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Mitigation

In accordance with the *2021 City Environmental Quality Review (CEQR) Technical Manual*, where significant adverse impacts are identified, mitigation measures to reduce or eliminate the impacts to the fullest extent practicable are to be developed and evaluated.

Introduction

As detailed in the preceding chapters, upon completion, the Proposed Project has the potential to result in significant adverse impacts to community facilities, transportation, noise, and construction. The Proposed Project also has the potential to result in a temporary indirect adverse impact to active open space. Mitigation measures have been identified to address those impacts where feasible and/or practicable. As discussed below in more detail, partial mitigation is proposed for some of the significant adverse impacts of the Proposed Project. If no mitigation has been identified, an unavoidable significant adverse impact may result.

Principal Conclusions

In accordance with the *CEQR Technical Manual*, where significant adverse impacts are identified, mitigation to reduce or eliminate the impacts to the fullest extent practicable is developed and evaluated. Where potential significant adverse impacts have been identified—in the areas of transportation, community facilities (indirect impacts on early childhood programs and libraries), noise and construction—measures are examined to mitigate the anticipated impacts. As described below, the potential open space impact would be

temporary due to the sequencing of construction and there would be no open space impact at full buildout of the project.

Community Facilities

Early Childhood Programs

Required mitigation measures to address the identified significant adverse impact to publicly funded early childhood programs are being explored in consultation with the New York City Department of Education ("the DOE") and will be refined between the DEIS and FEIS. Such measures may include, but are not limited to, the provision of suitable space on-site for an early childhood program, provision of a suitable location off-site and within a reasonable distance, or funding or making program or physical improvements to support additional capacity. If it is deemed appropriate by the DOE, the Proposed Project could include space that could be used for early childhood programming within certain building groups. In this case, the Proposed Project has allocated 12,320-gsf for a childcare facility within the Project Area. As discussed above, approximately 6,350 sf feet could be designated for publicly funded early childhood programming, which would fully mitigate the significant adverse impact if the designated spaces are tenanted by early childhood providers in consultation with DOE. If mitigation measures are not fully effective in addressing the significant adverse impact to early childhood programs, then the Proposed Actions would result in an unavoidable adverse impact to early childhood programs. The implementation of the mitigation measures would rely upon the direction of the DOE and the ongoing monitoring that the DOE must undertake to determine the appropriate mitigation measures.

Libraries

Required mitigation measures to address the identified significant adverse impact to Libraries are under development in consultation with the Brooklyn Public Library (BPL). The Applicant is proposing to provide project residents with computer labs that have free internet access within lounge spaces in each building within the Proposed Project. Furthermore, space within the PAC would be provided for use by BPL for programming and additional outdoor space within the Central Quad would be made available for BPL programming. The full range of mitigation measures ultimately implemented would rely upon input from BPL, which would undertake ongoing monitoring to determine the appropriate mitigation measures as the Proposed Project is occupied. If mitigation measures are not fully effective in addressing the significant adverse impact to libraries, then the Proposed Actions would result in an unavoidable adverse impact to Libraries.

Open Space

Required mitigation measures to address the identified temporary indirect active open space impact are being explored with DCP and NYC Parks between DEIS and FEIS. If mitigation measures are not fully effective in addressing the temporary adverse impact to active open space, the Proposed Actions would result in an unavoidable temporary adverse impact to active open space.

Transportation

Traffic

Of the 13 intersections analyzed, the Proposed Project would result in significant adverse traffic impacts at nine intersections during the weekday AM peak hour, seven intersections during the weekday midday peak hour, nine intersections during the weekday PM peak hour, and seven intersections during the Saturday peak hour. A subset of seven intersections was analyzed during the Sunday peak hour and significant traffic impacts were identified at four of these intersections during this peak hour. The majority of the intersections analyzed would either not be significantly impacted or could be fully mitigated with readily implementable traffic improvement measures described below in this chapter. Six of the 13 intersections would remain unmitigated during the weekday AM peak hour, two intersections during the weekday midday peak hour, five intersections during the weekday PM peak hour (three of the five intersections could be partially mitigated), and four intersections during the Saturday peak hour. During the Sunday peak hour, four of the seven intersections would remain unmitigated. Mitigation measures identified later in the chapter, such as signal timing changes, parking regulation changes to gain a travel lane at key intersections, and lane restriping, are standard traffic capacity improvements that are typically implemented by the New York City Department of Transportation (NYC DOT).

Subway

Subway station elements at the Rockaway Parkway L subway station were analyzed during the AM and PM commuter peak hours and significant impacts were identified at the Glenwood Avenue fare control area during the AM peak hour. There would be no significant impacts on subways during the PM peak hour. Measures to mitigate this impact could potentially include the installation of additional turnstiles. The practicability of implementing this measure, as well as measures to prevent prevalent fare evasion at this fare control area, will be evaluated in consultation with New York City Transit (NYCT) between the Draft EIS and Final EIS.

Buses

The Proposed Project would result in a capacity shortfall for the B82 bus route during the AM peak hour (93 spaces in the westbound direction), B82 SBS bus route during the AM peak hour (two spaces in the westbound direction) and PM peak hour (56 spaces in the eastbound direction), and B83 bus route during the AM peak hour (107 spaces in the northbound direction, 12 spaces in the southbound direction) and PM peak hour (64 spaces in the northbound direction, 75 spaces in the southbound direction).

Impacts to the B82 bus route could be mitigated with the addition of two standard buses in the westbound direction during the AM peak hour. Impacts to the B82 SBS bus route could be mitigated with the addition of one standard bus in the westbound direction during the AM peak hour, and two standard buses in the eastbound direction during the PM peak hour. Impacts to the B83 bus route could be mitigated with the addition of three standard buses in the northbound direction and one standard bus in the southbound direction during the AM peak hour, and two standard buses in each direction during the PM peak hour. The general

policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

Pedestrians

Of the 36 pedestrian elements analyzed, the Proposed Project would result in significant adverse pedestrian impacts at one pedestrian element (one crosswalks) during the weekday AM and midday peak hours, two pedestrian elements (two crosswalks) during the weekday PM peak hour, four pedestrian elements (three crosswalks and one sidewalk) during the Saturday peak hour. A subset of 14 pedestrian elements along the Development Site frontages was analyzed for the Sunday peak hour. Twelve pedestrian elements (five crosswalks, three sidewalks, and four corners) would be impacted during this peak hour. Potential improvements that could mitigate the significant impacts were reviewed and it was determined that the pedestrian impacts could not be mitigated with typical improvement measures.

Noise

As described below, the Proposed Actions would result in the potential for significant adverse impacts to one existing residential building, located at 1180 Pennsylvania Avenue, due to the introduction of new stationary and mobile noise sources. As described in **Chapter 16, Noise**, With-Action sound levels would range from 59.4 to 67.7 dBA (Leq), an increase of up to 6.5 dBA from the No-Action condition. While the detailed noise analysis concluded that the Proposed Actions could result in noise levels exceeding noise impact criteria for greater than 5 dBA, primarily resulting from the proposed childcare facility playground at proposed Building 4, there would be significant adverse noise impacts at 1180 Pennsylvania Avenue due to the Proposed Action. The introduction of a solid wall along the southern perimeter of the daycare playground facility would be expected to provide 5 dBA of noise reduction, thereby mitigating noise to an acceptable level and would result in a finding of no significant adverse noise impacts at this location.

With the inclusion of (E) Designations for new buildings on the Development Site which specify window-wall attenuation requirements, the project would not result in any on-site noise impacts requiring mitigation.

Construction

Construction Noise

Since noise levels during construction would exceed the thresholds for exterior increases in noise, there would be potential for the project to result in significant adverse construction noise impacts at new buildings that would be introduced with the phased development and at existing residential buildings located immediately south of the Development Site. As described in **Chapter 19, Construction**, interior noise levels would exceed the interior impact criterion for residential receptors during certain phases of construction.

With the adherence to existing construction noise regulations and the implementation of a Construction Noise Mitigation Plan, as required by the New York City Noise Code, including

an 8-foot construction noise barrier, construction noise would be reduced but would still exceed the thresholds for significant construction noise impact prior to mitigation.

As discussed below, no feasible mitigation measures were identified to mitigate the potential construction noise impact. While additional mitigation measures will be explored in consultation with the lead agency between Draft EIS and Final EIS, the Proposed Actions have the potential to result in a significant adverse noise impact that would remain unmitigated. See **Chapter 22, Unavoidable Adverse Impacts**.

Construction Transportation

As discussed in **Chapter 19, Construction**, seven intersections were analyzed for potential significant traffic impacts during the AM construction traffic peak hour and twelve intersections were analyzed during the PM construction traffic peak hour. Significant impacts were identified at two analysis intersections during the AM peak hour and at nine intersections during the PM peak hour. Where impacts during construction may occur, measures similar to the ones recommended in the operational traffic analysis could be implemented early to aid in alleviating congested traffic conditions. The two intersections that would be impacted during the AM peak hour could be fully mitigated with typical traffic improvement measures (i.e., signal timing modification and changing parking regulations to provide an additional travel lane). Significant impacts at the intersections of Pennsylvania Avenue with Flatlands Avenue, Stanley Avenue and Linden Boulevard, and Flatlands Avenue with Louisiana Avenue, East 108th Street, and Rockaway Parkway could not be fully mitigated during the PM peak hour. The PM construction peak hour findings are similar to operational With-Action conditions except for the intersections of Pennsylvania Avenue with Stanley Avenue, and the intersection of Flatlands Avenue and East 108th Street which could be mitigated under the operational With-Action conditions.

Community Facilities

Early Childhood Programs

As described in **Chapter 4, Community Facilities and Services**, the Proposed Actions would result in a significant adverse impact on publicly funded childcare and Head Start Centers according to the thresholds set forth by the *CEQR Technical Manual*.

There are 20 publicly funded early childhood programs within the 1.5-mile radius study area. These early childhood programs have a total capacity of 1,610 seats and have 167 available seats or a collective utilization of 89.63 percent. In the No-Action condition, there are seven planned or proposed developments which would introduce a total of 3,334 affordable units and 671 childcare-eligible children resulting in a utilization rate of 126.49 percent. In the With-Action condition, the Proposed Actions would introduce 1,338 non-senior affordable units resulting in an increment of 238 additional childcare-eligible children. This would increase the projected enrollment to 2,275 children, and early childhood program facilities would operate with a capacity at 141.3 percent utilization. The Proposed Actions would decrease the total available slots and change the utilization by 14.8 percent, which exceeds the five percent threshold set by the *CEQR Technical Manual* or a significant adverse impact on early childhood programs.

One of the planned proposed developments within the 1.5-mile radius study area, the Brooklyn Developmental Center, identified a need for mitigation measures to avoid significant adverse impacts to childcare services. The suggested mitigation strategy for the Brooklyn Development Center as proposed in the FEIS – would be to introduce 290 childcare slots to the study area for a total capacity of 1,900 slots.[1] The Brooklyn Developmental Center FEIS states that the DOE will determine the appropriate mitigation measures and therefore the extent of the mitigation and effects on study area capacity cannot be determined. With this mitigation under the No-Action condition, and agreement from the DOE that the slots would be publicly funded, the study area would only operate at a deficit of 375 slots and the study area utilization rate would be 107.2 percent. The change in utilization for the Proposed Actions would be 12.5 percent.

According to the *CEQR Technical Manual*, significant adverse impacts to publicly funded early childhood programs may occur with a proposed project that would result in a collective utilization rate greater than 100 percent, and a utilization rate that is at least 5 percent greater than the utilization rate without the Proposed Project. As such, a significant adverse impact on publicly funded early childhood programs could occur with the Proposed Project. Therefore, per the guidance of the *CEQR Technical Manual*, mitigation measures would be warranted for the significant adverse impact to publicly funded early childhood programs that would be attributable to the Proposed Project

As the Proposed Project would be developed sequentially, the significant adverse impact would occur when the Proposed Project completed construction of approximately 530 non-senior, affordable units, which would introduce approximately 95 children eligible for publicly funded early childhood programs. Based on the proposed phasing schedule, it is therefore anticipated that the significant adverse impact to early childhood programs could first occur at Phase 1B of the Proposed Project's construction (to commence in 2025), and would increase as other phases are constructed and occupied. Accounting for mitigation by the Brooklyn Development Center for its childcare impacts, the Proposed Project could provide 128 childcare slots within the Proposed Project (to reduce the change in utilization to 5 percent) or pay for them to be provided offsite. If it is deemed appropriate by the DOE, the Proposed Project could include space that could be used for publicly funded early childhood programming. To satisfy the need for seats, an approximately 6,350 sf publicly funded facility would be provided on site conservatively assuming 50 sf per child. The childcare facility would be constructed in Phase 1B. Consideration of providing additional childcare facility capacity and/or other measures is being explored in consultation with the DOE and will be further explored between DEIS and FEIS.

Possible mitigation measures for this significant adverse impact will be developed in consultation with the DOE and may include provision of suitable space on-site for a childcare center, provision of a suitable location off-site and within a reasonable distance (at a rate affordable to the DOE providers), or funding or making program or physical improvements to support adding capacity to existing facilities if determined feasible through consultation with the DOE's Division of Early Childhood Education, or providing new early childhood programs within or near the project sites. As a City agency, the DOE does not directly provide new childcare facilities, instead it contracts with providers in areas of need. The DOE

[1] https://esd.ny.gov/brooklyn-developmental-center-mixed-use-project-draft-environmental-impact-statement-deis

is also working to create public/private partnerships to facilitate the development of new early childhood programs where there is an area of need. As part of that initiative, the DOE may be able to contribute capital funding, if it is available, towards such projects to facilitate the provision of new programs.

If it is deemed appropriate by the DOE, the Proposed Project could include space that could be used for publicly funded early childhood programming within certain building areas designated for commercial use. In this case, the Proposed Project has allocated 12,320-gsf for a childcare facility within the Project Area. As discussed above, approximately 6,350 sf feet could be designated for publicly funded early childhood programming, which would fully mitigate the significant adverse impact if the designated spaces are tenanted by early childhood providers in consultation with the DOE.

As noted in **Chapter 4, Community Facilities**, several factors may reduce the number of children in need of slots for publicly funded early childhood programs slots in DOE-contracted early childhood facilities. Families in the study area could make use of alternatives to publicly funded early childhood programs. There are slots at homes licensed to provide family-based early childhood programs that families of eligible children could elect to use instead of public early childhood programs. As noted above, these facilities provide additional slots in the study area but are not included in the quantitative analysis. Parents of eligible children are also not restricted to enrolling their children in childcare facilities in a specific geographical area and could use public early childhood programs outside of the study area. Parents of eligible children may also use DOE vouchers to finance care at private early childhood programs in the study area. Finally, the voucher system could spur the development of new early childhood programs to meet the need of eligible children that would result from the increase in the low-income and low- to moderate-income housing units in the area in the future with the Proposed Actions.

It should also be noted that the DOE's "3-K for All" and "Pre-K for All" programs were established in 2014. Since then, the City has made significant investments to provide free, full-day early childhood education through "Pre-K for All" and "3-K for All," as part of a broader effort to create a continuum of high-quality early care and education programs for New York City children from birth to five years old.[2] There are numerous "3-K for All" program centers located within the study area. According to the DOE, there will be a 3-K seat for every three-year-old in school district 19 starting Fall 2021.[3] However, consistent with the methodologies outlined in the *CEQR Technical Manual*, these facilities have not been included in the quantitative analysis. In addition, the DOE issued a new Request for Proposals ("RFP") to meet new needs for early childhood services in certain areas of the city that have arisen since the onset of the pandemic and give providers another funding opportunity for the 2021-22 school year and beyond.[4] This RFP allowed proposers to offer "3-K for All" and "Pre-K for All" services within several zip codes, including those which make up the 1.5-mile study area from the Project Area. Therefore, the total number of existing and potential early childhood educational facilities in the study area is greater than that reflected

[2] Office of the Mayor. "Mayor de Blasio Announces 3-K for All." https://www1.nyc.gov/office-of-the-mayor/news/258- 17/mayor-de-blasio-3-k-all#/0 Accessed April 19, 2021

[3] New York City Department of Education. "3-K" https://www.schools.nyc.gov/enrollment/enroll-grade-by-grade/3k Accessed April 19, 2021.

[4] New York City Department of Education. "New RFP Opportunity in Targeted Zip Codes" https://infohub.nyced.org/workingwith-the-doe/early-childhood/provide-nyc-pre-k Accessed April 19, 2021.

in the quantitative analysis, and for this reason the DOE may determine that space within the Proposed Project is not needed at the time consultation occurs.

If mitigation measures are not fully effective in addressing the significant adverse impact to early childhood programs, then there may be a potentially unavoidable adverse impact (see **Chapter 22, Unavoidable Adverse Impacts**). The implementation of the mitigation measures would rely upon the direction of the NYCDOE and the ongoing monitoring that the NYCDOE must undertake to determine the appropriate mitigation measures.

Libraries

As described in **Chapter 4, Community Facilities and Services**, the Proposed Actions would result in a significant adverse impact on public libraries. The Proposed Actions would result in an incremental increase of approximately 4,797 new residents (an approximately 6.9-percent increase over the No-Action catchment area population). With the Proposed Actions, the holdings-per-resident ratio for the Spring Creek Library catchment area would decrease from 0.0714 to 0.0668 (a decrease of approximately 0.005 holdings per resident).

Per the guidance of the *CEQR Technical Manual*, a proposed project may result in a significant adverse impact to public libraries if the Proposed Project would increase a library catchment area population by 5 percent or more, compared to the conditions in the future without the Proposed Actions, and if this increase would be expected to impair the delivery of library services in the study area. Therefore, since the Spring Creek Library's catchment area population is projected to increase by approximately 6.9 percent, exceeding the 5 percent threshold cited in the *CEQR Technical Manual*, and the Proposed Project could impair the delivery of library services. However, as discussed in **Chapter 4, Community Facilities and Services**, there are other nearby libraries, including the Jamaica Bay Library, Canarsie Library, and New Lots Library, people in the study area have access to the entire BPL and NYPL system through the interlibrary loan system, and there are thousands of online resources available to card holders throughout the system. Although the Proposed Project may not affect the study area population's access to holdings due to widespread availability, it could affect computer resources, because the Branch has a limited number of computers and tablets available for public use. Furthermore, since the Proposed Project would increase the catchment area population, it could alter the demographics such that the Spring Creek Library's programming space and staffing could be impaired.

Therefore, per the guidance of the *CEQR Technical Manual*, mitigation measures would be warranted for the significant adverse impact to public libraries that would be attributable to the Proposed Project.

As the Proposed Project would be developed sequentially, the significant adverse impact first would occur (pass the threshold of a 5 percent increase in the catchment area population) when the Proposed Project completes construction of approximately 1,487 of the 2,050 units, which would introduce a population of approximately 3,480 residents to the catchment area. Based on the proposed phasing schedule, it is therefore anticipated that the significant adverse impact to public libraries would first occur during Phase 2A of the Proposed Project's construction, which is anticipated to commence in 2027.

Required mitigation measures to address the identified significant adverse impact to public libraries are under development with the BPL and will be refined between the DEIS and FEIS.

The Applicant is proposing to provide project residents with free internet access within lounge spaces and computer lab areas within all residential buildings of the Proposed Project. Furthermore, space within the PAC would be provided for use by BPL for programming and additional outdoor space within the Central Quad would be made available for BPL programming. The full range of mitigation measures ultimately implemented would rely upon input from BPL, which would undertake ongoing monitoring to determine the appropriate mitigation measures as the Proposed Project is occupied. The Applicant would consult and coordinate with BPL prior to the design of Phase 2A, when the significant adverse impact to public libraries is first expected to occur, to determine the need, practicality, and feasibility for the proposed mitigations described above.

As discussed in **Chapter 4, Community Facilities**, residents of the Spring Creek Library catchment area also reside in catchment areas for other nearby libraries, including the Jamaica Bay Library, Canarsie Library and New Lots Library as described above, and therefore would also be served by these libraries. Both the current and projected populations would also have access to the entire BPL and NYPL system through the interlibrary loan system and could have resources delivered to their nearest library branch. Finally, there are thousands of online resources available to card holders throughout the system.

If mitigation measures are not fully effective in addressing the significant adverse impact to libraries, there may be a potentially unavoidable adverse impact (see **Chapter 22, Unavoidable Adverse Impacts**). Mitigation measures would rely upon the direction of BPL and the ongoing monitoring BPL must undertake to determine the appropriate mitigation measures.

Open Space

As detailed in **Chapter 5, Open Space**, in the future with and without the Proposed Actions, the total and active open space ratios in the study area would remain below the City's planning goals. The projected reductions in active, passive and total OSRs would decrease by more than three, five and four percent, respectively, as a result of the Proposed Actions, exceeding the respective *CEQR Technical Manual* thresholds. It is expected that a combination of the new open spaces provided on-site as well as the qualitative factors would sufficiently provide access to the study area population by the proposed build year. However, there would be a temporary active open space impact during the construction period, since a substantial residential population would be introduced before the new open spaces are constructed later in the construction phasing. While there would be a temporary active open space impact, there would not be a permanent active open space impact given the new open spaces that would be provided on-site during later phases of construction.

The *CEQR Technical Manual* lists potential mitigation measures for open space impacts. These measures include, but are not limited to, creating new open space within the study area; funding for improvements, renovation, or maintenance at existing local parks; or improving existing open spaces to increase their utility or capacity to meet identified open space needs in the area, such as through the provision of additional active open space facilities. Mitigation for the identified open space impact is being explored by the Applicant, DCP, and NYC Parks and will be refined between the DEIS and FEIS. If the temporary impact cannot be fully mitigated, the Proposed Actions would result in an unmitigated temporary adverse impact on active open space.

Transportation

As discussed in **Chapter 13, Transportation**, the Proposed Project would result in significant adverse impacts at a number of locations in the study area. This section describes the mitigation measures that could reduce or eliminate significant impacts and indicates where impacts would remain unmitigated.

Traffic

Of the 13 intersections analyzed, the Proposed Project would result in significant adverse traffic impacts at nine intersections (at 15 movements) during the weekday AM peak hour, seven intersections (at 11 movements) during the weekday midday peak hour, nine intersections (at 22 movements) during the weekday PM peak hour, and seven intersections (at 15 movements) during the Saturday peak hour. A subset of seven intersections was analyzed during the Sunday peak hour and traffic impacts were identified at four intersections (eight movements) during this peak hour. **Table 20-1** summarizes the number of traffic impacts and whether they could be fully mitigated or partially mitigated, and **Table 20-2** summarizes the significantly impacted traffic movements. Details of the intersection capacity analyses, and all traffic mitigation measures are summarized in **Table 20-3** through **Table 20-6**.

Table 20-1 Traffic Impact Mitigation Summary

Intersections	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
No significant impact	4	6	4	6	3
Fully mitigated impact	3	5	4	3	0
Partially mitigated impact	0	0	3	0	0
Unmitigated impact	6	2	2	4	4

Note: Does not include three new proposed driveways – along Pennsylvania Avenue, Louisiana Avenue, and at the intersection of Flatlands Avenue and Sheffield Avenue – which would not be significantly impacted. Includes 12 signalized intersections and 1 unsignalized intersection for the weekday and Saturday peak hours. For the Sunday peak hour, the Mitigation condition analysis includes 7 signalized intersections and no unsignalized intersections.

Table 20-2 Summary of Significantly Impacted Traffic Movements

Intersection	Weekday AM Peak Hour	Weekday Midday Peak Hour	Weekday PM Peak Hour	Saturday Peak Hour	Sunday Peak Hour
Pennsylvania Avenue and Seaview Avenue	EB-R				
Pennsylvania Avenue and Twin Pines Drive					NB-L
Pennsylvania Avenue and Vandalia Avenue	WB-LTR NB-L	WB-LTR NB-L	WB-LTR NB-L		NB-L
Pennsylvania Avenue and Flatlands Avenue	EB-L NB-L	EB-L	EB-L EB-T WB-L	EB-L NB-L	EB-L SB-L SB-R
Pennsylvania Avenue and Cozine Avenue	EB-LTR SB-L	EB-LTR	EB-LTR	EB-LTR WB-LTR	*
Pennsylvania Avenue and Wortman Avenue			EB-LTR		*
Pennsylvania Avenue and Stanley Avenue	EB-LTR	EB-LTR	EB-LTR WB-LTR	WB-LTR	*
Pennsylvania Avenue and Linden Boulevard	WB-L NB-L NB-T	WB-L NB-L SB-L	NB-L SB-L SB-TR	NB-L	*
Louisiana Avenue and Flatlands Avenue	EB-R NB-L	EB-R NB-L	EB-R WB-L NB-L NB-TR	EB-R WB-TR NB-L NB-TR	EB-R WB-L SB-TR
Flatlands Avenue and East 108th Street	NB-LTR	NB-LTR	WB-L NB-LTR SB-LTR	WB-L NB-LTR	*
Flatlands Avenue and Rockaway Parkway	SB-LT		EB-TR WB-TR SB-LT	EB-TR WB-TR SB-LT	*
Number of impacted traffic movements	15	11	22	15	8
Number of unmitigated traffic movements	11	5	11	10	8

Notes: EB=Eastbound; WB=Westbound; NB=Northbound; SB=Southbound; L=Left turn; T=Through; R=Right turn
* = Intersection was not analyzed for the Sunday peak hour

As shown in **Table 20-1**, six of the 13 intersections would remain unmitigated during the weekday AM peak hour, two intersections would remain unmitigated during the weekday midday peak hour, five intersections would remain unmitigated during the weekday PM

peak hour (three of the five intersections could be partially mitigated), and four intersections would remain unmitigated during the Saturday peak hour. During the Sunday peak hour, four of the seven intersections would remain unmitigated.

The overall finding of the traffic mitigation analysis indicates that the majority of the 13 intersections analyzed would either not be significantly impacted or could be fully mitigated with readily implementable traffic improvement measures, including signal timing changes, parking regulation changes to gain a travel lane at key intersections, and/or lane restriping. These measures represent some of the standard traffic capacity improvements that are typically implemented by NYC DOT.

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
SIGNALIZED INTERSECTIONS														
Pennsylvania Avenue and Seaview Avenue														
Seaview Avenue	EB	LT	0.27	41.1	D	LT	0.27	46.5	D	LT	0.27	45.6	D	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 57 sec to 56 sec. EB/WB green time shifts from 40 sec to 41 sec.]
		R	0.67	51.8	D	R	0.69	57.4	E	R	0.67	56.0	E	
	WB	LTR	0.58	39.3	D	LTR	0.58	39.3	D	LTR	0.57	38.0	D	
Pennsylvania Avenue	NB	L	0.58	62.6	E	L	0.58	62.6	E	L	0.58	62.6	E	
		T	0.81	35.0	C	T	0.81	35.0	C	T	0.83	36.7	D	
	SB	L	0.22	76.7	E	L	0.22	74.5	E	L	0.22	72.9	E	
		TR	0.61	29.5	C	TR	0.67	29.9	C	TR	0.68	29.6	C	
Shore Parkway Westbound Off-Ramp	NB	TR	0.68	26.7	C	TR	0.70	27.5	C	TR	0.72	28.5	C	
Overall Intersection[2]		-	-	**33.7**	**C**	-	-	**34.5**	**C**	-	-	**34.8**	**C**	
Pennsylvania Avenue and Twin Pines Drive														
Twin Pines Drive	EB	LR	0.34	36.0	D	LR	0.36	36.5	D	LR	0.36	36.5	D	-Mitigation not required.
Pennsylvania Avenue	NB	L	0.51	15.3	B	L	0.59	25.8	C	L	0.59	26.0	C	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.75	8.0	A	T	0.77	8.3	A	T	0.77	8.2	A	
	SB	T	0.48	27.6	C	T	0.53	24.9	C	T	0.53	23.2	C	
		R	0.19	24.1	C	R	0.19	21.1	C	R	0.19	19.7	B	
Overall Intersection[2]		-	-	**16.2**	**B**	-	-	**16.5**	**B**	-	-	**15.9**	**B**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Vandalia Avenue														
Vandalia Avenue	EB	LTR	0.28	38.3	D	LTR	0.33	44.5	D	LTR	0.32	42.8	D	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to NBL/SBL phase and shift 2 sec of green time from NB/SB to EB/WB. [NB/SB green time shifts from 60 sec to 57 sec. NBL/SBL green time shifts from 8 sec to 9 sec. EB/WB green time shifts from 37 sec to 39 sec.]
	WB	LTR	0.71	48.6	D	LTR	0.82	60.8	E	LTR	0.77	52.6	D	
Pennsylvania Avenue	NB	L	0.43	46.1	D	L	0.73	60.2	E	L	0.67	51.8	D	
		T	0.90	12.4	B	T	0.91	13.2	B	T	0.95	19.0	B	
		R	0.18	3.6	A	R	0.20	4.1	A	R	0.21	5.2	A	
	SB	L	0.20	33.4	C	L	0.18	37.8	D	L	0.17	38.2	D	
		T	0.45	19.2	B	T	0.50	21.1	C	T	0.52	23.6	C	
		R	0.08	16.8	B	R	0.19	18.5	B	R	0.21	20.9	C	
Overall Intersection[2]		-	-	**19.1**	**B**	-	-	**22.2**	**C**	-	-	**24.9**	**C**	
Pennsylvania Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.54	43.5	D	L	0.95	74.5	E	L	0.95	74.5	E	**-Unmitigable.** [Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.51	39.6	D	T	0.55	34.2	C	T	0.55	34.2	C	
		R	0.12	26.3	C	R	0.36	24.2	C	R	0.36	24.2	C	
	WB	L	0.26	34.3	C	L	0.33	37.3	D	L	0.33	37.3	D	
		T	0.57	41.4	D	T	0.58	41.6	D	T	0.58	41.6	D	
		R	0.41	31.4	C	R	0.42	31.9	C	R	0.42	31.9	C	
Pennsylvania Avenue	NB	L	0.94	47.4	D	L	1.01	64.9	E	L	1.01	62.6	E	
		T	0.97	27.3	C	T	0.97	27.9	C	T	0.97	24.6	C	
		R	0.20	9.6	A	R	0.22	10.1	B	R	0.22	8.4	A	
	SB	L	0.83	66.5	E	L	0.83	65.6	E	L	0.83	65.6	E	
		T	0.59	40.3	D	T	0.64	38.7	D	T	0.64	38.7	D	
		R	0.36	37.5	D	R	0.44	37.6	D	R	0.44	37.6	D	
Overall Intersection[2]		-	-	**36.3**	**D**	-	-	**39.0**	**D**	-	-	**37.9**	**D**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Cozine Avenue														
Cozine Avenue	EB	LTR	1.05	102.2	F	LTR	1.11	121.4	F	LTR	1.11	121.4	F	-**Unmitigable.**
	WB	LTR	0.56	38.2	D	LTR	0.58	39.1	D	LTR	0.58	39.1	D	
Pennsylvania Avenue	NB	L	0.52	14.3	B	L	0.58	18.0	B	L	0.58	18.0	B	
		TR	0.87	19.1	B	TR	0.93	24.9	C	TR	0.93	24.9	C	
	SB	L	0.63	42.4	D	L	0.83	82.0	F	L	0.83	82.0	F	
		TR	0.65	14.1	B	TR	0.69	15.3	B	TR	0.69	15.3	B	
Overall Intersection[2]		-	-	**29.5**	**C**	-	-	**35.0**	**D**	-	-	**35.0**	**D**	
Pennsylvania Avenue and Wortman Avenue														
Wortman Avenue	EB	LTR	0.68	44.9	D	LTR	0.72	47.0	D	LTR	0.72	47.0	D	-Mitigation not required.
	WB	LTR	0.43	36.2	D	LTR	0.45	36.8	D	LTR	0.45	36.8	D	
Pennsylvania Avenue	NB	L	0.61	79.4	E	L	0.61	77.0	E	L	0.61	77.0	E	
		TR	0.99	22.8	C	TR	1.06	44.3	D	TR	1.06	44.3	D	
	SB	L	0.41	54.4	D	L	0.41	54.4	D	L	0.41	54.4	D	
		TR	0.63	19.0	B	TR	0.67	20.4	C	TR	0.67	20.4	C	
Overall Intersection[2]		-	-	**26.5**	**C**	-	-	**37.9**	**D**	-	-	**37.9**	**D**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Stanley Avenue														
Stanley Avenue	EB	LTR	0.89	76.6	E	LTR	1.06	119.9	F	LTR	1.06	119.9	F	-**Unmitigable.**
	WB	LTR	0.85	67.6	E	LTR	0.87	71.1	E	LTR	0.87	71.1	E	
Pennsylvania Avenue	NB	L	0.73	82.2	F	L	0.73	78.8	E	L	0.73	78.8	E	
		TR	0.86	8.3	A	TR	0.93	8.7	A	TR	0.93	8.7	A	
	SB	L	0.25	40.6	D	L	0.25	40.2	D	L	0.25	40.2	D	
		TR	0.63	34.4	C	TR	0.67	35.2	D	TR	0.67	35.2	D	
Overall Intersection[2]		-	-	**31.0**	**C**	-	-	**34.8**	**C**	-	-	**34.8**	**C**	
Pennsylvania Avenue and Linden Boulevard														
Linden Boulevard Main Line	EB	L	0.68	77.1	E	L	0.68	77.1	E	L	0.68	77.1	E	**-Unmitigable.**
		T	0.56	37.2	D	T	0.56	37.2	D	T	0.56	37.2	D	
	WB	L	0.86	106.3	F	L	0.91	115.0	F	L	0.91	115.0	F	
		T	0.96	55.4	E	T	0.96	55.4	E	T	0.96	55.4	E	
Pennsylvania Avenue	NB	L	1.23	149.5	F	L	1.32	188.2	F	L	1.32	188.2	F	
		T	1.11	107.4	F	T	1.25	167.8	F	T	1.25	167.8	F	
		R	0.22	47.2	D	R	0.24	47.3	D	R	0.24	47.3	D	
	SB	L	0.94	98.0	F	L	0.94	100.5	F	L	0.94	100.5	F	
		TR	0.80	45.6	D	TR	0.87	50.3	D	TR	0.87	50.3	D	
Linden Boulevard Eastbound Service Rd	EB	T	0.56	40.2	D	T	0.56	40.2	D	T	0.56	40.2	D	
		R	0.39	28.3	C	R	0.39	28.3	C	R	0.39	28.3	C	
Linden Boulevard Westbound Service Rd	WB	TR	0.96	76.4	E	TR	0.96	76.4	E	TR	0.96	76.4	E	
Overall Intersection[2]		-	-	**68.9**	**E**	-	-	**83.7**	**F**	-	-	**83.7**	**F**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Louisiana Avenue and Vandalia Avenue														
Vandalia Avenue	WB	LR	0.33	16.9	B	LR	0.45	16.0	B	LR	0.45	16.2	B	-Mitigation not required.
Louisiana Avenue	NB	TR	0.32	12.8	B	TR	0.35	12.6	B	TR	0.35	12.8	B	[Intersection delays change as a result of signal timing changes at nearby intersections.]
	SB	LT	0.49	11.5	B	LT	0.53	16.5	B	LT	0.53	16.5	B	
Overall Intersection[2]		-	-	**12.9**	**B**	-	-	**15.1**	**B**	-	-	**15.2**	**B**	
Louisiana Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.04	22.0	C	L	0.05	24.1	C	L	0.05	24.1	C	**-Unmitigable**
		T	0.46	23.5	C	T	0.50	24.3	C	T	0.50	24.3	C	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		R	0.37	23.2	C	R	0.89	64.6	E	R	0.89	64.6	E	
	WB	L	0.26	23.5	C	L	0.36	27.4	C	L	0.36	27.4	C	
		TR	0.56	25.4	C	TR	0.64	27.2	C	TR	0.64	27.2	C	
Louisiana Avenue	NB	L	0.64	43.5	D	L	0.94	78.0	E	L	0.94	78.2[3]	E	
		TR	0.26	36.9	D	TR	0.67	52.9	D	TR	0.67	53.0	D	
	SB	L	0.04	28.9	C	L	0.18	36.1	D	L	0.18	36.1	D	
		TR	0.16	35.4	D	TR	0.20	36.2	D	TR	0.20	36.2	D	
Overall Intersection[2]		-	-	**27.6**	**C**	-	-	**38.3**	**D**	-	-	**38.4**	**D**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Flatlands Avenue and East 108th Street														
Flatlands Avenue	EB	L	0.13	13.0	B	L	0.15	14.9	B	L	0.15	14.9	B	-Install "No Standing Anytime" regulations along the east curb of the NB approach for 75 feet to provide an additional travel lane. -Restripe the NB approach from one 20-foot wide travel lane with parking to one 10-foot wide right turn lane and one 10-foot wide shared left-through lane.
		TR	0.42	15.5	B	TR	0.45	16.1	B	TR	0.45	16.1	B	
	WB	L	0.35	16.8	B	L	0.40	19.0	B	L	0.40	19.0	B	
		TR	0.46	16.2	B	TR	0.54	17.7	B	TR	0.54	17.7	B	
East 108th Street	NB	LTR	0.99	91.8	F	LTR	1.03	100.7	F	LT	0.51	44.7	D	
		-	-	-	-	-	-	-	-	R	0.60	49.0	D	
	SB	LTR	0.55	46.2	D	LTR	0.58	48.0	D	LTR	0.49	43.7	D	
Overall Intersection[2]		-	-	**31.3**	**C**	-	-	**32.9**	**C**	-	-	**23.9**	**C**	
Flatlands Avenue and Rockaway Parkway														
Flatlands Avenue	EB	L	0.26	39.1	D	L	0.31	43.7	D	L	0.31	43.7	D	**-Unmitigable.**
		TR	0.66	36.8	D	TR	0.70	38.5	D	TR	0.70	38.5	D	
	WB	L	0.12	32.1	C	L	0.12	33.1	C	L	0.12	33.1	C	
		TR	0.77	40.9	D	TR	0.90	50.8	D	TR	0.90	50.8	D	
Rockaway Parkway	NB	L	0.46	29.9	C	L	0.48	30.9	C	L	0.48	30.9	C	
		TR	0.68	33.3	C	TR	0.68	33.3	C	TR	0.68	33.3	C	
	SB	LT	0.91	64.9	E	LT	1.04	97.7	F	LT	1.04	97.7	F	
		R	0.36	35.4	D	R	0.36	35.4	D	R	0.36	35.4	D	
Overall Intersection[2]		-	-	**41.4**	**D**	-	-	**50.3**	**D**	-	-	**50.3**	**D**	

Table 20-3 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday AM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
UNSIGNALIZED INTERSECTIONS														
Flatlands Avenue and Georgia Avenue						(SIGNALIZED)				(SIGNALIZED)				
Flatlands Avenue	EB	LT	-	1.4	A	LT	0.39	10.4	B	LT	0.39	10.4	B	-Mitigation not required
	WB	L	-	0.0	A	L	0.00	0.0	A	L	0.00	0.0	A	
		TR	-	0.0	A	TR	0.55	5.4	A	TR	0.55	5.4	A	
Georgia Access	NB	-	-	-	-	LTR	0.56	44.1	D	LTR	0.56	44.1	D	
Overall Intersection[2]		**-**	**-**	**0.3**	**A**	**-**	**-**	**11.3**	**B**	**-**	**-**	**11.3**	**B**	

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

[3] Impact worsened due to signal timing changes at nearby intersection

Denotes a significantly impacted movement

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
SIGNALIZED INTERSECTIONS														
Pennsylvania Avenue and Seaview Avenue														
Seaview Avenue	EB	LT	0.19	29.4	C	LT	0.19	36.5	D	LT	0.19	36.4	D	-Mitigation not required.
		R	0.47	34.0	C	R	0.48	42.6	D	R	0.48	42.4	D	[Intersection delays change as a result of signal timing changes at nearby intersections.]
	WB	LTR	0.48	35.8	D	LTR	0.48	35.8	D	LTR	0.48	35.8	D	
Pennsylvania Avenue	NB	L	0.42	56.9	E	L	0.42	56.9	E	L	0.42	56.9	E	
		T	0.46	22.5	C	T	0.46	22.5	C	T	0.46	22.5	C	
	SB	L	0.23	67.8	E	L	0.23	70.1	E	L	0.23	66.6	E	
		TR	0.62	27.5	C	TR	0.65	28.5	C	TR	0.65	25.7	C	
Shore Parkway Westbound Off-Ramp	NB	TR	0.35	20.1	C	TR	0.38	20.6	C	TR	0.38	20.6	C	
Overall Intersection[2]		-	-	**27.3**	**C**	-	-	**28.6**	**C**	-	-	**27.4**	**C**	
Pennsylvania Avenue and Twin Pines Drive														
Twin Pines Drive	EB	LR	0.77	51.4	D	LR	0.79	52.7	D	LR	0.79	52.7	D	-Mitigation not required.
Pennsylvania Avenue	NB	L	0.41	13.7	B	L	0.48	16.5	B	L	0.48	16.5	B	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.41	9.4	A	T	0.43	8.3	A	T	0.43	8.3	A	
	SB	T	0.50	9.9	A	T	0.52	9.5	A	T	0.52	8.2	A	
		R	0.29	7.9	A	R	0.29	7.7	A	R	0.29	7.8	A	
Overall Intersection[2]		-	-	**15.9**	**B**	-	-	**15.6**	**B**	-	-	**15.1**	**B**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Vandalia Avenue														
Vandalia Avenue	EB	LTR	0.42	42.5	D	LTR	0.50	35.1	D	LTR	0.46	30.4	C	-Modify signal timing: Shift 3 sec of green time from NB/SB phase to NBL/SBL phase and shift 3 sec of green time from NB/SB to EB/WB. [NB/SB green time shifts from 65 sec to 59 sec. NBL/SBL green time shifts from 6 sec to 9 sec. EB/WB green time shifts from 34 sec to 37 sec.]
	WB	LTR	0.74	50.8	D	LTR	0.85	64.8	E	LTR	0.77	52.0	D	
Pennsylvania Avenue	NB	L	0.94	117.3	F	L	1.46	302.0	F	L	0.98	115.1	F	
		T	0.48	6.8	A	T	0.48	7.3	A	T	0.53	9.1	A	
		R	0.21	6.2	A	R	0.24	7.0	A	R	0.27	8.6	A	
	SB	L	0.38	64.2	E	L	0.38	61.5	E	L	0.25	49.6	D	
		T	0.48	35.9	D	T	0.50	33.4	C	T	0.55	38.1	D	
		R	0.08	27.3	C	R	0.17	27.2	C	R	0.20	31.4	C	
Overall Intersection[2]		-	-	**29.1**	**C**	-	-	**39.9**	**D**	-	-	**31.5**	**C**	
Pennsylvania Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.66	50.8	D	L	0.93	65.1	E	L	0.86	53.6	D	-Modify signal timing: Shift 4 sec of green time from EB/WB phase to EBL/WBL phase. [EB/WB green time shifts from 36 sec to 32 sec. EBL/WBL green time shifts from 10 sec to 14 sec.]
		T	0.70	41.6	D	T	0.73	33.8	C	T	0.82	42.8	D	
		R	0.32	28.4	C	R	0.51	27.5	C	R	0.56	34.0	C	
	WB	L	0.44	44.1	D	L	0.54	49.2	D	L	0.49	46.3	D	
		T	0.58	38.2	D	T	0.58	38.4	D	T	0.66	43.3	D	
		R	0.44	30.9	C	R	0.46	31.5	C	R	0.51	35.5	D	
Pennsylvania Avenue	NB	L	0.55	49.5	D	L	0.59	53.6	D	L	0.59	52.0	D	
		T	0.57	28.4	C	T	0.57	27.7	C	T	0.57	25.6	C	
		R	0.30	23.3	C	R	0.33	23.4	C	R	0.33	21.0	C	
	SB	L	0.80	49.2	D	L	0.80	46.4	D	L	0.80	46.8	D	
		T	0.64	16.5	B	T	0.69	16.1	B	T	0.69	16.2	B	
		R	0.41	13.1	B	R	0.51	14.4	B	R	0.51	14.4	B	
Overall Intersection[2]		-	-	**32.4**	**C**	-	-	**32.1**	**C**	-	-	**33.5**	**C**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Cozine Avenue														
Cozine Avenue	EB	LTR	1.05	98.2	F	LTR	1.07	105.6	F	LTR	1.03	93.4	F	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 63 sec to 62 sec. EB/WB green time shifts from 37 sec to 38 sec.]
	WB	LTR	0.68	45.0	D	LTR	0.70	46.6	D	LTR	0.68	44.4	D	
Pennsylvania Avenue	NB	L	0.39	15.3	B	L	0.45	16.6	B	L	0.46	18.4	B	
		TR	0.65	12.6	B	TR	0.69	12.2	B	TR	0.70	12.9	B	
	SB	L	0.34	9.0	A	L	0.37	9.5	A	L	0.39	10.7	B	
		TR	0.70	11.7	B	TR	0.75	11.1	B	TR	0.76	12.0	B	
Overall Intersection[2]		-	-	**28.0**	**C**	-	-	**28.3**	**C**	-	-	**27.0**	**C**	
Pennsylvania Avenue and Wortman Avenue														
Wortman Avenue	EB	LTR	0.70	46.3	D	LTR	0.73	47.8	D	LTR	0.73	47.8	D	-Mitigation not required. [Intersection delays change as a result of signal timing changes at nearby intersections.]
	WB	LTR	0.42	35.7	D	LTR	0.44	36.3	D	LTR	0.44	36.3	D	
Pennsylvania Avenue	NB	L	0.56	62.4	E	L	0.56	63.5	E	L	0.56	63.6	E	
		TR	0.77	31.6	C	TR	0.81	31.6	C	TR	0.81	31.0	C	
	SB	L	0.44	70.4	E	L	0.44	67.9	E	L	0.44	67.2	E	
		TR	0.70	11.5	B	TR	0.75	13.2	B	TR	0.75	13.1	B	
Overall Intersection[2]		-	-	**27.3**	**C**	-	-	**27.9**	**C**	-	-	**27.6**	**C**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Stanley Avenue														
Stanley Avenue	EB	LTR	0.75	56.1	E	LTR	0.81	62.7	E	LTR	0.78	57.7	E	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 65 sec to 64 sec. EB/WB green time shifts from 28 sec to 29 sec.]
	WB	LTR	0.82	61.5	E	LTR	0.85	64.3	E	LTR	0.81	59.4	E	
Pennsylvania Avenue	NB	L	0.56	73.6	E	L	0.56	74.1	E	L	0.56	75.2	E	
		TR	0.65	6.1	A	TR	0.68	6.1	A	TR	0.69	6.5	A	
	SB	L	0.48	43.9	D	L	0.48	40.6	D	L	0.48	38.6	D	
		TR	0.57	25.3	C	TR	0.61	27.9	C	TR	0.62	29.1	C	
Overall Intersection[2]		-	-	**25.6**	**C**	-	-	**27.1**	**C**	-	-	**26.7**	**C**	
Pennsylvania Avenue and Linden Boulevard														
Linden Boulevard Main Line	EB	L	0.99	128.7	F	L	0.99	128.7	F	L	0.99	128.7	F	**-Unmitigable** [Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.70	40.3	D	T	0.70	40.3	D	T	0.70	40.3	D	
	WB	L	0.91	113.3	F	L	0.95	122.3	F	L	0.95	122.3	F	
		T	0.77	42.5	D	T	0.77	42.5	D	T	0.77	42.5	D	
Pennsylvania Avenue	NB	L	1.14	122.4	F	L	1.22	152.4	F	L	1.22	152.1	F	
		T	0.88	34.8	C	T	0.95	43.1	D	T	0.95	42.7	D	
		R	0.40	21.5	C	R	0.41	23.0	C	R	0.41	22.6	C	
	SB	L	0.79	64.2	E	L	0.84	73.6	E	L	0.84	73.6	E	
		TR	0.69	40.7	D	TR	0.75	43.0	D	TR	0.75	43.0	D	
Linden Boulevard Eastbound Service Rd	EB	T	0.58	40.3	D	T	0.58	40.3	D	T	0.58	40.3	D	
		R	0.46	29.6	C	R	0.46	29.6	C	R	0.46	29.6	C	
Linden Boulevard Westbound Service Rd	WB	T	1.06	100.7	F	T	1.06	100.7	F	T	1.06	100.7	F	
		R	0.20	32.5	C	R	0.20	32.5	C	R	0.20	32.5	C	
Overall Intersection[2]		-	-	**54.1**	**D**	-	-	**57.5**	**E**	-	-	**57.4**	**E**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Louisiana Avenue and Vandalia Avenue														
Vandalia Avenue	WB	LR	0.37	23.0	C	LR	0.49	26.8	C	LR	0.49	28.0	C	-Mitigation not required
Louisiana Avenue	NB	TR	0.28	7.5	A	TR	0.31	8.2	A	TR	0.31	8.2	A	[Intersection delays change as a result of signal timing changes at nearby intersections.]
	SB	LT	0.53	12.2	B	LT	0.57	18.5	B	LT	0.57	18.5	B	
Overall Intersection[2]		-	-	**13.2**	**B**	-	-	**17.6**	**B**	-	-	**17.9**	**B**	
Louisiana Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.09	21.2	C	L	0.10	22.5	C	L	0.10	22.5	C	**-Unmitigable**
		T	0.63	26.9	C	T	0.67	28.2	C	T	0.67	28.2	C	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		R	0.46	25.1	C	R	1.15	139.4	F	R	1.15	139.4	F	
	WB	L	0.38	31.5	C	L	0.52	39.2	D	L	0.52	39.2	D	
		TR	0.46	23.4	C	TR	0.51	24.3	C	TR	0.51	24.3	C	
Louisiana Avenue	NB	L	0.69	45.4	D	L	0.97	84.6	F	L	0.97	83.8	F	
		TR	0.29	37.3	D	TR	0.67	51.3	D	TR	0.67	50.5	D	
	SB	L	0.02	29.2	C	L	0.17	35.9	D	L	0.17	35.9	D	
		TR	0.13	34.8	C	TR	0.16	35.4	D	TR	0.16	35.4	D	
Overall Intersection[2]		-	-	**28.9**	**C**	-	-	**47.6**	**D**	-	-	**47.4**	**D**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Flatlands Avenue and East 108th Street														
Flatlands Avenue	EB	L	0.18	14.9	B	L	0.20	16.3	B	L	0.20	16.3	B	-Install "No Standing Anytime" regulations along the east curb of the NB approach for 75 feet to provide an additional travel lane. -Restripe the NB approach from one 20-foot wide travel lane with parking to one 10-foot wide right turn lane and one 10-foot wide shared left-through lane.
		TR	0.58	19.3	B	TR	0.63	20.4	C	TR	0.63	20.4	C	
	WB	L	0.50	27.3	C	L	0.57	33.1	C	L	0.57	33.1	C	
		TR	0.44	16.9	B	TR	0.49	17.7	B	TR	0.49	17.7	B	
East 108th Street	NB	LTR	0.96	85.1	F	LTR	1.00	94.5	F	LT	0.32	40.1	D	
		-	-	-	-	-	-	-	-	R	0.65	55.8	E	
	SB	LTR	0.65	50.2	D	LTR	0.69	52.9	D	LTR	0.55	45.0	D	
Overall Intersection[2]		-	-	**30.7**	**C**	-	-	**32.8**	**C**	-	-	**26.3**	**C**	
Flatlands Avenue and Rockaway Parkway														
Flatlands Avenue	EB	L	0.28	36.6	D	L	0.30	38.8	D	L	0.30	38.8	D	-Mitigation not required.
		TR	0.85	44.2	D	TR	0.89	47.4	D	TR	0.89	47.4	D	
	WB	L	0.19	37.6	D	L	0.20	39.0	D	L	0.20	39.0	D	
		TR	0.67	35.5	D	TR	0.73	37.4	D	TR	0.73	37.4	D	
Rockaway Parkway	NB	L	0.46	29.5	C	L	0.49	30.7	C	L	0.49	30.7	C	
		TR	0.47	28.3	C	TR	0.47	28.3	C	TR	0.47	28.3	C	
	SB	LT	0.69	45.4	D	LT	0.80	52.7	D	LT	0.80	52.7	D	
		R	0.29	34.7	C	R	0.29	34.7	C	R	0.29	34.7	C	
Overall Intersection[2]		-	-	**38.3**	**D**	-	-	**41.1**	**D**	-	-	**41.1**	**D**	

Table 20-4 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday Midday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
UNSIGNALIZED INTERSECTIONS														
Flatlands Avenue and Georgia Avenue						(SIGNALIZED)				(SIGNALIZED)				
Flatlands Avenue	EB	LT	-	1.2	A	LT	0.57	14.5	B	LT	0.57	14.5	B	-Mitigation not required
	WB	L	-	0.0	A	L	0.00	0.0	A	L	0.00	0.0	A	
		TR	-	0.0	A	TR	0.49	10.7	B	TR	0.49	10.7	B	
Georgia Access	NB	-	-	-	-	LTR	0.29	34.5	C	LTR	0.29	34.5	C	
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**14.0**	**B**	-	-	**14.0**	**B**	

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
SIGNALIZED INTERSECTIONS														
Pennsylvania Avenue and Seaview Avenue														
Seaview Avenue	EB	LT	0.23	36.0	D	LT	0.23	31.7	C	LT	0.23	31.9	C	-Mitigation not required.
		R	0.87	60.3	E	R	0.88	55.1	E	R	0.88	55.2	E	[Intersection delays change as a result of signal timing changes at nearby intersections.]
	WB	LTR	0.52	36.8	D	LTR	0.52	36.8	D	LTR	0.52	36.8	D	
Pennsylvania Avenue	NB	L	0.31	55.8	E	L	0.31	55.8	E	L	0.31	55.8	E	
		T	0.43	21.7	C	T	0.43	21.7	C	T	0.43	21.7	C	
	SB	L	0.21	50.3	D	L	0.21	51.6	D	L	0.21	49.4	D	
		TR	0.72	14.3	B	TR	0.75	16.1	B	TR	0.75	15.3	B	
Shore Parkway Westbound Off-Ramp	NB	TR	0.38	20.5	C	TR	0.44	21.3	C	TR	0.44	21.3	C	
Overall Intersection[2]		-	-	**26.0**	**C**	-	-	**25.8**	**C**	-	-	**25.5**	**C**	
Pennsylvania Avenue and Twin Pines Drive														
Twin Pines Drive	EB	LR	0.84	57.9	E	LR	0.86	60.2	D	LR	0.86	60.2	E	-Mitigation not required.
Pennsylvania Avenue	NB	L	0.51	30.1	C	L	0.64	36.0	E	L	0.64	36.0	D	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.37	22.7	C	T	0.40	21.8	C	T	0.40	21.8	C	
	SB	T	0.56	10.0	A	T	0.59	10.2	B	T	0.59	8.1	A	
		R	0.30	7.7	A	R	0.30	8.0	A	R	0.30	7.0	A	
Overall Intersection[2]		-	-	**22.4**	**C**	-	-	**22.9**	**C**	-	-	**22.0**	**C**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Vandalia Avenue														
Vandalia Avenue	EB	LTR	0.40	42.9	D	LTR	0.49	42.9	D	LTR	0.44	35.7	D	**-Partially mitigated** -Modify signal timing: Shift 3 sec of green time from NB/SB phase to NBL/SBL phase. Shift 4 sec of green time from NB/SB to EB/WB. [NB/SB green time shifts from 60 sec to 53 sec. NBL/SBL green time shifts from 9 sec to 12 sec. EB/WB green time shifts from 36 sec to 40 sec.]
	WB	LTR	0.81	58.6	E	LTR	0.97	89.6	F	LTR	0.85	61.6	E	
Pennsylvania Avenue	NB	L	0.45	46.7	D	L	0.92	97.2	F	L	0.73	59.4	E	
		T	0.53	6.2	A	T	0.56	6.5	A	T	0.63	9.3	A	
		R	0.20	5.3	A	R	0.25	6.1	A	R	0.29	8.3	A	
	SB	L	0.53	41.5	D	L	0.48	41.2	D	L	0.38	38.0	D	
		T	0.59	18.1	B	T	0.63	17.3	B	T	0.70	18.4	B	
		R	0.06	12.8	B	R	0.18	12.7	B	R	0.21	13.5	B	
Overall Intersection[2]		-	-	**20.2**	**C**	-	-	**25.6**	**C**	-	-	**22.3**	**C**	
Pennsylvania Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.55	49.7	D	L	0.81	84.1	F	L	0.75	76.8	E	**-Partially mitigated** -Modify signal timing: Shift 2 sec of green time from NB/SB phase to NBL/SBL phase. Shift 1 sec of green time from NB/SB phase to EB/WB phase. Shift 1 sec of green time from NB/SB phase to EBL/WBL phase. [NB/SB green time shifts from 45 sec to 41 sec. NBL/SBL green time shifts from 11 sec to 13 sec. EB/WB green time shifts from 33 sec to 34 sec. EBL/WBL green time shifts from 11 sec to 12 sec.]
		T	0.95	63.9	E	T	0.99	76.4	E	T	0.96	68.3	E	
		R	0.37	29.9	C	R	0.61	43.1	D	R	0.57	38.5	D	
	WB	L	0.49	53.6	D	L	0.64	60.8	E	L	0.60	56.7	E	
		T	0.72	44.6	D	T	0.73	45.0	D	T	0.71	43.4	D	
		R	0.31	28.7	C	R	0.33	29.2	C	R	0.31	26.8	C	
Pennsylvania Avenue	NB	L	0.78	39.4	D	L	0.87	53.1	D	L	0.85	48.1	D	
		T	0.55	13.2	B	T	0.55	15.3	B	T	0.60	20.8	C	
		R	0.35	13.0	B	R	0.39	16.1	B	R	0.44	22.5	C	
	SB	L	0.75	28.1	C	L	0.75	25.6	C	L	0.75	26.2	C	
		T	0.72	15.0	B	T	0.79	18.1	B	T	0.87	25.6	C	
		R	0.52	14.3	B	R	0.68	19.9	B	R	0.76	28.2	C	
Overall Intersection[2]		-	-	**32.9**	**C**	-	-	**39.5**	**D**	-	-	**39.9**	**D**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Cozine Avenue														
Cozine Avenue	EB	LTR	1.10	113.9	F	LTR	1.14	126.8	F	LTR	1.09	110.8	F	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 64 sec to 63 sec. EB/WB green time shifts from 39 sec to 40 sec.]
	WB	LTR	0.73	45.5	D	LTR	0.77	48.3	D	LTR	0.74	45.7	D	
Pennsylvania Avenue	NB	L	0.36	17.2	B	L	0.45	21.3	C	L	0.47	21.7	C	
		TR	0.57	12.9	B	TR	0.61	12.9	B	TR	0.62	11.7	B	
	SB	L	0.35	9.8	A	L	0.39	9.8	A	L	0.40	10.1	B	
		TR	0.74	16.8	B	TR	0.81	16.7	B	TR	0.82	17.0	B	
Overall Intersection[2]		-	-	**33.7**	**C**	-	-	**35.2**	**D**	-	-	**32.3**	**C**	
Pennsylvania Avenue and Wortman Avenue														
Wortman Avenue	EB	LTR	0.88	62.1	E	LTR	0.92	67.8	E	LTR	0.89	61.9	E	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 56 sec to 55 sec. EB/WB green time shifts from 37 sec to 38 sec.]
	WB	LTR	0.63	42.7	D	LTR	0.68	45.5	D	LTR	0.66	43.4	D	
Pennsylvania Avenue	NB	L	0.57	60.4	E	L	0.57	62.0	E	L	0.57	61.2	E	
		TR	0.64	27.2	C	TR	0.69	23.6	C	TR	0.70	25.8	C	
	SB	L	0.55	73.8	E	L	0.55	75.7	E	L	0.55	76.6	E	
		TR	0.75	13.5	B	TR	0.82	15.3	B	TR	0.83	16.2	B	
Overall Intersection[2]		-	-	**29.3**	**C**	-	-	**29.4**	**C**	-	-	**29.6**	**C**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Stanley Avenue														
Stanley Avenue	EB	LTR	0.75	55.0	D	LTR	0.81	60.7	E	LTR	0.77	56.2	E	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 65 sec to 64 sec. EB/WB green time shifts from 28 sec to 29 sec.]
	WB	LTR	0.89	72.4	E	LTR	0.92	79.4	E	LTR	0.88	70.8	E	
Pennsylvania Avenue	NB	L	0.57	57.5	E	L	0.57	57.8	E	L	0.57	58.1	E	
		TR	0.55	12.2	B	TR	0.58	13.0	B	TR	0.59	13.0	B	
	SB	L	0.50	62.6	E	L	0.50	65.1	E	L	0.50	64.0	E	
		TR	0.69	13.7	B	TR	0.74	13.5	B	TR	0.76	15.9	B	
Overall Intersection[2]		-	-	**25.0**	**C**	-	-	**26.0**	**C**	-	-	**25.8**	**C**	
Pennsylvania Avenue and Linden Boulevard														
Linden Boulevard Main Line	EB	L	0.75	82.3	F	L	0.75	82.3	F	L	0.75	82.3	F	**-Unmitigable** -Modify offset from 44 sec to 46 sec. Signal timing changes needed to accommodate measures identified at nearby intersections. [Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	1.02	70.8	E	T	1.02	70.8	E	T	1.02	70.8	E	
	WB	L	0.87	101.6	F	L	0.87	101.6	F	L	0.87	101.6	F	
		T	0.58	37.4	D	T	0.58	37.4	D	T	0.58	37.4	D	
Pennsylvania Avenue	NB	L	1.13	142.3	F	L	1.27	199.1	F	L	1.27	198.2	F	
		T	0.71	48.9	D	T	0.77	52.3	D	T	0.77	53.4	D	
		R	0.33	41.9	D	R	0.33	41.6	D	R	0.33	42.7	D	
	SB	L	0.72	55.3	E	L	0.77	62.4	E	L	0.77	62.4	E	
		TR	0.84	47.2	D	TR	0.94	58.0	E	TR	0.94	58.0	E	
Linden Boulevard Eastbound Service Rd	EB	T	0.80	50.6	D	T	0.80	50.6	D	T	0.80	50.6	D	
		R	0.54	31.6	C	R	0.54	31.6	C	R	0.54	31.6	C	
Linden Boulevard Westbound Service Rd	WB	T	1.09	107.9	F	T	1.09	107.9	F	T	1.09	107.9	F	
		R	0.18	32.1	C	R	0.18	32.1	C	R	0.18	32.1	C	
Overall Intersection[2]		-	-	**63.4**	**E**	-	-	**67.9**	**E**	-	-	**68.0**	**E**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Louisiana Avenue and Vandalia Avenue														
Vandalia Avenue	WB	LR	0.30	16.0	B	LR	0.48	19.4	B	LR	0.48	18.9	B	-Mitigation not required.
Louisiana Avenue	NB	TR	0.28	9.3	A	TR	0.33	9.3	A	TR	0.33	9.4	A	[Intersection delays change as a result of signal timing changes at nearby intersections.]
	SB	LT	0.75	17.4	B	LT	0.79	15.5	B	LT	0.79	15.5	B	
Overall Intersection[2]		-	-	**15.2**	**B**	-	-	**14.7**	**B**	-	-	**14.7**	**B**	
Louisiana Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.34	34.6	C	L	0.38	38.9	D	L	0.38	38.9	D	**-Unmitigable**
		T	0.72	29.7	C	T	0.79	32.5	C	T	0.79	32.5	C	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		R	0.36	23.0	C	R	1.14	141.3	F	R	1.14	141.3	F	
	WB	L	0.46	39.9	D	L	0.69	56.4	E	L	0.69	56.4	E	
		TR	0.64	27.1	C	TR	0.71	28.9	C	TR	0.71	28.9	C	
Louisiana Avenue	NB	L	0.93	80.8	F	L	1.18	158.6	F	L	1.18	157.9	F	
		TR	0.35	38.5	D	TR	0.86	63.5	E	TR	0.86	62.9	E	
	SB	L	0.08	31.6	C	L	0.37	44.8	D	L	0.37	44.8	D	
		TR	0.65	47.7	D	TR	0.71	51.3	D	TR	0.71	51.3	D	
Overall Intersection[2]		-	-	**35.4**	**D**	-	-	**54.6**	**D**	-	-	**54.5**	**D**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Flatlands Avenue and East 108th Street														
Flatlands Avenue	EB	L	0.20	18.1	B	L	0.22	20.5	C	L	0.19	20.5	C	-Install "No Standing Anytime" regulations along the east curb of the NB approach for 75 feet to provide an additional travel lane.
		TR	0.69	21.5	C	TR	0.76	23.9	C	TR	0.81	28.5	C	
	WB	L	0.87	59.4	E	L	1.04	100.5	F	L	0.88	62.1	E	
		TR	0.56	18.4	B	TR	0.62	19.6	B	TR	0.66	22.9	C	-Restripe the NB approach from one 20-foot wide travel lane with parking to one 10-foot wide right turn lane and one 10-foot wide shared left-through lane.
East 108th Street	NB	LTR	0.87	68.2	E	LTR	0.91	74.4	E	LT	0.35	41.3	D	
		-	-	-	-	-	-	-	-	R	0.68	53.8	D	
	SB	LTR	0.88	70.9	E	LTR	0.93	81.1	F	LTR	0.74	54.9	D	-Modify signal timing: Shift 4 sec of green time from EB/WB phase to EBL/WBL phase and 1 sec of green time from NB/SB to EBL/WBL. [EB/WB green time shifts from 67 sec to 63 sec. NB/SB green time shifts from 29 sec to 28 sec. EBL/WBL green time shifts from 9 sec to 14 sec.]
Overall Intersection[2]		-	-	**33.1**	**C**	-	-	**39.0**	**D**	-	-	**33.7**	**C**	
Flatlands Avenue and Rockaway Parkway														
Flatlands Avenue	EB	L	0.36	47.6	D	L	0.37	49.5	D	L	0.38	49.8	D	**-Partially mitigated**
		TR	1.02	72.5	E	TR	1.07	89.5	F	TR	1.06	85.5	F	-Modify signal timing: Shift 2 sec of green time from EBL/WBL phase to EB/WB phase. [EBL/WBL green time shifts from 9 sec to 7 sec. EB/WB green time shifts from 38 sec to 40 sec.]
	WB	L	0.18	44.7	D	L	0.18	46.5	D	L	0.19	46.5	D	
		TR	0.89	48.0	D	TR	0.95	56.2	E	TR	0.94	54.2	D	
Rockaway Parkway	NB	L	0.51	29.8	C	L	0.56	32.4	C	L	0.56	32.4	C	
		TR	0.44	26.4	C	TR	0.44	26.4	C	TR	0.44	26.4	C	
	SB	LT	0.72	44.9	D	LT	0.87	58.8	E	LT	0.87	58.8	E	
		R	0.37	35.4	D	R	0.37	35.4	D	R	0.37	35.4	D	
Overall Intersection[2]		-	-	**52.2**	**D**	-	-	**62.7**	**E**	-	-	**60.7**	**E**	

Table 20-5 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Weekday PM Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
UNSIGNALIZED INTERSECTIONS														
Flatlands Avenue and Georgia Avenue						(SIGNALIZED)				(SIGNALIZED)				
Flatlands Avenue	EB	LT	-	1.8	A	LT	0.68	13.2	B	LT	0.68	13.2	B	-Mitigation not required
	WB	L	-	0.0	A	L	0.00	0.0	A	L	0.00	0.0	A	[Intersection delays change as a result of signal timing changes at nearby intersections.]
		TR	-	0.0	A	TR	0.50	18.0	B	TR	0.50	18.3	B	
Georgia Access	NB	-	-	-	-	LTR	0.70	54.3	D	LTR	0.70	54.3	D	
Overall Intersection[2]		-	-	**0.5**	**A**	-	-	**18.5**	**B**	-	-	**18.7**	**B**	

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
SIGNALIZED INTERSECTIONS														
Pennsylvania Avenue and Seaview Avenue														
Seaview Avenue	EB	LT	0.16	17.4	B	LT	0.16	17.4	B	LT	0.16	17.4	B	-Mitigation not required.
		R	0.60	25.5	C	R	0.61	25.9	C	R	0.61	25.9	C	
	WB	LTR	0.57	24.8	C	LTR	0.57	24.8	C	LTR	0.57	24.8	C	
Pennsylvania Avenue	NB	L	0.38	40.4	D	L	0.38	40.4	D	L	0.38	40.4	D	
		T	0.60	29.1	C	T	0.60	29.1	C	T	0.60	29.1	C	
	SB	L	0.13	54.5	D	L	0.13	54.5	D	L	0.13	54.5	D	
		TR	0.76	33.6	C	TR	0.81	35.9	D	TR	0.81	35.9	D	
Shore Parkway Westbound Off-Ramp	NB	TR	0.61	27.7	C	TR	0.68	29.5	C	TR	0.68	29.5	C	
Overall Intersection[2]		-	-	**29.4**	**C**	-	-	**30.7**	**C**	-	-	**30.7**	**C**	
Pennsylvania Avenue and Twin Pines Drive														
Twin Pines Drive	EB	LR	0.56	25.8	C	LR	0.58	26.2	C	LR	0.58	26.2	C	-Mitigation not required.
Pennsylvania Avenue	NB	L	0.51	37.8	D	L	0.63	45.9	D	L	0.63	45.9	D	
		T	0.54	23.2	C	T	0.57	25.8	C	T	0.57	25.8	C	
	SB	T	0.59	8.8	A	T	0.65	9.0	A	T	0.65	9.0	A	
		R	0.52	9.4	A	R	0.52	9.3	A	R	0.52	9.3	A	
Overall Intersection[2]		-	-	**18.6**	**B**	-	-	**20.3**	**C**	-	-	**20.3**	**C**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Vandalia Avenue														
Vandalia Avenue	EB	LTR	0.39	25.4	C	LTR	0.47	27.4	C	LTR	0.47	27.4	C	-Mitigation not required.
	WB	LTR	0.62	32.3	C	LTR	0.74	40.4	D	LTR	0.74	40.4	D	
Pennsylvania Avenue	NB	L	0.40	38.8	D	L	0.74	51.4	D	L	0.74	51.4	D	
		T	0.69	20.3	C	T	0.71	22.3	C	T	0.71	22.3	C	
		R	0.24	15.2	B	R	0.35	19.3	B	R	0.35	19.3	B	
	SB	L	0.26	44.9	D	L	0.23	43.6	D	L	0.23	43.6	D	
		T	0.59	36.8	D	T	0.65	35.2	D	T	0.65	35.2	D	
		R	0.08	29.6	C	R	0.25	31.1	C	R	0.25	31.1	C	
Overall Intersection[2]		-	-	**28.3**	**C**	-	-	**30.6**	**C**	-	-	**30.6**	**C**	
Pennsylvania Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.70	50.6	D	L	1.13	121.8	F	L	1.13	121.8	F	**-Unmitigable** [Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.75	32.1	C	T	0.78	32.3	C	T	0.78	32.3	C	
		R	0.19	18.9	B	R	0.42	25.6	C	R	0.42	25.6	C	
	WB	L	0.51	40.6	D	L	0.69	50.9	D	L	0.69	50.9	D	
		T	0.79	33.8	C	T	0.80	34.1	C	T	0.80	34.1	C	
		R	0.35	21.2	C	R	0.38	21.7	C	R	0.38	21.7	C	
Pennsylvania Avenue	NB	L	1.01	81.7	F	L	1.14	127.4	F	L	1.14	127.4	F	
		T	0.60	16.5	B	T	0.60	16.6	B	T	0.60	16.6	B	
		R	0.38	13.7	B	R	0.45	15.8	B	R	0.45	15.8	B	
	SB	L	1.15	109.4	F	L	1.17	111.1	F	L	1.17	110.7	F	
		T	0.68	13.1	B	T	0.76	15.6	B	T	0.76	15.4	B	
		R	0.68	17.5	B	R	0.91	35.4	D	R	0.91	34.9	C	
Overall Intersection[2]		-	-	**33.5**	**C**	-	-	**41.1**	**D**	-	-	**41.0**	**D**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Cozine Avenue														
Cozine Avenue	EB	LTR	1.29	185.0	F	LTR	1.35	207.2	F	LTR	1.27	172.4	F	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 46 sec to 45 sec. EB/WB green time shifts from 24 sec to 25 sec.]
	WB	LTR	1.01	79.9	E	LTR	1.06	95.4	F	LTR	1.01	78.6	E	
Pennsylvania Avenue	NB	L	0.59	25.5	C	L	0.72	36.1	D	L	0.77	43.6	D	
		TR	0.58	9.0	A	TR	0.63	8.6	A	TR	0.65	9.4	A	
	SB	L	0.37	9.5	A	L	0.43	10.8	B	L	0.44	11.7	B	
		TR	0.74	13.6	B	TR	0.80	14.7	B	TR	0.82	15.3	B	
Overall Intersection[2]		-	-	**46.0**	**D**	-	-	**50.1**	**D**	-	-	**43.9**	**D**	
Pennsylvania Avenue and Wortman Avenue														
Wortman Avenue	EB	LTR	0.66	33.6	C	LTR	0.69	35.0	C	LTR	0.69	35.0	C	-Mitigation not required. [Intersection delays change as a result of signal timing changes at nearby intersections.]
	WB	LTR	0.55	29.5	C	LTR	0.59	30.8	C	LTR	0.59	30.8	C	
Pennsylvania Avenue	NB	L	0.51	36.7	D	L	0.51	36.4	D	L	0.51	37.0	D	
		TR	0.75	25.7	C	TR	0.81	29.4	C	TR	0.81	29.8	C	
	SB	L	0.59	42.6	D	L	0.59	41.3	D	L	0.59	41.1	D	
		TR	0.81	28.3	C	TR	0.88	32.6	C	TR	0.88	32.6	C	
Overall Intersection[2]		-	-	**28.6**	**C**	-	-	**31.8**	**C**	-	-	**32.0**	**C**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Stanley Avenue														
Stanley Avenue	EB	LTR	0.76	39.8	D	LTR	0.84	47.4	D	LTR	0.80	42.6	D	-Modify signal timing: Shift 1 sec of green time from NB/SB phase to EB/WB phase. [NB/SB green time shifts from 38 sec to 37 sec. EB/WB green time shifts from 28 sec to 29 sec.]
	WB	LTR	0.96	65.4	E	LTR	1.00	75.1	E	LTR	0.96	63.1	E	
Pennsylvania Avenue	NB	L	0.53	64.1	E	L	0.53	64.3	E	L	0.53	64.3	E	
		TR	0.69	10.4	B	TR	0.75	11.2	B	TR	0.76	11.7	B	
	SB	L	0.45	25.9	C	L	0.45	25.1	C	L	0.45	25.1	C	
		TR	0.76	37.5	D	TR	0.82	40.6	D	TR	0.84	42.0	D	
Overall Intersection[2]		-	-	**33.1**	**C**	-	-	**36.4**	**D**	-	-	**34.8**	**C**	
Pennsylvania Avenue and Linden Boulevard														
Linden Boulevard Main Line	EB	L	0.79	84.0	F	L	0.79	84.0	F	L	0.79	84.0	F	**-Unmitigable** [Intersection delays change as a result of signal timing changes at nearby intersections.]
		T	0.76	33.8	C	T	0.76	33.8	C	T	0.76	33.8	C	
	WB	L	0.95	115.8	F	L	0.96	118.0	F	L	0.96	118.0	F	
		T	0.73	32.8	C	T	0.73	32.8	C	T	0.73	32.8	C	
Pennsylvania Avenue	NB	L	1.14	116.5	F	L	1.26	166.3	F	L	1.26	166.0	F	
		T	0.71	47.5	D	T	0.81	50.9	D	T	0.81	50.9	D	
		R	0.36	45.0	D	R	0.36	45.2	D	R	0.36	45.4	D	
	SB	L	0.68	42.0	D	L	0.75	48.9	D	L	0.75	48.9	D	
		TR	0.82	38.1	D	TR	0.91	46.1	D	TR	0.91	46.1	D	
Linden Boulevard Eastbound Service Rd	EB	T	0.62	34.2	C	T	0.62	34.2	C	T	0.62	34.2	C	
		R	0.47	24.5	C	R	0.47	24.5	C	R	0.47	24.5	C	
Linden Boulevard Westbound Service Rd	WB	TR	0.82	46.2	D	TR	0.82	46.2	D	TR	0.82	46.2	D	
Overall Intersection[2]		-	-	**44.6**	**D**	-	-	**49.6**	**D**	-	-	**49.6**	**D**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Louisiana Avenue and Vandalia Avenue														
Vandalia Avenue	WB	LR	0.36	17.9	B	LR	0.54	21.1	C	LR	0.54	21.1	C	-Mitigation not required
Louisiana Avenue	NB	TR	0.31	9.2	A	TR	0.35	9.6	A	TR	0.35	9.6	A	
	SB	LT	0.69	15.6	B	LT	0.74	17.2	B	LT	0.74	17.2	B	
Overall Intersection[2]		-	-	**14.3**	**B**	-	-	**16.0**	**B**	-	-	**16.0**	**B**	
Louisiana Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.28	37.6	D	L	0.28	39.3	D	L	0.28	39.3	D	**-Unmitigable**
		T	0.79	32.6	C	T	0.88	37.8	D	T	0.88	37.8	D	
		R	0.40	25.2	C	R	1.48	283.9	F	R	1.48	283.9	F	
	WB	L	0.48	37.7	D	L	0.68	49.4	D	L	0.68	49.4	D	
		TR	0.97	50.2	D	TR	1.07	77.1	E	TR	1.07	77.1	E	
Louisiana Avenue	NB	L	0.88	56.4	E	L	1.10	111.3	F	L	1.10	111.3	F	
		TR	0.40	29.0	C	TR	0.90	59.7	E	TR	0.90	59.7	E	
	SB	L	0.13	21.9	C	L	0.35	31.1	C	L	0.35	31.1	C	
		TR	0.67	36.9	D	TR	0.72	39.5	D	TR	0.72	39.5	D	
Overall Intersection[2]		-	-	**41.1**	**D**	-	-	**73.3**	**E**	-	-	**73.3**	**E**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Flatlands Avenue and East 108th Street														
Flatlands Avenue	EB	L	0.30	29.3	C	L	0.33	33.5	C	L	0.27	30.0	C	Install "No Standing Anytime" regulations along the east curb of the NB approach for 75 feet to provide an additional travel lane. -Restripe the NB approach from one 20-foot wide travel lane with parking to one 10-foot wide right turn lane and one 10-foot wide shared left-through lane. -Modify signal timing: Shift 2 sec of green time from NB/SB phase to EBL/WBL phase. Shift 1 sec of green time from EB/WB phase to EBL/WBL phase. [NB/SB green time shifts from 29 sec to 27 sec. EB/WB green time shifts from 37 sec to 36 sec. EBL/WBL green time shifts from 9 sec to 12 sec.]
		TR	0.74	26.3	C	TR	0.84	30.7	C	TR	0.86	33.0	C	
	WB	L	1.11	115.5	F	L	1.32	197.5	F	L	1.12	116.3	F	
		TR	0.82	29.5	C	TR	0.93	38.1	D	TR	0.95	42.8	D	
East 108th Street	NB	LTR	0.98	68.1	E	LTR	1.02	78.7	E	LT	0.36	27.1	C	
		-	-	-	-	-	-	-	-	R	0.83	48.1	D	
	SB	LTR	0.62	31.9	C	LTR	0.65	33.2	C	LTR	0.58	31.7	C	
Overall Intersection[2]		-	-	**43.2**	**D**	-	-	**57.0**	**E**	-	-	**45.7**	**D**	

Table 20-6 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Saturday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Flatlands Avenue and Rockaway Parkway														
Flatlands Avenue	EB	L	0.28	37.7	D	L	0.28	37.7	D	L	0.28	37.7	D	- **Unmitigable.**
		TR	1.12	101.5	F	TR	1.18	125.1	F	TR	1.18	125.1	F	
	WB	L	0.16	35.2	D	L	0.16	36.6	D	L	0.16	36.6	D	
		TR	1.05	76.4	E	TR	1.15	114.1	F	TR	1.15	114.1	F	
Rockaway Parkway	NB	L	0.67	32.2	C	L	0.74	38.2	D	L	0.74	38.2	D	
		TR	0.53	22.7	C	TR	0.53	22.7	C	TR	0.53	22.7	C	
	SB	LT	0.99	75.3	E	LT	1.15	126.9	F	LT	1.15	126.9	F	
		R	0.20	27.0	C	R	0.20	27.0	C	R	0.20	27.0	C	
Overall Intersection[2]		-	-	**72.8**	**E**	-	-	**100.8**	**F**	-	-	**100.8**	**F**	
UNSIGNALIZED INTERSECTIONS														
Flatlands Avenue and Georgia Avenue						**(SIGNALIZED)**				**(SIGNALIZED)**				
Flatlands Avenue	EB	LT	-	1.2	A	LT	0.66	13.2	B	LT	0.66	13.2	B	-Mitigation not required.
	WB	L	-	0.0	A	L	0.00	0.0	A	L	0.00	0.0	A	
		TR	-	0.0	A	TR	0.63	11.7	B	TR	0.63	11.7	B	
Georgia Access	NB	-	-	-	-	LTR	0.86	53.2	D	LTR	0.86	53.2	D	
Overall Intersection[2]		-	-	**0.3**	**A**	-	-	**16.9**	**B**	-	-	**16.9**	**B**	

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Table 20-7 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
SIGNALIZED INTERSECTIONS														
Pennsylvania Avenue and Seaview Avenue														
Seaview Avenue	EB	LT	0.07	16.4	B	LT	0.07	16.4	B	LT	0.07	16.4	B	-Mitigation not required.
		R	0.42	21.3	C	R	0.44	21.7	C	R	0.44	21.7	C	
	WB	LTR	0.29	19.1	B	LTR	0.30	19.2	B	LTR	0.30	19.2	B	
Pennsylvania Avenue	NB	L	0.30	40.0	D	L	0.30	40.0	D	L	0.30	40.0	D	
		T	1.04	75.5	E	T	1.04	75.5	E	T	1.04	75.5	E	
	SB	L	0.07	54.9	D	L	0.07	56.6	E	L	0.07	56.6	E	
		TR	0.95	47.3	D	TR	0.99	53.7	D	TR	0.99	53.7	D	
Shore Parkway Westbound Off-Ramp	NB	TR	0.44	24.6	C	TR	0.51	25.6	C	TR	0.51	25.6	C	
Overall Intersection[2]		-	-	**46.0**	**D**	-	-	**48.1**	**D**	-	-	**48.1**	**D**	
Pennsylvania Avenue and Twin Pines Drive														
Twin Pines Drive	EB	LR	0.36	21.8	C	LR	0.37	22.0	C	LR	0.37	22.0	C	**-Unmitigable**
Pennsylvania Avenue	NB	L	0.96	90.4	F	L	1.33	220.6	F	L	1.33	220.6	F	
		T	0.69	30.6	C	T	0.69	30.8	C	T	0.69	30.8	C	
	SB	T	0.75	9.2	A	T	0.79	11.1	B	T	0.79	11.1	B	
		R	0.36	6.7	A	R	0.34	7.6	A	R	0.34	7.6	A	
Overall Intersection[2]		-	-	**26.0**	**C**	-	-	**43.0**	**D**	-	-	**43.0**	**D**	

Table 20-7 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Pennsylvania Avenue and Vandalia Avenue														
Vandalia Avenue	EB	LTR	0.24	22.9	C	LTR	0.30	24.0	C	LTR	0.30	24.0	C	**-Unmitigable**
	WB	LTR	0.42	26.5	C	LTR	0.54	30.4	C	LTR	0.54	30.4	C	
Pennsylvania Avenue	NB	L	1.01	101.2	F	L	1.69	364.3	F	L	1.69	364.3	F	
		T	0.70	26.5	C	T	0.64	25.6	C	T	0.64	25.6	C	
		R	0.19	21.2	C	R	0.26	22.5	C	R	0.26	22.5	C	
	SB	L	0.12	39.5	D	L	0.12	40.9	D	L	0.12	40.9	D	
		T	0.71	29.5	C	T	0.73	32.0	C	T	0.73	32.0	C	
		R	0.39	25.1	C	R	0.46	30.7	C	R	0.46	30.7	C	
Overall Intersection[2]		-	-	**31.9**	**C**	-	-	**63.6**	**E**	-	-	**63.6**	**E**	
Pennsylvania Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	1.15	123.4	F	L	1.34	186.5	F	L	1.34	186.5	F	**-Unmitigable**
		T	0.80	34.9	C	T	0.85	36.1	D	T	0.85	36.1	D	
		R	0.93	53.0	D	R	0.84	38.1	D	R	0.84	38.1	D	
	WB	L	0.46	36.8	D	L	0.69	49.1	D	L	0.69	49.1	D	
		T	0.43	25.4	C	T	0.45	25.7	C	T	0.45	25.7	C	
		R	0.31	20.8	C	R	0.39	22.5	C	R	0.39	22.5	C	
Pennsylvania Avenue	NB	L	1.06	92.7	F	L	0.77	52.4	D	L	0.77	52.4	D	
		T	0.64	15.1	B	T	0.64	28.9	C	T	0.64	28.9	C	
		R	0.29	10.4	B	R	0.40	27.6	C	R	0.40	27.6	C	
	SB	L	0.96	81.0	F	L	1.02	94.9	F	L	1.02	94.9	F	
		T	0.60	28.3	C	T	0.71	30.9	C	T	0.71	30.9	C	
		R	0.60	35.4	D	R	1.00	92.1	F	R	1.00	92.1	F	
Overall Intersection[2]		-	-	**45.1**	**D**	-	-	**54.3**	**D**	-	-	**54.3**	**D**	

Table 20-7 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action				2031 With-Action				2031 Mitigation				Mitigation Measures
		Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	Mvt	V/C	Ctrl Delay[1]	LOS	
Louisiana Avenue and Vandalia Avenue														
Vandalia Avenue	WB	LR	0.75	28.9	C	LR	0.78	30.9	C	LR	0.78	30.9	C	-Mitigation not required
Louisiana Avenue	NB	TR	0.39	10.1	B	TR	0.48	11.2	B	TR	0.48	11.2	B	
	SB	LT	0.50	11.6	B	LT	0.55	12.5	B	LT	0.55	12.5	B	
Overall Intersection[2]		-	-	**16.5**	**B**	-	-	**17.4**	**B**	-	-	**17.4**	**B**	
Louisiana Avenue and Flatlands Avenue														
Flatlands Avenue	EB	L	0.11	22.3	C	L	0.15	28.7	C	L	0.15	28.7	C	**-Unmitigable**
		T	0.91	41.3	D	T	0.91	41.7	D	T	0.91	41.7	D	
		R	0.80	57.3	E	R	1.32	202.9	F	R	1.32	202.9	F	
	WB	L	0.62	45.0	D	L	1.27	186.1	F	L	1.27	186.1	F	
		TR	0.61	27.0	C	TR	0.85	36.2	D	TR	0.85	36.2	D	
Louisiana Avenue	NB	L	0.90	61.2	E	L	0.75	51.0	D	L	0.75	51.0	D	
		TR	1.30	184.3	F	TR	0.99	75.1	E	TR	0.99	75.1	E	
	SB	L	1.54	296.5	F	L	0.63	40.5	D	L	0.63	40.5	D	
		TR	0.73	40.9	D	TR	1.00	79.6	E	TR	1.00	79.6	E	
Overall Intersection[2]		-	-	**91.9**	**F**	-	-	**71.2**	**E**	-	-	**71.2**	**E**	

Table 20-7 Year 2031 No-Action vs. With-Action vs Mitigation Traffic Levels of Service – Sunday Peak Hour

Intersection & Approach		2031 No-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 With-Action Mvt	V/C	Ctrl Delay[1]	LOS	2031 Mitigation Mvt	V/C	Ctrl Delay[1]	LOS	Mitigation Measures
UNSIGNALIZED INTERSECTIONS														
Flatlands Avenue and Georgia Avenue						(SIGNALIZED)				(SIGNALIZED)				
Flatlands Avenue	EB	LT	-	4.7	A	LT	0.90	32.9	C	LT	0.90	32.9	C	-Mitigation not required.
	WB	L	-	0.0	A	L	0.62	18.5	B	L	0.62	18.5	B	
		TR	-	0.0	A	TR	0.62	18.5	B	TR	0.62	18.5	B	
Georgia Access	NB	LTR	-	138.4	F	LT	0.71	27.7	C	LT	0.71	27.7	C	
		-	-	-	-	R	0.95	54.8	D	R	0.95	54.8	D	
Overall Intersection[2]		-	-	**16.9**	**C**	-	-	**28.6**	**C**	-	-	**28.6**	**C**	

[1] Control delay is measured in seconds per vehicle.

[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

Denotes a significantly impacted movement

Pennsylvania Avenue Corridor

Six of the eight intersections analyzed along Pennsylvania Avenue would be significantly impacted during the weekday AM and PM peak hours, five intersections would be significantly impacted during the weekday midday peak hour, and four intersections would be significantly impacted during the Saturday peak hour. Three of the four intersections analyzed along Pennsylvania Avenue during the Sunday peak hour would be significantly impacted. Of the eight intersections along Pennsylvania Avenue that would be significantly impacted during at least one peak hour, three intersections could be fully mitigated during each of the peak hours analyzed. The following intersections could not be fully mitigated:

- Pennsylvania Avenue and Twin Pines Drive could not be mitigated during the Sunday peak hour;
- Pennsylvania Avenue and Vandalia Avenue could not be mitigated during the Sunday peak hour and could only be partially mitigated during the weekday PM peak hour;
- Pennsylvania Avenue and Flatlands Avenue could not be mitigated during the weekday AM, Saturday, and Sunday peak hours and could only be partially mitigated during the weekday PM peak hour;
- Pennsylvania Avenue and Cozine Avenue could not be mitigated during the weekday AM peak hour;
- Pennsylvania Avenue and Stanley Avenue could not be mitigated during the weekday AM peak hour;
- Pennsylvania Avenue and Linden Boulevard could not be mitigated during the weekday AM, midday, PM, and Saturday peak hours.

Pennsylvania Avenue and Seaview Avenue

This intersection would be significantly impacted during the weekday AM peak hour (the eastbound right turn movement would be impacted) and could be mitigated with signal timing modifications.

Pennsylvania Avenue and Twin Pines Drive

This intersection would be significantly impacted during the Sunday peak hour (the northbound left turn movement would be impacted). This impact could not be mitigated.

Pennsylvania Avenue and Vandalia Avenue

Significant impacts would occur at this intersection during the weekday AM, midday, PM, and, and Sunday peak hours. These impacts could be fully mitigated with signal timing modifications during the weekday AM and midday peak hours. During the weekday PM peak hour the westbound approach could be mitigated with signal timing modifications. During both the weekday PM and Sunday peak hours the northbound left turn movement impact could not be mitigated.

Pennsylvania Avenue and Flatlands Avenue

Significant impacts would occur at this intersection during all five peak hours; significant impacts during the weekday midday peak hour could be fully mitigated and weekday PM

peak hour impacts could be partially mitigated with signal timing modifications. Significant impacts could not be mitigated during the weekday AM, Saturday, and Sunday peak hours.

Pennsylvania Avenue and Cozine Avenue

Significant impacts at this intersection would occur during the weekday AM, midday, PM, and Saturday peak hours and could be fully mitigated during the weekday midday, PM, and Saturday peak hours with signal timing modifications. Impacts during the weekday AM peak hour could not be mitigated.

Pennsylvania Avenue and Wortman Avenue

Significant impacts at this intersection would occur along the eastbound approach during the weekday PM peak hour and could be fully mitigated with signal timing modifications.

Pennsylvania Avenue and Stanley Avenue

This intersection would be significantly impacted during the weekday AM, midday, PM, and Saturday peak hours and could be fully mitigated during the weekday midday, PM, and Saturday peak hours with signal timing modifications. Impacts during the weekday AM peak hour could not be mitigated.

Pennsylvania Avenue and Linden Boulevard

Significant impacts would occur at this intersection during the weekday AM, midday, PM, and Saturday peak hours and could not be mitigated. Signal timing offsets would be needed during the weekday PM peak hour to accommodate proposed measures at nearby intersections.

Louisiana Avenue Corridor

Two intersections were analyzed along Louisiana Avenue – at its intersection with Flatlands Avenue and with Vandalia Avenue. The intersection of Louisiana Avenue and Flatlands Avenue would be significantly impacted during all five peak hours analyzed and could not be mitigated. The intersection of Louisiana Avenue and Vandalia Avenue would not be significantly impacted during any of the five analysis peak hours.

Flatlands Avenue Corridor

Two of the three intersections analyzed along Flatlands Avenue (not including the previously discussed intersections of Flatlands Avenue with Pennsylvania Avenue and with Louisiana Avenue) would be significantly impacted during at least one peak hour. The intersection of Flatlands Avenue and Georgia Avenue would not be impacted.

Flatlands Avenue and East 108th Street

This intersection would be significantly impacted during the weekday AM, midday, PM, and Saturday peak hours and could be mitigated with the following measures:

› Install "No Standing Anytime" regulations along the east curb of the northbound East 108th Street approach for 75 feet from the intersection to provide an additional travel

lane (no parking spaces would be lost);

- Restripe the northbound East 108th Street approach from one 20-foot wide travel lane with parking to one 10-foot wide shared left-through lane and one 10-foot wide right turn lane;
- Modify signal timing during the weekday PM and Saturday peak hours.

Flatlands Avenue and Rockaway Parkway

Significant impacts at this intersection would occur during the weekday AM, PM, and Saturday peak hours. Significant impacts during the weekday PM peak hour could be partially mitigated with signal timing modifications. Significant impacts during the weekday AM and Saturday peak hours could not be mitigated.

Implementation

Each of the traffic capacity improvements described above fall within the jurisdiction of NYC DOT for implementation. The implementation of these measures would not result in the loss of any parking or "standing" spaces. If, prior to implementation, NYC DOT determines that an identified mitigation measure is infeasible, an alternative and equivalent mitigation measure will be evaluated, if possible.

Subway

As discussed in **Chapter 13, Transportation,** subway station elements at the Rockaway Parkway L subway station were analyzed during the AM and PM commuter peak hours and significant impacts were identified at the Glenwood Avenue fare control area during the AM peak hour. Measures to mitigate this impact could potentially include the installation of additional turnstiles. The practicability of implementing this measure, as well as measures to prevent prevalent fare evasion at this fare control area, will be evaluated in consultation with New York City Transit between the Draft EIS and Final EIS.

Bus

As discussed in **Chapter 13, Transportation,** the Proposed Project would result in a capacity shortfall for the B82 bus route during the AM peak hour (93 spaces in the westbound direction), B82 SBS bus route during the AM peak hour (two spaces in the westbound direction) and PM peak hour (56 spaces in the eastbound direction), and the B83 bus route during the AM peak hour (107 spaces in the northbound direction, 12 spaces in the southbound direction) and PM peak hour (64 spaces in the northbound direction, 75 spaces in the southbound direction).

As detailed in **Table 20-8**, impacts to the B82 bus route could be mitigated with the addition of two standard buses in the westbound direction during the AM peak hour. Impacts to the B82 SBS bus route could be mitigated with the addition of one standard bus in the westbound direction during the AM peak hour, and two standard buses in the eastbound direction during the PM peak hour. Impacts to the B83 bus route could be mitigated with the addition of three standard buses in the northbound direction and one standard bus in the southbound direction during the AM peak hour, and two standard buses in each direction

during the PM peak hour. The general policy of NYCT is to provide additional bus service where demand warrants, taking into account financial and operational constraints.

Table 20-8 With-Action with Mitigation Bus Analysis

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	Project Increment	With-Action Available Capacity	Additional Peak Hour Buses Needed to Accommodate Project-Generated Demand	Available Capacity With Mitigation
AM	B82	EB	Glenwood Rd & Rockaway Pkwy	6	153	91	0	91
		WB	Glenwood Rd & E 102 St	7	334	-93	2	15
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	10	99	208	0	208
		WB	Flatlands Av & E 105 St	9	215	-2	1	52
	B83	NB	Van Siclen Ave & Hegeman Ave	17	124	-107	3	55
		SB	Pennsylvania Av & Livonia Av	7	56	-12	1	42
PM	B82	EB	Glenwood Rd & Rockaway Pkwy	8	279	4	0	4
		WB	Glenwood Rd & E 102 St	6	215	16	0	16
	B82 SBS	EB	Glenwood Rd & Rockaway Pkwy	6	180	-56	2	52
		WB	Flatlands Av & E 105 St	5	139	34	0	34
	B83	NB	Van Siclen Ave & Hegeman Ave	7	80	-64	2	44
		SB	New Lots Av & Pennsylvania Av	19	103	-75	2	33

Pedestrians

As discussed in **Chapter 13, Transportation,** the Proposed Project would result in significant impacts at one pedestrian element (one crosswalk) during the weekday AM and midday peak hours, two pedestrian elements (two crosswalks) during the weekday PM peak hour, four pedestrian elements (three crosswalks and one sidewalk) during the Saturday peak hour, and 12 pedestrian elements (five crosswalks, three sidewalks, and four corners) during the Sunday peak hour. A total of 36 pedestrian elements were analyzed for the weekday AM, midday, PM, and Saturday peak hours, and 14 pedestrian elements along the Development Site frontages were analyzed for the Sunday peak hour. Potential

improvements that could mitigate the significant impacts were reviewed and determined that the pedestrian impacts could not be mitigated with typical improvement measures.

Table 20-9 summarizes the significantly impacted pedestrian elements and whether they could be mitigated. Detailed pedestrian levels of service and mitigation measures are summarized in **Table 20-10, Table 20-11,** and **Table 20-12**. As described above, traffic mitigation measures such as signal timing modifications were identified at study area locations that would change pedestrian operations. A review of the effect of these measures on the pedestrian analysis showed that the traffic mitigation measures would not result in changes to the pedestrian mitigation findings and would not result in additional significant pedestrian impacts.

Table 20-9 Summary of Elements with Significant Adverse Pedestrian Impacts

Peak Hour	Elements Analyzed	Elements with No Significant Impacts	Elements with Significant Impacts	Unmitigated Elements
Sidewalks				
Weekday AM	9	9	0	0
Weekday Midday	9	9	0	0
Weekday PM	9	9	0	0
Saturday	9	8	1	1
Sunday	3	0	3	3
Crosswalks				
Weekday AM	14	13	1	1
Weekday Midday	14	13	1	1
Weekday PM	14	12	2	2
Saturday	14	11	3	3
Sunday	6	1	5	5
Corners				
Weekday AM	13	13	0	0
Weekday Midday	13	13	0	0
Weekday PM	13	13	0	0
Saturday	13	13	0	0
Sunday	5	1	4	4

Table 20-10 Sidewalk Impact Mitigation Summary

Intersection	No-Action		With-Action		Mitigation		Mitigation Measures
	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	
Saturday Peak Hour							
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	514.6	B	38.8	D	38.8	D	**Unmitigable Impact**
Sunday Peak Hour							
Flatlands Avenue between Pennsylvania Avenue and Louisiana Avenue (south side)	58.6	C	34.6	D	34.6	D	**Unmitigable Impact**
Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue (west side)	222.8	B	33.0	D	33.0	D	**Unmitigable Impact**
Louisiana Avenue between Flatlands Avenue and Vandalia Avenue (east side)	36.0	D	17.2	E	17.2	E	**Unmitigable Impact**

Denotes significantly impacted pedestrian element

Table 20-11 Crosswalk Impact Mitigation Summary

Intersection	Crosswalk	No-Action		With-Action		Mitigation		Mitigation Measures
		Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	
Weekday AM Peak Hour								
Flatlands Avenue and Louisiana Avenue	East	1,178.1	A	12.8	E	12.8	E	**Unmitigable Impact**
Pennsylvania Avenue and Vandalia Avenue	North	403.5	A	76.1	A	85.3	A	- Modify signal timing: shift 1 sec from east and west crosswalks walk time to NBL/SBL phase and 2 secs from east and west crosswalk walk time to the north and south crosswalk walk time. This is needed for mitigation of traffic impacts at this intersection.
	South	185.8	A	45.4	B	51.1	B	
	West	612.1	A	119.9	A	112.5	A	
Weekday Midday Peak Hour								
Flatlands Avenue and Louisiana Avenue	West	398.6	A	21.5	D	21.5	D	**Unmitigable Impact**
Pennsylvania Avenue and Vandalia Avenue	North	369.5	A	53.4	B	65.3	A	- Modify signal timing: shift 3 sec from east and west crosswalks walk time to NBL/SBL phase and 3 secs from east and west crosswalk walk time to the north and south crosswalk walk time. This is needed for mitigation of traffic impacts at this intersection.
	South	177.7	A	46.8	B	58.2	B	
	West	675.7	A	146.0	A	129.6	A	
Pennsylvania Avenue and Flatlands Avenue	South	603.7	A	72.4	A	51.9	B	- Modify signal timing: shift 4 sec from north and south crosswalks walk time to EBL/WBL phase. This is needed for mitigation of traffic impacts at this intersection.
	West	311.6	A	147.4	A	147.4	A	
Weekday PM Peak Hour								
Flatlands Avenue and Louisiana Avenue	East	816.4	A	15.2	D	15.2	D	**Unmitigable Impact**
	West	400.7	A	12.2	E	12.2	E	**Unmitigable Impact**
Pennsylvania Avenue and Vandalia Avenue	North	531.6	A	46.5	B	58.6	B	- Modify signal timing: shift 3 sec from east and west crosswalks walk time to NBL/SBL phase. This is needed for mitigation of traffic impacts at this intersection.
	South	228.6	A	47.4	B	60.5	A	
	West	785.8	A	96.6	A	82.7	A	

Table 20-11 Crosswalk Impact Mitigation Summary

		No-Action		With-Action		Mitigation		
Intersection	Crosswalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Mitigation Measures
Pennsylvania Avenue and Flatlands Avenue	South	453.3	A	46.1	B	50.6	B	- Modify signal timing: shift 2 sec from east and west crosswalks walk time to NBL/SBL phase and 1 sec from east and west crosswalk walk time to the north and south crosswalk walk time. This is needed for mitigation of traffic impacts at this intersection.
	West	334.8	A	101.9	A	81.9	A	
Flatlands Avenue and East 108th Street	North	821.1	A	131.6	A	121.3	A	- Modify signal timing: shift 4 sec from north and south crosswalks walk time to EBL/WBL phase and 1 secs from east and west crosswalk walk time to the EBL/WBL phase. This is needed for mitigation of traffic impacts at this intersection.
	South	597.1	A	165.8	A	150.8	A	
Saturday Peak Hour								
Flatlands Avenue and Louisiana Avenue	East	780.9	A	11.8	E	11.8	E	**Unmitigable Impact**
	South	608.2	A	21.5	D	21.5	D	**Unmitigable Impact**
	West	380.6	A	13.4	E	13.4	E	**Unmitigable Impact**
Pennsylvania Avenue and Vandalia Avenue	North	226.4	A	27.1	C	27.1	C	- Modify signal timing: shift 2 sec from east and west crosswalks walk time to NBL/SBL phase. This is needed for mitigation of traffic impacts at this intersection.
	South	221.3	A	34.8	C	34.8	C	
	West	404.4	A	56.6	B	52.3	B	
Flatlands Avenue and East 108th Street	North	783.3	A	84.6	A	81.0	A	- Modify signal timing: Shift 2 sec of green time from NB/SB phase to EBL/WBL phase. Shift 1 sec of green time from EB/WB phase to EBL/WBL phase. This is needed for mitigation of traffic impacts at this intersection.
	South	218.3	A	55.6	B	52.0	B	

Table 20-11 Crosswalk Impact Mitigation Summary

		No-Action		With-Action		Mitigation		
Intersection	Crosswalk	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Mitigation Measures
Sunday Peak Hour								
Flatlands Avenue and Louisiana Avenue	North	58.6	B	16.9	D	16.9	D	**Unmitigable Impact**
	South	26.6	C	6.0	F	6.0	F	**Unmitigable Impact**
	West	17.9	D	6.4	F	6.4	F	**Unmitigable Impact**
Pennsylvania Avenue and Flatlands Avenue	South	42.0	B	16.3	D	16.3	D	**Unmitigable Impact**
	West	15.3	D	7.8	F	7.8	F	**Unmitigable Impact**

Denotes significantly impacted pedestrian element

Table 20-12 Corners Impact Mitigation Summary

		No-Action		With-Action		Mitigation		
Intersection	Corner	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Avg Ped Space, SF/P	LOS	Mitigation Measures
Sunday Peak Hour								
Flatlands Avenue and Louisiana Avenue	Northeast	32.7	C	6.3	F	6.3	F	**Unmitigable Impact**
	Southeast	5.3	F	*	F	*	F	**Unmitigable Impact**
	Southwest	70.2	A	19.0	D	19.0	D	**Unmitigable Impact**
	Northwest	62.3	A	8.0	E	8.0	E	**Unmitigable Impact**

Denotes significantly impacted pedestrian element

***** The available corner area would not be sufficient to accommodate all pedestrians; some pedestrians would need to wait on the adjacent sidewalk area instead of the corner reservoir to cross the street

Sidewalks

Pedestrian impacts were identified at the following locations:

- The west sidewalk of Pennsylvania Avenue between Flatlands Avenue and Vandalia Avenue during the Saturday and Sunday peak hours.
- The south sidewalk of Flatlands Avenue between Pennsylvania Avenue and Louisiana

Avenue during the Sunday peak hour.

› The east sidewalk of Louisiana Avenue between Flatlands Avenue and Vandalia Avenue during the Sunday peak hour.

Typical measures to mitigate impacts to sidewalks include the relocation of obstructions along the narrowest point of the sidewalk. However, the obstructions along these sidewalks include grass strips and tree pits, and relocating these obstructions would be infeasible. Therefore, sidewalk impacts at these sidewalks could not be mitigated.

Crosswalks

Pedestrian impacts were identified at the crosswalks listed below. Impacts to these crosswalks could not be mitigated.

› The south and west crosswalks of Pennsylvania Avenue and Flatlands Avenue during the Sunday peak hour.

› Flatlands Avenue and Louisiana Avenue
  - The east crosswalk during the weekday AM, PM, and Saturday peak hours
  - The west crosswalk during the weekday midday, PM, Saturday, and Sunday peak hours
  - The north crosswalk during the Sunday peak hour
  - The south crosswalk during the Saturday and Sunday peak hours

Corners

Pedestrian impacts were identified at the northeast, southeast, southwest, and northwest corners of Flatlands Avenue and Louisiana Avenue during the Sunday peak hour. These impacts could not be mitigated.

Noise

The Proposed Actions would result in the potential for significant adverse impacts to one existing residential building, 1180 Pennsylvania Avenue, due to the introduction of new stationary and mobile noise sources. With-Action sound levels would range from 59.4 to 67.7 dBA (Leq), an increase of up to 6.5 dBA from the No-Action condition. Since With-Action noise levels including mobile and stationary sources would increase more than 5 dBA, primarily due to the proposed childcare facility playground to be located at the southern portion of Proposed Building 4, there would be significant adverse noise impact at 1180 Pennsylvania Avenue due to the Proposed Actions. Based on street-level field observations, this building has insulated glass windows and through-wall air-conditioning, which would be expected to provide 25 dBA window/wall attenuation, resulting in an interior noise level of up to 37.7 dBA (L10) during the peak hour with significant adverse noise increase. Mitigation measures deemed practicable and feasible were explored to provide sufficient reduction or to lower interior noise levels to an acceptable range. The introduction of a solid wall along the southern perimeter of the daycare playground facility would be expected to provide 5 dBA of noise reduction, thereby mitigating noise to an acceptable level and would result in a finding of no significant adverse noise impacts at this location.

Construction

Construction Noise

Since noise levels during construction would exceed the thresholds for exterior increases in noise, there would be potential for the project to result in significant adverse construction noise impacts at new buildings (proposed Buildings 1-4) that would be introduced with the phased development and at existing residential buildings (1170 Pennsylvania Avenue, 1180 Pennsylvania Avenue, and 1 Vandalia Avenue) located immediately south of the Development Site as indicated in **Figure 19-4** (see **Chapter 19, Construction**). As described in **Chapter 19, Construction**, interior noise levels would exceed the interior impact criterion for residential receptors during certain phases of construction.

With the adherence to existing construction noise regulations and the implementation of a Construction Noise Mitigation Plan, as required by the New York City Noise Code, including an 8-foot construction noise barrier, construction noise would be reduced but would still exceed the thresholds for significant construction noise impact prior to mitigation.

The primary sources of construction noise causing impact include drills during the foundation phases of construction and concrete mixer trucks during the foundation and superstructure phases of construction. Since residential buildings where there would be noise impact are 10 to 15 stories tall, increasing the height of the perimeter wall would provide limited benefit as compared to the standard 8-foot-tall wall.

Concrete mixer trucks would be located either within the Development Site or along Flatlands Avenue depending on the specific phase of construction. When the concrete trucks are making deliveries within the Development Site, it would not be feasible to construct noise barriers interior to the site to reduce noise due to the need for the concrete trucks to mobilize within the site. When the concrete trucks are on Flatlands Avenue, they are relatively far from the noise impact locations south of the Development Site and it would not be feasible to introduce a noise barrier between Flatlands Avenue and the Development Site.

At many of the buildings where significant adverse impacts are predicted to occur, field observations identified the presence of insulated glass windows and alternate means of ventilation (i.e., window air conditioning), which would be expected to provide at least 25 A-weighted decibels (dBA) of window/wall attenuation. These measures are in place at the residential buildings located at the following locations: 1170 Pennsylvania Avenue, 1180 Pennsylvania Avenue, and 1 Vandalia Avenue. Even with such measures, these locations would be expected to experience interior L10 noise levels during portions of construction that would exceed the 45 dBA guideline recommended for residential and community spaces according to CEQR noise exposure guidelines. Interior noise levels at these receptors would exceed the acceptable threshold level by up to 14 dBA as a result of construction of the Proposed Project. Consequently, significant adverse noise impacts predicted to occur at the above-mentioned receptors would be only partially mitigated and thus unavoidable as discussed in **Chapter 22. Unavoidable Adverse Impacts**.

As described in **Chapter 16, Noise**, receptors on the north and east facing facades of proposed Building 1 and the east façade of Building 2 require 35 dBA window/wall

attenuation. For all new receptors within the footprint of the Proposed Development, 30 dBA window/wall attenuation is assumed as the newly constructed buildings would have insulated glass windows and central air-conditioning. With such measures, interior noise levels at Proposed Building 1 and north façade of Proposed Building 2 would not exceed the 45 dBA guideline recommended for residential and community spaces for 12 or more consecutive months of objectionable noise increase (i.e., increase of 15 to 20 dBA) or for three or more consecutive months of very objectionable noise increase (i.e., increase of 20 dBA or more). Therefore, significant adverse noise impacts predicted to occur at Proposed Building 1 and the north façade of Proposed Building 2 would be fully mitigated. On the other hand, even with above-mentioned measures, west façades of proposed Buildings 2, 3, and 4 would be expected to experience interior L10 noise levels during portions of construction that would exceed the 45 dBA guideline recommended for residential and community spaces according to CEQR noise exposure guidelines. Interior noise levels at these west façade receptors would exceed the acceptable threshold level by up to 11.2 dBA as a result of construction of the Proposed Project. Consequently, significant adverse noise impacts predicted to occur at the west facades of Proposed Buildings 2, 3, and 4 would be only partially mitigated and thus unavoidable as discussed in **Chapter 22. Unavoidable Adverse Impacts**.

While additional mitigation measures will be explored in consultation with the lead agency between Draft EIS and Final EIS, the Proposed Actions have the potential to result in significant adverse noise impact that would remain unmitigated. See **Chapter 22. Unavoidable Adverse Impacts**.

Construction Transportation

As discussed in **Chapter 19, Construction**, seven intersections were analyzed for potential significant traffic impacts during the AM construction traffic peak hour and twelve intersections were analyzed during the PM construction traffic peak hour. Significant impacts were identified at two analysis intersections during the AM peak hour and at nine intersections during the PM peak hour. Where impacts during construction may occur, measures similar to the ones recommended in the operational traffic analysis could be implemented early to aid in alleviating congested traffic conditions. The two intersections that would be impacted during the AM peak hour could be fully mitigated with typical traffic improvement measures (i.e., signal timing modification and changing parking regulations to provide an additional travel lane). Significant impacts at the intersections of Pennsylvania Avenue with Flatlands Avenue, Stanley Avenue and Linden Boulevard, and Flatlands Avenue with Louisiana Avenue, East 108th Street, and Rockaway Parkway could not be fully mitigated during the PM peak hour. The PM construction peak hour findings are similar to operational With-Action conditions except for the intersections of Pennsylvania Avenue with Stanley Avenue, and the intersection of Flatlands Avenue and East 108th Street which could be mitigated under the operational With-Action conditions.