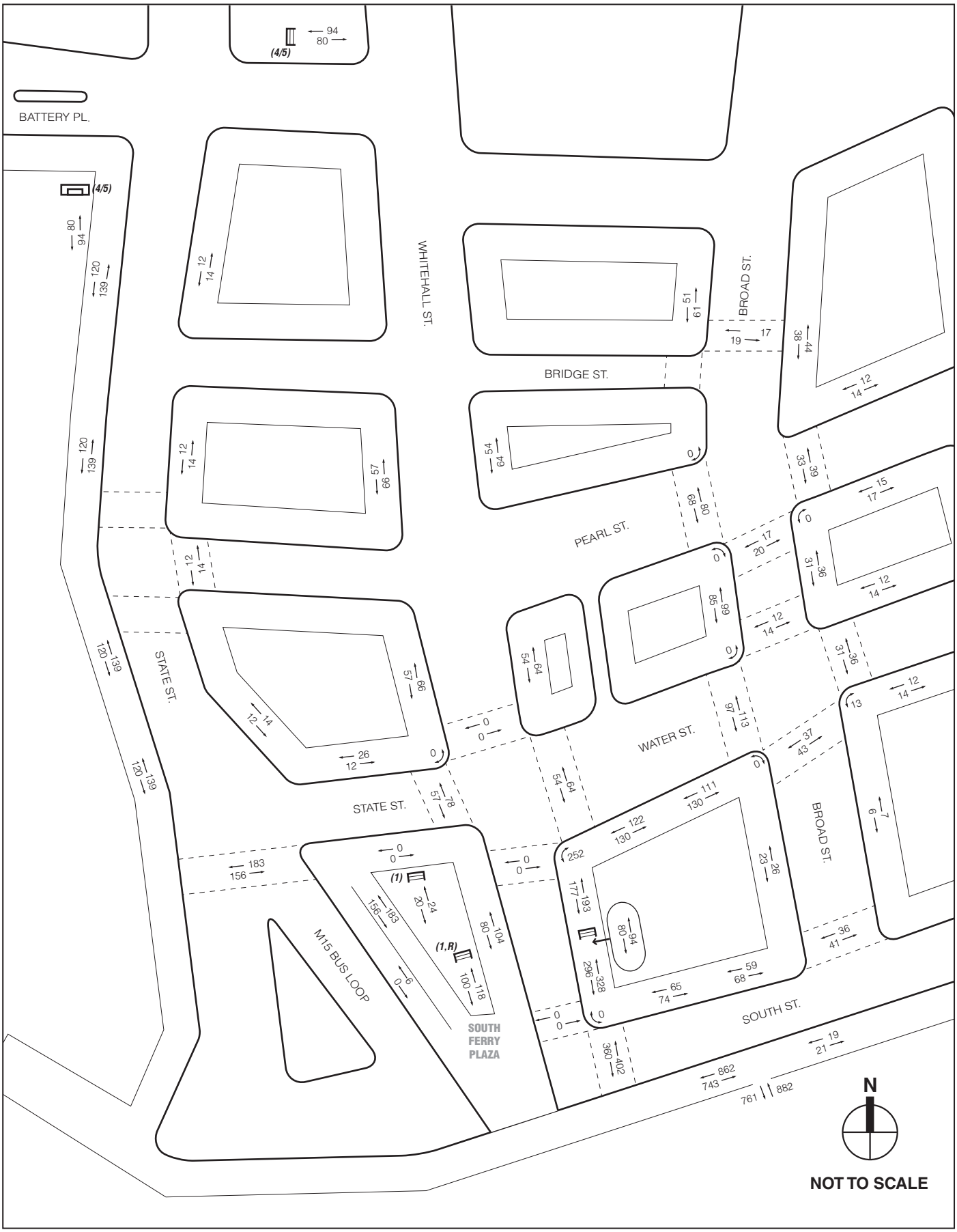
BMB Project-Generated Pedestrian Volumes
AM Peak Hour
Figure 7-13



BMB Project-Generated Pedestrian Volumes
Midday Peak Hour
Figure 7-14



BMB Project-Generated Pedestrian Volumes
PM Peak Hour
Figure 7-15



BMB Project-Generated Pedestrian Volumes
Saturday Peak Hour
Figure 7-16

- East sidewalk along Whitehall Street between Water Street and South Street (weekday AM, midday, PM and Saturday peak hours)
- West sidewalk along Broad Street between Pearl Street and Stone Street (weekday AM and PM peak hours)
- West sidewalk along Broad Street between Pearl Street and Water Street (weekday AM, midday and PM peak hours)
- North sidewalk along South Street between Whitehall Street and Broad Street (weekday PM peak hour)

Corner Locations

- Northwest corner of Water Street and Whitehall Street intersection (weekday AM and PM peak hours)
- Southeast corner of Water Street and Whitehall Street intersection (weekday AM, midday, PM and Saturday peak hours)
- Northeast corner of the South Street and Whitehall Street intersection (weekday AM, midday, PM and Saturday peak hours)
- Northwest and southwest corners of the Pearl Street and Broad Street intersection (weekday AM, midday and PM peak hours)
- Northwest and southwest corners of the Water Street and Broad Street intersection (weekday AM, midday, PM and Saturday peak hours)

Crosswalk Locations

- South crosswalk at the State Street and Peter Minuit Plaza intersection (weekday AM, midday, PM and Saturday peak hours)
- West crosswalk at the Water Street and Whitehall Street intersection (weekday AM, and PM peak hours)
- East crosswalk at the South Street and Whitehall Street intersection (weekday AM, midday, PM and Saturday peak hours)
- West crosswalk at the Pearl Street and Broad Street intersection (weekday AM and PM peak hours)
- West crosswalk at the Water Street and Broad Street intersection (weekday AM, midday, PM and Saturday peak hours)

While not warranted, to retain consistency with the analysis conducted in the 2011 FGEIS, the following locations were also analyzed:

- North crosswalk at the South Street and Whitehall Street intersection
- North, south, and east crosswalks at the Water Street and Whitehall Street intersection

PARKING

A ¼-mile off-street parking study at each ferry portal was prepared to address parking needs resulting from the Proposed Project.

E. TRANSPORTATION ANALYSES METHODOLOGY

TRAFFIC

The operation of all of the signalized intersections and unsignalized intersections in the study area were assessed using methodologies presented in the *2000 Highway Capacity Manual (HCM)* using the *Highway Capacity Software (HCS+ 5.5)*. The *HCM* procedure evaluates the levels of service (LOS) for signalized and unsignalized intersections using stop control delay, in seconds per vehicle, as described below.

SIGNALIZED INTERSECTIONS

The average control delay per vehicle is the basis for LOS determination for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. The levels of service are defined in **Table 7-7**.

Table 7-7
LOS Criteria for Signalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	>10.0 and ≤ 20.0 seconds
C	>20.0 and ≤ 35.0 seconds
D	>35.0 and ≤ 55.0 seconds
E	>55.0 and ≤ 80.0 seconds
F	>80.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

Although the HCM methodology calculates a volume-to-capacity (v/c) ratio, there is no strict relationship between v/c ratios and LOS as defined in the HCM. A high v/c ratio indicates substantial traffic passing through an intersection, but a high v/c ratio combined with low average delay actually represents the most efficient condition in terms of traffic engineering standards, where an approach or the whole intersection processes traffic close to its theoretical maximum capacity with minimal delay. However, very high v/c ratios—especially those approaching or greater than 1.0—are often correlated with a deteriorated LOS. Other important variables affecting delay include cycle length, progression, and green time. LOS A and B indicate good operating conditions with minimal delay. At LOS C, the number of vehicles stopping is higher, but congestion is still fairly light. LOS D describes a condition where congestion levels are more noticeable and individual cycle failures (a condition where motorists may have to wait for more than one green phase to clear the intersection) can occur. Conditions at LOS E and F reflect poor service levels, and cycle breakdowns are frequent. The HCM methodology also provides for a summary of the total intersection operating conditions. The analysis chooses the two critical movements (the worst case from each roadway) and calculates a summary critical v/c ratio. The overall intersection delay, which determines the intersection's LOS, is based on a weighted average of control delays of the individual lane groups. Within New York City, the midpoint of LOS D (45 seconds of delay) is generally considered as the threshold between acceptable and unacceptable operations.

Significant Impact Criteria

According to the criteria presented in the *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the Build

condition of 5 or more seconds of delay in a lane group over No Build levels beyond mid-LOS D. For No Build LOS E, a 4-second increase in delay is considered significant. For No Build LOS F, a 3-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Build condition to marginally unacceptable LOS D (a delay in excess of 45 seconds, the midpoint of LOS D), or unacceptable LOS E or F in the future Build condition.

UNSIGNALIZED INTERSECTIONS

For unsignalized intersections, the average control delay is defined as the total elapsed time from which a vehicle stops at the end of the queue until the vehicle departs from the stop line. This includes the time required for the vehicle to travel from the last-in-queue to the first-in-queue position. The average control delay for any particular minor movement is a function of the service rate or capacity of the approach and the degree of saturation. The LOS criteria for unsignalized intersections are summarized in **Table 7-8**.

Table 7-8
LOS Criteria for Unsignalized Intersections

LOS	Average Control Delay
A	≤ 10.0 seconds
B	> 10.0 and ≤ 15.0 seconds
C	> 15.0 and ≤ 25.0 seconds
D	> 25.0 and ≤ 35.0 seconds
E	> 35.0 and ≤ 50.0 seconds
F	> 50.0 seconds

Source: Transportation Research Board. *Highway Capacity Manual*, 2000.

The LOS thresholds for unsignalized intersections are different from those for signalized intersections. The primary reason is that drivers expect different levels of performance from different types of transportation facilities. The expectation is that a signalized intersection is designed to carry higher traffic volumes than an unsignalized intersection; hence, the corresponding control delays are higher at a signalized intersection than at an unsignalized intersection for the same LOS. In addition, certain driver behavioral considerations combine to make delays at signalized intersections less onerous than at unsignalized intersections. For example, drivers at signalized intersections are able to relax during the red interval, whereas drivers on minor approaches to unsignalized intersections must remain attentive to the task of identifying acceptable gaps and vehicle conflicts. Also, there is often much more variability in the amount of delay experienced by individual drivers at unsignalized intersections. For these reasons, the corresponding delay thresholds for unsignalized intersections are lower than those of signalized intersections. As with signalized intersections, within New York City, the midpoint of LOS D (30 seconds of delay) is generally perceived as the threshold between acceptable and unacceptable operations.

Significant Impact Criteria

The same sliding scale of significant delays described for signalized intersections applies for unsignalized intersections. For the minor street to trigger significant impacts, at least 90 passenger car equivalents (PCE) must be identified in the future Build condition in any peak hour.

TRANSIT OPERATIONS

SUBWAY STATION ELEMENTS

The methodology for assessing station circulation (stairs, escalators, and passageways) and fare control (regular turnstiles, high entry/exit turnstiles, and high exit turnstiles) elements compares the user volume with the analyzed element's design capacity, resulting in a volume-to-capacity (v/c) ratio.

For stairs, the design capacity considers the effective width of a tread, which accounts for railings or other obstructions, the friction or counter-flow between upward and downward pedestrians (up to 10 percent capacity reduction applied to account for counter-flow friction), surging of exiting pedestrians (up to 25 percent capacity reduction applied to account for detraining surges near platforms), and the average area required for circulation. For passageways, similar considerations are made. For escalators and turnstiles, capacities are measured by the number and width of an element and the New York City Transit (NYCT optimum capacity per element, also account for the potential for surging of exiting pedestrians. In the analysis for each of these elements, volumes and capacities are presented for 15-minute intervals.

The estimated v/c ratio is compared with NYCT criteria to determine a Level of Service (LOS) for the operation of an element, as summarized in **Table 7-9**.

Table 7-9
LOS Criteria for Subway Station Elements

LOS	V/C Ratio
A	0.00 to 0.45
B	0.45 to 0.70
C	0.70 to 1.00
D	1.00 to 1.33
E	1.33 to 1.67
F	Above 1.67

Source: *CEQR Technical Manual* (January 2012).

At LOS A ("free flow") and B ("fluid flow"), there is sufficient area to allow pedestrians to freely select their walking speed and bypass slower pedestrians. When cross and reverse flow movement exists, only minor conflicts may occur. At LOS C ("fluid, somewhat restricted"), movement is fluid although somewhat restricted. While there is sufficient room for standing without personal contact, circulation through queuing areas may require adjustments to walking speed. At LOS D ("crowded, walking speed restricted"), walking speed is restricted and reduced. Reverse and cross flow movement is severely restricted because of congestion and the difficult passage of slower moving pedestrians. At LOS E ("congested, some shuffling and queuing") and F ("severely congested, queued"), walking speed is restricted. There is also insufficient area to bypass others, and opposing movement is difficult. Often, forward progress is achievable only through shuffling, with queues forming.

Significant Impact Criteria

The determination of significant impacts for station elements varies based on their type and use. For stairs and passageways, significant impacts are defined in term of Width Increment Threshold (WIT) based on the minimum amount of additional capacity that would be required either to mitigate the location to its LOS under the future No Build levels, or to bring it to a v/c

ratio of 1.00 (LOS C/D), whichever is greater. Significant impacts are typically considered to occur once the WITs in **Table 7-10** are reached or exceeded.

Table 7-10
Significant Impact Guidance for Stairs and Passageways

With Action V/C Ratio	WIT for Significant Impact (inches)	
	Stairway	Passageway
1.00 to 1.09	8.0	13.0
1.10 to 1.19	7.0	11.5
1.20 to 1.29	6.0	10.0
1.30 to 1.39	5.0	8.5
1.40 to 1.49	4.0	6.0
1.50 to 1.59	3.0	4.5
1.60 and up	2.0	3.0

Notes: WIT = Width Increment Threshold
Sources: *CEQR Technical Manual* (January 2012).

For escalators and control area elements, impacts are significant if the proposed action causes a v/c ratio to increase from below 1.00 to 1.00 or greater. Where a facility is already at or above its capacity (a v/c of 1.00 or greater) in the No Build condition, a 0.01 increase in v/c ratio is also significant.

SUBWAY AND BUS LINE HAUL CAPACITIES

As per the *CEQR Technical Manual*, line-haul capacities are evaluated when a proposed action is anticipated to generate a perceptible number of passengers on particular subway and bus routes. For subways, if a subway line is expected to incur 200 or more passengers in one direction of travel during the commuter peak hours, a detailed review of ridership level at its maximum load point and/or other project-specific load points would be required to determine if the route's guideline (or practical) capacity would be exceeded. NYCT operates six different types of subway cars with different seating and guideline capacities. The peak period guideline capacity of a subway car, which ranges from 110 to 175 passengers, is compared with ridership levels to determine the acceptability of conditions.

Bus line-haul capacities are evaluated when a proposed action is anticipated to generate 50 or more bus passengers to a single bus line in one direction. The assessment of bus line-haul conditions involves analyzing bus routes at their peak load points and, if necessary, also their bus stops closest to the project site to identify the potential for the analyzed routes to exceed their guideline (or practical) capacities. NYCT and the MTA Bus Company operate three types of buses: standard and articulated buses, and over-the-road coaches. During peak hours, standard buses operate with up to 54 passengers per bus, articulated buses operate with up to 85 passengers per bus, and over-the-road coaches operate with up to 55 passengers per bus.

Significant Impact Criteria

For subways, projected increases from the No Build condition within guideline capacity to a With Action condition that exceeds guideline capacity may be a significant impact if the proposed project is generating five more transit riders per car. Since there are constraints on what service improvements are available to NYCT, significant line-haul capacity impacts on subway routes are generally disclosed but would usually remain unmitigated. For buses, an increase in bus load levels greater than the maximum capacity at any load point is defined as a potential significant adverse impact. While subject to operational and fiscal constraints, bus

impacts can typically be mitigated by increasing service frequency. Therefore, mitigation of bus line-haul capacity impacts, where appropriate, would be recommended for NYCT's approval.

PEDESTRIAN OPERATIONS

The adequacy of the study area's sidewalks, crosswalks, and corner reservoir capacities in relation to the demand imposed on them is evaluated based on the methodologies presented in the 2010 HCM, pursuant to procedures detailed in the *CEQR Technical Manual*.

Sidewalks are analyzed in terms of pedestrian flow. The calculation of the average pedestrians per minute per foot (PMF) of effective walkway width is the basis for a sidewalk LOS analysis. The determination of walkway LOS is also dependent on whether the pedestrian flow being analyzed is best described as "non-platoon" or "platoon." Non-platoon flow occurs when pedestrian volume within the peak 15-minute period is relatively uniform, whereas, platoon flow occurs when pedestrian volumes vary significantly with the peak 15-minute period. Such variation typically occurs near bus stops, subway stations, and/or where adjacent crosswalks account for much of the walkway's pedestrian volume.

Crosswalks and street corners are not easily measured in terms of free pedestrian flow, as they are influenced by the effects of traffic signals. Street corners must be able to provide sufficient space for a mix of standing pedestrians (queued to cross a street) and circulating pedestrians (crossing the street or moving around the corner). The HCM methodologies apply a measure of time and space availability based on the area of the corner, the timing of the intersection signal, and the estimated space used by circulating pedestrians.

The total "time-space" available for these activities, expressed in sf-second, is calculated by multiplying the net area of the corner (in sf) by the signal's cycle length. The analysis then determines the total circulation time for all pedestrian movements at the corner per signal cycle (expressed as pedestrians per second). The ratio of net time-space divided by the total pedestrian circulation volume per signal cycle provides the LOS measurement of sf per pedestrian (SFP).

Crosswalk LOS is also a function of time and space. Similar to the street corner analysis, crosswalk conditions are first expressed as a measurement of the available area (the crosswalk width multiplied by the width of the street) and the permitted crossing time. This measure is expressed in sf-second. The average time required for a pedestrian to cross the street is calculated based on the width of the street and an assumed walking speed. The ratio of time-space available in the crosswalk to the total crosswalk pedestrian occupancy time is the LOS measurement of available sf per pedestrian. The LOS analysis also accounts for vehicular turning movements that traverse the crosswalk. The LOS standards for sidewalks, corner reservoirs, and crosswalks are summarized in **Table 7-11**. The *CEQR Technical Manual* specifies acceptable LOS in Central Business District (CBD) areas is mid-LOS D or better.

The determination of significant pedestrian impacts considers the level of predicted deterioration in pedestrian flow or decrease in pedestrian space between the No Build and Build conditions. For different pedestrian elements, flow conditions, and area types, the CEQR procedure for impact determination corresponds with various sliding-scale formulas, as further detailed below.

Table 7-11
Level of Service Criteria for Pedestrian Elements

LOS	Sidewalks		Corner Reservoirs and Crosswalks
	Non-Platoon Flow	Platoon Flow	
A	≤ 5 PMF	≤ 0.5 PMF	> 60 SFP
B	> 5 and ≤ 7 PMF	> 0.5 and ≤ 3 PMF	> 40 and ≤ 60 SFP
C	> 7 and ≤ 10 PMF	> 3 and ≤ 6 PMF	> 24 and ≤ 40 SFP
D	> 10 and ≤ 15 PMF	> 6 and ≤ 11 PMF	> 15 and ≤ 24 SFP
E	> 15 and ≤ 23 PMF	> 11 and ≤ 18 PMF	> 8 and ≤ 15 SFP
F	> 23 PMF	> 18 PMF	≤ 8 SFP

Notes: PMF = pedestrians per minute per foot; SFP = square feet per pedestrian.
Source: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

There are two sliding-scale formulas for determining significant sidewalk impacts. For non-platoon flow, the increase in average pedestrian flow rate (Y) in PMF needs to be greater or equal to 3.5 minus X divided by 8.0 (where X is the No Build pedestrian flow rate in PMF [$Y \geq 3.5 - X/8.0$]) for it to be a significant impact. For platoon flow, the sliding-scale formula is $Y \geq 3.0 - X/8.0$. Since deterioration in pedestrian flow within acceptable levels would not constitute a significant impact, these formulas would apply only if the Build pedestrian flow exceeds LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 7-12** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 7-12
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: ***Y ≥ 3.5 – X/8.0***				**Sliding Scale Formula:** ***Y ≥ 3.0 – X/8.0***			
Non-CBD Areas		CBD Areas		Non-CBD Areas		CBD Areas	
No Build Ped. Flow (X, PMF)	Build Ped. Flow Incr. (Y, PMF)	No Build Ped. Flow (X, PMF)	Build Ped. Flow Incr. (Y, PMF)	No Build Ped. Flow (X, PMF)	Build Ped. Flow Incr. (Y, PMF)	No Build Ped. Flow (X, PMF)	Build Ped. Flow Incr. (Y, PMF)
7.5 to 7.8	≥ 2.6	–	–	3.5 to 3.8	≥ 2.6	–	–
7.9 to 8.6	≥ 2.5	–	–	3.9 to 4.6	≥ 2.5	–	–
8.7 to 9.4	≥ 2.4	–	–	4.7 to 5.4	≥ 2.4	–	–
9.5 to 10.2	≥ 2.3	–	–	5.5 to 6.2	≥ 2.3	–	–
10.3 to 11.0	≥ 2.2	10.4 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.4 to 7.0	≥ 2.2
11.1 to 11.8	≥ 2.1	11.1 to 11.8	≥ 2.1	7.1 to 7.8	≥ 2.1	7.1 to 7.8	≥ 2.1
11.9 to 12.6	≥ 2.0	11.9 to 12.6	≥ 2.0	7.9 to 8.6	≥ 2.0	7.9 to 8.6	≥ 2.0
12.7 to 13.4	≥ 1.9	12.7 to 13.4	≥ 1.9	8.7 to 9.4	≥ 1.9	8.7 to 9.4	≥ 1.9
13.5 to 14.2	≥ 1.8	13.5 to 14.2	≥ 1.8	9.5 to 10.2	≥ 1.8	9.5 to 10.2	≥ 1.8
14.3 to 15.0	≥ 1.7	14.3 to 15.0	≥ 1.7	10.3 to 11.0	≥ 1.7	10.3 to 11.0	≥ 1.7
15.1 to 15.8	≥ 1.6	15.1 to 15.8	≥ 1.6	11.1 to 11.8	≥ 1.6	11.1 to 11.8	≥ 1.6
15.9 to 16.6	≥ 1.5	15.9 to 16.6	≥ 1.5	11.9 to 12.6	≥ 1.5	11.9 to 12.6	≥ 1.5
16.7 to 17.4	≥ 1.4	16.7 to 17.4	≥ 1.4	12.7 to 13.4	≥ 1.4	12.7 to 13.4	≥ 1.4
17.5 to 18.2	≥ 1.3	17.5 to 18.2	≥ 1.3	13.5 to 14.2	≥ 1.3	13.5 to 14.2	≥ 1.3
18.3 to 19.0	≥ 1.2	18.3 to 19.0	≥ 1.2	14.3 to 15.0	≥ 1.2	14.3 to 15.0	≥ 1.2
19.1 to 19.8	≥ 1.1	19.1 to 19.8	≥ 1.1	15.1 to 15.8	≥ 1.1	15.1 to 15.8	≥ 1.1
19.9 to 20.6	≥ 1.0	19.9 to 20.6	≥ 1.0	15.9 to 16.6	≥ 1.0	15.9 to 16.6	≥ 1.0
20.7 to 21.4	≥ 0.9	20.7 to 21.4	≥ 0.9	16.7 to 17.4	≥ 0.9	16.7 to 17.4	≥ 0.9
21.5 to 22.2	≥ 0.8	21.5 to 22.2	≥ 0.8	17.5 to 18.2	≥ 0.8	17.5 to 18.2	≥ 0.8
22.3 to 23.0	≥ 0.7	22.3 to 23.0	≥ 0.7	18.3 to 19.0	≥ 0.7	18.3 to 19.0	≥ 0.7
> 23.0	≥ 0.6	> 23.0	≥ 0.6	> 19.0	≥ 0.6	> 19.0	≥ 0.6

Notes: PMF = pedestrians per minute per foot; Y = increase in average pedestrian flow rate in PMF; X = No Build pedestrian flow rate in PMF.
Sources: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.

The determination of significant corner and crosswalk impacts is also based on a sliding scale using the following formula: $Y \geq X/9.0 - 0.3$, where Y is the decrease in pedestrian space in SFP and X is the No Build pedestrian space in SFP. Since a decrease in pedestrian space within

acceptable levels would not constitute a significant impact, this formula would apply only if the Build pedestrian space falls short of LOS C in non-CBD areas or mid-LOS D in CBD areas. **Table 7-13** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

Table 7-13
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: *Y ≥ X/9.0 – 0.3*			
Non-CBD Areas		**CBD Areas**	
No Build Pedestrian Space (X, SFP)	**Build Pedestrian Space Reduction (Y, SFP)**	**No Build Pedestrian Space (X, SFP)**	**Build Pedestrian Space Reduction (Y, SFP)**
25.8 to 26.6	≥ 2.6	–	–
24.9 to 25.7	≥ 2.5	–	–
24.0 to 24.8	≥ 2.4	–	–
23.1 to 23.9	≥ 2.3	–	–
22.2 to 23.0	≥ 2.2	–	–
21.3 to 22.1	≥ 2.1	21.3 to 21.5	≥ 2.1
20.4 to 21.2	≥ 2.0	20.4 to 21.2	≥ 2.0
19.5 to 20.3	≥ 1.9	19.5 to 20.3	≥ 1.9
18.6 to 19.4	≥ 1.8	18.6 to 19.4	≥ 1.8
17.7 to 18.5	≥ 1.7	17.7 to 18.5	≥ 1.7
16.8 to 17.6	≥ 1.6	16.8 to 17.6	≥ 1.6
15.9 to 16.7	≥ 1.5	15.9 to 16.7	≥ 1.5
15.0 to 15.8	≥ 1.4	15.0 to 15.8	≥ 1.4
14.1 to 14.9	≥ 1.3	14.1 to 14.9	≥ 1.3
13.2 to 14.0	≥ 1.2	13.2 to 14.0	≥ 1.2
12.3 to 13.1	≥ 1.1	12.3 to 13.1	≥ 1.1
11.4 to 12.2	≥ 1.0	11.4 to 12.2	≥ 1.0
10.5 to 11.3	≥ 0.9	10.5 to 11.3	≥ 0.9
9.6 to 10.4	≥ 0.8	9.6 to 10.4	≥ 0.8
8.7 to 9.5	≥ 0.7	8.7 to 9.5	≥ 0.7
7.8 to 8.6	≥ 0.6	7.8 to 8.6	≥ 0.6
6.9 to 7.7	≥ 0.5	6.9 to 7.7	≥ 0.5
6.0 to 6.8	≥ 0.4	6.0 to 6.8	≥ 0.4
5.1 to 5.9	≥ 0.3	5.1 to 5.9	≥ 0.3
< 5.1	≥ 0.2	< 5.1	≥ 0.2
Notes:	SFP = square feet per pedestrian; Y = decrease in pedestrian space in SFP; X = No Build pedestrian space in SFP.		
Sources:	New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual*.		

The proposed project is located in a CBD area. Therefore, the above CBD area significant impact guidelines for pedestrian elements would be applicable.

PARKING CONDITIONS ASSESSMENT

The parking analysis identifies the extent to which off-street parking is available and utilized under existing and future conditions. It takes into consideration anticipated changes in area parking supply and provides a comparison of parking needs versus availability to determine if a parking shortfall is likely to result from parking displacement attributable to or additional demand generated by a proposed action. Typically, this analysis encompasses a study area within ¼ mile of the project site. If the analysis concludes a shortfall in parking within the ¼-mile study area, the study area could sometimes be extended to ½ mile (reasonable for certain uses, such as amusement parks, arenas, beaches, and other recreational facilities) to identify additional parking supply.

Outside of Manhattan, and areas in the South Bronx, Flushing, Jamaica, Long Island City/Astoria, Downtown Brooklyn, and Greenpoint/Williamsburg, a parking shortfall that exceeds more than half the available on-street and off-street parking spaces within ¼ mile of the project site may be considered significant. Additional factors, such as the availability and extent of transit in the area, proximity of the project to such transit, and patterns of automobile usage by

area residents, could be considered to determine significance of the identified parking shortfall. In some cases, if there is adequate parking supply within ½ mile of the project site, the projected parking shortfall may also not necessarily be considered significant.

VEHICULAR AND PEDESTRIAN SAFETY EVALUATION

An evaluation of vehicular and pedestrian safety is necessary for locations within the traffic and pedestrian study areas that have been identified as high crash locations where 48 or more total reportable and non-reportable crashes or five or more pedestrian/bicyclist injury crashes occurred in any consecutive 12 months of the most recent three-year period for which data are available. For these locations, crash trends would be identified to determine whether projected vehicular and pedestrian traffic would further impact safety at these locations or whether existing unsafe conditions could adversely impact the flow of the projected new trips. The determination of potential significant safety impacts depends on the type of area where the project site is located, traffic volumes, crash types and severity, and other contributing factors. Where appropriate, measures to improve traffic and pedestrian safety should be identified and coordinated with NYCDOT.

F. TRAFFIC

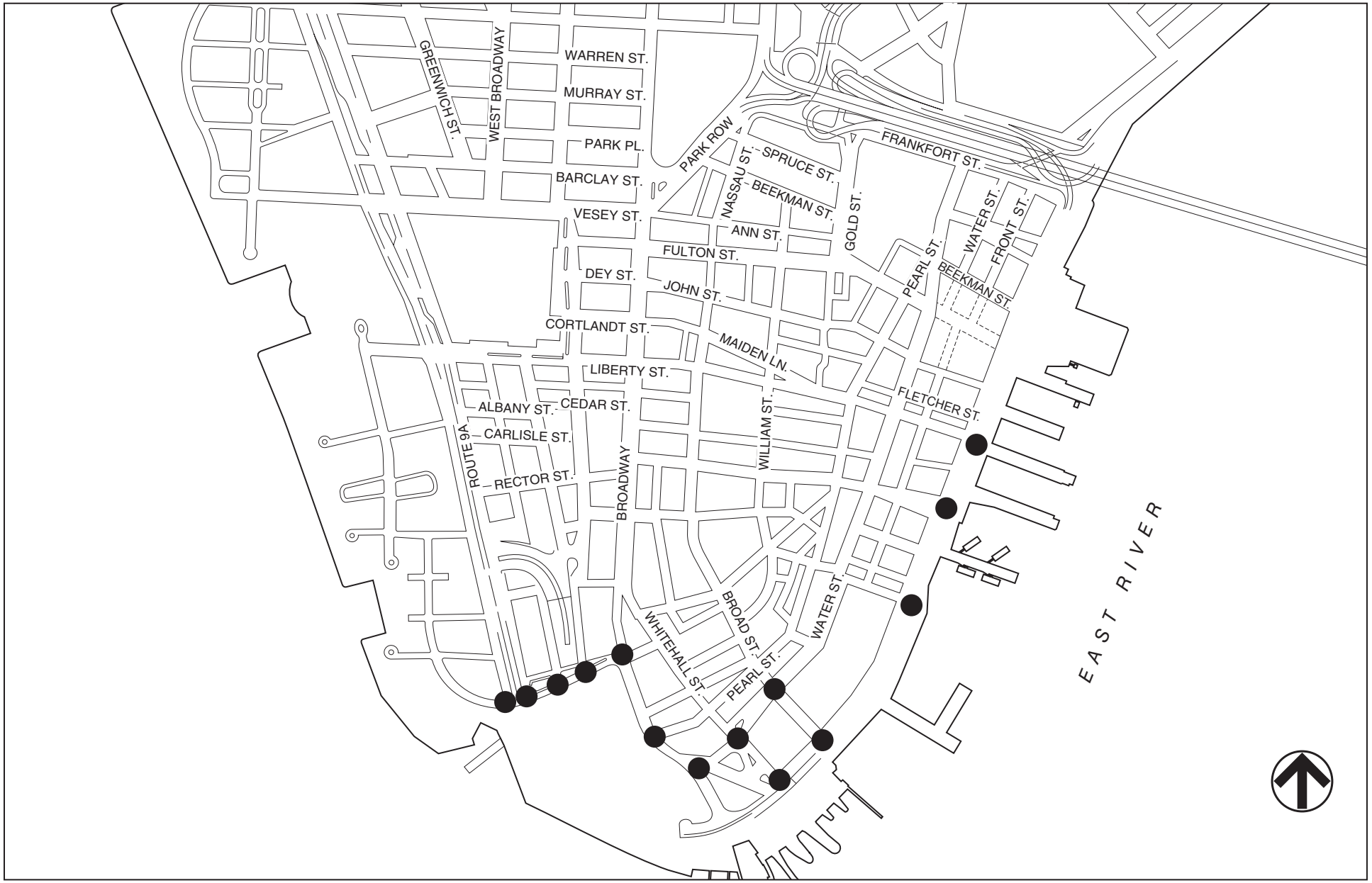
2012 EXISTING CONDITIONS

ROADWAY NETWORK

To assess the potential traffic impacts associated with the development of the project, 14 key intersections near the BMB ferry portal and seven key intersections near the Pier 6 ferry portal were identified that would most likely be affected by the project-generated traffic (see **Figures 7-17 and 7-18**). The intersections are:

Manhattan

- Battery Place and West Street Northbound (signalized)
- Battery Place and West Street Southbound (signalized)
- Battery Place and Washington Street (signalized)
- Battery Place and Greenwich Street (signalized)
- Battery Place and Broadway (signalized)
- Pearl Street and State Street (signalized)
- Peter Minuit Plaza and State Street (signalized)
- Whitehall Street and Water Street (signalized)
- Broad Street and Water Street (signalized)
- South Street and Whitehall Street (signalized)
- South Street and Broad Street (unsignalized)
- South Street and Old Slip (signalized)
- South Street and Wall Street (signalized)
- South Street and Maiden Lane (signalized)



● *Intersections Analyzed*

NOT TO SCALE

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

BMB Study Area–Manhattan
Figure 7-17

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 Study Area–Brooklyn
Figure 7-18

Brooklyn

- Joralemon Street and Court Street (signalized)
- Joralemon Street and Furman Street (signalized)
- Atlantic Avenue and Court Street (signalized)
- Atlantic Avenue and Brooklyn-Queens Expressway eastbound ramps (signalized)
- Atlantic Avenue and Columbia Street (signalized)
- Atlantic Avenue and Furman Street (signalized)
- Brooklyn-Queens Expressway westbound ramps and Columbia Street (signalized)

Major roadways in the study area are discussed as follows:

Manhattan

- South Street is a two-way, north-south arterial, located beneath and alongside the Franklin Delano Roosevelt (FDR) Drive. It generally aligns northeast to southwest and intersects with Old Slip, Broad, and Whitehall Streets. South of Old Slip, the north and south traffic flows are separated by the FDR Drive, which transitions from the Battery Park Underpass to an elevated highway at Old Slip. The roadway varies between one and three traffic lanes in each direction with curbside parking or bus storage along certain segments.
- Water Street is a two-way, north-south roadway extending from Whitehall Street to the south to the Brooklyn Bridge to the north. It generally contains two traffic lanes with adjacent parking in each direction.
- State Street is a two-way, east-west roadway extending from Whitehall Street to Battery Place. It generally contains two traffic lanes in each direction.
- Battery Place is a two-way, east-west roadway and varies in width from one to two lanes in each direction, with curbside tour bus layover zones.
- Broad Street is a two-way roadway, aligned in a general northwest to southeast direction through the study area, crosses Water Street at a signalized intersection, and terminates at a stop-controlled T-intersection at South Street. The roadway varies in width from one to two lanes in each direction, with curbside taxi stands and bus layover zones.
- Whitehall Street aligns in a northwest to southeast direction. It operates one-way westbound only with two traffic lanes between Water and South Streets.

Brooklyn

- Atlantic Avenue is a two-way, east-west arterial extending from the Brooklyn-Queens Expressway to the west to the Van Wyck Expressway to the east. In the study area, Atlantic Avenue contains two traffic lanes with adjacent parking in each direction.
- Court Street is a one-way roadway with two southbound traffic lanes and curbside parking on both sides of the street.
- Joralemon Street is a one-way, westbound street extending from Courts Street to the east to Pier 6 to the west. Joralemon Street provides one travel lane and curbside parking on both sides of the street.
- Furman Street is a two-way, north-south street extending from Cadman Plaza West to the north to Atlantic Avenue to the south. Furman Street provides one travel lane in each direction and runs parallel to the Brooklyn-Queens Expressway.

- Columbia Street is a two-way, north-south street extending from Atlantic Avenue to the north to Gowanus Bay to the south. The roadway varies in width from one to two lanes in each direction, with curbside parking permitted in certain locations.

TRAFFIC CONDITIONS

Existing traffic volumes for the Manhattan study area intersections are based on field counts conducted in April 2011 and September 2012. In Brooklyn, all seven intersections were counted in September 2012. Inventories of roadway geometry, traffic controls, bus stops, and parking regulations/activities were also recorded to provide appropriate inputs for the operational analyses. In addition, official signal timings obtained from DOT were used in the analysis for all of the signalized intersections. **Figures 7-19** to **7-25** show the existing traffic volumes for the AM, midday, and PM peak hours.

LEVELS OF SERVICE

Tables 7-14 and **7-15** present the service conditions for the signalized and unsignalized intersections analyzed for the Manhattan and Brooklyn traffic study areas.

The capacity analysis indicates that most of the study area intersection approaches/lane groups operate acceptably—at mid-LOS D (delay of 45 seconds or less for signalized intersections and 30 seconds or less for unsignalized intersections) or better for the peak hours except for the following approaches/lane groups:

- Eastbound approach at Whitehall Street and Water Street intersection (LOS E with 64.8 seconds of delay and LOS D with 53.5 seconds of delay during the AM and Saturday peak hour, respectively);
- Northbound approach at Broad Street and Water Street intersection (LOS D with 45.2 seconds of delay during the AM and midday peak hours);
- Westbound approach at the Old Slip and South Street intersection (LOS D with 51.1 seconds of delay during the PM peak hour);
- Eastbound approach at the State Street and Peter Minuit Plaza intersection (LOS D with 47.6 seconds, 45.1 seconds, 48.4 seconds of delay and 48.4 seconds of delay during the AM, midday, PM and Saturday peak hours, respectively); and
- Southbound shared left/right-turn at the South Street and Wall Street intersection (LOS F with 83.5 seconds of delay, LOS F with 83.4 seconds of delay, LOS F with 103.5 seconds of delay, and LOS E with 59.4 seconds of delay during the AM, midday, PM, and Saturday peak hour, respectively).

NOT TO SCALE

BMB 2012 Existing Traffic Volumes
Weekday AM Peak Hour
Figure 7-19

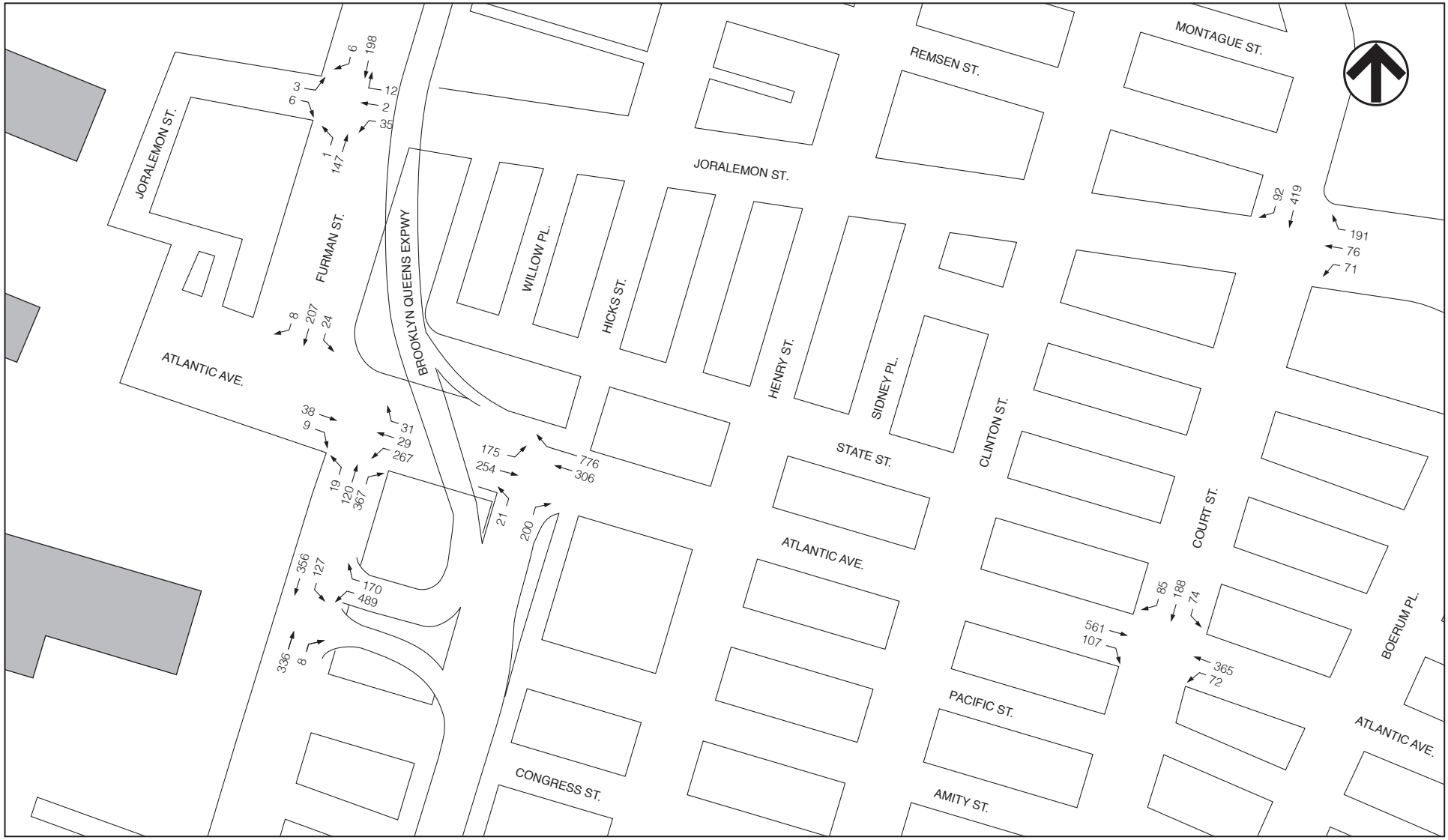
BMB 2012 Existing Traffic Volumes
Weekday Midday Peak Hour
Figure 7-20

NOT TO SCALE

BMB 2012 Existing Traffic Volumes
Weekday PM Peak Hour
Figure 7-21

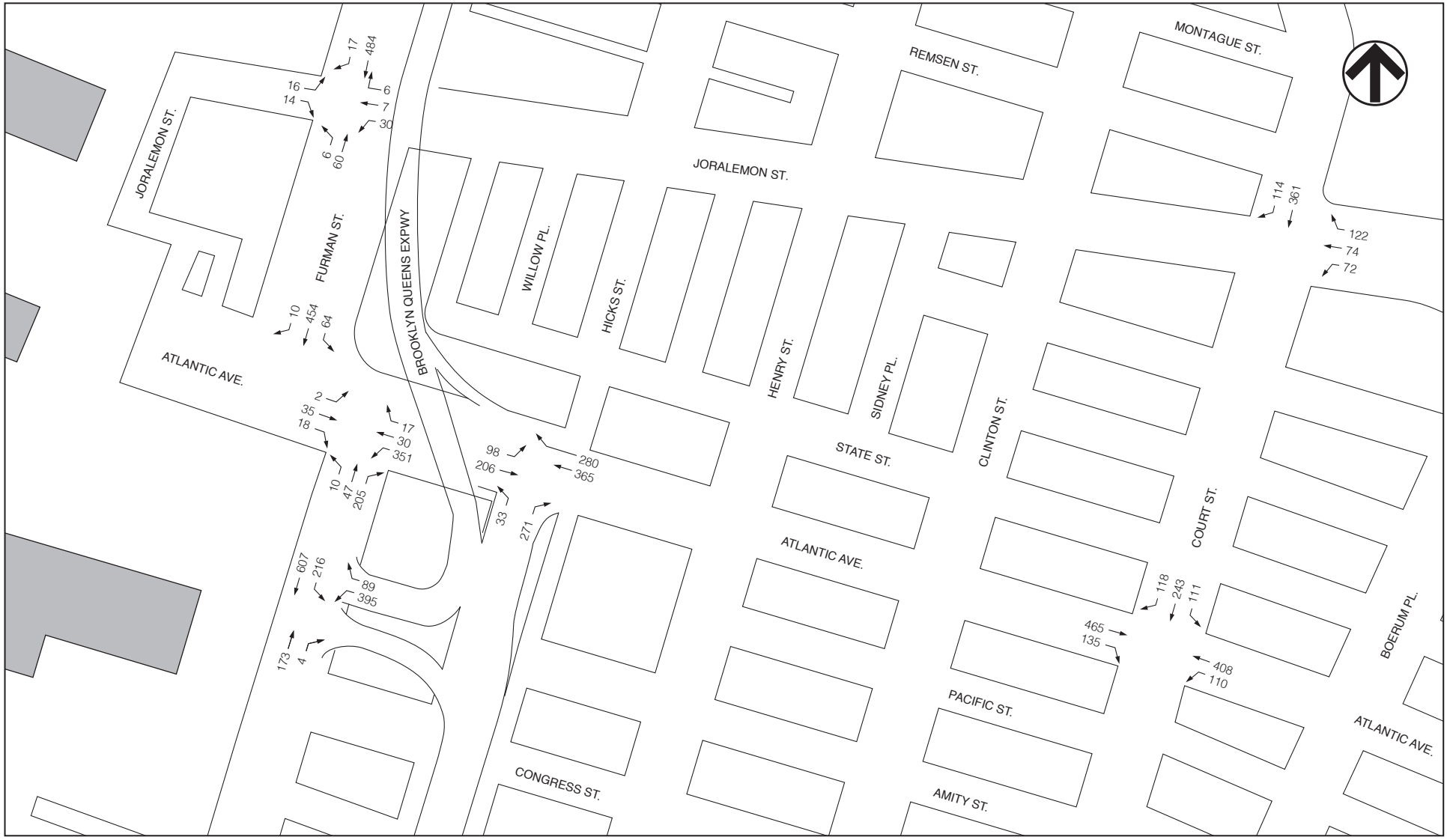
NOT TO SCALE

BMB 2012 Existing Traffic Volumes
Saturday Peak Hour
Figure 7-22



NOT TO SCALE

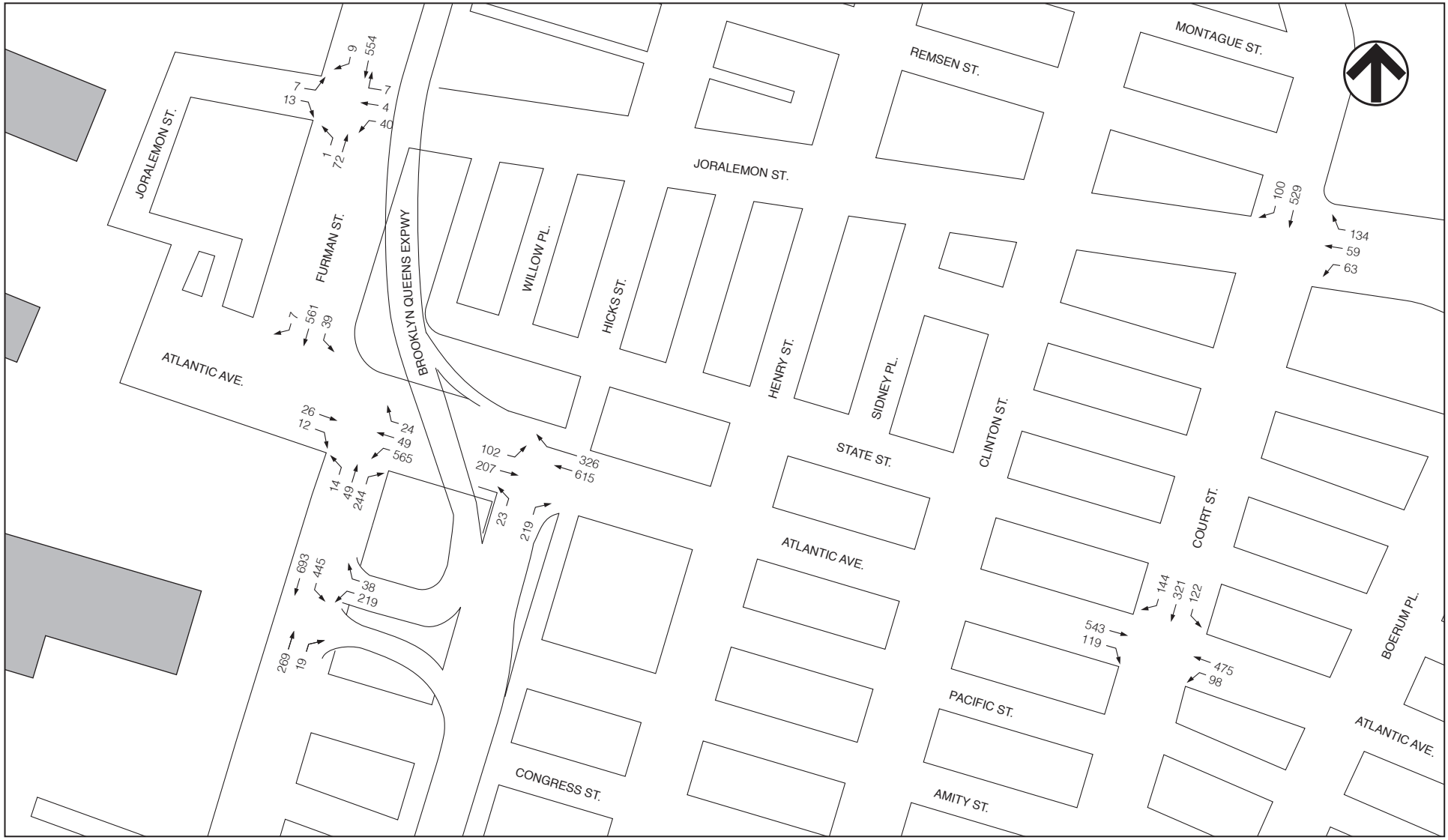
Pier 6 2012 Existing Traffic Volumes
Weekday AM Peak Hour
Figure 7-23



NOT TO SCALE

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 2012 Existing Traffic Volumes
Weekday Midday Peak Hour
Figure 7-24



NOT TO SCALE

Pier 6 2012 Existing Traffic Volumes
Weekday PM Peak Hour
Figure 7-25

Table 7-14
2012 Existing Conditions Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Battery Place and Broadway																
Eastbound	T	0.74	35.0	C	T	0.40	27.2	C	T	0.33	24.1	C	T	0.54	29.5	C
Westbound	T	0.82	39.3	D	T	0.76	35.3	D	T	0.75	33.3	C	T	0.81	38.6	D
Southbound	T	0.20	23.6	C	T	0.20	23.7	C	T	0.17	25.5	C	T	0.27	24.7	C
	R	0.48	29.3	C	R	0.41	27.6	C	R	0.65	38.0	D	R	0.41	27.5	C
	Intersection		35.4	D	Intersection		31.3	C	Intersection		31.4	C	Intersection		33.1	C
Pearl Street and State Street																
Westbound	L	0.19	21.6	C	L	0.18	21.4	C	L	0.19	21.5	C	L	0.26	22.7	C
	R	0.47	26.9	C	R	0.47	26.6	C	R	0.38	24.7	C	R	0.63	32.2	C
Northbound	T	0.32	11.8	B	T	0.29	11.5	B	T	0.27	11.3	B	T	0.28	11.4	B
Southbound	T	0.41	12.9	B	T	0.32	11.9	B	T	0.27	11.4	B	T	0.44	13.4	B
	Intersection		14.9	B	Intersection		14.9	B	Intersection		14.3	B	Intersection		16.6	B
Whitehall Street and Water Street																
Eastbound	LT	1.01	64.8	E	LT	0.81	36.1	D	LT	0.80	34.3	C	LT	0.95	53.5	D
Westbound	TR	0.61	27.6	C	TR	0.39	22.4	C	TR	0.55	25.4	C	TR	0.42	22.9	C
Northbound	L	0.55	35.7	D	L	0.72	43.1	D	L	0.48	34.2	C	L	0.51	34.6	C
	TR	0.34	30.3	C	TR	0.26	29.1	C	TR	0.35	31.4	C	TR	0.37	30.9	C
	Intersection		47.4	D	Intersection		34.2	C	Intersection		31.5	C	Intersection		41.1	D
Broad Street and Water Street																
Eastbound	LTR	0.75	20.8	C	LTR	0.56	15.8	B	LTR	0.71	22.4	C	LTR	0.79	28.5	C
Westbound	LTR	0.82	29.8	C	LTR	0.40	14.0	B	LTR	0.58	20.3	C	LTR	0.56	22.9	C
Northbound	LT	0.41	24.5	C	LTR	0.83	45.2	D	LTR	0.74	34.4	C	LTR	0.22	16.1	B
	R	0.77	45.2	D	-	-	-	-	-	-	-	-	-	-	-	-
Southbound	LTR	0.65	35.4	D	LTR	0.66	34.1	C	LTR	0.51	25.4	C	LTR	0.67	26.7	C
	Intersection		27.6	C	Intersection		26.0	C	Intersection		25.0	C	Intersection		25.6	C
South Street and Whitehall Street																
Westbound	R	0.18	0.2	A	R	0.13	0.1	A	R	0.11	0.1	A	R	0.14	0.1	A
	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A
South Street and Broad Street (unsignalized)																
Southbound	R	0.35	10.6	B	R	034	9.7	A	R	0.39	11.1	B	R	0.29	8.7	A
	Intersection		10.6	B	Intersection		9.7	A	Intersection		11.1	B	Intersection		8.7	A
South Street and Old Slip																
Westbound	TR	0.76	38.6	D	TR	0.79	40.9	D	TR	0.89	51.1	D	TR	0.65	32.7	C
Northbound	L	0.34	25.0	C	L	0.14	22.2	C	L	0.15	22.3	C	L	0.13	22.1	C
	TR	0.87	44.7	D	TR	0.66	32.5	C	TR	0.40	25.9	C	TR	0.39	26.0	C
Southbound	R	0.23	23.7	C	R	0.35	25.8	C	R	0.46	28.1	C	R	0.22	23.5	C
	Intersection		38.0	D	Intersection		34.0	C	Intersection		37.6	D	Intersection		28.5	C
Battery Place and West Street (Southbound)																
Eastbound	T	0.75	40.0	D	T	0.28	26.4	C	T	0.29	26.4	C	T	0.49	30.2	C
Westbound	T	0.55	32.1	C	T	0.38	28.2	C	T	0.48	30.2	C	T	0.39	28.2	C
Southbound	L	0.60	31.3	C	L	0.56	29.8	C	L	0.25	23.3	C	L	0.28	23.5	C
	LR	0.67	34.4	C	LR	0.64	32.4	C	LR	0.44	26.8	C	LR	0.46	26.7	C
	Intersection		34.9	C	Intersection		29.9	C	Intersection		27.3	C	Intersection		27.5	C
Battery Place and West Street (Northbound)																
Eastbound	LT	0.36	0.4	A	LT	0.33	0.4	A	LT	0.16	0.2	A	LT	0.19	0.2	A
Westbound	T	0.17	0.3	A	T	0.11	0.2	A	T	0.16	0.3	A	T	0.12	0.2	A
	R	0.31	0.5	A	R	0.34	0.6	A	R	0.42	0.9	A	R	0.28	0.4	A
	Intersection		0.4	A	Intersection		0.4	A	Intersection		0.6	A	Intersection		0.3	A
Battery Place and Washington Street																
Eastbound	T	0.54	13.3	B	T	0.24	9.7	A	T	0.21	9.4	A	T	0.23	9.6	A
Westbound	T	0.49	12.3	B	T	0.42	11.4	B	T	0.52	12.8	B	T	0.34	10.6	B
Southbound	LR	0.23	24.9	C	LR	0.15	23.6	C	LR	0.3	26.0	C	LR	0.18	23.9	C
	Intersection		13.3	B	Intersection		11.3	B	Intersection		12.9	B	Intersection		10.9	B
Battery Place and Greenwich Street																
Eastbound	L	0.59	21.3	C	L	0.34	12.1	B	L	0.30	11.8	B	L	0.35	11.9	B
	T	0.43	10.1	B	T	0.20	8.0	A	T	0.19	7.9	A	T	0.19	8.0	A
Westbound	TR	0.39	9.5	A	TR	0.40	9.5	A	TR	0.40	9.5	A	TR	0.33	8.9	A
	Intersection		10.8	B	Intersection		9.3	A	Intersection		9.3	A	Intersection		8.9	A

Table 7-14 (cont'd)
2012 Existing Conditions Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
State Street and Peter Minuit Plaza																
Eastbound	LR	0.36	47.6	D	LR	0.33	45.1	D	LR	0.34	48.4	D	LR	0.34	48.4	D
Northbound	LT	0.44	15.9	B	LT	0.35	14.8	B	LT	0.37	15.2	B	LT	0.35	14.8	B
Southbound	TR	0.62	26.9	C	TR	0.50	24.5	C	TR	0.48	24.1	C	TR	0.66	28.1	C
	Intersection		22.1	C	Intersection		20.4	C	Intersection		20.3	C	Intersection		22.8	C
South Street and Wall Street																
Eastbound	T	0.42	15.7	B	T	0.29	13.9	B	T	0.20	12.8	B	T	0.18	12.6	B
Westbound	T	0.39	15.3	B	T	0.35	14.7	B	T	0.39	15.3	B	T	0.31	14.1	B
Southbound	LR	0.84	83.5	F	LR	0.85	83.4	F	LR	0.95	103.5	F	LR	0.59	59.4	E
	Intersection		28.3	C	Intersection		29.7	C	Intersection		37.4	D	Intersection		22.9	C
South Street and Maiden Lane																
Eastbound	LT	0.76	25.8	C	LT	0.57	17.5	B	LT	0.44	14.6	B	LT	0.36	13.2	B
Westbound	TR	0.55	16.6	B	TR	0.47	14.8	B	TR	0.55	16.1	B	TR	0.45	14.3	B
Southbound	LR	0.39	25.1	C	LR	0.28	23.0	C	LR	0.31	23.4	C	LR	0.20	21.8	B
	Intersection		22.1	C	Intersection		17.3	B	Intersection		17.0	B	Intersection		14.9	B

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

Table 7-15
2012 Existing Conditions Level of Service Analysis
Brooklyn Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Joralemon Street and Court Street												
Westbound	TL	0.53	42.1	D	TL	0.42	26.9	C	TL	0.49	40.8	D
Southbound	TR	0.38	11.8	B	TR	0.43	12.8	B	TR	0.45	12.7	B
	Intersection		18.5	B	Intersection		15.9	B	Intersection		17.4	B
Joralemon Street and Furman Street												
Eastbound	LR	0.03	30.6	C	R	0.14	27.6	C	R	0.07	31.2	C
Westbound	LTR	0.16	32.4	C	LTR	0.16	27.8	C	LTR	0.16	32.5	C
Northbound	LT	0.19	10.1	B	LT	0.09	6.3	A	LT	0.10	9.2	A
Southbound	TR	0.28	11.0	B	TR	0.62	12.6	B	TR	0.72	20.2	C
	Intersection		13.7	B	Intersection		13.7	B	Intersection		9.3	C
Atlantic Avenue and Court Street												
Eastbound	TR	0.69	31.3	C	TR	0.76	30.5	C	TR	0.84	43.3	D
Westbound	L	0.30	14.2	B	L	0.44	14.9	B	L	0.45	22.2	C
	T	0.63	23.6	C	T	0.69	23.3	C	T	0.81	37.3	D
Southbound	LTR	0.65	41.3	D	LTR	0.92	53.2	D	LTR	0.92	55.1	E
	Intersection		30.8	C	Intersection		34.3	C	Intersection		44.5	D
Atlantic Avenue and BQE Eastbound Ramps												
Eastbound	L	0.45	26.9	C	L	0.35	26.5	C	L	0.41	42.1	D
	T	0.14	3.3	A	T	0.12	2.6	A	T	0.11	3.2	A
Westbound	T	0.42	14.3	B	T	0.55	13.9	B	T	0.80	26.0	C
	R	0.75	17.7	B	R	0.49	13.0	B	R	0.41	9.2	A
Northbound	L	0.13	47.2	D	L	0.26	40.4	D	L	0.13	47.3	D
	Intersection		15.8	B	Intersection		13.5	B	Intersection		19.7	B
Atlantic Avenue and Columbia Street												
Eastbound	T	0.05	13.0	B	T	0.08	9.9	A	T	0.08	24.3	C
Westbound	L	0.28	16.1	B	L	0.37	13.7	B	L	0.88	58.4	E
	LT	0.27	15.9	B	LT	0.35	13.3	B	LT	0.83	51.3	D
Northbound	LR	0.72	41.1	D	LR	0.38	24.8	C	LR	0.30	16.2	B
	R	0.47	31.7	C	R	0.28	23.0	C	R	0.22	15.0	B
	Intersection		28.2	C	Intersection		16.7	B	Intersection		40.2	D
Atlantic Avenue and Furman Street												
Eastbound	T	0.03	12.9	B	T	0.03	9.5	A	T	0.03	23.8	C
Westbound	T	0.07	13.3	B	T	0.06	9.8	A	T	0.13	25.2	C
	R	0.03	0.0	A	R	0.02	0.0	A	R	0.02	0.0	A
Southbound	LT	0.52	32.4	C	LT	1.05	80.3	F	LT	0.88	36.9	D
	Intersection		25.2	C	Intersection		69.2	E	Intersection		34.3	C
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)												
Southbound	R	0.01	8.7	A	R	0.00	8.6	A	R	0.01	8.9	A
BQE Westbound Ramps and Columbia Street												
Westbound	L	1.05	74.7	E	L	1.02	68.5	E	L	0.57	23.1	C
Northbound	T	0.71	25.5	C	T	0.46	19.0	B	T	0.65	23.5	C
Southbound	L	0.34	14.8	B	L	0.51	15.1	B	L	1.04	69.4	E
	T	0.52	11.3	B	T	0.81	20.1	C	T	0.97	37.5	D
	Intersection		38.2	D	Intersection		33.9	C	Intersection		42.1	D
BQE Westbound Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)												
Westbound	R	0.20	9.3	A	R	0.11	8.9	A	R	0.12	9.2	A

Notes: **Note:** L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

Brooklyn

- Southbound approach at the Atlantic Avenue and Court Street intersection (LOS D with 53.2 seconds of delay and LOS E with 55.1 seconds of delay during the midday and PM peak hour, respectively);
- Northbound left-turn at the Brooklyn-Queens Expressway (BQE) Eastbound Ramps and Atlantic Avenue intersection (LOS D with 47.2 seconds of delay and LOS D with 47.3 seconds of delay during the AM and PM peak hour, respectively);
- Westbound left-turn the Atlantic Avenue and Columbia Street intersection (LOS E with 58.4 seconds of delay during the PM peak hour);
- Westbound shared left-turn/through the Atlantic Avenue and Columbia Street intersection (LOS D with 51.3 seconds of delay during the PM peak hour);
- Southbound shared left-turn/through the Atlantic Avenue and Furman Street intersection (LOS F with 80.3 seconds of delay during the midday peak hour);
- Westbound left-turn at the Brooklyn-Queens Expressway (BQE) Westbound Ramps and Columbia Street intersection (LOS E with 74.7 seconds of delay and LOS E with 68.5 seconds of delay during the AM and midday peak hour, respectively); and
- Southbound left-turn at the Brooklyn-Queens Expressway (BQE) Eastbound Ramps and Atlantic Avenue intersection (LOS E with 69.4 seconds of delay during the PM peak hour)

2022 NO BUILD CONDITION

The 2022 No Build condition was developed by increasing existing traffic and pedestrian levels by the expected growth in overall travel through and within the study areas. As per *CEQR* guidelines, an annual background growth rate of 0.25 percent was assumed for the first five years (2012 to 2017) and then 0.125 percent for the remaining years (2017 to 2022). In addition to the background growth, travel demand estimates for projects anticipated to be complete by 2022 were added to establish the future baseline traffic and pedestrian volumes. **Table 7-16** summarizes the projects that were accounted for in this future 2022 baseline.

TRAFFIC OPERATIONS

The 2022 No Build traffic volumes are shown in **Figures 7-26** to **7-32** for the BMB and Pier 6 ferry portals. **Tables 7-17** and **7-18** present the No Build conditions for intersections in Manhattan and Brooklyn, respectively. Based on the analysis results, approaches/lane-groups would operate at the same LOS as in the existing conditions with the following notable exceptions:

Manhattan

- Eastbound approach at the Whitehall Street and Water Street intersection would deteriorate to LOS E with 74.5 seconds of delay and LOS E with 74.5 seconds of delay during the AM and Saturday peak hour, respectively;
- Westbound approach at the South Street and Old Slip intersection would deteriorate to LOS E with 57.9 seconds of delay during the PM peak hour; and
- Northbound through/right-turn lane at the South Street and Old Slip intersection would deteriorate to beyond mid-LOS D with 48.4 seconds of delay during the AM peak hour.

NOT TO SCALE

BMB 2022 No Build Traffic Volumes
Weekday AM Peak Hour
Figure 7-26

NOT TO SCALE

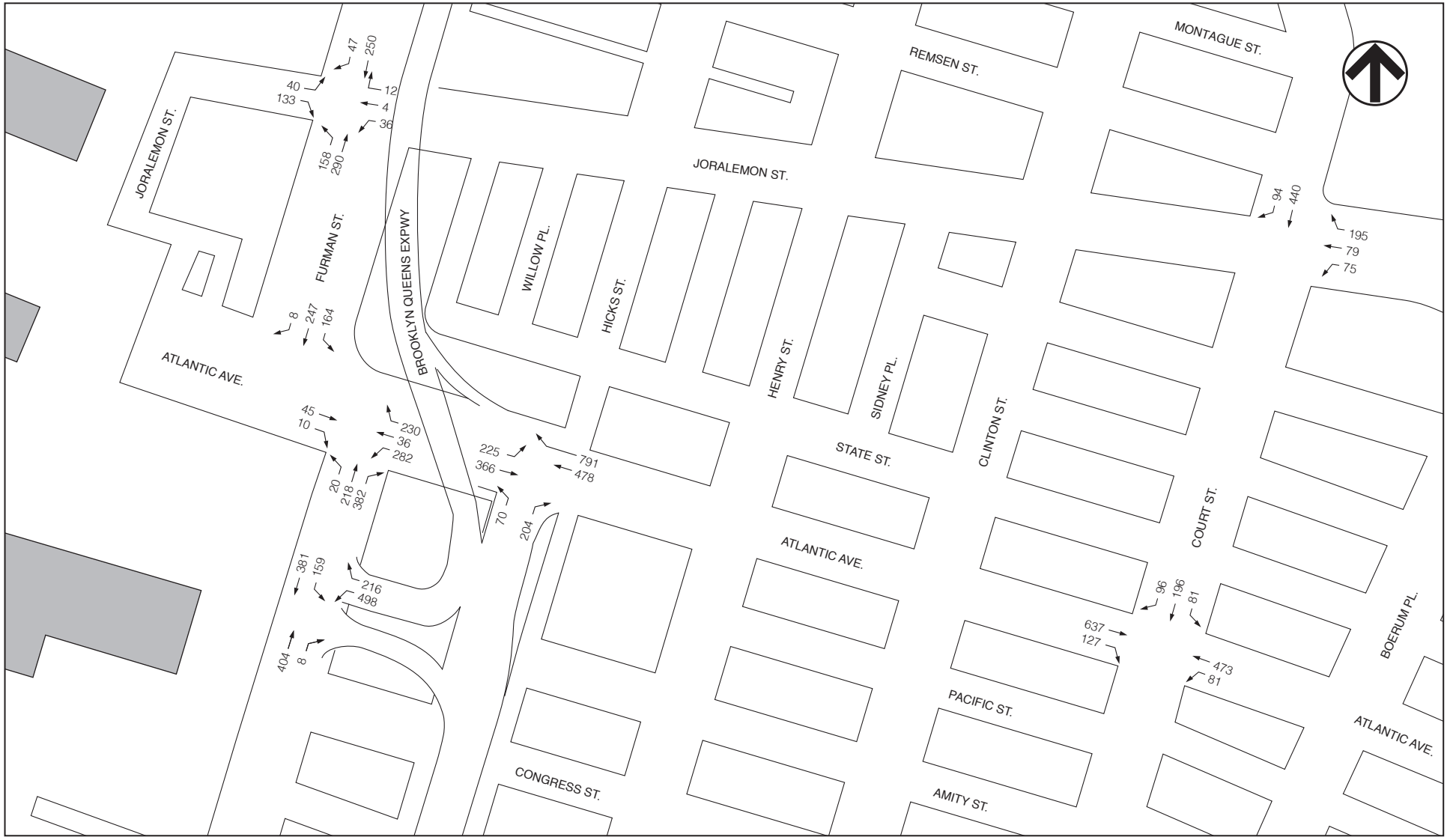
BMB 2022 No Build Traffic Volumes
Weekday Midday Peak Hour
Figure 7-27

NOT TO SCALE

BMB 2022 No Build Traffic Volumes
Weekday PM Peak Hour
Figure 7-28

NOT TO SCALE

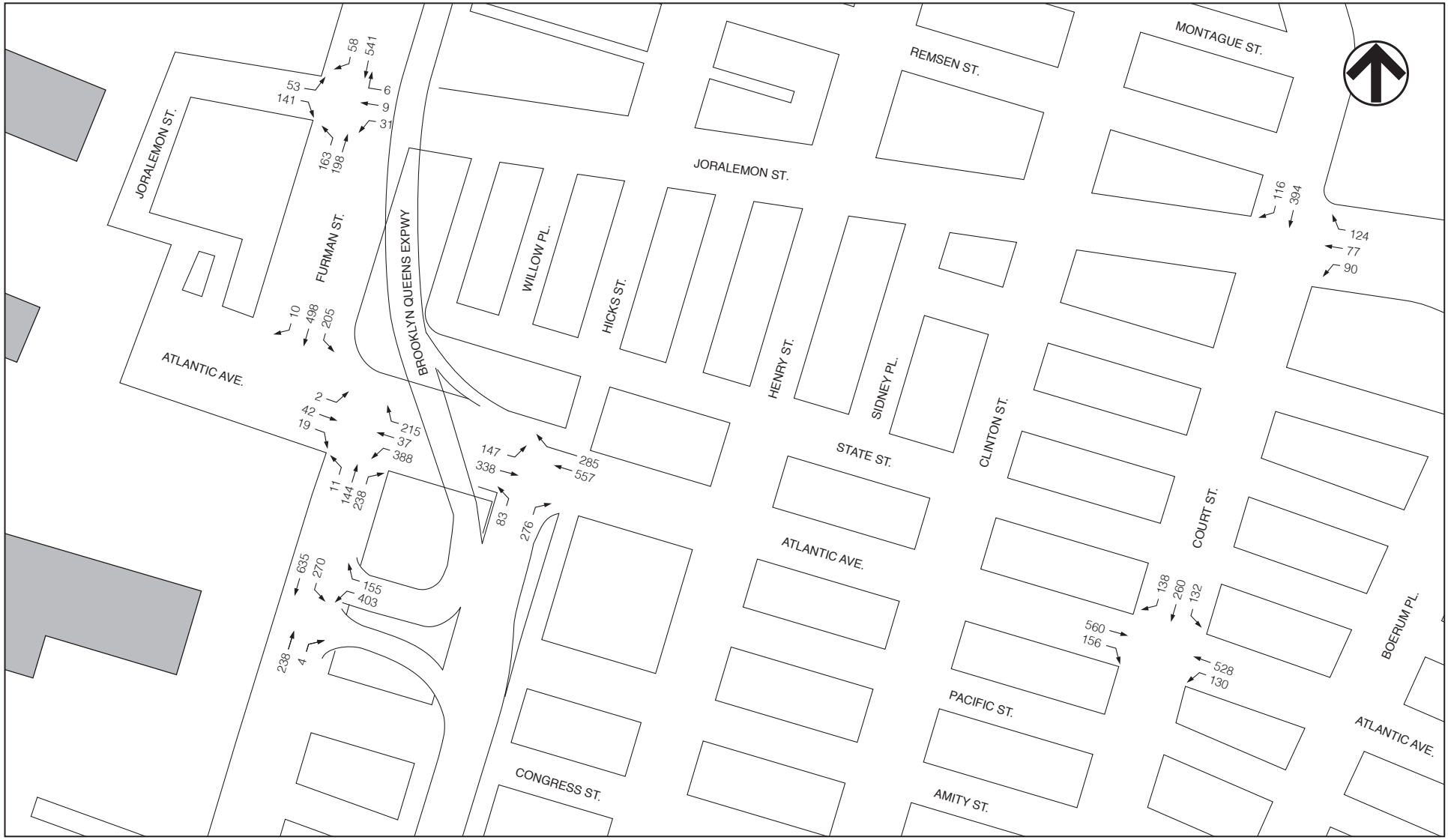
BMB 2022 No Build Traffic Volumes
Saturday Peak Hour
Figure 7-29



NOT TO SCALE

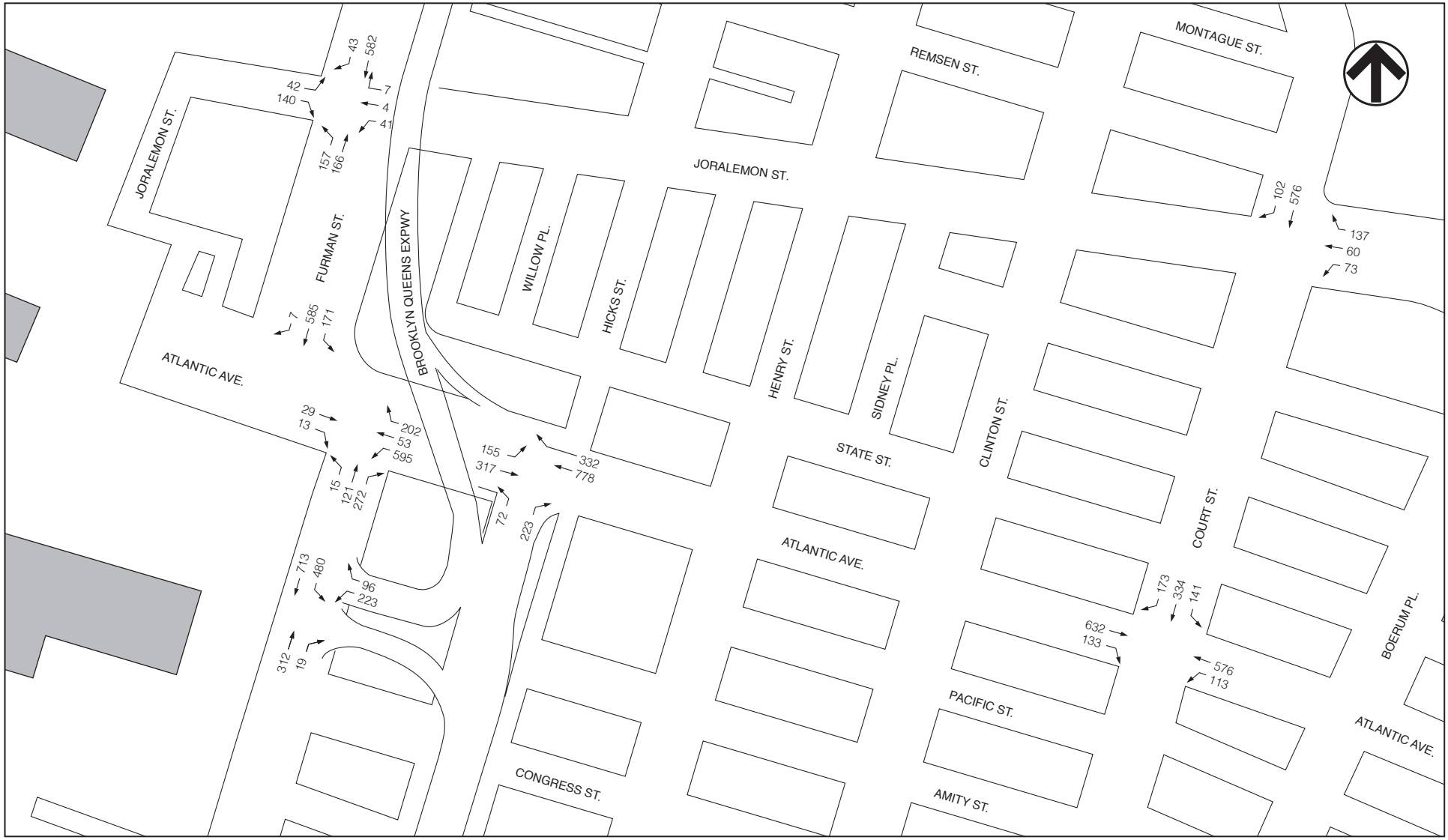
PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 2022 No Build Traffic Volumes
Weekday AM Peak Hour
Figure 7-30



NOT TO SCALE

Pier 6 2022 No Build Traffic Volumes
Weekday Midday Peak Hour
Figure 7-31



NOT TO SCALE

Pier 6 2022 No Build Traffic Volumes
Weekday PM Peak Hour
Figure 7-32

Table 7-16
No Build Projects

Project/Location	Description	Transportation Assumptions
Manhattan		
Pier A	Rehabilitation with open space	Background growth
Battery Maritime Building	37,900 sf of restaurant, retail, great hall, museum space; 146 hotel rooms	Project trips from *Battery Maritime Building Redevelopment EAS*
East River Waterfront Esplanade	Open Space	Project trips from *East River Waterfront Esplanade and Piers*
Battery Park Carousel		Background growth
80 South Street	24 dwelling units	Background growth
246 Front Street	9 dwelling units; 3,000 sf of commercial	Background growth
Pier 17	56,000 sf of commercial	Project trips from *Pier 17 EAS*
254 Front Street	20 dwelling units; 4,200 sf of commercial	Background growth
30 Fletcher Street	200 hotel rooms	Developed trip generation
6 Platt Street	264 hotel rooms	Developed trip generation
32 Pearl Street	80 hotel rooms	Developed trip generation
116 John Street	156 dwelling units	Developed trip generation
70 Pine Street	800 dwelling units; 40,000 sf of commercial	Developed trip generation
Staten Island Ferris Wheel and Retail	Project in Staten Island but generated pedestrian trips in lower Manhattan	Pedestrian assignments from current Staten Island Ferris Wheel study
Brooklyn		
Brooklyn Bridge Park	Open space; 772 dwelling units; 303,600 sf of commercial; 225 room hotel;128,000 sf of community facility	Project trips from *Brooklyn Bridge Park FEIS* (December 2005)
75 Columbia Street	11 dwelling units	Background growth
103 Kane Street	7 dwelling units; 4,000 sf of community facility	Background growth
116 Montague Street	6 dwelling units	Background growth
172 Montague Street	66 dwelling units; 13,673 sf of commercial	Developed trip generation
Municipal Building: 210 Joralemon Street	47,000 sf of commercial	Developed trip generation
252 Atlantic Avenue	48,720 sf of commercial	Developed trip generation
267 Pacific Street	60 dwelling units; 2,728 sf of commercial	Developed trip generation
333 Atlantic Avenue	22 dwelling units; 3,485 sf of commercial	Background growth
301-309 State Street	9 dwelling units	Background growth
262-276 Atlantic Avenue	180 hotel rooms	Developed trip generation

Brooklyn

- Eastbound approach at the Joralemon Street and Furman Street intersection would deteriorate to beyond mid-LOS D with 54.6 seconds of delay, LOS F with 227.7 seconds of delay and LOS F with 80.2 seconds of delay during the AM, midday and PM peak hours, respectively;
- Northbound left-turn/through at the Joralemon Street and Furman Street intersection would deteriorate to LOS F with 86.4 seconds of delay and LOS F with 102.9 seconds of delay during the midday and PM peak hours, respectively;
- Eastbound approach at the Atlantic Avenue and Court Street intersection would deteriorate to LOS E with 60.2 seconds of delay during the PM peak hour;
- Westbound through at the Atlantic Avenue and Court Street intersection would deteriorate to LOS E with 62.9 seconds of delay during the PM peak hour;
- Southbound approach at the Atlantic Avenue and Court Street intersection would deteriorate to LOS F with 89.1 seconds of delay and LOS F with 86.5 seconds of delay during the midday and PM peak hours, respectively;
- Eastbound left-turn at the Atlantic Avenue and BQE Eastbound Ramps intersection would deteriorate to beyond mid-LOS D with 49.8 seconds of delay, beyond mid-LOS D with 46.4 seconds of delay and LOS E with 55.1 seconds of delay for the AM, midday and PM peak hours, respectively;
- Westbound through at the Atlantic Avenue and BQE Eastbound Ramps intersection would deteriorate to LOS E with 57.6 seconds of delay during the PM peak hour;
- Westbound left-turn lane at the Atlantic Avenue and Columbia Street intersection would deteriorate to LOS F with 147.1 seconds of delay during the PM peak hour;
- Westbound left-turn/through lane at the Atlantic Avenue and Columbia Street intersection would deteriorate to LOS F with 117.3 seconds of delay during the PM peak hour;
- Northbound left-turn/through at the Atlantic Avenue and Columbia Street intersection would deteriorate to LOS E with 67.2 seconds of delay during the AM peak hour;
- Southbound approach at the Atlantic Avenue and Furman Street intersection would deteriorate to LOS E with 60.6 seconds of delay and LOS F with 97.4 seconds of the delay during the AM and PM peak hour, respectively;
- Westbound left-turn at the BQE Westbound Ramps and Columbia Street intersection would deteriorate to LOS F with 81.3 seconds of delay during the AM peak hour; and
- Southbound left-turn at the BQE Westbound Ramps and Columbia Street intersection would deteriorate to LOS F with 95.9 seconds of delay during the PM peak hour.

Table 7-17
2022 No Build Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Battery Place and Broadway																
Eastbound	T	0.77	36.2	D	T	0.43	27.7	C	T	0.36	24.5	C	T	0.60	30.8	C
Westbound	T	0.87	42.5	D	T	0.80	37.4	D	T	0.79	35.0	D	T	0.89	44.3	D
Southbound	T	0.20	23.7	C	T	0.22	23.9	C	T	0.19	25.7	C	T	0.29	24.9	C
	R	0.50	29.6	C	R	0.41	27.7	C	R	0.66	38.6	D	R	0.41	27.7	C
	Intersection		37.2	D	Intersection		32.5	C	Intersection		32.4	C	Intersection		36.2	D
Pearl Street and State Street																
Westbound	L	0.20	21.8	C	L	0.21	21.8	C	T	0.22	22.1	C	L	0.30	23.6	C
	R	0.49	27.5	C	R	0.49	27.1	C	T	0.39	24.9	C	R	0.65	33.5	C
Northbound	T	0.33	11.9	B	T	0.31	11.7	B	T	0.28	11.5	B	T	0.31	11.7	B
Southbound	T	0.43	13.1	B	T	0.34	12.2	B	R	0.29	11.6	B	T	0.49	14.0	B
	Intersection		15.1	B	Intersection		15.1	B	Intersection		14.5	B	Intersection		17.0	B
Whitehall Street and Water Street																
Eastbound	LT	1.04	74.5	E	L	0.87	41.2	D	LT	0.85	38.5	D	LT	1.04	74.5	E
Westbound	TR	0.65	29.0	C	R	0.43	23.2	C	TR	0.59	26.5	C	TR	0.46	23.6	C
Northbound	L	0.57	36.4	D	L	0.75	45.3	D	L	0.50	35.0-	C	L	0.58	37.0	D
	TR	0.35	30.5	C	T	0.27	29.3	C	TR	0.37	31.6	C	TR	0.39	31.5	C
	Intersection		52.5	D	Intersection		37.2	D	Intersection		33.9	C	Intersection		52.3	D
Broad Street and Water Street																
Eastbound	LTR	0.78	22.0	C	LTR	0.61	16.9	B	LTR	0.76	24.2	C	LTR	0.91	38.6	D
Westbound	LTR	0.87	34.8	C	LTR	0.27	12.7	B	LTR	0.62	21.7	C	LTR	0.62	24.9	C
Northbound	LT	0.42	24.7	C	LTR	0.86	48.9	D	LTR	0.76	36.0	D	LTR	0.23	16.2	B
	R	0.79	47.4	D	-	-	-	-	-	-	-	-	-	-	-	-
Southbound	LTR	0.67	37.0	D	LTR	0.69	35.4	D	LTR	0.53	26.1	C	LTR	0.74	30.6	C
	Intersection		29.8	C	Intersection		28.8	C	Intersection		26.5	C	Intersection		31.8	D
South Street and Whitehall Street																
Westbound	R	0.19	0.2	A	R	0.14	0.1	A	R	0.12	0.1	A	R	0.15	0.1	A
	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A
South Street and Broad Street (unsignalized)																
Southbound	R	0.36	10.8	B	R	0.0.48	13.1	B	R	0.49	13.7	B	R	059	17.7	C
	Intersection		10.8	B	Intersection		13.1	B	Intersection		13.7	B	Intersection		17.7	C
South Street and Old Slip																
Westbound	TR	0.78	40.3	D	TR	0.83	43.8	D	TR	0.93	57.9	E	TR	0.74	36.6	D
Northbound	L	0.35	25.2	C	L	0.14	22.3	C	L	0.15	22.3	C	L	0.15	22.4	C
	TR	0.90	48.4	D	TR	0.70	34.0	C	TR	0.42	26.3	C	TR	0.48	27.8	C
Southbound	R	0.24	23.9	C	R	0.36	26.0	C	R	0.47	28.4	C	R	0.23	23.8	C
	Intersection		40.3	D	Intersection		35.8	D	Intersection		40.9	D	Intersection		30.9	C
Battery Place and West Street (Southbound)																
Eastbound	T	0.78	42.0	D	T	0.31	26.8	C	T	0.31	26.8	C	T	0.54	31.7	C
Westbound	T	0.58	32.9	C	T	0.40	28.8	C	T	0.51	30.9	C	T	0.42	28.9	C
Southbound	L	0.61	31.9	C	L	0.59	30.6	C	L	0.28	23.7	C	L	0.30	23.9	C
	LR	0.69	35.3	D	LR	0.67	33.6	C	LR	0.47	27.4	C	LR	0.49	27.4	C
	Intersection		36.1	D	Intersection		30.7	C	Intersection		27.8	C	Intersection		28.4	C
Battery Place and West Street (Northbound)																
Eastbound	LT	0.37	0.5	A	LT	0.34	0.4	A	LT	0.18	0.2	A	LT	0.21	0.2	A
Westbound	T	0.17	0.3	A	T	0.12	0.2	A	T	0.17	0.3	A	T	0.13	0.2	A
	R	0.33	0.5	A	R	0.36	0.6	A	R	0.44	1.0	A	R	0.30	0.5	A
	Intersection		0.5	A	Intersection		0.5	A	Intersection		0.6	A	Intersection		0.3	A
Battery Place and Washington Street																
Eastbound	T	0.56	13.6	B	T	0.25	9.8	A	T	0.23	9.6	A	T	0.26	9.8	A
Westbound	T	0.51	12.6	B	T	0.44	11.7	B	T	0.54	13.1	B	T	0.37	10.8	B
Southbound	LR	0.24	25.0	C	LR	0.16	23.7	C	LR	0.3	26.1	C	LR	0.18	24	C
	Intersection		13.6	B	Intersection		11.5	B	Intersection		13.2	B	Intersection		11.1	B

Table 7-17 (cont'd)
2022 No Build Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour				Saturday Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Battery Place and Greenwich Street																
Eastbound	L	0.63	24.0	C	L	0.36	12.8	B	L	0.33	12.4	B	L	0.38	12.8	B
	T	0.45	10.3	B	T	0.22	8.2	A	T	0.21	8.1	A	T	0.22	8.2	A
Westbound	TR	0.41	9.7	A	TR	0.42	9.7	A	TR	0.41	9.7	A	TR	0.35	9.1	A
	Intersection		11.1	B	Intersection		9.5	A	Intersection		9.4	A	Intersection		9.1	A
State Street and Peter Minuit Plaza																
Eastbound	LR	0.36	47.6	D	LR	0.33	45.1	D	LR	0.34	48.4	D	LR	0.34	48.4	D
Northbound	LT	0.46	16.2	B	LT	0.37	15.1	B	LT	0.40	15.5	B	LT	0.38	15.2	B
Southbound	TR	0.64	27.4	C	TR	0.53	25.2	C	TR	0.51	24.7	C	TR	0.72	29.9	C
	Intersection		22.5	C	Intersection		20.8	C	Intersection		20.7	C	Intersection		23.8	C
South Street and Wall Street																
Eastbound	T	0.43	16.0	B	T	0.31	14.1	B	T	0.22	13.0	B	T	0.22	13.0	B
Westbound	T	0.40	15.6	B	T	0.37	14.9	B	T	0.41	15.6	B	T	0.35	14.7	B
Southbound	LR	0.86	86.9	F	LR	0.86	86.0	F	LR	0.92	96.6	F	LR	0.62	60.9	E
	Intersection		28.9	C	Intersection		29.9	C	Intersection		34.5	C	Intersection		22.7	C
South Street and Maiden Lane																
Eastbound	LT	0.80	29.1	C	LT	0.62	18.9	B	LT	0.47	15.1	B	LT	0.43	14.4	B
Westbound	TR	0.59	17.6	B	TR	0.53	16.1	B	TR	0.59	17.2	B	TR	0.55	16.3	B
Southbound	LR	0.43	25.9	C	LR	0.32	23.6	C	LR	0.34	23.9	C	LR	0.24	22.3	C
	Intersection		24.0	C	Intersection		18.6	B	Intersection		17.8	B	Intersection		16.5	B

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

Table 7-18
2022 No Build Level of Service Analysis
Brooklyn Intersections

Intersection/ Approach	AM Peak Hour				Midday Peak Hour				PM Peak Hour			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Joralemon Street and Court Street												
Westbound	LT	0.56	43.4	D	LT	0.51	29.6	C	LT	0.56	43.7	D
Southbound	TR	0.40	12.0	B	TR	0.46	13.2	B	TR	0.49	13.2	B
	Intersection		18.9	B	Intersection		16.9	B	Intersection		18.4	B
Joralemon Street and Furman Street												
Eastbound	LR	0.75	54.6	D	LR	1.36	227.7	F	LR	0.91	80.2	F
Westbound	LTR	0.18	32.8	C	LTR	0.24	29.6	C	LTR	0.22	33.8	C
Northbound	LT	0.89	36.6	D	LT	1.08	84.6	F	LT	1.11	102.9	F
Southbound	TR	0.42	12.9	B	TR	0.77	17.6	B	TR	0.83	25.9	C
	Intersection		32.3	B	Intersection		74.8	E	Intersection		55.9	E
Atlantic Avenue and Court Street												
Eastbound	TR	0.80	36.0	D	TR	0.91	41.2	D	TR	0.97	60.2	E
Westbound	L	0.38	16.8	B	L	0.59	21.6	C	L	0.6	30.3	C
	T	0.82	33.1	C	T	0.89	38.1	D	T	0.98	62.9	E
Southbound	LTR	0.71	43.9	D	LTR	1.07	89.1	F	LTR	1.05	86.5	F
	Intersection		36.0	D	Intersection		52.3	D	Intersection		67.3	E
Atlantic Avenue and BQE Eastbound Ramps												
Eastbound	L	0.74	49.8	D	L	0.66	46.4	D	L	0.69	55.1	E
	T	0.20	3.5	A	T	0.19	2.8	A	T	0.17	3.4	A
Westbound	T	0.65	19.6	B	T	0.84	25.4	C	T	1.01	57.6	E
	R	0.77	18.7	B	R	0.49	13.1	B	R	0.41	9.3	A
Northbound	L	0.41	54.4	D	L	0.65	57.0	E	L	0.41	54.2	D
	Intersection		21.2	C	Intersection		21.7	C	Intersection		37.1	D
Atlantic Avenue and Columbia Street												
Eastbound	T	0.17	14.1	B	T	0.20	10.8	B	T	0.24	26.4	C
Westbound	L	0.37	17.9	B	L	0.52	17.4	B	L	1.18	147.1	F
	LT	0.36	17.7	B	LT	0.49	16.5	B	LT	1.10	117.3	F
Northbound	LR	0.95	67.2	E	LR	0.65	32.3	C	LR	0.44	18.5	B
	R	0.48	31.8	C	R	0.32	23.7	C	R	0.25	15.4	B
	Intersection		36.8	D	Intersection		19.9	B	Intersection		76.6	E
Atlantic Avenue and Furman Street												
Eastbound	T	0.04	12.9	B	T	0.04	9.6	A	T	0.04	23.8	C
Westbound	T	0.05	13.1	B	T	0.05	9.8	A	T	0.11	24.9	C
	R	0.21	0.4	A	R	0.19	0.4	A	R	0.18	0.3	A
Southbound	LT	0.93	60.6	E	LT	1.43	233.6	F	LT	1.12	97.4	F
	Intersection		37.5	D	Intersection		167.0	F	Intersection		73.9	E
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)												
Southbound	R	0.01	9.2	A	R	0.01	9.4	A	R	0.01	9.4	A
BQE Westbound Ramps and Columbia Street												
Westbound	L	1.07	81.3	F	L	1.05	74.4	E	L	0.58	23.4	C
Northbound	T	0.85	34.6	C	T	0.64	23.4	C	T	0.76	28.0	C
Southbound	L	0.45	18.8	B	L	0.71	24.2	C	L	1.12	95.9	F
	T	0.55	11.8	B	T	0.85	22.7	C	T	1.00	43.9	D
	Intersection		42.1	D	Intersection		37.5	D	Intersection		52.9	D
BQE Westbound Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)												
Westbound	R	0.26	9.6	A	R	0.19	9.3	A	R	0.12	9.2	A

Notes: **Note:** L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.

2022 BUILD CONDITION

PROJECT VEHICLE ASSIGNMENT

Project-generated traffic was assigned to the study area network based on the local travel patterns and the most likely approach paths to and from the ferry portals. Although the ¼-mile radius, off-street parking inventories for the BMB and Pier 6 portals identified numerous parking facilities, the project-generated trips were assigned to the nearest parking location for a conservative traffic analysis. In Manhattan, all auto trips traveling to the BMB was assigned to the Quik Park parking garage located on Whitehall Street between South Street and Water Street while all taxi trips were assigned to drop off in-front of the BMB building. In Brooklyn, all auto trips traveling to Pier 6 were assigned to the Quik Park parking garage located on Joralemon Street while all taxi trips were assigned to drop off at the Pier 6 entrance. The vehicle trip assignments are shown in **Figures 7-1 to 7-8**.

TRAFFIC OPERATIONS

The 2022 Build traffic volumes are shown in **Figures 7-33** to **7-39**. **Tables 7-19** and **7-20** present a comparison of No Build and Build conditions for Manhattan and Brooklyn intersections, respectively. Based on the criteria presented in the *CEQR Technical Manual* and discussed previously, significant adverse impacts are identified by the "+" symbol in the analysis summary table.

NOT TO SCALE

BMB 2022 Build Traffic Volumes
Weekday AM Peak Hour
Figure 7-33

NOT TO SCALE

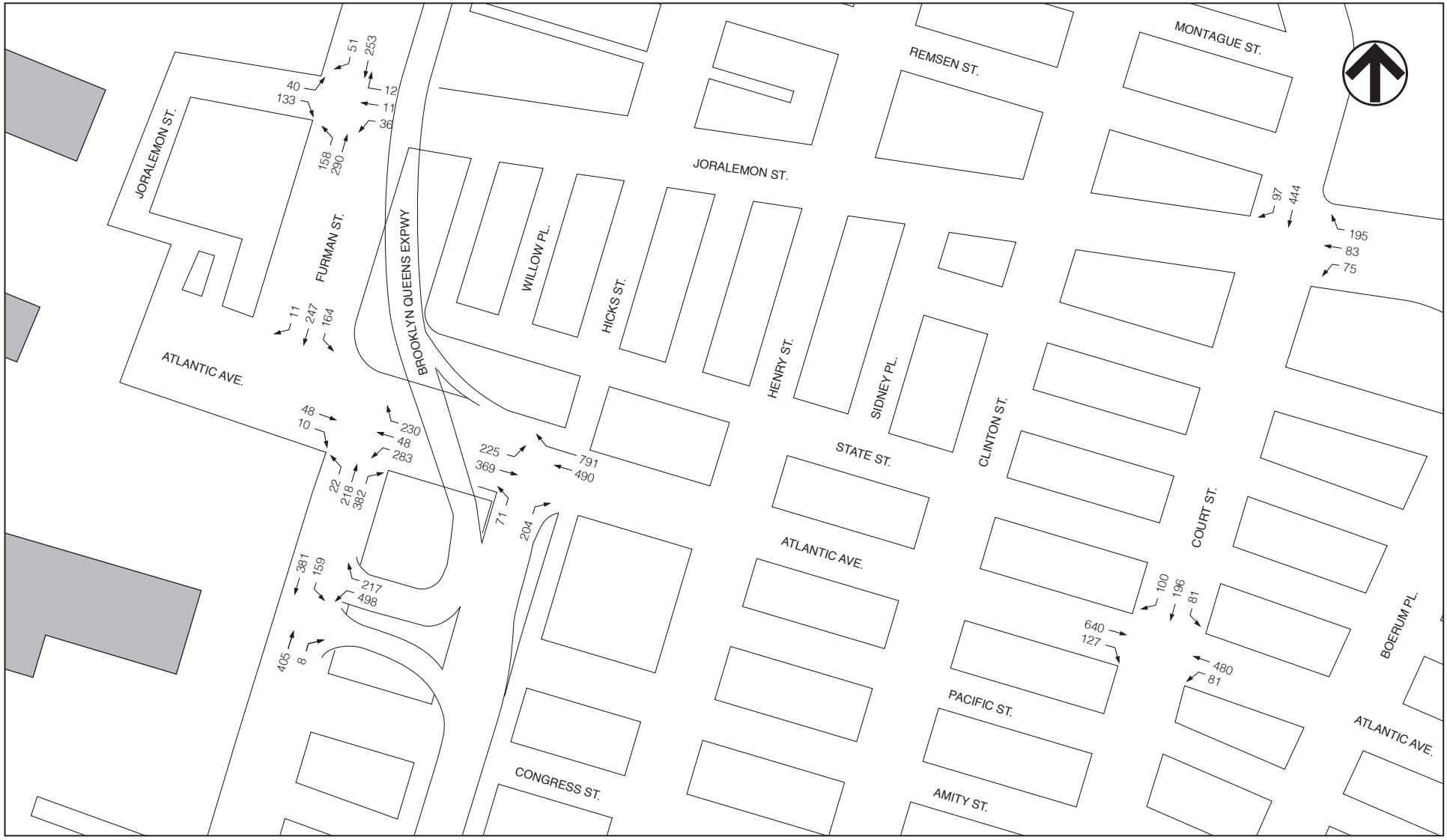
BMB 2022 Build Traffic Volumes
Weekday Midday Peak Hour
Figure 7-34

NOT TO SCALE

BMB 2022 Build Traffic Volumes
Weekday PM Peak Hour
Figure 7-35

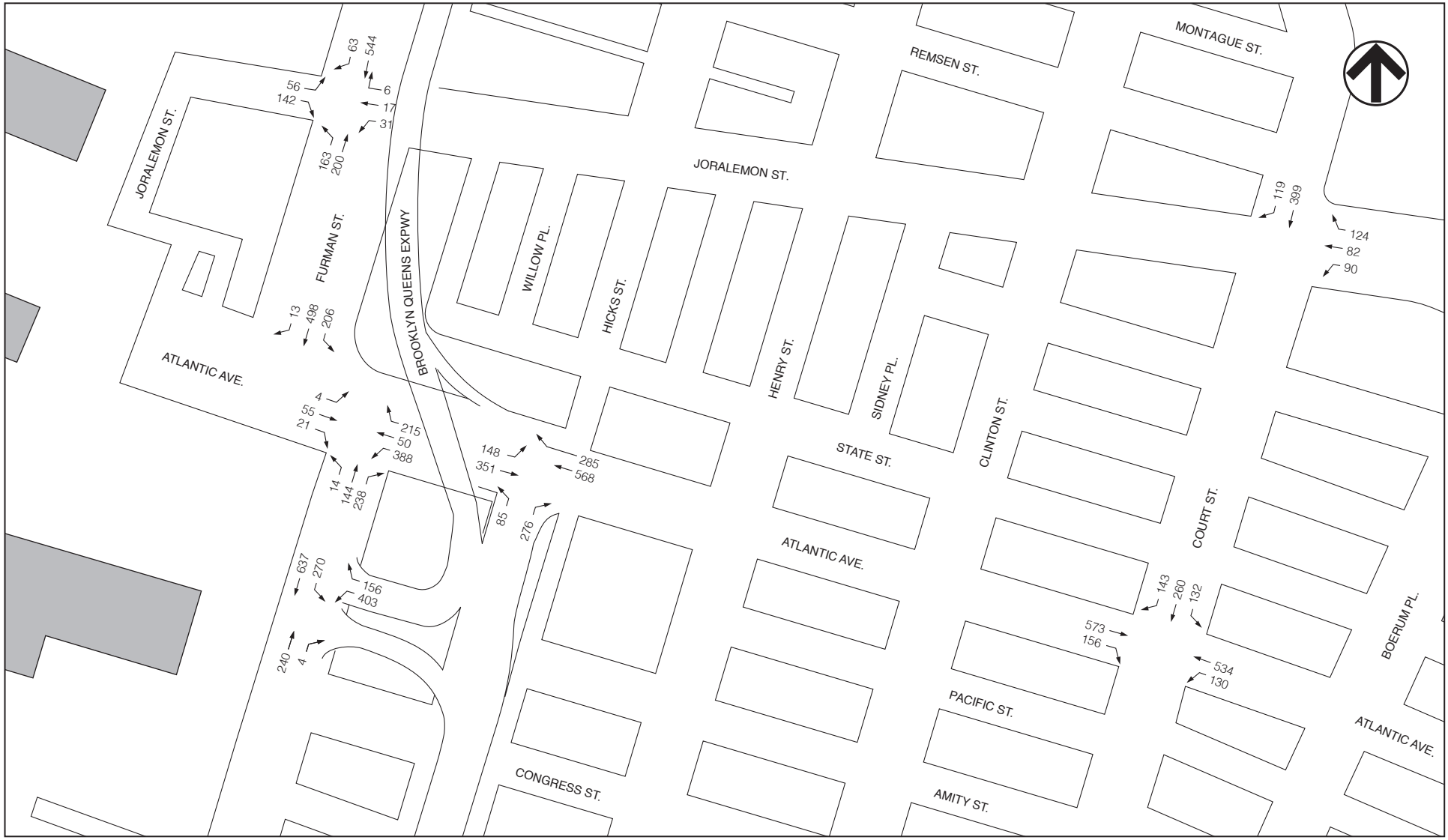
NOT TO SCALE

BMB 2022 Build Traffic Volumes
Saturday Peak Hour
Figure 7-36



NOT TO SCALE

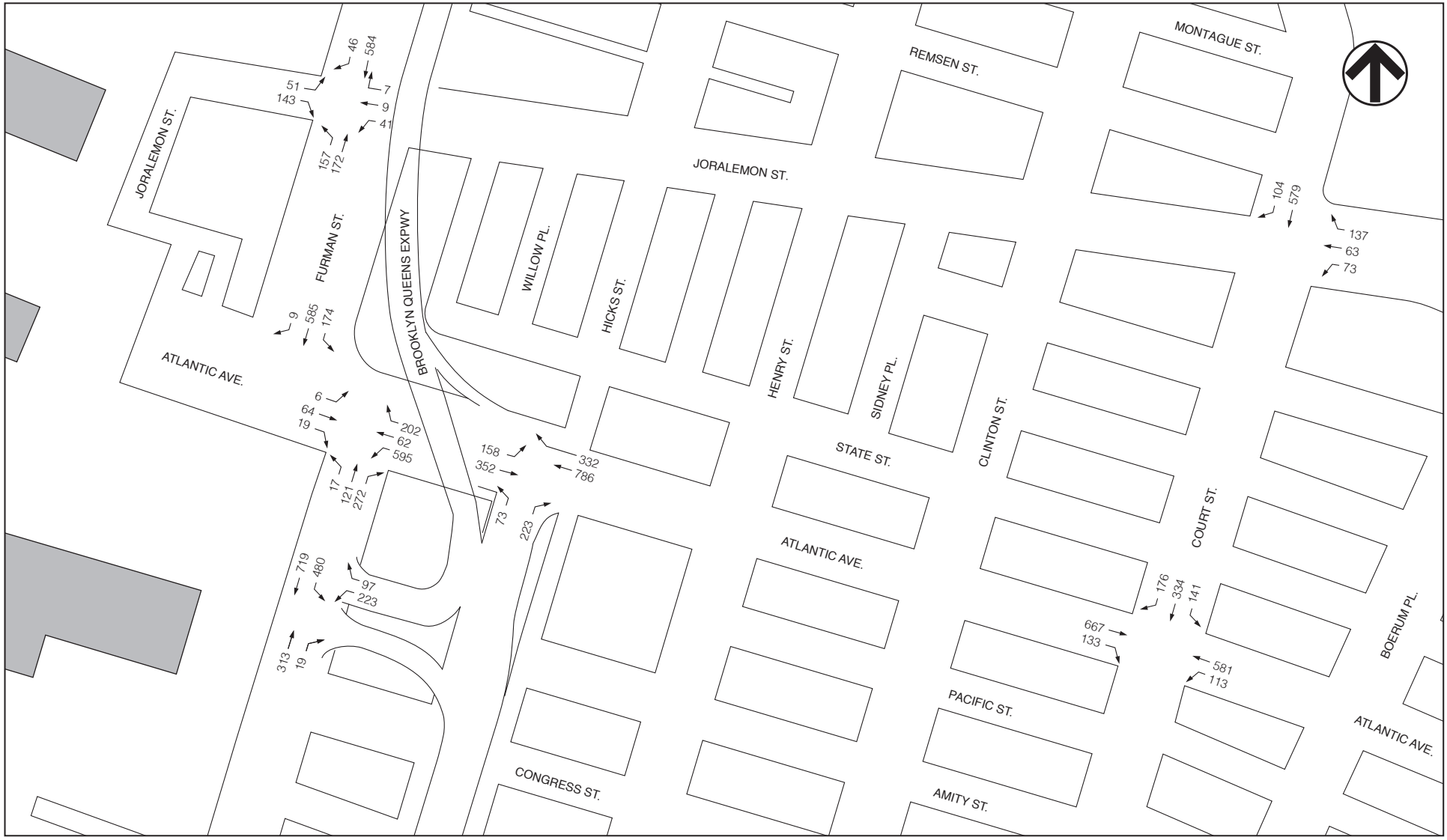
Pier 6 2022 Build Traffic Volumes
Weekday AM Peak Hour
Figure 7-37



NOT TO SCALE

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 2022 Build Traffic Volumes
Weekday Midday Peak Hour
Figure 7-38



Pier 6 2022 Build Traffic Volumes
Weekday PM Peak Hour
Figure 7-39

Table 7-19
2022 No Build and Build Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour							
	No Build				Build				No Build				Build				No Build				Build				No Build				Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Battery Place and Broadway																																
Eastbound	T	0.77	36.2	D	T	0.81	38.2	D	T	0.43	27.7	C	T	0.45	28.0	C	T	0.36	24.5	C	T	0.38	24.7	C	T	0.60	30.8	C	T	0.61	31.3	C
Westbound	T	0.87	42.5	D	T	0.91	47.1	D	T	0.80	37.4	D	T	0.82	38.8	D	T	0.79	35.0	D	T	0.86	39.7	D	T	0.89	44.3	D	T	0.91	46.6	D
Southbound	T	0.20	23.7	C	T	0.27	24.6	C	T	0.22	23.9	C	T	0.24	24.2	C	T	0.19	25.7	C	T	0.21	26.0	C	T	0.29	24.9	C	T	0.31	25.2	C
	R	0.50	29.6	C	R	0.50	29.6	C	R	0.41	27.7	C	R	0.41	27.7	C	R	0.66	38.6	D	R	0.66	38.6	D	R	0.41	27.7	C	R	0.41	27.7	C
	Intersection		37.2	D	Intersection		39.9	D	Intersection		32.5	C	Intersection		33.3	C	Intersection		32.4	C	Intersection		34.9	C	Intersection		36.2	D	Intersection		37.5	D
Pearl Street and State Street																																
Westbound	L	0.20	21.8	C	L	0.20	21.8	C	L	0.21	21.8	C	L	0.21	21.8	C	T	0.22	22.1	C	L	0.22	22.1	C	L	0.30	23.6	C	L	0.30	23.6	C
	R	0.49	27.5	C	R	0.49	27.5	C	R	0.49	27.1	C	R	0.49	27.1	C	T	0.39	24.9	C	R	0.39	24.9	C	R	0.65	33.5	C	R	0.65	33.5	C
Northbound	T	0.33	11.9	B	T	0.36	12.2	B	T	0.31	11.7	B	T	0.32	11.8	B	T	0.28	11.5	B	T	0.32	11.8	B	T	0.31	11.7	B	T	0.32	11.8	B
Southbound	T	0.43	13.1	B	T	0.48	13.7	B	T	0.34	12.2	B	T	0.36	12.4	B	R	0.29	11.6	B	T	0.30	11.7	B	T	0.49	14.0	B	T	0.50	14.2	B
	Intersection		15.1	B	Intersection		15.3	B	Intersection		15.1	B	Intersection		15.1	B	Intersection		14.5	B	Intersection		14.5	B	Intersection		17.0	B	Intersection		17.0	B
Whitehall Street and Water Street																																
Eastbound	LT	1.04	74.5	E	LT	1.14	107.8	F +	L	0.87	41.2	D	LT	0.90	45.8	D	LT	0.85	38.5	D	LT	0.89	42.9	D	LT	1.04	74.5	E	LT	1.06	81.6	F +
Westbound	TR	0.65	29.0	C	TR	0.65	29.0	C	R	0.43	23.2	C	TR	0.43	23.2	C	TR	0.59	26.5	C	TR	0.59	26.5	C	TR	0.46	23.6	C	TR	0.46	23.6	C
Northbound	L	0.57	36.4	D	L	0.67	40.1	D	L	0.75	45.3	D	L	0.81	50.3	D	L	0.50	35.0-	C	L	0.66	40.5	D	L	0.58	37.0	D	L	0.63	38.7	D
	TR	0.35	30.5	C	TR	0.37	30.9	C	T	0.27	29.3	C	TR	0.33	30.2	C	TR	0.37	31.6	C	TR	0.62	38.3	D	TR	0.39	31.5	C	TR	0.46	32.9	C
	Intersection		52.5	D			70.2	E	Intersection		37.2	D	Intersection		40.7	D	Intersection		33.9	C	Intersection		37.8	D	Intersection		52.3	D	Intersection		56.0	E
Broad Street and Water Street																																
Eastbound	LTR	0.78	22.0	C	LTR	0.90	31.1	C	LTR	0.61	16.9	B	LTR	0.69	19.0	B	LTR	0.76	24.2	C	LTR	0.95	42.6	D	LTR	0.91	38.6	D	LTR	0.98	50.4	D +
Westbound	LTR	0.87	34.8	C	LTR	0.90	39.7	D	LTR	0.27	12.7	B	LTR	0.44	14.7	B	LTR	0.62	21.7	C	LTR	0.63	22.2	C	LTR	0.62	24.9	C	LTR	0.62	25.2	C
Northbound	LT	0.42	24.7	C	LT	0.42	24.8	C	LTR	0.86	48.9	D	LT	0.88	50.5	D	LTR	0.76	36.0	D	LTR	0.77	36.9	D	LTR	0.23	16.2	B	LTR	0.23	16.2	B
	R	0.79	47.4	D	R	0.80	48.5	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southbound	LTR	0.67	37.0	D	LTR	0.77	42.9	D	LTR	0.69	35.4	D	LTR	0.72	37.4	D	LTR	0.53	26.1	C	LTR	0.56	26.9	C	LTR	0.74	30.6	C	LTR	0.76	31.7	C
	Intersection		29.8	C	Intersection		35.5	D	Intersection		28.8	C	Intersection		28.7	C	Intersection		26.5	C	Intersection		35.3	D	Intersection		31.8	D	Intersection		38.1	D
South Street and Whitehall Street																																
Westbound	R	0.19	0.20	A	R	0.24	0.2	A	R	0.14	0.1	A	R	0.16	0.1	A	R	0.12	0.1	A	R	0.14	0.1	A	R	0.15	0.1	A	R	0.17	0.2	A
	Intersection		0.20	A	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.2	A
South Street and Broad Street (unsignalized)																																
Southbound	R	0.36	10.8	B	R	0..66	19.3	C	R	0.48	13.1	B	R	0.59	16.0	C	R	0.49	13.7	B	R	0.67	19.6	C	R	0.59	17.7	C	R	10.7	92.7	F +
South Street and Old Slip																																
Westbound	TR	0.78	40.3	D	TR	0.96	62.3	E +	TR	0.83	43.8	D	TR	0.91	53.7	D +	TR	0.93	57.9	E	TR	1.02	78.0	E +	TR	0.74	36.6	D	TR	0.78	39.4	D
Northbound	L	0.35	25.2	C	L	0.41	26.3	C	L	0.14	22.3	C	L	0.17	22.6	C	L	0.15	22.3	C	L	0.18	22.7	C	L	0.15	22.4	C	L	0.16	22.5	C
	TR	0.90	48.4	D	TR	1.03	77.0	E +	TR	0.70	34.0	C	TR	0.78	38.2	D	TR	0.42	26.3	C	TR	0.59	30.1	C	TR	0.48	27.8	C	TR	0.54	29.0	C
Southbound	R	0.24	23.9	C	R	0.29	24.7	C	R	0.36	26.0	C	R	0.38	26.5	C	R	0.47	28.4	C	R	0.50	29.0	C	R	0.23	23.8	C	R	0.25	24.0	C
	Intersection		40.3	D	Intersection		60.1	E	Intersection		35.8	D	Intersection		41.3	D	Intersection		40.9	D	Intersection		49.7	D	Intersection		30.9	C	Intersection		32.6	C
Battery Place and West Street (Southbound)																																
Eastbound	T	0.78	42.0	D	T	0.83	46.4	D	T	0.31	26.8	C	T	0.32	27.1	C	T	0.31	26.8	C	T	0.33	27.1	C	T	0.54	31.7	C	T	0.56	32.0	C
Westbound	T	0.58	32.9	C	T	0.61	33.9	C	T	0.40	28.8	C	T	0.43	29.4	C	T	0.51	30.9	C	T	0.60	33.4	C	T	0.42	28.9	C	T	0.44	29.3	C
Southbound	L	0.61	31.9	C	L	0.63	32.5	C	L	0.59	30.6	C	L	0.60	30.8	C	L	0.28	23.7	C	L	0.28	23.7	C	L	0.30	23.9	C	L	0.31	23.9	C
	LR	0.69	35.3	D	LR	0.71	36.1	D	LR	0.67	33.6	C	LR	0.68	33.8	C	LR	0.47	27.4	C	LR	0.47	27.5	C	LR	0.49	27.4	C	LR	0.49	27.5	C
	Intersection		36.1	D	Intersection		38.1	D	Intersection		30.7	C	Intersection		31.0	C	Intersection		27.8	C	Intersection		28.9	C	Intersection		28.4	C	Intersection		28.7	C

Table 7-19 (cont'd)
2022 No Build and Build Level of Service Analysis
Manhattan Intersections

Intersection/ Approach	AM Peak Hour								Midday Peak Hour								PM Peak Hour								Saturday Peak Hour							
	No Build				Build				No Build				Build				No Build				Build				No Build				Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Battery Place and West Street (Northbound)																																
Eastbound	LT	0.37	0.5	A	LT	0.39	0.5	A	LT	0.34	0.4	A	LT	0.36	0.5	A	LT	0.18	0.2	A	LT	0.19	0.2	A	LT	0.21	0.2	A	DefL	0.87	12.1	B
																													T	0.30	0.5	A
Westbound	T	0.17	0.3	A	T	0.18	0.3	A	T	0.12	0.2	A	T	0.13	0.2	A	T	0.17	0.3	A	T	0.20	0.4	A	T	0.13	0.2	A	T	0.14	0.2	A
	R	0.33	0.5	A	R	0.34	0.6	A	R	0.36	0.6	A	R	0.40	0.8	A	R	0.44	1.0	A	R	0.48	1.2	A	R	0.30	0.5	A	R	0.31	0.5	A
	Intersection		0.5	A	Intersection		0.5	A	Intersection		0.5	A	Intersection		0.6	A	Intersection		0.6	A	Intersection		0.7	A	Intersection		0.3	A	Intersection		4.9	A
Battery Place and Washington Street																																
Eastbound	T	0.56	13.6	B	T	0.58	14.0	B	T	0.25	9.8	A	T	0.26	9.9	A	T	0.23	9.6	A	T	0.24	9.7	A	T	0.26	9.8	A	T	0.27	9.9	A
Westbound	T	0.51	12.6	B	T	0.52	12.8	B	T	0.44	11.7	B	T	0.45	11.8	B	T	0.54	13.1	B	T	0.58	13.7	B	T	0.37	10.8	B	T	0.38	10.9	B
Southbound	LR	0.24	25.0	C	LR	0.24	25.0	C	LR	0.16	23.7	C	LR	0.16	23.7	C	LR	0.30	26.1	C	LR	0.30	26.1	C	LR	0.18	24.0	C	LR	0.18	24.0	C
	Intersection		13.6	B	Intersection		13.8	B	Intersection		11.5	B	Intersection		11.6	B	Intersection		13.2	B	Intersection		13.5	B	Intersection		11.1	B	Intersection		11.1	B
Battery Place and Greenwich Street																																
Eastbound	L	0.63	24.0	C	L	0.66	26.5	C	L	0.36	12.8	B	L	0.37	13.2	B	L	0.33	12.4	B	L	0.35	13.3	B	L	0.38	12.8	B	L	0.39	13.0	B
	T	0.45	10.3	B	T	0.47	10.6	B	T	0.22	8.2	A	T	0.23	8.2	A	T	0.21	8.1	A	T	0.21	8.1	A	T	0.22	8.2	A	T	0.23	8.2	A
Westbound	TR	0.41	9.7	A	TR	0.43	9.9	A	TR	0.42	9.7	A	TR	0.43	9.8	A	TR	0.41	9.7	A	TR	0.44	10.0	A	TR	0.35	9.1	A	TR	0.36	9.2	A
	Intersection		11.1	B	Intersection		11.5	B	Intersection		9.5	A	Intersection		9.6	A	Intersection		9.4	A	Intersection		9.7	A	Intersection		9.1	A	Intersection		9.2	A
State Street and Peter Minuit Plaza																																
Eastbound	LR	0.36	47.6	D	LR	0.36	47.6	D	LR	0.33	45.1	D	LR	0.33	45.1	D	LR	0.34	48.4	D	LR	0.34	48.4	D	LR	0.34	48.4	D	LR	0.34	48.4	D
Northbound	LT	0.46	16.2	B	LT	0.49	16.6	B	LT	0.37	15.1	B	LT	0.39	15.2	B	LT	0.40	15.5	B	LT	0.45	16.1	B	LT	0.38	15.2	B	LT	0.40	15.4	B
Southbound	TR	0.64	27.4	C	TR	0.70	29.0	C	TR	0.53	25.2	C	TR	0.56	25.7	C	TR	0.51	24.7	C	TR	0.54	25.2	C	TR	0.72	29.9	C	TR	0.74	30.5	C
	Intersection		22.5	C	Intersection		23.5	C	Intersection		20.8	C	Intersection		21.1	C	Intersection		20.7	C	Intersection		21.0	C	Intersection		23.8	C	Intersection		24.2	C
South Street and Wall Street																																
Eastbound	T	0.43	16.0	B	T	0.49	17.1	B	L	0.31	14.1	B	T	0.34	14.5	B	T	0.22	13.0	B	T	0.30	14.0	B	T	0.22	13.0	B	T	0.24	13.3	B
Westbound	T	0.40	15.6	B	T	0.50	17.4	B	TR	0.37	14.9	B	T	0.40	15.4	B	T	0.41	15.6	B	T	0.44	16.1	B	T	0.35	14.7	B	T	0.36	14.8	B
Southbound	LR	0.86	86.9	F	LR	0.96	105.9	F +	R	0.86	86.0	F	LR	0.94	101.7	F +	LR	0.92	96.6	F	LR	0.99	114.4	F +	LR	0.62	60.9	E	LR	0.70	67.0	E +
	Intersection		28.9	C	Intersection		32.4	C	Intersection		29.9	C	Intersection		33.5	C	Intersection		34.5	C	Intersection		37.4	D	Intersection		22.7	C	Intersection		24.4	C
South Street and Maiden Lane																																
Eastbound	LT	0.80	29.1	C	LT	1.08	85.4	F +	LT	0.62	18.9	B	LT	0.71	23.0	C	LT	0.47	15.1	B	LT	0.67	21.3	C	LT	0.43	14.4	B	LT	0.47	15.2	B
Westbound	TR	0.59	17.6	B	TR	0.67	19.9	B	TR	0.53	16.1	B	TR	0.55	16.6	B	TR	0.59	17.2	B	TR	0.62	18.1	B	TR	0.55	16.3	B	TR	0.57	16.7	B
Southbound	LR	0.43	25.9	C	LR	0.46	26.6	C	LR	0.32	23.6	C	LR	0.35	24.2	C	LR	0.34	23.9	C	LR	0.37	24.3	C	LR	0.24	22.3	C	LR	0.24	22.3	C
	Intersection		24.0	C	Intersection		48.9	D	Intersection		18.6	B	Intersection		20.6	C	Intersection		17.8	B	Intersection		20.4	C	Intersection		16.5	B	Intersection		16.9	B

Note: L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.
+ implies a significant adverse impact

Table 7-20
2022 No Build and Build Level of Service Analysis
Brooklyn Intersections

Intersection/ Approach	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	No Build				Build				No Build				Build				No Build				Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
Joralemon Street and Court Street																								
Westbound	LT	0.56	43.4	D	LT	0.57	43.7	D	LT	0.51	29.6	C	LT	0.53	30.0	C	LT	0.56	43.7	D	LT	0.57	44.1	D
Southbound	TR	0.40	12.0	B	TR	0.40	12.1	B	TR	0.46	13.2	B	TR	0.47	13.3	B	TR	0.49	13.2	B	TR	0.49	13.3	B
	Intersection		18.9	B	Intersection		19.1	B	Intersection		16.9	B	Intersection		17.2	B	Intersection		18.4	B	Intersection		18.6	B
Joralemon Street and Furman Street																								
Eastbound	LR	0.75	54.6	D	LR	0.80	61.2	E +	LR	1.36	227.7	F	LR	1.42	253.0	F +	LR	0.91	80.2	F	LR	1.07	122.9	F +
Westbound	LTR	0.18	32.8	C	LTR	0.20	33.3	C	LTR	0.24	29.6	C	LTR	0.26	29.9	C	LTR	0.22	33.8	C	LTR	0.25	34.5	C
Northbound	LT	0.89	36.6	D	LT	0.89	37.8	D	LT	1.08	84.6	F	LT	1.10	88.9	F +	LT	1.11	102.9	F	LT	1.13	109.5	F +
Southbound	TR	0.42	12.9	B	TR	0.43	13.1	B	TR	0.77	17.6	B	TR	0.78	18.3	B	TR	0.83	25.9	C	TR	0.84	26.6	C
	Intersection		32.3	C	Intersection		33.9	C	Intersection		74.8	E	Intersection		80.6	F	Intersection		55.9	E	Intersection		65.1	E
Atlantic Avenue and Court Street																								
Eastbound	TR	0.80	36.0	D	TR	0.81	36.2	D	TR	0.91	41.2	D	TR	0.92	43.1	D	TR	0.97	60.2	E	TR	1.01	70.0	E +
Westbound	L	0.38	16.8	B	L	0.38	16.9	B	L	0.59	21.6	C	L	0.60	22.2	C	L	0.60	30.3	C	L	0.63	33.0	C
	T	0.82	33.1	C	T	0.83	34.2	C	T	0.89	38.1	D	T	0.90	39.4	D	T	0.98	62.9	E	T	0.99	64.9	E
Southbound	LTR	0.71	43.9	D	LTR	0.73	44.6	D	LTR	1.07	89.4	F	LTR	1.08	95.4	F +	LTR	1.05	86.5	F	LTR	1.06	88.9	F
	Intersection		36.0	D	Intersection		36.5	D	Intersection		52.3	D	Intersection		55.0	E	Intersection		67.3	E	Intersection		72.5	E
Atlantic Avenue and BQE Eastbound Ramps																								
Eastbound	L	0.74	49.8	D	L	0.75	51.6	D	L	0.66	46.4	D	L	0.66	46.8	D	L	0.69	55.1	E	L	0.70	61.3	E +
	T	0.20	3.5	A	T	0.20	3.6	A	T	0.19	2.8	A	T	0.20	2.8	A	T	0.17	3.4	A	T	0.19	3.5	A
Westbound	T	0.65	19.6	B	T	0.67	20.1	C	T	0.84	25.4	C	T	0.86	26.8	C	T	1.01	57.6	E	T	1.03	60.6	E
	R	0.77	18.7	B	R	0.77	18.7	B	R	0.49	13.1	B	R	0.49	13.1	B	R	0.41	9.3	A	R	0.41	9.3	A
Northbound	L	0.41	54.4	D	L	0.42	54.6	D	L	0.65	57.0	E	L	0.66	57.9	E	L	0.41	54.2	D	L	0.42	54.4	D
	Intersection		21.2	C	Intersection		21.5	C	Intersection		21.7	C	Intersection		22.3	C	Intersection		37.1	D	Intersection		38.6	D
Atlantic Avenue and Columbia Street																								
Eastbound	T	0.17	14.1	B	T	0.17	14.2	B	T	0.20	10.8	B	T	0.21	10.9	B	T	0.24	26.4	C	T	0.29	27.0	C
Westbound	L	0.37	17.9	B	L	0.38	18.3	B	L	0.52	17.4	B	L	0.59	20.2	C	L	1.18	147.1	F	L	1.52	290.0	F +
	LT	0.36	17.7	B	LT	0.38	18.1	B	LT	0.49	16.5	B	LT	0.56	18.7	B	LT	1.10	117.3	F	LT	1.38	230.6	F +
Northbound	LR	0.95	67.2	E	LR	0.96	68.1	E	LR	0.65	32.3	C	LR	0.66	32.7	C	LR	0.44	18.5	B	LR	0.44	18.6	B
	R	0.48	31.8	C	R	0.48	31.8	C	R	0.32	23.7	C	R	0.32	23.7	C	R	0.25	15.4	B	R	0.25	15.4	B
	Intersection		36.8	D	Intersection		37.1	D	Intersection		19.9	B	Intersection		20.8	C	Intersection		76.6	E	Intersection		138.1	F
Atlantic Avenue and Furman Street																								
Eastbound	T	0.04	12.9	B	T	0.04	12.9	B	T	0.04	9.6	A	T	0.05	9.6	A	T	0.04	23.8	C	T	0.08	24.3	C
Westbound	T	0.05	13.1	B	T	0.07	13.3	B	T	0.05	9.8	A	T	0.07	9.9	A	T	0.11	24.9	C	T	0.13	25.2	C
	R	0.21	0.4	A	R	0.23	0.5	A	R	0.19	0.4	A	R	0.23	0.5	A	R	0.18	0.3	A	R	0.25	0.6	A
Southbound	LT	0.93	60.6	E	LT	0.93	60.6	E	LT	1.43	233.6	F	LT	1.43	234.4	F	LT	1.12	97.4	F	LT	1.12	98.7	F
	Intersection		37.5	D	Intersection		37.1	D	Intersection		167.0	F	Intersection		163.4	F	Intersection		73.9	E	Intersection		73.0	E
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)																								
Southbound	R	0.01	9.2	A	R	0.02	10.7	B	R	0.01	9.4	A	R	0.03	12.3	B	R	0.01	9.4	A	R	0.02	12.8	B

Table 7-20 (cont'd)
2022 No Build and Build Level of Service Analysis
Brooklyn Intersections

Intersection/ Approach	AM Peak Hour								Midday Peak Hour								PM Peak Hour							
	No Build				Build				No Build				Build				No Build				Build			
	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS	Lane Group	V/C Ratio	Delay (spv)	LOS
BQE Westbound Ramps and Columbia Street																								
Westbound	L	1.07	81.3	F	L	1.07	81.3	F	L	1.05	74.4	E	L	1.05	74.4	E	L	0.58	23.4	C	L	0.58	23.4	C
Northbound	T	0.85	34.6	C	T	0.85	34.8	C	T	0.64	23.4	C	T	0.64	23.6	C	T	0.76	28.0	C	T	0.76	28.3	C
Southbound	L	0.45	18.8	B	L	0.45	18.9	B	L	0.71	24.2	C	L	0.72	25.2	C	L	1.12	95.9	F	L	1.13	100.1	F +
	T	0.55	11.8	B	T	0.55	11.8	B	T	0.85	22.7	C	T	0.85	22.9	C	T	1.00	43.9	D	T	1.00	46.0	D
	Intersection		42.1	D	Intersection		42.2	D	Intersection		37.5	D	Intersection		37.7	D	Intersection		52.9	D	Intersection		54.9	D
BQE Westbound Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)																								
Westbound	R	0.26	9.6	A	R	0.26	9.7	A	R	0.19	9.3	A	R	0.20	9.5	A	R	0.12	9.2	A	R	0.13	9.4	A

Notes: **Note:** L: Left Turn; T: Through; R: Right Turn; LOS: Level of Service.
+ implies a significant adverse impact

SIGNIFICANT IMPACTS

Significant adverse traffic impacts were identified at fifteen approaches/lane groups. Potential measures that can be implemented to mitigate these significant adverse traffic impacts, including adjustments to existing signal timings, are discussed in Chapter 15, "Mitigation."

Manhattan

- The eastbound approach at the signalized intersection of Whitehall Street and Water Street would deteriorate from LOS E from 74.5 seconds of delay to LOS F with 107.8 seconds of delay during the AM peak hour and from LOS E with 74.5 seconds of delay to LOS F with 81.6 seconds of delay during the Saturday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound approach at the signalized intersection of Broad Street and Water Street would deteriorate beyond mid-LOS D with 50.4 seconds of delay during the Saturday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound approach at the unsignalized intersection of Broad Street and South Street would deteriorate from LOS C with 17.7 seconds of delay to LOS F with 92.7 seconds of delay during the Saturday peak hour.
- The westbound approach at the signalized intersection of South Street and Old Slip would deteriorate from LOS D with 40.3 seconds of delay to LOS E with 62.3 seconds of delay during the AM peak hour, from below mid-LOS D with 43.8 seconds of delay to above mid-LOS D with 53.7 seconds of delay during the midday peak hour, and within LOS E from 57.9 seconds of delay to 78.0 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The northbound through/right-turn lane at the signalized intersection of South Street and Old Slip would deteriorate from LOS D with 48.4 seconds of delay to LOS E with 77.0 seconds of delay during the AM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound approach at the signalized intersection of South Street and Wall Street would deteriorate within LOS F from 86.9 seconds of delay to 105.9 seconds of delay during the AM peak hour, within LOS F from 86.0 seconds of delay to 101.7 seconds of delay during the midday peak hour, within LOS F from 96.6 seconds of delay to 144.4 seconds of delay during the PM peak hour, and within LOS E from 60.9 seconds of delay to 67.0 seconds of delay during the Saturday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound approach at the signalized intersection of South Street and Maiden Lane would deteriorate from LOS C with 29.1 seconds of delay to LOS F with 85.4 seconds of delay during the AM peak hour. This projected increase in delay constitutes a significant adverse impact.

Brooklyn

- The eastbound approach at the signalized intersection of Joralemon Street and Furman Street would deteriorate from LOS D (54.6 second of delay) to LOS E (61.2 seconds of delay) during the AM peak hour, within LOS F from 227.7 seconds of delay to 253.0 seconds of delay during the midday peak hour, and within LOS F from 80.2 seconds of delay to 122.9

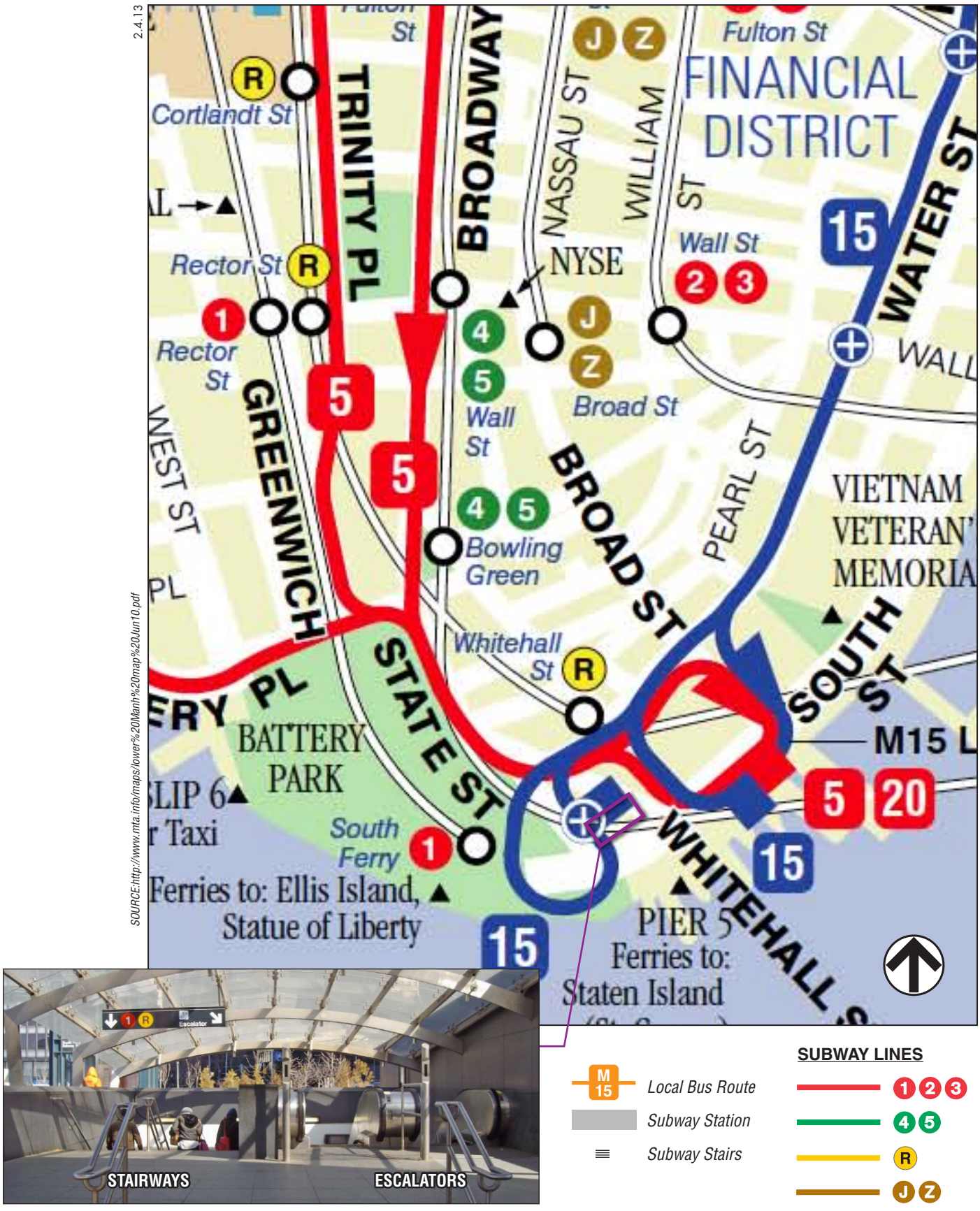
seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.

- The northbound approach at the signalized intersection of Joralemon Street and Furman Street would deteriorate within LOS F from 84.6 seconds of delay to 88.9 seconds of delay during the midday peak hour and within LOS F from 102.9 seconds of delay to 109.5 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound approach at the signalized intersection of Atlantic Avenue and Court Street would deteriorate within LOS F from 89.4 seconds of delay to 95.4 second of delay during the midday peak hour. This projected increase in delay constitutes a significant adverse impact.
- The eastbound approach at the signalized intersection of Atlantic Avenue and Court Street would deteriorate within LOS E from 60.2 seconds of delay to 70.0 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The exclusive eastbound left-turn lane at the signalized intersection of Atlantic Avenue and the BQE Eastbound Ramps would deteriorate within LOS E from 55.1 seconds of delay to 61.3 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The exclusive westbound left-turn lane at the signalized intersection of Atlantic Avenue and Columbia Street would deteriorate within LOS F from 147.1 seconds of delay to 290.0 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The shared westbound left-turn/through lane at the signalized intersection of Atlantic Avenue and Columbia Street would deteriorate within LOS F from 117.3 seconds of delay to 230.6 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.
- The southbound left-turn lane at the signalized intersection of the BQE Ramps and Columbia Street would deteriorate within LOS F from 95.9 seconds of delay to 100.1 seconds of delay during the PM peak hour. This projected increase in delay constitutes a significant adverse impact.

G. TRANSIT

Mass transit options serving the two ferry portals connecting Manhattan and Brooklyn to Governors Island are shown in **Figures 7-40** and **7-41**. The mass transit options available at the BMB ferry portal include the No. 4/5 lines at the Bowling Green station, the 1/R lines at the South Ferry/Whitehall station, and the M5, M15 (local and SBS) and M20 bus routes. Some visitors from Manhattan would also take tour buses to the various stops in the Battery Park/South Ferry Terminal area and board the ferry at the BMB ferry portal.

Although there are approximately 15 bus routes and numerous subway lines serving the downtown Brooklyn area, the most preferable mass transit options to the Pier 6 ferry portal include the Nos. 2/3/4/5 and R lines at the Court Street-Borough Hall station, the A/C/F lines at the Jay Street-Metro Tech station, the F/G lines at the Bergen Street station, the B/Q/R lines at the DeKalb Avenue station, and the B61 and B63 bus routes.



PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

BMB–Public Transit Options
Figure 7-40

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6–Public Transit Options
Figure 7-41

TRANSIT STUDY AREAS

SUBWAY SERVICE

Below is a summary of the subway lines that serve the BMB and Pier 6 ferry portals. Subway lines serving stations further away are shown on the transit maps (**Figures 7-40** and **7-41**) but are not included in the discussion below.

Subway Lines Serving Manhattan—BMB Ferry Portal

- The No. 1 subway line (7th Avenue Local) operates between the South Ferry Terminal in Lower Manhattan and Van Cortlandt Park-242nd Street in the Bronx.
- The No. 4 subway line (Lexington Avenue Express) operates between Crown Heights-Utica Avenue in Brooklyn and Woodlawn/Jerome Avenue in the Bronx. The No. 4 line runs express primarily along Lexington Avenue in Manhattan and in Brooklyn.
- The No. 5 subway line (Lexington Avenue Express) operates between Flatbush Avenue in Brooklyn and Eastchester-Dyre Avenue in the Bronx. The No. 5 line runs express along Lexington Avenue in Manhattan and in Brooklyn at all times.
- The R subway line (Broadway Local) operates between 95th Street-4th Avenue in Brooklyn and Forest Hilles-71st Avenue in Queens.

Subway Lines Serving Brooklyn–Pier 6 Ferry Portal (See Above for Nos. 4, 5 and R Lines)

- The No. 2 subway line (7th Avenue Express) operates between Flatbush Avenue in Brooklyn and Wakefield-241st Street in the Bronx at all times. The No. 2 line runs express in Manhattan except late night when it operates local.
- The No. 3 subway line (7th Avenue Express) operates between New Lots Avenue in Brooklyn and Harlem-148th Street/7th Avenue in Manhattan at all times except late night. During late night, the No. 3 trains only run in Manhattan between Times Square-42nd Street and Harlem-148th Street/7th Avenue.
- The A subway line (8th Avenue Express) operates between Far Rockaway-Mott Avenue in Queens and Inwood-207th Street in Manhattan at all times.
- The C subway line (8th Avenue Local) operates between Euclid Avenue in Brooklyn and 168th Street in Manhattan.
- The F subway line (Queens Boulevard Express/6th Avenue Local) operates between Stillwell Avenue in Brooklyn and Jamaica in Queens via the 63rd Street connector. The F line runs express along Queens Boulevard.
- The G subway line operates between Church Avenue in Brooklyn and Court Square in Queens at all times.
- The B subway line operates between Brighton Beach in Brooklyn and 145 Street in Manhattan at all times except late night. The B train operates a part-time extension during rush hour only from 145 Street in Manhattan to Bedford Park Boulevard in the Bronx.
- The Q subway line operates between Coney Island in Brooklyn and 57 Street in Manhattan at all times. The Q train operates part-time from 57 Street in Manhattan to Astoria-Ditmars Boulevard in Queens.

BUS SERVICE

Based on the travel demand estimates and the availability and service frequencies of bus routes near the BMB and Pier 6 ferry portals, it was determined no individual bus route would experience 50 or more peak hour bus trips in one direction, the CEQR-recommended threshold for undertaking a quantified bus analysis. **Table 7-21** provides a summary of the NYCT local bus routes that provide regular service to the two ferry portals and their frequencies of operation. All of these routes use standard buses with a guideline capacity of 54 to 55 passengers per bus, except for the M15 bus routes (local and SBS), which use articulated buses with a guideline capacity of 85 passengers per bus.

Table 7-21
NYCT Local Bus Routes Serving the Study Area

Bus Route	Start Point	End Point	Routing in Study Area	Freq. of Bus Service (Headway in Minutes)			
				AM	MD	PM	Sat.
M5 (NB/SB)	Washington Heights	Staten Island Ferry	State Street, Water Street, Broad Street, South Street, Whitehall Street	6-8/5-8	10-12/12	10/ 10-12	10/10
M15-Local (NB/SB)	East Harlem	South Ferry	Water Street	13-15/ 13-14	18/16-17	16-18/ 16-19	18-20/21
M15-SBS (NB/SB)				6-8/6-11	6-8/6-7	5-6/6	10-12/ 8-9
M20 (NB/SB)	Lincoln Center	South Ferry	Battery Place, State Street	20/20	15/15	15/15	15/14-18
B61 (NB/SB)	Windsor Terrace	Downtown Brooklyn	Columbia Street, Atlantic Ave, Smith Street, Boerum Place	8-10/ 8-10	12/12	8-9/7-9	12/12
B63 (NB/SB)	Fort Hamilton	Brooklyn Bridge Park	Atlantic Avenue	12-15/ 10-15	12/10-12	10-12/ 10-12	8-10/8-9

Source: MTA NYCT Bus Timetables (2012).

2012 EXISTING CONDITIONS—SUBWAY STATION OPERATIONS

Field surveys conducted in September 2012 provided the baseline volumes for the analysis of subway station elements. The transit analyses include an evaluation of weekday AM and PM peak period operating conditions at the two subway stations nearest the BMB ferry portal, the Bowling Green (Nos. 4/5 lines) and South Ferry Terminal/Whitehall stations (No. 1 and R lines), and the Court Street/Borough Hall station (Nos. 2/3/4/5 and R lines) for the Pier 6 ferry portal.

BOWLING GREEN STATION (NOS. 4/5 LINES)

The Bowling Green station runs along State Street between Beaver Street (north of Battery Place) and Stone Street (north of Bridge Street). The control area and stairway located at the entry way just south of the State Street and Battery Place intersection and the control area, escalator and stairway located at the plaza entrance just west of Broadway were analyzed.

SOUTH FERRY TERMINAL/WHITEHALL STATION (NO. 1 AND R LINES)

The South Ferry/Whitehall station occupies the area beneath Whitehall Street (R line) running from Stone Street to just below Water Street and the area along State Street (No.1 line) between Pearl Street and South Ferry. Stairways and escalators located in Peter Minuit Plaza in front of the South Ferry Terminal entrance and the stairways on Whitehall Street provide access to the

main control area serving the No. 1 and R lines. Subway riders can also connect to either line through a passageway provided within the station. The transit analyses include the main stairways and escalators in the plaza area, the secondary stairway on the southeast side of Whitehall Street, the main control area one level below grade, and the platform stairways at the south end of the Whitehall Street station serving the uptown and downtown R subway line.

COURT STREET/BOROUGH HALL (NOS. 2/3/4/5 AND R LINES)

The Court Street/Borough Hall station occupies the area beneath Joralemon Street between Court Street and Boerum Place. The stairway located at the southwest corner of Joralemon and Court Street is expected to be used by most of the projected transit riders traveling to/from the Pier 6 ferry portal, and therefore, was included in the stairway analysis.

The Court Street/Borough Hall station occupies the area beneath Joralemon Street between Court Street and Boerum Place. The stairway located at the southwest corner of Joralemon and Court Street is expected to be used by most of the projected transit riders traveling to/from the Pier 6 ferry portal, and therefore, was included in the stairway analysis.

As shown in **Tables 7-22**, **7-23, and 7-24**, all analyzed stairways, escalators, and control areas currently operate at acceptable levels, with the exception of the Bowling Green station State Street stairway during the AM peak period (v/c = 1.03), the Bowling Green station plaza stairway during the PM peak period (v/c = 1.09), and the Whitehall Street station south stairway to the downtown R train platform during the PM peak period (v/c = 1.10).

2012 EXISTING CONDITIONS—SUBWAY LINE HAUL LEVELS

The subway line-haul analysis includes an evaluation of weekday AM and PM peak period operating conditions at the Nos. 1, 4, 5, and R subway lines. The Nos. 4, 5, and 1 subway lines operate 10-car trains and the guideline capacity of these cars is 110 passengers each. The R subway line operates 8-car trains and the guideline capacity of these cars is 155 passengers each. The 2011 northbound and southbound peak load point passenger volumes and the number of peak period trains were obtained from NYCT. A 0.5 percent annual growth rate was applied to generate the existing 2012 peak load point volumes for analysis. As shown in **Table 7-25**, the No. 1 and R trains currently operate below guideline capacity during the weekday AM and PM peak period. However, the Nos. 4 and 5 trains exceed the guideline capacity southbound during the AM peak period.

Table 7-22
2012 Existing Conditions Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	Peak Hour Factors (PHF)	1 Hour Pedestrian Volumes		Surging Factor (Exit from Ferry)[2]	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
				Up	Down					
Weekday AM Peak 15 Minutes										
Manhattan–BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway—Inside	7.7	6.5	0.80	1,976	356	0.95	0.75	0.9	1.03	D
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance										
SW Stairway—Inside	12.3	11.1	0.82	2,114	1,147	0.95	0.75	0.9	0.82	C
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry										
Main Stairway—Plaza Area	10.5	9.3	0.80	35	1,633	0.80	0.90	1.0	0.47	B
SE Stairway on Whitehall	6.0	5.0	0.80	647	21	0.95	0.90	1.0	0.31	A
North Uptown R Line Stairway[1]	3.8	2.8	0.84	47	996	0.95	0.75	1.0	0.98	C
South Uptown R Line Stairway[1]	4.8	3.8	0.80	882	332	0.95	0.75	0.9	0.84	C
North Downtown R Line Stairway[1]	3.8	2.8	0.80	32	177	0.95	0.75	0.9	0.22	A
South Downtown R Line Stairway[1]	4.8	3.8	0.80	587	59	0.95	0.75	0.9	0.42	A
Brooklyn—Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.81	560	905	-	0.80	0.9	0.90	C
Weekday PM Peak 15 Minutes										
Manhattan—BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway—Inside	7.7	6.5	0.80	1,317	633	0.95	0.75	0.9	0.75	C
Bowling Green Station (4,5 lines)–Broadway Plaza Entrance										
SW Stairway—Inside	12.3	11.1	0.80	22	5,473	0.95	0.75	1.0	1.09	D
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry										
Main Stairway—Plaza Area	10.5	9.3	0.80	349	478	0.80	0.90	0.9	0.25	A
SE Stairway on Whitehall	6.0	5.0	0.89	40	466	0.95	0.90	0.9	0.23	A
North Uptown R Line Stairway[1]	3.8	2.8	0.89	15	391	0.95	0.75	1.0	0.36	A
South Uptown R Line Stairway[1]	4.8	3.8	0.87	282	131	0.95	0.75	0.9	0.26	A
North Downtown R Line Stairway[1]	3.8	2.8	0.88	85	586	0.95	0.75	0.9	0.66	B
South Downtown R Line Stairway[1]	4.8	3.8	0.86	1597	195	0.95	0.75	0.9	1.10	D
Brooklyn—Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.80	391	514	-	0.80	0.9	0.57	B

Notes:
(1) Platform level stairways serving the R subway line at the south end of the Whitehall Street station.
(2) Surging Factors exiting from the Ferry were developed in coordination with NYCT
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [Vin/(150 * We * Sf * Ff)]+ [Vx/(150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx= Peak 15-minute exiting passenger volume
We= Effective width of stairs
Sf = Surging factor (if applicable)
Ff= Friction factor (if applicable)

Table 7-23
2012 Existing Conditions Subway Escalator Analysis

Station Elements	Qty.	Tread Width (in)	Surging Factor	Peak Hour Factors (PHF)	1 Hour Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
					Up	Down			
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.96	2,478	-	945	0.76	C
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.80	75	-	1050	0.21	A
Escalator Down	1	40	0.8	0.80	-	993	1050	0.37	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.86	633	-	945	0.22	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.89	1,815	-	1050	0.52	B
Escalator Down	1	40	0.8	0.80	-	905	1050	0.34	A

Note:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [V/Gcap* Sf]
Where
V = Peak 15-minute passenger volume
Gcap = Guideline capacity for escalator
Sf = Surging factor (if applicable)

Table 7-24
2012 Existing Conditions Subway Control Area Analysis

Station Control Elements	Quantity	Peak Hour Factors (PHF)	1 Hour Existing Pedestrian Volumes		Surging Factor (Exit from Ferry)[1]	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
			In	Out					
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.83	294	1,924	-	0.8	0.9	0.37	A
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	1,080	2,436	-	0.75	0.9	0.33	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.80	2,715	2,736	0.8	0.9	0.9	0.26	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.92	633	1,317	-	0.8	0.9	0.31	A
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	4,543	353	-	0.75	0.9	0.50	B
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.87	3,470	2,284	0.8	0.9	0.9	0.27	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [Vin/Cin* Ff] + [Vx/Cx* Sf*Ff]
Where
Vin = Peak 15-minute entering passenger volume
Cin = Total 15-minute capacity of all turnstiles for entering passengers
Vx = Peak 15-minute exiting passenger volume
Cx = Total 15-minute capacity of all turnstile for exiting passengers
Sf = Surging factor (if applicable)
Ff = Friction factor

Table 7-25
2012 Existing Conditions: Peak Hour Subway Line Haul

Route	Peak Load Point	Trains /Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
AM Peak Period						
Manhattan-bound No. 4 Express	Fulton Street	13.7	10,254	15,070	0.68	4,816
Brooklyn-bound No. 4 Express	86th Street	14.1	16,035	15,510	1.03	-525
Manhattan-bound No. 5 Express	Fulton Street	12.3	9,140	13,530	0.68	4,390
Brooklyn-bound No. 5 Express	86th Street	12.8	14,429	14,080	1.02	-349
Brooklyn-bound No. 1 Local	103rd Street	19.5	17,484	21,450	0.82	3,966
Manhattan-bound R Local	DeKalb Ave	10.6	9,827	13,144	0.75	3,317
Brooklyn-bound R Local	Queens Plaza	9.6	9,363	11,904	0.79	2,541
PM Peak Period						
Manhattan-bound No. 4 Express	14th Street-Union Square	13.0	13,909	14,300	0.97	391
Brooklyn-bound No. 4 Express	Bowling Green	13.0	11,698	14,300	0.82	2,602
Manhattan-bound No. 5 Express	14th Street-Union Square	12.0	12,673	13,200	0.96	527
Brooklyn-bound No. 5 Express	Bowling Green	8.0	7,688	8,800	0.87	1,112
Brooklyn-bound No. 1 Local	59th Street-Columbus Circle	15.0	14,733	16,500	0.89	1,767
Manhattan-bound R Local	Lexington Ave/59th Street	9.4	5,170	11,656	0.44	6,486
Brooklyn-bound R Local	Jay Street-MetroTech	10.6	6,685	13,144	0.51	6,459

Sources: New York City Transit

2022 NO BUILD CONDITION—SUBWAY STATION OPERATIONS

Estimates of peak hour transit volumes in the 2022 No Build condition were developed by applying the 2012 *CEQR Technical Manual*-recommended annual background growth rates. An annual compounded background growth rate of 0.25 percent was applied to the transit volumes from 2012 to 2017, and an annual compounded background growth rate of 0.125 percent was applied to the transit volumes from 2017 to 2022. In addition, trips associated with projects anticipated to be completed with or without the Proposed Project (No Build projects) were incorporated into the future No Build transit volumes.

As shown in **Tables 7-26, 7-27,** and **7-28**, all station stairways, escalators, and control elements would continue to operate at acceptable levels, with the following exceptions;

- The stairway at the Bowling Green station State Street entrance, which would continue to operate at LOS D with a v/c ratio of 1.06 during the AM peak period;
- The stairway at the Bowling Green station plaza entrance would continue to operate at LOS D during the PM peak period with a v/c ratio of 1.11; and
- The Whitehall Street station south stairway to the downtown R train platform would continue to operate at LOS D during the PM peak period with a v/c ratio of 1.19.

Table 7-26
2022 No Build Conditions Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	Peak Hour Factors (PHF)	1 Hour No Build Pedestrian Volumes		Surging Factor (Exit from Ferry)[2]	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
				Up	Down					
Weekday AM Peak 15 Minutes										
Manhattan—BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway—Inside	7.7	6.5	0.80	2,026	367	0.95	0.75	0.9	1.06	D
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance										
SW Stairway—Inside	12.3	11.1	0.82	2,158	1,176	0.95	0.75	0.9	0.84	C
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry										
Main Stairway—Plaza Area	10.5	9.3	0.80	36	1,668	0.80	0.90	1.0	0.48	B
SE Stairway on Whitehall	6.0	5.0	0.80	669	27	0.95	0.90	1.0	0.32	A
North Uptown R Line Stairway[1]	3.8	2.8	0.84	48	1,018	0.95	0.75	1.0	1.00	C
South Uptown R Line Stairway[1]	4.8	3.8	0.80	907	339	0.95	0.75	0.9	0.86	C
North Downtown R Line Stairway[1]	3.8	2.8	0.80	33	183	0.95	0.75	0.9	0.23	A
South Downtown R Line Stairway[1]	4.8	3.8	0.80	606	61	0.95	0.75	0.9	0.44	A
Brooklyn–Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.81	585	933	-	0.80	0.9	0.93	C
Weekday PM Peak 15 Minutes										
Manhattan—BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway—Inside	7.7	6.5	0.80	1,357	655	0.95	0.75	0.9	0.77	C
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance										
SW Stairway—Inside	12.3	11.1	0.80	22	5,594	0.95	0.75	1.0	1.11	D
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry										
Main Stairway—Plaza Area	10.5	9.3	0.80	378	535	0.80	0.90	0.9	0.27	A
SE Stairway on Whitehall	6.0	5.0	0.89	176	609	0.95	0.90	0.9	0.36	A
North Uptown R Line Stairway[1]	3.8	2.8	0.89	19	461	0.95	0.75	1.00	0.41	A
South Uptown R Line Stairway[1]	4.8	3.8	0.87	350	153	0.95	0.75	0.90	0.34	A
North Downtown R Line Stairway[1]	3.8	2.8	0.88	91	660	0.95	0.75	0.90	0.72	C
South Downtown R Line Stairway[1]	4.8	3.8	0.86	1,705	219	0.95	0.75	0.90	1.19	D
Brooklyn—Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.80	414	544	-	0.80	0.9	0.60	B

Notes:
(1) Platform level stairways serving the R subway line at the south end of the Whitehall Street station.
(2) Surging Factors exiting from the Ferry were developed in coordination with NYCT.
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual.*
V/C = [Vin/(150 * We * Sf * Ff)]+ [Vx/(150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx= Peak 15-minute exiting passenger volume
We= Effective width of stairs
Sf = Surging factor (if applicable)
Ff= Friction factor (if applicable)

Table 7-27
2022 No Build Conditions Subway Escalator Analysis

Station Elements	Qty.	Tread Width (in)	Surging Factor	Peak Hour Factors (PHF)	1 Hour No Build Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
					Up	Down			
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.96	2,529	-	945	0.78	C
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.80	785	-	1050	0.22	A
Escalator Down	1	40	0.8	0.80	-	1,015	1050	0.38	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.86	654	-	945	0.22	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.89	1,964	-	1050	0.56	B
Escalator Down	1	40	0.8	0.80	-	1,012	1050	0.38	A

Note:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [V/Gcap* Sf]
Where
V = Peak 15-minute passenger volume
Gcap = Guideline capacity for escalator
Sf = Surging factor (if applicable)

Table 7-28
2022 No Build Conditions Subway Control Area Analysis

Station Control Elements	Quantity	Peak Hour Factors (PHF)	1 Hour No Build Pedestrian Volumes		Surging Factor (Exit from Ferry)	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
			In	Out					
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.83	312	1,965	-	0.8	0.9	0.38	A
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	1,109	2,489	-	0.75	0.9	0.34	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.80	2,788	2,799	0.8	0.9	0.9	0.27	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.92	660	1,352	-	0.8	0.9	0.32	A
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	4,638	377	-	0.75	0.9	0.51	B
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.87	3,805	2,598	0.8	0.9	0.9	0.30	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [Vin/Cin* Ff] + [Vx/Cx* Sf*Ff]
Where
Vin = Peak 15-minute entering passenger volume
Cin = Total 15-minute capacity of all turnstiles for entering passengers
Vx = Peak 15-minute exiting passenger volume
Cx = Total 15-minute capacity of all turnstile for exiting passengers
Sf = Surging factor (if applicable)
Ff = Friction factor

2022 NO BUILD CONDITIONS—SUBWAY LINE HAUL LEVELS

Subway ridership numbers were also adjusted to 2022 levels using an annual background growth rate of 0.50 percent for the first five years and then 0.25 percent for the remaining years. Furthermore, trips associated with major new developments contributing subway riders to the Nos. 1, 4, 5, and R subway lines were superimposed onto the 2022 background line-haul volumes to generate No Build peak period volumes for the subway line-haul analysis. Subway trips generated by No Build projects in Manhattan were distributed directionally in a similar manner as subway trips generated by the Proposed Project. As shown in **Table 7-29**, all subway lines would continue to operate below guideline capacity, except for the Nos. 4 and 5 subway lines operating downtown during the AM peak period and uptown during the PM peak period.

Table 7-29
2022 No Build Conditions: Peak Hour Subway Line Haul

Route	Peak Load Point	Trains /Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
AM Peak Period						
Manhattan-bound No. 4 Express	Fulton Street	13.7	10,653	15,070	0.71	4,417
Brooklyn-bound No. 4 Express	86th Street	14.1	16,650	15,510	1.07	-1,140
Manhattan-bound No. 5 Express	Fulton Street	12.3	9,496	13,530	0.70	4,034
Brooklyn-bound No. 5 Express	86th Street	12.8	14,983	14,080	1.06	-903
Brooklyn-bound No. 1 Local	103rd Street	19.5	18,158	21,450	0.85	3,292
Manhattan-bound R Local	DeKalb Ave	10.6	10,212	13,144	0.78	2,932
Brooklyn-bound R Local	Queens Plaza	9.6	9,731	11,904	0.82	2,173
PM Peak Period						
Manhattan-bound No. 4 Express	14th Street-Union Square	13.0	14,451	14,300	1.01	-151
Brooklyn-bound No. 4 Express	Bowling Green	13.0	12,156	14,300	0.85	2,144
Manhattan-bound No. 5 Express	14th Street-Union Square	12.0	13,168	13,200	1.00	32
Brooklyn-bound No. 5 Express	Bowling Green	8.0	7,993	8,800	0.91	807
Brooklyn-bound No. 1 Local	59th Street-Columbus Circle	15.0	15,403	16,500	0.93	1,097
Manhattan-bound R Local	Lexington Ave/59th Street	9.4	5,531	11,656	0.47	6,125
Brooklyn-bound R Local	Jay Street-MetroTech	10.6	7,104	13,144	0.54	6,040

Sources: New York City Transit

2022 BUILD CONDITION—SUBWAY STATION OPERATIONS

The project-generated transit volumes were distributed throughout the transit networks based on their proximity to subway stations and bus routes. These volumes were allocated to the transit analysis elements described above and added to the projected 2022 No Build volumes to generate the 2022 Build volumes for analysis. Project-generated subway trips were distributed as follows:

MANHATTAN BMB FERRY PORTAL

- 20 percent to the Nos. 4/5 lines at the Bowling Green station State Street entrance;
- 20 percent to the Nos. 4/5 lines at the Bowling Green station Broadway plaza entrance;
- 5 percent to J/Z lines at the Broad Street station;
- 5 percent to Nos. 2/3 lines at the Wall Street station;

- 25 percent to the No. 1 and R lines at the South Ferry-Whitehall Street station main entrance;
- 5 percent to the No. 1 line at the South Ferry-Whitehall Street station secondary entrance; and
- 20 percent to the No. 1 and R lines at South Ferry-Whitehall Street station southeast stairway on Whitehall Street.

BROOKLYN PIER 6 FERRY PORTAL

- 50 percent to the No. 2/3/4/5 and R lines at the Court Street-Borough Hall station;
- 10 percent to the F/G lines at Bergen Street station;
- 30 percent to the A/C/F/M/R line at the Jay Street-Metro Tech station; and
- 10 percent to the B/Q/R lines at the DeKalb Avenue station.

As shown in **Tables 7-30** through **7-32,** all station stairways, escalators and control area elements would continue to operate at acceptable levels, with the following exceptions;

- The stairway at the Bowling Green station State Street entrance, would operate at LOS D with a v/c ratio of 1.27 during the AM peak period;
- The stairway at the Bowling Green station plaza entrance would operate at LOS D during the PM peak period with a v/c ratio of 1.17;
- The Whitehall Street station north stairway to the uptown R train platform would operate at LOS D during the AM peak period with a v/c ratio of 1.03;
- The Whitehall Street station south stairway to the uptown R train platform would operate at LOS D during the AM peak period with a v/c ratio of 1.12; and
- The Whitehall Street station south stairway to the downtown R train platform would operate at LOS D during the PM peak periods with a v/c ratio of 1.25.

Compared to the No Build service levels, Build operations at the Bowling Green station State Street stairway would exceed the 2012 *CEQR Technical Manual* WIT impact threshold during the AM peak period. Therefore, significant adverse subway impacts were identified for the stairway. Measures that can be implemented to mitigate these projected impacts are discussed in Chapter 15, "Mitigation."

Although the Bowling Green station plaza entrance stairway is expected to deteriorate to LOS D with a v/c ratio of 1.17 during the PM peak period, the required widening to achieve a 1.00 or lower v/c ratio for the peak period conditions is 6.9 inches, which is less than the 2012 *CEQR Technical Manual* WIT of 7.0 inches (see **Table 7-10**). Similarly, the north and south uptown R train platform stairways are expected to deteriorate to LOS D with v/c ratios of 1.03 and 1.12, respectively, during the AM peak period. The required widening for the north and south stairways to achieve 1.00 or lower v/c ratios for the peak period conditions are 0.9 and 5.3 inches, respectively, which are less than the 2012 *CEQR Technical Manual* WIT of 8.0 inches for the uptown north stairway and 7.0 inches for the uptown south stairway. Also, the south stairway to the downtown R train platform is expected to deteriorate to LOS D with a v/c ratio of 1.25 during the PM peak period. The required widening to achieve a 1.00 or lower v/c ratio for the peak period conditions is 1.9 inches, which is less than the 2012 *CEQR Technical Manual* WIT of 6.0 inches. Hence, none of these subway elements would experience significant impacts under *CEQR.*

Table 7-30
2022 Build Conditions Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	Peak Hour Factors (PHF)	1 Hour Build Pedestrian Volumes		Surging Factor (Exit from Ferry)[2]	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
				Up	Down					
Weekday AM Peak 15 Minutes										
Manhattan—BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway—Inside	7.7	6.5	0.80	2,462	395	0.95	0.75	0.9	1.27	D
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance										
SW Stairway — Inside	12.3	11.1	0.82	2,359	1,204	0.95	0.75	0.9	0.90	C
Whitehall/South Ferry Station (1, R lines) — Whitehall Street and South Ferry										
Main Stairway — Plaza Area	10.5	9.3	0.80	58	1,668	0.80	0.90	1.0	0.48	B
SE Stairway on Whitehall	6.0	5.0	0.80	1,105	55	0.95	0.90	1.0	0.53	B
North Uptown R Line Stairway[1]	3.8	2.8	0.84	64	1,034	0.95	0.75	1.0	1.03	D
South Uptown R Line Stairway[1]	4.8	3.8	0.80	1,218	344	0.95	0.75	0.9	1.12	D
North Downtown R Line Stairway[1]	3.8	2.8	0.80	49	199	0.95	0.75	0.9	0.26	A
South Downtown R Line Stairway[1]	4.8	3.8	0.80	917	66	0.95	0.75	0.9	0.70	B
Brooklyn—Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.81	638	937	-	0.80	0.9	0.97	C
Weekday PM Peak 15 Minutes										
Manhattan—BMB										
Bowling Green Station (4,5 lines)—Battery Place and State Street										
SW Stairway — Inside	7.7	6.5	0.80	1,445	943	0.95	0.75	0.9	0.90	C
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance										
SW Stairway — Inside	12.3	11.1	0.80	25	5,882	0.95	0.75	1.0	1.17	D
Whitehall/South Ferry Station (1, R lines) — Whitehall Street and South Ferry										
Main Stairway — Plaza Area	10.5	9.3	0.80	392	636	0.80	0.90	0.9	0.31	A
SE Stairway on Whitehall	6.0	5.0	0.89	264	897	0.95	0.90	0.9	0.53	B
North Uptown R Line Stairway[1]	3.8	2.8	0.89	22	623	0.95	0.75	1.0	0.53	B
South Uptown R Line Stairway[1]	4.8	3.8	0.87	413	207	0.95	0.75	0.9	0.42	A
North Downtown R Line Stairway[1]	3.8	2.8	0.88	94	822	0.95	0.75	0.9	0.85	C
South Downtown R Line Stairway[1]	4.8	3.8	0.86	1,768	273	0.95	0.75	0.9	1.25	D
Brooklyn—Pier 6										
Court Street Station (2,3,4,5,M and R lines)—Joralemon Street and Court Street										
SW Corner Stairway	5.1	4.1	0.80	431	587	-	0.80	0.9	0.64	B

Notes:
(1) Platform level stairways serving the R subway line at the south end of the Whitehall Street station.
(2) Surging Factors exiting from the Ferry were developed in coordination with NYCT.
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [Vin/(150 * We * Sf * Ff)]+ [Vx/(150 * We * Sf * Ff)]
Where
Vin = Peak 15-minute entering passenger volume
Vx= Peak 15-minute exiting passenger volume
We= Effective width of stairs
Sf = Surging factor (if applicable)
Ff= Friction factor (if applicable)

Table 7-31
2022 Build Conditions Subway Escalator Analysis

Station Elements	Qty.	Tread Width (in)	Surging Factor	Peak Hour Factors (PHF)	1 Hour Build Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
					Up	Down			
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.96	2,764	-	945	0.85	C
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.80	1,308	-	1050	0.37	A
Escalator Down	1	40	0.8	0.80	-	1,028	1050	0.38	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Escalator Up	1	40	0.9	0.86	739	-	945	0.25	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Escalator Up	1	40	0.9	0.89	2,056	-	1050	0.59	B
Escalator Down	1	40	0.8	0.80	-	1,247	1050	0.46	B

Note:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [V/Gcap* Sf]
Where
V = Peak 15-minute passenger volume
Gcap = Guideline capacity for escalator
Sf = Surging factor (if applicable)

Table 7-32
2022 Build Conditions Subway Control Area Analysis

Station Control Elements	Quantity	Peak Hour Factors (PHF)	1 Hour Build Pedestrian Volumes		Surging Factor (Exit from Ferry)	Surging Factor (Exit from Subway)	Friction Factor	V/C Ratio	LOS
			In	Out					
Weekday AM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.83	748	1,993	-	0.8	0.9	0.47	B
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	1,545	2,517	-	0.75	0.9	0.39	A
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.80	3,769	2,862	0.8	0.9	0.9	0.33	A
Weekday PM Peak 15 Minutes									
Bowling Green Station (4,5 lines)—Battery Place and State Street									
Two-way Turnstile	4	0.92	748	1,640	-	0.8	0.9	0.37	A
Bowling Green Station (4,5 lines)—Broadway Plaza Entrance									
Two-way Turnstile	8	0.80	4,726	665	-	0.75	0.9	0.55	B
Whitehall/South Ferry Station (1, R lines)—Whitehall Street and South Ferry									
Two-way Turnstile	17	0.87	4,003	3,247	0.8	0.9	0.9	0.33	A

Notes:
Capacities were calculated based on rates presented in the 2012 *CEQR Technical Manual*.
V/C = [Vin/Cin* Ff] + [Vx/Cx* Sf*Ff]
Where
Vin = Peak 15-minute entering passenger volume
Cin = Total 15-minute capacity of all turnstiles for entering passengers
Vx = Peak 15-minute exiting passenger volume
Cx = Total 15-minute capacity of all turnstile for exiting passengers
Sf = Surging factor (if applicable)
Ff = Friction factor

2022 BUILD CONDITIONS—SUBWAY LINE HAUL LEVELS

Trips associated with the Proposed Project were superimposed onto the No Build line-haul volumes to generate the Build peak period volumes for the subway line-haul analysis. Trip distribution patterns for subway trips generated by the Proposed Project were developed using existing travel patterns in consideration with the frequency of service, proximity of subway lines to the project site, and uses of the projected subway trips. Project generated subway trips were distributed as follows:

- 20 percent to the Manhattan-bound Nos. 4 and 5 lines;
- 20 percent to the Brooklyn-bound Nos. 4 and 5 lines;
- 15 percent to the Manhattan-bound R line;
- 15 percent to the Brooklyn-bound R line;
- 20 percent to the No. 1 line (downtown in AM and uptown in PM); and
- 10 percent to the Manhattan and Brooklyn-bound Nos. 2/3 and J/Z lines.

As shown in **Table 7-33**, with the overlay of these project-generated trips, No. 1 and R subway lines would continue to operate within guideline capacity during the AM and PM peak periods. As with the 2022 No Build condition, the Nos. 4 and 5 subway lines would continue to exceed the guideline capacity downtown during the AM peak period and uptown during the PM peak period. On average, the project-generated subway trips would add two passenger per car to the Nos. 4 and 5 subway lines at the peak load point during the AM and PM peak period, which is less than the *CEQR Technical Manual* impact threshold of five passengers per car. Hence, the Proposed Project would not result in a significant adverse impact on subway line-haul conditions.

Table 7-33
2022 Build Conditions: Peak Hour Subway Line Haul

Route	Peak Load Point	Trains /Hour	Volume	Leave Load		Available Capacity
				Guideline Capacity	V/C Ratio	
AM Peak Period						
Manhattan-bound No. 4 Express	Fulton Street	13.7	10,885	15,070	0.72	4,185
Brooklyn-bound No. 4 Express	86th Street	14.1	16,882	15,510	1.09	-1,372
Manhattan-bound No. 5 Express	Fulton Street	12.3	9,728	13,530	0.72	3,802
Brooklyn-bound No. 5 Express	86th Street	12.8	15,215	14,080	1.08	-1,135
Brooklyn-bound No. 1 Local	103rd Street	19.5	18,594	21,450	0.87	2,856
Manhattan-bound R Local	DeKalb Ave	10.6	10,560	13,144	0.80	2,584
Brooklyn-bound R Local	Queens Plaza	9.6	10,079	11,904	0.85	1,825
PM Peak Period						
Manhattan-bound No. 4 Express	14th Street-Union Square	13.0	14,639	14,300	1.02	-339
Brooklyn-bound No. 4 Express	Bowling Green	13.0	12,344	14,300	0.86	1,956
Manhattan-bound No. 5 Express	14th Street-Union Square	12.0	13,356	13,200	1.01	-156
Brooklyn-bound No. 5 Express	Bowling Green	8.0	8,181	8,800	0.93	619
Brooklyn-bound No. 1 Local	59th Street-Columbus Circle	15.0	15,691	16,500	0.95	809
Manhattan-bound R Local	Lexington Ave/59th Street	9.4	5,813	11,656	0.50	5,843
Brooklyn-bound R Local	Jay Street-MetroTech	10.6	7,386	13,144	0.56	5,758

Sources: New York City Transit

ADDITIONAL FERRY LANDINGS

Existing access to Governors Island is provided at two ferry portals: BMB in Manhattan and Pier 6 in Brooklyn. On June 13, 2011, the East River Ferry Service was implemented as a 3-year subsidized pilot program, operated by NY Waterway, providing service for a fee to connect East Midtown at 34th Street in Manhattan with Long Island City in Queens; various points in Brooklyn, including Williamsburg and DUMBO; Governors Island; and South Manhattan at Wall Street/Pier 11. Funding by the City beyond these 3 years has not been committed. The service provides access to Governors Island from Pier 6 in Brooklyn Bridge Park on Fridays, replacing the service previously provided by the water taxi. On the weekends, this ticketed service provides complementary service to Governors Island's free ferry service from the BMB and Pier 6 and would not induce potential demand increases to Governors Island.

There are currently no plans to provide additional access to Governors Island at other off-Island ferry landings during the week (Monday through Thursday). In order to accommodate future growth in visitation, additional ferry landing locations may need to be identified to supplement the service at the BMB and Pier 6 ferry portals. Additional ferry landings at other off-Island sites would result in a dispersion of project-generated trips to other off-Island locations. If additional ferry landings are proposed, traffic, pedestrian, transit, and parking analyses will need to be conducted to identify potential impacts that may occur at the new off-site ferry landing locations.

H. PEDESTRIANS

PEDESTRIAN STUDY AREAS

Based on the Level 2 pedestrian trip assignments presented in Section D, "City Environmental Quality Review (CEQR) Screening Analyses" (see **Figures 7-9** through **7-16**), several pedestrian elements near the BMB portal and Pier 6 were identified to incur project-generated trips exceeding the CEQR analysis threshold of 200 peak hour pedestrian trips and would therefore warrant a detailed analysis of potential pedestrian impacts. While not warranted, to retain consistency with the analysis conducted in the 2011 FGEIS all elements previously studied have been included in this analysis. The pedestrian analysis locations are outlined below and depicted in **Figure 7-42**.

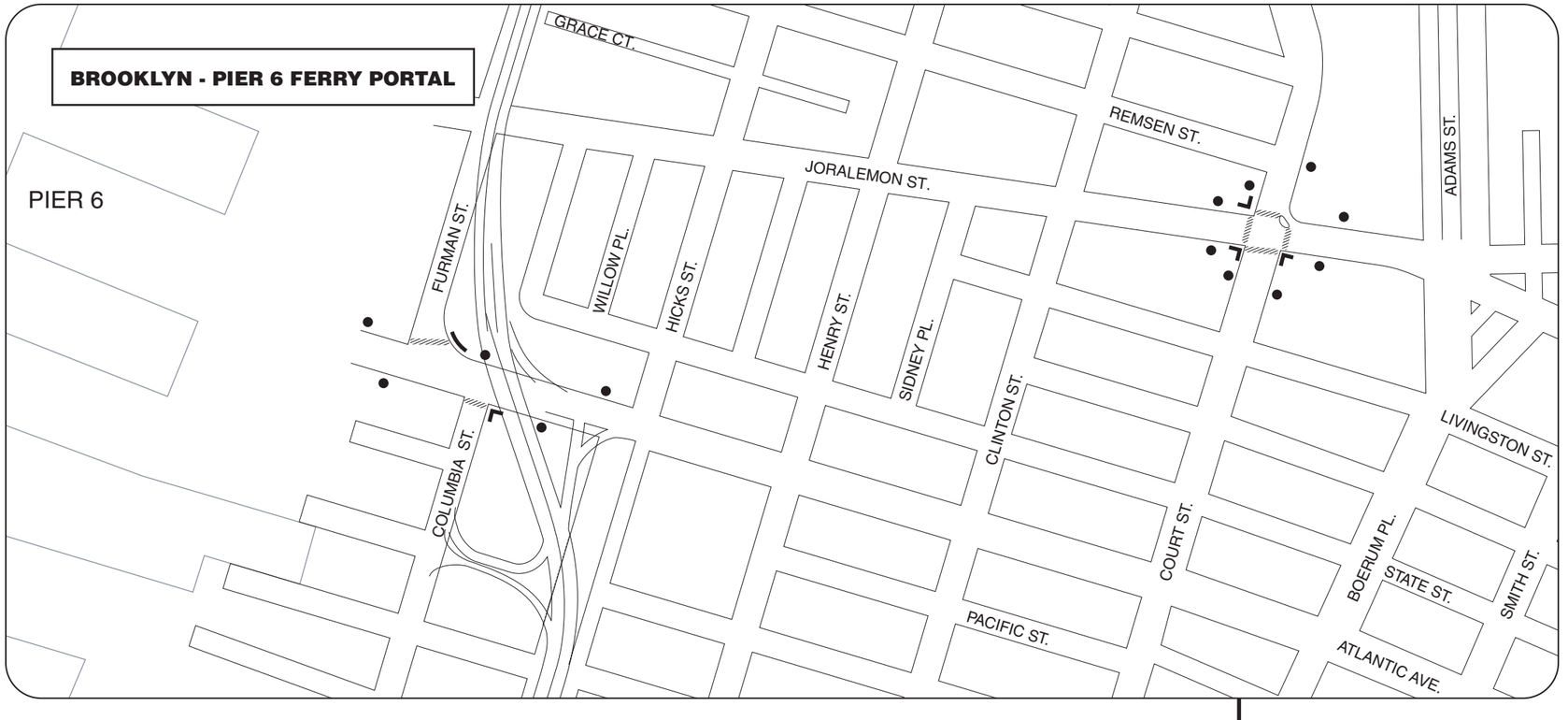
MANHATTAN

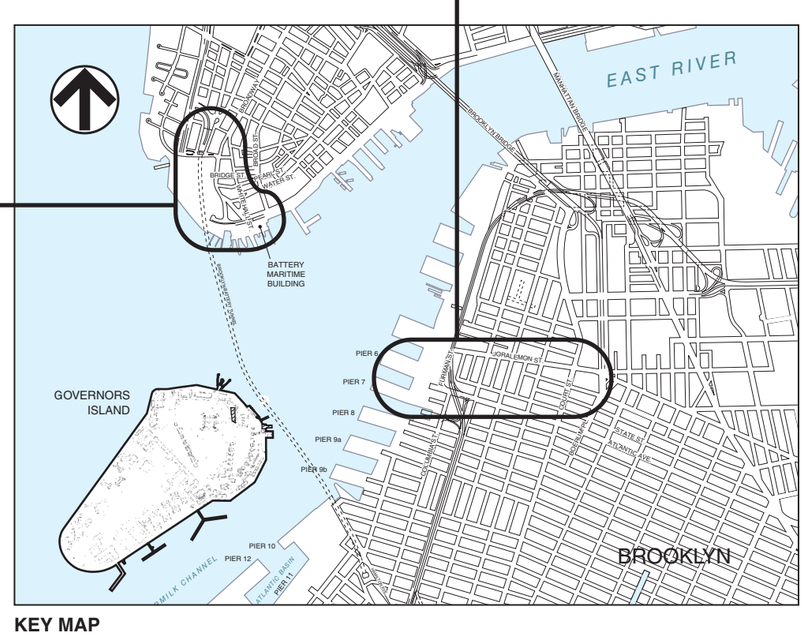
Sidewalk Locations

- West sidewalks of State Street between Battery Place and Peter Minuit Plaza;
- Western corridor in Peter Minuit Plaza between State Street and South Ferry;
- West sidewalks of Whitehall Street between Bridge and Water Streets;
- South sidewalk of Water Street between Whitehall and Broad Streets;
- East and west sidewalks along Whitehall Street between Water and South Streets;
- West sidewalks along Broad Street between Stone and Water Streets; and
- North sidewalk along South Street between Whitehall and Broad Streets.

Corner Locations

- Northwest and southwest corners of Pearl and Broad Streets;
- Northwest and southwest corners of Water and Broad Streets;
- Northeast corner of South and Whitehall Streets; and





KEY MAP

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pedestrian Analysis Locations
Figure 7-42

- Northwest and southeast corners of Water and Whitehall Streets.

Crosswalk Locations

- West crosswalk at Pearl and Broad Streets;
- West crosswalk at Water and Broad Streets;
- South crosswalk at State Street and M15 SBS Bus Loop;
- North and east crosswalks at South and Whitehall Streets; and
- All crosswalks at Water and Whitehall Streets.

BROOKLYN

Sidewalk Locations

- All sidewalks at the Court Street and Joralemon Street intersection;
- North sidewalk along Atlantic Avenue between Furman Street and the BQE On-Ramp;
- North sidewalk of Atlantic Avenue between the BQE Eastbound On-Ramp and Hicks Street;
- South sidewalks along Atlantic Avenue between Columbia Street and the BQE Westbound Off-Ramps; and
- North and south sidewalks along Atlantic Avenue west of Furman Street.

Corner Locations

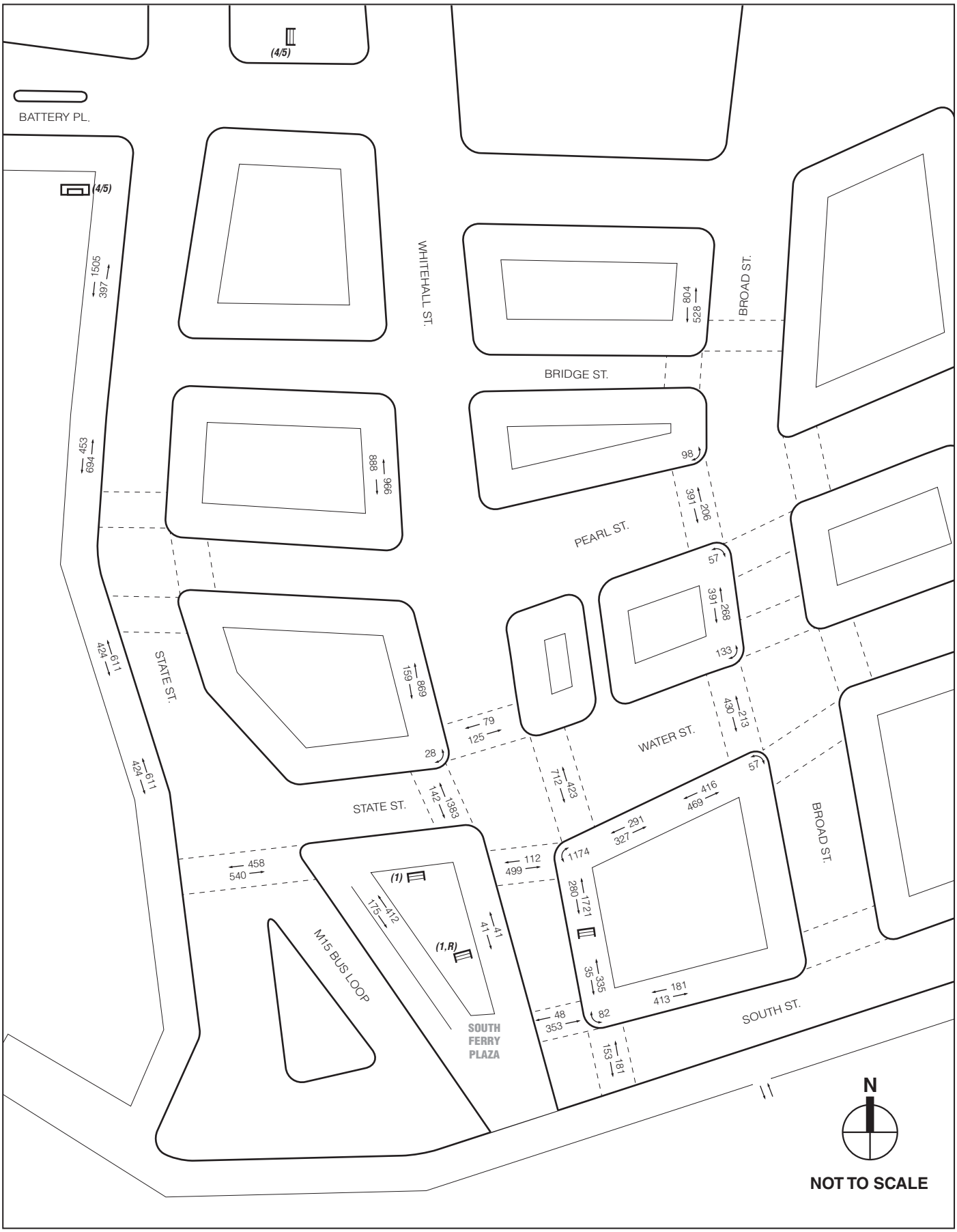
- Northeast corner of Atlantic Avenue and Furman Street;
- Northwest, southeast and southwest corners at Court and Joralemon Streets; and
- Southeast corner of Atlantic Avenue and Columbia Street.

Crosswalk Locations

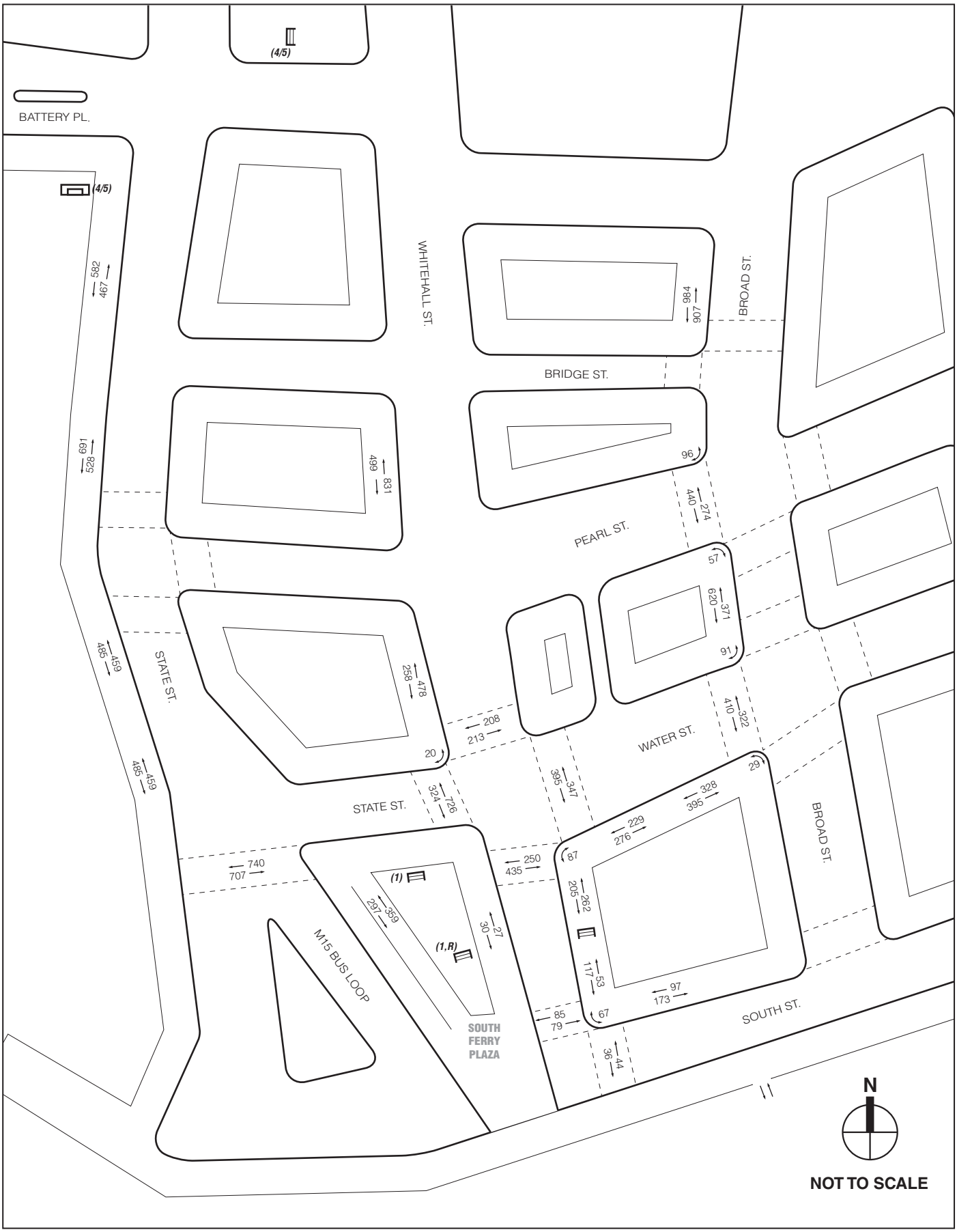
- All crosswalks at Court and Joralemon Streets;
- All crosswalks at Atlantic Avenue and Columbia Street;
- North crosswalk at Atlantic Avenue and Furman Street; and
- North crosswalk at Atlantic Avenue and the BQE Eastbound On-Ramp.

2012 EXISTING CONDITIONS

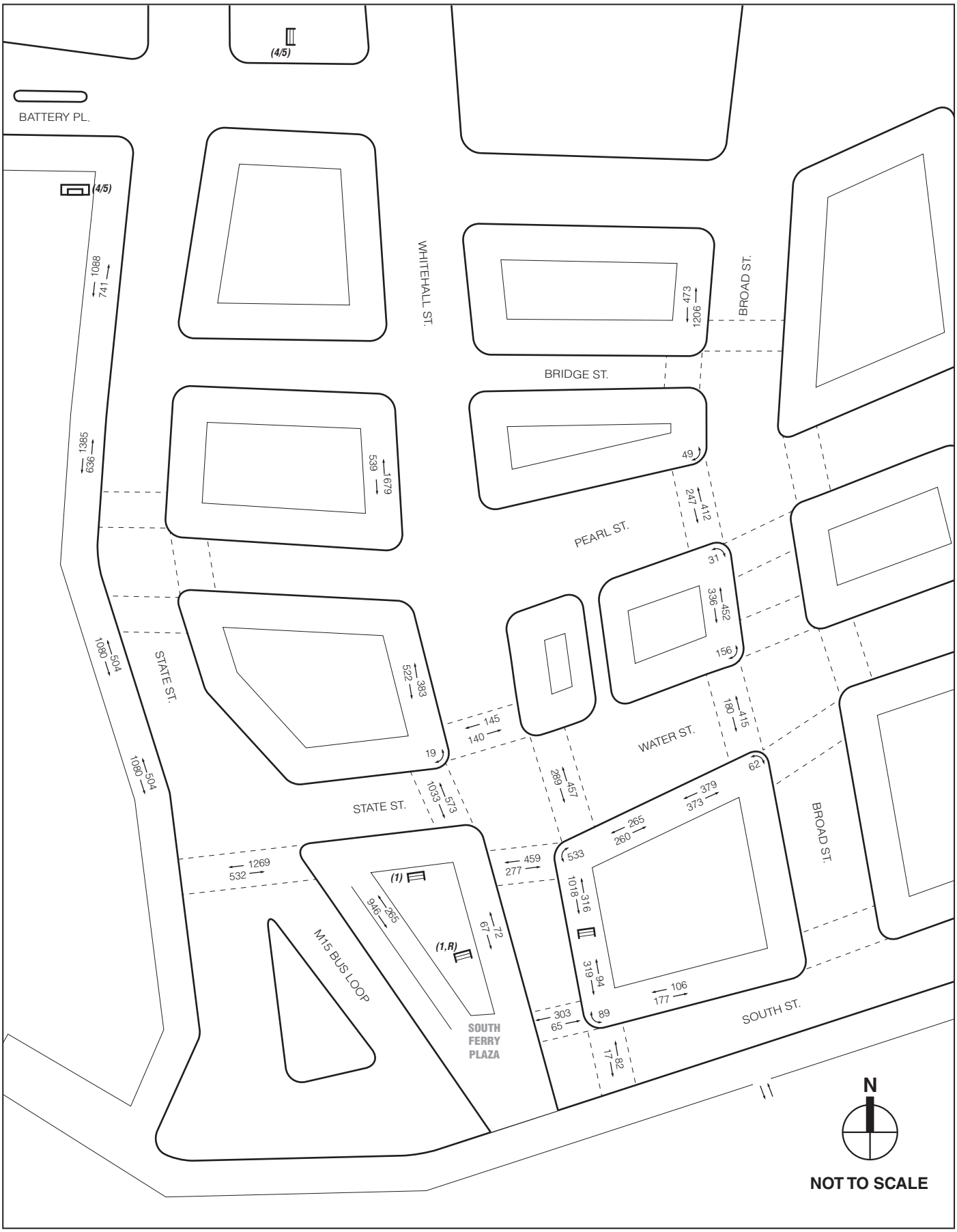
Existing pedestrian levels are based on field surveys conducted in September 2012. **Figures 7-43** through **7-49** show the existing volumes in the Manhattan and Brooklyn pedestrian study areas. As summarized in **Tables 7-34** to **7-39**, all sidewalk, crosswalk, and corner reservoir analysis locations operate at acceptable levels (within mid-LOS D, with a maximum of 8.5 PMF in sidewalk platoon flows or a minimum of 19.5 SFP for crosswalks and corners), except at the following locations:



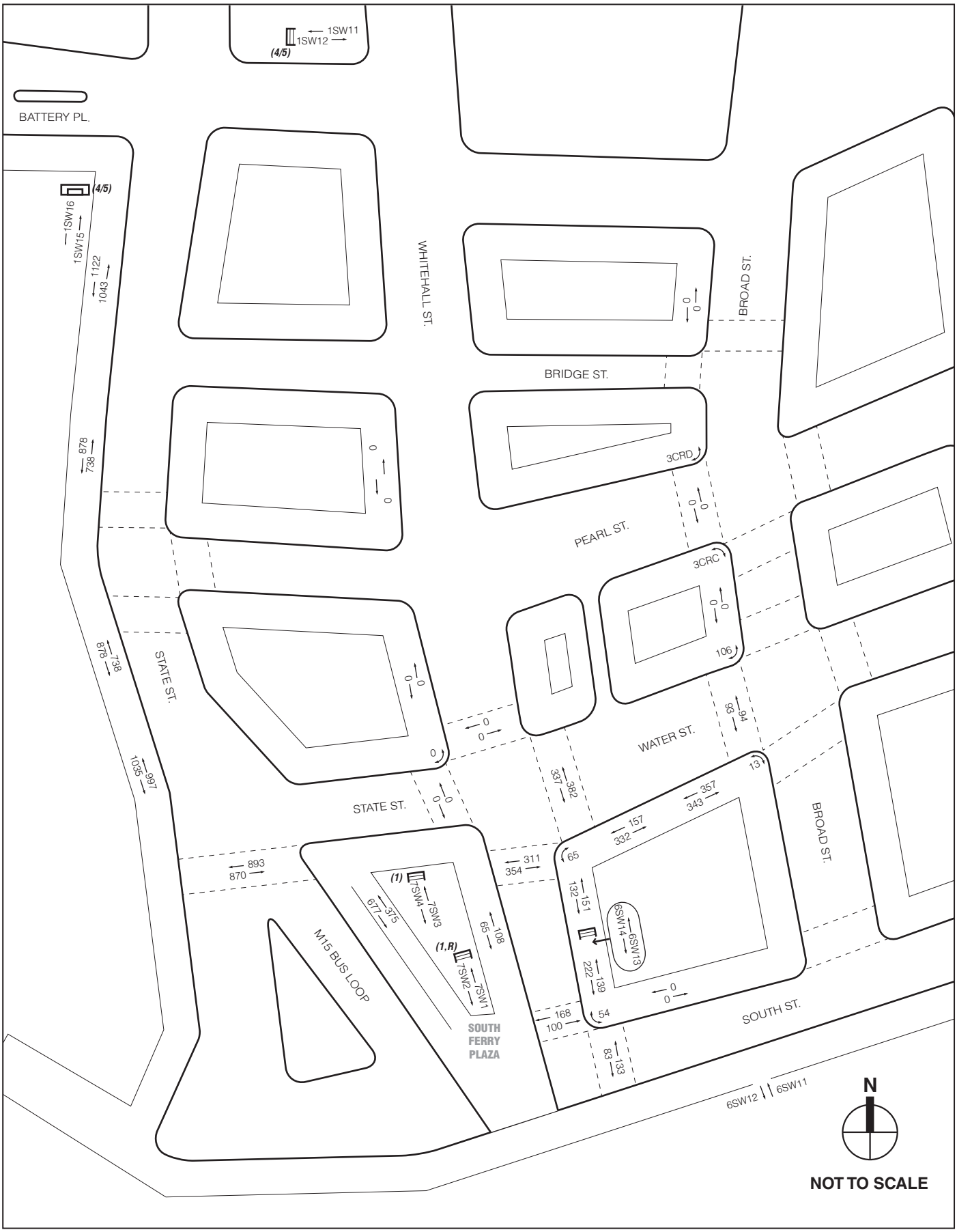
BMB Existing Pedestrian Volumes
AM Peak Hour
Figure 7-43



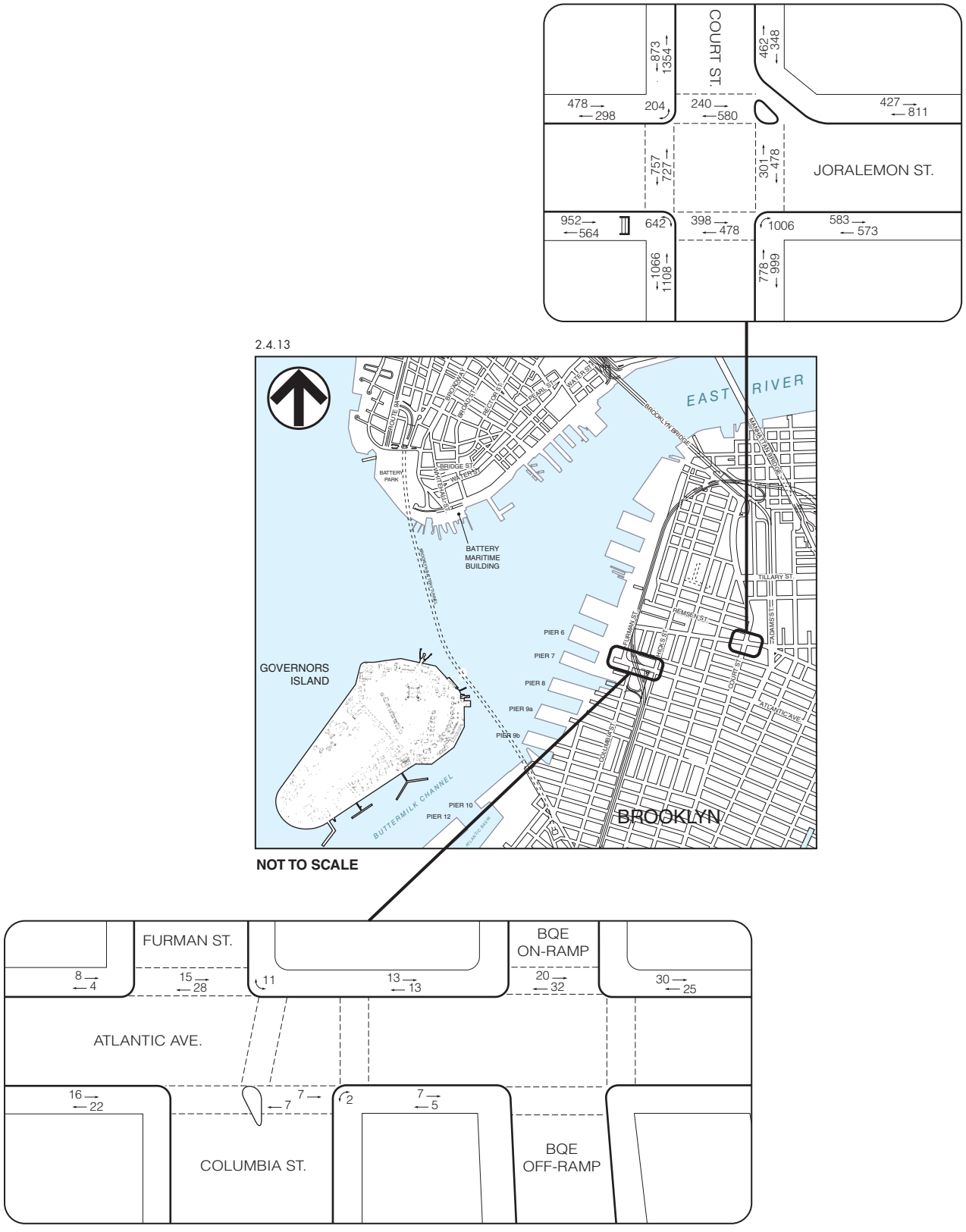
BMB Existing Pedestrian Volumes
Midday Peak Hour
Figure 7-44



BMB Existing Pedestrian Volumes
PM Peak Hour
Figure 7-45

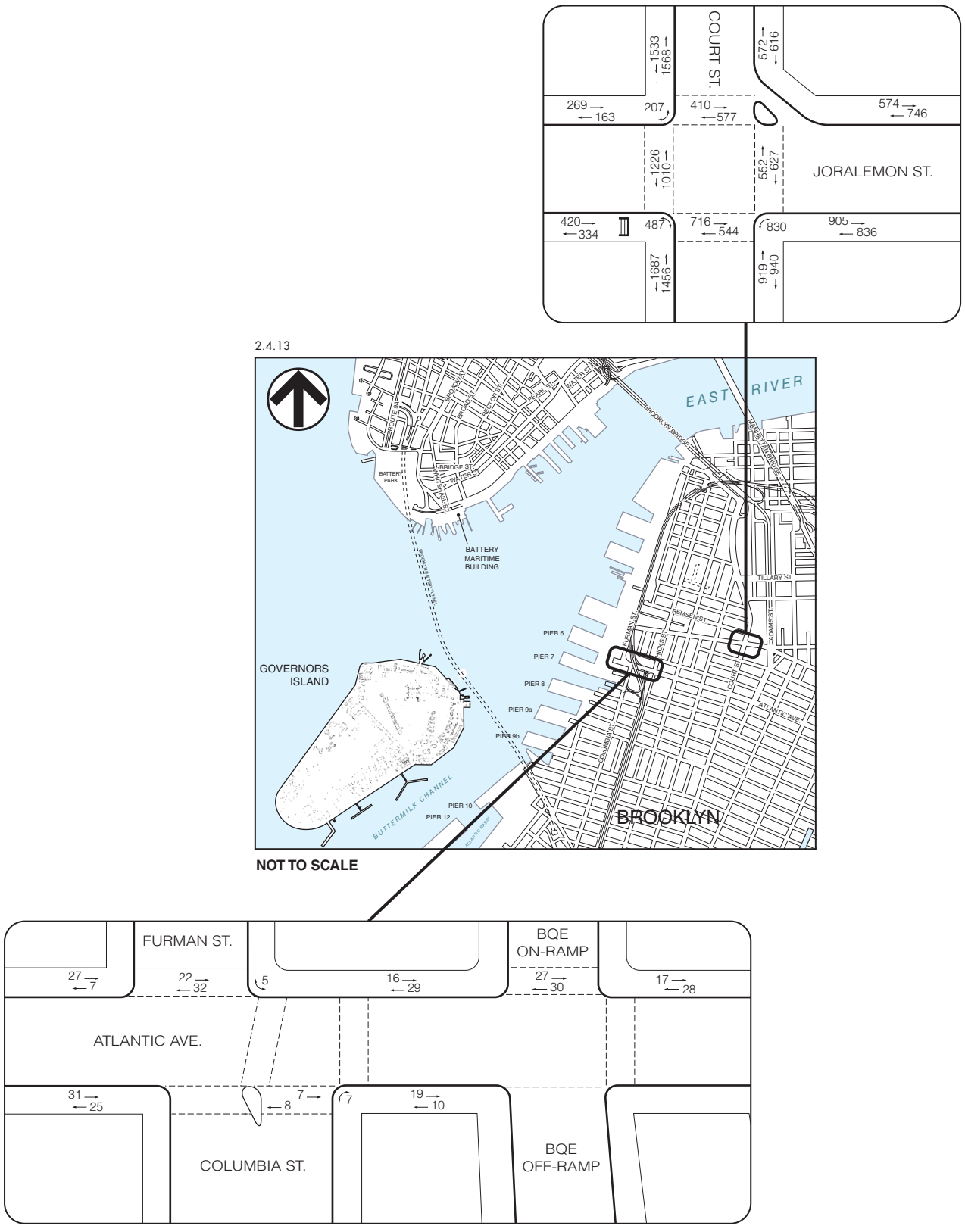


Existing Pedestrian Volumes
Saturday Peak Hour
Figure 7-46



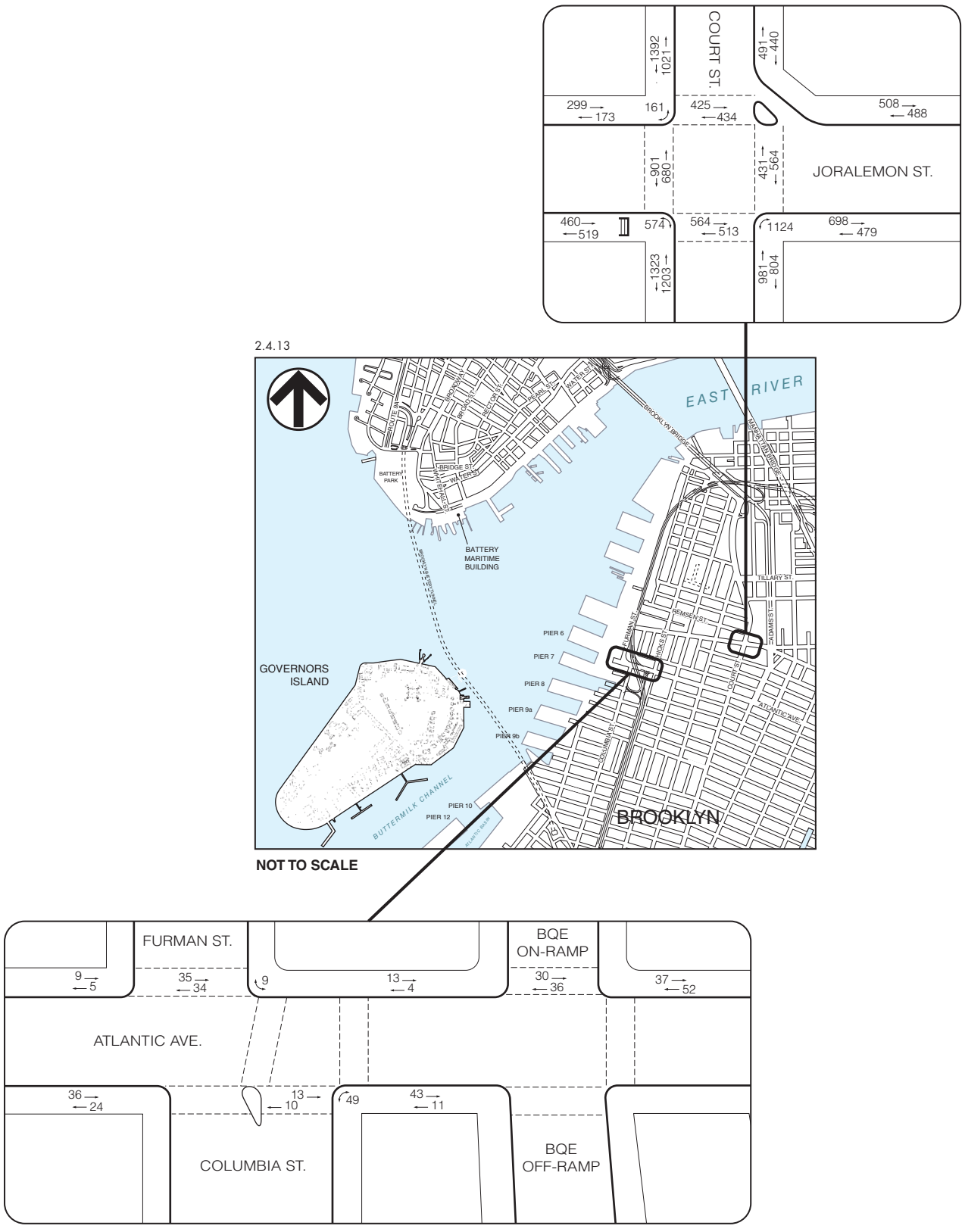
Pier 6 Existing Pedestrian Volumes
Weekday AM Peak Hour

Figure 7-47



NOT TO SCALE

Pier 6 Existing Pedestrian Volumes
Weekday Midday Peak Hour
Figure 7-48



Pier 6 Existing Pedestrian Volumes
Weekday PM Peak Hour
Figure 7-49

Table 7-34
2012 Existing Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,902	2.94	B
State Street between Bridge Street and Pearl Street	West	20.5	1,147	1.17	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,854	3.63	C
Whitehall Street between Pearl and Water Street	West	7.0	1,028	3.06	C
Broad Street between Pearl Street and Stone Street	West	11.0	1,332	2.42	B
Whitehall Street between State Street and Subway Stairway	East	9.0	2,001	4.63	C
Whitehall Street between State Street and South Street	West	7.0	82	0.24	A
Water Street between Whitehall Street and bus stop	South	11.0	618	1.03	B
Water Street between bus stop and Broad Street	South	13.0	885	1.25	B
Broad Street between Pearl Street and Water Street	West	11.0	659	1.25	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	370	0.64	B
South Street between Whitehall Street and Broad Street	North	5.0	594	2.48	B
State Street south of Pearl Street	West	19.0	1,035	1.09	B
State Street at M15 Bus Loop	West	12.0	1,035	1.73	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	587	0.87	B
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,049	1.62	B
State Street between Bridge Street and Pearl Street	West	20.5	1,219	1.24	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,330	2.70	B
Whitehall Street between Pearl and Water Street	West	7.0	736	2.19	B
Broad Street between Pearl Street and Stone Street	West	11.0	1,891	3.28	C
Whitehall Street between State Street and Subway Stairway	East	9.0	467	1.08	B
Whitehall Street between State Street and South Street	West	7.0	57	0.17	A
Water Street between Whitehall Street and bus stop	South	11.0	505	0.93	B
Water Street between bus stop and Broad Street	South	13.0	723	1.12	B
Broad Street between Pearl Street and Water Street	West	11.0	991	1.71	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	170	0.30	A

Table 7-34 (cont'd)
2011 Existing Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
South Street between Whitehall Street and Broad Street	North	5.0	270	1.13	B
State Street south of Pearl Street	West	19.0	944	1.04	B
State Street at M15 Bus Loop	West	12.0	944	1.64	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	656	0.98	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,829	2.82	B
State Street between Bridge Street and Pearl Street	West	20.5	2,021	2.05	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	2,218	4.31	C
Whitehall Street between Pearl and Water Street	West	7.0	905	2.69	B
Broad Street between Pearl Street and Stone Street	West	11.0	1,679	3.18	C
Whitehall Street between State Street and Subway Stairway	East	9.0	1,334	3.09	C
Whitehall Street between State Street and South Street	West	7.0	139	0.41	A
Water Street between Whitehall Street and bus stop	South	11.0	525	0.96	B
Water Street between bus stop and Broad Street	South	13.0	752	1.17	B
Broad Street between Pearl Street and Water Street	West	11.0	788	1.35	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	413	0.72	B
South Street between Whitehall Street and Broad Street	North	5.0	283	1.18	B
State Street south of Pearl Street	West	19.0	1,584	1.73	B
State Street at M15 Bus Loop	West	12.0	1,584	2.74	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	1,211	1.80	B
Saturday Peak Period					
State Street north of Bridge Street	West	13.5	2,165	3.10	C
State Street between Bridge Street and Pearl Street	West	20.5	1,616	1.57	B
Whitehall Street between Water Street and Subway Stairway	East	9.0	354	0.8	B
Whitehall Street between Water Street and South Street	West	7.0	173	0.5	B
Water Street between Whitehall Street and bus stop	South	11.0	489	0.9	B
Water Street between bus stop and Broad Street	South	13.0	700	1.1	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	361	0.6	B
State Street south of Pearl Street	West	19.0	2,032	2.2	B
State Street east of Peter Minuit Plaza	West	12.0	2,032	3.5	C
Peter Minuit Plaza	West	14.0	1,315	2.0	B

Note: PMF = pedestrians per minute per foot

Table 7-35
2012 Existing Condition Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	Northwest	175.7	A	152.4	A	189.4	A	N/A	
	Southwest	66.6	A	50.3	B	77.4	A		
Whitehall Street and State Street	Northwest	197.9	A	228.4	A	160.5	A		
	Southeast	85.3	A	161.5	A	122.4	A	164.2	A
Broad Street and Water Street	Northwest	72.8	A	59.9	B	99.6	A	199.0	A
	Southwest	99.6	A	123.1	A	111.2	A	464.4	A
Whitehall Street and South Street	Northeast	372.3	A	968.4	A	531.8	A	553.1	A

Note: SFP = square feet per pedestrian

Table 7-36
2012 Existing Conditions Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				AM		Midday		PM		Saturday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	West	23.0	14.0	64.5	A	52.9	B	62.6	A	N/A	
Whitehall Street and State Street	North	24.0	15.0	289.9	A	133.3	A	195.2	A		
	East	36.0	17.0	12.8	E	19.2	D	21.2	D		
	South	30.0	14.0	85.1	A	76.9	A	72.8	A		
	West	50.0	15.0	7.3	F	12.3	E	7.5	F		
Broad Street and Water Street	West	60.0	16.0	45.3	B	38.0	C	55.8	B	217.0	A
Whitehall Street and South Street	North	27.0	16.0	72.3	A	182.0	A	77.1	A	N/A	
	East	27.0	12.0	64.3	A	282.2	A	225.3	A	101.6	A
State Street and Peter Minuit Plaza	South	36.0	25.0	123.2	A	87.1	A	72.5	A	66.7	A

Note: SFP = square feet per pedestrian

Table 7-37
2012 Existing Conditions Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	810	1.20	B
	West	6.0	2,227	6.58	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,238	5.16	C
	South	8.0	1,156	2.60	B
Court Street between Joralemon Street and Livingston Street	East	11.0	1,777	3.10	C
	West	12.0	2,174	3.22	C
Joralemon Street between Court Street and Clinton Street	North	9.0	776	1.50	B
	South	4.0	1,516	7.22	D
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	12	0.02	A
	South	8.2	38	0.10	A
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	26	0.03	A
	South	18.0	12	0.01	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	55	0.1	A
Midday Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	1,188	1.74	B
	West	6.0	3,101	8.86	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,320	4.68	C
	South	8.0	1,741	4.04	C
Court Street between Joralemon Street and Livingston Street	East	11.0	1,859	3.04	C
	West	12.0	3,143	4.72	C
Joralemon Street between Court Street and Clinton Street	North	9.0	432	0.99	B
	South	4.0	754	3.40	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	34	0.04	A
	South	8.2	56	0.14	A
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	45	0.06	A
	South	18.0	29	0.03	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	45	0.1	A
PM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	931	1.46	B
	West	6.0	2,413	7.41	D
Joralemon Street between Court Street and Boerum Place	North	5.0	996	3.97	C
	South	8.0	1,177	2.71	B
Court Street between Joralemon Street and Livingston Street	East	11.0	1,785	3.17	C
	West	12.0	2,526	4.21	C
Joralemon Street between Court Street and Clinton Street	North	9.0	472	1.09	B
	South	4.0	979	4.62	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	14	0.02	A
	South	8.2	60	0.15	A
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	17	0.02	A
	South	18.0	54	0.06	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	89	0.2	A

Note: PMF = pedestrians per minute per foot

Table 7-38
2012 Existing Conditions Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Court Street and Joralemon Street	Southeast	75.7	A	64.5	A	68.9	A
	Northwest	55.7	B	40.7	B	50.9	B
	Southwest	56.3	B	41.9	B	52.5	B
Furman/Columbia Street and Joralemon Street	Northeast	8071.4	A	7264.1	A	5058.9	A
	Southeast	13086.3	A	9103.8	A	2613.1	A

Note: SFP = square feet per pedestrian

Table 7-39
2012 Existing Conditions Crosswalk Analysis
Brooklyn Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
Joralemon Street and Court Street	North	30.0	15.0	17.8	D	22.8	D	21.0	D
	East	31.0	18.0	89.4	A	50.3	B	76.3	A
	South	38.0	19.0	32.7	C	26.1	C	28.4	C
	West	25.0	17.0	39.8	C	21.1	D	35.3	C
Furman/Columbia Street and Atlantic Avenue	North	32.0	14.0	907.4	A	673.0	A	343.3	A
	South	54.0	16.0	3604.9	A	2915.1	A	870.7	A
BQE On/Off Ramps and Atlantic Avenue	North	13.0	12.0	129.9	A	118.3	A	101.7	A
	North	30.0	15.0	17.8	D	22.8	D	21.0	D

Note: SFP = square feet per pedestrian

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- The east crosswalk at State Street and Whitehall Street operates at LOS E (12.8 SFP), D (19.2 SFP), D (21.2 SFP), during the AM, midday, and PM peak periods, respectively; and
- The west crosswalk at State Street and Whitehall Street operates at LOS F (7.3 SFP), E (12.3 SFP), F (7.5 SFP), during the AM, midday, and PM peak periods, respectively.

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- The west sidewalk on Court Street between Joralemon Street and Remsen Street operates at LOS D (8.86 PMF) during the midday peak period;
- The north crosswalk at Joralemon Street and Court Street operates at LOS D (17.8 SFP) during the AM peak period; and
- The north crosswalk at Atlantic Avenue and the BQE Eastbound Ramps operates at LOS D (17.8 SFP) during the AM peak period.

2022 NO BUILD CONDITION

No Build pedestrian volumes were estimated by increasing existing (2012) pedestrian levels to reflect expected growth in overall travel through and within the study area. As per CEQR guidelines, an annual background growth rate of 0.25 percent was assumed for the first five

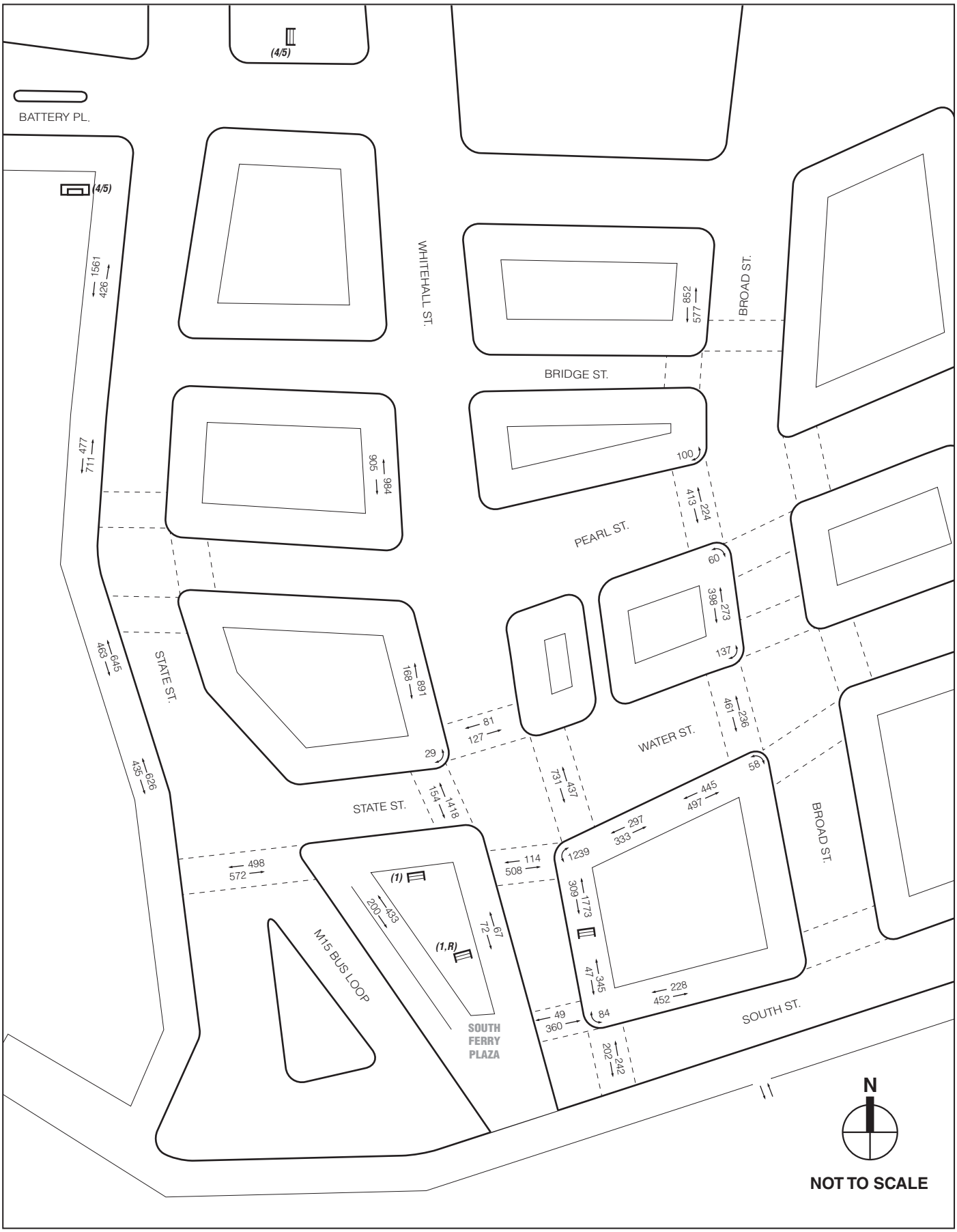
years (year 2012 to year 2017) and then 0.125 percent for the remaining years (year 2017 to year 2022). Pedestrian volumes from anticipated projects in the Manhattan and Brooklyn study areas were also added to arrive at the 2022 No Build pedestrian volumes. The total No Build pedestrian volumes are presented in **Figures 7-50** to **7-56**.

As summarized in **Tables 7-40** to **7-45**, all sidewalk, crosswalk, and corner reservoir analysis locations would continue to operate at similar levels as existing conditions, except for the following locations in Brooklyn which would deteriorate to below mid-LOS D compared to existing conditions:

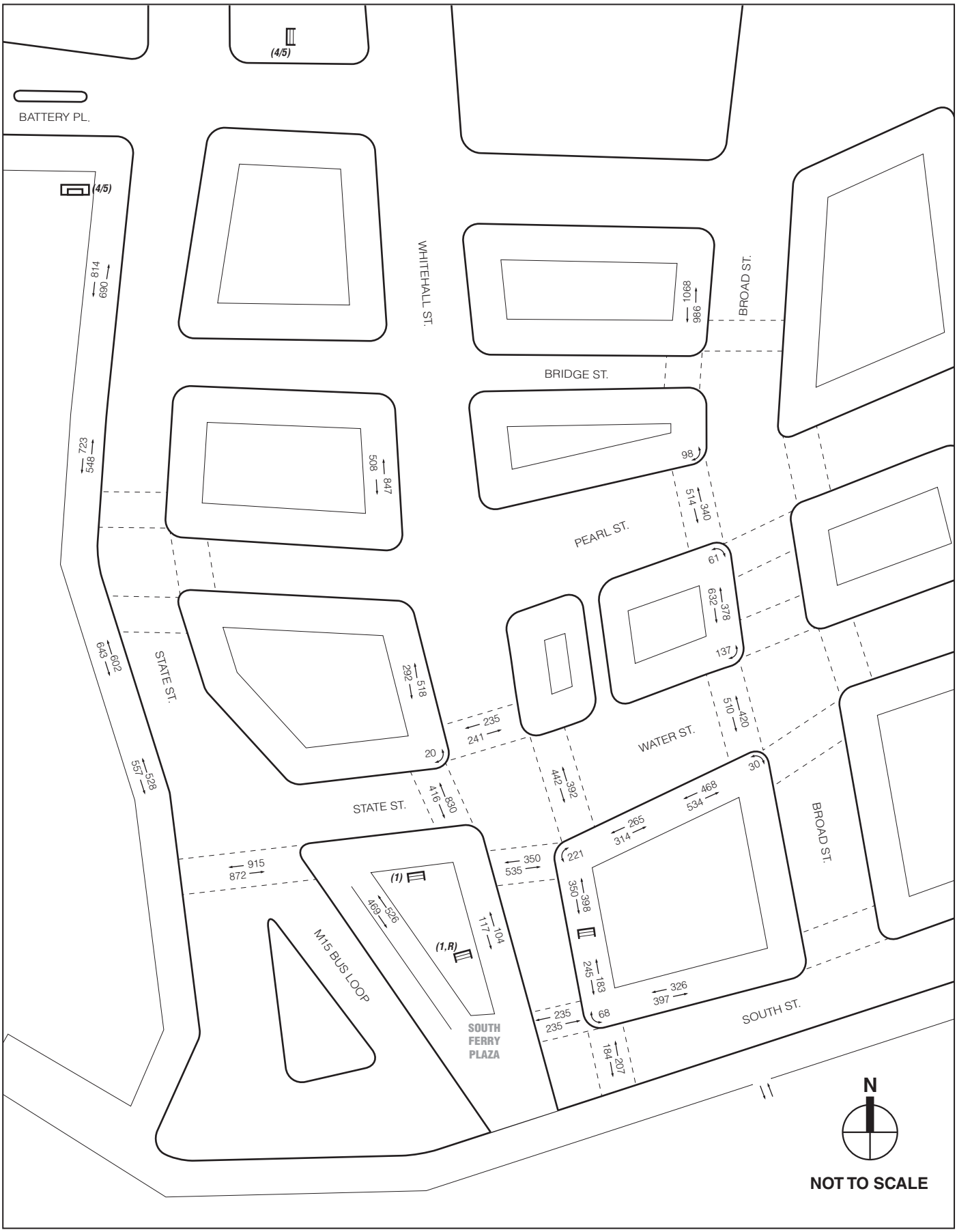
- The north crosswalk at Joralemon Street and Court Street operates at LOS D (18.7 SFP) and LOS D (17.8 SFP), during the midday and PM peak periods, respectively.
- The north crosswalk at Atlantic Avenue and the BQE Eastbound Ramps operates at LOS D (18.7 SFP) and LOS D (17.8 SFP), during the midday and PM peak periods, respectively.

Table 7-40
2022 No Build Conditions Sidewalk Analysis
Manhattan Locations

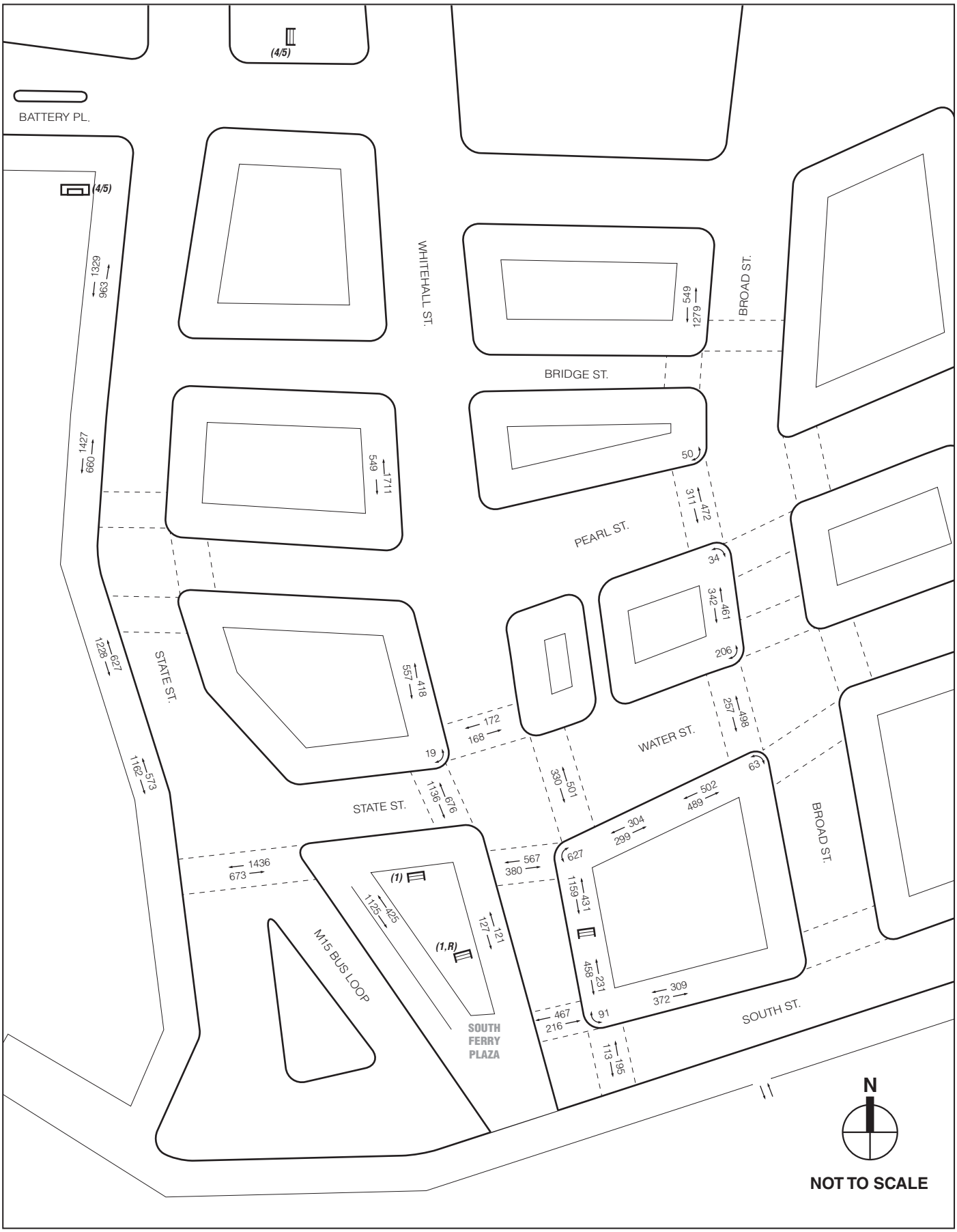
Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,987	3.07	C
State Street between Bridge Street and Pearl Street	West	20.5	1,188	1.21	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,889	3.70	C
Whitehall Street between Pearl and Water Street	West	7.0	1,059	3.15	C
Broad Street between Pearl Street and Stone Street	West	11.0	1,429	2.59	B
Whitehall Street between State Street and Subway Stairway	East	9.0	2,082	4.82	C
Whitehall Street between State Street and South Street	West	7.0	139	0.41	A
Water Street between Whitehall Street and bus stop	South	11.0	630	1.05	B
Water Street between bus stop and Broad Street	South	13.0	942	1.33	B
Broad Street between Pearl Street and Water Street	West	11.0	671	1.27	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	392	0.68	B
South Street between Whitehall Street and Broad Street	North	5.0	680	2.83	B
State Street south of Pearl Street	West	19.0	1,108	1.17	B
State Street at M15 Bus Loop	West	12.0	1,061	1.77	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	633	0.94	B



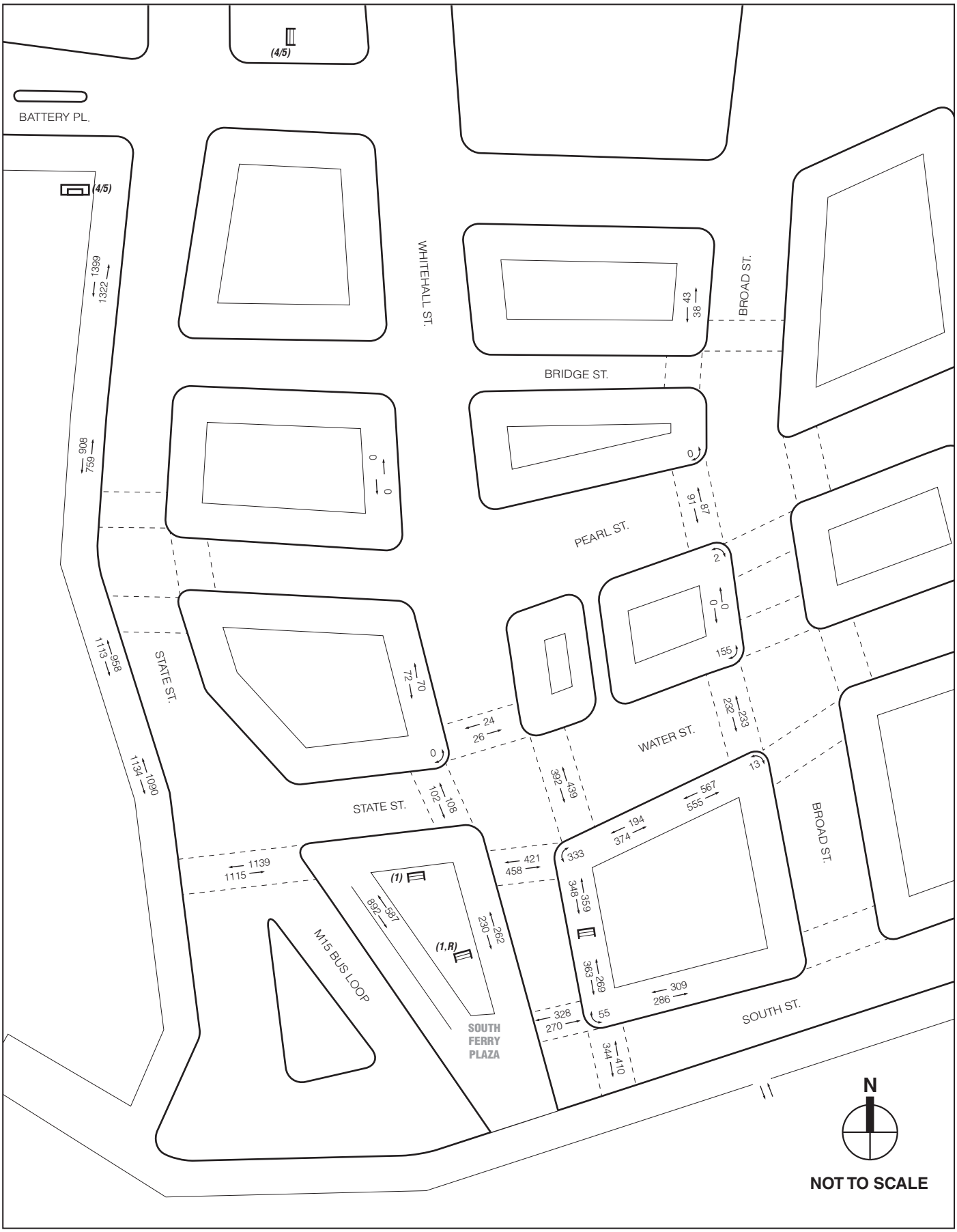
BMB No Build Pedestrian Volumes
AM Peak Hour
Figure 7-50



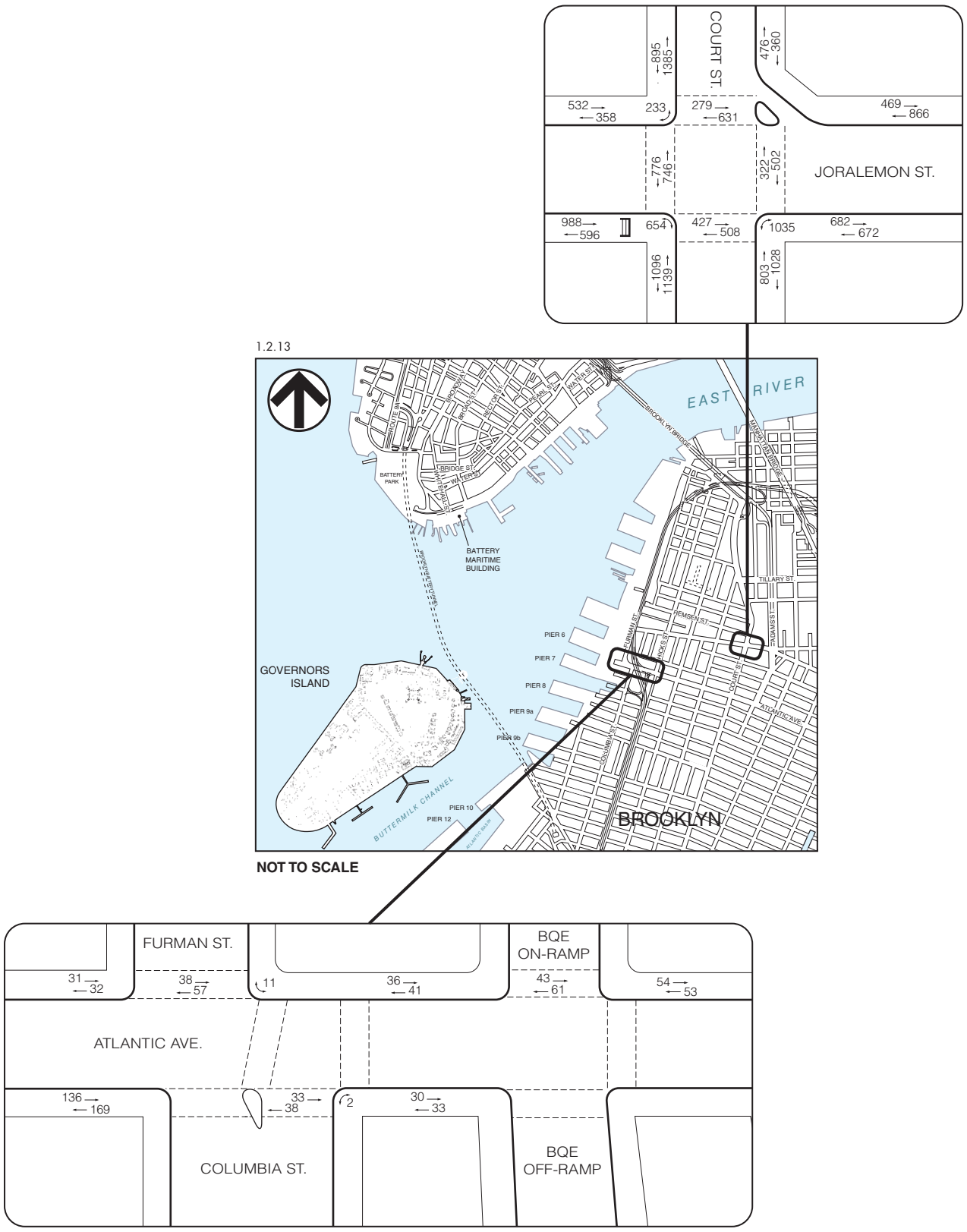
BMB No Build Pedestrian Volumes
Midday Peak Hour
Figure 7-51



BMB No Build Pedestrian Volumes
PM Peak Hour
Figure 7-52

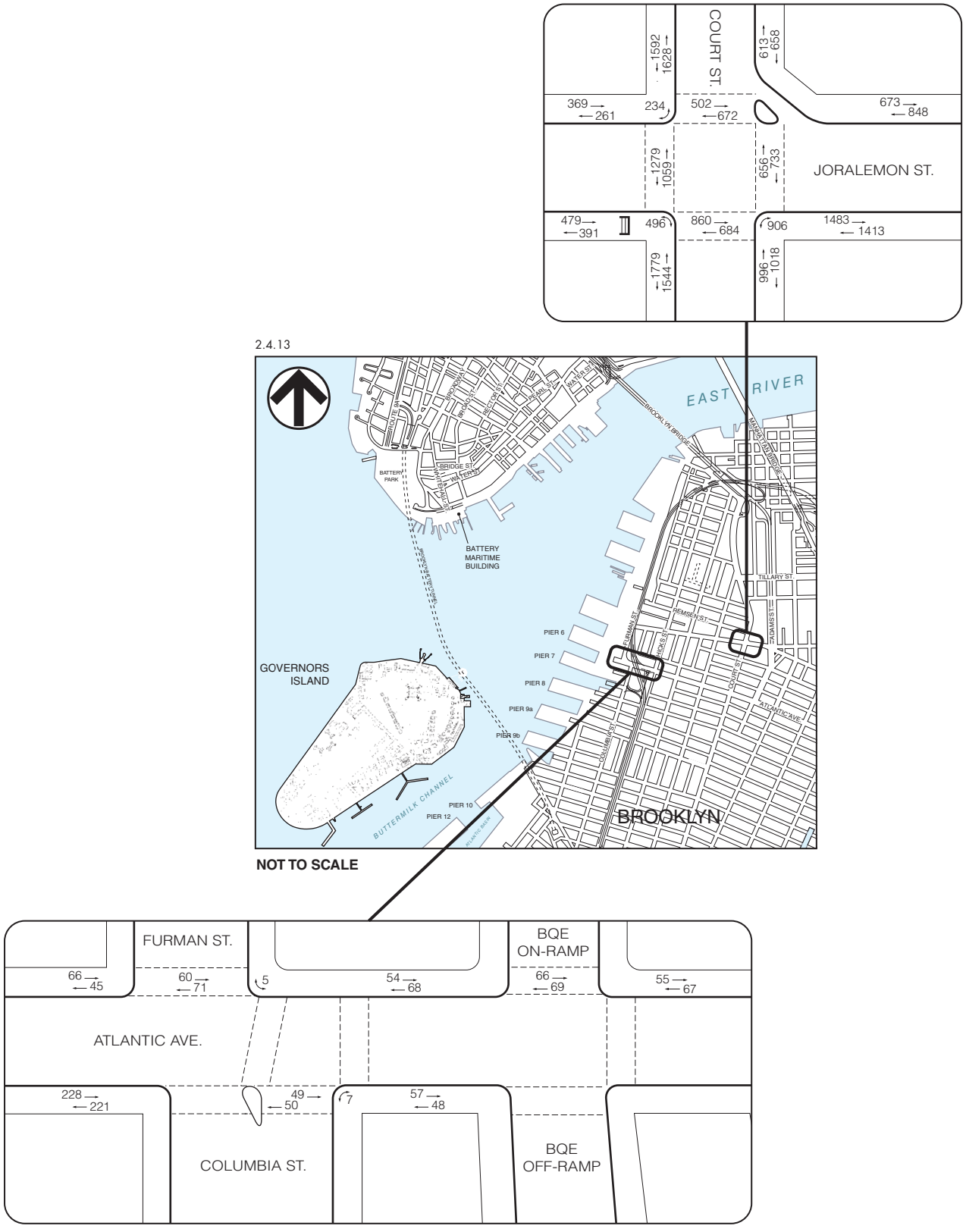


BMB No Build Pedestrian Volumes
Saturday Peak Hour
Figure 7-53



Pier 6 No Build Pedestrian Volumes
Weekday AM Peak Hour

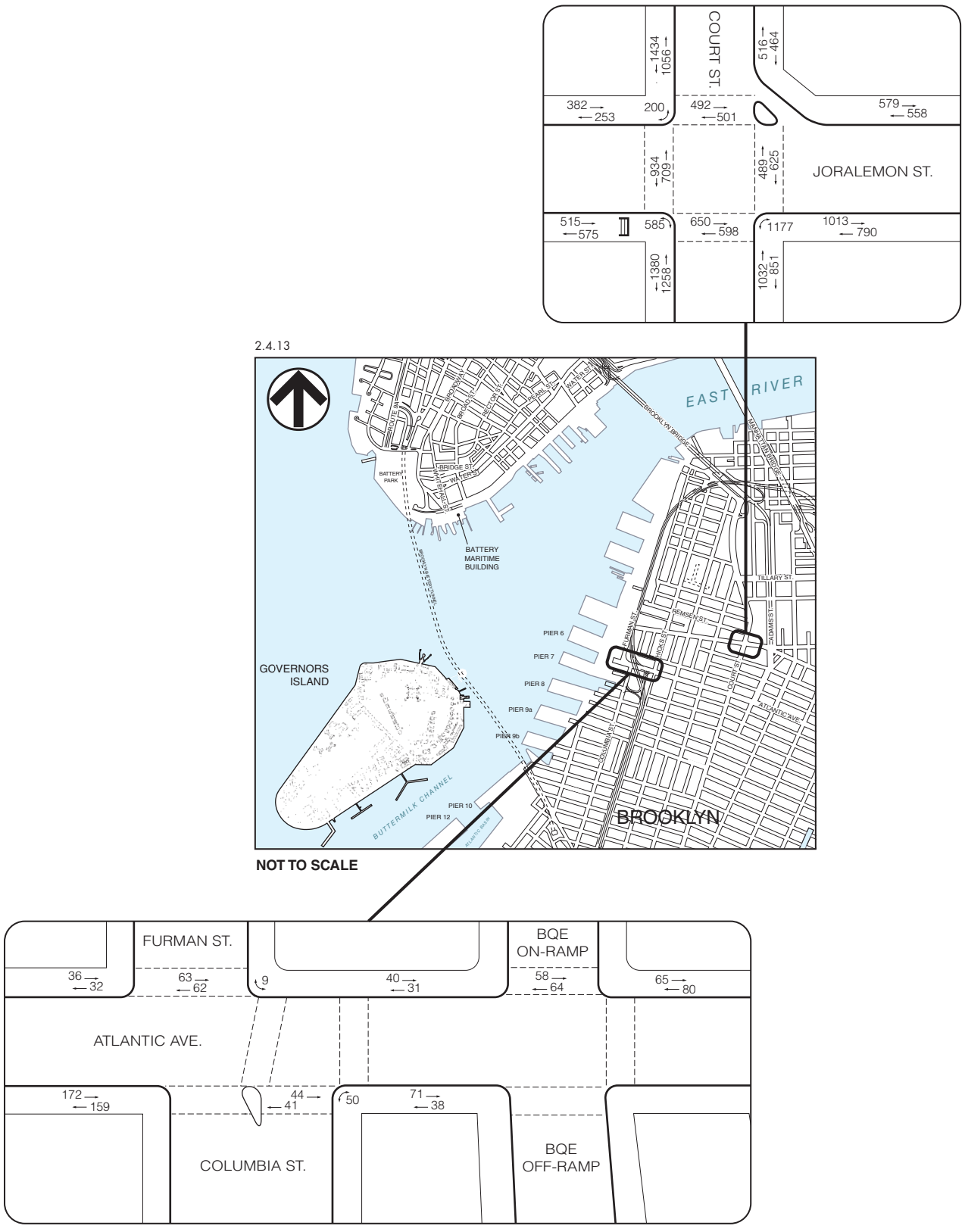
Figure 7-54



NOT TO SCALE

Pier 6 No Build Pedestrian Volumes
Weekday Midday Peak Hour

Figure 7-55



Pier 6 No Build Pedestrian Volumes
Weekday PM Peak Hour

Figure 7-56

Table 7-40 (cont'd)
2022 No Build Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,504	2.32	B
State Street between Bridge Street and Pearl Street	West	20.5	1,271	1.29	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,355	2.75	B
Whitehall Street between Pearl and Water Street	West	7.0	810	2.41	B
Broad Street between Pearl Street and Stone Street	West	11.0	2,054	3.57	C
Whitehall Street between State Street and Subway Stairway	East	9.0	748	1.73	B
Whitehall Street between State Street and South Street	West	7.0	221	0.66	B
Water Street between Whitehall Street and bus stop	South	11.0	579	1.06	B
Water Street between bus stop and Broad Street	South	13.0	1,002	1.56	B
Broad Street between Pearl Street and Water Street	West	11.0	1,010	1.74	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	428	0.74	B
South Street between Whitehall Street and Broad Street	North	5.0	723	3.01	C
State Street south of Pearl Street	West	19.0	1,245	1.37	B
State Street at M15 Bus Loop	West	12.0	1,085	1.88	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	995	1.48	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	2,292	3.54	C
State Street between Bridge Street and Pearl Street	West	20.5	2,087	2.12	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	2,260	4.39	C
Whitehall Street between Pearl and Water Street	West	7.0	975	2.90	B
Broad Street between Pearl Street and Stone Street	West	11.0	1,828	3.46	C
Whitehall Street between State Street and Subway Stairway	East	9.0	1,590	3.68	C
Whitehall Street between State Street and South Street	West	7.0	248	0.74	B
Water Street between Whitehall Street and bus stop	South	11.0	603	1.11	B
Water Street between bus stop and Broad Street	South	13.0	991	1.54	B

Table 7-40 (cont'd)
2022 No Build Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
PM Peak Period (continued)					
Broad Street between Pearl Street and Water Street	West	11.0	803	1.37	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	689	1.20	B
South Street between Whitehall Street and Broad Street	North	5.0	681	2.84	B
State Street south of Pearl Street	West	19.0	1,855	2.03	B
State Street at M15 Bus Loop	West	12.0	1,735	3.00	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	1,550	2.31	B
Saturday Peak Period					
State Street north of Bridge Street	West	13.5	2,721	3.89	C
State Street between Bridge Street and Pearl Street	West	20.5	1,667	1.62	B
Whitehall Street between Water Street and Subway Stairway	East	9.0	707	1.6	B
Whitehall Street between Water Street and South Street	West	7.0	492	1.5	B
Water Street between Whitehall Street and bus stop	South	11.0	568	1.1	B
Water Street between bus stop and Broad Street	South	13.0	1,122	1.8	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	632	1.1	B
State Street south of Pearl Street	West	19.0	2,071	2.3	B
State Street east of Peter Minuit Plaza	West	12.0	2,224	3.9	C
Peter Minuit Plaza	West	14.0	1,479	2.2	B

Note: PMF = pedestrians per minute per foot

Table 7-41
2022 No Build Condition Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	Northwest	168.3	A	126.8	A	157.9	A	N/A	
	Southwest	61.9	A	41.2	B	61.8	A		
Whitehall Street and State Street	Northwest	191.9	A	192.9	A	139.0	A		
	Southeast	82.0	A	125.3	A	101.0	A	116.0	A
Broad Street and Water Street	Northwest	68.2	A	48.7	B	78.6	A	113.2	A
	Southwest	94.9	A	102.5	A	96.3	A	241.9	A
Whitehall Street and South Street	Northeast	322.5	A	315.3	A	266.6	A	203.3	A

Note: SFP = square feet per pedestrian

Table 7-42
2022 No Build Conditions Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				AM		Midday		PM		Saturday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	West	23.0	14.0	60.1	A	43.3	B	51.8	B	N/A	
Whitehall Street and State Street	North	24.0	15.0	281.2	A	117.2	A	162.6	A		
	East	36.0	17.0	12.4	E	16.9	D	18.9	D		
	South	30.0	14.0	83.5	A	58.4	B	55.4	B		
	West	50.0	15.0	7.0	F	10.1	E	6.5	F		
Broad Street and Water Street	West	60.0	16.0	41.7	B	29.4	C	43.5	B	85.6	A
Whitehall Street and South Street	North	27.0	16.0	70.8	A	60.8	A	40.1	B	N/A	
	East	27.0	12.0	47.4	B	54.4	B	69.9	A	26.4	C
State Street and Peter Minuit Plaza	South	36.0	25.0	114.7	A	69.9	A	61.4	A	51.4	B

Note: SFP = square feet per pedestrian

Table 7-43
2022 No Build Conditions Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	836	1.24	B
	West	6.0	2,280	6.73	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,335	5.56	C
	South	8.0	1,354	3.05	C
Court Street between Joralemon Street and Livingston Street	East	11.0	1,831	3.20	C
	West	12.0	2,235	3.31	C
Joralemon Street between Court Street and Clinton Street	North	9.0	890	1.72	B
	South	4.0	1,584	7.54	D
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	63	0.08	A
	South	8.2	305	0.77	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	77	0.09	A
	South	18.0	63	0.07	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	107	0.3	A

Table 7-43 (cont'd)
2022 No Build Conditions Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
Midday Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	1,271	1.86	B
	West	6.0	3,220	9.20	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,521	5.39	C
	South	8.0	2,896	6.72	D
Court Street between Joralemon Street and Livingston Street	East	11.0	2,014	3.29	C
	West	12.0	3,323	4.99	C
Joralemon Street between Court Street and Clinton Street	North	9.0	630	1.45	B
	South	4.0	870	3.92	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	111	0.14	A
	South	8.2	449	1.14	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	122	0.15	A
	South	18.0	105	0.12	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	122	0.3	A
PM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	980	1.54	B
	West	6.0	2,490	7.65	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,137	4.54	C
	South	8.0	1,803	4.15	C
Court Street between Joralemon Street and Livingston Street	East	11.0	1,883	3.34	C
	West	12.0	2,638	4.39	C
Joralemon Street between Court Street and Clinton Street	North	9.0	635	1.47	B
	South	4.0	1,090	5.14	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	68	0.09	A
	South	8.2	331	0.84	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	71	0.09	A
	South	18.0	109	0.13	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	145	0.4	A

Note: PMF = pedestrians per minute per foot

Table 7-44
2022 No Build Conditions Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Court Street and Joralemon Street	Southeast	71.6	A	53.4	B	61.0	A
	Northwest	51.5	B	36.3	C	45.5	B
	Southwest	53.9	B	36.9	C	47.7	B
Furman/Columbia Street and Joralemon Street	Northeast	4105.2	A	3175.6	A	3055.9	A
	Southeast	2858.0	A	1948.9	A	1453.2	A

Note: SFP = square feet per pedestrian

Table 7-45
2022 No Build Conditions Crosswalk Analysis
Brooklyn Locations

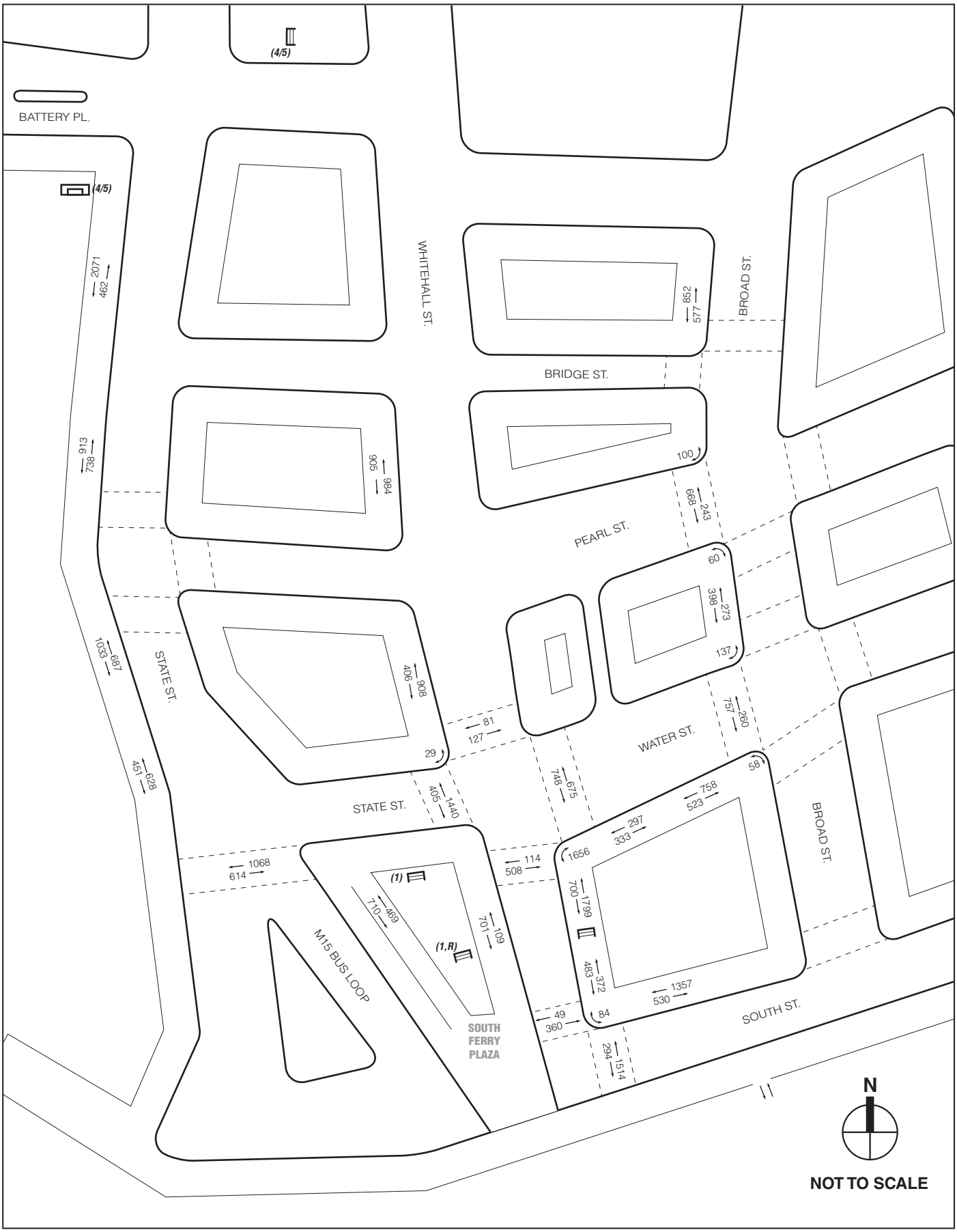
Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
Joralemon Street and Court Street	North	30.0	15.0	15.8	D	18.7	D	17.8	D
	East	31.0	18.0	84.2	A	42.0	B	67.6	A
	South	38.0	19.0	30.5	C	20.8	D	24.1	C
	West	25.0	17.0	38.7	C	20.0	D	33.8	C
Furman/Columbia Street and Atlantic Avenue	North	32.0	14.0	407.3	A	274.7	A	187.3	A
	South	54.0	16.0	706.5	A	438.6	A	233.6	A
BQE On/Off Ramps and Atlantic Avenue	North	13.0	12.0	63.2	A	48.0	B	53.4	B
	North	30.0	15.0	15.8	D	18.7	D	17.8	D

Note: SFP = square feet per pedestrian

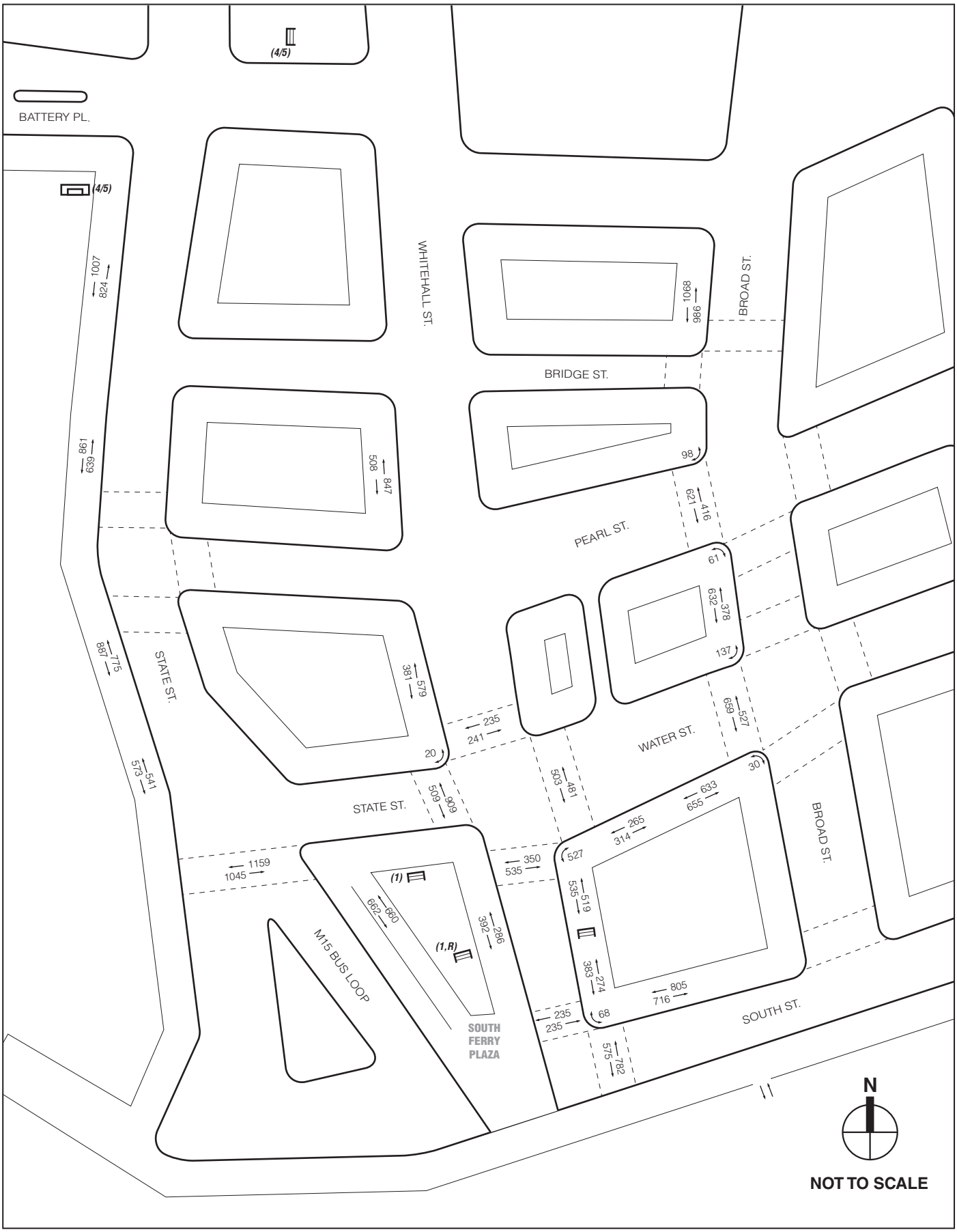
2022 BUILD CONDITION

The project-generated pedestrian volumes were distributed throughout the pedestrian networks based on the current land uses in the areas, nearby parking locations, available transit routes and services, and pedestrian pathways available to/from the BMB and Pier 6 ferry portals. The peak hour project-generated pedestrian trips presented in Section D, "City Environmental Quality Review (CEQR) Screening Analysis" and shown on **Figures 7-9 to 7-16**, were added to the projected 20 No Build volumes to generate the 2022 Build pedestrian volumes for analysis. The total 2022 Build pedestrian volumes are presented on **Figures 7-57** to **7-63**.

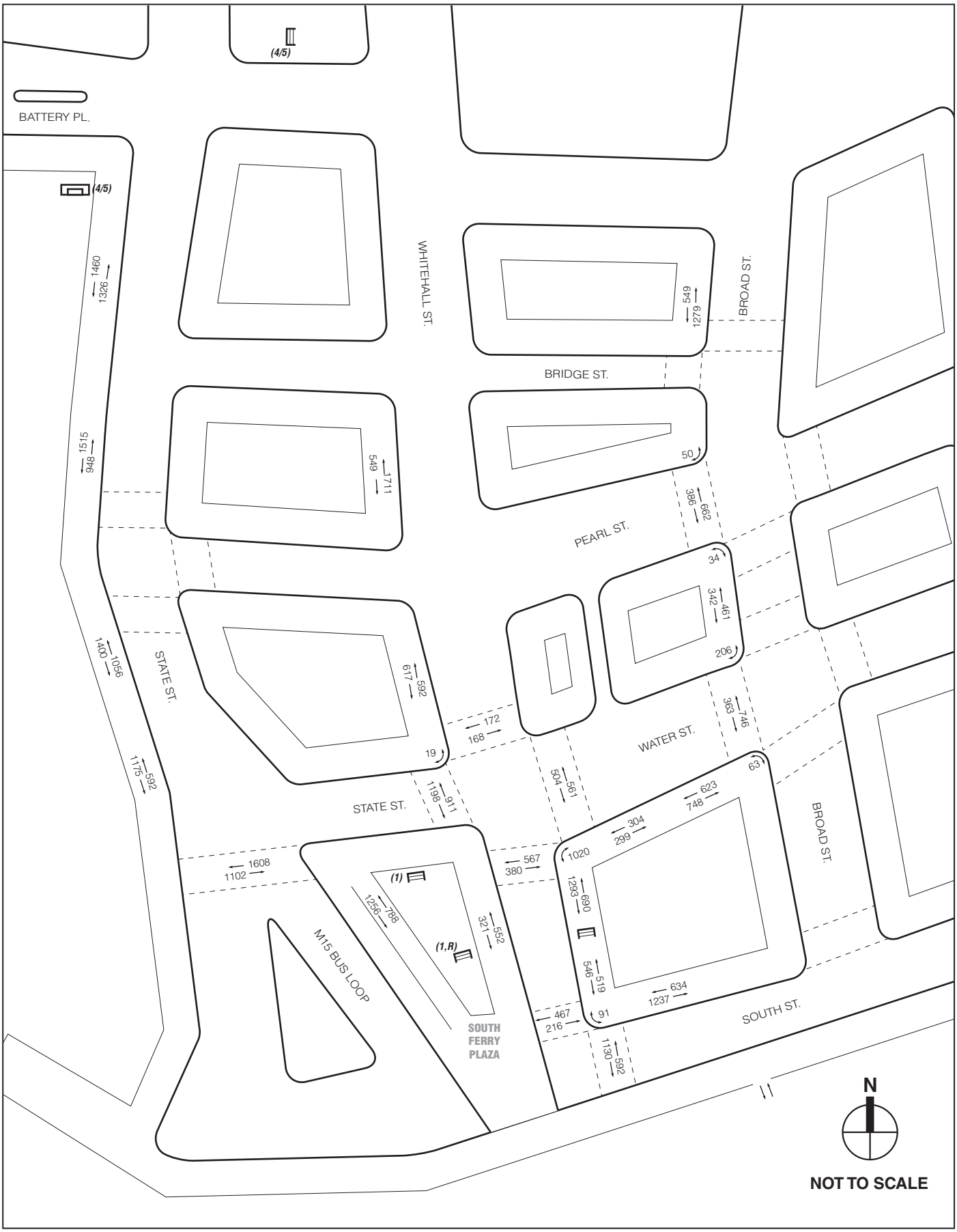
As presented in **Tables 7-46** to **7-51**, all sidewalks, corners, and crosswalks would continue to operate at acceptable levels (within mid-LOS D, with a maximum of 8.5 PMF in sidewalk platoon flows or a minimum of 19.5 SFP for crosswalks and corners), or incur degradations that, when compared to the No Build condition, do not exceed the 2012 *CEQR Technical Manual* sliding scale impact thresholds (see **Tables 7-12** and **7-13**), except at the following locations, where significant adverse pedestrian impacts resulting from the Proposed Project were identified. Measures that can be implemented to mitigate this significant adverse pedestrian impact are discussed in Chapter 15, "Mitigation."



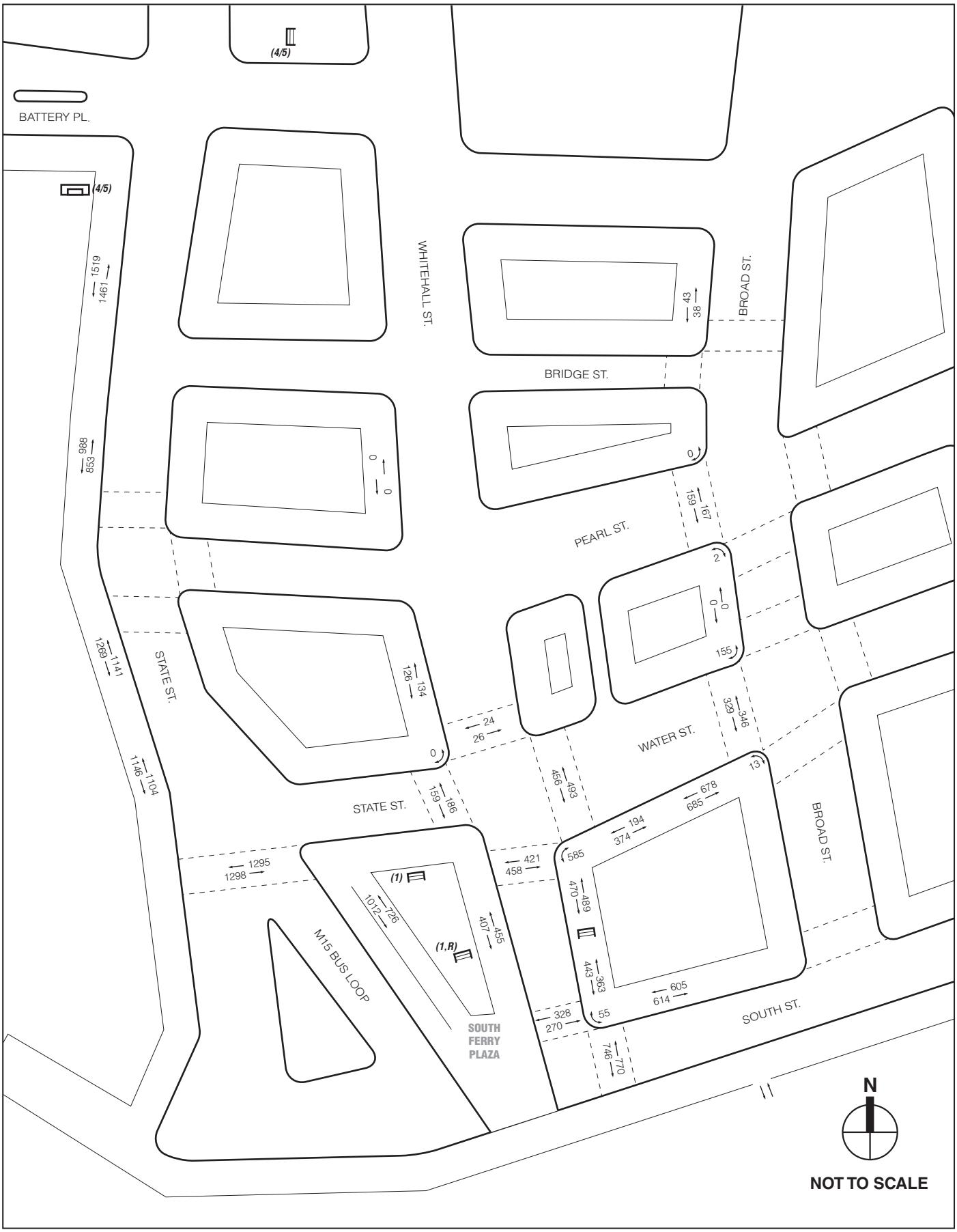
BMB Build Pedestrian Volumes
AM Peak Hour
Figure 7-57



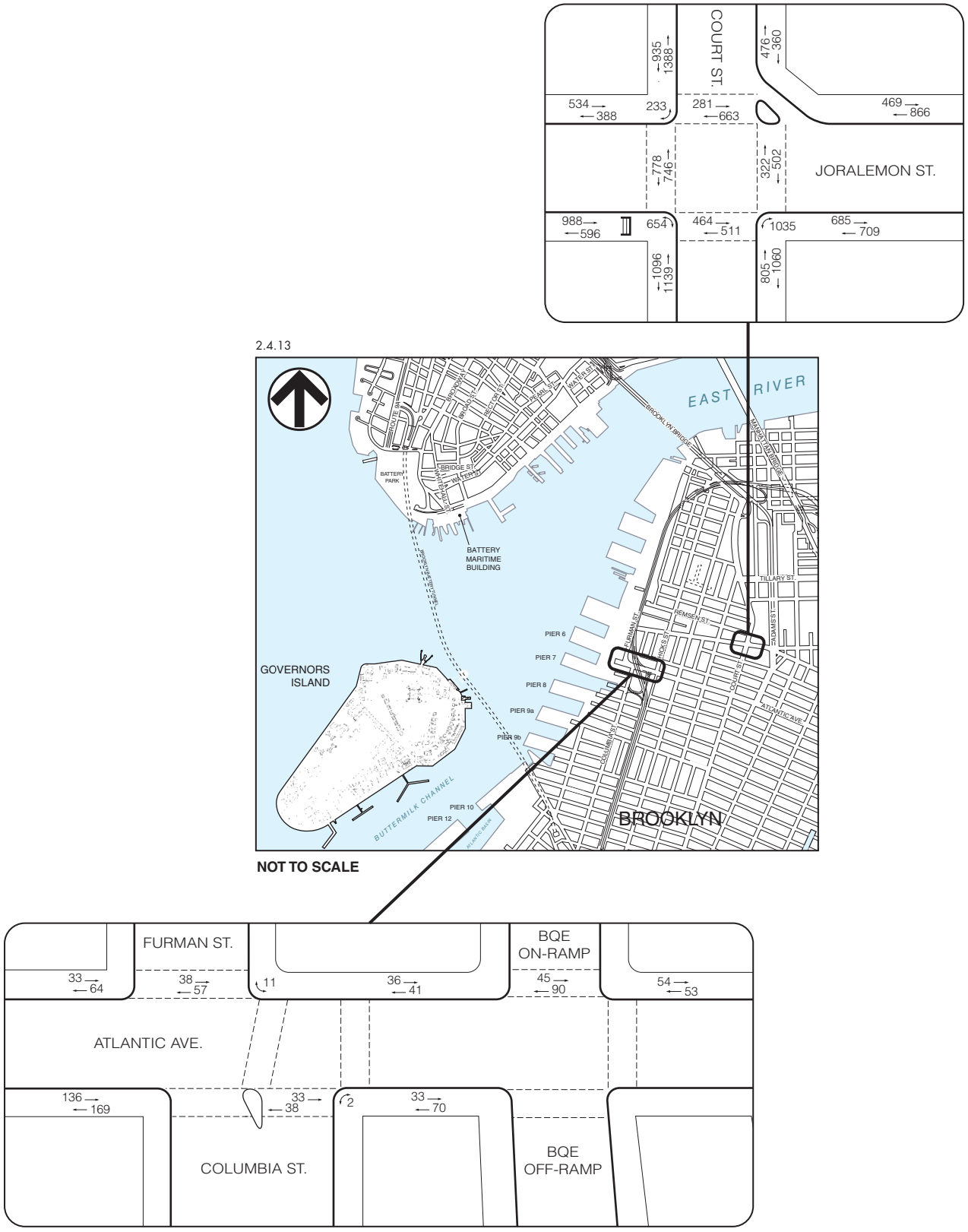
BMB Build Pedestrian Volumes
Midday Peak Hour
Figure 7-58



BMB Build Pedestrian Volumes
PM Peak Hour
Figure 7-59

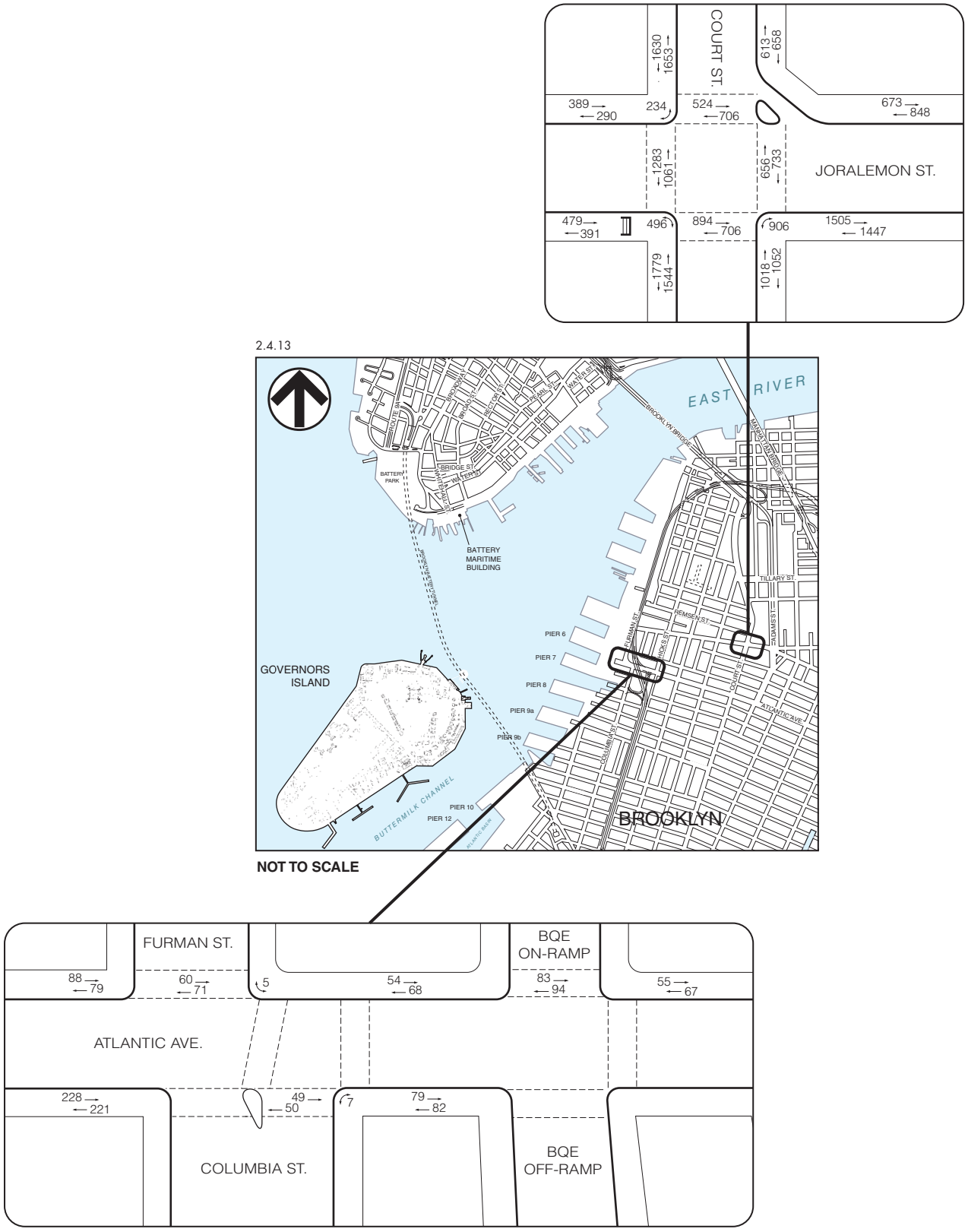


BMB Build Pedestrian Volumes
Saturday Peak Hour
Figure 7-60



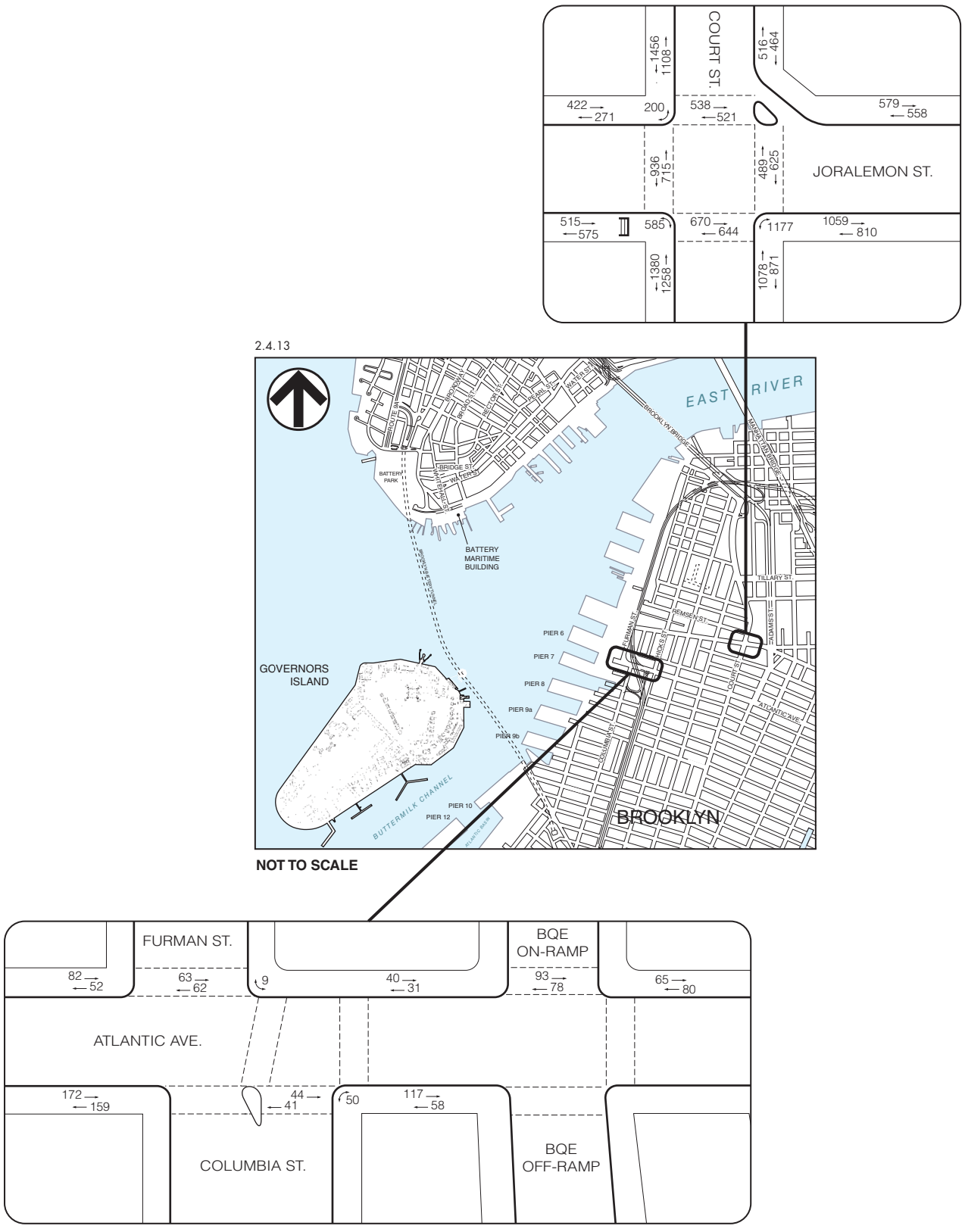
NOT TO SCALE

Pier 6 Build Pedestrian Volumes
Weekday AM Peak Hour
Figure 7-61



PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 Build Pedestrian Volumes
Weekday Midday Peak Hour
Figure 7-62



Pier 6 Build Pedestrian Volumes
Weekday PM Peak Hour
Figure 7-63

Table 7-46
2022 Build Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	2,533	3.91	C
State Street between Bridge Street and Pearl Street	West	20.5	1,651	1.68	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,889	3.70	C
Whitehall Street between Pearl and Water Street	West	7.0	1,314	3.91	C
Broad Street between Pearl Street and Stone Street	West	11.0	1,429	2.59	B
Whitehall Street between State Street and Subway Stairway	East	9.0	2,499	5.78	C
Whitehall Street between State Street and South Street	West	7.0	810	2.41	B
Water Street between Whitehall Street and bus stop	South	11.0	630	1.05	B
Water Street between bus stop and Broad Street	South	13.0	1,281	1.80	B
Broad Street between Pearl Street and Water Street	West	11.0	671	1.27	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	855	1.48	B
South Street between Whitehall Street and Broad Street	North	5.0	1,887	7.86	D
State Street south of Pearl Street	West	19.0	1,720	1.81	B
State Street at M15 Bus Loop	West	12.0	1,079	1.80	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	1,179	1.75	B
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	1,831	2.83	B
State Street between Bridge Street and Pearl Street	West	20.5	1,500	1.52	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	1,355	2.75	B
Whitehall Street between Pearl and Water Street	West	7.0	960	2.86	B
Broad Street between Pearl Street and Stone Street	West	11.0	2,054	3.57	C
Whitehall Street between State Street and Subway Stairway	East	9.0	1,054	2.44	B
Whitehall Street between State Street and South Street	West	7.0	678	2.02	B
Water Street between Whitehall Street and bus stop	South	11.0	579	1.06	B
Water Street between bus stop and Broad Street	South	13.0	1,288	2.00	B
Broad Street between Pearl Street and Water Street	West	11.0	1,010	1.74	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	657	1.14	B

Table 7-46 (cont'd)
2022 Build Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
Midday Peak Period (cont'd)					
South Street between Whitehall Street and Broad Street	North	5.0	1,521	6.34	D
State Street south of Pearl Street	West	19.0	1,662	1.82	B
State Street at M15 Bus Loop	West	12.0	1,114	1.93	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	1,322	1.97	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	13.5	2,786	4.30	C
State Street between Bridge Street and Pearl Street	West	20.5	2,463	2.50	B
Whitehall Street between Bridge Street and Pearl Street	West	10.0	2,260	4.39	C
Whitehall Street between Pearl and Water Street	West	7.0	1,209	3.60	C
Broad Street between Pearl Street and Stone Street	West	11.0	1,828	3.46	C
Whitehall Street between State Street and Subway Stairway	East	9.0	1,983	4.59	C
Whitehall Street between State Street and South Street	West	7.0	873	2.60	B
Water Street between Whitehall Street and bus stop	South	11.0	603	1.11	B
Water Street between bus stop and Broad Street	South	13.0	1,371	2.13	B
Broad Street between Pearl Street and Water Street	West	11.0	803	1.37	B
Whitehall Street between Water Street and Subway Stairway	East	12.0	1,065	1.85	B
South Street between Whitehall Street and Broad Street	North	5.0	1,871	7.80	D
State Street south of Pearl Street	West	19.0	2,456	2.68	B
State Street at M15 Bus Loop	West	12.0	1,767	3.06	C
Peter Minuit Plaza-Ferry Terminal Passageway	Passageway	14.0	2,044	3.04	C
Saturday Peak Period					
State Street north of Bridge Street	West	13.5	2,980	4.26	C
State Street between Bridge Street and Pearl Street	West	20.5	1,841	1.79	B
Whitehall Street between Water Street and Subway Stairway	East	9.0	959	2.2	B
Whitehall Street between Water Street and South Street	West	7.0	862	2.6	B
Water Street between Whitehall Street and bus stop	South	11.0	568	1.1	B
Water Street between bus stop and Broad Street	South	13.0	1,363	2.2	B

Table 7-46 (cont'd)
2022 Build Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
Saturday Peak Period (cont'd)					
Whitehall Street between Water Street and Subway Stairway	East	12.0	806	1.4	B
State Street south of Pearl Street	West	19.0	2,410	2.6	B
State Street east of Peter Minuit Plaza	West	12.0	2,250	3.9	C
Peter Minuit Plaza	West	14.0	1,738	2.6	B

Note: PMF = pedestrians per minute per foot

Table 7-47
2022 Build Condition Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period		Saturday Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	Northwest	116.3	A	101.5	A	114.2	A	N/A	
	Southwest	46.6	B	34.2	C	44.5	B		
Whitehall Street and State Street	Northwest	161.3	A	173.3	A	121.2	A		
	Southeast	64.5	A	101.1	A	79.4	A	97.2	A
Broad Street and Water Street	Northwest	51.3	B	40.8	B	60.2	A	89.9	A
	Southwest	82.7	A	88.5	A	79.9	A	188.9	A
Whitehall Street and South Street	Northeast	129.0	A	148.9	A	104.4	A	126.7	A

Note: SFP = square feet per pedestrian

Table 7-48
2022 Build Conditions Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles							
				AM		Midday		PM		Saturday	
				SFP	LOS	SFP	LOS	SFP	LOS	SFP	LOS
Broad Street and Pearl Street	West	23.0	14.0	39.5	C	34.7	C	37.1	C	N/A	
Whitehall Street and State Street	North	24.0	15.0	281.2	A	117.2	A	162.6	A		
	East	36.0	17.0	9.9	E	14.0	E	14.3	E		
	South	30.0	14.0	83.5	A	58.4	B	55.4	B		
	West	50.0	15.0	6.1	F	8.8	E	5.5	F		
Broad Street and Water Street	West	60.0	16.0	27.5	C	22.6	D	28.8	C	58.1	B
Whitehall Street and South Street	North	27.0	16.0	70.8	A	60.8	A	40.1	B	N/A	
	East	27.0	12.0	8.3	E	13.2	E	9.6	E	11.6	E
State Street and Peter Minuit Plaza	South	36.0	25.0	71.5	A	56.0	B	47.3	B	44.3	B

Note: SFP = square feet per pedestrian

Table 7-49
2022 Build Conditions Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	1 Hour Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	836	1.24	B
	West	6.0	2,323	6.86	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,335	5.56	C
	South	8.0	1,394	3.14	C
Court Street between Joralemon Street and Livingston Street	East	11.0	1,865	3.26	C
	West	12.0	2,235	3.31	C
Joralemon Street between Court Street and Clinton Street	North	9.0	922	1.78	B
	South	4.0	1,584	7.54	D
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	97	0.13	A
	South	8.2	305	0.77	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	77	0.09	A
	South	18.0	103	0.12	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	107	0.3	A
Midday Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	1,271	1.86	B
	West	6.0	3,283	9.38	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,521	5.39	C
	South	8.0	2,952	6.85	D
Court Street between Joralemon Street and Livingston Street	East	11.0	2,070	3.38	C
	West	12.0	3,323	4.99	C
Joralemon Street between Court Street and Clinton Street	North	9.0	679	1.56	B
	South	4.0	870	3.92	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	167	0.22	A
	South	8.2	449	1.14	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	122	0.15	A
	South	18.0	161	0.19	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	122	0.3	A
PM Peak Period					
Court Street between Joralemon Street and Remsen Street	East	13.0	980	1.54	B
	West	6.0	2,564	7.87	D
Joralemon Street between Court Street and Boerum Place	North	5.0	1,137	4.54	C
	South	8.0	1,869	4.30	C
Court Street between Joralemon Street and Livingston Street	East	11.0	1,949	3.46	C
	West	12.0	2,638	4.39	C
Joralemon Street between Court Street and Clinton Street	North	9.0	693	1.60	B
	South	4.0	1,090	5.14	C
Atlantic Avenue between Furman Street and Joralemon Street	North	16.0	134	0.17	A
	South	8.2	331	0.84	B
Atlantic Avenue between Furman Street and BQE Off/On Ramps	North	17.0	71	0.09	A
	South	18.0	175	0.20	A
Atlantic Avenue between BQE Off/On Ramps and Hicks Street	North	8.3	145	0.4	A

Note: PMF = pedestrians per minute per foot

Table 7-50
2022 Build Conditions Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Court Street and Joralemon Street	Southeast	70.5	A	52.4	B	59.3	B
	Northwest	50.7	B	35.5	C	43.6	B
	Southwest	52.6	B	36.1	C	46.4	B
Furman/Columbia Street and Joralemon Street	Northeast	4105.2	A	3175.6	A	3055.9	A
	Southeast	2858.0	A	1948.9	A	1453.2	A

Note: SFP = square feet per pedestrian

Table 7-51
2022 Build Conditions Crosswalk Analysis
Brooklyn Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
Joralemon Street and Court Street	North	30.0	15.0	15.1	D	17.8	D	16.5	D
	East	31.0	18.0	84.2	A	42.0	B	67.6	A
	South	38.0	19.0	29.1	C	20.0	D	22.7	D
	West	25.0	17.0	38.6	C	19.9	D	33.6	C
Furman/Columbia Street and Atlantic Avenue	North	32.0	14.0	407.3	A	274.7	A	187.3	A
	South	54.0	16.0	706.5	A	438.6	A	233.6	A
BQE On/Off Ramps and Atlantic Avenue	North	13.0	12.0	47.6	B	35.8	C	37.2	C
	North	30.0	15.0	15.1	D	17.8	D	16.5	D

Note: SFP = square feet per pedestrian

MANHATTAN

- The east crosswalk at State Street and Whitehall Street operates at LOS E (9.9 SFP), E (14.0 SFP), E (14.3 SFP) during the AM, midday and PM peak periods, respectively. This constitutes a significant adverse impact.
- The west crosswalk at State Street and Whitehall Street operates at LOS F (6.1 SFP), E (8.8 SFP), F (5.5 SFP) during the AM, midday and PM peak periods, respectively. This constitutes a significant adverse impact.
- The east crosswalk at Whitehall Street and South Street operates at LOS E (8.3 SFP), E (13.2 SFP), E (9.6 SFP), E (11.6 SFP) during the AM, midday, PM and Saturday peak periods, respectively. This constitutes a significant adverse impact.

Battery Maritime Building Entrance

The existing sidewalk in front of the BMB is approximately five feet in width. Currently, during peak visitation, The Trust regulates visitor queuing in front of the BMB using part of the adjacent roadway and deployment of traffic control agents. As part of the Battery Maritime Building Redevelopment project, the sidewalk along the building frontage is proposed to be widened to ten feet. **Table 7-52** presents the operations analysis of the proposed ten foot sidewalk under 2022 No Build and Build conditions. To achieve an effective width of eight feet used in the analysis, it was assumed obstructions (garbage cans, benches, etc.) would not be installed along the BMB frontage. As presented in **Table 7-52**, the Proposed Project would result in a significant impact on the proposed 10-foot sidewalk in front of the BMB during the

AM, PM, and Saturday peak hours. Measures that can be implemented to mitigate this significant adverse pedestrian impact are discussed in Chapter 15, "Mitigation."

Table 7-52
2022 Conditions Sidewalk Analysis
Battery Maritime Building Frontage

Peak Hour	Effective Width (ft)	2022 No Build			2022 Build		
		1 Hour Two-Way Volume	Platoon Flow		1 Hour Two-Way Volume	Platoon Flow	
			PMF	LOS		PMF	LOS
AM	8	790	1.83	B	3,361	9.61	D
Midday	8	858	1.98	B	2,108	6.87	D
PM	8	616	1.43	B	3,159	8.74	D
Saturday	8	3,390	7.85	D	5,033	11.65	E

Note: PMF = pedestrians per minute per foot

I. PARKING

2012 EXISTING CONDITIONS

Parking regulations in the vicinity of the Manhattan and Brooklyn ferry portals are summarized in **Table 7-53** and graphically presented in **Figures 7-64** and **7-65**.

A survey of off-street public parking facilities within a ¼ mile of the BMB and Pier 6 ferry portals was conducted in September 2012 to assess their capacities and approximate utilization levels. **Table 7-54** summarizes the number of available parking spaces and parking utilization during the AM, midday, PM, and Saturday peak periods at each off-street public parking facility. The locations of these parking facilities are also depicted in **Figures 7-64** and **7-65**.

Table 7-53
On-Street Parking Regulations

No.	Regulation	No.	Regulation
Brooklyn			
1	No Standing Anytime	**17**	No Standing 4PM-7PM Except Sunday
2	No Standing Except Authorized Vehicles (NYP)	**18**	No Standing Except Trucks Loading & Unloading 8AM-4PM Except Sunday
3	No Parking Midnight - 3AM Monday, Wednesday, Friday	**19**	No Parking 8:30AM-9AM Except Sunday
4	No Standing 7AM-7PM Monday-Friday Except Authorized Vehicles (HPD	**20**	2 Hour Metered Parking 9AM-7PM Except Sunday
5	No Parking Anytime	**21**	No Standing Except Trucks Loading & Unloading 7AM-3PM Except Sunday
6	1 Hour Metered Parking 9AM-7PM Except Sunday	**22**	No Standing Anytime Except Trucks Loading & Unloading
7	No Standing Fire Zone	**23**	No Parking 7AM-7PM Monday - Friday
8	No Parking Midnight - 3AM Tue., Thur., Sat.	**24**	No Parking 7AM-7:30AM Except Sunday
9	No Standing Except Authorized Vehicles 8AM-6PM Monday-Friday (Dept. of Transportation)	**25**	1 Hour Metered Parking 7:30AM-7PM Except Sunday
10	No Standing Except Authorized Vehicles 8AM-6PM Monday-Friday (Community Board)	**26**	No Parking 8AM-6PM Wednesday
11	No Standing Except Authorized Vehicles 7AM-7PM Monday-Friday (Transit Police)	**27**	Parking Permitted 8AM-6PM Wednesday Only
12	No Parking 7AM-4PM - School Days	**28**	No Stopping Anytime
13	No Parking 11:30AM-1PM Wednesday	**29**	No Standing Anytime Except Authorized Vehicles (Fire Department)
14	No Parking 11:30AM-1PM Tuesday	**30**	No Parking 8AM-6PM Tuesday
15	No Parking 7:30AM-8AM Except Sunday	**31**	Parking Permitted 8AM-6PM Tuesday Only
16	2 Hour Metered Parking 8AM-7PM Except Sunday	**32**	1 Hour Metered Parking 8AM-7PM Except Sunday

1. *On-Street Parking Regulation* Ⓑ *Bus Stop* Ⓐ *Parking Garage*

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

BMB On-Street Parking Regulations and
Off-Street Public Parking Facilities
Figure 7-64

1. *On-Street Parking Regulation*

B *Bus Stop*

A *Parking Garage*

PHASED DEVELOPMENT OF GOVERNORS ISLAND
North Island Re-tenanting and Park and Public Space Master Plan

Pier 6 On-Street Parking Regulations and Off-Street Public Parking Facilities
Figure 7-65

Table 7-53 (cont'd)
On-Street Parking Regulations

No.	Regulation	No.	Regulation
Manhattan			
1	No Standing Anytime Except Authorized Vehicles	**35**	No Standing Except Authorized Vehicles DBS Only, 7PM-Noon Mon.-Fri.
2	Ambulance	**36**	No Standing Except Authorized Vehicles DBS Only 7PM-Noon, Mon.-Fri.
3	No Standing Except Trucks Loading & Unloading, 7AM-7PM, Mon-Fri	**37**	Bus Layover Area—No Standing Anytime
4	No Standing 7AM-7PM, Mon.-Fri. Except Authorized Vehicles	**38**	1 Hr Parking 10AM-7PM, Mon.-Fri.; 9AM-7PM Saturday
5	Authorized Agent on Other Side / NY State Insurance Department	**39**	5 Hr Limit
6	No Standing Anytime	**40**	Night Regulation
7	Department of Consumer Affairs	**41**	No Parking 2AM-6AM, Mon.-Thurs.
8	Authorized Agent on Other Side / Probation Vehicles	**42**	1 Hr Parking 8AM-7PM Except Sunday
9	Pedestrian Street—No Motor Vehicles 10AM-2AM	**43**	Taxi Stand, No Standing (7AM-5PM), Mon.-Fri. Except Taxis
10	Department of Sanitation	**44**	No Standing 5PM-2AM Except Sunday, Except TLC Licensed Vehicles, Prearranged Service Only
11	No Parking 8AM-8:30AM, Mon.-Fri.	**45**	No Standing 7AM-10AM; 4PM-7PM Except Sunday
12	2 Hr Parking 8:30AM-10PM Except Sunday	**46**	No Standing Except Trucks Loading & Unloading, 10AM-4PM Except Sunday
13	No Standing 7AM-10AM, Mon.-Fri.	**47**	Board of Electors
14	No Parking 8AM-8:30AM, Mon.-Fri.	**48**	Water Front Commission
15	2 Hr Parking 9AM-10PM Except Sunday	**49**	No Standing 6AM-5PM, Mon.-Fri. Except TLC Licensed Vehicles, Prearranged Services Only
16	No Standing Except Trucks Loading & Unloading, 8AM-6PM, Mon.-Fri.	**50**	No Standing 5PM-Midnight, Mon.-Fri. Except TLC Licensed Vehicles, Prearranged Services Only
17	3 Hr Parking 6AM-10AM, Mon.-Fri.; 10AM-10PM Sat.	**51**	No Standing Except Trucks Loading & Unloading 7AM-5PM, Mon.-Fri.
18	No Stopping Anytime	**52**	No Standing 7AM-7PM, Mon.-Fri.
19	No Stopping Anytime—Taxi Stand	**53**	NYCPD City Owned Vehicles
20	NYCT	**54**	No Standing Except NYSP 8AM-6PM, Mon.-Fri.
21	Blue Zone, No Parking 7AM-7PM, Mon.-Fri.	**55**	Except Approved Jitney Service
22	No Standing 6AM-6PM, Tues. & Thurs. Except Farmer's Market	**56**	Temporary Construction Regulation
23	OTHER Times No Standing	**57**	No Standing 4PM-7PM, Mon.-Fri.
24	DHS	**58**	No Standing Except Trucks Loading & Unloading7AM-4PM, Mon.-Fri.
25	Taxi and Limousine Commission Vehicles	**59**	No Standing Except Trucks Loading & Unloading Except Sunday
26	Authorized Agent on Other Side / DHS	**60**	No Permit Area or No Permit Zone
27	Commissioner Vehicles	**61**	No Standing Except Trucks Loading & Unloading 8AM-7PM, Mon.-Fri.
28	No Standing Except Authorized Vehicles	**62**	NYS Banking Department
29	NYSJ	**63**	Department of Motor Vehicles
30	NY State Owned Vehicles	**64**	No Standing 3AM-7PM Mon.-Fri. Except Authorized Vehicles
31	Authorized Agency on Other Side / 6AM-8PM Mon.-Fri.	**65**	MTA Police
32	No Standing Except Trucks Loading & Unloading, 7AM-7PM Except Sunday	**66**	No Standing Hotel Loading Zone
33	No Parking Anytime (Temporary Construction Regulation)	**67**	No Standing 8AM-4PM School Days Except School Buses
34	No Standing Except Trucks Loading & Unloading, Noon-7PM Mon.-Fri.	**68**	No Standing Except Trucks Loading & Unloading 2AM-10AM Including Sunday

Sources: Survey conducted by AKRF

Table 7-54
2012 Existing Conditions Public Parking Utilization

Map#	Peak Period	Total Spaces	Available Spaces	Parking Utilization[1]
Manhattan				
	Quik Park Garage at the corner of Whitehall Street and South Street			
	AM	150	45	70%
A	Midday	150	30	80%
	PM	150	75	50%
	Saturday	150	30	80%
	South William Parking LLS at 14 -26 William Street			
	AM	400	120	70%
B	Midday	400	120	70%
	PM	400	200	50%
	Saturday	400	200	50%
	Kura River Management LTD at 2 Broadway			
	AM	56	6	90%
C	Midday	56	6	90%
	PM	56	6	90%
	Saturday	56	11	80%
	Central Parking Systems at 7 Hanover Square			
	AM	67	13	80%
D	Midday	67	7	90%
	PM	67	33	50%
	Saturday	67	13	80%
	Impark Water LLC at 55 Water Street			
	AM	545	218	60%
E	Midday	545	163	70%
	PM	545	109	80%
	Saturday	545	327	40%
	State Pearl Garage Inc at 1 Battery Park Plaza			
	AM	150	45	70%
F	Midday	150	15	90%
	PM	150	75	50%
	Saturday	150	60	60%
	Total Manhattan Garages within ¼ Mile of BMB			
	AM	1,368	447	67%
	Midday	1,368	341	71%
	PM	1,368	498	64%
	Saturday	1,368	641	53%
Brooklyn				
	Quik Park Garage adjacent to Pier 6			
	AM	312	140	55%
G	Midday	312	47	85%
	PM	312	106	66%
	44 State Street Corporation at 38-44 State Street			
	AM	90	22	75%
H	Midday	90	4	95%
	PM	90	31	65%
	ProPark America NY LLS Operating Long Island College Hospital at 352 Hicks Street			
	AM	430	193	55%
I	Midday	430	52	88%
	PM	430	146	66%
	Total Brooklyn Garages within ¼ Mile of Pier 6			
	AM	832	355	57%
	Midday	832	103	88%
	PM	832	283	66%

Note: 1. Parking Utilization = (Total Spaces—Available Spaces)/Total Spaces

The public parking facilities within ¼ mile of the BMB ferry portal have a combined capacity of 1,368 parking spaces and parking utilization ranging from 53 to 71 percent, with the peak utilization occurring during the midday peak period. Near the Pier 6 ferry portal, the public parking facilities within ¼ mile have a combined capacity of 832 parking spaces and parking utilization ranging from 57 to 88 percent, with the peak utilization also occurring during the midday peak period.

2022 NO BUILD CONDITION

Off-street public parking utilization is expected to experience the same growth as projected for traffic. As presented in **Table 7-55,** the 2022 No Build public parking utilization is expected to increase to a range of 69 to 72 percent in the vicinity of the BMB ferry portal and to a range of 58 to 89 percent in the vicinity of the Pier 6 ferry portal.

Table 7-55
2022 No Build Condition Public Parking Utilization

Peak Period	Total Spaces	Available Spaces	Parking Utilization1
Manhattan—Garages within ¼ Mile of BMB			
AM	1,368	430	69%
Midday	1,368	378	72%
PM	1,368	481	65%
Saturday	1,368	627	54%
Brooklyn—Garages within ¼ Mile of Pier 6			
AM	832	346	58%
Midday	832	89	89%
PM	832	273	67%
Note: 1. Parking Utilization = (Total Spaces—Available Spaces)/Total Spaces			

2022 BUILD CONDITION

Vehicle trips generated by the Proposed Project were assigned to the public parking facilities near the BMB and Pier 6 ferry portals. **Table 7-56** compares the projected 2022 No Build and Build public parking utilization levels. There would be adequate public parking supply near the BMB ferry portal to accommodate the anticipated increase in parking demand, but the projected parking demand near the Pier 6 ferry portal is expected to exceed the available off-street public parking capacity during the midday peak period. The 2012 *CEQR Technical Manual* states that parking lots and garages that are occupied at 98 percent of their capacity should be considered to be "at capacity." As a result, there would be an excess of 85 vehicles during the midday peak period that would need to seek parking elsewhere. This excess demand is expected to be dispersed on-street within the same ¼-mile parking study area near Pier 6.

Table 7-56
2022 No Build and Build Condition Public Parking Utilization

Peak Period	Total Spaces	2022 No Build		Proposed Project Parking Demand	2022 Build	
		Available Spaces	Parking Utilization[1]		Available Spaces[2]	Parking Utilization[1]
Manhattan—Garages within ¼ Mile of BMB						
AM	1,368	430	69%	104	326	76%
Midday	1,368	378	72%	220	158	88%
PM	1,368	481	65%	103	378	72%
	1,368	627	54%	237	390	52%
Brooklyn—Garages within ¼ Mile of Pier 6						
AM	832	346	58%	76	270	68%
Midday	832	89	89%	159	-70	108%
PM	832	273	67%	116	157	81%

Note:
1. Parking Utilization = (Total Spaces—Available Spaces)/Total Spaces
2. Build Available Spaces = No Build Available Spaces—Proposed Project Parking Demand

J. ASSESSMENT VEHICULAR AND PEDESTRIAN SAFETY ISSUES

Crash data for the study area intersections were obtained from the New York State Department of Transportation (NYSDOT) for the time period between January 1, 2009 and December 31, 2011. The data obtained quantify the total number of reportable accidents (involving fatality, injury, or more than $1,000 in property damage), fatalities, and injuries during the study period, as well as a yearly breakdown of pedestrian- and bicycle-related crashes at each location. According to the *CEQR Technical Manual*, a high crash location is one where there were five or more pedestrian/bicyclist-related crashes or 48 or more reportable and non-reportable crashes in any consecutive 12 months within the most recent 3-year period for which data are available.

During the January 1, 2009 to December 31, 2011 3-year period, a total of 243 reportable and non-reportable crashes, zero fatalities, 90 injuries, and 43 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of crash data identifies one study area intersection as a high pedestrian crash location in the 2009 to 2011 period. This location is Court Street at Atlantic Avenue. **Table 7-57** depicts total crash characteristics by intersection during the study period, as well as a breakdown of pedestrian and bicycle crashes by year and location. **Table 7-58** shows a detailed description of each crash at the intersection of Court Street and Atlantic Avenue during the three year period.

With the proposed project, the intersection of Court Street and Atlantic Avenue would experience modest increases in vehicular and pedestrian traffic—increases of approximately 14, 24, and 43 vehicles during the AM, midday, and PM peak hours, respectively, and fewer than 185 pedestrians through this intersection during each of the peak hours.

Table 7-57
Vehicle and Pedestrian Crash Details

Intersection		Study Period					Crashes by Year					
North-South Roadway	East-West Roadway	All Crashes by Year			Total Fatalities	Total Injuries	Pedestrian			Bicycle		
		2009	2010	2011			2009	2010	2011	2009	2010	2011
9A/West St. (SB)	Battery Place	2	7	2	0	3				1		
9A/West St. (NB)	Battery Place	5	3	4	0	5						
Washington St	Battery Place	0	1	1	0	3						
Greenwich Street	Battery Place	0	0	1	0	1			1			
State Street	B'way/Battery Pl	6	5	2	0	4		1				
State Street	Pearl Street	2	2	1	0	2						
Admiral George Dewey	State Street	0	0	0	0	0						
Whitehall Street	Pearl Street	3	6	2	0	2	1				1	
Whitehall Street	State/Water St	6	7	4	0	3	1		1			
Whitehall Street	South Street	2	2	1	0	1	1					
Broad Street	Bridge/Pearl St	4	4	1	0	1	1					
Broad Street	Water Street	7	10	12	0	7		1	1			
Broad Street	South Street	9	8	3	0	5						
Old Slip	South Street	1	0	0	0	0						
Wall Street	South Street	4	3	0	0	2						
Maiden Lane	South Street	3	2	1	0	1			1			
Court Street	Joralemon St	4	8	2	0	3		1	1	1		
Court Street	**Atlantic Avenue**	24	19	8	0	33	9	5	5	1	1	1
Hicks Street	Atlantic Avenue	9	6	7	0	12	1	3	1	1		
Furman Street	Joralemon Street	0	0	3	0	1						
Furman Street	Atlantic Avenue	2	1	0	0	1						
Columbia Street	Rt. 278 Ramps	0	1	0	0	0						
Rt. 278 Ramps	Atlantic Avenue	0	0	0	0	0						

Note: Bold intersections are high pedestrian crash locations.
Source: NYSDOT January 1, 2009 and December 31, 2011 crash data.

Table 7-58
Vehicle and Pedestrian Crash Details
Court Street and Atlantic Street

Intersection	Year	Date	Time	Crash Class		Action of Vehicle	Action of Pedestrian	Cause of Crash			
				Injured	Killed			Left / Right Turns	Pedestrian Error/ Confusion	Driver Inattention	Other
Court Street @ Atlantic Avenue	2009	1/29	10:58 AM	X		Making left turn—Southwest	Crossing with signal	X		X	Failure to yield R.o.W.
		3/30	12:53 PM	X		Going straight—East	Crossing against signal				
		6/18	11:38 PM	X		Going straight—South	Crossing against signal				
		7/30	3:40 PM	X		Making left turn—Northwest	Crossing with signal	X			
		9/11	11:40 PM	X		Making left turn—Southeast	Crossing with signal	X			Failure to yield R.o.W.
		4/29	12:50	X		Going straight—East	Other actions in roadway				Unknown
		10/16	3:49 PM	X		Making right turn—Southwest	Crossing with signal	x			
		10/28	5:00 PM	X		Unknown	Crossing with signal				Unknown
		10/28	5:00 PM	X		Unknown	Crossing with signal				Failure to yield R.O.W.
		11/25	5:00 PM	X		Parked—West	Along highway with traffic		X		Pavement slippery
		11/30	5:02 PM	X		Going straight—East	Crossing				Unknown
	2010	1/9	4:10 PM	X		Going straight—South	Crossing				Unknown
		5/29	11:45 AM	X		Making left turn—South	Unknown	X		X	Failure to yield R.o.W.
		7/16	1:30 PM	X		Other - West	Along highway with traffic				Unknown
		8/6	6:10 PM	X		Going straight—West	Crossing against signal				Unknown
		8/13	19:17 PM	X		Making left turn—Southwest	Crossing against signal	X	X		
		9/1	6:20 PM	X		Going straight - South	Crossing				Unknown
	2011	2/7	20:50 PM	X		Making left turn—East	Crossing with signal	X			
		3/23	11:00 AM	X		Making left turn—Southeast	Crossing against signal	X	X	X	
		4/4	15:30 PM	X		Making left turn—East	Crossing with signal	X			Failure to yield R.o.W.
		7/11	17:20 PM	X		Making left turn—East	Crossing with signal	X		X	
		10/9	16:00 PM	X		Changing lanes—South	Along highway with traffic				Reaction to other uninvolved vehicle, Unsafe lane change
		12/9	14:00 PM	X		Making right turn—Northwest	Crossing with signal	X			Failure to Yield R.o.W.

Source: NYSDOT January 1, 2009 and December 31, 2011 crash data.

Based on the review of the accident history at the intersection of Court Street and Atlantic Avenue, no prevailing trends with regard to geometric deficiencies were identified as the primary causes of recorded accidents. With respect to geometric deficiencies that could potentially cause safety hazards, the intersection of Court Street and Atlantic Avenue is signalized and provides four high-visibility crosswalks. In addition, countdown timers are installed at the east and west crosswalks at this intersection. Based on the detailed description, half of the pedestrian-related accidents were related to vehicles making left or right turning movements. Pedestrians crossing against the signal was listed as a contributing factor in five of the accidents. Measures to increase pedestrian safety at this intersection could include the installation of pedestrian safety signs such as "Turning Vehicles Yield to Pedestrians" on all approaches, and installing countdown timers on the remaining two crosswalks. With these measures in place, the projected increases in vehicular and pedestrian levels at the intersection of Court Street and Atlantic Avenue are not anticipated to exacerbate any of the current causes of pedestrian-related accidents.

K. FULL DEVELOPMENT OF THE PROPOSED PROJECT

The full development the Proposed Project (year 2030) would include Phase 1, the Park and Public Spaces component, and the Island Redevelopment component for both the North and South Island. The re-tenanting of the North Island buildings and the development of the two South Island development zones would result in approximately three million square feet of new uses on the Island. However, the future uses associated with the Island Redevelopment component have not yet been specifically proposed, defined, or designed and their operations have not yet been planned. As described in Chapter 2, "Analysis Framework," two possible redevelopment scenarios have been identified that represent the possible range of new development that could occur. This section presents a qualitative analysis of the full development of the Proposed Project based on those scenarios.

The first redevelopment scenario is a primarily University/Research option and the second is a primarily Mixed-Use option. These options do not represent any existing plans or proposals for the Island; rather, they are a generalized estimate based on the type and configurations of existing buildings, the underlying conditions of the Island itself, the uses required and permitted under the deed, and the general level of inquiries received by The Trust for various uses on the Island. The range of uses is presented below in **Table 7-59.**

The full development of the Proposed Project would increase vehicular, transit, pedestrian, and parking demand during the weekday and weekend peak periods. Significant adverse impacts would likely result, beyond those identified as part of the analyses presented for the year 2022 components. The evaluation of these impacts and the identification of potential mitigation measures would be the subject of future environmental review(s) when the programming of the Island Redevelopment becomes more defined.

Table 7-59
Island Redevelopment Potential Development Scenarios

Uses	University/Research Option (sf)	Mixed-Use Option (sf)
University		
Campus	422,000	0
Research	188,650	0
Academic	213,450	0
Housing–Faculty Housing *(assumed as apartments, not dorms)*	94,300	1,120,950
Housing–Student Dormitories	850,000	450,000
Conference Center/Hotel	500,000	350,000
Office	175,000	348,750
Service Retail/Restaurant *(Not destination, accessory to other uses)*	75,000	75,000
Cultural		
General *(Gallery, small museum, etc.)*	0	128,700
Artists' Studio	104,700	104,700
Movie Theater	9,200	9,200
Public School (6-12)	227,700	272,700
Maintenance, Support, Other	140,000	140,000
TOTAL	**3,000,000**	**3,000,000**

Notes: Does not include Park and Public Spaces.
All academic housing: contemplated to be residential uses ancillary to educational uses on- and/or off-island.

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