A. INTRODUCTION

As described in the 2020 *City Environmental Quality Review* (CEQR) *Technical Manual*, alternatives selected for consideration in an environmental impact statement are generally those that are feasible and have the potential to reduce, eliminate, or avoid significant adverse impacts of a proposed project while meeting some or all of the goals and objectives of this project. The purpose of an analysis of alternatives to a proposed project is to provide the decision makers with the opportunity to consider practicable alternatives that are consistent with the project's purpose, and that could potentially reduce or eliminate significant adverse environmental impacts identified in the Environmental Impact Statement (EIS). As described in **Chapter 1, "Project Description,"** the Proposed Actions would facilitate a proposal by the Applicant to develop a new approximately 1,154,987 gross square foot (gsf) mixed-use development ("Proposed Project") on approximately 164,392 sf of lot area ("Projected Development Site 1"). The Proposed Project would be comprised of approximately 1,400 dwelling units (DUs) (approximately 1,130,462 gsf of residential area), of which 350 DU s would be affordable; approximately 1,887 gsf of local retail space; approximately 22,638 gsf of community facility space; 525 accessory parking spaces; and 41,363 sf of publicly accessible open space. The proposed zoning map amendment would rezone Projected Development Site 1 (Block 911, Lot 1) and one additional site not under the control of the Applicant (Block 911, Lot 49). Together, these lots comprise approximately 199,245 sf (the "Project Area").

Under the reasonable worst-case development scenario (RWCDS), Projected Development Site 1 would be developed with an approximately 1,154,987 gsf development containing 1,400 DUs, 1,887 gsf of retail space, 22,638 gsf of community facility space, and 525 accessory parking spaces. The Proposed Project would also contain 41,363 sf of publicly accessible open space along the waterfront that would run along the entire length of Projected Development Site 1. Projected Development Site 2 would be developed with a 219,296 gsf building containing 265 DUs, approximately 15,000 gsf of commercial retail uses, and 115 accessory parking spaces.

This chapter considers three alternatives to the Proposed Project: (1) a No-Action Alternative, which contemplates a new as-of-right development is anticipated to be developed pursuant to existing M1-1 zoning at the Projected Development Sites; (2) a No Unmitigated Significant Adverse Impacts Alternative, which considers a development scenario that would not result in any identified significant unmitigated adverse impacts; and (3) a Lower Density Alternative, which considers a Proposed Project with less density compared to the Proposed Actions, resulting in reduced residential development.

B. PRINCIPAL CONCLUSIONS

No-Action Alternative

The No-Action Alternative examines future conditions on the Projected Development Sites 1 and 2, but assumes the absence of the Proposed Actions (i.e., none of the discretionary approvals proposed as part of the Proposed Actions would be adopted). Under the No-Action Alternative by 2031, it is

anticipated that an as-of-right warehouse would be constructed on both Projected Development Sites 1 and 2 pursuant to the existing M1-1 zoning.

The M1-1 zoning permits a 1.0 FAR for manufacturing and commercial uses. Under the No-Action condition, Projected Development Site 1 would be developed with a 2-story 172,612 gsf warehouse and 82 accessory parking spaces. Under the No-Action condition, it is assumed that the existing vacant warehouse building on Projected Development 2 would be re-occupied with 28,750 gsf of warehouse uses and 14 accessory parking spaces. The technical chapters of this EIS have described the No-Action Alternative as "the Future Without the Proposed Actions."

The significant adverse impacts related to community facilities, open space, and transportation anticipated for the Proposed Actions would not occur under the No-Action Alternative. However, the No-Action Alternative would not meet the goals of the Proposed Project. The benefits expected to result from the Proposed Project as intended by the Applicant – including promoting affordable and market-rate housing development through the introduction of increased residential density on-site, introducing new publicly accessible waterfront open space – would not be realized under this alternative, and the No-Action Alternative would fall short of the objectives of the Proposed Actions.

No Unmitigated Significant Adverse Impacts Alternative

The No Unmitigated Significant Adverse Impacts Alternative examines a scenario in which the density and other components of the Proposed Development are changed specifically to avoid the unmitigated significant adverse impacts associated with the Proposed Development. As presented in **Chapter 18, "Mitigation,"** and **Chapter 20 "Unavoidable Adverse Impacts,"** there is the potential for the Proposed Actions to result in unmitigated significant adverse impacts related to community facilities (public elementary schools and publicly funded early childhood programs), open space, transportation, noise, and construction noise. Overall, in order to eliminate all unmitigated significant adverse impacts, the RWCDS would have to be modified to a point where the principal goals and objectives would not be realized.

Lower Density Alternative

A Lower Density Alternative to the Proposed Actions was developed to determine whether the impacts to community facilities, open space, transportation, and construction could be reduced or eliminated while accomplishing the purpose and need established for the Proposed Actions. The Lower Density Alternative would result in 213 fewer DUs compared to the Proposed Actions, including 53 fewer affordable DUs; the same amount of commercial and community facility square footage (1,887 gsf and 22,638 gsf, respectively) and open space (0.95 acres) would be developed under both scenarios.

As outlined below, the Lower Density Alternative would still result in significant adverse impacts on community facilities, active open space, transportation, noise, and construction noise. The Lower Density Alternative is expected to result in the same or a slightly lower number of significant adverse traffic impacts than the Proposed Actions. In addition, both the Lower Density Alternative and the Proposed Actions would result in significant adverse bus line haul and subway station element impacts. As the Lower Density Alternative would not substantially alter the anticipated construction schedule, similar or slightly lesser construction noise impacts are anticipated under this alternative. These impacts could be mitigated and/or partially mitigated using the same mitigation measures identified for the Proposed Actions, with slightly lesser mitigation needed to mitigate the child care impact.

Overall, although the Lower Density Alternative would meet a number of the goals and objective of the Proposed Actions, this Alternative would meet these goals to a lesser degree than the Proposed Actions. Specifically, as the Lower Density Alternative would result in fewer residential units, it would be less supportive of the objective of the Proposed Actions to create opportunities for new housing development, including affordable housing, while continuing to result in significant adverse impacts on child care facilities, active open space, transportation, and construction noise.

C. NO-ACTION ALTERNATIVE

The No-Action Alternative examines future conditions on the Projected Development Sites 1 and 2, but assumes the absence of the Proposed Actions (i.e., none of the discretionary approvals proposed as part of the Proposed Actions would be adopted). Conditions under this alternative are similar to the "Future without the Proposed Actions" described in the preceding chapters, which are compared in the following sections to conditions under the Proposed Actions. The No-Action Alternative incorporates known development projects in the surrounding area that are likely to be built by the analysis year of 2031.

Under the No-Action Alternative, it is anticipated that as-of-right developments on Projected Development Sites 1 and 2 would be constructed pursuant to the existing M1-1 zoning under future No-Action conditions. The M1-1 zoning district permits 1.0 FAR for commercial and manufacturing uses.

As described above, Projected Development Site 1 would be developed with a 2-story 172,612 gsf warehouse and 82 accessory parking spaces. Under the No-Action condition, it is assumed that the existing vacant warehouse building on Projected Development 2 would be re-occupied with 28,750 gsf of warehouse uses and 14 accessory parking spaces.

The effects of the No-Action Alternative in comparison to those of the Proposed Actions are provided below.

Land Use, Zoning, and Public Policy

Under the No-Action Alternative, it is anticipated that Projected Development Site 1 would be redeveloped as a warehouse and Projected Development Site 2 would be re-occupied as a warehouse pursuant to existing zoning. The No-Action development would re-introduce previous land uses to the Project Area. As such, the No-Action Alternative would not result in a change of land use on the Project Area.

No changes to zoning or public policy are anticipated to the Project Area under the No-Action Alternative. Under this alternative, the existing M1-1 zoning classification of the Project Area would remain and no zoning special permits or other land use actions would be required. In addition, the zoning text amendment to establish the Project Area as a Mandatory Inclusionary Housing (MIH) area would not be established and no mandatory affordable housing would be developed.

It is the Applicant's opinion that unlike the Proposed Project, the No-Action Alternative would not improve land use conditions in the study area by expanding housing opportunities and mandating the creation of affordable housing and introducing local retail, and community facility uses to the area, nor would it provide new publicly accessible open space. Further, the Applicant believes that the pedestrian experience would not be enhanced with active retail or publicly accessible open space uses. In addition,

the Applicant believes that the No-Action Alternative would be less supportive of public policies articulated in *Housing New York 2.0*, PlaNYC, and *OneNYC* that aim toward increasing the supply of housing in the city, reclaiming underutilized land, and expanding access to affordable housing.

While the Applicant believes that the No-Action Alternative does not achieve the beneficial land use changes that would result with the Proposed Project, neither the Proposed Actions nor the No-Action Alternative would result in significant adverse impacts related to land use, zoning, and public policy, as described in **Chapter 2, "Land Use, Zoning, and Public Policy."**

Socioeconomic Conditions

Neither the No-Action Alternative nor the Proposed Actions would be expected to have a significant adverse impact on socioeconomic conditions. Similar to the Proposed Actions, the No-Action Alternative would not result in direct residential or business displacement.

New residential developments are anticipated in the socioeconomic conditions study area in both the future with the Proposed Actions and under the No-Action Alternative, and demand for residential development in Astoria is expected to continue to rise. Unlike the Proposed Actions, under the No-Action Alternative, the Project Area would not be designated an MIH area, and no units of affordable housing would be constructed. As a result, the benefits of the Proposed Actions, in which the Applicant intends to provide new affordable housing to the area that would help maintain deeper affordability in Astoria's housing stock, would not be realized under the No-Action Alternative as described in **Chapter 3, "Socioeconomic Conditions."**

Community Facilities and Services

Under the No-Action Alternative, no affordable housing would be constructed within the Project Area, and, therefore, no additional publicly funded child care-eligible children would be added to the study area. Therefore, unlike the Proposed Actions, the No-Action Alternative would not result in significant adverse impacts to publicly funded early childhood programs. Unlike the Proposed Actions, under the No-Action Alternative, the Project Area would not be designated an MIH area, and no units of affordable housing would be constructed.

Neither the No-Action Alternative nor the Proposed Actions would not result in direct impacts to community facilities and services or indirect impacts to elementary, intermediate, and high schools, library services, or police, fire, and emergency medical services. Under the Proposed Actions, indirect impacts to publicly funded early childhood programs would occur.

Open Space

Under the No-Action Alternative, it is anticipated that Projected Development Site 1 would be redeveloped as a warehouse and Projected Development Site 2 would be re-occupied as a warehouse pursuant to existing zoning. The No-Action development would re-introduce previous land uses to the Project Area. As such, the No-Action Alternative would not result in a change of land use on the Project Area. Approximately 201 workers would be introduced to the area as a result of the as-of-right development on the Projected Development Sites. Unlike the Proposed Actions, the No-Action Alternative would not result in the creation of a new publicly accessible waterfront open space. Similar to existing conditions, the total and passive open space ratios under the No-Action alternative would remain above the City's community district median and the City's optimal planning guidelines, while the active open

space ratio would remain below the City's community district median and the City's optimal planning guidelines. The workers generated by the No-Action development would not place additional demand on the study area's active open space uses as worker population tends to place demands on passive open space. As such, under the No-Action Alternative, no significant adverse active open space impacts would occur. However, the open space benefits associated with the Proposed Actions would not occur under the No-Action Alternative.

Shadows/Natural Resources

Under the No-Action Alternative, it is anticipated that Projected Development Site 1 would be redeveloped as a warehouse and Projected Development Site 2 would be re-occupied as a warehouse pursuant to existing zoning. It is assumed that the as-of-right buildings would each rise to two stories in height. Shadows from the as-of-right No-Action structures would be significantly less than under the Proposed Actions, and neither alternative would result in significant adverse shadow impacts.

Urban Design and Visual Resources

In the No-Action Alternative manufacturing buildings with parking would be constructed on Projected Development Sites 1 and 2. Absent the proposed C2-4 commercial overlay, no ground floor retail would be developed within the Project Area. Absent the proposed City map amendment and the development of Third Street, access to Projected Development Site 1 and the proposed publically accessible open space and waterfront esplanade would not occur.

Unlike the Proposed Actions, which would redevelop the Project Area with residential and ground floor retail uses, as well as developing a new street and waterfront open space, the Project Area would retain its existing industrial uses with no public access to the waterfront. The No-Action Alternative industrial uses along the waterfront would be out of context with known and anticipated development in the surrounding area, including the Astoria Cove development to the east and the Halletts Point development to the southwest. In addition, certain benefits to the pedestrian realm associated with the Proposed Actions, including the reactivation of the pedestrian realm through ground floor retail and the connection of the Project Area to surrounding open space resources, would not be realized under the No-Action Alternative.

Hazardous Materials

Projected Development Site 1 has received a Certificate of Completion from the New York State Department of Environmental Conservation (DEC) for participation in the Brownfield Cleanup Program. Therefore, as under the Proposed Actions, the No-Action Alternative would not result in significant adverse hazardous materials impacts on Projected Development Site 1.

Absent the Proposed Actions, Projected Development Site 2 would not be rezoned and would not be assigned with a hazardous materials (E) designation. Compared with development anticipated on the Projected Development Site 2 as a result of the Proposed Actions, the No-Action Alternative would result in the reoccupation of the existing vacant warehouse building on the site. However, any construction involving soil disturbance or renovation of the existing building on the Projected Development Site 2 could potentially increase pathways for human exposure to any subsurface hazardous materials present. Thus, the amount of soil disturbance would be reduced, but the controls on its performance would not be as thorough as under the Proposed Actions. In addition, the continued use of the waterfront buildings for

warehouse and storage uses in the No-Action Alternative could lead to possible opportunities for potential exposure to petroleum and non-petroleum compounds. Legal requirements pertaining to petroleum tank maintenance, spill reporting, worker exposure to chemicals, etc., would be followed under the No-Action Alternative.

Water and Sewer Infrastructure

As with the Proposed Actions, the No-Action Alternative would not result in significant adverse impacts to the City's water supply, wastewater and stormwater conveyance, and treatment infrastructure. However, absent the Proposed Actions, no new stormwater outfalls, storm sewers, or sanitary sewers would be constructed on or adjacent to the Project Area and a new amended drainage plan (ADP) would not be developed absent the Proposed Actions' City map amendment.

As described in **Chapter 10, "Water and Sewer Infrastructure,"** under the No-Action Alternative, anticipated growth in the vicinity of Queens CD 1 and as-of-right development that would occur within the Project Area would result in additional demand for water, wastewater production, and stormwater runoff. Water consumption within the Project Area would increase as a result of the No-Action Development. Given the resultant level of consumption (a net increment of less than 0.04 million gallons per day [mgd]), incremental demand would not be large enough to significantly affect the ability of the City's water system to deliver water in the No-Action Alternative. As additional sanitary discharges would be well within the 40 mgd average available capacity of the Bowery Bay Water Pollution Control Plant (WPCP), the facility would continue to operate within its design capacity under the No-Action Alternative. Furthermore, assuming that the area of impermeable surface within the Project Area increase, and since there would only be small increases in sanitary flow to the combined sewer resulting from increased detention measures, it is anticipated that no significant change in the frequency or duration of combined sewer overflow (CSO) events would occur under the No-Action Alternative, as compared to existing conditions.

Transportation

As discussed below, unlike the Proposed Actions, the No-Action Alternative would not result in any significant adverse impacts with respect to transportation. Unlike the Proposed Actions, the No-Action Alternative would not result in the potential for significant adverse traffic impacts to 19, 13, 17, and 13 intersections in the weekday AM, midday and PM, and Saturday peak hours, respectively. The Proposed Actions' significant adverse impacts to four street stairs at the 30th Avenue (N/W) subway would not occur under the No-Action Alternative. Furthermore, the Proposed Actions' significant adverse impacts to two sidewalks, three crosswalks, and one corner in one or more peak hours would not occur under the No-Action Alternative. Like the Proposed Actions, demand for off-street and on-street parking spaces within the parking study area would exceed capacity during the analyzed weekday midday and overnight periods. In the No-Action Alternative, traffic, parking, transit, and pedestrian demand in the study area would increase as a result of background growth, development that could occur pursuant to existing zoning (i. e., as-of-right development), and other development projects likely to occur within and in the vicinity of the Project Area.

Traffic

Independent of the Proposed Actions, traffic levels of service (LOS) at many locations in the study area would experience congested conditions in the future. Under the No-Action Alternative, a total of 16 intersections (10 signalized and 6 unsignalized) would have at least one congested lane group in one or

more peak hours; this is compared with a total of 21 intersections (12 signalized and 9 unsignalized) with at least one congested lane group in one or more peak hours under the Proposed Actions. There would be no intersections with significant adverse traffic impacts under the No-Action Alternative compared with 19, 13, 17, and 13 impacted intersections during the weekday AM, midday and PM, and Saturday peak hours, respectively.

Transit

Subway

Under the No-Action Alternative, the 30th Avenue (N/W) subway station would experience an increase in demand as a result of background growth and future developments anticipated within and in the vicinity of the Project Area. No pedestrian elements (stairs, escalators and fare arrays) at this station would experience significant adverse impacts under this alternative. By comparison, under the Proposed Actions, four street stairs at the 30th Avenue station would be significantly adversely impacted by With-Action demand in either the AM or PM peak hour.

Bus

Under the No-Action Alternative, demands on the local bus services operating in the vicinity of the Project Area are expected to increase compared with existing ridership as a result of background growth and new development. The existing level of bus service would not be sufficient to provide adequate supply to meet projected demand under the No-Action Alternative on the eastbound Q18, westbound Q18, and southbound Q102 services in the AM peak hour. Based on a loading guideline of 54 passengers per standard bus, ten, one, and nine additional buses would be needed for the eastbound Q18, westbound Q18, and southbound Q102 services, respectively, in the AM peak hour in order to accommodate projected demand. The existing level of bus service would not be sufficient to provide adequate supply to meet projected demand under the No-Action Alternative on the westbound Q18 and southbound Q102 services in the PM peak hour. Based on a loading guideline of 54 passengers per standard bus, eight additional buses would be needed for each of the westbound Q18 and northbound Q102 services in the PM peak hour in order to accommodate projected demand. By comparison, under the Proposed Actions, the eastbound Q18 and southbound Q102 buses would be significantly adversely impacted in the AM peak hour, as well as the westbound Q18 and northbound Q102 buses in the PM peak hour.

Pedestrians

Under the No-Action Alternative, pedestrian volumes along analyzed sidewalks, crosswalks and corner areas are expected to increase compared with existing levels as a result of background growth as well as demand from new development.

Sidewalks

Under the No-Action Alternative, all analyzed sidewalks are expected to operate at an acceptable LOS C or better in all peak hours, with the exception of the north sidewalk of 27th Avenue between 3rd and 4th Streets which would operate at marginally acceptable LOS D in the weekday midday peak hour. The Proposed Actions' significant adverse impacts to two of the 11 analyzed sidewalks in one or more peak hours would not occur under this alternative.

Crosswalks

Under the No-Action Alternative, all analyzed crosswalks are expected to operate at an acceptable LOS C or better in all peak hours, with the exception of the north and east crosswalk at 27th Avenue and 4th Street which would operate at LOS D during the weekday midday peak hour. The Proposed Actions' significant adverse impacts to all three of the analyzed crosswalks would not occur under this alternative.

Corners

Under the No-Action Alternative all analyzed corner areas are expected to operate at an uncongested LOS C or better in all peak hours. The Proposed Actions' significant adverse impacts to one of the five analyzed corners would not occur under this alternative.

Parking

Under the No-Action Alternative, it is expected that parking demand in the vicinity of the Project Area would increase as a result of background growth and new development. However, the parking demand generated by the No-Action Alternative would be substantially less than for the proposed developments', and off-street parking requirements for new developments would provide sufficient capacity to accommodate the additional parking demand anticipated under the No-Action Alternative. Therefore, the No-Action Alternative would not result in significant adverse parking impacts.

Air Quality

Under the No-Action Alternative, Projected Development Site 1 would be developed with a 2-story 172,612 gsf warehouse and 82 accessory parking spaces. Under the No-Action condition, it is assumed that the existing vacant warehouse building on Projected Development 2 would be re-occupied with 28,750 gsf of warehouse uses and 14 accessory parking spaces.

While some development would occur under the No-Action Alternative, the Proposed Actions would result in more development and therefore the emissions from heat and hot water systems associated with the Proposed Actions would cumulatively be greater than the emissions from heat and hot water systems in the No-Action Alternative. However, unlike the Proposed Actions, the as-of-right development on the Projected Development Sites would not have an environmental assessment of air quality exposure as conducted for the Proposed Actions; thus, such development would not be subject to any air quality E designations. Specifically, they would not have the restrictions specified in **Chapter 12, "Air Quality,"** for the control of emissions for fossil-fuel-fired heating, ventilation, and air conditioning (HVAC) systems, which would be designed to ensure that there would be no significant adverse air quality impacts at nearby receptor locations.

Additionally, mobile source emissions from traffic on surrounding roadways would increase as a result of general background traffic growth and new development in the surrounding area, when compared to existing conditions. As presented in **Chapter 12,** no exceedances of the National Ambient Air Quality Standards (NAAQS) would occur and the Proposed Development's combustion systems would not cause any significant adverse air quality impacts under the With-Action Condition. As the No-Action Alternative would result in less mobile source emissions (i.e., less incremental vehicle trips) than the Proposed Actions, significant adverse impacts are unlikely under the No-Action Alternative.

Greenhouse Gas Emissions and Climate Change

As the No-Action Alternative would result in no residential development, compared to the residential development under the With-Action conditions. Overall, the developments on Projected Development Sites 1 and 2 would be smaller than the No-Action alternative. As such, it would use less energy than the proposed development under the Proposed Actions and would, therefore, result in fewer carbon dioxide equivalent (CO_2e) emissions per year. Neither the Proposed Actions nor the No-Action Alternative would result in significant greenhouse gas (GHG) emission or climate change impacts.

Noise

In the No-Action Alternative, traffic volumes would increase in the area due to general background growth and trips associated with new development that would be independent of the Proposed Actions. Largely due to the anticipated developments in the vicinity of the Project Area, including large projects such as nearby Astoria Cove and Halletts Point, these increases in traffic would in general result in significant changes in noise levels; as outlined in **Chapter 14, "Noise,"** the increases in Leq noise levels would exceed 3.0 dBA at Receptor Locations 1 and 3. Specifically, under the No-Action Alternative, the increases in L_{eq} noise levels would range from 0.88 dBA to 11.30 dBA at the three receptor locations during all four analysis peak periods over existing conditions. According to CEQR Technical Manual guidelines, increases of less than 3.0 dBA would be barely perceptible. Therefore, the increase in noise levels under the No-Action Alternative at Receptor Location 1 (maximum L_{eq} increase of 6.60 dBA) and Receptor Location 3 (maximum L_{eq} increase of 11.30 dBA) would be readily noticeable.

However, noise impacts are generally defined in two: impacts at surrounding receptors from noise increased by the Proposed Actions, and impacts at receptors introduced by the Proposed Actions from surrounding noise sources. Therefore, as noise increases from the No-Action Alternative is not considered a noise increase created by the Proposed Actions and as the No-Action Alternative would not constitute receptors created by the Proposed Actions, the No-Action Alternative would not have any potential to cause any significant adverse noise impacts.

Public Health

Similar to the Proposed Actions, the No-Action Alternative would not result in any unmitigated significant adverse impacts in any of the technical areas related to public health. According to the *CEQR Technical Manual*, actions that do not result in unmitigated significant adverse impacts related to air quality, water quality, hazardous materials, or noise typically do not warrant a public health analysis. As the No-Action Alternative does not have the potential to cause any significant adverse impacts in those areas, it would not have any significant adverse impacts on public health.

Neighborhood Character

According to the *CEQR Technical Manual*, a proposed project could have a significant adverse neighborhood character impact if it would have the potential to affect the defining features of the neighborhood, either through the potential for a significant adverse impact in any relevant technical area, or through a combination of moderate effects in those technical areas. Similar to Proposed Actions, the No-Action Alternative would not cause significant adverse impacts in the areas of land use, zoning, and public policy; socioeconomic conditions; urban design and visual resources; or noise. Further, no significant adverse

transportation impacts are anticipated as a consequence of the No-Action Alternative. As such, the No-Action Alternative would not affect any defining feature of neighborhood character, nor would a combination of moderately adverse effects affect such a defining feature. New as-of-right industrial development would occur under the No-Action Alternative. The study area would continue to be characterized by its evolving mix of land uses and building types, and its location in an area with low pedestrian volumes. Neither the Proposed Actions nor the No-Action Alternative would result in significant adverse impacts to neighborhood character.

Construction

As discussed above, the No-Action Alternative would result in new as-of-right industrial development and, therefore would result in temporary increases in construction worker demand on the transportation network of the surrounding area, and new sources of construction-related air quality or noise emissions. As compared to the Proposed Actions, the No-Action Alternative would result in a shorter overall construction schedule and would have less construction noise and less on-site construction equipment and construction-related traffic generating emissions. Therefore, the No-Action Alternative would not result in any significant adverse construction impacts.

D. NO UNMITIGATED SIGNIFICANT ADVERSE IMPACTS ALTERNATIVE

According to the *CEQR Technical Manual*, when a project would result in unmitigated significant adverse impacts, it is often CEQR practice to include an assessment of an alternative to the project that would result in no unmitigated impacts. Based on the analyses presented in other chapters of this EIS, there is the potential for the Proposed Actions to result in unmitigated impacts with respect to community facilities (publicly funded early childhood programs), open space, and transportation (traffic). This alternative demonstrates those measures that would have to be taken to eliminate all of the Proposed Actions' unmitigated significant adverse impacts. As detailed below, in order to result in no unmitigated significant adverse impacts, the proposed development resulting from the Proposed Actions would have to be modified to a point where the principal goals and objectives would not be fully realized.

Community Facilities and Services

Elementary Schools

The Proposed Actions would result in a significant adverse impact to public elementary schools. As described in **Chapter 4, "Community Facilities,"** the demand for elementary school seats within CSD 30, Sub-district 3 would increase to 141.06 percent utilization compared to No-Action conditions of 136.4 percent. The 181 elementary school students generated by the Proposed Actions would increase the shortfall of available seats to 1,596 in CSD 30, Sub-district 3. This would constitute a significant adverse impact on public elementary schools. Mitigation measures will be explored with the New York City Department of City Planning (DCP), the New York City Department of Education (DOE), and the New York City School Construction Authority (SCA) between the DEIS and FEIS, as is described in greater detail in **Chapter 18, "Mitigation."** Should practical and feasible mitigation measures not be found, the significant adverse impact to public elementary schools would remain unmitigated.

In order to avoid the identified significant adverse impact, the project would need to be reduced from 1,665 incremental DUs generated by the projected development sites to 900 DUs (a reduction of 500

units), which would generate 99 elementary school students.[1] An increase of 99 elementary school students in CSD 30, Sub-district 3 would be below the CEQR threshold that would be considered a significant adverse impact. However, the reduction in total DUs to avoid significant adverse impacts would result in a substantial reduction in the number of affordable housing units developed in the Project Area, from 416 affordable units to 225 (a reduction of approximately 191 affordable units). The reduction in affordable units at the Project Area would be less supportive of the goals and objectives of the Proposed Actions.

Publicly Funded Early Childhood Programs

The Proposed Actions would result in a significant adverse impact to publicly funded early childhood programs. The Proposed Actions would introduce 46 children under the age of six eligible for publicly funded early childhood programs. With the addition of these children, the combined utilization rate of early childhood programs within the early childhood study area would increase to approximately 193.9 percent, an approximately 46.5 percent increase over the No-Action condition. Mitigation measures will be explored with DCP and the DOE between the DEIS and FEIS. Should practical and feasible mitigation measures not be found, the significant adverse impact to early childhood programs would remain unmitigated.

To avoid the identified significant adverse impact to early childhood programs, the number of affordable DUs that could be developed on the projected development sites would have to be reduced from 416 DUs to 33 DUs, a reduction of 383 affordable units.[2] A substantial reduction in the number of affordable housing units developed in the Project Area would be less supportive of the goals and objectives of the Proposed Actions. Alternatively, the provision of 27 early childhood slots under this alternative would avoid the unmitigated significant adverse impact to early childhood programs.

Open Space

The Proposed Actions would result in a significant adverse quantitative impact associated with the active open space ratio. The active open space ratio would decrease by approximately 13.36 percent over the No-Action condition. The impact to open space is primarily due to the existing low active open space ratio in the study area and the addition of a substantial residential population. In consultation with DCP and the New York City Department of Parks and Recreation (DPR), the Applicant is exploring possible mitigation measures to mitigate this impact. Because these measures would only partially mitigate the significant adverse impact, even with the implementation of mitigation measures, the impact would not be fully mitigated. A significant adverse open space impact may occur if a proposed action would reduce the open space ratio by more than five percent in areas that are considered neither underserved nor well served by open space. The Proposed Actions would result in a 13.36 percent decrease in the active open space ratio, a reduction of approximately 1,043 DUs would result in a decrease of less than 5 percent (4.99 percent), however such a reduction would not facilitate the provision of housing, including a substantial amount of affordable housing, which is one of the primary goals of the Proposed Actions.

[1] As it anticipated that Projected Development Site 2 would be redeveloped with approximately 265 DUs in the future with the approval of the Proposed Actions, the Proposed Project would need to be reduced from 1,400 DUs to 635 DUs (a reduction of 765 units) at Projected Development Site 1 in order to avoid significant adverse impacts related to public elementary schools.
[2] It should be noted that while the RWCDS anticipates that the Proposed Actions would result in the development of up to 1,665 DUs (of which, 25 percent or up to 416 units would be affordable) at the Project Area, for conservative analysis purposes—and at the request of DCP—the analysis of early childhood programs provided in **Chapter 4, "Community Facilities",** assumes 20 percent of the overall residential floor area (approximately 333 units) of the RWCDS to be set aside for "affordable" residential units.

Transportation

Traffic

As presented in **Chapter 18, "Mitigation,"** the Proposed Actions would result in significant adverse traffic impacts at 21 study area intersections during one or more analyzed peak hours; specifically, 19 intersections during the weekday AM peak hour, 13 intersections during the weekday midday peak hour, 17 intersections during the weekday PM peak hour, and 13 intersections during the Saturday peak hour. Implementation of traffic engineering improvements, such as signal timing changes, the installation of new traffic signals, and modifications to lane striping and curbside parking regulations would provide mitigation for many of the anticipated traffic impacts. Specifically, the significant adverse impacts would be fully mitigated at 24 lane groups in the weekday AM peak hour, 10 lane groups in the midday peak hour, 20 lane groups in the weekday PM peak hour, and 13 lane groups in the Saturday peak hour. Intersections where all impacts would be fully mitigated would total 13, 9, 10, and 9 during these same periods, respectively. In total, impacts to one or more lane groups would remain unmitigated in one or more peak hours at 9 intersections.

Because of existing congestion at a number of these intersections, even a minimal increase in traffic would result in unmitigated impacts. Specifically, in the No-Action condition, a total of 16 intersections would have at least one congested lane group in one or more peak hours, and a total of 16, 12, 16 and 13 intersections would have one or more lane groups operating at or over capacity in the weekday AM, midday, and PM, and Saturday peak hours, respectively. According to the *CEQR Technical Manual*, for a lane group that would operate at LOS F in the No-Action condition, a projected delay of three or more seconds is considered a significant impact. As such, small increases in incremental With-Action traffic volumes at some of the congested intersection approach movements would result in significant adverse impacts that could not be fully mitigated during one or more analysis peak hours, and almost any new development in the Project Area could result in unmitigated traffic impacts. Therefore, no reasonable alternative could be developed to completely avoid such impacts without substantially compromising the Proposed Actions' stated goals.

Noise

As discussed in **Chapter 18, "Mitigation,"** the Proposed Actions would result in significant adverse noise impacts at 10 residential buildings within the vicinity of the Project Area. Specifically, significant mobile source noise impacts during the operation of the proposed development are predicted to occur at residential buildings at 3-04 - 3-06 26th Avenue, 3-08 - 3-10 26th Avenue, 26-38 3rd Street, 26-31 3rd Street, 26-24 3rd Street, 26-18 3rd Street, 26-19 3rd Street, and 26-15 3rd Street, 26-11 3rd Street, 26-35 3rd Street. As described in **Chapter 14, "Noise,"** mobile source noise impacts are determined if noise passenger equivalent (PCE) values increase by 100 percent (which is equivalent to an increase of 3.0 dBA or more) or more between No-Action and With-Action conditions. As the highest increase in L_{eq} noise levels between No-Action and With-Action conditions would be 7.2 dBA at both 26-24 3rd Street (Receptor Location H) and 26-18 3rd Street (Receptor Location I), the PCE values generated by the Proposed Actions vehicular traffic would need to be reduced by approximately 62 percent in order for the With-Action L_{eq} noise level increase to remain below the 3.0 dBA CEQR threshold. As such, in order to the avoid significant adverse noise impacts at the 10 identified receptors, the number of project-generated DUs would need to be reduced from 1,665 units to approximately 633 units (a reduction of 1,032 units). However, the reduction in total DUs to avoid significant adverse impacts would result in a substantial reduction in the number of affordable housing units developed in the Project Area, from 416 affordable units to 158 (a reduction of approximately 258 affordable units). As such, in order to fully mitigate all identified significant

adverse impacts, the Proposed Actions would need to be modified to a point at which the Proposed Actions' goals and objectives would not be realized.

Construction

Noise

As discussed in **Chapter 18, "Mitigation,"** significant adverse construction noise impacts at sensitive receptors were identified in consideration of the magnitude of the noise level increase (3 dBA, a "noticeable" noise level increase per the *CEQR Technical Manual* methodology), the anticipated absolute noise level (45 dBA interior noise levels for residential, mixed-use, and public facilities/institutions and 80 dBA for open space), and the duration of the predicted elevated noise level. In order to fully mitigate all identified significant adverse impacts related to construction noise, the Proposed Actions would need to be modified to a point at which the Proposed Actions' goals and objectives would not be realized.

F. LOWER DENSITY ALTERNATIVE

Description of the Lower Density Alternative

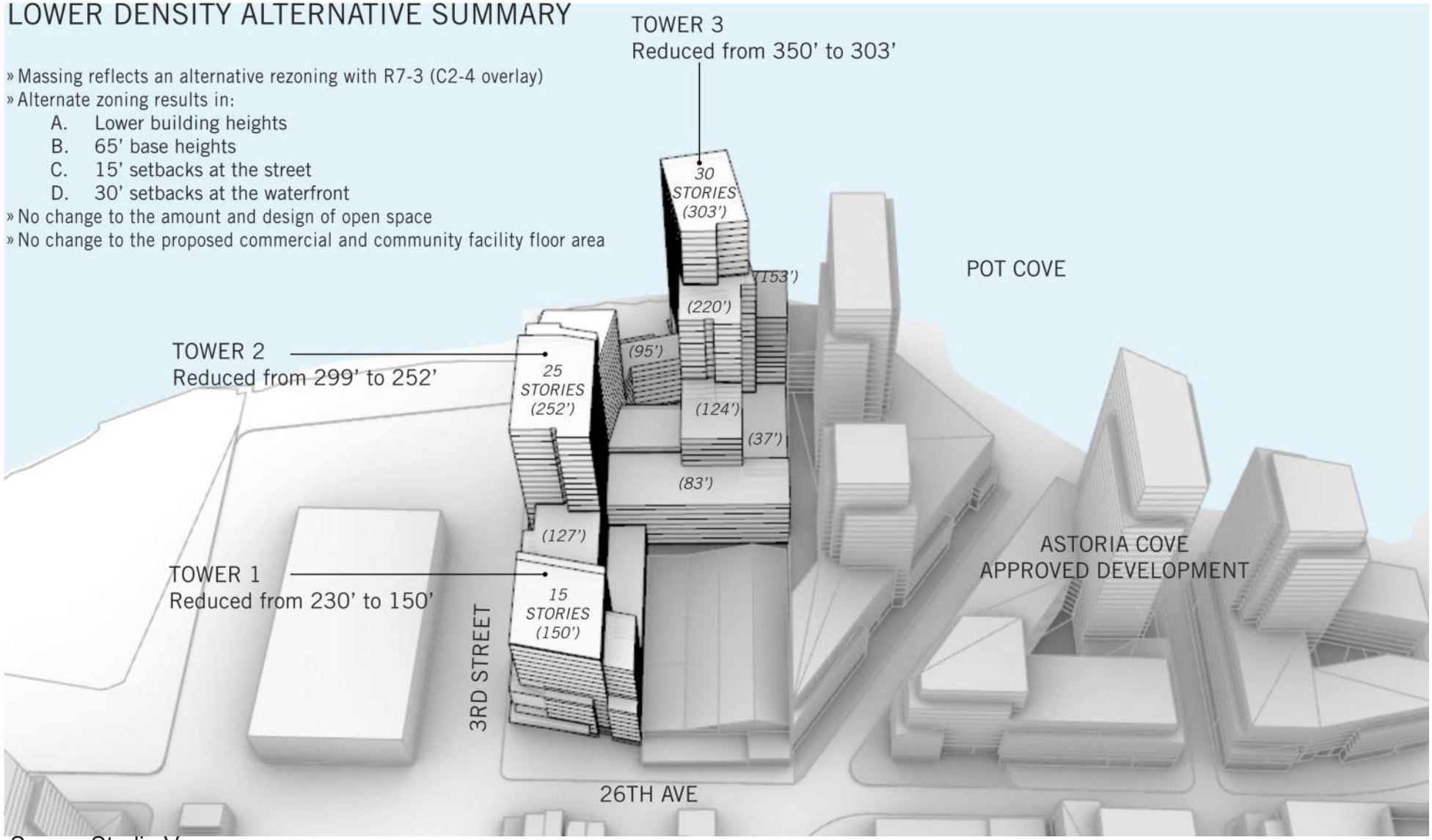
A Lower Density Alternative to the Proposed Actions was developed to determine whether the impacts to community facilities, active open space, traffic, transit, pedestrian, and construction noise could be reduced or eliminated while accomplishing the purpose and need established for the Proposed Actions. Under the Lower Density Alternative, the overall density of the Proposed Project would be reduced. It is assumed that the proposed density of Projected Development Site 2 would remain the same under the Lower Density Alternative as under the Proposed Actions.

As shown in **Table 19-1**, the Lower Density Alternative would result in 213 fewer residential units (including 53 fewer affordable DU) and 80 fewer accessory parking spaces; the same amount of commercial and community facility floor area and open space would be developed under both alternatives. An illustrative massing of the Lower Density Alternative is provided in **Figure 19-1**.

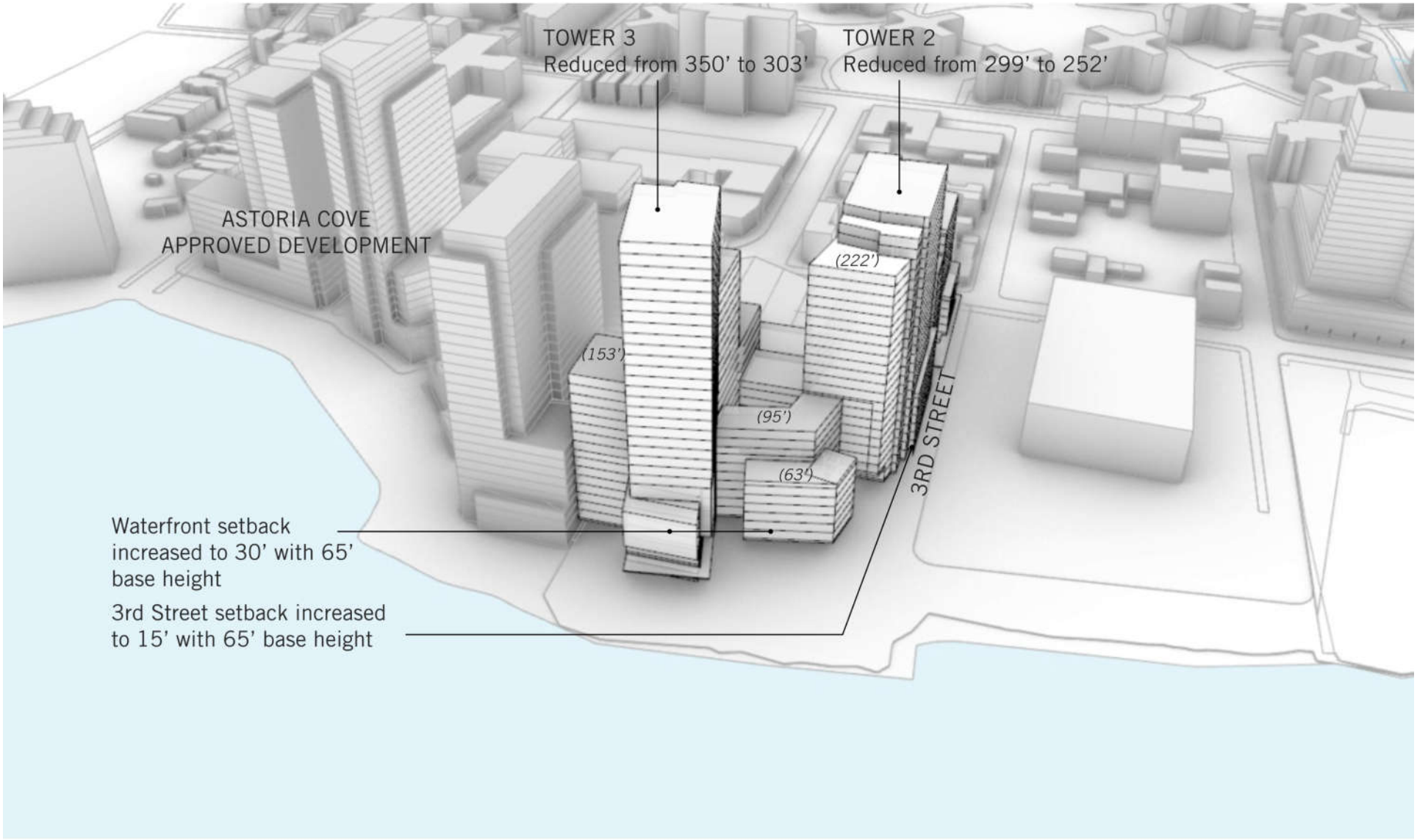
As shown in **Figure 19-1**, it is anticipated that under the Lower Density Alternative, proposed base heights, setbacks, and maximum building heights would change for the Proposed Project. Tower 1 would rise to 150 feet (15-stories); Tower 2 would rise to 252 feet (25-stories); and Tower 3 would rise to 303 feet (30-stories).

TABLE 19-1: Lower Density Alternative Compared to the Proposed Actions

Use	Proposed Actions	Lower Density Alternative	Difference
Total Residential Units	1,665	1,452	-213
Market-Rate Units	*1,249*	*1,089*	*-160*
Affordable Units	*416*	*363*	*-53*
Commercial gsf	16,887	16,887	0
Community Facility gsf	22,638	22,638	0
Accessory Parking Spaces	640	560	-80
Open Space sf	41,363	41,363	0



Source:Studio V



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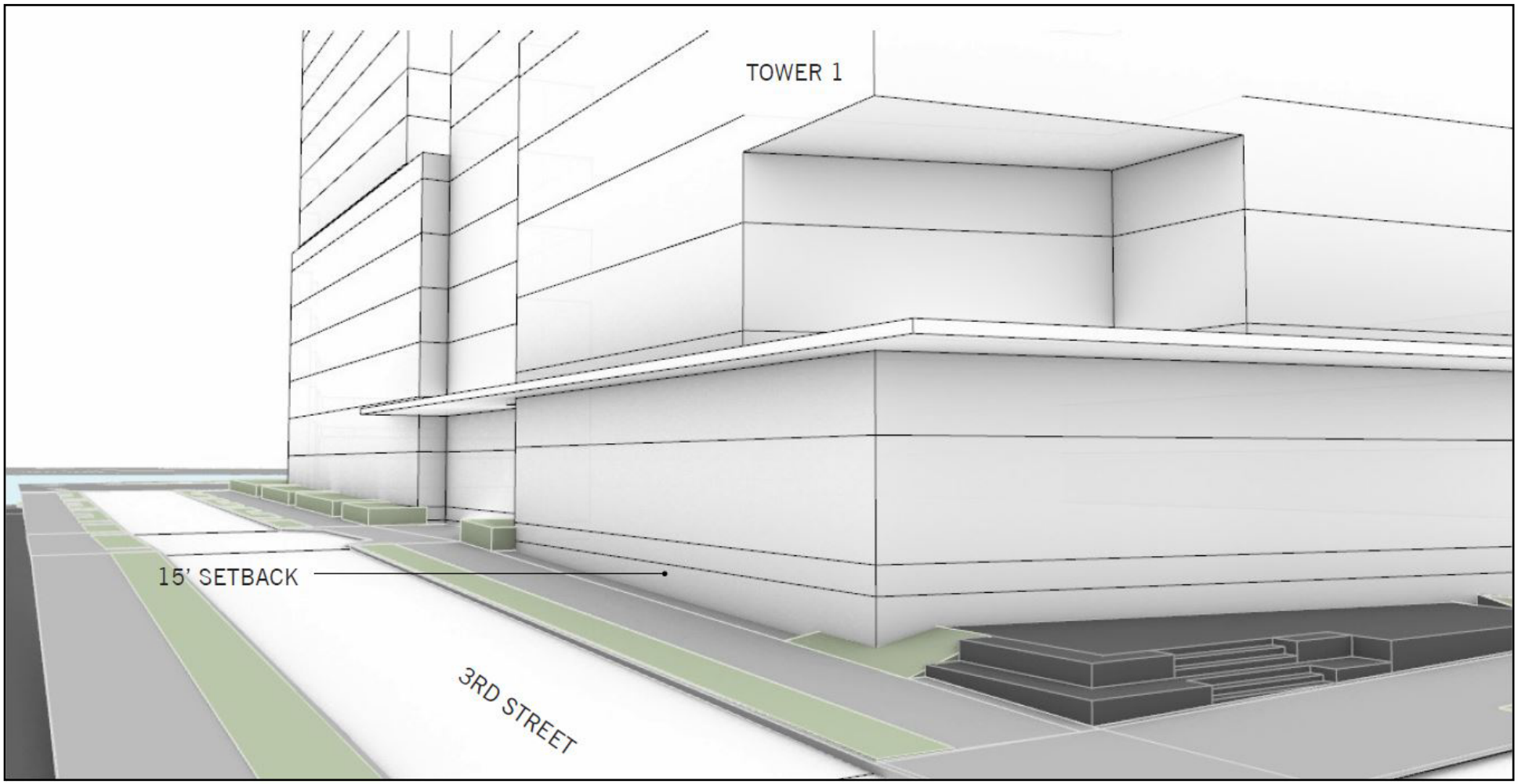
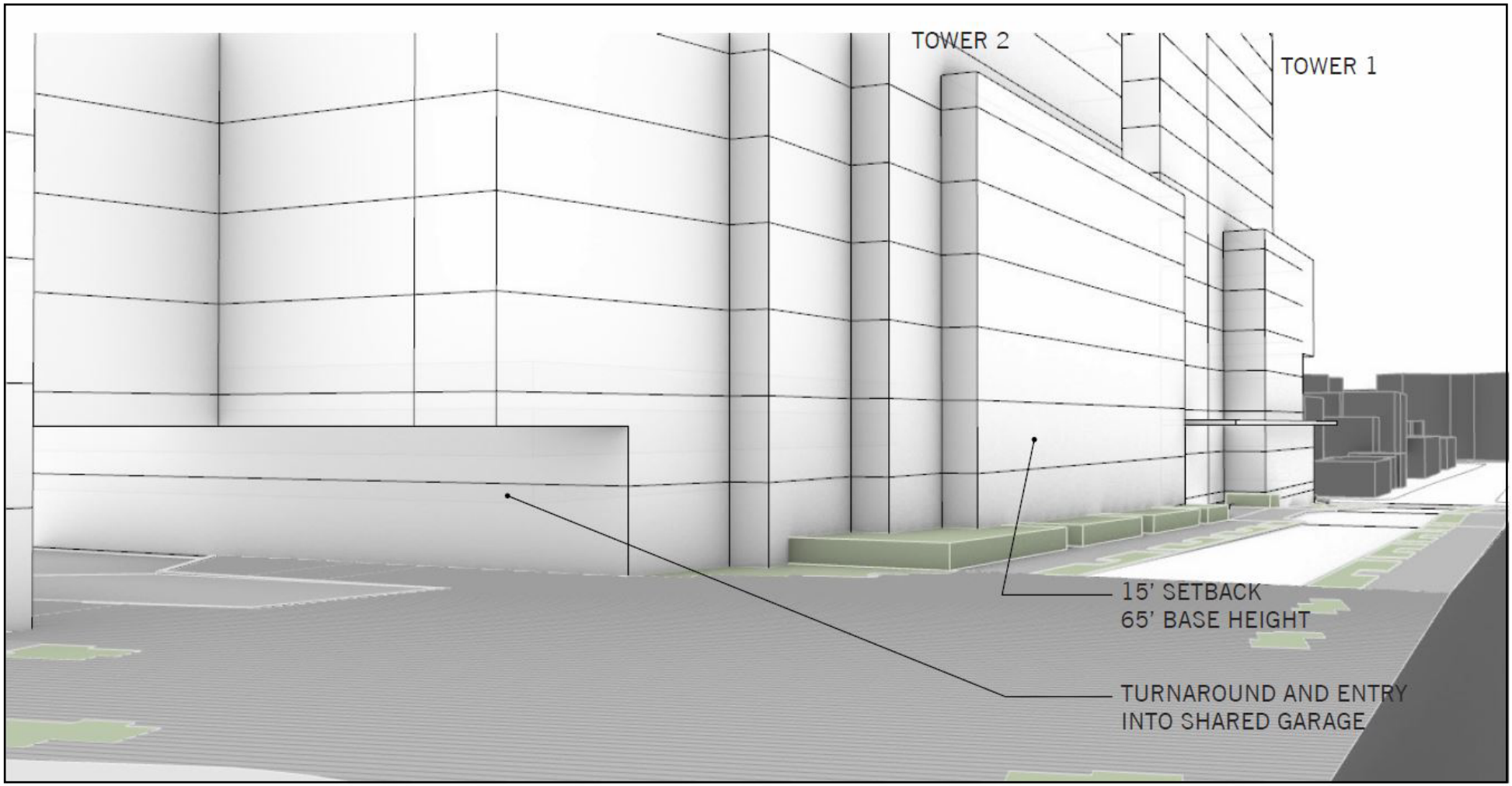


Street View: North Along 3rd Street

Source:Studio V



Street View: South Along 3rd Street

Source:Studio V

Lower Density Alternative Compared with the Proposed Actions

The effects of the Lower Density Alternative in comparison to those of the Proposed Actions are summarized below. As outlined below, the Lower Density Alternative would still result in significant adverse impacts on community facilities, active open space, transportation, operational noise, and construction noise. These impacts could be mitigated using the same mitigation measures identified for the Proposed Actions, with slightly lesser mitigation needed to mitigate the child care and transportation impacts.

The Lower Density Alternative would meet the goals of the Proposed Actions to a lesser degree than under the Proposed Actions. While this alternative would provide some affordable housing, there would be approximately 53 affordable DUs less than under the Proposed Actions. As such, the Lower Density Alternative would contribute less to the goal of the Proposed Actions of introducing much-needed affordable housing units within the Project Area. In addition, the Lower Density Alternative would result in the construction of approximately 13 percent fewer residential units than under the Proposed Actions and, therefore, would be less supportive of the Proposed Actions' and the City's goals to create more housing for the City's growing population.

Land Use, Zoning, and Public Policy

As under the Proposed Actions, the Lower Density Alternative would introduce a mix of residential, commercial, community facility, and open space uses within the Project Area. Compared to the Proposed Actions, the Lower Density Alternative would include 213 fewer residential units (including 53 fewer affordable DUs) and 80 fewer accessory parking spaces. Neither the Lower Density Alternative nor the Proposed Actions would result in significant adverse land use impacts. In addition, both alternatives would involve the same discretionary actions. Both alternatives would extend residential zoning onto the Project Area and, therefore, would not represent a significant adverse zoning impact.

However, the Lower Density Alternative would be less supportive of applicable public policies, as compared to the Proposed Actions. Because this alternative would result in fewer residential units, including fewer affordable units, it would be less supporting of the Housing New York affordable housing goals and the PlaNYC goal of creating enough housing for almost a million more people by 2030.

Socioeconomic Conditions

The Lower Density Alternative would result in less development than under the Proposed Actions. Like the Proposed Actions, the Lower Density Alternative would not result in impacts related to either direct or indirect displacement of residences of businesses, nor would it result in impacts on specific industries. However, the Lower Density Alternative would result in the construction of fewer affordable units and therefore would be less supportive of the project's goal of creating new opportunities for affordable housing development.

Community Facilities

The Lower Density Alternative would result in less demand on area community services than development under the Proposed Actions. With 213 fewer dwelling units, the Lower Density Alternative would decrease the number of anticipated elementary, intermediate, and high school students generated at the Project Area by 21, 8, and 22 students, respectively. As such, the demand for elementary, intermediate, and high school seats within CSD 30, Sub-district 3 would increase to 140.5 percent, 76.1 percent, and 91.2 percent

utilization compared to No-Action conditions. The introduction of 160 elementary school students would increase the shortfall of available seats in CSD 30, Sub-district 3 to 1,574. Similar to the Proposed Actions, the Lower Density Alternative would result in a significant adverse impact related to public elementary school seats. As the increase in the public elementary school utilization rate from No-Action conditions would be less than the incremental increase anticipated under the Proposed Actions, slightly lesser mitigation measures would be needed to fully mitigate the significant adverse impact.

With 53 fewer affordable units, the Lower Density Alternative would decrease the number of anticipated publicly funded child care-eligible children generated on the project site by six, thereby reducing future 2031 child care enrollment to 411 (159.9 percent utilization). Like the Proposed Actions, this would represent an increase of more than five percentage points over the No-Action condition and would therefore result in a significant adverse impact on study area child care facilities. As the increase in the publicly funded child care center utilization rate from No-Action conditions, would be less than the incremental increase anticipated under the Proposed Actions, slightly lesser mitigation measures would be needed to fully mitigate the significant adverse impact.

Neither the Lower Density Alternative nor the Proposed Actions would result in significant adverse impacts on libraries or police, fire, or healthcare services.

Open Space

With 213 fewer residential units, the Lower Density Alternative would result in a reduction in the Project Area's residential population (open space users) by approximately 496. Under the Lower Density Alternative, the total, active, and passive open space ratios would be slightly higher than under the Proposed Actions and would represent decreases of 10.76, 11.87, and 10.22 percent from the No-Action open space ratios, respectively. As under the Proposed Actions, the total and passive open space ratios would continue to be higher than the City's optimal planning goals. However, as under the Proposed Actions, the future active open space ratio would be less than the City's optimal planning goal of 2.0 acres of active open space per 1,000 residents. As such, significant adverse active open space impacts would occur under both the Proposed Actions and the Lower Density Alternative.

Shadows

As indicated in **Figure 19-1**, the Proposed Project's buildings that would be constructed under the Lower Density Alternative would be lower in height than those to be developed under the Proposed Actions. Specifically, Tower 1 would be reduced from 22 to 15 stories; Tower 2 would be reduced from 31 to 25 stories; and Tower 3 would be reduced from 35 to 30 stories. As such, the maximum shadow length from the Proposed Project's buildings would be lower than under the Proposed Actions. Like the Proposed Actions, the Lower Density Alternative would not result in significant adverse shadow impacts on area sunlight-sensitive resources.

Urban Design and Visual Resources

Both the Lower Density Alternative and the Proposed Actions would result in significant changes to the pedestrian realm, including the construction of new mixed-use buildings and roadways, reactivation of the streetscape with ground floor retail, improvements to existing roadways and sidewalks, and the creation of new waterfront open space. As with the Proposed Actions, the Lower Density Alternative would map a residential zoning district with a commercial overlay on the Project Area (R7-3/C2-4). However, the buildings constructed under the Lower Density Alternative would be lower in height than

currently proposed. As discussed in **Chapter 7, "Urban Design and Visual Resources,"** the taller buildings constructed under the Proposed Actions would be consistent with existing and planned development in the surrounding area. Like the Proposed Actions, the Lower Density Alternative would not result in significant adverse impacts to urban design and visual resources.

Natural Resources

The Lower Density Alternative, like the Proposed Actions, would not result in significant adverse impacts to natural resources, including groundwater, floodplains, vegetation, wildlife, threatened and endangered species, and littoral zone tidal wetlands and aquatic resources of the East River. It is anticipated that the Lower Density Alternative would result in minor reductions in the Proposed Project's building's bulk. A new stormwater outfall would be constructed at the northern termini of 3rd Street under both the Lower Density Alternative and the Proposed Actions and would not result in the loss of tidal wetland or disturbance to the river bottom.

Hazardous Materials

Development under the Proposed Actions and the Lower Density Alternative would not result in significant adverse hazardous materials impacts with implementation of the measures outlined in **Chapter 9, "Hazardous Materials."**

Water and Sewer Infrastructure

Neither the Proposed Actions nor the Lower Density Alternative would result in a significant adverse impact to the City's water supply or sanitary sewage systems. It is assumed that new stormwater outfall would be constructed at the northern termini 3rd Street, new storm sewers would be constructed along portions of 3rd Street and 26th Avenue, and new sanitary sewers would be constructed along portions of 3rd Street and 26th Avenue to accommodate development of the Proposed Project, as under the Proposed Actions.

With a reduction of 213 residential units (an estimated 496 residents), the Lower Density Alternative would result in approximately 49,600 gallons per day (gpd) less domestic water demand, as compared to the Proposed Actions. Similar to the development facilitated by the Proposed Actions, the Lower Density Alternative would not result in a significant increase in water demand over the No-Action condition.

Transportation

Based on the trip generation assumptions detailed in **Chapter 11, "Transportation,"** the Lower Density Alternative would generate 1,442, 1,346, 1,758, and 1,712 incremental person trips and 326, 241, 338, and 303 incremental vehicle trips during the weekday AM, midday, PM, and Saturday peak hours, respectively (see **Tables 19-2** and **19-3**). In comparison, under the reasonable worst-case traffic scenario, the Proposed Actions would generate 1,614, 1,432, 1,946, and 1,876 incremental person trips and 361, 259, 375, and 333 incremental vehicle trips in the weekday AM, midday, PM and Saturday peak hours. As shown in **Tables 19-2** and **19-3**, the Lower Density Alternative would generate between 86 and 188 fewer peak hour person trips and between 18 and 37 fewer peak hour vehicle trips as compared to the Proposed Actions. This would represent an approximately six to eleven percent decrease in project-generated person trips and a seven to ten percent decrease in project-generated vehicle trips as compared to the Proposed Actions. Overall, it is anticipated that the Lower Density Alternative would result in similar or fewer significant adverse traffic, subway, bus and pedestrian impacts. While both the Proposed Actions and

the Lower Density Alternative are expected to result in a parking shortfall in the weekday overnight period, the shortfall under this alternative would be somewhat smaller than under the Proposed Actions, and there would be no significant adverse parking impacts under either scenario based on *CEQR Technical Manual* criteria.

Traffic

As presented in **Table 19-3**, compared with the Proposed Actions, the Lower Density Alternative would generate approximately 35, 18, 37 and 30 fewer incremental vehicle trips during the weekday AM, midday, and PM and Saturday peak hours, respectively. Depending on the peak hour, this represents a decrease of approximately seven percent to ten percent as compared with the incremental vehicle trips that would be generated under the Proposed Actions. Consequently, the number of lane groups and intersections with significant adverse traffic impacts under the Lower Density Alternative would likely be comparable to or less than the number under the Proposed Actions. As discussed in **Chapter 11, "Transportation,"** under the Proposed Actions there would be a total of 32 impacted lane groups at 18 intersections in the weekday AM peak hour, 14 impacted lane groups at 10 intersections in the midday, 30 impacted lane groups at 17 intersections in the PM, and 20 impacted lane groups at 12 intersections in the Saturday peak hour.

TABLE 19-2: Comparison of Weekday Peak Hour Incremental Person Trips by Mode—Proposed Actions vs. Lower Density Alternative

Scenario	Auto		Taxi		Subway		Bus		Ferry		Walk/Other		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM															
Proposed Actions	122	245	11	13	185	611	26	66	13	41	108	173	465	1,149	1,614
Lower Density Alternative	114	219	11	12	160	533	24	58	11	36	104	160	424	1,018	1,442
Net Difference	***-8***	***-26***	***0***	***-1***	***-25***	***-78***	***-2***	***-8***	***-2***	***-5***	***-4***	***-13***	***-41***	***-131***	***-172***
Weekday Midday															
Proposed Actions	149	159	11	12	207	209	35	36	13	13	293	295	708	724	1,432
Lower Density Alternative	141	151	11	12	180	182	32	33	12	12	289	291	665	681	1,346
Net Difference	***-8***	***-8***	***0***	***0***	***-27***	***-27***	***-3***	***-3***	***-1***	***-1***	***-4***	***-4***	***-43***	***-43***	***-86***
Weekday PM															
Proposed Actions	222	171	14	14	543	343	62	44	36	23	249	225	1,126	820	1,946
Lower Density Alternative	200	157	13	13	475	299	55	40	32	20	237	217	1,012	746	1,758
Net Difference	***-22***	***-14***	***-1***	***-1***	***-68***	***-44***	***-7***	***-4***	***-4***	***-3***	***-12***	***-8***	***-114***	***-74***	***-188***
Saturday															
Proposed Actions	177	203	14	14	352	430	47	55	23	28	271	262	884	992	1,876
Lower Density Alternative	162	185	13	14	309	376	42	50	20	24	264	253	810	902	1,712
Net Difference	***-15***	***-18***	***-1***	***0***	***-43***	***-54***	***-5***	***-5***	***-3***	***-4***	***-7***	***-9***	***-74***	***-90***	***-164***

TABLE 19-3: Comparison of Weekday Peak Hour Incremental Vehicle Trips by Mode—Proposed Actions vs. Lower Density Alternative

Scenario	Auto		Taxi (Balanced)		Shuttle		Truck		Total		
	In	Out	In	Out	In	Out	In	Out	In	Out	Total
Weekday AM											
Proposed Actions	96	215	15	15	13	13	-6	0	118	243	361
Lower Density Alternative	89	191	14	14	13	13	-7	-1	109	217	326
Net Difference	***-7***	***-24***	***-1***	***-1***	***0***	***0***	***-1***	***-1***	***-9***	***-26***	***-35***
Weekday Midday											
Proposed Actions	115	122	13	13	0	0	-3	-1	125	134	259
Lower Density Alternative	107	114	13	13	0	0	-4	-2	116	125	241
Net Difference	***-8***	***-8***	***0***	***0***	***0***	***0***	***-1***	***-1***	***-9***	***-9***	***-18***
Weekday PM											
Proposed Actions	191	141	16	16	11	11	-7	-4	211	164	375
Lower Density Alternative	171	128	14	14	11	11	-7	-4	189	149	338
Net Difference	***-20***	***-13***	***-2***	***-2***	***0***	***0***	***0***	***0***	***-22***	***-15***	***-37***
Saturday											
Proposed Actions	144	167	12	12	0	0	-1	-1	155	178	333
Lower Density Alternative	130	151	12	12	0	0	-1	-1	141	162	303
Net Difference	***-14***	***-16***	***0***	***0***	***0***	***0***	***0***	***0***	***-14***	***-16***	***-30***

Tables 19-4 through **19-7**, below, show the volume-to-capacity (v/c) ratios, delays, and levels of service (LOS) for each analyzed intersection under the Lower Density Alternative, and compares them to the Proposed Actions' conditions for the weekday AM, midday, PM, and Saturday peak hours. These tables also show the volume-to-capacity (v/c) ratios, delays, and levels of service (LOS) for each analyzed intersection under the Lower Density Alternative with mitigation, and compares them to the Proposed Actions' with mitigation conditions for the same peak hours. As shown in **Tables 19-4** through **19-7**, the Lower Density Alternative would result in significant adverse traffic impacts at 22 study area intersections (13 signalized and 9 unsignalized) during one or more analyzed peak hours; specifically 31 lane groups at 18 intersections during the weekday AM peak hour (compared to 32 lane groups at 18 intersections under the Proposed Actions), 14 lane groups at 10 intersections during the midday peak hour (same as under the Proposed Actions), 30 lane groups at 17 intersections during the PM peak hour (same as under the Proposed Actions), and 20 lane groups at 12 intersections during the Saturday midday peak hour (same as under the Proposed Actions).

As demonstrated below, many of the traffic impacts under the Lower Density Alternative would be mitigated through the implementation of traffic engineering improvements, specifically the modification of traffic signal phasing and/or timing. The mitigation measures proposed herein are standard measures that are routinely identified by the City and considered feasible for implementation. **Table 19-8** summarizes the recommended mitigation measures for each of the intersections with identified significant adverse traffic impacts during the weekday AM, midday, PM, and Saturday midday peak hours under the Lower Density Alternative. It should be noted that these mitigation measures are the same as those proposed for the Proposed Actions with exception of the signal-related measures proposed at one intersection during the AM and PM peak hours. At Astoria Park S/ Hoyt Avenue at 21st Street in the AM peak hour, under the Lower Density Alternative, the signal timing would be modified to transfer 2 seconds from EB phase to NB/SB phase (compared to a 3 seconds modification proposed as mitigation for the Proposed Actions). As shown below in **Tables 19-4** through **19-7**, significant adverse impacts under the Lower Density Alternative would be mitigated at 11 lane groups (at 6 intersections) in the weekday AM peak hour, 4 lane groups (at 4 intersections) in the midday peak hour, 7 lane groups (at 5 intersections) in the weekday PM peak hour, and 6 lane groups (at 3 intersections) in the Saturday peak hour. Significant

adverse impacts under the Lower Density Alternative would be unmitigated at 20 lane groups (at 11 intersections) in the weekday AM peak hour, 10 lane groups (at 6 intersections) in the midday peak hour, 23 lane groups (at 13 intersections) in the weekday PM peak hour, and 14 lane groups (at 9 intersections) in the Saturday peak hour.

TABLE 19-4: Comparison of AM LOS Proposed Actions vs. Lower Density Alternative

			Proposed Actions AM				Proposed Actions w/ Mitgation AM				LDA AM				LDA w/ Mitigation AM			
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS	
26th Ave &	EB	LR	0.09	22.70	C		0.09	23.30	C		0.09	22.7	C		0.09	23.3	C	
21st St	NB	T	0.64	27.30	C		0.63	26.40	C		0.64	27.2	C		0.62	26.3	C	
(Signalized)	SB	T	1.14	105.80	F	*	1.12	96.90	F		1.14	104.9	F	*	1.12	96.1	F	
27th Avenue &	EB	LT	0.00	9.70	A		0.00	9.70	A		0.00	9.6	A		0.00	9.6	A	
3rd St	SB	LR	1.26	227.40	F	*	1.26	227.40	F	*	1.16	192.0	F	*	1.16	192.0	F	*
(Stop-Control)																		
27th Avenue &	EB	LT	1.14	99.90	F	*	1.02	52.60	D		1.13	94.1	F	*	1.01	49.1	D	
4th St	WB	T	0.58	16.40	B		0.52	11.90	B		0.58	16.3	B		0.51	11.8	B	
(Signalized)	WB	R	1.70	350.30	F	*	0.74	19.80	B		1.68	340.2	F	*	0.73	19.4	B	
27th Avenue &	EB	T	0.50	14.30	B		0.50	14.30	B		0.50	14.3	B		0.50	14.3	B	
8th Street	EB	R	0.99	59.30	E	*	0.81	22.00	C		0.96	51.7	D	*	0.79	20.2	C	
(Signalized)	WB	L	0.73	28.20	C		0.73	28.20	C		0.72	27.4	C		0.72	27.4	C	
	WB	T	0.76	21.50	C		0.76	21.50	C		0.75	21.1	C		0.75	21.1	C	
	NB	L	0.83	44.80	D		0.83	44.80	D		0.82	43.9	D		0.82	43.9	D	
	NB	R	0.45	29.80	C		0.45	29.80	C		0.44	29.5	C		0.44	29.5	C	
27th Avenue &	EB	T	0.70	23.50	C		0.70	23.50	C		0.70	23.5	C		0.70	23.5	C	
9th St	WB	T	1.12	94.10	F	*	1.12	94.10	F	*	1.11	90.0	F	*	1.11	90.0	F	*
(Signalized)	SB	L	1.00	64.20	E	*	1.00	64.20	E	*	0.97	57.2	E	*	0.97	57.2	E	*
	SB	R	0.25	18.40	B		0.25	18.40	B		0.24	18.4	B		0.24	18.4	B	
27th Avenue &	EB	LT	1.42	210.20	F	*	1.42	210.20	F	*	1.39	196.1	F	*	1.39	196.1	F	*
12th Street	WB	TR	0.73	11.50	B		0.73	11.50	B		0.72	11.3	B		0.72	11.3	B	
(Signalized)	NB	LTR	0.69	50.70	D		0.69	50.70	D		0.69	50.7	D		0.69	50.7	D	
27th Avenue &	EB	TR	1.28	160.60	F	*	1.10	84.80	F		1.26	153.5	F	*	1.08	79.6	E	
14th Street	WB	LT	0.96	51.00	D	*	0.93	44.70	D		0.94	47.3	D	*	0.92	42.0	D	
(Signalized)	SB	LTR	0.87	38.90	D		0.90	42.50	D		0.87	38.9	D		0.90	42.5	D	
Astoria Boulevard &	EB	T	0.91	46.30	D		0.91	46.30	D		0.91	46.3	D		0.91	46.3	D	
18th Street	WB	T	0.65	28.90	C		0.65	28.90	C		0.65	28.9	C		0.65	28.9	C	
(Signalized)	SB	LR	1.02	74.90	E	*	1.02	74.90	E	*	1.00	69.7	E	*	1.00	69.7	E	*
Astoria Boulevard &	EB	L	1.27	198.90	F	*	1.27	198.90	F	*	1.25	189.2	F	*	1.25	189.2	F	*
21st Street	EB	TR	2.90	909.70	F	*	2.90	909.70	F	*	2.88	902.8	F	*	2.88	902.8	F	*
(Signalized)	WB	L	1.11	124.70	F		1.11	124.70	F		1.11	124.7	F		1.11	124.7	F	
	WB	T	1.50	282.40	F	*	1.50	282.40	F	*	1.50	281.3	F	*	1.50	281.3	F	*
	WB	R	0.35	43.90	D		0.35	43.90	D		0.35	43.8	D		0.35	43.8	D	
	NB	Defl	1.83	468.30	F		1.83	468.30	F		1.78	447.1	F		1.78	447.1	F	
	NB	T	0.83	47.00	D		0.83	47.00	D		0.83	47.0	D		0.83	47.0	D	
	NB	LT	0.00	132.46	F	*	0.00	132.46	F	*		128.2	F	*	0.00	128.2	F	*
	NB	R	0.44	29.70	C		0.44	29.70	C		0.44	29.7	C		0.44	29.7	C	
	SB	LT	0.85	38.40	D		0.85	38.40	D		0.85	38.4	D		0.85	38.4	D	
	SB	R	0.74	38.70	D		0.74	38.70	D		0.73	38.4	D		0.73	38.4	D	
Astoria Blvd &	NB	LR	0.73	96.10	F	*	0.73	96.10	F	*	0.71	91.4	F	*	0.71	91.4	F	*
Newtown Ave																		
(Stop-Control)																		
30th Av &	SB	LT	1.04	76.80	F	*	1.04	76.80	F	*	1.01	67.3	F	*	1.01	67.3	F	*
8th St	WB	LR		9999.00	F	*		9999.00	F	*		9999.0	F	*		9999.0	F	*
(Stop-Control)																		
30th Av &	NB	LTR	0.00	7.30	A	*	0.00	7.30	A	*	0.00	7.3	A		0.00	7.3	A	
Main St	WB	TR	0.34	14.70	B	*	0.34	14.70	B	*	0.34	14.6	B		0.34	14.6	B	
(Stop-Control)	EB	LT	1.19	130.30	F		1.19	130.30	F		1.16	122.6	F	*	1.16	122.6	F	*
30th Avenue &	EB	LTR	-	36.43	E	*	-	36.43	E	*	-	34.0	D	*	-	34.0	D	*
12th Street	WB	LTR	-	12.48	B		-	12.48	B		-	12.4	B		-	12.4	B	
(All-way Stop)	NB	LTR	-	14.76	B		-	14.76	B		-	14.6	B		-	14.6	B	
30th Avenue &	EB	LTR	-	90.98	F		-	90.98	F	*	-	84.6	F	*	-	84.6	F	*
14th Street	WB	LTR	-	21.79	C	*	-	21.79	C		-	21.7	C		-	21.7	C	
(All-way Stop)	NB	LTR	-	13.65	B		-	13.65	B		-	13.6	B		-	13.6	B	
	SB	LTR	-	72.80	F		-	72.80	F	*	-	72.6	F	*	-	72.6	F	*
24th Ave &	EB	LTR	0.08	16.10	B		0.08	16.10	B	*	0.08	16.1	B		0.08	16.1	B	
21st St	WB	LTR	0.57	25.80	C		0.57	25.80	C	*	0.57	25.8	C		0.57	25.8	C	
(Signalized)	NB	LTR	1.48	241.80	F	*	1.48	241.80	F		1.47	237.5	F	*	1.47	237.5	F	*
	SB	LT	1.20	128.00	F	*	1.20	128.00	F		1.19	124.6	F	*	1.19	124.6	F	*
	SB	R	0.00	9.60	A		0.00	9.60	A		0.00	9.6	A		0.00	9.6	A	
Hoyt Avenue North &	EB	L	0.00	40.00	D		0.00	40.00	D	*	0.00	40.0	D		0.00	40.0	D	
21st Street	EB	R	0.33	47.10	D		0.33	47.10	D		0.33	47.1	D		0.33	47.1	D	
(Signalized)	WB	L	1.06	85.00	F	*	1.06	85.00	F		1.05	84.1	F		1.05	84.1	F	
	WB	TR	0.36	17.90	B		0.36	17.90	B	*	0.36	17.9	B		0.36	17.9	B	
	NB	L	0.18	28.60	C		0.18	28.60	C	*	0.18	28.6	C		0.18	28.6	C	
	NB	T	1.41	235.30	F	*	1.41	235.30	F		1.40	229.9	F	*	1.40	229.9	F	*
	SB	TR	1.00	74.10	E	*	1.00	74.10	E		1.00	74.1	E	*	1.00	74.1	E	*
Astoria Park S/ Hoyt Aven &	EB	L	0.18	24.00	C		0.20	26.10	C		0.18	24.0	C		0.19	25.4	C	
21st Street	EB	T					0.65	35.80	D						0.63	34.5	C	
(Signalized)	EB	R					0.76	45.70	D						0.74	43.4	D	
	EB	TR	1.32	191.20	F	*		39.85	D		1.31	188.1	F	*		36.5	D	
	NB	LTR	1.28	167.40	F	*	1.16	116.60	F		1.27	163.8	F	*	1.19	129.1	F	
	SB	LTR	1.32	182.60	F	*	1.23	140.10	F		1.32	180.2	F	*	1.26	151.6	F	
30th Avenue &	EB	LT					0.88	63.50	E						0.87	62.4	E	
21st Street	EB	R					0.73	51.40	D						0.72	50.1	D	
(Signalized)	EB	LTR	1.46	262.80	F	*		58.60	E		1.44	254.6	F	*		57.5	E	
	WB'	LT					0.96	83.80	F						0.96	82.2	F	
	WB	R					0.12	29.90	C						0.12	29.9	C	
	WB	LTR	1.17	150.00	F	*		77.40	E		1.16	145.5	F	*		76.0	E	
	NB	LTR	0.67	22.40	C		0.67	22.40	C		0.67	22.3	C		0.67	22.3	C	
	SB	LTR	1.01	53.50	D		1.01	53.50	D		1.01	53.5	D		1.01	53.5	D	

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a significant adverse impact
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

TABLE 19-5: Comparison of Midday LOS Proposed Actions vs. Lower Density Alternative

			Proposed Actions MD				Proposed Actions w/ Mitgation MD				LDA MD				LDA w/ Mitigation MD			
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS	
27th Avenue &	EB	LT	0.00	14.20	B		0.00	14.20	B		0.00	14.1	B		0.00	14.1	B	
3rd St	SB	LR	1.47	349.00	F	*	1.47	349.00	F	*	1.40	319.1	F	*	1.40	319.1	F	*
(Stop-Control)																		
27th Avenue &	EB	LT	0.84	27.40	C		0.75	18.10	B		0.83	26.9	C		0.74	17.9	B	
4th St	WB	T	0.58	16.40	B		0.52	11.80	B		0.57	16.2	B		0.51	11.7	B	
(Signalized)	WB	R	2.00	484.70	F	*	0.63	15.60	B		1.94	458.0	F	*	0.63	15.4	B	
27th Avenue &	EB	T	0.36	13.40	B		0.36	13.40	B		0.36	13.4	B		0.36	13.4	B	
8th Street	EB	R	1.33	192.20	F	*	1.03	68.10	E		1.31	184.7	F	*	1.01	64.4	E	
(Signalized)	WB	L	0.37	15.40	B		0.37	15.40	B		0.37	15.4	B		0.37	15.4	B	
	WB	T	0.77	23.80	C		0.77	23.80	C		0.77	23.3	C		0.77	23.3	C	
	NB	L	0.71	34.30	C		0.69	32.40	C		0.71	34.0	C		0.69	32.1	C	
	NB	R	0.55	37.50	D		0.52	34.50	C		0.55	37.2	D		0.52	34.5	C	
27th Avenue &	EB	TR	0.68	18.70	B		0.62	16.70	B		0.68	18.7	B		0.62	16.6	B	
14th Street	WB	LT	0.65	17.50	B		0.67	18.10	B		0.64	17.2	B		0.66	17.9	B	
(Signalized)	SB	LTR	0.49	27.60	C		0.49	27.60	C		0.49	27.6	C		0.49	27.6	C	
27th Avenue &	EB	LTR		9999.00	F	*		9999.00	F	*		9999.0	F	*		9999.0	F	*
18th Street (Stop-Control)	WB	LTR	0.11	29.50	D		0.11	29.50	D		0.11	29.3	D		0.11	29.3	D	
Astoria Boulevard &	EB	L	0.57	44.80	D		0.57	44.80	D		0.56	44.7	D		0.56	44.7	D	
21st Street	EB	TR	1.84	435.90	F	*	1.84	435.90	F	*	1.84	434.3	F	*	1.84	434.3	F	*
(Signalized)	WB	L	0.82	60.70	E		0.82	60.70	E		0.82	60.7	E		0.82	60.7	E	
	WB	T	1.49	284.70	F	*	1.49	284.70	F	*	1.47	276.8	F	*	1.47	276.8	F	*
	WB	R	0.38	42.10	D		0.38	42.10	D		0.38	42.1	D		0.38	42.1	D	
	NB	LT	1.17	136.20	F	*	1.17	136.20	F	*	1.17	136.2	F	*	1.17	136.2	F	*
	NB	R	0.66	47.50	D		0.66	47.50	D		0.66	47.5	D		0.66	47.5	D	
	SB	LT	0.85	50.10	D		0.85	50.10	D		0.85	50.1	D		0.85	50.1	D	
	SB	R	1.03	100.30	F	*	1.03	100.30	F	*	1.02	98.6	F	*	1.02	98.6	F	*
Astoria Blvd &	NB	LR	0.41	30.90	D		0.41	30.90	D		0.41	30.5	D		0.41	30.5	D	
Newtown Ave																		
(Stop-Control)																		
30th Av &	SB	LT		9999.00	F			9999.00	F			9999.0	F	*		9999.0	F	*
8th St	WB	LR		9999.00	F			9999.00	F			9999.0	F	*		9999.0	F	*
(Stop-Control)																		
24th Ave &	EB	LTR	0.01	15.50	B		0.01	15.50	B		0.01	15.5	B		0.01	15.5	B	
21st St	WB	LTR	0.35	20.00	B		0.35	20.00	B		0.35	20.0	B		0.35	20.0	B	
(Signalized)	NB	LTR	1.34	184.40	F	*	1.34	184.40	F	*	1.34	181.9	F	*	1.34	181.9	F	*
	SB	LT	0.64	20.70	C		0.64	20.70	C		0.64	20.7	C		0.64	20.7	C	
	SB	R	0.00	11.40	B		0.00	11.40	B		0.00	11.4	B		0.00	11.4	B	
Hoyt Avenue North &	EB	L	0.07	42.80	D		0.07	42.80	D		0.07	42.8	D		0.07	42.8	D	
21st Street	EB	R	0.14	44.20	D		0.14	44.20	D		0.14	44.2	D		0.14	44.2	D	
(Signalized)	WB	L	0.81	42.90	D		0.81	42.90	D		0.81	42.8	D		0.81	42.8	D	
	WB	TR	0.17	14.40	B		0.17	14.40	B		0.17	14.4	B		0.17	14.4	B	
	NB	L	0.13	25.90	C		0.13	25.90	C		0.13	25.9	C		0.13	25.9	C	
	NB	T	1.31	189.90	F	*	1.31	189.90	F	*	1.30	186.6	F	*	1.30	186.6	F	*
	SB	TR	0.74	41.70	D		0.74	41.70	D		0.74	41.7	D		0.74	41.7	D	
Astoria Park S/ Hoyt Aven &	EB	L	0.19	24.70	C		0.20	26.10	C		0.18	24.6	C		0.19	26.0	C	
21st Street	EB	T					0.35	28.60	C						0.35	28.6	C	
(Signalized)	EB	R					0.11	24.90	C						0.11	24.9	C	
	EB	TR	0.48	30.20	C		0.00	27.95	C		0.48	30.2	C			27.9	C	
	NB	LTR	0.88	41.60	D		0.83	35.60	D		0.88	41.2	D		0.83	35.5	D	
	SB	LTR	1.19	126.70	F	*	1.12	100.10	F		1.18	125.4	F	*	1.12	99.4	F	
30th Avenue &	EB	LT					0.55	39.50	D						0.55	39.4	D	
21st Street		R					0.44	38.00	D						0.44	38.0	D	
(Signalized)	EB	LTR	0.95	74.80	E	*		39.00	D		0.95	74.2	E	*		38.9	D	
	WB	LT					0.39	35.30	D						0.38	35.2	D	
	WB	R					0.10	30.20	C						0.10	30.2	C	
	WB	LTR	0.53	39.80	D			34.50	C		0.53	39.7	D			34.4	C	
	NB	LTR	0.69	24.30	C		0.69	24.30	C		0.69	24.3	C		0.69	24.3	C	
	SB	LTR	0.56	20.90	C		0.56	20.90	C		0.56	20.9	C		0.56	20.9	C	

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a significant adverse impact
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

TABLE 19-6: Comparison of PM LOS Proposed Actions vs. Lower Density Alternative

			Proposed Actions PM			Proposed Actions w/ Mitgation PM			LDA PM			LDA w/ Mitigation PM		
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS	V/C Ratio	Delay (sec/veh)	LOS
26th Ave &	EB	LR	0.08	22.60	C	0.08	23.80	C	0.08	22.6	C	0.08	23.8	C
21st St	NB	T	0.84	34.60	C	0.81	31.70	C	0.84	34.5	C	0.81	31.6	C
(Signalized)	SB	T	1.04	69.00	E *	1.01	57.20	E	1.04	66.8	E *	1.00	55.5	E
27th Avenue &	EB	LT	0.01	13.20	B	0.01	13.20	B	0.01	13.1	B	0.01	13.1	B
3rd St	SB	LR	2.20	648.40	F *	2.20	648.40	F *	2.08	594.8	F *	2.08	594.8	F *
(Stop-Control)														
27th Avenue &	EB	LT	0.87	26.10	C	0.85	24.00	C	0.86	25.3	C	0.84	23.3	C
4th St	WB	T	0.77	19.10	B	0.76	17.90	B	0.76	18.5	B	0.74	17.3	B
(Signalized)	WB	R	2.52	714.30	F *	1.05	65.50	E	2.46	683.9	F *	1.03	60.3	E
27th Avenue &	EB	T	0.46	14.70	B	0.46	14.70	B	0.46	14.7	B	0.46	14.7	B
8th Street	EB	R	0.83	36.80	D	0.66	16.30	B	0.81	34.3	C	0.64	15.5	B
(Signalized)	WB	L	0.61	23.40	C	0.61	23.40	C	0.60	23.1	C	0.60	23.1	C
	WB	T	1.33	176.80	F *	1.33	176.80	F *	1.30	165.6	F *	1.30	165.6	F *
	NB	L	0.92	55.10	E *	0.92	55.10	E *	0.91	52.9	D *	0.91	52.9	D *
	NB	R	0.62	36.90	D	0.62	36.90	D	0.62	36.7	D	0.62	36.7	D
27th Avenue &	EB	T	0.55	13.90	B	0.55	13.90	B	0.55	13.9	B	0.55	13.9	B
9th St	WB	T	1.35	186.40	F *	1.35	186.40	F *	1.33	175.7	F *	1.33	175.7	F *
(Signalized)	SB	L	0.87	48.30	D *	0.87	48.30	D *	0.85	46.2	D *	0.85	46.2	D *
	SB	R	0.25	24.70	C	0.25	24.70	C	0.25	24.6	C	0.25	24.6	C
27th Avenue &	EB	LT	1.64	311.10	F *	1.64	311.10	F *	1.59	288.7	F *	1.59	288.7	F *
12th Street	WB	TR	1.08	65.60	E *	1.08	65.60	E *	1.06	59.3	E *	1.06	59.3	E *
(Signalized)	NB	LTR	1.00	91.50	F	1.00	91.50	F	1.00	91.5	F	1.00	91.5	F
27th Avenue &	EB	TR	0.99	52.80	D *	0.83	27.10	C	0.98	51.2	D *	0.83	26.7	C
14th Street	WB	LT	1.30	166.90	F *	1.25	144.90	F *	1.27	154.8	F *	1.22	133.5	F *
(Signalized)	SB	LTR	0.73	30.90	C	0.79	37.40	D	0.73	30.9	C	0.79	37.4	D
27th Avenue &	EB	LTR	1.54	353.20	F *	1.54	353.20	F *	1.47	321.8	F *	1.47	321.8	F *
18th Street (Stop-Control)	WB	LTR	0.05	14.60	B	0.05	14.60	B	0.05	14.5	B	0.05	14.5	B
Astoria Boulevard &	EB	L	0.14	27.30	C	0.14	27.30	C	0.14	27.3	C	0.14	27.3	C
8th Street	EB	R	0.42	32.10	C	0.42	32.10	C	0.42	32.1	C	0.42	32.1	C
(Signalized)	WB	LTR	0.62	37.50	D	0.62	37.50	D	0.62	37.5	D	0.62	37.5	D
	NB	LT	1.08	90.40	F *	1.08	90.40	F *	1.06	84.4	F *	1.06	84.4	F *
	SB	T	0.56	19.40	B	0.56	19.40	B	0.55	19.2	B	0.55	19.2	B
	SB	R	0.06	12.40	B	0.06	12.40	B	0.06	12.4	B	0.06	12.4	B
Astoria Boulevard &	EB	L	0.84	69.70	E *	0.84	69.70	E *	0.83	68.4	E *	0.83	68.4	E *
21st Street	EB	TR	1.88	450.70	F *	1.88	450.70	F *	1.87	447.4	F *	1.87	447.4	F *
(Signalized)	WB	L	1.03	113.40	F	1.03	113.40	F	1.03	113.4	F	1.03	113.4	F
	WB	T	2.84	890.80	F *	2.84	890.80	F *	2.81	876.3	F *	2.81	876.3	F *
	WB	R	0.88	96.70	F *	0.88	96.70	F *	0.88	96.7	F *	0.88	96.7	F *
	NB	LT	1.45	244.40	F *	1.45	244.40	F *	1.44	238.7	F *	1.44	238.7	F *
	NB	R	0.51	29.50	C	0.51	29.50	C	0.51	29.5	C	0.51	29.5	C
	SB	LT	0.79	35.80	D	0.79	35.80	D	0.79	35.8	D	0.79	35.8	D
	SB	R	1.23	158.90	F *	1.23	158.90	F *	1.22	151.4	F *	1.22	151.4	F *
Astoria Blvd & Newtown Ave (Stop-Control)	NB	LR	0.93	119.50	F *	0.93	119.50	F *	0.91	114.0	F *	0.91	114.0	F *
30th Av &	SB	LT	2.58	780.30	F *	2.58	780.30	F *	2.44	714.1	F *	2.44	714.1	F *
8th St	WB	LR		9999.00	F *		9999.00	F *		9999.0	F *		9999.0	F
(Stop-Control)														
30th Av &	NB	LTR	0.00	7.40	A	0.00	7.40	A	0.00	7.4	A	0.00	7.4	A
Main St	WB	TR	0.50	18.50	C	0.50	18.50	C	0.50	18.4	C	0.50	18.4	C
(Stop-Control)	EB	LT	0.85	44.30	E *	0.85	44.30	E *	0.84	42.5	E *	0.84	42.5	E *
24th Ave &	EB	LTR	0.03	15.60	B	0.03	15.60	B	0.03	15.6	B	0.03	15.6	B
21st St	WB	LTR	0.42	21.10	C	0.42	21.10	C	0.42	21.1	C	0.42	21.1	C
(Signalized)	NB	LTR	1.26	145.30	F *	1.26	145.30	F *	1.26	144.1	F *	1.26	144.1	F *
	SB	LT	0.70	19.90	B	0.70	19.90	B	0.70	19.9	B	0.70	19.9	B
	SB	R	0.00	9.60	A	0.00	9.60	A	0.00	9.6	A	0.00	9.6	A
Hoyt Avenue North &	EB	L	0.08	44.30	D	0.08	44.30	D	0.08	44.3	D	0.08	44.3	D
21st Street	EB	R	0.18	44.80	D	0.18	44.80	D	0.18	44.8	D	0.18	44.8	D
(Signalized)	WB	L	1.03	75.70	E *	1.03	75.70	E *	1.02	73.5	E *	1.02	73.5	E *
	WB	TR	0.28	16.80	B	0.28	16.80	B	0.28	16.8	B	0.28	16.8	B
	NB	L	0.31	29.80	C	0.31	29.80	C	0.31	29.8	C	0.31	29.8	C
	NB	T	1.23	150.10	F *	1.23	150.10	F *	1.22	148.9	F *	1.22	148.9	F *
	SB	TR	0.89	52.40	D	0.89	52.40	D	0.88	52.1	D	0.88	52.1	D
Astoria Park S/ Hoyt Aven &	EB	L	0.20	24.30	C	0.21	25.70	C	0.20	24.3	C	0.21	25.7	C
21st Street	EB	T				0.59	33.20	C				0.58	33.0	C
(Signalized)	EB	R				0.14	24.80	C				0.14	24.8	C
	EB	TR	0.76	39.50	D	0.00	32.17	C	0.75	39.2	D	0.00	32.0	C
	NB	LTR	1.56	291.90	F *	1.48	251.50	F	1.56	289.0	F *	1.47	247.3	F
	SB	LTR	1.60	306.80	F *	1.51	266.60	F	1.59	302.9	F *	1.51	262.9	F
30th Avenue &	EB	LT				0.63	42.20	D				0.63	42.1	D
21st Street	EB	R				0.39	36.20	D				0.38	36.1	D
(Signalized)	EB	LTR	0.96	75.40	E *	.	40.40	D	0.96	73.9	E *	.	40.4	D
	WB	LT				0.57	40.60	D				0.57	40.5	D
	WB	R				0.12	30.50	C				0.12	30.5	C
	WB	LTR	0.71	46.90	D		39.20	D	0.70	46.6	D		39.1	D
	NB	LTR	1.03	59.40	E *	1.01	54.40	D	1.03	58.7	E *	1.01	53.8	D
	SB	LTR	0.65	21.90	C	0.64	21.00	C	0.65	21.9	C	0.64	21.0	C

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a significant adverse impact
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

TABLE 19-7: Comparison of Saturday LOS Proposed Actions vs. Lower Density Alternative

			Proposed Actions SAT				Proposed Actions w/ Mitgation SAT				LDA SAT				LDA w/ Mitigation SAT			
Intersections	Approach	Lane Group	V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh)	LOS		V/C Ratio	Delay (sec/veh	LOS	
27th Avenue &	EB	LT	0.00	15.00	C		0.00	15.00	C		0.00	14.8	B		0.00	14.8	B	
3rd St	SB	LR	1.85	514.60	F	*	1.85	514.60	F	*	1.70	450.9	F	*	1.70	450.9	F	*
(Stop-Control)																		
27th Avenue &	EB	LT	0.73	19.30	B		0.69	16.00	B		0.72	19.0	B		0.68	15.8	B	
4th St	WB	T	0.51	13.20	B		0.48	11.20	B		0.50	13.0	B		0.48	11.1	B	
(Signalized)	WB	R	2.28	607.10	F	*	0.76	19.70	B		2.20	571.8	F	*	0.75	19.2	B	
27th Avenue &	EB	T	0.42	14.10	B		0.42	14.10	B		0.42	14.1	B		0.42	14.1	B	
8th Street	EB	R	0.78	32.50	C		0.62	15.20	B		0.76	30.6	C		0.60	14.4	B	
(Signalized)	WB	L	0.52	19.60	B		0.52	19.60	B		0.52	19.5	B		0.52	19.5	B	
	WB	T	0.89	30.50	C		0.89	30.50	C		0.87	29.2	C		0.87	29.2	C	
	NB	L	0.50	25.90	C		0.50	25.90	C		0.50	25.8	C		0.50	25.8	C	
	NB	R	0.41	27.70	C		0.41	27.70	C		0.41	27.7	C		0.41	27.7	C	
27th Avenue &	EB	T	0.50	14.30	B		0.50	14.30	B		0.50	14.3	B		0.50	14.3	B	
9th St	WB	T	1.09	79.40	E	*	1.09	79.40	E	*	1.08	73.9	E	*	1.08	73.9	E	*
(Signalized)	SB	L	1.01	74.70	E	*	1.01	74.70	E	*	0.99	68.7	E	*	0.99	68.7	E	*
	SB	R	0.27	23.70	C		0.27	23.70	C		0.27	23.6	C		0.27	23.6	C	
27th Avenue &	EB	LT	1.66	321.10	F	*	1.66	321.10	F	*	1.61	299.9	F	*	1.61	299.9	F	*
12th Street	WB	TR	0.99	44.90	D		0.99	44.90	D		0.98	41.6	D		0.98	41.6	D	
(Signalized)	NB	LTR	0.40	29.40	C		0.40	29.40	C		0.40	29.4	C		0.40	29.4	C	
27th Avenue &	EB	TR	0.90	32.50	C		0.82	24.50	C		0.89	31.6	C		0.81	24.0	C	
14th Street	WB	LT	0.67	17.50	B		0.69	18.20	B		0.66	17.2	B		0.68	17.9	B	
(Signalized)	SB	LTR	0.66	32.90	C		0.66	32.90	C		0.66	32.9	C		0.66	32.9	C	
27th Avenue &	EB	LTR		9999.00	F	*		9999.00	F	*		9999.0	F	*		9999.0	F	*
18th Street (Stop-Control)	WB	LTR	0.12	30.00	D		0.12	30.00	D		0.11	29.3	D		0.11	29.3	D	
Astoria Boulevard &	EB	L	0.56	44.50	D		0.56	44.50	D		0.55	44.0	D		0.55	44.0	D	
21st Street	EB	TR	2.25	619.50	F	*	2.25	619.50	F	*	2.24	615.0	F	*	2.24	615.0	F	*
(Signalized)	WB	L	0.67	48.70	D		0.67	48.70	D		0.67	48.7	D		0.67	48.7	D	
	WB	T	1.58	320.70	F	*	1.58	320.70	F	*	1.56	314.5	F	*	1.56	314.5	F	*
	WB	R	0.24	37.80	D		0.24	37.80	D		0.24	37.8	D		0.24	37.8	D	
	NB	LT	1.47	262.30	F	*	1.47	262.30	F	*	1.46	259.4	F	*	1.46	259.4	F	*
	NB	R	0.54	43.80	D		0.54	43.80	D		0.54	43.8	D		0.54	43.8	D	
	SB	LT	0.91	56.70	E		0.91	56.70	E		0.91	56.6	E		0.91	56.6	E	
	SB	R	1.13	131.20	F	*	1.13	131.20	F	*	1.12	125.3	F	*	1.12	125.3	F	*
Astoria Blvd &	NB	LR	0.74	58.80	F	*	0.74	58.80	F	*	0.73	56.9	F	*	0.73	56.9	F	*
Newtown Ave																		
(Stop-Control)																		
30th Av &	SB	LT		9999.00	F	*		9999.00	F	*		9999.0	F	*		9999.0	F	*
8th St	WB	LR		9999.00	F	*		9999.00	F	*		9999.0	F	*		9999.0	F	*
(Stop-Control)																		
24th Ave &	EB	LTR	0.48	23.30	C		0.48	23.30	C		0.48	23.3	C		0.48	23.3	C	
21st St	WB	LTR	0.13	16.70	B		0.13	16.70	B		0.13	16.7	B		0.13	16.7	B	
(Signalized)	NB	LTR	1.36	188.00	F	*	1.36	188.00	F	*	1.35	184.3	F	*	1.35	184.3	F	*
	SB	LT	0.74	23.70	C		0.74	23.70	C		0.74	23.7	C		0.74	23.7	C	
	SB	R	0.17	13.00	B		0.17	13.00	B		0.17	13.0	B		0.17	13.0	B	
Hoyt Avenue North &	EB	L	0.07	41.20	D		0.07	41.20	D		0.07	41.2	D		0.07	41.2	D	
21st Street	EB	R	0.29	45.40	D		0.29	45.40	D		0.29	45.4	D		0.29	45.4	D	
(Signalized)	WB	L	0.92	54.80	D		0.92	54.80	D		0.92	53.9	D		0.92	53.9	D	
	WB	TR	0.39	18.30	B		0.39	18.30	B		0.39	18.3	B		0.39	18.3	B	
	NB	L	0.32	31.30	C		0.32	31.30	C		0.32	31.3	C		0.32	31.3	C	
	NB	T	1.14	118.20	F	*	1.14	118.20	F	*	1.13	115.7	F	*	1.13	115.7	F	*
	SB	TR	0.80	44.70	D		0.80	44.70	D		0.80	44.7	D		0.80	44.7	D	
Astoria Park S/ Hoyt Aven &	EB	L	0.26	25.80	C		0.27	27.30	C		0.26	25.8	C		0.27	27.3	C	
21st Street	EB	T					0.40	29.50	C						0.40	29.4	C	
(Signalized)	EB	R					0.29	28.00	C						0.29	28.0	C	
	EB	TR	0.69	37.20	D		0.00	29.00	C		0.68	37.0	D			28.9	C	
	NB	DefL	2.18	611.50	F		2.18	610.50	F		2.18	611.5	F		2.18	610.5	F	
	NB	TR	1.09	93.60	F	*	1.05	79.20	E		1.08	91.6	F	*	1.05	77.5	E	
	NB	LTR	0.00	170.70	F	*	0.00	158.20	F			170.7	F	*		157.2	F	
	SB	LTR	1.34	191.10	F	*	1.28	162.90	F		1.33	187.2	F	*	1.27	159.3	F	
30th Avenue &	EB	LT					0.62	42.20	D						0.62	42.2	D	
21st Street	EB	R					0.45	38.10	D						0.45	38.1	D	
(Signalized)	EB	LTR	1.03	94.20	F	*		40.90	D		1.03	94.2	F	*		40.9	D	
	WB	LT					0.66	46.80	D						0.66	46.8	D	
	WB	R					0.10	30.30	C						0.10	30.3	C	
	WB	LTR	0.86	66.70	E	*		44.50	D		0.86	66.7	E	*		44.5	D	
	NB	LTR	0.69	24.30	C		0.69	24.30	C		0.69	24.2	C		0.69	24.2	C	
	SB	LTR	0.78	27.60	C		0.78	27.60	C		0.78	27.6	C		0.78	27.6	C	

Notes:
EB - eastbound, WB - westbound, NB - northbound, SB - southbound
L - left, T - through, R - right, DefL - Analysis considers a defacto left-turn lane on this approach
V/C ratio - volume-to-capacity ratio
Sec/veh - seconds per vehicle
LOS - level of service
* - Denotes a significant adverse impact
Analysis is based on the 2000 Highway Capacity Manual methodology (HCS+, version 5.5)

TABLE 19-8: Lower Density Alternative Proposed Mitigation Measures

Intersection	Peak Hour	Phase	No-Action Signal Timing (Seconds) (1) AM	MD	PM	SAT	Proposed Signal Timing (Seconds) (1) AM	MD	PM	SAT	Proposed Mitigation Measures
26th Ave (EB/WB) & 21st Street (NB/SB)	AM/PM	EB/WB NB/SB Ped	53 60 7	52 58 10	53 60 7	52 58 2	52 61 7	52 58 10	51 62 7	52 58 2	- Tranfer 1s/2s of green time from EB/WB to NB/SB in AM & PM.
27th Ave (EB/WB) & 3rd Street (NB/SB)	ALL	EB/WB NB/SB	Stop-Controlled				Stop-Controlled				- Unmitigatable.
27th Ave (EB/WB) & 4th Street (NB)	ALL	EB/WB NB/SB ped	54 36	55 35	59 31	57 33	60 30	60 30	60 30	60 30	- Adjust signal timing to provide 30s of protected pedestrian phase
27th Ave (EB/WB) & 8th Street (NB/SB)	AM/MD/PM	EB/WB NB/SB NB/SB/EBR	55 35	53 37	53 37	53 37	55 24 11	53 23 14	53 25 12	53 25 12	- Adjust signal timing to introduce an NB/EBR phase to increase the EB-R capacity
27th Ave (EB/WB) & 9th Street (NB/SB)	AM/PM/ SATMD	EB/WB NB/SB	48 42	50 40	57 33	55 35	48 42	50 40	57 33	55 35	- Unmitigatable.
27th Ave (EB/WB) & 12th Street (NB/SB)	AM/PM SATMD	EB/WB NB/SB	70 20	60 30	69 21	60 30	70 20	60 30	69 21	60 30	- Unmitigatable.
27th Ave (EB/WB) & 14th Street (SB)	AM/PM	EB/WB NB/SB	46 44	55 35	49 41	55 35	47 43	55 35	52 38	55 35	- Install "No Stopping Anytime" regulation along north curb, west of 14th St. - Install "No Stopping Anytime" regulation along north curb for 100' of WB. - Restripe EB/WB approaches with one 15' EB lane and one 15' WB lane. - Transfer 1s & 3s from SB to EB/WB in AM & PM
27th Ave (EB/WB) & 18th Street (SB)	MD/PM SATMD	EB/WB	Stop-Controlled								- Unmitigatable.
Astoria Blvd (EB/WB) & 8th St (SB)	PM	EB/WB NB/SB	52 68	48 72	48 72	48 72	52 68	48 72	48 72	48 72	- Unmitigatable
Astoria Blvd (EB/WB) & 18th St (SB)	AM	EB/WB SB	60 60	60 60	60 60	60 60	59 61	60 60	60 60	60 60	- Unmitigatable
Astoria Blvd (EB/WB) & 21st St (SB)	ALL	EB WB NB/SB PED	27 33 53 7	36 36 38 10	30 27 56 7	36 36 38 10					- Unmitigatable
Astoria Blvd (EB/WB) & Newtown Ave(NB)	AM/PM	EB/WB NB NB/SB	Stop-Controlled				Stop-Controlled				- Unmitigatable.
30th Ave (WB) & 8th Street (NB/SB)	ALL	WB SB NB/SB	Stop-Controlled				Stop-Controlled				- Unmitigatable.
30th Ave (EB/WB) & Main Street (SB)	AM/MD/PM	EB/WB NB	Stop-Controlled								- Unmitigatable
30th Ave (EB/WB) & 12th Street (NB)	AM	EB/WB NB	Stop-Controlled								- Unmitigatable
30th Ave (EB/WB) & 14th Street (SB)	AM	EB/WB NB/SB	Stop-Controlled								- Unmitigatable
24th Ave (EB/WB) & 21st Street NB/SB)	ALL	EB/WB NB/SB PED	22 31 7	22 28 10	22 31 7	22 28 10	22 31 7	22 28 10	22 31 7	22 28 10	-Umitigatable
Hoyt Avenue North & 21st Street	ALL	EB/WBT WB NB/SB	27 43 50	25 45 50	25 43 52	27 43 50	27 43 50	25 45 50	25 43 52	27 43 50	-Umitigatable
Astoria Park S/ Hoyt Ave 21st Street	ALL	EB NB/SB PED	53 60 7	52 58 10	53 60 7	52 58 10	51 62 7	50 60 10	51 62 7	50 60 10	- Install "No Stopping Anytime" regulation along 75' of south curb of EB approach - Restripe thru-right to a 11' thru & 9' right-turn lane. - Transfer 2s from EB to NB/SB in AM, MD, PM, SATMD
30th Ave (EB/WB) & 21st Street (SB)	ALL	EB/WB NB/SB PED	43 70 7	42 68 10	43 70 7	42 68 10	43 70 7	42 68 10	42 71 7	42 68 10	- Install "No Stopping Anytime" regulation along 100' of south curb on EB approach. - Restripe EB to create a one 10' right turn lane. - Install "No Stopping Anytime" regulation along 100' of north curb of the WB approach. - Restripe WB approach to create 10' right turn lane.

Notes:
(1) Signal timings shown indicate green plus yellow (including all red) for each phase.
Underlined text indicates a different mitigation measure than proposed for Proposed Actions

Transit

Subway

Subway Stations

As shown in **Table 19-2**, the Lower Density Alternative would generate 103 and 112 fewer incremental subway trips during the weekday AM and PM peak hours, respectively, than would the Proposed Actions.

Consequently, there would likely be fewer trips at the analyzed 30th Avenue (N/W) subway station. As discussed in **Chapter 11, "Transportation,"** under the Proposed Actions, two platform stairs and one street stair at the 30th Avenue (N/W) subway station would be significantly adversely impacted by incremental demand in either the AM or PM peak hour. As the Lower Density Alternative is expected to generate fewer subway trips at this station, the number of impacted station elements would likely be comparable to or less than the number under the Proposed Actions.

Under the Lower Density Alternative, all analyzed stairs that are impacted under the Proposed Actions at the 30th Avenue subway stations are projected to operate at an acceptable LOS E in either the weekday AM or PM peak hours. As shown in **Table 19-9**, under Lower Density Alternative, one stairs (P1-P2) would operate overcapacity with LOS E in the AM peak hour, while two stairs (M3-S3, P3-P4) would operate overcapacity with LOS E in the PM peak hour. In the AM peak hour, under the Lower Density Alternative, the P1-P2 platform stairs would have a WIT of 4.4 inches, which exceeds the four-inch impact threshold, and therefore be considered significantly adversely impacted, similar to the Proposed Actions. In the PM peak hour, the M3-S3 street stairs would have a WIT of 16.2 inches, which exceeds the four-inch impact threshold, and therefore also be considered significantly adversely impacted as a result of the Lower Density During the same period, consistent with the Proposed Actions, the P3-P4 platform stairs would each have a WIT of 4.6 inches, which would exceed the four-inch impact threshold, and therefore also be considered significantly adversely impacted as a result of the Lower Density Alternative. These Lower Density Alternative impacts are consistent with those disclosed as part of the Proposed Actions.

TABLE 19-9
Lower Density Alternative - Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS	WIT	Impact Threshold
					Up	Down	Up	Down	Up	Down					
AM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	34	0	1,176	113	1.00	0.80	0.90	0.76	C	- - -	- - -
		M2-S2 (SE)	5.00	4.00	35	0	1,491	96	1.00	0.80	0.90	0.93	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	305	112	946	450	1.00	0.80	0.90	0.87	C	-	-
		P1-P2 (SB)	5.00	4.00	235	0	2,799	7	1.00	0.75	1.00	1.46	E *	4.4	4
		P5-P6 (SB)	5.00	4.00	139	0	1,663	3	1.00	0.75	1.00	0.87	C	-	-
		P3-P4 (NB)	5.00	4.00	0	61	9	404	1.00	0.75	1.00	0.29	A	- - -	- - -
		P7-P8 (NB)	5.00	4.00	0	51	7	337	1.00	0.75	1.00	0.24	A	- - -	- - -
PM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	19	0	421	584	1.00	0.80	0.90	0.67	B	- - -	- - -
		M2-S2 (SE)	5.00	4.00	19	0	396	849	1.00	0.80	0.90	0.84	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	172	332	297	1,697	1.00	0.80	0.90	1.40	E *	16.2	4
		P1-P2 (SB)	5.00	4.00	122	0	743	53	1.00	0.75	0.90	0.47	B	- - -	- - -
		P5-P6 (SB)	5.00	4.00	88	0	532	20	1.00	0.75	1.00	0.29	A	- - -	- - -
		P3-P4 (NB)	5.00	4.00	0	181	15	2,066	1.00	0.75	1.00	1.44	E *	4.6	4
		P7-P8 (NB)	5.00	4.00	0	151	32	1,720	1.00	0.75	1.00	1.21	D	4.6	6

Similar to the mitigation measure proposed as part of the Proposed Actions (described in Chapter 18, "Mitigation"), under the Lower Density Alternative, the implementation of new stairs capacity at the southwest corner of Newtown Avenue and 31st Street, adjacent to the 30th Avenue subway station's southbound platform would mitigate/alleviate subway impacts and flows. As shown in **Table 19-10**, the P1-P2 would operate at LOS E (same as With-Action conditions) but with a v/c ratio of 1.35 (compared to 1.46 in the Lower Density Alternative conditions). Also shown in **Table 19-10**, under the Lower Density Alternative with mitigation, in the AM peak hour, the P1-P2 platform stairs would have a WIT of 0.5 inches, which does not exceed the four-inch impact threshold, and therefore would no longer be considered significantly adversely impacted with the mitigation measure. The proposed staircase, denoted as "P13-P14-S6" in **Table 19-20**, would function at LOS A during each analyzed peak hour. However, it should be noted that although proposed stairs would mitigate the AM Lower Density Alternative impact and

alleviate pressure on other stairs, in the PM peak hour, the M3-S3 street stairs and P3-P4 platform stairs would continue exceed thresholds for impact. As such, the M3-S3 street stairs and the P3-P4 platform stairs would remain significantly adversely impacted as a result of the Lower Density Alternative in the PM peak hour. Under the Lower Density Alternative, all other analyzed elements would operate without significant impacts but with slightly better than levels projected under the Proposed Actions.

TABLE 19-10
Lower Density Alternative-With-Mitigation - Subway Station Stair Analysis

Peak Hour	Station	Stair	Total Width (ft.)	Effective Width (ft.)	Project Increment		Peak Hour Volumes		Surging Factor		Friction Factor	V/C Ratio	LOS	WIT	Impact Threshold
					Up	Down	Up	Down	Up	Down					
AM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	34	0	1,176	113	1.00	0.80	0.90	0.76	C	- - -	- - -
		M2-S2 (SE)	5.00	4.00	35	0	1,491	96	1.00	0.80	0.90	0.93	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	305	112	708	449	1.00	0.80	0.90	0.73	C	-	-
		P1-P2 (SB)	5.00	4.00	235	0	2,591	6	1.00	0.75	1.00	1.35	E	0.5	5
		P5-P6 (SB)	5.00	4.00	139	0	1,540	3	1.00	0.75	1.00	0.8	C	-	-
		P3-P4 (NB)	5.00	4.00	0	61	9	404	1.00	0.75	1.00	0.29	A	- - -	- - -
		P7-P8 (NB)	5.00	4.00	0	51	7	337	1.00	0.75	1.00	0.24	A	- - -	- - -
		P13-P14-S6 (SB)	5.00	4.00	0	0	331	1	1.00	0.75	1.00	0.17	A	- - -	- - -
PM	30th Ave (N/W)	M1-S1 (SW)	5.00	4.00	19	0	421	584	1.00	0.80	0.90	0.67	B	- - -	- - -
		M2-S2 (SE)	5.00	4.00	19	0	396	849	1.00	0.80	0.90	0.84	C	- - -	- - -
		M3-S3 (NW)	5.00	4.00	172	332	254	1,694	1.00	0.80	0.90	1.37	E *	14.6	5
		P1-P2 (SB)	5.00	4.00	122	0	707	51	1.00	0.75	0.90	0.45	A	- - -	- - -
		P5-P6 (SB)	5.00	4.00	88	0	507	19	1.00	0.75	1.00	0.28	A	- - -	- - -
		P3-P4 (NB)	5.00	4.00	0	181	15	2,066	1.00	0.75	1.00	1.44	E *	4.6	4
		P7-P8 (NB)	5.00	4.00	0	151	32	1,720	1.00	0.75	1.00	1.21	D	4.6	6
		P13-P14-S6 (SB)	5.00	4.00	0	0	61	3	1.00	0.75	1.00	0.03	A	- - -	- - -

Subway Line Haul

Neither the Proposed Action nor the Lower Density Alternative would result in significant adverse subway line haul impacts. As the Lower Density Alternative would result in a reduction of approximately 13 percent in project-generated subway trips during the weekday AM and PM peak hours, the analyzed N/W subway lines would experience future levels of service slightly better than levels projected under the Proposed Actions.

Bus

As presented in **Table 19-2**, the Lower Density Alternative would generate only 10 and 11 fewer incremental bus trips during the weekday AM and PM peak hours, respectively, than would the Proposed Actions. Consequently, under this alternative the number of bus trips on the three analyzed bus routes—the Q18, Q19 and Q103 —would be generally comparable to the number under the Proposed Actions in both peak hours. As discussed in **Chapter 11, "Transportation,"** under the Proposed Actions, the eastbound Q18 and the northbound and southbound Q103 would be significantly adversely impacted by incremental demand in either the AM or PM peak hour. As the Lower Density Alternative is expected to generate fewer bur trips along these routes, the impacted bus routes would likely be comparable to or less than the number under the Proposed Actions.

As shown in **Table 19-11**, the Lower Density Alternative would result in capacity shortfalls on the same routes as compared to the Proposed Actions. As shown in **Table 19-11**, would result in a passenger capacity shortfall of 12 on the eastbound Q18 buses, eight on the northbound Q103 buses, and 33 on the southbound Q103 buses in the AM peak hour. During the PM peak hour, the Lower Density Alterative

would result in passenger capacity shortfall of 53 on the northbound Q103 buses and 38 on the southbound Q103 buses in the PM peak hour. Therefore, consistent with the Proposed Actions, based on *CEQR Technical Manual* impact criteria, the eastbound Q18, northbound Q103, and southbound Q103 bus routes in the AM peak hour and the northbound Q103 and southbound Q103 bus routes in the PM peak hour would be significantly adversely impacted.

As shown in **Table 19-11**, the significant adverse impact to the Q18 could be fully mitigated by the addition of one additional bus in eastbound direction in the AM peak hour. The significant adverse impact to the Q103 could be fully mitigated by one additional bus in northbound and southbound directions in the AM peak hour. Also, the significant adverse impact to the Q103 could be fully mitigated by the addition of one bus in northbound and southbound directions in the PM peak hour. These measures are consistent with those proposed for the Proposed Actions as mitigation with exception of the northbound Q103 bus routes in the PM peak hour, which would require one additional bus under the Lower Density Alternative (compared to two under the proposed Actions) for mitigation.

TABLE 19-11
Lower Denisty Alterntaive Local Bus Analysis (with Mitigtaion)

Peak Hour	Route	Direction	Maximum Load Point	Peak Hour Buses[1]	No Action Available Capacity[2]	LDA Increment	Available Capacity w/ LDA[2]	Additional Buses Needed to Accommodate LDA Demand	Available Capacity With LDA Mitigation
AM	Q18	EB	30 AV & 27 ST	16.5	51	67	-12*	1	42
	Q103	NB	21 ST-41 AV	6	18	30	-8*	1	46
		SB	40 AV-10 ST	19	51	97	-33*	1	21
PM	Q103	NB	21 ST-41 AV	15	22	85	-53*	1	1
		SB	40 AV-12 ST	10	10	55	-38*	1	16

Notes:
Refer to Table 11-26 in Chapter 11 ("Transportation") for the No-Action service analysis & changes assumed
1. Assumes service levels adjusted to address capacity shortfalls in the No Action conditions.
2. Available capacity based on MTA loading guidelines of 54 passengers per standard bus.
* Denotes a significant adverse impact.

Pedestrians

As discussed above, under the Lower Density Alternative there would be fewer total pedestrian trips in all peak hours. These totals include all walk-only trips, Projected Development Site 2 pedestrians en route to and from nearest subway, Projected Development Site 1 pedestrians en route to and from nearest subway during the non-commuter peak hours, and all pedestrians en route to and from nearby bus stops or ferry landings. As shown in **Table 19-12**, the Lower Density Alternative is expected to generate 685, 1,031, 935, and 1,338 incremental pedestrian trips (including walk-only trips and trips to/from area transit services; in and out combined) in the weekday AM, midday, PM, and Saturday peak hours, respectively, compared with the 751, 1,101, 1,007, and 1,468 incremental pedestrian trips that would be generated under the Proposed Actions during these same periods, respectively. Compared with the Proposed Actions, pedestrian demand under this alternative would be from six percent to nine percent less in the weekday AM, midday, PM and Saturday peak hours.

TABLE 19-12
Comparison of Incremental Peak Hour Pedestrian Trips
Proposed Actions vs. Lower Density Alternative

Scenario	Total
Weekday AM	
Proposed Actions	751
Lower Density Alternative	685
Net Difference	***-66***
Weekday Midday	
Proposed Actions	1,101
Lower Density Alternative	1,031
Net Difference	***-70***
Weekday PM	
Proposed Actions	1,007
Lower Density Alternative	935
Net Difference	***-72***
Saturday	
Proposed Actions	*1,468*
Lower Density Alternative	*1,338*
Net Difference	***-130***
Notes: Includes walk-only trips and trips en route to/from area transit services.	

As discussed in **Chapter 11, "Transportation,"** based on *CEQR Technical Manual* criteria, two sidewalks, three crosswalks, and one corner would be significantly adversely impacted by the Proposed Actions in one or more of the analyzed peak hours. As discussed above, pedestrian demand under the Lower Density Alternative would be from six percent to nine percent less than under the Proposed Actions in each analyzed peak period. It is therefore anticipated that pedestrian conditions under the Lower Density Alternative would be generally comparable to, or better than those under the Proposed Actions in all periods, and that there would be no new significant adverse pedestrian impacts under this alternative.

Table 19-13 shows the average pedestrian space and LOS at impacted sidewalks under the With-Action conditions, and compares them under the Lower Density Alternative for all analyzed peak hours. As stated in **Chapter 11, "Transportation"** and indicated in the below table, the Proposed Actions would result in a significant adverse impact to two sidewalks (the west sidewalk of 4th Street between 26th Avenue and 27th Avenue and the north sidewalk of 27th Avenue between 3rd Street and 4th Street). As shown in **Table 19-13**, the west sidewalk of 4th Street between 26th Avenue and 27th Avenue would no longer result in a significant adverse impact during the Saturday peak hour under the Lower Density Alternative. However, the north sidewalk of 27th Avenue between 3rd Street and 4th Street would continue to have a significant adverse impact during the weekday midday peak hour under the Lower Density Alternative and would remain unmitigated.

Table 19-14 shows the average pedestrian space and LOS at impacted crosswalks under the With-Action conditions, and compares them under the Lower Density Alternative for all analyzed peak hours. As stated in **Chapter 11, "Transportation"** and indicated in the below table, the Proposed Actions would result in significant adverse impacts to the north, east, and west crosswalks at 27th Avenue and 4th Street in the weekday midday and Saturday peak hours. As shown in **Table 19-14**, these impacts would also occur under

the Lower Density Alternative for the same peak hours. With a 3-foot widening (to a total of 14.2 feet in width) on the west crosswalk, the Proposed Actions' significant adverse impacts (midday and Saturday) on west crosswalk would be mitigated (at LOS C) based on the *CEQR Technical Manual* under the Lower Density Alternative. As it is not feasible to widen the north and east crosswalks based on DOT's guidance, the north and east crosswalks would remain the same width and unmitigated. As shown in **Table 19-14**, one of the three crosswalk impacts would be fully mitigated in the weekday midday and Saturday peak hours under the Lower Density Alternative. Two crosswalks would remain unmitigated under the Lower Density Alternative in both peak hours.

Table 19-15 shows the average pedestrian space and LOS at impacted corner under the With-Action conditions, and compares it under the Lower Density Alternative for all analyzed peak hours. As stated in **Chapter 11, "Transportation"** and indicated in the below table, the Proposed Actions would result in a significant adverse impact to the northeast corner at 27th Avenue and 4th Street in the weekday midday peak hour. As shown in **Table 19-15**, this impact would also occur under the Lower Density Alternative for the same peak hour, and would be mitigated with the installation of a five-foot wide bulb-extension along the N-S sidewalk of the northeast corner of 27th Avenue and 4th Street. The implementation of the proposed traffic mitigation measure under the Lower Density Alternative would result in a new impact on the northwest corner during the Saturday peak hour. This impact would be mitigated by relocating the existing garbage can.

TABLE 19-13
Level-of-service for Impacted Sidewalks
Proposed Development With-Action and Lower Density Alternative

			Proposed Project W/ Action			LDA With-Action			LDA With-Action W/Mitigation			
	Location	Sidewalk	Effective Width	Avg Ped Space (ft^2/ped)	LOS	Effective Width	Avg Ped Space	LOS	Effective Width	Avg Ped Space	LOS	Mitigation Measure
Midday Peak Hour												
S8	27th Ave Btwn 3rd St and 4th St	North	7.5	24	D	7.5	24	D	7.5	24	D	-Unmitigated.
Saturday Peak Hour												
S7	4th St Btwn 26th Ave and 27th Ave	West	7.4	38	D	7.4	42	C	7.4	42	C	-N/A.

Notes:
Shading denotes a significant impact based on *CEQR Technical Manual.*

TABLE 19-14
Level-of-service for Impacted Crosswalks
Proposed Development With-Action and Lower Density Alternative

			Proposed Project W/ Action			LDA With-Action			LDA With-Action W/Mitigation			
	Location	Crosswalk	Width (ft)	Avg Ped Space (ft^2/ped)	LOS	Width (ft)	Avg Ped Space (ft^2/ped)	LOS	Width (ft)	Avg Ped Space (ft^2/ped)	LOS	Mitigation Measures
Midday Peak Hour												
X1	27th Ave and 4th St	North	13.3	15.6	D	13.3	20.1	D	13.3	9.1	E	-Unmitigated. (Include corner mitigation for bulb-out)
X2		East	14.2	12.7	E	14.2	13.2	E	14.2	10.6	E	- Unmitigated.
X3		West	11.2	22.3	D	11.2	23.2	D	14.2	24.2	C	- Widen crosswalk by 3 ft. - Signal timing adjusted to provide 30 sec of protected pedestrian phase as traffic mitigation.
Saturday Peak Hour												
X1	27th Ave and 4th St	North	13.3	17.8	D	13.3	18.6	D	13.3	8.8	E	-Unmitigated. (Include corner mitigation for bulb-out)
X2		East	14.2	20.7	D	14.2	22.1	D	14.2	19.7	D	- Unmitigated.
X3		West	11.2	20.1	D	11.2	21.8	D	14.2	25.3	C	- Widen crosswalk by 3 ft. - Signal timing adjusted to provide 30 sec of protected pedestrian phase as traffic mitigation.

Notes:
Shading denotes a significant impact based on *CEQR Technical Manual.*
Includes proposed 90-seocnd cycle length signal with EB/WB & SB/Ped phases for 27th Ave and 4th St from the Hallets Point No-Action development.

TABLE 19-15
Level-of-service for Impacted Corners
Proposed Development With-Action and Lower Density Alternative

			Proposed Project W/ Action		LDA With-Action		LDA With-Action W/Mitigation		
	Location	Corner	Avg Ped Space (ft^2/ped)	LOS	Avg Ped Space (ft^2/ped)	LOS	Avg Ped Space (ft^2/ped)	LOS	Mitigation Measure
Midday Peak Hour									
C1	27th Ave and 4th St	NE	18.8	D	22.1	D	29.2	C	- Install a 5 ft bulb-out on the N-S sidewalk.
Saturday Peak Hour									
C2	27th Ave and 4th St	NW[1]	28.7	C	30.9	C	25.1	C	- Relocate garbage can.

Notes:
Shading denotes a significant impact based on *CEQR Technical Manual.*
Includes proposed 90-seocnd cycle length signal with EB/WB & SB/Ped phases for 27th Ave and 4th St from the Hallets Point No-Action development.
[1]Corner not impacted in LDA With-Action, but impacted as an effect of traffic mitigation.

Parking

It is assumed that a total of approximately 560 accessory parking spaces would be developed on projected development sites under this alternative compared to 640 under the Proposed Actions. More specifically, the reduction of 80 parking spaces would occur on Projected Development Site 1. However, the reduction in dwelling units under the Lower Density Alternative would also result in less demand for on-street and off-street public parking compared with the Proposed Actions.

Under the Proposed Actions, the combined supply of on-street and public off-street parking capacity would not be sufficient to accommodate demand in the weekday overnight period on Project Development Site 1. As discussed in **Chapter 11, "Transportation,"** there would be 525 parking spaces on the Projected Development Site 1 but a demand of 588 spaces during the overnight period, a deficit of 63 spaces. Under the Lower Density Alternative, there would be 445 parking spaces on the Projected Development Site 1 but a demand of 499 spaces during the overnight period, a deficit of 54 spaces. This deficit in on-site spaces under the Lower Density Alternative would be slightly less than that of the Proposed Actions. As such, it is anticipated that there would be comparable parking shortfalls under the Lower Density Alternative. While some drivers destined for the Project Area would potentially have to travel a greater distance to find available parking in the overnight period under this alternative, these shortfalls would not be considered significant adverse impacts based on *CEQR Technical Manual* criteria due to the magnitude of available alternative modes of transportation (including local bus routes and a proposed shuttle bus to N/W trains and the nearby ferry landing). Therefore, similar to the Proposed Actions, the Lower Density Alternative is not expected to result in significant adverse parking impacts.

Air Quality

The Lower Density Alternative would generate approximately seven to ten percent fewer vehicular trips than the Proposed Actions. Consequently, the Lower Density Alternative would result in lower mobile source pollutant concentrations than the Proposed Actions. As such, similar to the Proposed Actions, no significant adverse mobile source air quality impacts would result. In addition, as the Lower Density Alternative would include fewer parking spaces, vehicle emissions within the parking garages would be slightly lower.

As with the Proposed Actions, no potential significant adverse stationary air quality impacts are anticipated with the Lower Density Alternative. Like the Proposed Actions, the Lower Density Alternative would create new sources of stationary source emissions. An air quality (E) designation would be assigned to the Projected Development Sites under both the Proposed Actions and this alternative and would be require the use of natural gas for heating and hot water systems.

Greenhouse Gas Emissions and Climate Change

Both the Proposed Actions and the Lower Density Alternative would be consistent with the City's greenhouse gas reduction goals. However, due to the reduction in total residential floor area under the Lower Density Alternative as well as the small reduction in associated vehicle trips, greenhouse gas emissions would be slightly lower than under the Proposed Actions. Buildings associated with the Proposed Actions and the Lower Density Alternative, as a dense mixed-use development, would advance New York City's greenhouse gas reduction goals as outlined in PlaNYC. In addition, both alternatives would be subject to changes in the New York City Building Code that are currently being considered to require greater energy efficiency. As under the Proposed Actions, buildings on the waterfront parcel be constructed to meet the standards of the New York City Building Code and the Best Available Flood Hazard

Data available from FEMA at the time of their construction. As such, neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse greenhouse gas emission or climate change impacts.

Noise

As described above, while the Lower Density Alternative would result in a seven to ten percent decrease in project-generated vehicle trips, as compared to the Proposed Actions, the projected noise levels would be similar to noise levels expected with the Proposed Actions. While the Lower Density Alternative would result in fewer projected residential units compared to the Proposed Actions, the projected mobile source noise levels under the Lower Density Alternative is likely to result in similar significant adverse impacts at the project site and within the vicinity of the Project Area. As described above in Section D, "No Unmitigated Significant Adverse Impact Alternative," in order to avoid significant adverse noise impacts, the project would need an approximately 62 percent reduction in project-generated vehicle trips (or PCEs) as compared to the Proposed Actions. As such, while the magnitude of the impacts at the 10 identified receptors would be slightly less as compared to the Proposed Actions, it is anticipated that the Lower Density Alternative would still result in significant adverse noise impacts (i.e., a doubling of PCE values between No-Action and With-Action conditions) at each of the identified receptors. In terms of noise attenuation requirements at the Project Area, the same or similar (E) designation for noise expected under the Proposed Actions would likely apply under the Lower Density Alternative as well.

Neighborhood Character

Like the Proposed Actions, the Lower Density Alternative would result in substantial changes to the Project Area; neither alternative would result in significant adverse impacts on neighborhood character in the area. Both alternatives would improve the neighborhood character of the area by replacing vacant lots and vacant industrial buildings with new mixed-use buildings with active ground floor uses, publicly accessible open space, and improved access to the waterfront and circulation within the Project Area.

Construction

While the Lower Density Alternative is somewhat smaller in overall density and size, it would require essentially the same construction process and phasing as anticipated under the Proposed Actions. Since the buildings would be smaller and would be developed over the same construction schedule, there could be a modest reduction in the amount of materials and construction workers associated with building the Lower Density Alternative. This could slightly reduce the duration and total level of activity. These reductions would not materially affect the construction-related analysis assumptions and conclusions. Therefore, while the overall construction duration could be shorter, the Lower Density Alternative could result in significant adverse noise impacts and of a similar magnitude to the Proposed Project (see **Chapter 17, "Construction"**).

Like the Proposed Actions, there would be no significant adverse construction impacts with respect to land use and neighborhood character, socioeconomic conditions, community facilities, open space, natural resources, hazardous materials, air quality.

Public Health

Neither the Proposed Actions nor the Lower Density Alternative would result in significant adverse public health impacts. As described above, the Lower Density Alternative would not have the potential for unmitigated significant adverse impacts in any of the technical areas related to public health.