A. INTRODUCTION

The Phased Redevelopment of Governors Island (the "Proposed Project"), undertaken by the Trust for Governors Island (The Trust), would include park and public space development, infrastructure development, tenancies in historic buildings, and new development. Initial development on the project site (Phase 1) would include the development of park and public space, construction of one or both of the new water mains, and the replacement and repair of the seawall (with associated stormwater outfall consolidation project). Later phases would include completion of the park and public space development (Later Phases-Park and Public Spaces); and additional redevelopment on the Island, including the retenanting of the currently vacant North Island historic buildings; and the development of new uses in two separate areas—development zones—on South Island (collectively, the Later Phases-Island Redevelopment). Completion of Phase 1 and Later Phases-Park and Public Spaces would result in the completion of the park running through the center and perimeter of the South Island and upgrading existing park facilities. It is anticipated that Phase 1 would be completed by the end of 2013. At this time there is no schedule or funding for any portion of the Later Phases, but it is assumed for purposes of analysis that construction of the Later Phases would begin after 2013 and be ongoing to 2030 as funding is obtained for portions of the park and as the development zones are constructed.

At this time, the uses associated with the Later Phases for the North Island historic buildings and 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, the future without the Proposed Project (No Build), and the completion of the Phase 1 and Later Phases-Park and Public Spaces components (Build). For the full development of the Proposed Project, which includes the Later Phases–Island Redevelopment component, 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 Battery Maritime Building (BMB) in Manhattan and Pier 6 in Brooklyn. Trips generated by the Island uses were assigned to these ferry portals.

B. PRINCIPAL CONCLUSIONS

PHASE 1

The Trust has aggressively programmed spaces and events to attract visitation to the Island, resulting in phenomenal growth in patronage in early years, with slightly less dramatic increases in recent years. It is expected that such increases in visitation will continue through 2013 with or without the Phase 1 open space improvements. However, with the improvements, visitors would be able to enjoy the Island's well designed and lushly planted landscapes, instead of the continual programmed use of somewhat barren collection of lawns, fields, and parking lots. In

either case, visitors are expected to continue to flock to the Island in increasing numbers—limited only by the capacity of the ferry services, which is entirely dependent on the operating budget of The Trust and not associated with the proposed Phase 1 improvements. Therefore, Phase 1 of the Proposed Project would not result in any incremental trips or changes in the provision of public access to Governors Island and it would not have the potential for any transportation-related impacts.

PHASE 1 AND LATER PHASES-PARK AND PUBLIC SPACES

Phase 1 and the Later Phases-Park and Public Spaces would not result in any significant adverse transit, parking, or pedestrian safety impacts. Increased trip-making resulting from additional visitation drawn to the completed Later Phases-Park and Public Spaces and more regular and increased ferry service to the Island from the BMB and Pier 6 portals, however, is expected to result in significant adverse traffic impacts at two approaches/lane groups: (1) westbound approach at South Street and Old Slip during the weekday midday peak hour near the BMB; and (2) eastbound approach at Joralemon Street and Furman Street during the weekday PM peak hour near Pier 6. The mitigation analyses presented in Chapter 23, "Mitigation," show that both of these impacts can be mitigated with minor adjustments to existing signal timings. For pedestrian operations, significant adverse impacts were identified at two crosswalks: (1) south crosswalk at State Street and the M15 +SelectBusService (SBS) Bus Loop at Peter Minuit Plaza during the weekday midday and PM peak periods; and (2) west crosswalk at State Street and Whitehall Street during the weekday midday and PM peak periods, both near the BMB. As detailed in Chapter 23, "Mitigation," the first impact can be mitigated with modification of the existing signal to more efficiently process pedestrian flow across low-conflicting vehicular traffic volumes. The second can be mitigated by widening the existing crosswalk by one foot. In addition, a widened sidewalk in front of the Manhattan ferry portal at the BMB would be necessary to adequately accommodate the projected visitation demand. In front of the BMB, there is currently a narrow sidewalk. During peak visitation, The Trust regulates visitor queuing using part of the roadway adjacent to the BMB and deployment of traffic control agents. With Phase 1 and Later Phases-Park and Public Space, increased visitation (especially during weekend days) and year-round access are expected. Therefore, in addition to operational measures, The Trust is expected to evaluate physical improvements to address pedestrian access and circulation needs along the frontage of the BMB, which would become more pertinent over time, taking into consideration Governors Island visitors, New York City Department of Transportation's (NYCDOT) Slip 5, and the BMB's planned hotel, restaurant, and catering facility (redevelopment project that is planned to be completed in the future without the Proposed Project), to ensure that the projected pedestrian activities can be adequately accommodated. The Trust would continue to regulate visitors until a design plan has been implemented. With modest increases in peak hour vehicular and pedestrian traffic projected for locations near the BMB and Pier 6, Phase 1 and Later Phases-Park and Public Spaces are not expected to result in any significant adverse pedestrian safety impacts. Nonetheless, to improve vehicular and pedestrian safety, pedestrian safety signs, such as "Turning Vehicles Yield to Pedestrians" and/or School Advance Warning assemblies are recommended for installation at the Court Street intersections with Atlantic Avenue and Livingston Street.

PHASE 1, LATER PHASES-PARK AND PUBLIC SPACES, AND LATER PHASES–ISLAND REDEVELOPMENT

The full development of the Proposed Project, which includes Phase 1, Later Phases-Park and Public Space, and Later Phases–Island Redevelopment components, would substantially 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 Phase 1 and Later Phases-Park and Public Space 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 Later Phases-Island Redevelopment becomes more defined.

C. PROJECT TRIP GENERATION

BACKGROUND

As a recreational destination, Governors Island is open to the public on summer weekends (Friday to Sunday) generally from June to early October. Visitation has varied substantially from weekend to weekend. An in-person travel survey of visitors to Governors Island was conducted on Friday, August 20, 2010 and Saturday, August 21, 2010 at Pier 6 in Brooklyn Bridge Park and at the BMB in Manhattan to identify travel characteristics to and from the Island. Patrons in line waiting for ferries to Governors Island were asked about origin of travel, travel mode, trip purpose, and anticipated length of stay on the Island. For those who traveled via auto or taxi, additional questions were asked to identify vehicle occupancy and parking locations.

Currently, there is no public ferry service to Governors Island on weekdays, except on summer Fridays. The travel survey was undertaken on such a Friday. Travel to/from the BMB on summer Fridays was provided by free Governors Island ferries, but travel to/from Pier 6 was provided by water taxis for a fee with varying schedules.

Governors Island attracts visitors from a large regional area; however, the majority of the visitors originate in New York City, with most of them originating from Brooklyn and Manhattan. The survey results indicate that the majority of the visitors to Governors Island use public transit and non-motorized modes of transportation (walking, biking, etc.) to arrive at the ferry portals. Visitors who drive to Pier 6 or the BMB park mainly on the street or in garages/lots near the ferry portals.

In addition to the in-person surveys, control counts of visitors arriving and departing from Pier 6 and the BMB were recorded for both days of the survey to establish temporal and directional distribution patterns and peak hours of operation. During the weekday, the morning peak hour is 9:00 AM to 10:00 AM, the afternoon peak hour is 2:00 PM to 3:00 PM, and the evening peak hour is 4:00 PM to 5:00 PM. On Saturday, the peak hour is 4:00 PM to 5:00 PM.

TRAVEL DEMAND FACTORS

For impact assessment purposes, the 85th percentile visitation level based on the 2010 visitation data was used as the basis for a reasonably conservative travel demand analysis. This assumption effectively eliminates certain high attendance days (fewer than 10 a year) on which there were uniquely large special events that extended beyond the typical visitation day at Governors Island and for which there were supplemental ferry service provided at other ferry portals. Further, with Phase 1 and Later Phases Parks and Public Spaces, more regular ferry service is anticipated to be provided at Pier 6 to accommodate daily visitation to/from Governors Island. Hence, the sparsely patronized Pier 6 portal for Friday travel to Governors Island is expected to realize a larger increase in use on a weekday and normalize with the current weekend patterns to more reflect the land use and travel characteristics of Governors Island. **Table 15-1** incorporates these travel demand assumptions and presents the factors developed from the information obtained from the August 2010 travel surveys.

Table 15-1
Travel Demand Factors

	Weekday						Saturday	
	(1)						(1)	
Visitors	85th Percentile						85th Percentile	
Trips per Visitor	2.0						2.0	
Portal	Pier 6 Brooklyn			Battery Maritime Building			Pier 6 Brooklyn	Battery Maritime Building
	(2)						(2)	
Portal Split	27%			73%			27%	73%
	(3)						(3)	
Temporal	AM	Midday	PM	AM	Midday	PM	Afternoon	Afternoon
Distribution	3%	13%	13%	3%	13%	13%	13%	13%
	(4)						(4)	
In	90%	62%	31%	90%	62%	31%	62%	62%
Out	10%	38%	69%	10%	38%	69%	38%	38%
Modal Split	(5)						(5)	
Auto	23%			8%			18%	6%
Taxi	0%			2%			0%	1%
Subway	19%			63%			12%	62%
Bus	8%			5%			5%	3%
Ferry	0%			2%			0%	2%
Walk	50%			20%			65%	26%
Total	100%			100%			100%	100%
Vehicle Occupancy	(6)			(7)			(6)	(7)
Auto	2.90			2.80			2.90	2.80
Taxi	3.00			2.80			3.00	2.80

Notes/Sources:
(1) 85th percentile visitor estimates applied to projections from The Trust.
(2) Portal splits from August 2010 travel surveys.
(3) Temporal distributions from August 2010 travel surveys.
(4) Portal and In/Out splits from August 2010 travel surveys.
(5) Modal splits from August 2010 travel surveys.
(6) *Brooklyn Bridge Park Project Final Environmental Impact Statement (FEIS)* (2005).
(7) *Hudson River Park FEIS* (1998).

Because the sample sizes collected for weekday and weekend vehicle occupancies were too small, the occupancy factors from the *Brooklyn Bridge Park Project FEIS* (2005) and the *Hudson River Park FEIS* (1998) were used as representative characteristics for travel to Pier 6 and the BMB, respectively. The use of these other sources for vehicle occupancy assumptions is also conservative in that averages from the limited vehicles occupancy data collected in the August 2010 travel surveys are markedly higher than those presented in the two FEISs mentioned above.

As previously mentioned, there is limited public ferry service to Governors Island on Fridays (service from approximately 10:00 A.M. to 5:00 P.M.) on which the travel survey was undertaken. Therefore, the count data show notable disparities between Friday and weekend travel to/from Governors Island in terms of Pier 6 vs. BMB ferry patronage and temporal and directional distributions. This pattern is expected to continue through Phase 1 of the project. However, as components of the Later Phases become completed, more comprehensive ferry

service (from approximately 9:00 A.M. to 8:00 P.M.) is expected to be implemented, including regular Governors Island-operated weekday ferry service from both the BMB and Pier 6, likely resulting in more evenly distributed arrival and departure patterns between the two ferry portals. Therefore, for travel demand projection purposes, the existing Saturday split of Pier 6 vs. BMB ferry patronage and cumulative temporal and directional distributions were applied to both future weekday and Saturday daily visitation projections.

NO BUILD VISITATION PROJECTIONS

Future baseline visitation to Governors Island was developed by growing the number of 2010 visitors to an anticipated demand without any changes to ferry service or significant changes to land uses on the Island. Projections from The Trust show the annual 2010 visitation (443,000 visitors) growing to 614,000 annual visitors by 2013, a 39 percent baseline increase, and then leveling off until significant improvements are made to the park land uses and the ferry service.

Currently, no weekday ferry service (Monday to Thursday) to and from Governors Island is available to the general public; therefore, on a typical weekday, Governors Island would not generate any weekday visitation trips under the No Build condition. For Friday, increasing the 2010 85th percentile Friday visitation (4,705 visitors) by 39 percent would result in a No Build 85th percentile Friday daily trip estimate of 6,521 visitors. For Saturday, increasing the 2010 85th percentile Saturday visitation (12,759 visitors) by 39 percent would result in a No Build 85th percentile Saturday daily trip estimate of 17,684 visitors. As presented in **Table 15-2**, at Pier 6 in Brooklyn, under the No Build condition, Governors Island would generate approximately 63, 176, 83, and 1,241 person trips during the weekday AM, midday, and PM, and Saturday afternoon peak hours, respectively. At the BMB in Manhattan, approximately 713, 1782, 829, and 3,355 person trips were projected for the weekday AM, midday, and PM, and Saturday afternoon peak hours, respectively. Total vehicle-trip generation was projected to range from four to 77 vehicle trips at Pier 6 and 20 to 92 vehicle trips at the BMB during peak hours.

While an estimate for Friday trip-making under the No Build condition was developed, it is not considered the reasonable worst-case condition, and therefore, it would not be used for impact analysis purposes. The reasonable worst-case weekday peak period impact analyses would consider a zero baseline for the Monday to Thursday weekday conditions.

BUILD VISITATION PROJECTIONS

The additional and improved public spaces planned for Phase 1 (2013) are not expected to materially affect overall visitation. The factors contributing to this expectation are that (1) the open space additions and improvements are consistent with the nature of existing Island uses and other amenities that Governors Island has added or improved upon in recent years; (2) most of the open space improvements in both the North Island and the South Island are in areas already heavily programmed—either as part of the existing Public Access program or on limited-access fields for special events; (3) visitation levels are directly affected by the number of operating days and hours and ferry capacity and frequency—none of which would be affected by Phase 1 open space improvements; (4) at peak time, ferries already operate at capacity and increased ferry access is entirely dependent on the operating budget, which is not associated with the proposed Phase 1 improvements; and (5) The Trust has aggressively programmed spaces and events to attract visitation to the Island, resulting in phenomenal growth in patronage over the years. It is expected that increases in visitation will continue through 2013 with or without the Phase 1 open space improvements.

Table 15-2
No Build Trip Generation Summary

Peak Hour	In/Out	Person Trip							Vehicle Trip		
		Auto	Taxi	Subway	Bus	Ferry	Walk	Total	Auto	Taxi	Total
Pier 6 Brooklyn											
Friday AM	In	11	0	8	3	0	41	63	4	0	4
	Out	0	0	0	0	0	0	0	0	0	0
	Total	11	0	8	3	0	41	63	4	0	4
Friday Midday	In	21	0	14	6	0	77	118	7	0	7
	Out	10	0	7	3	0	38	58	4	0	4
	Total	31	0	21	9	0	115	176	11	0	11
Friday PM	In	0	0	0	0	0	1	1	0	0	0
	Out	15	0	10	4	0	53	82	5	0	5
	Total	15	0	10	4	0	54	83	5	0	5
Saturday	In	69	0	46	19	0	250	384	24	0	24
	Out	154	0	103	43	0	557	857	53	0	53
	Total	223	0	149	62	0	807	1,241	77	0	77
Battery Maritime Building											
Friday AM	In	38	6	393	19	13	165	634	14	2	16
	Out	5	1	49	2	2	20	79	2	2	4
	Total	43	7	442	21	15	185	713	16	4	20
Friday Midday	In	72	12	740	36	24	310	1,194	26	4	30
	Out	35	6	364	18	12	153	588	13	4	17
	Total	107	18	1,104	54	36	463	1,782	39	8	47
Friday PM	In	0	0	5	0	0	2	7	0	3	3
	Out	49	8	510	25	16	214	822	18	3	21
	Total	49	8	515	25	16	216	829	18	6	24
Saturday	In	62	10	645	31	21	271	1,040	22	10	32
	Out	139	23	1,436	69	46	602	2,315	50	10	60
	Total	201	33	2,081	100	67	873	3,355	72	20	92

Notes: The AM Friday peak hour at Pier 6 occurs from 10:00 AM – 11:00 AM as current ferry service from Pier 6 does not begin until 10:00 AM.

Without the proposed improvements, The Trust would nevertheless be able to use the same spaces for its public access program. In the Future with Phase 1 of the Proposed Project, a large portion of the Island would be transformed into an iconic Park and Public Space, which draws visitors to its well designed and lushly planted landscapes. But in the Future without the Proposed Project, the Trust will continue to use the existing, somewhat barren collection of lawns, fields, and parking lots as a highly flexible programmable space for a new burst of interesting public programs. In either case, visitors will continue to flock to the Island in increasing numbers—limited only by the capacity of the ferry services.

In the Later Phases-Park and Public Spaces of the Proposed Project (2030), however, there would be more park improvements (including park maintenance facilities), new park uses (including 32 acres of newly designed open space through the center and perimeter of the South Island), and changes in transportation operations (including increased ferry service to the BMB and Pier 6 portals to provide for daily access to the Island). Projections from The Trust show the average weekday and weekend 2010 visitation increasing by 70 percent. This growth was

applied to the 2010 85th percentile weekday (4,705) and Saturday (12,759) visitation to develop the Build 85th percentile weekday (7,998) and Saturday (21,690) daily visitation estimates.

Travel demand factors presented in **Table 15-1** were applied to these totals to develop the Build weekday and Saturday peak hour trip estimates, as summarized in **Table 15-3.** At Pier 6 in Brooklyn, Governors Island would generate approximately 116, 562, 562, and 1,523 person trips during the AM (9-10 AM), midday (2-3 PM), PM (4-5 PM), and Saturday (3-4 PM) peak hours, respectively. At the BMB in Manhattan, approximately 351, 1,518, 1,517, and 4,118 person trips were projected during the AM, midday, PM, and Saturday peak hours, respectively. Total vehicle-trip generation traveling to/from these portals was projected to range from 9 to 95 vehicle trips at Pier 6 and 11 to 112 vehicle trips at the BMB during peak hours.

Table 15-3
Build (Phase 1 and Later Phases Park and Public Spaces)
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	112	0	75	31	0	406	624	39	0	39
	Out	162	0	108	45	0	584	899	56	0	56
	Total	274	0	183	76	0	990	1,523	95	0	95
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	101	17	1,046	51	34	439	1,688	36	12	48
	Out	146	24	1,506	73	49	632	2,430	52	12	64
	Total	247	41	2,552	124	83	1,071	4,118	88	24	112

D. CITY ENVIRONMENTAL QUALITY REVIEW (CEQR) SCREENING ANALYSES

The 2010 *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 to 2010 *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 per station element, 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

As discussed above, the completion of Phase 1 is not expected to result in any incremental trips that would require further examination of potential transportation-related impacts. The weekday and Saturday net new trips estimated to be generated by the Phase 1 and Later Phases-Park and Public Spaces are summarized in **Table 15-4**. At Pier 6 in Brooklyn, Phase 1 and Later Phases-Park and Public Spaces 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 in Manhattan, Phase 1 and Later Phases-Park and Public Spaces would result in approximately 351, 1,518, 1,517, and 759 incremental person trips during the AM, midday, PM, and Saturday peak hours, respectively.

TRAFFIC

As shown in **Table 15-4**, the peak hour incremental vehicle trip estimates for Phase 1 and Later Phases-Park and Public Spaces at Pier 6 would be below the 50 vehicle-trip analysis threshold during the weekday AM, midday, PM, and Saturday peak hours. At the BMB ferry portal, the weekday AM and Saturday peak hour incremental vehicle trips would be below the 50 vehicle-trip analysis threshold; however, this threshold would be exceeded during the weekday midday and PM peak hours, requiring a Level 2 trip distribution and assignment analysis.

Table 15-4
Build 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

TRANSIT

As shown in **Table 15-4**, the 200 transit-trip threshold would not be exceeded for the incremental peak hour subway trips projected for the Pier 6 portal. However, since some of these subway trips may connect to/from Pier 6 using one or more of the area's local bus routes, a Level 2 screening assessment was performed to determine if any of these routes would incur an increase of 50 or more peak hour bus riders in a single direction, which is the 2010 *CEQR Technical Manual* threshold to determine if a detailed bus line-haul analysis is warranted. For visitors accessing Governors Island via the BMB, the Phase 1 and Later Phases-Park and Public Spaces improvements were estimated to generate 221, 956, 956, and 471 incremental person trips by subway during the AM, midday, PM, and Saturday peak hours, respectively. A Level 2 screening assessment, involving the distribution of these trips to various subway lines and station elements, was prepared to determine the need for further detailed analyses of the weekday AM, midday, PM, and Saturday peak hours.

PEDESTRIANS

The 2010 *CEQR Technical Manual* states that if a proposed project 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 15-4**, the projected trips for Phase 1 and Later Phases-Park and Public Spaces would exceed the 200 peak hour pedestrian-trip threshold during all peak periods at both portal locations, except for the weekday AM peak hour at the Pier 6 ferry portal. Hence, a Level 2 screening assessment, involving the distribution and assignment of the projected trips to various pedestrian elements, was prepared to determine the need for further detailed pedestrian analyses.

LEVEL 2 SCREENING ANALYSIS RESULTS

TRAFFIC

As described above, the projected peak hour vehicle-trip increments would be 50 or more only during the weekday midday and PM peak hours at the BMB ferry portal. However, in order to establish baseline conditions for all peak hours for the Later Phases–Island Redevelopment component qualitative analysis, vehicle trip assignments for the AM, midday, and PM peak hours were prepared for the BMB and Pier 6 ferry portals, considering the nearby major roadways and local streets, existing travel patterns, and analysis results presented in past studies. As shown in **Figures 15-1** to **15-6**, the projected vehicle-trip increments would not result in 50 or more vehicle trips through any intersection during the weekday peak hours. Hence, a detailed analysis would not be required to address potential traffic impacts associated with the Phase 1 and Later Phases-Park and Public Spaces improvements. Nonetheless, traffic analyses were prepared at key intersections in Manhattan and in Brooklyn to establish baseline traffic operations for the qualitative analysis of the Later Phases–Island Redevelopment component.

TRANSIT

As discussed above, the projected peak hour incremental subway trips for the Pier 6 portal would not exceed the CEQR analysis threshold and therefore would not warrant the need for a detailed subway analysis. For the BMB portal, however, projected incremental subway trips are expected to exceed the CEQR analysis threshold for the weekday PM peak hour. Based on the distribution of these trips to the nearby subway stations, the two following subway station elements were identified to require a detailed analysis:

- Bowling Green station stairways and control area (PM peak hour); and
- South Ferry station stairways, escalators, and control area (PM peak hour).

To establish baseline transit operations for the qualitative analysis of the Later Phases–Island Redevelopment component, the AM peak hour at the southwest corner stairway at the Court Street station in Brooklyn for both the AM and PM peak hours were also included for analysis.

SUBWAY AND BUS LINE HAUL CAPACITIES

In accordance with the *2010 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, on average, a subway car for a particular route is expected to be used by five or more riders from a proposed action, a 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 practical capacity would be exceeded.

7.6.11

NOT TO SCALE

BMB Project Generated Traffic
Weekday AM Peak Hour
Figure15-1

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

BMB Project Generated Traffic
Weekday Midday Peak Hour
Figure 15-2

7.6.11

NOT TO SCALE

BMB Project Generated Traffic
Weekday PM Peak Hour
Figure 15-3

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6 Project Generated Traffic
Weekday AM Peak Hour
Figure 15-4

7.6.11

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6 Project Generated Traffic
Weekday Midday Peak Hour
Figure 15-5

7.6.11

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6 Project Generated Traffic
Weekday PM Peak Hour
Figure 15-6

- Based on the total number of cars available at the Nos. 4/5 (Bowling Green station) and No. 1 and R (South ferry terminal/Whitehall station) subway lines during the PM peak period, the distribution of the project-generated trips to theses subway lines would result in fewer than 5 additional peak hour passengers per subway car. Therefore, based on the CEQR screening criteria, quantified line haul analyses would not be warranted for the Nos. 1/4/5 and R 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 Phase 1 and Later Phases-Park and Public Spaces improvements and there would not be a potential for any significant adverse bus line-haul impacts.

PEDESTRIANS

Pedestrian trip assignments were developed by distributing person trips generated by the Proposed Project to pedestrian facilities surrounding the BMB and Pier 6 ferry portals. As shown in **Figures 15-7** to **15-14**, peak hour incremental pedestrian trips are not expected to exceed the 200 peak-hour pedestrian trip threshold surrounding the Pier 6 ferry portal. However, near the BMB, the following pedestrian elements would exceed the CEQR pedestrian analysis threshold and warrant a detailed analysis to identify potential pedestrian impacts.

Sidewalk Locations

- West sidewalk of State Street between Battery Place and South Ferry Plaza (weekday midday and PM peak hours)
- West sidewalk of South Ferry Plaza (weekday midday and PM peak hours)
- East and west sidewalks along Whitehall Street south of Water Street (weekday midday and PM peak hours)
- North sidewalk along South Street east of Whitehall Street (weekday midday and PM peak hours)

Corner Locations

- Northeast corner of South Street/Whitehall Street intersection (weekday PM peak hour)

Crosswalk Locations

- South crosswalk at State Street and M15 Bus Loop (weekday midday and PM peak hours)
- East crosswalk at South Street/Whitehall Street intersection (weekday midday and PM peak hours)

To establish baseline pedestrian conditions for the qualitative analysis of the Later Phases–Island Redevelopment component, the above and numerous other pedestrian elements identified in the Manhattan and Brooklyn study areas were analyzed for the weekday AM, midday, and PM peak hours.

Battery Maritime Building Entrance

The existing sidewalk in front of the BMB is narrow in width. Currently, during peak visitation, The Trust regulates visitor queuing in front of the BMB using part of the adjacent roadway and

10.12.11

BMB Project Generated Pedestrian Volumes
Weekday AM Peak Hour

Figure 15-7

10.12.11

BMB Project Generated Pedestrian Volumes
Weekday Midday Peak Hour

Figure 15-8

10.12.11

BMB Project Generated Pedestrian Volumes
Weekday PM Peak Hour

Figure 15-9

10.12.11

BMB Project Generated Pedestrian Volumes
Saturday Afternoon Peak Hour

Figure 15-10

Pier 6 Project Generated Pedestrian Volumes
Weekday AM Peak Hour
Figure 15-11

Pier 6 Project Generated Pedestrian Volumes
Weekday Midday Peak Hour
Figure 15-12

Pier 6 Project Generated Pedestrian Volumes
Weekday PM Peak Hour
Figure 15-13

Pier 6 Project Generated Pedestrian Volumes
Saturday Afternoon Peak Hour
Figure 15-14

traffic control agents. With increased visitation and year-round access, permanent operational and geometric improvement measures may be needed to adequately accommodate the projected number of visitors. The Trust is expected to evaluate physical improvements to address pedestrian access and circulation needs along the frontage of the BMB, which would become more pertinent over time, taking into consideration Governors Island visitors, NYCDOT's Slip 5, and the BMB's planned hotel, restaurant, and catering facility (redevelopment project that is planned to be completed in the future without the Proposed Project). The Trust would continue to regulate visitors until a design plan has been implemented.

PARKING

The 2010 *CEQR Technical Manual* states that if a detailed traffic analysis is not warranted based on the results of the Level 1 and Level 2 screening assessments described above, a detailed parking analysis may also not be required. However, ¼-mile off-street parking studies were prepared to address parking needs resulting from the development of the Phase 1 and Later Phases-Park and Public Spaces components, as well as the Later Phases–Island Redevelopment component.

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 15-5**.

Table 15-5
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 15-6**.

Table 15-6
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 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 accounting the potential for the 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, summarized in **Table 15-7**.

Table 15-7
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: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (May 2010).

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 service conditions (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 15-8** are reached or exceeded.

Table 15-8
Significant Impact Guidance for Stairs and Passageways

No Build 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: New York City Mayor's Office of Environmental Coordination, *CEQR Technical Manual* (May 2010).

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

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, on average, a subway car for a particular route is expected to incur five or more riders from a proposed action, a 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, the Metropolitan Transportation Authority (MTA) Bus Company, and Long Island Buses 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. The M15 SBS buses that serve the BMB study area operate with a special type of articulated buses. The guideline capacity for these buses is also 85 passengers per bus.

Significant Impact Criteria

For subways, projected increases from the future No Build condition within guideline capacity to a future Build condition that exceeds guideline capacity may be a significant impact. 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 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 2000 *Highway Capacity Manual* (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 within 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 square feet-second, is calculated by multiplying the net area of the corner (in square feet) 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 square feet 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 square feet-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 square feet 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 15-9**. The *CEQR Technical Manual* specifies acceptable LOS in CBD areas is mid-LOS D or better.

Table 15-9
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* (May 2010).

SIGNIFICANT IMPACT CRITERIA

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.

Sidewalks

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 15-10** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant sidewalk impacts.

Table 15-10
Significant Impact Guidance for Sidewalks

Non-Platoon Flow				Platoon Flow			
Sliding Scale Formula: *$Y \geq 3.5 - X/8.0$*				**Sliding Scale Formula:** *$Y \geq 3.0 - X/8.0$*			
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)**
7.4 to 7.8	≥ 2.6	–	–	3.4 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	10.3 to 11.0	≥ 2.2	6.3 to 7.0	≥ 2.2	6.3 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. to 11.0	≥ 1.7	10. 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* (May 2010).

Corner Reservoirs and Crosswalks

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 15-11** summarizes the sliding scale guidance provided by the *CEQR Technical Manual* for determining potential significant corner reservoir and crosswalk impacts.

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.

Table 15-11
Significant Impact Guidance for Corners and Crosswalks

Sliding Scale Formula: *$Y \geq X/9.0 - 0.3$*			
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 21.6	≥ 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* (May 2010).

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

2011 EXISTING CONDITIONS

ROADWAY NETWORK

To assess the potential traffic impacts associated with the development of the project, seven key intersections near the BMB ferry portal and near the Pier 6 ferry portal were identified that would most likely be affected by the project-generated traffic (see **Figures 15-15 and 15-16**). The intersections are:

Manhattan

- Battery Place and Broadway (signalized)
- Pearl Street 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)

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.

● *Intersections Analyzed*

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

BMB Study Area - Manhattan
Figure 15-15

7.6.11

● *Intersections Analyzed*

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6 Study Area - Brooklyn
Figure 15-16

- 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 one-way, southbound street extending from Cadman Plaza West to the north to Atlantic Avenue to the south. Furman Street provides two southbound travel lanes 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 study area intersections are based on field counts conducted in April 2011. 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 15-17** to **15-22** show the existing traffic volumes for the AM, midday, and PM peak hours, which were determined, based on the collected traffic data, to take place from 8:45 to 9:45 AM, 2:00 to 3:00 PM, and 4:30 to 5:30 PM, in both Brooklyn and Manhattan.

LEVELS OF SERVICE

Tables 15-12 and **15-13** present the service conditions for the signalized and unsignalized intersections analyzed for the Manhattan and Brooklyn traffic study areas.

6.14.11

NOT TO SCALE

BMB Existing (2011) Traffic Volumes
Weekday AM Peak Hour
Figure 15-17

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

6.14.11

NOT TO SCALE

BMB Existing (2011) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-18

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

6.14.11

NOT TO SCALE

BMB Existing (2011) Traffic Volumes
Weekday PM Peak Hour
Figure 15-19

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

6.14.11

NOT TO SCALE

Pier 6 Existing (2011) Traffic Volumes
Weekday AM Peak Hour
Figure 15-20

6.14.11

NOT TO SCALE

Pier 6 Existing (2011) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-21

6.14.11

NOT TO SCALE

Pier 6 Existing (2011) Traffic Volumes
Weekday PM Peak Hour
Figure 15-22

Table 15-12
2011 Existing Conditions Level of Service Analysis
Manhattan 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
Battery Place and Broadway												
Eastbound	T	0.64	28.8	C	T	0.29	23.0	C	T	0.31	25.3	C
Westbound	T	0.71	30.9	C	T	0.54	26.5	C	T	0.73	34.3	C
Southbound	T	0.21	25.3	C	T	0.22	25.4	C	T	0.15	22.3	C
	R	0.52	31.9	C	R	0.44	29.9	C	R	0.50	29.0	C
	Intersection		29.9	C	Intersection		26.0	C	Intersection		30.4	C
Pearl Street and State Street												
Westbound	L	0.17	21.4	C	L	0.18	21.4	C	L	0.19	21.6	C
	R	0.42	25.6	C	R	0.47	26.6	C	R	0.39	24.9	C
Northbound	T	0.32	11.8	B	T	0.29	11.5	B	T	0.26	11.3	B
Southbound	T	0.41	12.9	B	T	0.30	11.7	B	T	0.21	10.9	B
	Intersection		14.7	B	Intersection		14.9	B	Intersection		14.5	B
Whitehall Street and Water Street												
Eastbound	LT	0.64	26.0	C	LT	0.45	22.4	C	LT	0.39	21.5	C
Westbound	TR	0.67	30.0	C	TR	0.40	22.7	C	TR	0.50	25.0	C
Northbound	L	0.64	38.7	D	L	0.80	49.0	D	L	0.40	31.6	C
	TR	0.39	31.3	C	TR	0.30	29.7	C	TR	0.34	30.3	C
	Intersection		29.6	C	Intersection		30.2	C	Intersection		25.3	C
Broad Street and Water Street												
Eastbound	LTR	0.71	19.0	B	LTR	0.50	14.6	B	LTR	0.59	16.6	B
Westbound	LTR	0.78	26.5	C	LTR	0.36	13.3	B	LTR	0.50	15.9	B
Northbound	LT	0.41	24.5	C	LTR	0.82	44.0	D	LTR	0.87	50.2	D
	R	0.77	45.2	D	-	-	-	-	-	-	-	-
Southbound	LTR	0.65	35.3	D	LTR	0.65	33.6	C	LTR	0.66	34.7	C
	Intersection		26.1	C	Intersection		25.2	C	Intersection		27.4	C
South Street and Whitehall Street												
Westbound	R	0.19	0.2	A	R	0.14	0.1	A	R	0.12	0.1	A
	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A
South Street and Broad Street (unsignalized)												
Southbound	R	0.52	16.4	C	R	0.45	12.5	B	R	0.49	14.1	B
South Street and Old Slip												
Westbound	TR	0.85	46.0	D	TR	0.81	42.0	D	TR	0.82	41.7	D
Northbound	L	0.35	25.2	C	L	0.14	22.2	C	L	0.15	22.3	C
	TR	0.96	61.0	E	TR	0.42	26.4	C	TR	0.32	24.6	C
Southbound	R	0.24	23.6	C	R	0.31	24.8	C	R	0.40	26.5	C
	Intersection		47.5	D	Intersection		32.8	C	Intersection		32.8	C

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

Table 15-13
2011 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	0.64	46.7	D	TL	0.56	31.1	C	TL	0.44	39.2	D
Southbound	TR	0.45	12.8	B	TR	0.41	12.4	B	TR	0.40	12.1	B
	Intersection		20.6	C	Intersection		17.3	B	Intersection		16.5	B
Joralemon Street and Furman Street												
Eastbound	R	0.06	26.5	C	R	0.05	26.4	C	R	0.03	26.1	C
Westbound	LT	0.19	28.1	C	LT	0.12	27.1	C	LT	0.13	27.4	C
Southbound	TR	0.09	6.1	A	TR	0.25	7.1	A	TR	0.39	8.1	A
	Intersection		12.9	B	Intersection		9.0	A	Intersection		9.3	A
Atlantic Avenue and Court Street												
Eastbound	TR	0.36	29.0	C	TR	0.68	27.1	C	TR	0.64	34.1	C
Westbound	L	0.27	13.6	B	L	0.40	13.7	B	L	0.46	20.3	C
	T	0.72	26.7	C	T	0.83	30.4	C	T	0.90	46.2	D
Southbound	LTR	0.74	44.6	D	LTR	0.88	47.3	D	LTR	0.84	44.9	D
	Intersection		31.8	C	Intersection		32.9	C	Intersection		40.2	D
Atlantic Avenue and BQE Eastbound Ramps												
Eastbound	T	0.15	10.3	B	T	0.15	9.4	A	T	0.11	10.0	A
Westbound	T	0.25	11.2	B	T	0.29	10.6	B	T	0.34	12.1	B
	R	0.70	21.8	C	R	0.48	14.1	B	R	0.52	16.1	B
Northbound	L	0.03	29.1	C	L	0.06	21.3	C	L	0.06	29.5	C
	Intersection		15.7	B	Intersection		11.7	B	Intersection		13.4	B
Atlantic Avenue and Columbia Street												
Eastbound	T	0.13	13.9	B	T	0.10	7.5	A	T	0.10	13.5	B
Westbound	L	0.44	19.1	B	L	0.42	11.3	B	L	0.57	22.2	C
	LT	0.34	16.9	B	LT	0.33	9.8	A	LT	0.43	18.5	B
Northbound	LR	0.31	27.9	C	LR	0.37	28.6	C	LR	0.22	26.4	C
	R	0.36	28.8	C	R	0.42	29.6	C	R	0.26	27.1	C
	Intersection		21.6	C	Intersection		16.8	B	Intersection		21.5	C
Atlantic Avenue and Furman Street												
Eastbound	T	0.08	13.3	B	T	0.08	7.3	A	T	0.05	13.0	B
Westbound	T	0.04	13.0	B	T	0.04	7.1	A	T	0.04	12.9	B
Southbound	LT	0.21	25.9	C	LT	0.64	32.2	C	LT	0.75	37.2	D
	Intersection		21.8	C	Intersection		27.3	C	Intersection		35.0	D
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)												
Southbound	R	0.01	8.7	A	R	0.02	8.7	A	R	0.01	8.8	A
BQE Ramps and Columbia Street												
Westbound	L	0.36	17.2	B	L	0.31	16.6	B	L	0.27	16.1	B
Northbound	T	0.30	8.7	A	T	0.23	8.2	A	T	0.29	8.7	A
Southbound	L	0.69	19.4	B	L	1.04	62.2	E	L	1.04	64.9	E
	T	0.19	7.6	A	T	0.30	8.3	A	T	0.52	10.3	B
	Intersection		12.9	B	Intersection		31.9	C	Intersection		26.7	C
BQE Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)												
Westbound	R	0.09	8.8	A	R	0.10	8.9	A	R	0.03	8.8	A

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

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:

Manhattan

- Northbound left-turn at the Whitehall Street/Water Street intersection (LOS D with 49.0 seconds of delay during the midday peak hour);
- Northbound right-turn at the Broad Street/Water Street intersection (LOS D with 45.2 seconds of delay during the AM peak hour);
- Northbound shared left-turn/through/right-turn at the Broad Street/Water Street intersection (LOS D with 50.2 seconds of delay during the PM peak hour);
- Westbound shared through/right-turn at the Old Slip/South Street intersection (LOS D with 46.0 seconds of delay during the AM peak hour); and
- Northbound shared through/right-turn at the Old Slip/South Street intersection (LOS E with 61.0 seconds of delay during the AM peak hour).

Brooklyn

- Westbound through/left-turn at the Joralemon Street/Court Street intersection (LOS D with 46.7 seconds of delay during the AM peak hour);
- Westbound through at the Atlantic Street/Court Street intersection (LOS D with 46.2 seconds of delay during the PM peak hour);
- Southbound shared left-turn/through/right-turn at the Atlantic Street/Court Street intersection (LOS D with 47.3 seconds of delay during the midday peak hour); and
- Southbound left-turn at the Brooklyn-Queens Expressway (BQE) Ramps and Columbia Street intersection (LOS E with 62.2 and 64.9 seconds of delay during the midday and PM peak hours, respectively).

2030 NO BUILD CONDITION

The 2030 No Build condition was developed by increasing existing (2011) 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 (2011 to 2016) and then 0.125 percent for the remaining years (2016 to 2030). In addition to the background growth, travel demand estimates for projects anticipated to be complete by 2030 were added to establish the future baseline traffic and pedestrian volumes. **Table 15-14** summarizes the projects that were accounted for in this future 2030 baseline.

As part of the *Battery Maritime Building Redevelopment EAS* (2008), it was recommended to reallocate green time at the South Street and Old Slip intersection during the PM peak hour. This signal timing change is incorporated into the 2030 No Build PM peak hour traffic analysis. There were also several other improvements recommended as part of the *Brooklyn Bridge Park Project FEIS (2005)* and as part of on-going efforts by NYCDOT on the Atlantic Avenue corridor. However, since the timing and specific changes associated with these improvements have not been fully defined, the No Build analyses presented below conservatively did not account for the implementation of these improvements.

Table 15-14
No Build Projects

Project/Location	Description	Transportation Assumptions
Manhattan		
Pier A	8,000 sf of restaurants, visitor center, event venue	Project Trips from *Redevelopment of Pier A and Contiguous Upland Area EAF* (May 2008)
Battery Park City School	397 students	Project trips from *PS/IS 276 IM EAS* (May 2008)
Battery Maritime Building	37,900 sf of restaurant, retail, great hall, museum space; 146 hotel rooms	Project trips from *Battery Maritime Building Redevelopment EAS* (January 2008)
East River Waterfront Esplanade	Open Space	Project trips from *East River Waterfront Esplanade and Piers*
10 Battery Place	3,000 sf commercial	Included in background growth rate
Brooklyn		
Brooklyn Bridge Park	Open space; 1,210 dwelling units; 151,200 sf of commercial; 225 room hotel; 8,600 sf restaurant, 30,000 sf meeting space	Project trips from *Brooklyn Bridge Park FEIS* (December 2005)
262 Pacific Street	32,000 sf community facility	Project trips developed based on project description
101/103 Boerum Place	5,200 sf residential (2 units)	Included in background growth rate
288 / 292A / 292 / 294 / 294A / 296 / 296A / 298 Sackett Street	30,350 sf residential (11 units)	Included in background growth rate
138 Sackett Street	8,500 sf residential (8 units)	Included in background growth rate
213 Columbia Street	12,000 sf residential (6 units)	Included in background growth rate

TRAFFIC OPERATIONS

The 2030 No Build traffic volumes are shown in **Figures 15-23** to **15-28** for the AM, midday, and PM peak hours at the BMB and Pier 6 ferry portals. **Tables 15-15** and **15-16** present the No Build conditions for intersections in Manhattan and Brooklyn, respectively. Based on the analysis results, the majority of the approaches/lane-groups would operate at the same LOS as in the existing conditions with the following notable exceptions:

Manhattan

- Northbound left-turn/through/right-turn at the Broad Street/Water Street intersection would deteriorate to LOS D with 47.7 seconds of delay and LOS E with 55.6 seconds of delay during the midday and PM peak hour, respectively; and
- Westbound through/right-turn at the Old Slip/South Street intersection would deteriorate to LOS D with 53.2 seconds of delay during the midday peak hour.

7.6.11

NOT TO SCALE

BMB No Build (2030) Traffic Volumes
Weekday AM Peak Hour
Figure 15-23

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

BMB No Build (2030) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-24

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

BMB No Build (2030) Traffic Volumes
Weekday PM Peak Hour
Figure 15-25

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

Pier 6 No Build (2030) Traffic Volumes
Weekday AM Peak Hour
Figure 15-26

7.6.11

NOT TO SCALE

Pier 6 No Build (2030) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-27

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

Pier 6 No Build (2030) Traffic Volumes
Weekday PM Peak Hour
Figure 15-28

Table 15-15
2030 No Build Level of Service Analysis
Manhattan 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
Battery Place and Broadway												
Eastbound	T	0.71	30.7	C	T	0.31	23.2	C	T	0.38	26.2	C
Westbound	T	0.79	34.0	C	T	0.57	27.1	C	T	0.82	38.4	D
Southbound	T	0.22	25.4	C	T	0.22	25.4	C	T	0.16	22.4	C
	R	0.53	32.3	C	R	0.46	30.4	C	R	0.52	29.5	C
	Intersection		32.0	C	Intersection		26.4	C	Intersection		32.8	C
Pearl Street and State Street												
Westbound	L	0.18	21.4	C	L	0.18	21.4	C	L	0.20	21.7	C
	R	0.44	25.9	C	R	0.49	26.9	C	R	0.40	25.1	C
Northbound	T	0.36	12.2	B	T	0.30	11.6	B	T	0.30	11.7	B
Southbound	T	0.46	13.5	B	T	0.31	11.8	B	T	0.25	11.2	B
	Intersection		15.0	B	Intersection		15.0	B	Intersection		14.5	B
Whitehall Street and Water Street												
Eastbound	LT	0.70	27.6	C	LT	0.47	22.8	C	LT	0.45	22.3	C
Westbound	TR	0.76	34.5	C	TR	0.41	22.9	C	TR	0.59	27.5	C
Northbound	L	0.70	41.5	D	L	0.85	54.6	D	L	0.44	32.4	C
	TR	0.40	31.6	C	TR	0.33	30.2	C	TR	0.36	30.7	C
	Intersection		32.0	C	Intersection		32.0	C	Intersection		26.4	C
Broad Street and Water Street												
Eastbound	LTR	0.77	21.3	C	LTR	0.55	15.4	B	LTR	0.68	18.7	B
Westbound	LTR	0.89	36.9	D	LTR	0.38	13.6	B	LTR	0.57	17.6	B
Northbound	LT	0.42	24.8	C	LTR	0.86	47.7	D	LTR	0.91	55.6	E
	R	0.80	48.6	D	-	-	-	-	-	-	-	-
Southbound	LTR	0.68	37.6	C	LTR	0.70	35.7	D	LTR	0.70	37.0	D
	Intersection		30.1	C	Intersection		26.8	C	Intersection		29.4	C
South Street and Whitehall Street												
Westbound	R	0.20	0.2	A	R	0.15	0.1	A	R	0.13	0.1	A
	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A
South Street and Broad Street (unsignalized)												
Southbound	R	0.61	19.8	C	R	0.59	16.9	C	R	0.61	18.3	C
South Street and Old Slip												
Westbound	TR	0.90	53.2	D	TR	0.86	47.2	D	TR	0.82	39.7	D
Northbound	L	0.36	25.4	C	L	0.15	22.4	C	L	0.17	24.0	C
	TR	1.01	73.1	E	TR	0.46	27.2	C	TR	0.39	27.3	C
Southbound	R	0.25	23.8	C	R	0.32	25.0	C	R	0.45	29.1	C
	Intersection		55.2	E	Intersection		35.4	D	Intersection		33.1	D

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

Table 15-16
2030 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	0.67	48.2	D	LT	0.59	31.9	C	LT	0.46	39.9	D
Southbound	TR	0.47	13.0	B	TR	0.43	12.6	B	TR	0.42	12.2	B
	Intersection		21.2	C	Intersection		17.6	B	Intersection		16.8	B
Joralemon Street and Furman Street												
Eastbound	R	0.32	32.0	C	R	0.82	65.8	E	R	0.80	64.0	E
Westbound	LT	0.24	29.5	C	LT	0.19	29.9	C	LT	0.23	30.0	C
Southbound	TR	0.14	6.4	A	TR	0.42	8.5	A	TR	0.51	9.5	A
	Intersection		14.2	B	Intersection		17.8	B	Intersection		16.2	B
Atlantic Avenue and Court Street												
Eastbound	TR	0.69	30.9	C	TR	0.83	33.5	C	TR	0.78	39.4	D
Westbound	L	0.30	14.7	B	L	0.49	17.3	B	L	0.57	25.6	C
	T	0.76	29.0	C	T	0.91	39.3	D	T	0.99	63.1	E
Southbound	LTR	0.76	45.9	D	LTR	0.91	50.6	D	LTR	0.87	47.5	D
	Intersection		33.5	C	Intersection		38.7	D	Intersection		47.9	D
Atlantic Avenue and BQE Eastbound Ramps												
Eastbound	T	0.22	10.9	B	T	0.31	10.8	B	T	0.20	10.8	B
Westbound	T	0.28	11.5	B	T	0.35	11.2	B	T	0.39	12.8	B
	R	0.74	23.3	C	R	0.50	14.3	B	R	0.54	16.5	B
Northbound	L	0.06	29.5	C	L	0.13	22.1	C	L	0.13	30.5	C
	Intersection		16.2	B	Intersection		12.2	B	Intersection		14.0	B
Atlantic Avenue and Columbia Street												
Eastbound	T	0.09	13.4	B	T	0.40	10.2	B	T	0.37	16.8	B
Westbound	L	0.49	20.4	C	L	0.79	29.1	C	L	1.05	89.8	F
	LT	0.41	18.0	B	LT	0.68	18.8	B	LT	0.87	43.4	D
Northbound	LR	0.36	28.9	C	LR	0.52	31.8	C	LR	0.30	27.6	C
	R	0.39	29.6	C	R	0.52	32.0	C	R	0.30	27.9	C
	Intersection		22.9	C	Intersection		22.5	C	Intersection		44.7	D
Atlantic Avenue and Furman Street												
Eastbound	T	0.12	13.7	B	T	0.13	7.7	A	T	0.13	13.9	B
Westbound	T	0.09	13.5	B	T	0.15	7.8	A	T	0.13	13.8	B
Southbound	LT	0.31	27.2	C	LT	0.98	59.2	E	LT	0.94	52.3	D
	Intersection		22.3	C	Intersection		45.7	D	Intersection		44.7	D
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)												
Southbound	R	0.02	10.1	B	R	0.04	14.8	B	R	0.01	12.5	B
BQE Ramps and Columbia Street												
Westbound	L	0.37	17.4	B	L	0.32	16.8	B	L	0.27	16.1	B
Northbound	T	0.34	9.1	A	T	0.32	8.9	A	T	0.35	9.3	A
Southbound	L	0.80	26.8	C	L	1.17	107.0	F	L	1.15	101.7	F
	T	0.20	7.7	A	T	0.33	8.6	A	T	0.55	10.7	B
	Intersection		15.1	B	Intersection		49.9	D	Intersection		38.2	D
BQE Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)												
Westbound	R	0.11	8.9	A	R	0.13	9.0	A	R	0.05	8.9	A

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

Brooklyn

- Eastbound right-turn at the Joralemon Street/Furman Street intersection would deteriorate to LOS E with 65.8 seconds of delay and 64.0 seconds of delay during the midday and PM peak hours, respectively;
- Westbound through at the Atlantic Avenue/Court Street intersection would deteriorate to LOS E with 63.1 seconds of delay during the PM peak hour;
- Southbound left-turn/through/right-turn at the Atlantic Avenue/Court Street intersection would deteriorate to LOS D with 45.9 seconds of delay and 47.5 seconds of delay during the AM and PM peak hours, respectively;
- Westbound left-turn at the Atlantic Avenue/Columbia Street intersection would deteriorate to LOS F with 89.8 seconds of delay during the PM peak hour;
- Southbound left-turn/through at the Atlantic Avenue/Furman Street intersection would deteriorate to LOS E with 59.2 seconds of delay and LOS D with 52.3 seconds of delay during the midday and PM peak hour, respectively; and
- Southbound left-turn at the BQE Ramps/Columbia Street intersection would deteriorate to LOS F with 107.0 seconds of delay and 101.7 seconds of delay during the midday and PM peak hours, respectively.

2030 BUILD CONDITION

As discussed above, Phase 1 and Later Phases-Park and Public Spaces components are not expected to generate auto trips that exceed the 50 peak hour vehicle *CEQR* threshold at study intersections to trigger a detailed traffic analysis. However, to establish future baseline conditions for the full development of the Proposed Project (which includes the Later Phases–Island Redevelopment) qualitative analysis, project trips generated from the Phase 1 and Later Phases-Park and Public Spaces component were assigned to the study area network and detailed traffic analyses were conducted.

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 15-1 to 15-6 for the AM, midday, and PM peak hours.

TRAFFIC OPERATIONS

The 2030 Build traffic volumes are shown in **Figures 15-29** to **15-34** for the AM, midday, and PM peak hours. **Tables 15-17** and **15-18** 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.

7.6.11

NOT TO SCALE

BMB Build (2030) Traffic Volumes
Weekday AM Peak Hour
Figure 15-29

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

BMB Build (2030) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-30

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

7.6.11

NOT TO SCALE

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

BMB Build (2030) Traffic Volumes
Weekday PM Peak Hour
Figure 15-31

7.6.11

NOT TO SCALE

Pier 6 Build (2030) Traffic Volumes
Weekday AM Peak Hour
Figure 15-32

7.6.11

NOT TO SCALE

Pier 6 Build (2030) Traffic Volumes
Weekday Midday Peak Hour
Figure 15-33

7.6.11

NOT TO SCALE

Pier 6 Build (2030) Traffic Volumes
Weekday PM Peak Hour
Figure 15-34

Table 15-17
2030 No Build and Build Level of Service Analysis
Manhattan 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
Battery Place and Broadway																								
Eastbound	T	0.71	30.7	C	T	0.71	30.7	C	T	0.31	23.2	C	T	0.32	23.3	C	T	0.38	26.2	C	T	0.39	26.3	C
Westbound	T	0.79	34.0	C	T	0.79	34.1	C	T	0.57	27.1	C	T	0.58	27.2	C	T	0.82	38.4	D	T	0.83	39.5	D
Southbound	T	0.22	25.4	C	T	0.23	25.4	C	T	0.22	25.4	C	T	0.24	25.6	C	T	0.16	22.4	C	T	0.16	22.5	C
	R	0.53	32.3	C	R	0.53	32.3	C	R	0.46	30.4	C	R	0.46	30.4	C	R	0.52	29.5	C	R	0.52	29.5	C
	Intersection		32.0	C	Intersection		32.0	C	Intersection		26.4	C	Intersection		26.5	C	Intersection		32.8	C	Intersection		33.4	C
Pearl Street and State Street																								
Westbound	L	0.18	21.4	C	L	0.18	21.4	C	L	0.18	21.4	C	L	0.18	21.4	C	L	0.20	21.7	C	L	0.20	21.7	C
	R	0.44	25.9	C	R	0.44	25.9	C	R	0.49	26.9	C	R	0.49	26.9	C	R	0.40	25.1	C	R	0.40	25.1	C
Northbound	T	0.36	12.2	B	T	0.36	12.2	B	T	0.30	11.6	B	T	0.31	11.7	B	T	0.30	11.7	B	T	0.31	11.8	B
Southbound	T	0.46	13.5	B	T	0.46	13.5	B	T	0.31	11.8	B	T	0.32	11.9	B	T	0.25	11.2	B	T	0.26	11.3	B
	Intersection		15.0	B	Intersection		15.0	B	Intersection		15.0	B	Intersection		15.0	B	Intersection		14.5	B	Intersection		14.5	B
Whitehall Street and Water Street																								
Eastbound	LT	0.70	27.6	C	LT	0.70	27.7	C	LT	0.47	22.8	C	LT	0.48	23.0	C	LT	0.45	22.3	C	LT	0.45	22.4	C
Westbound	TR	0.76	34.5	C	TR	0.76	34.5	C	TR	0.41	22.9	C	TR	0.41	22.9	C	TR	0.59	27.5	C	TR	0.59	27.5	C
Northbound	L	0.70	41.5	D	L	0.70	41.8	D	L	0.85	54.6	D	L	0.88	57.9	E	L	0.44	32.4	C	L	0.47	33.2	C
	TR	0.40	31.6	C	TR	0.41	31.7	C	TR	0.33	30.2	C	TR	0.36	30.9	C	TR	0.36	30.7	C	TR	0.42	31.8	C
	Intersection		32.0	C	Intersection		32.1	C	Intersection		32.0	C	Intersection		33.1	C	Intersection		26.4	C	Intersection		26.9	C
Broad Street and Water Street																								
Eastbound	LTR	0.77	21.3	C	LTR	0.78	21.6	C	LTR	0.55	15.4	B	LTR	0.58	16.1	B	LTR	0.68	18.7	B	LTR	0.72	20.3	C
Westbound	LTR	0.89	36.9	D	LTR	0.89	37.3	D	LTR	0.38	13.6	B	LTR	0.39	13.6	B	LTR	0.57	17.6	B	LTR	0.58	17.8	B
Northbound	LT	0.42	24.8	C	LT	0.42	24.8	C	LTR	0.86	47.7	D	LTR	0.86	48.6	D	LTR	0.91	55.6	E	LTR	0.91	57.0	E
	R	0.80	48.6	D	R	0.80	48.6	D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Southbound	LTR	0.68	37.6	C	LTR	0.68	37.6	C	LTR	0.70	35.7	D	LTR	0.71	36.7	D	LTR	0.70	37.0	D	LTR	0.71	37.6	D
	Intersection		30.1	C	Intersection		30.3	C	Intersection		26.8	C	Intersection		27.4	C	Intersection		29.4	C	Intersection		30.3	C
South Street and Whitehall Street																								
Westbound	R	0.20	0.2	A	R	0.21	0.2	A	R	0.15	0.1	A	R	0.16	0.1	A	R	0.13	0.1	A	R	0.13	0.1	A
	Intersection		0.2	A	Intersection		0.2	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A	Intersection		0.1	A
South Street and Broad Street (unsignalized)																								
Southbound	R	0.61	19.8	C	R	0.64	21.6	C	R	0.59	16.9	C	R	0.74	26.0	D	R	0.61	18.3	C	R	0.76	28.4	D
South Street and Old Slip																								
Westbound	TR	0.90	53.2	D	TR	0.91	55.1	E	TR	0.86	47.2	D	TR	0.91	53.8	D +	TR	0.82	39.7	D	TR	0.84	41.8	D
Northbound	L	0.36	25.4	C	L	0.37	25.5	C	L	0.15	22.4	C	L	0.16	22.4	C	L	0.17	24.0	C	L	0.18	24.1	C
	TR	1.01	73.1	E	TR	1.02	74.1	E	TR	0.46	27.2	C	TR	0.49	27.8	C	TR	0.39	27.3	C	TR	0.43	28.0	C
Southbound	R	0.25	23.8	C	R	0.25	23.9	C	R	0.32	25.0	C	R	0.33	25.3	C	R	0.45	29.1	C	R	0.46	29.2	C
	Intersection		55.2	E	Intersection		56.2	E	Intersection		35.4	D	Intersection		38.6	D	Intersection		33.1	D	Intersection		34.1	D

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

Table 15-18
2030 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	0.67	48.2	D	LT	0.67	48.4	D	LT	0.59	31.9	C	LT	0.60	32.4	C	LT	0.46	40.0	D	LT	0.47	40.2	D
Southbound	TR	0.47	13.0	B	TR	0.47	13.0	B	TR	0.43	12.6	B	TR	0.43	12.7	B	TR	0.42	12.2	B	TR	0.42	12.2	B
	Intersection		21.2	C	Intersection		21.2	C	Intersection		17.6	B	Intersection		17.9	B	Intersection		16.8	B	Intersection		16.9	B
Joralemon Street and Furman Street																								
Eastbound	R	0.32	32.0	C	R	0.32	32.1	C	R	0.82	65.8	E	R	0.87	74.3	E	R	0.80	64.0	E	R	0.87	77.0	E +
Westbound	LT	0.24	29.5	C	LT	0.25	29.6	C	LT	0.19	29.9	C	LT	0.20	28.9	C	LT	0.23	30.0	C	LT	0.24	30.0	C
Southbound	TR	0.14	6.4	A	TR	0.14	6.4	A	TR	0.42	8.5	A	TR	0.43	8.6	A	TR	0.51	9.5	A	TR	0.52	9.5	A
	Intersection		14.2	B	Intersection		14.3	B	Intersection		17.8	B	Intersection		19.3	B	Intersection		16.2	B	Intersection		18.1	B
Atlantic Avenue and Court Street																								
Eastbound	TR	0.69	30.9	C	TR	0.69	30.9	C	TR	0.83	33.5	C	TR	0.84	34.4	C	TR	0.78	39.4	D	TR	0.81	41.0	D
Westbound	L	0.30	14.7	B	L	0.30	14.7	B	L	0.49	17.3	B	L	0.50	17.8	B	L	0.57	25.6	C	L	0.60	27.0	C
	T	0.76	29.0	C	T	0.77	29.2	C	T	0.91	39.3	D	T	0.92	40.9	D	T	0.99	63.1	E	T	1.00	64.7	E
Southbound	LTR	0.76	45.9	D	LTR	0.76	45.9	D	LTR	0.91	50.6	D	LTR	0.91	51.1	D	LTR	0.87	47.5	D	LTR	0.87	47.7	D
	Intersection		33.5	C	Intersection		33.6	C	Intersection		38.7	D	Intersection		39.6	D	Intersection		47.9	D	Intersection		49.0	D
Atlantic Avenue and BQE Eastbound Ramps																								
Eastbound	T	0.22	10.9	B	T	0.22	10.9	B	T	0.31	10.8	B	T	0.32	10.9	B	T	0.20	10.8	B	T	0.22	10.9	B
Westbound	T	0.28	11.5	B	T	0.28	11.5	B	T	0.35	11.2	B	T	0.36	11.2	B	T	0.39	12.8	B	T	0.40	12.8	B
	R	0.74	23.3	C	R	0.74	23.3	C	R	0.50	14.3	B	R	0.50	14.3	B	R	0.54	16.5	B	R	0.54	16.5	B
Northbound	L	0.06	29.5	C	L	0.07	29.6	C	L	0.13	22.1	C	L	0.13	22.1	C	L	0.13	30.5	C	L	0.13	30.5	C
	Intersection		16.2	B	Intersection		16.2	B	Intersection		12.2	B	Intersection		12.3	B	Intersection		14.0	B	Intersection		14.0	B
Atlantic Avenue and Columbia Street																								
Eastbound	T	0.09	13.4	B	T	0.09	13.4	B	T	0.40	10.2	B	T	0.42	10.5	B	T	0.37	16.8	B	T	0.40	17.4	B
Westbound	L	0.49	20.4	C	L	0.50	20.9	C	L	0.79	29.1	C	L	0.87	40.8	D	L	1.05	89.8	F	L	1.20	145.4	F
	LT	0.41	18.0	B	LT	0.42	18.3	B	LT	0.68	18.8	B	LT	0.74	22.2	C	LT	0.87	43.4	D	LT	0.97	64.7	E
Northbound	LR	0.36	28.9	C	LR	0.36	28.9	C	LR	0.52	31.8	C	LR	0.53	32.1	C	LR	0.30	27.6	C	LR	0.30	27.7	C
	R	0.39	29.6	C	R	0.39	29.6	C	R	0.52	32.0	C	R	0.52	32.0	C	R	0.30	27.9	C	R	0.30	27.9	C
	Intersection		22.9	C	Intersection		23.1	C	Intersection		22.5	C	Intersection		25.5	C	Intersection		42.4	D	Intersection		63.4	E
Atlantic Avenue and Furman Street																								
Eastbound	T	0.12	13.7	B	T	0.12	13.7	B	T	0.13	7.7	A	T	0.14	7.8	A	T	0.13	13.9	B	T	0.13	13.9	B
Westbound	T	0.09	13.5	B	T	0.10	13.5	B	T	0.15	7.8	A	T	0.16	7.9	A	T	0.13	13.8	B	T	0.14	13.9	B
Southbound	LT	0.31	27.2	C	LT	0.31	27.2	C	LT	0.98	59.2	E	LT	0.99	60.6	E	LT	0.94	52.3	D	LT	0.95	53.6	D
	Intersection		22.3	C	Intersection		22.2	C	Intersection		45.7	D	Intersection		45.9	D	Intersection		44.7	D	Intersection		45.6	D
Atlantic Avenue and Furman Street Channelized Southbound Right-turn (unsignalized)																								
Southbound	R	0.02	10.1	B	R	0.02	10.7	B	R	0.04	14.8	B	R	0.09	22.4	C	R	0.01	12.5	B	R	0.02	17.2	C

Table 15-18 (cont'd)
2030 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 Ramps and Columbia Street																								
Westbound	L	0.37	17.4	B	L	0.37	17.4	B	L	0.32	16.8	B	L	0.32	16.8	B	L	0.27	16.1	B	L	0.27	16.1	B
Northbound	T	0.34	9.1	A	T	0.34	9.1	A	T	0.32	8.9	A	T	0.32	8.9	A	T	0.35	9.3	A	T	0.36	9.3	A
Southbound	L	0.80	26.8	C	L	0.80	26.8	C	L	1.17	107.0	F	L	1.18	111.0	F	L	1.15	101.7	F	L	1.16	108.7	F
	T	0.20	7.7	A	T	0.20	7.7	A	T	0.33	8.6	A	T	0.33	8.6	A	T	0.55	10.7	B	T	0.55	10.7	B
	Intersection		15.1	B	Intersection		15.1	B	Intersection		49.9	D	Intersection		51.5	D	Intersection		38.2	D	Intersection		40.3	D
BQE Ramps and Columbia Street Channelized Westbound Right-Turn (unsignalized)																								
Westbound	R	0.11	8.9	A	R	0.11	8.9	A	R	0.13	9.0	A	R	0.13	9.2	A	R	0.05	8.9	A	R	0.05	9.0	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 two approaches/lane groups. Impacts at some other lane groups that are expected to incur increases in delays beyond the CEQR impact thresholds are not considered significant because the project-generated peak hour traffic volumes at these affected lane groups are fewer than five vehicles during the analysis peak hour. Potential measures that can be implemented to mitigate these significant adverse traffic impacts, including minor adjustments to existing signal timings, are discussed in Chapter 23, "Mitigation."

Manhattan

- The westbound approach at the signalized intersection of South Street and Old Slip would deteriorate within LOS D from 47.2 seconds of delay to 53.8 seconds of delay, an increase in delay of more than five seconds, during the midday 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 within LOS E from 65.8 seconds of delay to 74.3 seconds of delay and from 64.0 seconds of delay to 77.0 seconds of delay, increases in delay of more than four seconds during the midday and PM peak hours, respectively. During the midday peak hour, the project-generated traffic volume at the eastbound approach would be fewer than five vehicles; therefore, the projected impact is not considered significant. However, during the PM peak hour, the project-generated traffic volume at the eastbound approach would be more than five vehicles. Therefore, 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 89.8 seconds of delay to 145.4 seconds of delay, an increase in delay of more than three seconds, during the PM peak hour. However, since there would not be any project-generated traffic volume in the exclusive left-turn lane, the projected impact is not considered significant.
- The shared westbound left-turn/through lane at the signalized intersection of Atlantic Avenue and Columbia Street would deteriorate from LOS D with 43.4 seconds of delay to LOS E with 64.7 second of delay during the PM peak hour. The project-generated traffic volume in the shared left-turn/through lane would be five through vehicles; therefore, the projected impact is not considered significant.
- The southbound left-turn lane at the signalized intersection of the BQE Ramps and Columbia Street would deteriorate within LOS F from 107.0 seconds of delay to 111.0 seconds of delay and from 101.7 seconds of delay to 108.7 seconds of delay, increases in delay of more than three seconds, during the midday and PM peak hours, respectively. However, since the project-generated traffic volumes at the southbound left-turn lane during both analysis peak periods would be fewer than five vehicles, the projected impacts are not considered significant.

G. TRANSIT

Mass transit options serving the two ferry portals connecting Manhattan and Brooklyn to Governors Island are shown in **Figures 15-35** and **15-36**. 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

SOURCE:http://www.mta.info/maps/lower%20Manh%20map%20Jun10.pdf

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

BMB - Public Transit Options
Figure 15-35

6.17.11

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6- Public Transit Options
Figure 15-36

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/N lines at the Jay Street-Metro Tech station, the F/G lines at the Bergen Street station, and the B61 and B63 bus routes.

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 in the transit maps (Figures 15-35 and 15-36) 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 No. 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.

As discussed in Section C, "CEQR Screening Analyses," Phase 1 and Later Phases-Park and Public Spaces improvements would generate fewer than 200 peak hour subway trips at the Pier 6 portal and approximately 221 AM peak hour and 956 PM peak hour subway trips at the BMB portal. These trips were distributed to several stations and corresponding station elements in the BMB area. Based on the results of this subway trip distribution, vertical circulation and control area elements at the Bowling Green and South Ferry stations would be expected to incur 200 or more peak hour project-generated subway trips during the weekday PM peak hour only. While not exceeding the CEQR threshold, the AM peak hour conditions for these elements and the Borough Hall station stairway at the southwest corner of Court Street and Joralemon Street in Brooklyn were analyzed to establish baseline levels for assessing potential impacts associated with the full development of the Proposed Project, including the Later Phases–Island Redevelopment component.

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 that no individual bus route would experience 50 or more peak hour bus trips in one direction, which is the CEQR-recommended threshold for undertaking a quantified bus analysis. Consequently, the Phase 1 and Later Phases-Park and Public Spaces would not have the potential to result in any significant adverse bus impacts and a quantitative bus line-haul analysis is not warranted. **Table 15-19** provides a summary of the NYCT local bus routes that provide regular service to the two ferry portals and their weekday 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 15-19
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	Afternoon	PM
M5	Washington Heights	Staten Island Ferry	State Street, Water Street, Broad Street, South Street, Whitehall Street	5-6	12	10-12
M15-Local	East Harlem	South Ferry	Water Street	13-14	16-17	14-16
M15-SBS	East Harlem	South Ferry	Water Street	12	8-9	8-9
M20	Lincoln Center	South Ferry	Battery Place, State Street	15	15	15
B61	Windsor Terrace	Downtown Brooklyn	Columbia Street, Atlantic Ave, Smith Street, Boerum Place	8-10	10-12	9-12
B63	Fort Hamilton	Cobble Hill	Atlantic Avenue	8-15	10-12	12

Source: MTA NYCT Bus Timetables (2010).

2011 EXISTING CONDITIONS—SUBWAY STATION OPERATIONS

Field surveys conducted in April 2011 during the hours of 8:00 to 10:30 AM and 4:00 to 6:30 PM 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 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 east side of Whitehall Street, and the main control area one level below grade.

Stairway/Escalator Condition at South Ferry Terminal Station

The main entrance to the South Ferry Terminal station (No. 1 and R lines), in the newly renovated Peter Minuit Plaza, is served by two escalators (1 up, 1 down) and stairways. It was observed that the pedestrian volume at the stairways and escalators surge during the AM and PM commuting peak hours coinciding with the arrival and departure schedule of the Staten Island Ferry. During the AM peak period, pedestrian flow was mostly downward, with 85 percent of the peak 15-minute volume entering the subway station. During the PM peak period, the predominant flow (70 percent of the peak 15-minute volume) was upward exiting the station.

The field data and observations also showed that pedestrians prefer escalators to the stairs. However, when the volume of pedestrians using the escalators increase and queuing on the escalator began to generate delays, subway patrons would shift their choice of vertical circulation from escalators to less-crowded stairways.

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 Jorelemon 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 15-20**, **15-21, and 15-22**, all analyzed stairways, escalators, and control areas currently operate at acceptable levels, with the exception of the down-escalator during the AM peak period (v/c = 1.13) and the up-escalator during the PM peak period (v/c = 1.14) at the South Ferry station.

Table 15-20
2011 Existing Conditions Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor (Exit from Ferry)	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	6.8	5.6	468	90	-	0.75	0.9	0.94	C
Whitehall/South Ferry Station (1, R lines) – Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	9	655	0.80	0.90	1.0	0.59	B
SE Stairway on Whitehall	6.0	5.0	223	20	-	0.90	0.9	0.40	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	137	265	-	0.95	0.9	0.74	C
Weekday PM Peak 15 Minutes									
Manhattan–BMB									
Bowling Green Station (4,5 lines)–Battery Place and State Street									
SW Stairway – Inside	6.8	5.6	387	200	-	0.75	0.9	0.95	C
Whitehall/South Ferry Station (1, R lines) – Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	100	115	0.80	0.90	0.9	0.20	A
SE Stairway on Whitehall	6.0	5.0	3	135	-	0.90	1.0	0.18	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	112	122	-	0.95	0.9	0.43	A

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-21
2011 Existing Conditions Subway Control Area Analysis

Station Control Elements	Quantity	15-Minute 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	70	447	-	0.8	0.9	0.287	A
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry								
Two-way Turnstile	17	1627	796	0.8	0.9	0.9	0.406	A
Weekday PM Peak 15 Minutes								
Bowling Green Station (4,5 lines)–Battery Place and State Street								
Two-way Turnstile	4	132	399	-	0.8	0.9	0.302	A
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry								
Two-way Turnstile	17	998	1211	0.8	0.9	0.9	0.330	A

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-22
2011 Existing Conditions Subway Escalator Analysis
South Ferry Station

Station Elements	Qty.	Tread Width (in)	Surging Factor	15-Minute Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
				Up	Down			
Weekday AM Peak 15 Minutes								
Escalator Up	1	40	0.9	275	-	1050	0.29	A
Escalator Down	1	40	0.8	-	950	1050	1.13	D
Weekday PM Peak 15 Minutes								
Escalator Up	1	40	0.9	1082	-	1050	1.14	D
Escalator Down	1	40	0.8	-	400	1050	0.85	B

Note:
Capacities were calculated based on rates presented in the 2010 *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)

2030 NO BUILD CONDITION—SUBWAY STATION OPERATIONS

Estimates of peak hour transit volumes in the 2030 No Build condition were developed by applying the 2010 *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 2011 to 2016, and an annual compounded background growth rate of 0.125 percent was applied to the transit volumes from 2016 to 2030. 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. Although there are several No Build projects near the BMB and Pier 6 ferry portals, due to the relative distances between these No Build projects and the areas' transit options, only those transit trips generated by the BMB project in Manhattan and the Brooklyn Bridge Park project in Brooklyn were added to the respective transit study areas for the No Build condition transit analysis.

The No Build peak period volume projections were allocated to the transit analysis elements described above. As stated under "2011 Existing Conditions–Subway Station Operations," field observations showed that subway patrons, when encountering increased delays and queuing, would shift their choices from the escalators to less-crowded stairways. Hence, for analysis purposes, it was assumed that future subway riders using the South Ferry station's main entrance at Peter Minuit Plaza would continue to use both the escalators and stairways. However, once the down-escalator reaches the existing v/c ratio of 1.13 during the AM peak period or the up-escalator reaches its existing v/c ratio of 1.14 during the PM peak period, subway riders would be expected to shift to using the existing stairways, instead of waiting in queue to use the escalators. Consequently for analysis purposes, the incremental pedestrian volumes to the down-escalator during the AM peak period and to the up-escalator during the PM peak period were added to the main stairways instead.

As shown in **Tables 15-23, 15-24,** and **15-25**, all station stairways, control elements, and escalators would continue to operate at acceptable levels, except for the escalators at the main entrance to the South Ferry-Whitehall station, which would continue to operate at LOS D with a v/c ratio of 1.13 for the down-escalator during the AM peak period and a v/c ratio of 1.14 for the up escalator during the PM peak period.

Table 15-23
2030 No Build Condition Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor (Exit from Ferry)	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	6.8	5.6	487	94	-	0.75	0.9	0.983	C
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	9	706	0.80	0.90	1.0	0.640	B
SE Stairway on Whitehall	6.0	5.0	233	24	-	0.90	0.9	0.419	A
Brooklyn–Pier 6									
Court Street-Borough Hall Station (2,3,4,5 and R lines)–Joralemon Street and Court Street									
SW Corner Stairway	5.1	4.1	155	284	-	0.95	0.9	0.808	C
Weekday PM Peak 15 Minutes									
Manhattan–BMB									
Bowling Green Station (4,5 lines)–Battery Place and State Street									
SW Stairway – Inside	6.8	5.6	403	211	-	0.75	0.9	0.990	C
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	141	120	0.80	0.90	0.9	0.244	A
SE Stairway on Whitehall	6.0	5.0	6	140	-	0.90	1.0	0.196	A
Brooklyn–Pier 6									
Court Street-Borough Hall Station (2,3,4,5 and R lines)–Joralemon Street and Court Street									
SW Corner Stairway	5.1	4.1	131	146	-	0.95	0.9	0.513	B

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-24
2030 No Build Condition Subway Control Area Analysis

Station Control Elements	Quantity	15-Minute 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	73	465	-	0.8	0.9	0.299	A
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry								
Two-way Turnstile	17	1681	824	0.8	0.9	0.9	0.420	A
Weekday PM Peak 15 Minutes								
Bowling Green Station (4,5 lines)–Battery Place and State Street								
Two-way Turnstile	4	141	415	-	0.8	0.9	0.317	A
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry								
Two-way Turnstile	17	1031	1252	0.8	0.9	0.9	0.342	A

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-25
2030 No Build Condition Subway Escalator Analysis
South Ferry Station

Station Elements	Qty.	Tread Width (in)	Surging Factor	No Build 15-Minute Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
				Up	Down			
Weekday AM Peak 15 Minutes								
Escalator Up	1	40	0.9	288	-	1050	0.30	A
Escalator Down	1	40	0.8	-	950	1050	1.13	D
Weekday PM Peak 15 Minutes								
Escalator Up	1	40	0.9	1082	-	1050	1.14	D
Escalator Down	1	40	0.8	-	417	1050	0.50	B

Notes:
+ indicates a significant impact.
Capacities were calculated based on rates presented in the 2010 *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)

2030 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 added to the projected 2030 No Build volumes to generate the 2030 Build volumes for analysis. Project-generated subway trips were distributed as follows:

MANHATTAN BMB FERRY PORTAL

- 25 percent to the Nos. 4/5 lines at the Bowling Green station southwest entrance;
- 15 percent to the Nos. 4/5 lines at the Bowling Green station northeast 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 entrance on Whitehall Street.

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- 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.

The same station elements that were previously analyzed for the existing and No Build conditions were analyzed for the Build condition. The projected subway stairway operations under the Build condition are summarized in **Table 15-26**. Although the southwest stairway at the Bowling Green station is expected to deteriorate to LOS D with a v/c ratio of 1.011 during the AM peak period and a v/c ratio of 1.099 during the PM peak period, the required widening to achieve a 1.000 or lower v/c ratio for these peak period conditions is 6.8 inches, which is less than the 2010 *CEQR Technical Manual* WIT of 8.0 inches. Therefore, the Phase 1 and Later Phases-Park and Public Spaces components would not result in any significant adverse impacts at the analysis stairways.

Tables 15-27 and **15-28** present the Build subway control area and escalator operations. The analysis results show that all analyzed control areas would continue to operate at acceptable levels. For the escalators at the South Ferry-Whitehall station's main entrance, the same analysis approach as presented for the No Build condition was used to assess potential impacts associated with the Proposed Project's incremental trips. While the down-escalator during the AM peak period and the up-escalator during the PM peak period would continue to operate above capacity, at v/c ratios of 1.13 and 1.14, respectively, the adjacent stairway would continue to have adequate capacity to service the projected subway demand and not result in a potential for any significant adverse impacts to vertical circulation at that station entrance.

Table 15-26
2030 Build Condition Subway Stairway Analysis

Stairway	Width (ft.)	Effective Width (ft.)	15-Minute Pedestrian Volumes		Surging Factor (Exit from Ferry)	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	6.8	5.6	501	96	-	0.75	0.9	1.011	D
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	9	720	0.80	0.90	1.0	0.653	B
SE Stairway on Whitehall	6.0	5.0	236	27	-	0.90	0.9	0.428	A
Brooklyn–Pier 6									
Court Street-Borough Hall Station (2,3,4,5 and R lines)–Joralemon Street and Court Street									
SW Corner Stairway	5.1	4.1	156	284	-	0.95	0.9	0.810	C
Weekday PM Peak 15 Minutes									
Manhattan–BMB									
Bowling Green Station (4,5 lines)–Battery Place and State Street									
SW Stairway – Inside	6.8	5.6	449	232	-	0.75	0.9	1.099	D
Whitehall/South Ferry Station (1, R lines) – Whitehall Street and South Ferry									
Main Stairway – Plaza Area	10.5	9.3	162	132	0.80	0.90	0.9	0.274	A
SE stairway on Whitehall	6.0	5.0	22	168	-	0.90	1.0	0.257	A
Brooklyn–Pier 6									
Court Street-Borough Hall Station (2,3,4,5 and R lines)–Joralemon Street and Court Street									
SW Corner Stairway	5.1	4.1	138	161	-	0.95	0.9	0.553	B

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-27
2030 Build Condition Subway Control Area Analysis

Station Control Elements	Quantity	15-Minute 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	75	479	-	0.8	0.9	0.307	A
Whitehall/South Ferry Station (1, R lines) – Whitehall Street and South Ferry								
Two-way Turnstile	17	1690	827	0.8	0.9	0.9	0.424	A
Weekday PM Peak 15 Minutes								
Bowling Green Station(4,5 lines)–Battery Place and State Street								
Two-way Turnstile	4	162	461	-	0.8	0.9	0.355	A
Whitehall/South Ferry Station (1, R lines)–Whitehall Street and South Ferry								
Two-way Turnstile	17	1071	1270	0.8	0.9	0.9	0.354	A

Notes:
Capacities were calculated based on rates presented in the 2010 *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 15-28
2030 Build Condition Subway Escalator Analysis
South Ferry Station

Station Elements	Qty.	Tread Width (in)	Surging Factor	15-Minute Pedestrian Volume		Peak 15 min. Guideline Capacity (w/o Surging factor)	V/C Ratio	LOS
				Up	Down			
Weekday AM Peak 15 Minutes								
Escalator Up	1	40	0.9	290	-	1,050	0.31	A
Escalator Down	1	40	0.8	-	950	1,050	1.13	D
Weekday PM Peak 15 Minutes								
Escalator Up	1	40	0.9	1,082	-	1,050	1.14	D
Escalator Down	1	40	0.8	-	460	1,050	0.55	B

Note:
Capacities were calculated based on rates presented in the 2010 *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)

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 C, "CEQR Screening Analyses" (see Figures 15-7 through 15-14), several pedestrian elements near the BMB portal 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. At Pier 6, the peak hour incremental pedestrians were determined to be below the CEQR analysis threshold at all nearby locations. To establish a baseline to which potential impacts from the full development of the Proposed Project, including the Later Phases–Island Redevelopment component, could also be assessed, a more comprehensive pedestrian study area, encompassing the required pedestrian analysis elements identified in Section C and other elements along likely pedestrian routes, was planned for the BMB portal. For the Pier 6 portal, pedestrian elements along the likely pedestrian routes were selected for analysis. The pedestrian analysis locations are outlined below and depicted in **Figure 15-37**.

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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;
- East and west sidewalks along Whitehall Street between Water and South Streets;
- North and south sidewalks along South Street between Whitehall and Broad Streets; and
- West sidewalk of Whitehall Street between Water and Pearl Streets.

Corner Locations

- Northeast corner of South and Whitehall Streets; and

6.17.11

KEY MAP

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pedestrian Analysis Locations
Figure 15-37

- Northwest and southeast corners of Water and Whitehall Streets.

Crosswalk Locations

- 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.

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Sidewalk Locations

- All sidewalks at the Court Street and Joralemon Street intersection;
- North and south sidewalks along Atlantic Avenue between Columbia Street and the BQE eastbound ramps; and
- North and south sidewalks along Atlantic Avenue west of Furman Street.

Corner Locations

- All corners of 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; and
- North crosswalk at Atlantic Avenue and Furman Street

2011 EXISTING CONDITIONS

Existing pedestrian levels are based on field surveys conducted in April 2011 during the hours of 8:00 to 10:30 AM, 12:00 to 3:00 PM, and 4:00 to 6:30 PM. The highest 15-minute volumes from the established peak hour within each of these peak periods were selected for analysis.

Figures 15-38 through **15-40** show the existing peak 15-minute volumes in the Manhattan and Brooklyn pedestrian study areas. As summarized in **Tables 15-29** to **15-34**, 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 in Manhattan near the BMB ferry portal:

- The south crosswalk at State Street and the M15 SBS Bus Loop at Peter Minuit Plaza operates at LOS D (17.3 SFP) during the PM peak period; and
- The west crosswalk at State Street and Whitehall Street operates at LOS E (12.7 SFP), D (19.4 SFP), and E (10.6 SFP), during the AM, midday, and PM peak periods, respectively.

It should be noted that, although the south crosswalk at the intersection of Peter Minuit Plaza and State Street operates with an exclusive pedestrian phase (20 seconds out of a 90 second total cycle length), the traffic volumes through this crosswalk are minimal, and pedestrians cross the south crosswalk during the majority of the 90 seconds of the intersection's signal cycle. In essence, this crosswalk operates with an extended pedestrian signal phase, with pedestrians only stopping for the few turning vehicles—primarily the M15 SBS buses—during the signal cycle's vehicular green phase. The analysis conservatively assumed that all existing pedestrians would obey the signal indicator and only cross during the exclusive pedestrian phase.

NOT TO SCALE

Existing Pedestrian Volumes
Weekday AM Peak 15 Minutes

Figure 15-38

Existing Pedestrian Volumes
Weekday Midday Peak 15 Minutes

Figure 15-39

NOT TO SCALE

Existing Pedestrian Volumes
Weekday PM Peak 15 Minutes

Figure 15-40

Table 15-29
2011 Existing Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	516	2.22	B
State Street between Bridge Street and Pearl Street	West	22.5	378	1.12	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	309	1.47	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	188	0.78	B
Whitehall Street between Pearl Street and Water Street	West	12.0	351	1.95	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	776	4.70	C
Whitehall Street between State Street and South Street	West	8.0	27	0.23	A
Whitehall Street between 1/R Subway Station and South Street	East	14.0	119	0.57	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	183	1.74	B
South Street between M15 Bus Stop and Broad Street	North	6.5	133	1.36	B
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	324	1.39	B
State Street between Bridge Street and Pearl Street	West	22.5	393	1.16	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	298	1.42	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	243	1.01	B
Whitehall Street between Pearl Street and Water Street	West	12.0	268	1.49	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	149	0.90	B
Whitehall Street between State Street and South Street	West	8.0	21	0.18	A
Whitehall Street between 1/R Subway Station and South Street	East	14.0	49	0.23	A
South Street between Whitehall Street and M15 Bus Stop	North	7.0	74	0.70	B
South Street between M15 Bus Stop and Broad Street	North	6.5	76	0.78	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	526	2.26	B
State Street between Bridge Street and Pearl Street	West	22.5	644	1.91	B

Table 15-29 (cont'd)
2011 Existing Conditions Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	458	2.18	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	341	1.42	B
Whitehall Street between Pearl Street and Water Street	West	12.0	339	1.88	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	473	2.87	B
Whitehall Street between State Street and South Street	West	8.0	61	0.51	B
Whitehall Street between 1/R Subway Station and South Street	East	14.0	147	0.70	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	98	0.93	B
South Street between M15 Bus Stop and Broad Street	North	6.5	135	1.38	B

Note: PMF = pedestrians per minute per foot

Table 15-30
2011 Existing Conditions Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Whitehall Street and State Street	Southeast	44.3	B	96.6	A	67.4	A
	Northwest	194.8	A	242.9	A	171.0	A
Whitehall Street and South Street	Northeast	352.8	A	961.4	A	450.3	A

Note: SFP = square feet per pedestrian

Table 15-31
2011 Existing Conditions Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
State Street and M15 Bus Loop	South	36.0	25.0	26.4	C	20.7	D	17.3	D
State Street and Whitehall Street	North	24.0	15.0	328.8	A	155.5	A	211.5	A
	East	36.0	17.0	20.6	D	29.7	C	33.0	C
	South	30.0	14.0	109.4	A	100.8	A	75.3	A
	West	50.0	15.0	12.7	E	19.4	D	10.6	E
Whitehall Street and South Street	North	27.0	10.0	55.7	B	138.9	A	65.2	A
	East	27.0	12.0	69.3	A	383.6	A	147.2	A

Note: SFP = square feet per pedestrian

Table 15-32
2011 Existing Conditions Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	5	0.02	A
	South	8.0	11	0.09	A
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	9	0.03	A
	South	20.0	4	0.01	A
Joralemon Street between Boerum Place and Court Street	North	7.0	238	2.27	B
	South	10.0	231	1.54	B
Joralemon Street between Court Street and Clinton Street	North	11.0	179	1.08	B
	South	6.0	335	3.72	C
Court Street between Remsen Street and Joralemon Street	East	15.0	237	1.05	B
	West	8.0	545	4.54	C
Court Street between Joralemon Street and Livingston Street	East	13.0	526	2.70	B
	West	14.0	542	2.58	B
Midday Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	16	0.06	A
	South	8.0	18	0.15	A
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	19	0.07	A
	South	20.0	13	0.04	A
Joralemon Street between Boerum Place and Court Street	North	7.0	293	2.79	B
	South	10.0	443	2.95	B
Joralemon Street between Court Street and Clinton Street	North	11.0	100	0.61	B
	South	6.0	205	2.28	B
Court Street between Remsen Street and Joralemon Street	East	15.0	361	1.60	B
	West	8.0	785	6.54	D
Court Street between Joralemon Street and Livingston Street	East	13.0	484	2.48	B
	West	14.0	715	3.40	C
PM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	8	0.03	A
	South	8.0	22	0.18	A
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	6	0.02	A
	South	20.0	20	0.07	A
Joralemon Street between Boerum Place and Court Street	North	7.0	217	2.07	B
	South	10.0	354	2.36	B
Joralemon Street between Court Street and Clinton Street	North	11.0	137	0.83	B
	South	6.0	271	3.01	C
Court Street between Remsen Street and Joralemon Street	East	15.0	244	1.08	B
	West	8.0	511	4.26	C
Court Street between Joralemon Street and Livingston Street	East	13.0	466	2.39	B
	West	14.0	658	3.13	C

Note: PMF = pedestrians per minute per foot

Table15-33
2011 Existing Conditions Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Atlantic Avenue and Columbia Street	Southeast	7382.0	A	4025.4	A	1473.2	A
Court Street and Joralemon Street	Southeast	76.3	A	77.7	A	95.6	A
	Southwest	58.9	B	46.8	B	54.3	B
	Northwest	66.3	A	44.0	B	53.6	B

Note: SFP = square feet per pedestrian

Table 15-34
2011 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
Atlantic Avenue and Columbia Street	North	22.0	14.0	2245.8	A	1475.8	A	1746.7	A
	South	65.0	16.0	3582.1	A	2815.4	A	1376.1	A
Joralemon Street and Court Street	North	30.0	15.0	40.9	B	44.3	B	36.8	C
	East	31.0	18.0	89.5	A	62.0	A	102.7	A
	South	38.0	19.0	40.0	C	33.3	C	40.5	B
	West	25.0	17.0	46.4	B	21.9	D	31.8	C

Note: SFP = square feet per pedestrian

2030 NO BUILD CONDITION

No Build pedestrian volumes were estimated by increasing existing (2011) 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 2011 to year 2016) and then 0.125 percent for the remaining years (year 2016 to year 2030). Pedestrian volumes from anticipated projects in the Manhattan and Brooklyn study areas, including those from the BMB and Brooklyn Bridge Park projects, were also added to arrive at the 2030 No Build pedestrian volumes. The total No build peak 15-minute pedestrian volumes for the weekday AM, midday, and PM peak periods are presented in **Figures 15-41** to **15-43**.

As summarized in **Tables 15-35** to **15-40**, all sidewalk, crosswalk, and corner reservoir analysis locations would continue to operate at acceptable levels, except for the following locations in Manhattan near the BMB ferry portal. the west crosswalk at State Street and Whitehall Street, the east crosswalk at State Street and Whitehall Street, and the south crosswalk at State Street and the M15 SBS Bus Loop at Peter Minuit Plaza.

- The south crosswalk at State Street and the M15 SBS Bus Loop at Peter Minuit Plaza would operate at LOS D (18.0 SFP) during the midday peak period and LOS D (15.6 SFP) during the PM peak period; and
- The west crosswalk at State Street and Whitehall Street would operate at LOS E (12.1 SFP), D (17.7 SFP), and E (9.9 SFP), during the AM, midday, and PM peak periods, respectively.

10.12.11

NOT TO SCALE

No Build Pedestrian Volumes
Weekday AM Peak 15 Minutes

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Figure 15-41

10.12.11

NOT TO SCALE

No Build Pedestrian Volumes
Weekday midday Peak 15 Minutes

Figure 15-42

NOT TO SCALE

No Build Pedestrian Volumes
Weekday PM Peak 15 Minutes

Figure 15-43

Table 15-35
2030 No Build Condition Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	542	2.33	B
State Street between Bridge Street and Pearl Street	West	22.5	399	1.18	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	329	1.57	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	208	0.87	B
Whitehall Street between Pearl Street and Water Street	West	12.0	367	2.04	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	812	4.92	C
Whitehall Street between State Street and South Street	West	8.0	38	0.32	A
Whitehall Street between 1/R Subway Station and South Street	East	14.0	143	0.68	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	194	1.85	B
South Street between M15 Bus Stop and Broad Street	North	6.5	143	1.47	B
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	359	1.54	B
State Street between Bridge Street and Pearl Street	West	22.5	431	1.28	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	332	1.58	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	285	1.19	B
Whitehall Street between Pearl Street and Water Street	West	12.0	286	1.59	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	191	1.16	B
Whitehall Street between State Street and South Street	West	8.0	49	0.41	A
Whitehall Street between 1/R Subway Station and South Street	East	14.0	111	0.53	A
South Street between Whitehall Street and M15 Bus Stop	North	7.0	98	0.93	B
South Street between M15 Bus Stop and Broad Street	North	6.5	98	1.01	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	560	2.41	B
State Street between Bridge Street and Pearl Street	West	22.5	682	2.02	B

Table 15-35 (cont'd)
2030 No Build Condition Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	490	2.33	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	377	1.57	B
Whitehall Street between Pearl Street and Water Street	West	12.0	358	1.99	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	512	3.10	C
Whitehall Street between State Street and South Street	West	8.0	84	0.70	B
Whitehall Street between 1/R Subway Station and South Street	East	14.0	192	0.91	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	114	1.09	B
South Street between M15 Bus Stop and Broad Street	North	6.5	151	1.55	B

Note: PMF = pedestrians per minute per foot

Table 15-36
2030 No Build Condition Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Whitehall Street and State Street	Southeast	42.2	B	86.0	A	62.7	A
	Northwest	186.2	A	225.9	A	161.2	A
Whitehall Street and South Street	Northeast	311.3	A	518.2	A	347.4	A

Note: SFP = square feet per pedestrian

Table 15-37
2030 No Build Condition Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
State Street and M15 Bus Loop	South	36.0	25.0	27.8	C	18.0	D	15.6	D
State Street and Whitehall Street	North	24.0	15.0	312.7	A	149.2	A	204.6	A
	East	36.0	17.0	19.8	D	28.0	C	31.5	C
	South	30.0	14.0	105.1	A	95.7	A	72.2	A
	West	50.0	15.0	12.1	E	17.7	D	9.9	E
Whitehall Street and South Street	North	27.0	10.0	54.0	B	133.6	A	63.5	B
	East	27.0	12.0	54.9	B	82.6	A	72.6	A

Note: SFP = square feet per pedestrian

Table 15-38
2030 No Build Condition Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	56	0.21	A
	South	8.0	11	0.09	A
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	60	0.21	A
	South	20.0	55	0.18	A
Joralemon Street between Boerum Place and Court Street	North	7.0	309	2.94	B
	South	10.0	242	1.61	B
Joralemon Street between Court Street and Clinton Street	North	11.0	274	1.66	B
	South	6.0	375	4.17	C
Court Street between Remsen Street and Joralemon Street	East	15.0	244	1.08	B
	West	8.0	562	4.68	C
Court Street between Joralemon Street and Livingston Street	East	13.0	542	2.78	B
	West	14.0	559	2.66	B
Midday Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	92	0.34	A
	South	8.0	410	3.42	C
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	95	0.33	A
	South	20.0	89	0.30	A
Joralemon Street between Boerum Place and Court Street	North	7.0	410	3.90	C
	South	10.0	475	3.17	C
Joralemon Street between Court Street and Clinton Street	North	11.0	233	1.41	B
	South	6.0	254	2.82	B
Court Street between Remsen Street and Joralemon Street	East	15.0	373	1.66	B
	West	8.0	809	6.74	D
Court Street between Joralemon Street and Livingston Street	East	13.0	499	2.56	B
	West	14.0	737	3.51	C
PM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	61	0.23	A
	South	8.0	292	2.43	B
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	59	0.21	A
	South	20.0	73	0.24	A
Joralemon Street between Boerum Place and Court Street	North	7.0	310	2.95	B
	South	10.0	389	2.59	B
Joralemon Street between Court Street and Clinton Street	North	11.0	263	1.59	B
	South	6.0	340	3.78	C
Court Street between Remsen Street and Joralemon Street	East	15.0	252	1.12	B
	West	8.0	527	4.39	C
Court Street between Joralemon Street and Livingston Street	East	13.0	481	2.47	B
	West	14.0	678	3.23	C

Note: PMF = pedestrians per minute per foot

Table 15-39
2030 No Build Condition Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Atlantic Avenue and Columbia Street	Southeast	696.1	A	462.9	A	476.1	A
Court Street and Joralemon Street	Southeast	73.4	A	73.3	A	88.9	A
	Southwest	56.6	B	44.3	B	50.7	B
	Northwest	55.0	B	36.2	C	42.7	B

Note: SFP = square feet per pedestrian

Table 15-40
2030 No Build Condition 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
Atlantic Avenue and Columbia Street	North	22.0	14.0	263.9	A	195.9	A	245.2	A
	South	65.0	16.0	285.4	A	214.4	A	235.9	A
Joralemon Street and Court Street	North	30.0	15.0	29.0	C	27.0	C	24.0	D
	East	31.0	18.0	86.5	A	60.0	B	99.6	A
	South	38.0	19.0	38.1	C	30.5	C	35.6	C
	West	25.0	17.0	44.8	B	21.1	D	30.7	C

Note: SFP = square feet per pedestrian

2030 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. Based on the peak hour project-generated pedestrian trips presented in Section C, "CEQR Screening Analysis" and shown on Figures 15-7 to 15-14, peak 15-minute incremental pedestrian volumes were developed, as shown on **Figures 15-44** to **15-46**. These volumes were added to the projected 2030 No Build volumes to generate the 2030 Build pedestrian volumes for analysis. The total 2030 Build peak 15-minute pedestrian volumes are presented on **Figures 15-47** to **15-49**.

The analysis conducted for the Build condition accounted for the distribution of project-generated trips overlaid onto the No Build pedestrian networks' sidewalks, corner reservoirs, and crosswalks. As presented in **Tables 15-41** to **15-46**, 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 at similar levels as the No Build condition during the corresponding peak 15-minute periods, except at the following locations, where significant adverse pedestrian impacts resulting from the Proposed Project were identified:

- The south crosswalk at State Street and the M15 Bus Loop at Peter Minuit Plaza would deteriorate to LOS E during the midday and PM peak 15-minute periods; and
- The west crosswalk at State Street and Whitehall Street would deteriorate to LOS D or worse during the midday and PM peak 15-minute periods.

NOT TO SCALE

Project Generated Pedestrian Volumes
Weekday AM Peak 15 Minutes

Figure 15-44

10.12.11

NOT TO SCALE

Project Generated Pedestrian Volumes
Weekday midday Peak 15 Minutes

Figure 15-45

NOT TO SCALE

Project Generated Pedestrian Volumes
Weekday PM Peak 15 Minutes

Figure 15-46

NOT TO SCALE

Build Pedestrian Volumes
Weekday AM Peak 15 Minutes

Figure 15-47

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

10.12.11

NOT TO SCALE

Build Pedestrian Volumes
Weekday midday Peak 15 Minutes

Figure 15-48

NOT TO SCALE

Build Pedestrian Volumes
Weekday PM Peak 15 Minutes

Figure 15-49

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Table 15-41
2030 Build Condition Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	561	2.41	B
State Street between Bridge Street and Pearl Street	West	22.5	418	1.24	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	348	1.66	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	228	0.95	B
Whitehall Street between Pearl Street and Water Street	West	12.0	375	2.08	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	827	5.01	C
Whitehall Street between State Street and South Street	West	8.0	53	0.44	A
Whitehall Street between 1/R Subway Station and South Street	East	14.0	176	0.84	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	200	1.90	B
South Street between M15 Bus Stop and Broad Street	North	6.5	148	1.52	B
Midday Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	440	1.89	B
State Street between Bridge Street and Pearl Street	West	22.5	512	1.52	B
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	413	1.97	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	370	1.54	B
Whitehall Street between Pearl Street and Water Street	West	12.0	325	1.81	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	248	1.50	B
Whitehall Street between State Street and South Street	West	8.0	113	0.94	B
Whitehall Street between 1/R Subway Station and South Street	East	14.0	258	1.23	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	121	1.15	B
South Street between M15 Bus Stop and Broad Street	North	6.5	118	1.21	B
PM Peak Period					
State Street between Bridge Street and Battery Place	West	15.5	641	2.76	B
State Street between Bridge Street and Pearl Street	West	22.5	763	2.26	B

Table 15-41 (cont'd)
2030 Build Condition Sidewalk Analysis
Manhattan Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
State Street between Pearl Street and Peter Minuit Plaza (M15 Bus Loop)	West	14.0	571	2.72	B
Peter Minuit Plaza-Ferry Terminal Passageway	Passage way	16.0	462	1.93	B
Whitehall Street between Pearl Street and Water Street	West	12.0	400	2.22	B
Whitehall Street between State Street and 1/R Subway Station	East	11.0	539	3.39	C
Whitehall Street between State Street and South Street	West	8.0	152	1.27	B
Whitehall Street between 1/R Subway Station and South Street	East	14.0	338	1.61	B
South Street between Whitehall Street and M15 Bus Stop	North	7.0	137	1.30	B
South Street between M15 Bus Stop and Broad Street	North	6.5	171	1.75	B

Note: PMF = pedestrians per minute per foot

Table 15-42
2030 Build Condition Corner Analysis
Manhattan Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Whitehall Street and State Street	Southeast	41.6	B	76.3	A	57.4	A
	Northwest	182.0	A	200.7	A	147.0	A
Whitehall Street and South Street	Northeast	273.0	A	262.2	A	211.4	A

Note: SFP = square feet per pedestrian

Table 15-43
2030 Build Condition Crosswalk Analysis
Manhattan Locations

Location	Crosswalk	Street Width (feet)	Crosswalk Width (feet)	Conditions with conflicting vehicles					
				AM		Midday		PM	
				SFP	LOS	SFP	LOS	SFP	LOS
State Street and M15 Bus Loop	South	36.0	25.0	25.7	C	14.6	E+	13.0	E+
State Street and Whitehall Street	North	24.0	15.0	302.9	A	143.6	A	198.3	A
	East	36.0	17.0	19.7	D	27.0	C	30.3	C
	South	30.0	14.0	105.1	A	94.2	A	70.5	A
	West	50.0	15.0	11.8	E	15.1	D+	8.9	E+
Whitehall Street and South Street	North	27.0	10.0	54.0	B	133.6	A	63.5	A
	East	27.0	12.0	43.5	B	29.2	C	26.0	C

Note: SFP = square feet per pedestrian
+ implies a significant adverse impact

Table 15-44
2030 Build Condition Sidewalk Analysis
Brooklyn Locations

Location	Sidewalk	Effective Width (ft)	15 Minute Two-Way Volume	Platoon Flow	
				PMF	LOS
AM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	65	0.24	A
	South	8.0	21	0.18	A
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	69	0.24	A
	South	20.0	55	0.18	A
Joralemon Street between Boerum Place and Court Street	North	7.0	310	2.95	B
	South	10.0	244	1.63	B
Joralemon Street between Court Street and Clinton Street	North	11.0	276	1.67	B
	South	6.0	378	4.20	C
Court Street between Remsen Street and Joralemon Street	East	15.0	244	1.08	B
	West	8.0	563	4.69	C
Court Street between Joralemon Street and Livingston Street	East	13.0	543	2.78	B
	West	14.0	561	2.67	B
Midday Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	135	0.50	A
	South	8.0	458	3.82	C
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	138	0.48	A
	South	20.0	89	0.30	A
Joralemon Street between Boerum Place and Court Street	North	7.0	416	3.96	C
	South	10.0	485	3.23	C
Joralemon Street between Court Street and Clinton Street	North	11.0	233	1.41	B
	South	6.0	254	2.82	B
Court Street between Remsen Street and Joralemon Street	East	15.0	373	1.66	B
	West	8.0	812	6.77	D
Court Street between Joralemon Street and Livingston Street	East	13.0	502	2.57	B
	West	14.0	747	3.56	C
PM Peak Period					
Atlantic Avenue between Furman Street and Pier 6	North	18.0	104	0.39	A
	South	8.0	340	2.84	B
Atlantic Avenue between Columbia Street and BQE Off-Ramp	North	19.0	102	0.36	A
	South	20.0	109	0.36	A
Joralemon Street between Boerum Place and Court Street	North	7.0	316	3.01	C
	South	10.0	398	2.65	B
Joralemon Street between Court Street and Clinton Street	North	11.0	263	1.59	B
	South	6.0	340	3.78	C
Court Street between Remsen Street and Joralemon Street	East	15.0	252	1.12	B
	West	8.0	531	4.43	C
Court Street between Joralemon Street and Livingston Street	East	13.0	484	2.48	B
	West	14.0	688	3.28	C

Note: PMF = pedestrians per minute per foot

Table 15-45
2030 Build Condition Corner Analysis
Brooklyn Locations

Location	Corner	AM Peak Period		Midday Peak Period		PM Peak Period	
		SFP	LOS	SFP	LOS	SFP	LOS
Atlantic Avenue and Columbia Street	Southeast	607.3	A	317.3	A	323.1	A
Court Street and Joralemon Street	Southeast	73.1	A	72.2	A	87.6	A
	Southwest	56.4	B	43.7	B	49.8	B
	Northwest	54.9	B	35.8	C	42.0	B

Note: SFP = square feet per pedestrian

Table 15-46
2030 Build Condition 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
Atlantic Avenue and Columbia Street	North	22.0	14.0	228.5	A	130.1	A	140.1	A
	South	65.0	16.0	248.4	A	144.7	A	149.2	A
Joralemon Street and Court Street	North	30.0	15.0	28.8	C	26.5	C	23.5	D
	East	31.0	18.0	86.5	A	59.8	B	99.1	A
	South	38.0	19.0	37.8	C	29.8	C	34.7	C
	West	25.0	17.0	44.6	B	20.9	D	30.3	C

Note: SFP = square feet per pedestrian

Potential measures that can be implemented to mitigate these significant adverse pedestrian impacts, including minor adjustments to existing signal timings and widening existing crosswalks, are discussed in Chapter 23, "Mitigation."

Battery Maritime Building Entrance

As discussed above under "2011 Existing Conditions," the existing sidewalk in front of the BMB is approximately 5 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. With the completion of Phase 1 and Later Phases-Park and Public Space, increased visitation (especially during weekend days) and year-round access are expected. Under anticipated future conditions, The Trust would continue to regulate visitors as it does currently.

I. PARKING

2011 EXISTING CONDITIONS

Parking regulations in the vicinity of the Manhattan and Brooklyn ferry portals are summarized in **Table 15-47** and graphically presented in **Figures 15-50** and **15-51**.

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

BMB On Street Parking Regulations and Off Street Public Parking Facilities

Figure 15-50

7.6.11

1. *On-Street Parking Regulation*

B *Bus Stop*

A *Parking Garage*

PROPOSED PHASED REDEVELOPMENT OF
GOVERNORS ISLAND

Pier 6 On Street Parking Regulations and
Off Street Public Parking Facilities
Figure 15-51

Table 15-47
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
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

Table 15-47 (cont'd)
On-Street Parking Regulations

No.	Regulation	No.	Regulation
Manhattan (cont'd)			
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, Inc.; June 2011			

A survey of off-street public parking facilities within a ¼ mile of the BMB and Pier 6 ferry portals was conducted in May and June 2011 to assess their capacities and approximate utilization levels. **Table 15-48** summarizes the number of available parking spaces and parking utilization during the AM, midday, and PM peak periods at each off-street public parking facility. The locations of these parking facilities are also depicted in Figures 15-50 and 15-51.

Table 15-48
2011 Existing Conditions Public Parking Utilization

Map#	Peak Period	Total Spaces	Available Spaces	Parking Utilization[1]
	Manhattan			
A	***Quik Park Garage at the corner of Whitehall Street and South Street***			
	AM	150	45	70%
	Midday	150	30	80%
	PM	150	75	50%
B	***South William Parking LLS at 14 -26 William Street***			
	AM	400	120	70%
	Midday	400	120	70%
	PM	400	200	50%
C	***Kura River Management LTD at 2 Broadway***			
	AM	56	6	90%
	Midday	56	6	90%
	PM	56	6	90%
D	***Central Parking Systems at 7 Hanover Square***			
	AM	67	13	80%
	Midday	67	7	90%
	PM	67	33	50%
E	***Impark Water LLC at 55 Water Street***			
	AM	545	218	60%
	Midday	545	163	70%
	PM	545	109	80%
F	***State Pearl Garage Inc at 1 Battery Park Plaza***			
	AM	150	45	70%
	Midday	150	15	90%
	PM	150	75	50%
	Total Manhattan Garages within ¼ Mile of BMB			
	AM	1,368	447	67%
	Midday	1,368	341	75%
	PM	1,368	498	64%
	Brooklyn			
G	***Quik Park Garage adjacent to Pier 6***			
	AM	312	140	55%
	Midday	312	47	85%
	PM	312	106	66%
H	***44 State Street Corporation at 38-44 State Street***			
	AM	90	27	70%
	Midday	90	9	90%
	PM	90	36	60%
I	***ProPark America NY LLS Operating Long Island College Hospital at 352 Hicks Street***			
	AM	430	193	55%
	Midday	430	52	88%
	PM	430	146	66%
	Total Brooklyn Garages within ¼ Mile of Pier 6			
	AM	832	360	57%
	Midday	832	108	87%
	PM	832	288	65%

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 64 to 75 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 87 percent, with the peak utilization also occurring during the midday peak period.

2030 NO BUILD CONDITION

Off-street public parking utilization is expected to experience the same growth as projected for traffic. As presented in **Table 15-49,** the 2030 No Build public parking utilization is expected to increase to a range of 65 to 77 percent in the vicinity of the BMB ferry portal and to a range of 58 to 90 percent in the vicinity of the Pier 6 ferry portal.

Table 15-49
2030 No Build Condition Public Parking Utilization

Peak Period	Total Spaces	Available Spaces	Parking Utilization[1]
Manhattan – Garages within ¼ Mile of BMB			
AM	1,368	419	69%
Midday	1,368	310	77%
PM	1,368	472	65%
Brooklyn – Garages within ¼ Mile of Pier 6			
AM	832	346	58%
Midday	832	86	90%
PM	832	272	67%

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

2030 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 15-50** compares the projected 2030 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 2010 *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 18 vehicles during the midday peak period that would need to seek parking elsewhere. This small excess demand is expected to be dispersed on-street within the same ¼-mile parking study area near Pier 6.

Table 15-50
2030 No Build and Build Condition Public Parking Utilization

Peak Period	Total Spaces	2030 No Build		Proposed Project Parking Demand	2030 Build	
		Available Spaces	Parking Utilization[1]		Available Spaces[2]	Parking Utilization[1]
Manhattan – Garages within ¼ Mile of BMB						
AM	1,368	419	69%	8	411	70%
Midday	1,368	310	77%	86	224	84%
PM	1,368	472	65%	89	383	72%
Brooklyn – Garages within ¼ Mile of Pier 6						
AM	832	346	58%	9	337	59%
Midday	832	86	90%	88	-2	100%
PM	832	272	67%	91	181	78%

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 period between November 30, 2007 and November 30, 2010. The data obtained quantify the total number of reportable crashes (involving fatality, injury, or property damages in more than $1,000) during the three-year 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 vehicular or pedestrian/bicyclist crash location is one where there were five or more pedestrian/bicyclist-related crashes or 48 or more total reportable and non-reportable crashes in any consecutive 12 months of the most recent three-year period for which data are available.

During this period, a total of 386 reportable and non-reportable crashes (including no fatalities, 211 injuries, and 89 pedestrian/bicyclist-related crashes occurred at the study area intersections. A rolling total of crash data identified two study area intersections as high pedestrian crash locations in the 2007 to 2010 period. These intersections are Court Street at Atlantic Avenue and Court Street at Livingston Street. **Table 15-51** depicts total crash characteristics by intersection during the study period and gives a breakdown of pedestrian and bicycle crashes by year and location. **Table 15-52** provides a detailed description of each crash at the intersections of Court Street and Atlantic Avenue and Court Street and Livingston Street during the three-year period.

Table 15-51
Crash Summary

Intersection		Study Period						Crashes by Year							
North-South Roadway	East-West Roadway	All Crashes by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2007	2008	2009	2010			2007	2008	2009	2010	2007	2008	2009	2010
Rt 278 Ent/Ex Ramps	Atlantic Avenue	1	0	0	0	0	1	0	0	0	0	0	0	0	0
Broad Street	Beaver Street	0	4	2	2	0	1	0	0	0	1	0	0	0	0
Broad Street	Bridge Street	0	2	5	0	0	3	0	0	2	0	0	1	0	0
Broad Street	Marketfield Street	0	3	0	0	0	0	0	0	0	0	0	0	0	0
Broad Street	South Street	0	9	10	2	0	4	0	0	0	0	0	0	0	0
Broad Street	Stone Street	1	0	3	0	0	1	0	0	1	0	0	0	0	0
Broad Street	Water Street	0	7	6	3	0	4	0	0	0	1	0	0	0	0
Broadway	Bowling Green	0	0	1	0	0	1	0	0	1	0	0	0	0	0
Broadway	Stone Street	0	0	1	0	0	1	0	0	1	0	0	0	0	0
Clinton Street	Atlantic Avenue	3	9	9	4	0	15	1	2	2	0	0	0	0	0
Clinton Street	Joralemon Street	0	0	3	1	0	1	0	0	0	0	0	0	0	0

Table 15-51 (cont'd)
Crash Summary

Intersection		Study Period						Crashes by Year							
North-South Roadway	East-West Roadway	All Crashes by Year				Total Fatalities	Total Injuries	Pedestrian				Bicycle			
		2007	2008	2009	2010			2007	2008	2009	2010	2007	2008	2009	2010
Clinton Street	Livingston Street	0	2	3	0	0	2	0	0	0	0	0	0	0	0
Clinton Street	Schermerhorn St	0	0	0	1	0	2	0	0	0	0	0	0	0	0
Clinton Street	State Street	0	0	1	2	0	0	0	0	0	0	0	0	0	0
Coenties Slip	Pearl Street	0	1	0	1	0	0	0	0	0	0	0	0	0	0
Coenties Slip	Water Street	1	1	1	0	0	0	0	0	0	0	0	0	0	0
Columbia Street	Atlantic Avenue	0	5	4	3	0	12	0	0	0	0	0	0	0	0
Columbia Place	Joralemon Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Columbia Street	Rt 278 En/ExRmps	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Court Street	**Atlantic Avenue**	1	14	23	9	0	36	0	3	9	5	0	0	2	0
Court Street	Joralemon Street	2	6	3	1	0	4	1	0	0	1	0	0	1	0
Court Street	**Livingston Street**	1	9	10	4	0	19	0	4	4	1	0	1	0	1
Court Street	Remsen Street	1	4	7	3	0	7	0	1	1	1	0	0	0	0
Court Street	Schermerhon Street	0	1	4	3	0	4	0	0	0	2	0	0	0	0
Court Street	State Street	0	3	5	1	0	5	0	1	0	0	0	0	1	0
Furman Street	Atlantic Avenue	0	2	2	1	0	6	0	0	0	0	0	0	0	0
Furman Street	Joralemon Street	0	2	4	1	0	2	0	0	0	0	0	0	1	0
Garden Place	State Street	0	1	1	0	0	1	0	0	0	0	0	1	0	0
Garden Place	Joralemon Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hanover Street	Water Street	1	0	1	1	0	2	0	0	0	0	0	0	0	1
Henry Street	Atlantic Avenue	1	3	9	6	0	13	0	1	0	0	0	0	1	1
Henry Street	Joralemon Street	0	1	3	0	0	2	0	0	0	0	0	1	0	0
Henry Street	State Street	0	2	1	0	0	3	0	2	1	0	0	0	0	0
Hicks Street	Atlantic Avenue	0	8	9	5	0	15	0	3	1	2	0	0	2	0
Hicks Street	Joralemon Street	0	0	1	1	0	1	0	0	1	0	0	0	0	0
Hicks Street	State Street	0	0	1	1	0	1	0	0	0	0	0	0	0	0
Old Slip	South Street	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Sidney Place	Aitken Place	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sidney Place	Joralemon Street	0	0	0	1	0	0	0	0	0	0	0	0	0	0
Sidney Place	State Street	0	1	0	0	0	0	0	0	0	0	0	0	0	0
State Street	Adm. George Dwy.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
State Street	Battery Place	0	8	5	2	0	8	0	2	0	1	0	0	0	0
State Street	Bridge Street	0	4	3	2	0	3	0	0	0	1	0	0	0	0
State Street	Pearl Street	0	3	2	0	0	3	0	1	0	0	0	0	0	0
Whitehall Street	Bridge Street	1	3	2	2	0	7	0	0	1	1	0	0	0	0
Whitehall Street	Pearl Street	0	3	2	1	0	3	0	0	1	0	0	0	0	1
Whitehall Street	South Street	0	3	2	0	0	2	0	1	1	0	0	0	0	0
Whitehall Street	State Street	1	14	12	0	0	14	0	2	3	0	0	0	0	0
William Street	Beaver Street	0	5	1	0	0	2	0	1	0	0	0	0	0	0
William Street	Pearl Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Willow Place	State Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Willow Place	Joralemon Street	0	0	0	1	0	0	0	0	0	0	0	0	0	0

Source: NYSDOT November 30, 2007 to November 30, 2010 crash data.
High vehicle or pedestrian/bicycle crash locations are in **bold**.

Table 15-52
Vehicle and Pedestrian Crash Details

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	2008	1/30	2:45 PM	X		Making right turn – West	Crossing against signal	X			
		6/10	3:20 PM	X		Entering parked position	Emerging from behind parked car			x	Backing unsafely
		3/6	11:15 PM	X		Going straight – East	NA				Reaction to other uninvolved vehicle
	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
Court Street @ Atlantic Avenue	2009	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		Unknown	Crossing				Unknown
		5/9	11:45 AM	X		Unknown	Unknown				Unknown
		7/16	1:30 PM	X		Unknown	Along highway with traffic				Unknown
		8/6	6:10 PM	X		Unknown	Crossing against signal				Unknown
		9/1	6:20 PM	X		Unknown	Crossing				Unknown

Table 15-52 (cont'd)
Vehicle and Pedestrian Crash Details

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 @ Livingston Street	2008	2/17	7:45 PM	X		Going Straight – South	Along Highway with Traffic				Unknown
		6/26	12:55 PM	X		Making Left Turn – South	Crossing with Signal	X			
		6/29	12:30 AM	X		Making Left Turn – Southeast	Crossing with Signal	X			
		9/25	4:50 PM	X		Making Left Turn – South	Crossing with Signal	X		X	
		12/4	10:35 PM	X		Making Left Turn – West	Crossing with Signal	X			View Obstructed/ Limited
	2009	2/20	11:44 AM	X		Making Left Turn – West	Crossing with Signal	X		X	Failure to Yield R.O.W.
		5/28	10:00 AM	X		Making Left Turn – Southeast	Crossing with Signal	X			Failure to Yield R.O.W.
		7/24	10:50 AM	X		Making Left Turn – Southeast	Crossing with Signal	X			
		8/18	6:23 PM	X		Going Straight – North	Crossing				Unknown
	2010	3/2	9:43 AM	X		Making Left Turn – Southeast	Crossing with Signal	X		X	
		11/19	11:35 AM	X			Unknown				

Source: NYSDOT November 30, 2007 to November 30, 2010 crash data.

With the Proposed Project, the intersection of Court Street and Atlantic Avenue would experience modest increases in vehicular and pedestrian traffic—increases of approximately 2, 21, and 30 vehicles during the AM, midday, and PM peak hours, respectively, and fewer than 140 pedestrians through this intersection during each of the peak hours. The intersection is signalized and provides four high-visibility crosswalks. In addition, countdown pedestrian signals have been installed for the east and west crosswalks. Based on the detailed crash description, five of the pedestrian crashes were related to vehicles making left or right turning movements. Pedestrians crossing against the signal was specifically listed as a contributing factor in four of the crashes, one of which involving turning vehicles. Of the remaining crashes, two involved vehicles failing to yield right-of-way, three more from miscellaneous causes and seven were listed with causes unknown. Proposed, measures to improve pedestrian safety at this intersection include the installation of "Yield to Pedestrians" signs on all approaches, and installing countdown pedestrian signals on the remaining two (north and south) crosswalks.

With the Proposed Project, the intersection of Court Street and Livingston Street would experience modest increases in vehicular and pedestrian traffic—increases of one vehicle during each of the AM, midday, and PM peak hours, and fewer than 50 pedestrians through this intersection during each of the peak hours. The intersection is signalized and provides four

school crosswalks. Eight of the eleven crashes were attributed to left-turning vehicles striking pedestrians crossing with the signal. The remaining three crashes were due to causes unknown. Proposed measures to improve pedestrian safety at this intersection include the installation of "Yield to Pedestrians" and School Advance Warning assemblies on all the approaches as well as pedestrian countdown signals on all crosswalks.

K. FULL DEVELOPMENT OF THE PROPOSED PROJECT

The full development the Proposed Project would include Phase 1, the Later Phases-Park and Public Spaces component, and the Later Phases–Island Redevelopment component. The retenanting 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 Later Phases–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 15-53.**

Table 15-53
Later Phases–Island Redevelopment
Potential Development Scenarios

Uses	University/Research Option (sf)	Mixed-Use Option (sf)
University		
Research	400,000	0
Academic	450,000	0
Housing–Faculty Housing [1] *(assumed as apartments, not dorms)*	200,000	1,650,000
Housing–Student Dorms [1]	850,000	450,000
Conference Center/Hotel	500,000	350,000
Office	175,000	60,000
Service Retail/Restaurant *(Not destination, accessory to other uses)*	75,000	75,000
Cultural *(Gallery, small museum)*	60,000	125,000
Public School (K-12)	150,000	150,000
Maintenance, Support, Other	140,000	140,000
TOTAL	**3,000,000**	**3,000,000**

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

The full development of the Proposed Project, which includes Phase 1, Later Phases-Park and Public Space, and Later Phases–Island Redevelopment components, would substantially 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 Phase 1 and Later Phases-Park and Public Space 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 Later Phases–Island Redevelopment becomes more defined. ✷