# 18

# Construction

Construction activities, although temporary in nature, can sometimes result in significant adverse impacts. A project's construction activities may affect a number of technical areas analyzed for the operational period, such as air quality, noise, and traffic. This chapter assesses the potential for the Proposed Development to result in significant adverse impacts during construction.

## Introduction

GO Quay, LLC (the Project Developer) and the Metropolitan Transportation Authority (MTA) (an affiliate of the New York City Transit Authority [NYCTA]) (collectively, the Applicants) are seeking several discretionary actions (the Proposed Actions) that would apply to a rezoning area consisting of Brooklyn Block 2590, Lot 25, the majority of Lot 1, and the northern half of the former Quay Street in the Greenpoint neighborhood of Brooklyn, Community District (CD) 1 (the Rezoning Area); the remaining portion of Lot 1 (which would not be rezoned); and a relocation site that would house two NYCTA facilities that are being relocated from their existing locations and consolidated into a new facility located at 213 Meadow Street (Block 2951, Lots 1, 5, and 45) in the East Williamsburg neighborhood of Brooklyn CD 1 (the NYCTA Relocation Site) that would be constructed by the Project Developer. The Rezoning Area, the remaining portion of Lot 1 that will not be rezoned, and the NYCTA Relocation Site are, collectively, the Affected Area.

The Proposed Actions would facilitate on the Development Site (Brooklyn Block 2590, Lots 1 and 25),[1] a mixed-use development that would comprise three buildings totaling approximately 1,215,000 gross square feet (gsf) (the Proposed Development). The Proposed Development would include the construction of two buildings on Lot 1 totaling approximately 1,106,500 gsf of residential space for up

[1] On December 17, 2024, the southern half of former Quay Street was incorporated into Lot 25. The northern half of former Quay Street is not controlled by the Applicants.

to approximately 1,150 total dwelling units (DUs). Additionally, the Proposed Development would include the construction on Lot 25 of approximately 35,000 gsf of community facility space earmarked as a permanent home for the Greenpoint Monitor Museum, which is owned by the Monitor Museum. It is the Project Developer's intent to pursue Mandatory Inclusionary Housing (MIH) Option 1, under which 25 percent (up to approximately 300) of the proposed units would be affordable at an average of 60 percent Area Median Income (AMI), pursuant to MIH requirements. However, the Project Developer intends to provide the affordable units at an average of 56 percent AMI. The development would also include approximately 36,500 gsf of local retail commercial space[2] and approximately 37,000 gsf of below-grade parking (approximately 140 spaces) on Lot 1.

The Proposed Development would also include substantial open space improvements. The development would include the creation of over an acre of waterfront open space (approximately 50,000 sf or 1.15 acres). This new open space would include a 34,000-sf Waterfront Public Access Area (WPAA), which would provide a pedestrian connection between the future Bushwick Inlet Park and the existing Shore Public Walkway to the north of the site and an upland connection between the future Bushwick Inlet Park and West Street, plus approximately 9,000 sf of Public Access Area (PAA). The remaining 7,000 sf of new open space would consist of open space for museum visitors as well as landscaping and planting areas that would visually blend and physically connect with the WPAA and PAA spaces. In addition to this new open space, as part of the Proposed Development, long-term funding, in the amount of $300,000 annually, would be provided to the City/New York City Department of Parks and Recreation (NYC Parks) for the operation of Bushwick Inlet Park.

Furthermore, the Proposed Development would include resiliency and flood protection measures on the Development Site—including installation of a new bulkhead to defend against future flooding due to sea level rise; implementation of wet floodproofing for non-critical and dry floodproofing for critical features; and the inclusion of green roofs, green infrastructure, and soft surfaces where feasible and practicable.

In order to allow for the redevelopment of the Development Site, the Proposed Actions also involve the relocation and consolidation of two existing critical NYCTA facilities to a new 143,000-gsf turnkey facility (the NYCTA Replacement Facility) at the NYCTA Relocation Site. The NYCTA Relocation Site would accommodate the NYCTA Mobile Wash Unit and Materials Storage currently located on a portion of the Development Site (Block 2590, Lot 1) (the NYCTA Facility) and the NYCTA Emergency Response Unit (ERU) facility currently located on 65 Commercial Street (Block 2472, Lot 415) (the ERU Site). See **Figure 1-1** in **Chapter 1, Project Description** for the locations of the Affected Area and of the Development Site, ERU Site, and NYCTA Relocation Site.

Based on the construction schedule provided by the Applicants, construction activity for the entirety of the Proposed Development is anticipated to last a total of approximately 62 months, including 20 months for construction of the NYCTA Replacement Facility and 42 months for the subsequent construction of the Proposed Development—including 6 months of demolition of the existing facility on the Development Site. The 20-month construction period related to the NYCTA Replacement Facility would occur prior to the construction activities at the Development Site so that the NYCTA operations could be relocated to a turnkey facility prior to the demolition of their existing facilities.

As the construction period for the Proposed Development would exceed 24 months, it would be considered "long-term" per the *2021 CEQR (City Environmental Quality Review) Technical Manual*. As

[2] The Project Developer may include up to approximately 3,000 sf of community facility space (i.e., meeting space) for non-profit use in place of local retail space in the East Building. For the purpose of a conservative assessment, the EIS analyzes this space as local retail.

such, a preliminary assessment of potential construction is provided for construction activity in accordance with *CEQR Technical Manual* guidelines. As construction of the new NYCTA Replacement Facility at the NYCTA Relocation Site would not exceed 24 months, an assessment of construction at that site is not warranted and therefore the following assessment focuses on construction of the Proposed Development at the Development Site.

# Principal Conclusions

Governmental oversight of construction in New York City is extensive and involves a number of City, State, and Federal agencies, each with specific areas of responsibility. Construction at the Development Site would be subject to government regulations and oversight described below in **Construction Regulations and General Practices** and would employ the general construction practices described below. Construction would also comply with the requirements of the New York City Noise Control Code. As detailed in the assessment below, construction at the Development Site would result in significant adverse transportation (traffic and pedestrians) and noise impacts and would not result in significant adverse construction air quality impacts.

## Transportation

The peak quarter for construction was identified as the fourth quarter of 2029 (Q4 2029) when a daily average of 636 construction workers and 45 trucks would be generated by construction activity.

### Traffic

During Q4 2029, construction activities would generate approximately 277 construction worker auto trips, ten construction worker taxi trips, and 22 construction truck trips during the weekday AM construction peak hour, and 277 construction worker auto trips, ten construction worker taxi trips, and six construction truck trips during the weekday PM construction peak hour.

A detailed traffic analysis was conducted for 13 intersections for the weekday AM and PM construction peak hours. These analyses determined that three of the 13 intersections analyzed would be significantly impacted during the weekday AM construction peak hour of 6:00 AM to 7:00 AM, and four of the 13 intersections analyzed would be significantly impacted during the weekday PM construction peak hour of 3:00 PM to 4:00 PM. Standard traffic capacity improvements typically implemented by the New York City Department of Transportation (NYC DOT), such as signal timing modifications, could fully mitigate impacted traffic movements at the three intersections impacted during the weekday AM construction peak hour and at three of the four intersections impacted during the weekday PM construction peak hour. A significant traffic impact during the weekday PM construction peak hour would remain unmitigated at the intersection of McGuinness Boulevard and Greenpoint Avenue.

### Parking

Construction workers would generate an estimated peak daily parking demand of 308 spaces during the fourth quarter of 2029. As described below, a parking utilization analysis was conducted and determined that there would be approximately 100 off-street parking spaces and 144 on-street parking spaces available during the critical weekday midday period. The anticipated parking demand could be partially accommodated by a combination of available off-street parking capacity and on-

street parking availability. Overall, there would be a deficit of 64 parking spaces under With-Action with construction conditions. However, this shortfall is not considered significant.

### Transit and Pedestrians

Construction activity during the fourth quarter of 2029 would generate approximately 181 construction worker trips by public transportation during the weekday AM and PM construction peak hours. As the construction worker transit trips would be below the *CEQR Technical Manual* screening thresholds for detailed analysis, construction activity would not result in transit impacts.

The number of pedestrian trips generated by construction workers (walk-only plus transit trips and walking trips to and from on-street parking spaces) would total 567 pedestrians during both the weekday AM and PM construction peak hours. As shown in **Chapter 12, Transportation**, the Proposed Development would generate between 1,262 and 2,278 pedestrian trips during the peak hours analyzed. During the weekday AM and PM peak hours analyzed for operational conditions, which correspond with the commuting peak hours, the project-generated demand would result in significant adverse impact to the south crosswalk at the intersection of Franklin Street and Quay Street. As shown in **Chapter 19, Mitigation**, mitigation measures were not identified for this crosswalk and therefore the significant adverse pedestrian impacts would remain unmitigated under operational conditions. The number of pedestrian trips during construction that would traverse this crosswalk would be lower than the volumes under operational conditions. Therefore, during construction the potential for significant adverse pedestrian impacts would be no worse than what has been identified for the operational condition.

## Air Quality

To assess the potential for the Proposed Actions to result in impacts related to air emissions, a detailed analysis was performed. Activities occurring between April 2029 to March 2030 were determined to be the peak period of on-site construction for air quality emissions. An analysis of on-site emissions (consisting of construction equipment, trucks, and fugitive dust) for the peak period was conducted. A detailed mobile source analysis was also conducted to evaluate the impacts from off-site construction traffic. The results of the on-site construction air quality assessment indicate that the Proposed Development would not exceed the applicable air quality standards and *de minimis* criteria. The off-site dispersion modeling analysis determined that particulate matter ($PM_{2.5}$), and carbon monoxide (CO) concentrations would be below their corresponding *de minimis* thresholds or National Air Quality Ambient Standards (NAAQS), respectively. If contractors choose to use older diesel equipment, the use of diesel particulate filters (DPF) in Tier 3 emission standard for diesel engines (model years 2006-2011 for engine sizes between 50 and 600 hp) would be implemented. Tier 3 with DPF achieves the same $PM_{2.5}$ emission reductions as a newer Tier 4 emission standard for diesel engines. The Tier 3 engines with DPF would achieve diesel particulate matter (DPM) reductions of approximately 90 percent when compared to older uncontrolled engines. This construction air quality control measure would be implemented as a Project Component Related to the Environment (PCRE) to reduce air pollutant emissions and avoid the potential for significant adverse air quality impacts during construction.

Therefore, construction of the Proposed Development would not result in significant adverse air quality impacts due to construction sources.

## Noise

Construction of the Proposed Development would involve standard construction activities and practices for buildings in New York City. Foundation installation and superstructure phases of construction are typically when the noisiest activities occur. The exterior and interior fit-out phases of construction typically involve minimal exterior equipment and substantially quieter noise conditions. The Development Site is located near existing residential and commercial land uses, and the introduction of new residences, community facility uses, commercial space, and open space would occur throughout construction of the Proposed Development. The construction noise analysis assesses the potential for construction to cause significant adverse noise impacts on nearby sensitive noise receptors. The Project Developer has committed to using grid power instead of the generators during Foundation, Superstructure, and Finishing phase, where grid power is sufficient and available, which would be implemented as a PCRE.

Construction noise from mobile sources has been evaluated from 6:00 AM to 7:00 AM, when construction traffic would be greatest since this is the period that most worker vehicles and trucks arrive at the Development Site. This is a period prior to the beginning of construction activities and would take place before noise from stationary construction equipment would occur. Construction noise from mobile sources would not increase by 3 A-weighted decibels (dBA) or more, and there would be no significant adverse noise impacts at the existing and future receptors due to construction mobile sources.

Since construction noise levels would exceed the thresholds for exterior increase in noise as well as the thresholds for acceptable interior noise levels for residential uses, there would be potential for construction of the Proposed Development to result in significant adverse construction noise impacts at 3 West Street, which is located across the street from the Development Site. No construction noise impact would occur at other receptors analyzed.

## Vibration

Construction activities have the potential to generate ground-borne vibration that can potentially cause structural or architectural damage or annoy people in nearby vibration-sensitive spaces, such as residences. The most substantial sources of construction vibration are equipment associated with the excavation and foundation phase, such as pile drivers, drill rigs, bulldozers, and jackhammers.

There are no buildings within 90 feet of the Development Site listed by the New York City Landmarks Preservation Commission (LPC) or the State and/or National Register of Historic Places (S/NR) that would require special protection from potential damage due to vibration. There is the potential for construction vibration from some construction equipment, such as pile drivers, to cause annoyance in nearby residences. However, these construction activities would only occur for limited periods of time at any particular location and vibration monitoring of adjacent properties would be implemented, as required by code. Therefore, there would be no significant adverse impact as a result of construction vibration.

# Other Technical Areas

## Land Use and Neighborhood Character

While construction of the new buildings under the Proposed Actions would cause temporary disruption, it is expected that such effects in any given area would be relatively short in duration, even under the worst-case construction sequencing and, therefore, would not create a neighborhood character impact. Therefore, no significant adverse construction impacts to land use and neighborhood character are expected.

## Socioeconomic Conditions

Construction could, in some instances, temporarily affect pedestrian and vehicular access on street frontages immediately adjacent to the Development Site; however, long-term lane and/or sidewalk closures are not expected during construction. Utility service would also be maintained for all businesses, although there may be very short-term interruptions. Overall, construction of the Proposed Development is not expected to result in any significant adverse impacts on surrounding businesses.

## Community Facilities and Services

There are no community facilities adjacent to, or in the vicinity of, the Development Site, and there is no potential for construction activities to affect the access or operations of any community facilities. Construction of the proposed buildings would not affect emergency response times of the New York City Police Department (NYPD) and New York City Fire Department (FDNY) given the geographic distribution of the police and fire facilities and their respective coverage areas. Therefore, no construction impacts would be expected to community facilities as a result of the Proposed Development.

## Open Space

As described in **Chapter 5, Open Space**, the Development Site is adjacent to the Motiva Parcel, the northernmost portion of future Bushwick Inlet Park, which is currently under construction and slated for completion by late 2025. Construction of the Proposed Development would not affect public access or utilization of this open space resource. Measures would be implemented to control air emissions, dust, noise, and vibration on the construction site to avoid effects on users of the nearby portions of Bushwick Inlet Park. Additionally, overhead protection would be provided for the adjacent park. Therefore, no significant adverse construction impacts to open space are expected.

## Historic and Cultural Resources

As described in **Chapter 6, Historic and Cultural Resources**, LPC confirmed that the Development Site does not have the potential to contain archaeological resources. Additionally, there are no architectural resources within 90 feet of the Development Site. As such, construction of the Proposed Development would not affect historic and cultural resources.

## Natural Resources

As described in **Chapter 9, Natural Resources**, construction of the Proposed Development would result in minor, temporary displacement effects to resident terrestrial wildlife at the Development Site

and aquatic fauna within Bushwick Inlet and the East River, including potential temporary effects to habitat for Atlantic Sturgeon and Shortnose Sturgeon that are known to occur within the East River, but have not been confirmed locally. Similar to the effects of the current waterfront construction and installation of vegetated wetland and upland habitats within and adjacent to Bushwick Inlet at the Motiva Parcel of Bushwick Inlet Park adjacent to the Development Site, such effects would be avoided or minimized with the implementation of best management practices (BMPs) and adherence to regulatory agency permitting requirements during construction. Following implementation of the Proposed Development, improvements to habitat quantity and quality, as well as wildlife species diversity are expected, and many local species, including birds and other terrestrial wildlife, would experience increases in individual population densities due to expanded habitat opportunities.

### Hazardous Materials

As discussed in greater detail in **Chapter 10, Hazardous Materials**, the potential for significant adverse impacts related to hazardous materials resulting from the Proposed Development would be precluded through complicity with the requirements of the existing (E)-Designation E-138 on the Development Site and the new (E)-Designation (E-870) on the NYCTA Relocation Site. The Project Developer is also applying to enroll the Lot 1 portion of the Development Site (under two separate applications for the East and West Buildings, which will cover the entirety of Lot 1) and NYCTA Relocation Site into the New York State Department of Environmental Conservation (NYSDEC) Brownfield Cleanup Program (BCP). The BCP is also considered an accepted pathway for site investigation and remediation that satisfies the requirements of the Office of Environmental Remediation's (OER) (E)-Designation program. Compliance with either the (E)-Designation program under OER oversight or the BCP under NYSDEC oversight would provide for the protection of human health and the environment within the Development Site and NYCTA Relocation Site once a Certificate of Completion (COC) is issued by NYSDEC or a Notice of Satisfaction (NOS) is issued by OER, and any required long term institutional and engineering controls (if required) are in place.

## Methodology

This construction assessment follows the guidelines set forth in the *CEQR Technical Manual* and the Final Scope of Work (FSOW). As discussed in **Chapter 1, Project Description** and above, on the Development Site, the Project Developer would construct a mixed-use development that would comprise three buildings totaling approximately 1,215,000 gsf and include the creation of over an acre of waterfront open space.

## Construction Regulations and General Practices

### Construction Oversight

Governmental oversight of construction in New York City is extensive and involves a number of City, State, and Federal agencies, each with specific areas of responsibility, as follows.

- The New York City Department of Buildings (DOB) has primary oversight of construction. DOB oversees compliance with the New York City Building Code to ensure that buildings are structurally, electrically, and mechanically safe. In addition, DOB enforces safety regulations to protect both workers and the general public during construction. Areas of oversight include

installation and operation of equipment such as cranes and lifts, sidewalk sheds, safety netting, and scaffolding.

- The New York City Department of Environmental Protection (DEP) enforces the New York City Noise Code, reviews and approves any needed Remedial Action Plans (RAPs) and associated Construction Health and Safety Plans (CHASPs) as well as the removal of fuel tanks and abatement of hazardous materials. DEP also regulates water disposal into the sewer system and reviews and approves any rerouting of wastewater flow.
- The FDNY has primary oversight of compliance with the New York City Fire Code and the installation of tanks containing flammable materials.
- The New York City Department of Transportation Office of Construction Mitigation and Coordination (NYC DOT OCMC) reviews and approves any traffic lane and sidewalk closures.
- NYCT is responsible for bus stop relocations and subsurface construction within 200 feet of a subway, if needed.
- The LPC approves studies and testing to prevent loss of archaeological resources and to prevent damage to architectural resources.
- NYSDEC regulates disposal of hazardous materials, and construction, operation, and removal of bulk petroleum and chemical storage tanks. NYSDEC also regulates discharge of water into rivers and streams.
- The New York State Department of Labor (DOL) licenses asbestos workers.
- The New York State Department of Transportation (NYS DOT) reviews and approves any traffic lane closures on its roadways, should any be necessary.
- The U.S. Environmental Protection Agency (EPA) has wide-ranging authority over environmental matters, including air emissions, noise, hazardous materials, and the use of poisons; however, much of its responsibility is delegated to the state level.
- The Occupational Safety and Health Administration (OSHA) sets standards for worksite safety and construction equipment.

## Construction Hours

New York City regulates the hours of construction work through the New York City Noise Control Code, as amended in December 2005 and effective July 1, 2007. Construction is limited to weekdays between the hours of 7:00 AM and 6:00 PM, and noise limits are set for certain specific pieces of construction equipment. The City may permit work outside of these hours to accommodate: (1) emergency conditions; (2) public safety; (3) construction projects by or on behalf of City agencies; (4) construction activities with minimal noise impacts; and (5) undue hardship resulting from unique site characteristics, unforeseen conditions, scheduling conflicts, and/or financial considerations. The DOB issues these work permits, and for new building construction, like the projected development, approval of a noise mitigation plan from the DEP under the City's Noise Code is also required.

In New York City, construction work typically occurs on weekdays and begins at 7:00 AM, with most workers arriving between 6:00 AM and 7:00 AM. Work typically ends at 3:30 PM or 4:00 PM, with some exceptions when certain critical tasks (e.g., finishing a concrete pour for a floor deck, completing the drilling of piles, or completing the bolting of a steel frame erected that day) require that the workday be extended beyond normal work hours. Any extended workdays generally last until approximately 5:30 PM or 6:00 PM and do not include all construction workers on-site, but only

those involved in the specific task requiring additional work time. For work outside of normal construction hours, work permits are obtained from DOB prior to such work commencing. The numbers of workers and pieces of equipment in operation for work outside normal hours are generally limited to those needed to complete the authorized task. Overall, the level of activity for any work outside of normal construction hours is less than a normal workday.

## Construction Practices

### Access, Deliveries and Staging Area

Access to construction sites is controlled. Work areas are fenced off, and limited access points for workers and construction-related trucks are provided. Typically, worker vehicles are not allowed into the construction area, and workers or trucks without a need to be on the site are not allowed entry. After work hours, the gates are closed and locked. Security guards may patrol the construction site after work hours and over weekends to prevent unauthorized access.

Material deliveries to the site are controlled and scheduled. To aid in adhering to the delivery schedules, as is normal for building construction in New York City, flaggers are employed at each of the construction site's access points. Flaggers are typically supplied by either the subcontractor on-site at the time or by the construction manager. The flaggers control trucks entering and exiting the Development Site so that they would not interfere with one another. In addition, they provide an additional traffic aid as trucks enter and exit the on-street traffic streams.

### Lane and Walkway Closures

Temporary curb-lane and sidewalk closures are typical for construction projects in New York City. To manage such closures, a Maintenance and Protection of Traffic (MPT) plan is developed consistent with NYC DOT requirements. NYC DOT OCMC reviews and approves MPT plans, and the implementation of the closures is also coordinated with NYC DOT OCMC. In general, construction managers for major projects on adjacent sites also coordinate their activities to avoid delays and inefficiencies.

### Public Safety

A variety of measures are employed to ensure public safety during construction at sites within New York City. Examples include the use of sidewalk bridges to provide overhead protection for pedestrians passing by the construction site and the employment of flaggers to control trucks entering and exiting the construction site, to provide guidance to pedestrians, and/or to alert or slow down the traffic. Other safety measures include following DOB requirements during the installation and operation of tower cranes to ensure safe operation of the equipment and the installation of safety nettings on the sides of the Proposed Development as the superstructure advances upward to prevent debris from falling to the ground. These safety measures are required as part of a Site Safety Plan reviewed and approved by DOB.

### Rodent Control

Construction projects in New York City typically include provisions for a rodent (i.e., mouse and rat) control program with provisions for this formalized in construction contracts for the development. Rodent control programs are typically carried out throughout construction, beginning with surveying

and baiting appropriate areas prior to construction and providing for proper site sanitation and maintenance during construction. Signage is posted, and coordination is conducted with appropriate public agencies. Only EPA- and NYSDEC-registered rodenticides are permitted, and the contractor is required to implement the rodent control program in a manner that is not hazardous to the general public, domestic animals, and non-target wildlife.

## Air Emissions Reduction Program

In addition to the measures described above, New York City manages construction air emissions by mandating emission reduction measures through NYC Law 77 and the New York City Air Pollution Control Code. In addition, EPA has requirements for non-road diesel engines. These include the following:

- Fugitive Dust Control Plans. In compliance with the NYC Air Pollution Control Code regarding control of fugitive dust, contractors are required to ensure that all trucks carrying loose material use water as a dust suppression measure, that wheel-washing stations be established for all trucks exiting the construction site, that trucks hauling loose material be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the site, that streets adjacent to the site be cleaned as frequently as needed by the construction contractor, and that water sprays be used for transfer of spoils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air.
- Clean Fuel. Ultra-low sulfur diesel (ULSD) is required to be used for all diesel engines.[3]
- Restrictions on Vehicle Idling. New York City's local law restricts unnecessary idling. On-site vehicle idle time is restricted to 3 minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.
- Perimeter Fencing. Perimeter fencing, which is required at construction sites (8-foot minimum), reduces both fugitive dust and tailpipe emissions from reaching sensitive receptors.
- Nonroad Diesel Engines. Federal standards for non-road diesel engines were first adopted in 1994 for engines over 50 hp and were phased in from 1996 to 2000 (Tier 1 standards). Subsequently, more stringent regulations were adopted (Tier 1-3 standards) and phased in from 2000 to 2008, and most recently, Tier 4 standards were adopted and phased in from 2008 to 2015. These regulations address emissions of particulate matter and nitrogen oxide ($NO_x$). Based on these regulations, NYC Local Law 77, which applies to publicly funded City projects), requires nonroad diesel engines with a power rating of 50 horsepower (hp) or greater and controlled truck fleets (i.e., truck fleets under long-term contract, such as concrete mixing and pumping trucks) to use best available tailpipe technology for reducing diesel particulate matter (DPM) emissions. The use of diesel particulate filters (DPF) in Tier 3 emission standard for diesel engines for construction equipment achieves the same emission reductions as a newer Tier 4 emission standard for diesel engines.

In addition to these requirements, there are other measures to reduce construction air emissions that are common practice on construction sites throughout New York City:

- Diesel Equipment Reduction. To the extent practical, hoists and small equipment, such as lifts, compressors, welders, and pumps, use electric engines that operate on grid power instead of

[3] This is a federal requirement since 2010.

diesel power engines. This is a common practice that has been achieving wider use as technology improves.

› Source Location and Shielding. To reduce concentration increments at sensitive receptors, large emissions sources and activities such as concrete trucks, generators, and large compressors can be located away from the sensitive receptors to the extent practical.

## Noise Reduction Measures

Noise from construction activities and some construction equipment is regulated by the New York City Noise Control Code. The New York City Noise Code (Section 24-228) limits noise from non-impulsive construction equipment to a maximum of 85 dBA as measured 50 feet from the source. The code also limits noise from paving breakers, such as jackhammers, to 95 dBA at a distance of 1 meter and requires that a pneumatic discharge muffler be used that provides an insertion loss of 5 dBA. Impulsive construction noise is considered unreasonable when it measures 15 dBA or above ambient noise levels at a receiving property.

In addition, the New York City Noise Control Code limits construction activities to weekdays between the hours of 7:00 AM and 6:00 PM and requires that a Construction Noise Mitigation Plan be implemented. Project-specific noise control measures are described in the Construction Noise Mitigation Plan and can include a variety of source and path controls, such as the following:

› The responsible party would self-certify that all construction tools and equipment have been maintained to not generate excessive or unnecessary noise and that the noise emissions would not exceed the levels specified in the Federal Highway Administration's Roadway Construction Noise Model User's Guide, January 2006. Additionally, the applicant has committed to lower noise emission limits for specific pieces of equipment (i.e., tower cranes). **Table 18-1** shows the mandated noise levels for typical construction equipment.

› All construction equipment would be equipped with necessary noise reduction equipment including mufflers. All equipment with internal combustion engines would be operated with the doors closed, including noise-insulating materials and at the lowest engine speed allowable.

› Where feasible, practical and safe, the use of backup alarms would be minimized and/or quieter backup alarms would be installed in accordance with OSHA standards.

› Vehicles would not be allowed to idle more than 3 minutes in accordance with New York City Administrative Code §24-163.

› The contractor shall utilize a training program to inform workers on methods that can minimize construction noise.

› For impact equipment, such as pile drivers and jackhammers, the quietest equipment shall be selected taking into consideration the structural and geotechnical conditions.

The following path noise controls would be implemented to the extent feasible, practical and safe as required by the New York City Noise Code:

› The DOB regulations require a perimeter barrier or "construction noise barrier" and when the site is within 200 feet of a receptor, the barrier shall be constructed in a specific manner (as described in the New York City Noise Code) to provide sufficient sound attenuation. Section 3307.7 of the New York City Building Code requires a solid perimeter noise barrier made out of wood or other suitable material be constructed where a new building is being constructed or a building is being demolished to grade.

- Should noise complaints occur during construction, the contractor shall use path noise control measures such as temporary noise barriers and jersey barriers.
- In general, the quietest equipment and methods shall be used for excavators, dump trucks, cranes, auger drills, and concrete saws to the extent feasible and practical.

**Table 18-1 Mandated Maximum Noise Levels**

| Equipment | Maximum Sound Level at 50 feet (dBA, $L_{max}$) |
|---|---|
| Pickup Truck[1] | 55 |
| Pile Driver/Caisson Rig | 95 |
| Excavator/Backhoe | 85 |
| Tie-Back Drill Rig | 84 |
| Compressor | 80 |
| Dump Truck[1] | 84 |
| Generator | 82 |
| Concrete Mixer Truck | 85 |
| Concrete Pump | 82 |
| Tower Crane | 85 |
| Hydraulic Crane | 85 |

Source: VHB, 2019

# Construction Description

## Construction Schedule

**Figure 18-1** shows the anticipated schedule for construction of the developments facilitated by the Proposed Actions as well as the sequencing of construction stages as currently anticipated. The details of the construction schedule are described further below.

### No-Action Condition

Absent the Proposed Actions, the Development Site and NYCTA Relocation Site would remain in their existing conditions. The existing NYCTA Facility and ERU Facility would remain in their current locations. No construction would occur under the No-Action Condition.

### With-Action Condition

As discussed above and in **Chapter 1, Project Description**, in the future With-Action condition, the Development Site would be redeveloped with a total of approximately 1,106,500 gsf of residential space, 36,500 gsf of local retail space,[4] a 35,000-gsf community facility space (Greenpoint Monitor Museum), and approximately 50,000 sf of new open space.

[4] The Project Developer may include up to approximately 3,000 sf of community facility space (i.e., meeting space) for non-profit use in place of local retail space in the East Building. For the purpose of a conservative assessment, the EIS analyzes this space as local retail.

Construction of the Proposed Development would commence after the relocation of operations at the existing NYCTA Facility to the new facility at the NYCTA Relocation Site. As shown in **Figure 18-1**, construction of the Proposed Development would involve the demolition of the existing NYCTA Facility on the Development Site and overlapping construction of the Proposed Development's new buildings, along with the construction of new open space. Construction of the Proposed Development is anticipated to begin in the first quarter of 2028 and would be completed by the end of the second quarter of 2031, totaling a 42-month construction period.

Construction of the Proposed Development would begin with the demolition of the NYCTA Facility followed by a phased construction of each building, with activities occurring first at the West Building, followed by the East Building, then the Museum. Demolition of the NYCTA Facility would last for 6 months, beginning in Q1 2028 and completing at the end of Q2 2028. Following demolition, construction of the new buildings would occur from Q3 2028 to the end of Q2 2031.

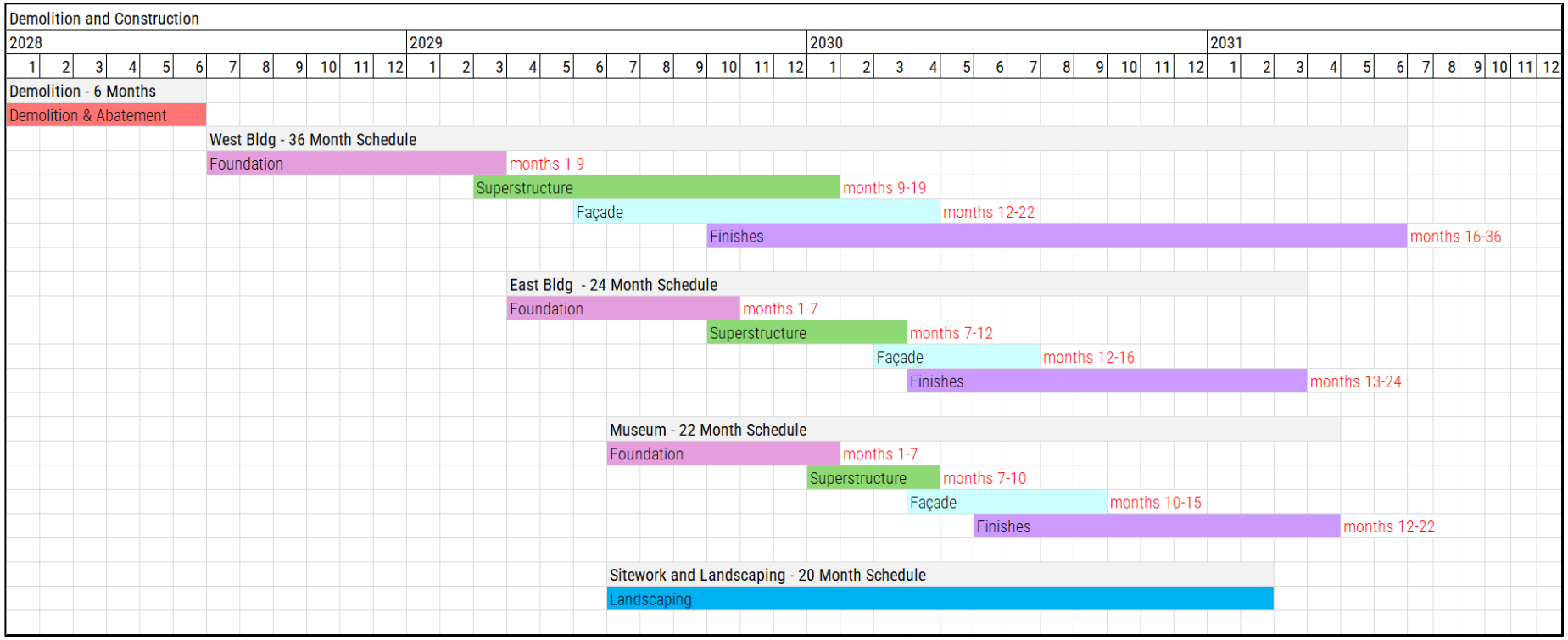
The West Building would have a 36-month construction period, during which foundation construction would occur from Q3 2028 through Q1 2029, superstructure construction would occur from Q1 2029 to Q1 2030, façade construction would occur from Q2 2029 to Q2 2030, elevator construction would occur from Q4 2029 to Q4 2030, and finishes would take place from Q4 2029 to Q2 2031.

The East Building would have a 24-month construction period, in which foundation construction would occur from Q2 2029 to Q4 2029, superstructure construction would occur from Q4 2029 to Q1 2030, façade construction would occur from Q1 2030 to Q3 2030, elevator construction would occur from Q2 2030 to Q3 2030, and finishes would occur from Q2 2030 to Q1 2031.

The Greenpoint Monitor Museum would have a 22-month construction period, in which foundation construction would occur from Q3 2029 to Q1 2030, superstructure construction would occur from Q1 2030 to Q2 2030, façade construction would occur from Q2 2030 to Q3 2030, elevator construction would occur from Q2 2030 to Q3 2030, and finishes would occur from Q3 2030 to Q2 2031.

Construction of the proposed open space improvements would take place concurrently with the construction of the proposed buildings. Following a 20-month construction schedule, landscaping for the new open space would occur from Q3 2029 to Q1 2031.

## Figure 18-1 Anticipated Construction Schedule



# Construction Activities

It is assumed that no construction is proposed on-site in absence of the Proposed Actions. Construction of the Proposed Development would be subject to government regulations and oversight detailed above and would employ the general construction practices described above.

## Excavation and Foundation

Excavation and Foundation is the first phase of construction to prepare the Development Site for construction work. Regarding excavation activities, where necessary, sheeting is installed to stabilize soil around the excavation area and excavators are then used to excavate soil. The soil is loaded onto dump trucks with front-end loaders for transport to a licensed disposal facility or for reuse on any portion of the development site that needs fill.

Water from rain and snow collected in the excavation area during construction would be removed as necessary using a dewatering pump. If dewatering is required, testing would be performed to ensure compliance with DEP sewer discharge permit/approval requirements and, if necessary, pretreatment would be conducted prior to discharge to the sewer.

Alongside excavation, construction of the new building's foundation and below-grade elements begins. Foundation work would include pile driving or drilling, and columns and concrete walls would be built to the grade level. As part of the foundation construction, concrete would be poured starting in select areas. Delivery trucks would enter the site from Quay Street.

## Superstructure and Exterior Construction (Core and Shell)

Construction of the core and shell involves construction of the building's framework, core, and exterior. The superstructure is the building's framework (beams and columns) and floor decks. Construction of the core, or interior structure, includes construction of the building's elevator shafts; vertical risers for mechanical, electrical, and plumbing systems; electrical and mechanical equipment rooms; core stairs; and restroom areas. Construction of the exterior involves the installation of the façade (exterior walls, windows, and cladding and the roof).

During this stage concrete would be poured for the core and the superstructure. The podium for each building would be cast in place or steel. An electric hoist would be installed and operated to facilitate these activities, including the delivery of various materials to the site. A sidewalk shed also would be installed along the curb edge around the site. Overhead protection would also be provided for the adjacent park.

Equipment used during this stage typically includes air compressors, generators, delivery and concrete trucks, concrete pumps, concrete trowels, welding equipment, and a variety of handheld tools. Space for concrete and spray fireproofing operations and other deliveries would be provided within the site with access from Quay Street. Mobile Cranes would also be brought into the site, and temporary construction elevators (hoists) would also be constructed for the delivery of materials and vertical movement of workers when necessary. Superstructure activities would also require the use of cranes, welders, and a variety of trucks. During portions of the superstructure phases, a tower crane would be needed for the West building, one mobile crane is needed for the East building, and one mobile crane is needed for the Greenpoint Monitor Museum.

### Interiors and Finishing

Interior fit-out activities include the construction of interior partitions, installation of lighting fixtures and interior finishes (i.e., flooring, painting, etc.); mechanical and electrical work; and lobby finishes. In addition, final cleanup and touchup of the proposed building and final building systems (i.e., electrical system, fire alarm, plumbing, etc.) testing and inspections are part of this stage of construction.

Equipment used during interior construction typically includes exterior hoists, compressors, delivery trucks, and a variety of small handheld tools. This stage of construction is typically the quietest and does not generate fugitive dust since this work occurs within the building with the façades substantially complete.

This stage of construction is also when the construction protection measures (fencing, sidewalk enclosures, bridges, temporary sidewalks, remaining scaffolding, etc.) around the construction site would be removed. This stage of construction would also include punch list completion activities, which are typically small tasks that were not completely finished, and project commissioning to ensure compliance with contract requirements.

## Number of Construction Workers and Material Deliveries

Construction is labor intensive, and the number of workers varies with the general construction task and/or building size. Likewise, material deliveries and removals generate truck trips, and the number also varies depending on the task and/or the building size. **Table 18-2** shows the estimated number of daily workers and trucks to the Development Site per quarter (i.e., 3-month period) of each calendar year for the duration of construction activities. These represent the average number of daily workers and trucks within each quarter. During construction, the average number of workers would be approximately 304 workers per day, with a peak of 636 workers per day occurring in Q4 2029. An average of 20 trucks per day is anticipated, and a maximum of 45 trucks per day are anticipated during Q4 2029.

**Table 18-2 Average Number of Daily Construction Workers and Trucks by Quarter**

| Year | 2028 | | | | 2029 | | | | 2030 | | | | 2031 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Quarter | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Workers | 19 | 20 | 49 | 121 | 202 | 404 | 519 | 636 | 628 | 599 | 540 | 363 | 141 | 18 | 0 | 0 |
| Trucks | 3 | 4 | 16 | 16 | 22 | 39 | 42 | 45 | 33 | 19 | 14 | 11 | 10 | 7 | 0 | 0 |

Source: Monadnock Construction

# Assessment of Project Construction

In accordance with the *CEQR Technical Manual* guidelines, this preliminary assessment evaluates the effects associated with the Proposed Development's construction related activities, including transportation, and air quality, noise, and vibration on sensitive receptors located near the area of construction, as well as the construction related effects on land use and neighborhood character, socioeconomic conditions, community facilities and services, open space, historic and cultural resources, natural resources, and hazardous materials.

## Land Use and Neighborhood Character

While construction of the new buildings under the Proposed Actions would cause temporary disruption, it is expected that such effects in any given area would be relatively short in duration, even under the worst-case construction sequencing and, therefore, would not create a neighborhood character impact. Therefore, no significant adverse construction impacts to land use and neighborhood character are expected.

## Socioeconomic Conditions

Construction could, in some instances, temporarily affect pedestrian and vehicular access on street frontages immediately adjacent to the Development Site; however, long-term lane and/or sidewalk closures are not expected during construction. Utility service would also be maintained for all businesses, although there may be very short-term interruptions. Overall, construction of the Proposed Development is not expected to result in any significant adverse impacts on surrounding businesses.

## Community Facilities and Services

There are no community facilities adjacent to, or in the vicinity of, the Development Site, and there is no potential for construction activities to affect the access or operations of any community facilities. Construction of the proposed buildings would not affect emergency response times of the NYPD and FDNY given the geographic distribution of the police and fire facilities and their respective coverage areas. Therefore, no construction impacts would be expected to community facilities as a result of the Proposed Development.

## Open Space

As described in **Chapter 5, Open Space**, the Development Site is adjacent to the Motiva Parcel, the northernmost portion of future Bushwick Inlet Park, which is currently under construction and slated for completion by late 2025. Construction of the Proposed Development would not affect public access or utilization of this open space resource. Measures would be implemented to control air emissions, dust, noise, and vibration on the construction site to avoid effects on users of the nearby portions of Bushwick Inlet Park. Additionally, overhead protection would be provided as a measure of protection for the adjacent park. Finally, limited disruption would occur where the proposed open space on the Development Site connects with the Motiva Parcel. The construction activities would be confined to as small an area as possible within the park to minimize disruptions in the park. Therefore, no significant adverse construction impacts to open space are expected.

## Historic and Cultural Resources

As described in **Chapter 6, Historic and Cultural Resources**, LPC confirmed that the Development Site does not have the potential to contain archaeological resources. Additionally, there are no architectural resources within 90 feet of the Development Site. As such, construction of the Proposed Development would not affect historic and cultural resources.

## Natural Resources

As described in **Chapter 9, Natural Resources**, construction of the Proposed Development would result in minor, temporary displacement effects to resident terrestrial wildlife at the Development Site and aquatic fauna within Bushwick Inlet and the adjoining East River, including potential temporary effects to habitat for Atlantic Sturgeon and Shortnose Sturgeon, two listed fish species that are known to occur within the East River, but have not been confirmed locally. Both species have the potential to occur seasonally within the waters adjacent to the Development Site. Construction of the Proposed Development may cause temporary displacement of the two species, if present seasonally within the waters adjoining the Development Site. Displacement may occur from indirect impacts due to noise and vibration from demolition and construction at upland areas of the Development Site, as well as from direct impacts to Bushwick Inlet and the adjoining East River, due to removal of the existing shoreline revetment and construction of the new bulkhead and revetment. However, if present, any temporarily displaced Atlantic Sturgeon and Shortnose Sturgeon are expected to return following construction. Moreover, pursuant to the federal Endangered Species Act and 6 NYCRR Part 182 (and similar to the NYC Parks habitat restoration and coastal resiliency efforts at the portions of Bushwick Inlet Park that adjoin the Development Site), upland and in-water work for the Proposed Development would be conducted in accordance with all applicable NOAA Marine Fisheries and NYSDEC requirements, respectively. Such requirements may include species noise/vibration avoidance and minimization measures, as well as siltation and turbidity controls to avoid adverse impacts to water column and benthic habitats during construction.

Similar to the effects of the current waterfront construction and installation of vegetated wetland and upland habitats within and adjacent to Bushwick Inlet at the Motiva Parcel of Bushwick Inlet Park adjacent to the Development Site, such effects would be avoided or minimized with the implementation of BMPs and adherence to regulatory agency permitting requirements during construction. Following implementation of the Proposed Development, improvements to habitat quantity and quality, as well as wildlife species diversity are expected, and many local species, including birds and other terrestrial wildlife, would experience increases in individual population densities due to expanded habitat opportunities.

## Hazardous Materials

As discussed in greater detail in **Chapter 10, Hazardous Materials**, the potential for significant adverse impacts related to hazardous materials resulting from the Proposed Development would be precluded through complicity with the requirements of the existing (E)-Designation E-138 on the Development Site and the new (E)-Designation (E-870) on the NYCTA Relocation Site. The Project Developer is also applying to enroll the Lot 1 portion of the Development Site (under two separate applications for the East and West Buildings, which will cover the entirety of Lot 1) and NYCTA Relocation Site into the NYSDEC BCP. The BCP is also considered an accepted pathway for site investigation and remediation that satisfies the requirements of OER's (E)-Designation program. Compliance with either the (E)-Designation program under OER oversight or the BCP under NYSDEC oversight would provide for the protection of human health and the environment within the Development Site and NYCTA Relocation Site once a COC is issued by NYSDEC or a NOS is issued by OER, and any required long term institutional and engineering controls (if required) are in place.

## Transportation

Construction activity would extend from 2028 to 2031 and would generate construction-worker and truck-vehicular traffic. Because of the somewhat lengthy duration of these activities, an evaluation of construction sequencing and worker and truck projections was completed in order to identify potential temporary traffic impacts during construction. A traffic assignment of worker vehicle trips and truck trips was conducted for the Q4 2029 peak period. Detailed traffic analysis was conducted for the same 13 intersections that were identified in the analysis of operational conditions (see **Chapter 12, Transportation**) to determine the potential for temporary significant traffic impacts due to peak construction activities. This analysis was conducted for the AM and PM construction peak hours when construction workers would be traveling to and from the Development Site.

### Construction Worker Modal Splits

The number of projected construction vehicles per day were developed for the construction quarters based on the 2000 American Community Survey (ACS) reverse journey-to-work (RJTW) data for the construction industry (for Brooklyn Community District 1). Based on this information, it is anticipated that approximately 58.1 percent would arrive by auto, 1 percent would use taxi, 2.5 percent would arrive by ferry, 6.7 percent would arrive by bus, 22.3 percent would use subway, and the remaining 9.4 percent would walk to the construction site. For the auto and taxi trips, an average vehicle occupancy of 1.20 persons per vehicle was used.

### Construction Peak Quarter and Peak Hour of Construction

Based on the above travel mode share and vehicle occupancy assumptions, the peak quarter for construction activities was identified. As shown in **Table 18-3**, the peak quarter of construction activity would occur during Q4 2029 with construction activities generating approximately 730 daily vehicle trips (820 daily PCE trips).[5] During this quarter, all three buildings within the Development Site would be undergoing construction.

[5] As larger vehicles such as trucks typically make up a significant portion of construction traffic, a passenger car equivalent factor is applied to these vehicles to account for their size difference. It is assumed that truck trips would be comprised of trucks with three axles which per the *CEQR Technical Manual* is equivalent to two passenger cars.

**Table 18-3 Average Number of Daily Construction Vehicle and PCE Trips by Quarter**

| Year | 2028 | | | | 2029 | | | |
|---|---|---|---|---|---|---|---|---|
| Quarter | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Auto Trips | 18 | 19 | 47 | 117 | 196 | 391 | 503 | 616 |
| Taxi Trips | 1 | 1 | 2 | 4 | 7 | 14 | 18 | 24 |
| Truck Trips | 6 | 8 | 32 | 32 | 44 | 78 | 84 | 90 |
| Vehicle Trips | 25 | 28 | 81 | 153 | 247 | 483 | 605 | 730 |
| PCE Trips | 31 | 36 | 113 | 185 | 291 | 561 | 689 | 820 |
| Year | 2030 | | | | 2031 | | | |
| Quarter | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Auto Trips | 608 | 580 | 523 | 351 | 137 | 17 | 0 | 0 |
| Taxi Trips | 22 | 21 | 19 | 12 | 5 | 1 | 0 | 0 |
| Truck Trips | 66 | 38 | 28 | 22 | 20 | 14 | 0 | 0 |
| Vehicle Trips | 696 | 639 | 570 | 385 | 162 | 32 | 0 | 0 |
| PCE Trips | 762 | 677 | 598 | 407 | 182 | 46 | 0 | 0 |

## Traffic Analysis

### *Peak Hour Construction Worker Vehicle and Truck Trips*

Construction activities would be expected to occur on weekdays beginning at 7:00 AM and ending at 3:30 PM. Auto trips by construction workers would typically occur during the hours before and after the daily work shift. Construction truck trips would typically be distributed throughout the day depending upon the specific types of construction activities taking place; most trucks would remain in the area for short durations. Each worker vehicle would arrive in the morning and depart in the evening, and each truck delivery was assumed to result in one "in" trip and one "out" trip during the same hour.

The estimated daily vehicle trips for the peak quarter of construction traffic were distributed throughout the workday based on projected arrival/departure patterns of construction workers, and the projected pattern of truck deliveries based on the types of construction activities that would occur during the peak quarters for the Proposed Project. For construction workers, typical arrival patterns show that most arrivals (approximately 90 percent) occur during the 6:00 AM to 7:00 AM hour (the hour before the beginning of a regular day shift) and the same percentage of departure trips occurs during the end of the shift (the 3:00 PM to 4:00 PM hour). For trucks, deliveries are usually spread throughout the day, but the peak activity (approximately 25 percent) is anticipated to occur during the 6:00 AM to 7:00 AM hour.

### *Construction Vehicle Peak Hour Selection*

These assumptions were applied to the two potential construction peak hours to determine the intensity of construction vehicle trips during the construction peak hours. The estimated number of vehicle trips generated by construction activities during the Q4 2029 peak quarter would be 309 vehicle trips (331 PCEs) during the weekday AM peak hour (6:00 AM to 7:00 AM) and 293 vehicle trips (299 PCEs) during the weekday PM peak hour (3:00 PM to 4:00 PM). The peak construction hourly trip projections for this peak quarter are summarized in **Table 18-4**.

**Table 18-4 Construction Vehicle Trips by Hour (Q4 2029)**

| | Auto | | Taxi | | Truck | | Total Vehicle | | | Total PCE | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Hour** | **In** | **Out** | **In** | **Out** | **In** | **Out** | **In** | **Out** | **Total** | **In** | **Out** | **Total** |
| **6 AM – 7 AM** | **277** | **0** | **5** | **5** | **11** | **11** | **293** | **16** | **309** | **304** | **27** | **331** |
| **7 AM – 8 AM** | 31 | 0 | 1 | 1 | 5 | 5 | 37 | 6 | 43 | 42 | 11 | 53 |
| **8 AM – 9 AM** | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 20 |
| **9 AM – 10 AM** | 0 | 0 | 0 | 0 | 5 | 5 | 5 | 5 | 10 | 10 | 10 | 20 |
| **10 AM – 11 AM** | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 8 | 8 | 8 | 16 |
| **11 AM – 12 PM** | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 8 | 8 | 8 | 16 |
| **12 PM – 1 PM** | 0 | 0 | 0 | 0 | 4 | 4 | 4 | 4 | 8 | 8 | 8 | 16 |
| **1 PM – 2 PM** | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 2 | 4 | 4 | 4 | 8 |
| **2 PM – 3 PM** | 0 | 16 | 0 | 0 | 2 | 2 | 2 | 18 | 20 | 4 | 20 | 24 |
| **3 PM – 4 PM** | **0** | **277** | **5** | **5** | **3** | **3** | **8** | **285** | **293** | **11** | **288** | **299** |
| **4 PM – 5 PM** | 0 | 15 | 1 | 1 | 0 | 0 | 1 | 16 | 17 | 1 | 16 | 17 |

### *Construction Traffic Volumes and Levels of Service*

As noted above, the construction traffic peak hours are the weekday 6:00 AM to 7:00 AM, and 3:00 PM to 4:00 PM periods. The traffic study area includes the same 13 intersections that were analyzed in the operational traffic assessment included in **Chapter 12, Transportation**.

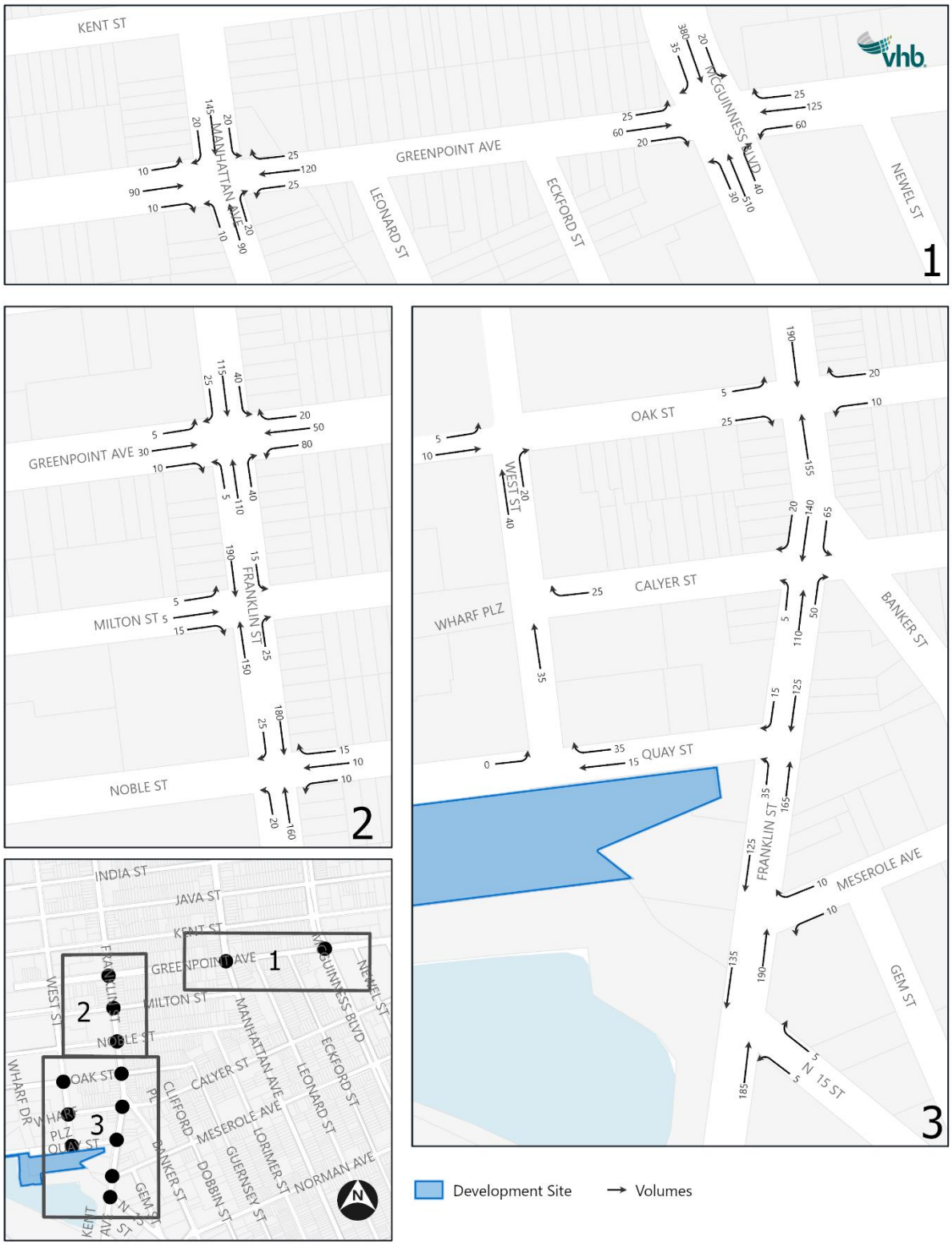
#### *Existing Conditions*

An assessment of traffic operations was conducted to confirm existing roadway capacities during the weekday AM and weekday PM construction peak hours, which would be consistent with the weekday AM and PM peak hours analyzed for the operational traffic assessment included in **Chapter 12, Transportation**. Where applicable, the traffic analysis was updated to reflect differences in parking and bus maneuvers between the construction peak hours and the operational traffic analysis peak hours.

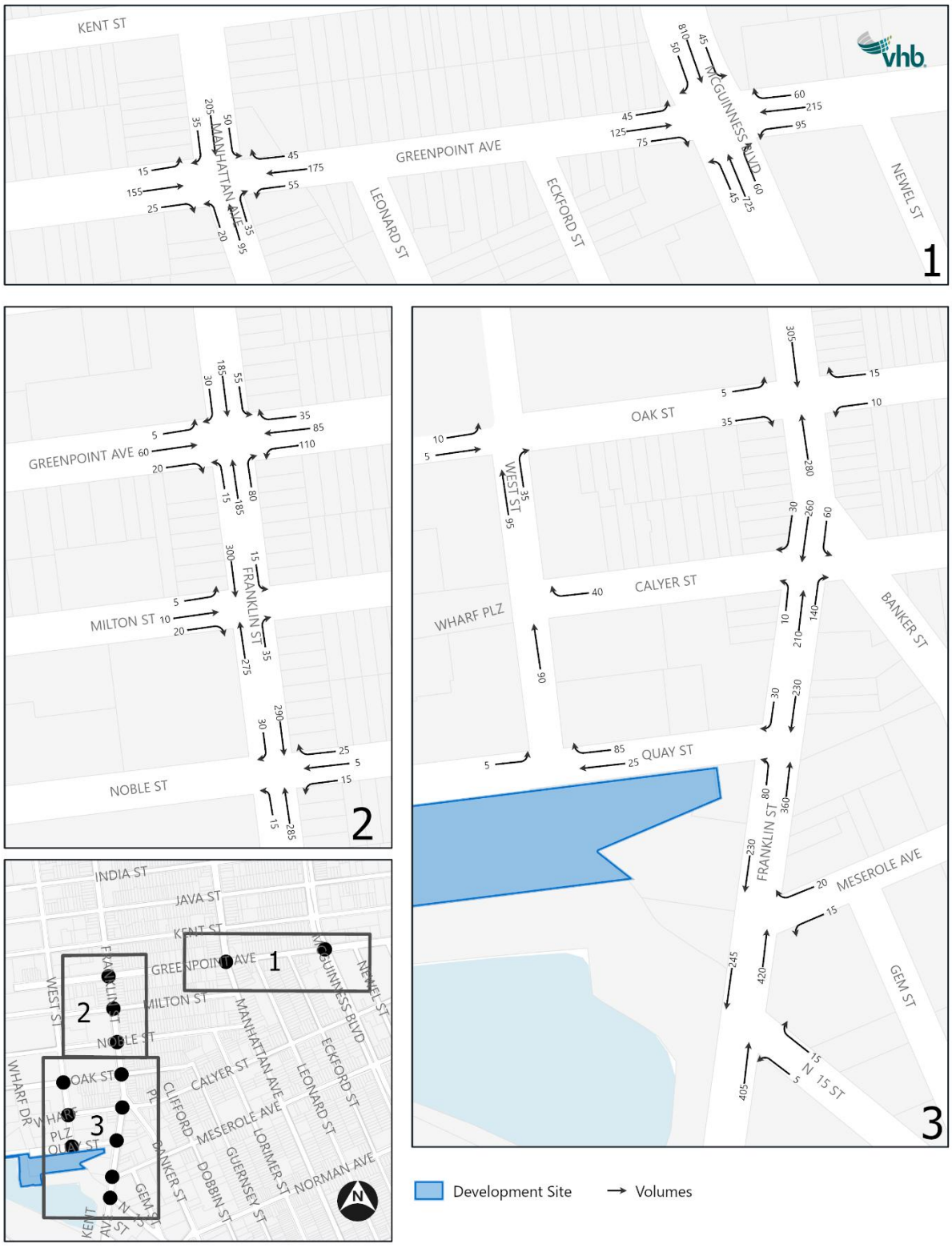
The existing conditions traffic volumes for the weekday AM and PM construction peak hours are shown in **Figure 18-2** and **Figure 18-3**. These volumes were established based on the operational traffic analysis weekday AM and PM peak hours which were then adjusted based on a comparison of hourly automatic traffic recorder (ATR) data. A comparison of peak hour volumes shows that during the weekday AM construction peak hour of 6:00 AM to 7:00 AM, volumes are 38 percent lower than during the operational traffic analysis weekday AM peak hour of 7:45 AM to 8:45 AM; and during the weekday PM construction peak hour of 3:00 PM to 4:00 PM, volumes are approximately 5 percent lower than during the operational traffic analysis weekday PM peak hour of 5:00 PM to 6:00 PM.

All intersections analyzed were found to operate at an overall acceptable level of service during the weekday AM and PM construction peak hours. Of the approximately 42 movements analyzed during the weekday AM construction peak hour, no movements operate at unacceptable levels of service (i.e., LOS E or F). Of the 42 movements analyzed during the weekday PM construction peak hour, three movements operate at unacceptable levels of service. Detailed traffic levels of service are provided in **Table 18-5.**

## Figure 18-2 Existing Traffic Volumes – Weekday AM Construction Peak Hour



## Figure 18-3 Existing Traffic Volumes – Weekday PM Construction Peak Hour



### Table 18-5 Existing Traffic Levels of Service

| Intersection and Approach | | Weekday AM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS | Weekday PM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS |
|---|---|---|---|---|---|---|---|---|---|
| **Signalized Intersections** | | | | | | | | | |
| **Franklin Street and Quay Street** | | | | | | | | | |
| Franklin Street | NB | LT | 0.34 | 9.8 | A | LT | 0.75 | 18.8 | B |
| | SB | TR | 0.21 | 6.2 | A | R | 0.36 | 6.5 | A |
| **Overall Intersection[2]** | | - | - | **8.3** | **A** | - | - | **14.2** | **B** |
| **Franklin Street and Calyer Street** | | | | | | | | | |
| Franklin Street | NB | LTR | 0.28 | 3.9 | A | LTR | 0.58 | 6.0 | A |
| | SB | LTR | 0.41 | 7.4 | A | LTR | 0.60 | 11.1 | B |
| **Overall Intersection[2]** | | - | - | **5.9** | **A** | - | - | **8.5** | **A** |
| **Franklin Street and Noble Street** | | | | | | | | | |
| Noble Street | WB | LTR | 0.09 | 14.8 | B | LTR | 0.13 | 15.3 | B |
| Franklin Street | NB | LT | 0.30 | 8.0 | A | LT | 0.44 | 12.0 | B |
| | SB | TR | 0.33 | 6.5 | A | TR | 0.48 | 6.6 | A |
| **Overall Intersection[2]** | | - | - | **7.9** | **A** | - | - | **9.6** | **A** |
| **Franklin Street and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.15 | 15.5 | B | LTR | 0.30 | 17.6 | B |
| | WB | LTR | 0.62 | 39.8 | D | LTR | 1.05 | 93.9 | F |
| Franklin Street | NB | LTR | 0.39 | 16.9 | B | LTR | 0.76 | 32.2 | C |
| | SB | LTR | 0.48 | 16.8 | B | LTR | 0.75 | 26.2 | C |
| **Overall Intersection[2]** | | - | - | **23.2** | **C** | - | - | **45.4** | **D** |
| **Manhattan Avenue and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LT | 0.23 | 22.8 | C | LT | 0.37 | 26.5 | C |
| | | R | 0.03 | 20.9 | C | R | 0.08 | 22.0 | C |
| | WB | LTR | 0.41 | 11.8 | B | LTR | 0.68 | 27.2 | C |
| Manhattan Avenue | NB | LTR | 0.29 | 21.8 | C | LTR | 0.41 | 24.4 | C |
| | SB | LTR | 0.43 | 24.6 | C | LTR | 0.74 | 36.7 | D |
| **Overall Intersection[2]** | | - | - | **19.9** | **B** | - | - | **29.5** | **C** |
| **McGuinness Boulevard and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.40 | 52.1 | D | LTR | 1.05 | 94.5 | F |
| | WB | L | 0.32 | 36.3 | D | L | 0.64 | 52.6 | D |
| | | TR | 0.50 | 39.4 | D | TR | 0.82 | 55.5 | E |

**Table 18-5 Existing Traffic Levels of Service**

| Intersection and Approach | | Weekday AM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS | Weekday PM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS |
|---|---|---|---|---|---|---|---|---|---|
| McGuinness Boulevard | NB | L | 0.12 | 14.7 | B | L | 0.35 | 22.0 | C |
| | | TR | 0.45 | 18.2 | B | TR | 0.59 | 20.6 | C |
| | SB | L | 0.10 | 14.6 | B | L | 0.31 | 20.2 | C |
| | | TR | 0.33 | 16.5 | B | TR | 0.63 | 21.6 | C |
| **Overall Intersection[2]** | | - | - | **23.5** | **C** | - | - | **34.5** | **C** |
| **Unsignalized Intersections** | | | | | | | | | |
| **West Street and Quay Street** | | | | | | | | | |
| Quay Street | EB | L | - | 7.0 | A | L | - | 7.2 | A |
| | WB | TR | - | 6.9 | A | TR | - | 7.1 | A |
| **Overall Intersection[2]** | | - | - | **6.9** | **A** | - | - | **7.1** | **A** |
| **West Street and Calyer Street** | | | | | | | | | |
| Calyer Street | WB | R | - | 9.1 | A | R | - | 9.4 | A |
| West Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **3.8** | **A** | - | - | **2.9** | **A** |
| **West Street and Oak Street** | | | | | | | | | |
| Oak Street | EB | LT | - | 12.6 | B | LT | - | 13.5 | B |
| West Street | NB | TR | - | 0.0 | A | TR | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **2.5** | **A** | - | - | **1.4** | **A** |
| **Franklin Street and North 15th Street** | | | | | | | | | |
| North 15th Street | WB | LR | - | 12.1 | B | LR | - | 15.3 | C |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **0.4** | **A** | - | - | **0.5** | **A** |
| **Franklin Street and Meserole Avenue** | | | | | | | | | |
| Meserole Avenue | WB | LR | - | 11.4 | B | LR | - | 16.6 | C |
| Franklin Street | NB | LR | - | 0.0 | A | LR | - | 0.0 | A |
| | SB | LR | - | 0.0 | A | LR | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **0.7** | **A** | - | - | **0.9** | **A** |
| **Franklin Street and Oak Street** | | | | | | | | | |
| Oak Street | EB | LR | - | 12.0 | B | LR | - | 15.1 | C |
| | WB | LR | - | 13.9 | B | LR | - | 25.6 | D |

**Table 18-5 Existing Traffic Levels of Service**

| Intersection and Approach | | Weekday AM Construction Peak Hour | | | | Weekday PM Construction Peak Hour | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Mvt | V/C | Ctrl Delay[1] | LOS | Mvt | V/C | Ctrl Delay[1] | LOS |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **1.9** | **A** | - | - | **1.9** | **A** |
| **Franklin Street and Milton Street** | | | | | | | | | |
| Milton Street | EB | LTR | - | 15.0 | B | LTR | - | 22.6 | C |
| Franklin Street | NB | RT | - | 0.0 | A | RT | - | 0.0 | A |
| | SB | LT | - | 0.8 | A | LT | - | 0.7 | A |
| **Overall Intersection[2]** | | - | - | **1.3** | **A** | - | - | **1.5** | **A** |

Mvt=Movement; Ctrl=Control
[1] Control delay is measured in seconds per vehicle.
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

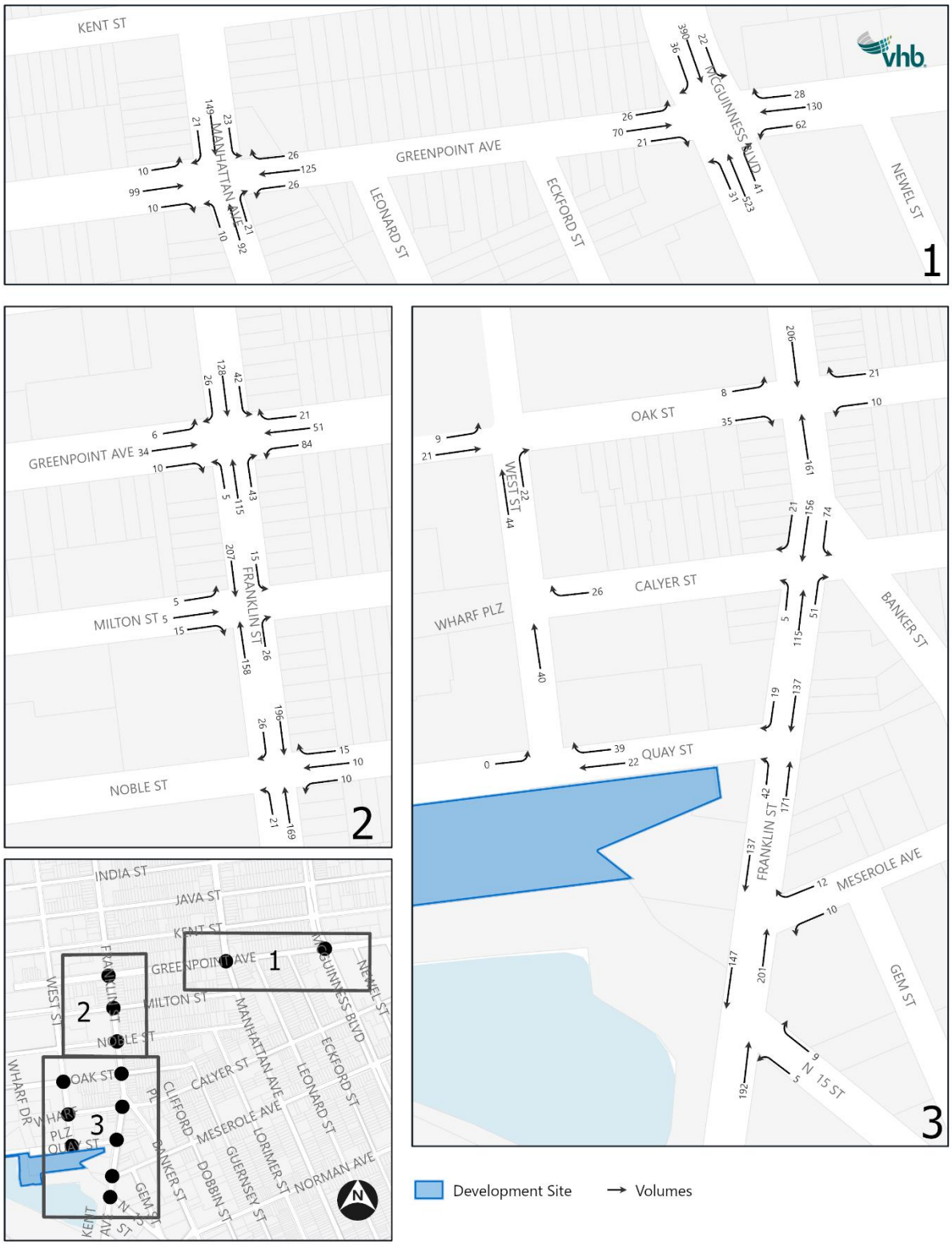
### *No-Action Without Construction Conditions*

An annual growth rate of 0.50 percent per year was assumed for 5 years as per the *CEQR Technical Manual* in order to estimate the background volumes for the 2029 No-Action (without construction) condition. Vehicle and pedestrian trips for No-Action background development sites discussed in **Chapter 12, Transportation,** with the exception of the ACME Fish Expansion project,[6] were assigned to the roadway network—these developments are conservatively assumed to be operational by Q4 2029. It is expected that the restoration of the westbound travel lane width at the intersection of West Street and Quay Street, and the installation of the new traffic signal at the intersection of Franklin Street and Oak Street planned by NYC DOT, as identified in **Chapter 12, Transportation**, will be completed in advance of the peak construction period. Therefore, these changes are reflected in the No-Action without construction condition analysis.

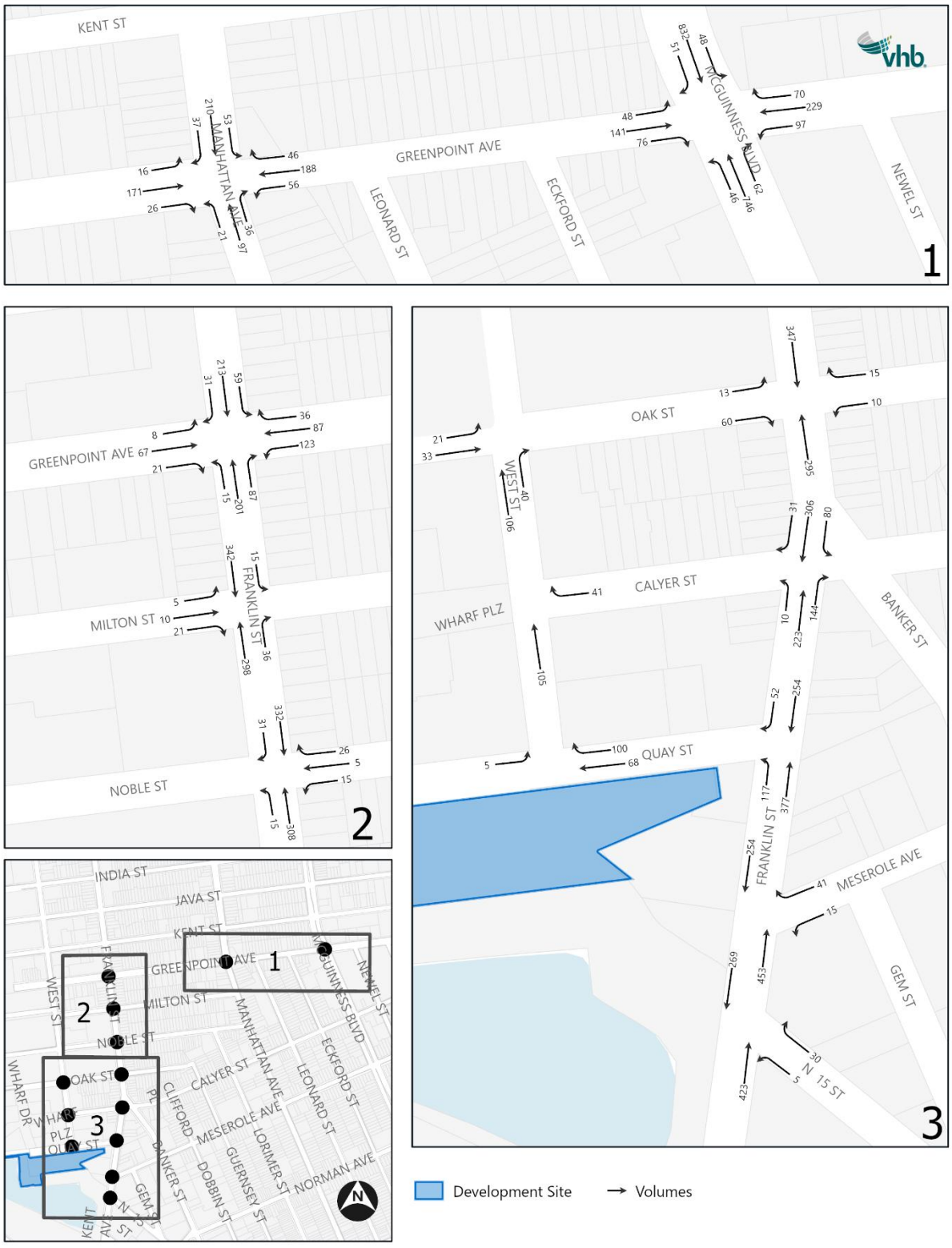
The No-Action without construction condition traffic volumes for the weekday AM and PM construction peak hours are shown in **Figure 18-4** and **Figure 18-5**. Under this condition, one intersection (Franklin Street and Greenpoint Avenue) would operate at an unacceptable overall level of service (LOS E) during the weekday PM construction peak hour, compared to no intersections at LOS E and LOS F in existing conditions. The 13 intersections analyzed for the AM construction peak hour would operate at acceptable levels of service (more specifically, LOS C or better). Of the 42 movements analyzed during the weekday AM construction peak hour, no movements would operate at unacceptable levels of service, the same as in existing conditions. Of the 42 movements analyzed during the weekday PM construction peak hour, four movements would operate at unacceptable levels of service, compared to three movements in existing conditions. Detailed traffic levels of service are provided in **Table 18-6**.

[6] As discussed in **Chapter 12, Transportation**, construction at the ACME site has not started as of the publication of this DEIS. Per the construction schedule detailed in the 2021 *ACME Fish Expansion FEIS*, the ACME project could not be completed by the 2029 peak construction analysis year. Therefore, ACME project-generated traffic and the associated improvements are not included in the future condition construction analyses.

**Figure 18-4 No-Action Without Construction Traffic Volumes – Weekday AM Peak Hour**



## Figure 18-5 No-Action Without Construction Traffic Volumes – Weekday PM Peak Hour



### Table 18-6 No-Action Without Construction Traffic Levels of Service

| Intersection and Approach | | Weekday AM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS | Weekday PM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS |
|---|---|---|---|---|---|---|---|---|---|
| **Signalized Intersections** | | | | | | | | | |
| **Franklin Street and Quay Street** | | | | | | | | | |
| Franklin Street | NB | LT | 0.37 | 10.2 | B | LT | 0.93 | 35.9 | D |
| | SB | TR | 0.24 | 5.7 | A | TR | 0.43 | 6.2 | A |
| **Overall Intersection[2]** | | - | - | **8.3** | **A** | - | - | **24.5** | **C** |
| **Franklin Street and Calyer Street** | | | | | | | | | |
| Franklin Street | NB | LTR | 0.29 | 3.9 | A | LTR | 0.61 | 6.3 | A |
| | SB | LTR | 0.47 | 8.0 | A | LTR | 0.73 | 12.6 | B |
| **Overall Intersection[2]** | | - | - | **6.3** | **A** | - | - | **9.6** | **A** |
| **Franklin Street and Oak Street** | | | | | | | | | |
| Oak Street | EB | LR | 0.12 | 15.1 | B | LR | 0.19 | 15.8 | B |
| | WB | LR | 0.09 | 14.8 | B | LR | 0.07 | 14.6 | B |
| Franklin Street | NB | T | 0.26 | 5.1 | A | T | 0.42 | 7.7 | A |
| | SB | T | 0.31 | 3.7 | A | T | 0.50 | 5.8 | A |
| **Overall Intersection[2]** | | - | - | **6.1** | **A** | - | - | **7.9** | **A** |
| **Franklin Street and Noble Street** | | | | | | | | | |
| Noble Street | WB | LTR | 0.09 | 14.8 | B | LTR | 0.14 | 15.4 | B |
| Franklin Street | NB | LT | 0.32 | 6.6 | A | LT | 0.48 | 8.2 | A |
| | SB | TR | 0.35 | 6.4 | A | TR | 0.54 | 6.6 | A |
| **Overall Intersection[2]** | | - | - | **7.2** | **A** | - | - | **7.9** | **A** |
| **Franklin Street and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.17 | 15.8 | B | LTR | 0.35 | 18.5 | B |
| | WB | LTR | 0.66 | 43.0 | D | LTR | 1.18 | 139.9 | F |
| Franklin Street | NB | LTR | 0.42 | 20.0 | B | LTR | 0.82 | 37.4 | D |
| | SB | LTR | 0.52 | 17.8 | B | LTR | 0.83 | 32.6 | C |
| **Overall Intersection[2]** | | - | - | **25.2** | **C** | - | - | **60.6** | **E** |
| **Manhattan Avenue and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LT | 0.26 | 23.5 | C | LT | 0.40 | 27.3 | C |
| | | R | 0.03 | 20.8 | C | R | 0.09 | 22.1 | C |
| | WB | LTR | 0.43 | 12.0 | B | LTR | 0.73 | 29.7 | C |
| Manhattan Avenue | NB | LTR | 0.30 | 21.9 | C | LTR | 0.42 | 24.7 | C |
| | SB | LTR | 0.46 | 25.2 | C | LTR | 0.78 | 39.1 | D |
| **Overall Intersection[2]** | | - | - | **20.3** | **C** | - | - | **31.1** | **C** |

### Table 18-6 No-Action Without Construction Traffic Levels of Service

| Intersection and Approach | | Weekday AM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS | Weekday PM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS |
|---|---|---|---|---|---|---|---|---|---|
| **McGuinness Boulevard and Greenpoint Avenue** | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.44 | 53.8 | D | LTR | 1.24 | 162.9 | F |
| | WB | L | 0.35 | 37.1 | D | L | 0.69 | 57.6 | E |
| | | TR | 0.53 | 40.3 | D | TR | 0.89 | 64.5 | E |
| McGuinness Boulevard | NB | L | 0.12 | 14.8 | B | L | 0.37 | 23.1 | C |
| | | TR | 0.46 | 18.4 | B | TR | 0.61 | 21.0 | C |
| | SB | L | 0.11 | 14.9 | B | L | 0.35 | 21.5 | C |
| | | TR | 0.34 | 16.6 | B | TR | 0.65 | 22.0 | C |
| **Overall Intersection[2]** | | - | - | **24.2** | **C** | - | - | **44.3** | **D** |
| **UNSIGNALIZED INTERSECTIONS** | | | | | | | | | |
| **West Street and Quay Street** | | | | | | | | | |
| Quay Street | EB | L | - | 7.0 | A | L | - | 7.3 | A |
| | WB | TR | - | 7.0 | A | TR | - | 7.6 | A |
| **Overall Intersection[2]** | | - | - | **7.0** | **A** | - | - | **7.6** | **A** |
| **West Street and Calyer Street** | | | | | | | | | |
| Calyer Street | WB | R | - | 9.2 | A | R | - | 9.7 | A |
| West Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **3.6** | **A** | - | - | **2.7** | **A** |
| **West Street and Oak Street** | | | | | | | | | |
| Oak Street | EB | LT | - | 14.8 | B | LT | - | 30.9 | D |
| West Street | NB | TR | - | 0.0 | A | TR | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **4.6** | **A** | - | - | **8.4** | **A** |
| **Franklin Street and North 15th Street** | | | | | | | | | |
| North 15th Street | WB | LR | - | 12.1 | B | LR | - | 15.8 | C |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **0.5** | **A** | - | - | **0.8** | **A** |
| **Franklin Street and Meserole Avenue** | | | | | | | | | |
| Meserole Ave | WB | LR | - | 12.3 | B | LR | - | 29.4 | D |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A |
| **Overall Intersection[2]** | | - | - | **0.8** | **A** | - | - | **2.2** | **A** |

**Table 18-6 No-Action Without Construction Traffic Levels of Service**

| Intersection and Approach | | Weekday AM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS | Weekday PM Construction Peak Hour Mvt | V/C | Ctrl Delay[1] | LOS |
|---|---|---|---|---|---|---|---|---|---|
| **Franklin Street and Milton Street** | | | | | | | | | |
| Milton Street | EB | LTR | - | 15.6 | C | LTR | - | 25.7 | D |
| Franklin Street | NB | RT | - | 0.0 | A | RT | - | 0.0 | A |
| | SB | LT | - | 0.7 | A | LT | - | 0.6 | A |
| **Overall Intersection[2]** | | **-** | **-** | **1.3** | **A** | **-** | **-** | **1.6** | **A** |

Mvt=Movement; Ctrl=Control
[1] Control delay is measured in seconds per vehicle.
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.

### *With-Action with Construction Condition*

Construction activities would generate 277 construction worker auto trips, ten construction worker taxi trips, and 22 construction truck trips during the weekday AM construction peak hour; and 277 construction worker auto trips, ten construction worker taxi trips, and six construction truck trips during the weekday PM construction peak hour. Construction worker auto and taxi vehicle trips were assigned to the street network based on 2012-2016 ACS RJTW data. Construction trucks would be required to use NYC DOT-designated truck routes to get to the Development Site and would then use local streets to access the construction site. These construction-generated vehicle trips were added to the No-Action without Construction condition traffic volumes to establish the With-Action with construction condition traffic volumes. The projected construction-related vehicle trips during the weekday AM and PM construction peak hours are shown in **Figure 18-6** and **Figure 18-7**, respectively. The With-Action with Construction condition traffic volumes for the weekday AM and PM construction peak hours are shown in **Figure 18-8** and **Figure 18-9**, respectively.

As indicated in **Table 18-7** and **Table 18-8**, three of the 13 intersections analyzed would be significantly impacted during the weekday AM construction peak hour, and four of the 13 intersections analyzed would be significantly impacted during the weekday PM construction peak hour. The following intersections would be significantly impacted:

- Franklin Street and Quay Street (weekday AM and weekday PM construction peak hours)
- Franklin Street and Calyer Street (weekday PM construction peak hour)
- Franklin Street and Greenpoint Avenue (weekday AM and PM construction peak hours)
- McGuinness Boulevard and Greenpoint Avenue (weekday AM and PM construction peak hours)

Detailed descriptions of future conditions without construction (No-Action condition), with construction (With-Action condition), and with construction mitigation (Mitigation condition) traffic levels of service and traffic mitigation measures are presented in **Table 18-7** and **Table 18-8**. Standard traffic capacity improvements typically implemented by NYC DOT, such as signal-timing modifications, could provide full or partial mitigation at some of the significantly impacted intersections.

Significant impacts at three intersections could be fully mitigated (Franklin Street with Quay Street, Franklin Street with Greenpoint Avenue, and McGuinness Boulevard with Greenpoint Avenue) during the weekday AM construction peak hour with signal timing modifications. Significant impacts at

three intersections could be fully mitigated (Franklin Street with Quay Street, Franklin Street with Calyer Street, and Franklin Street with Greenpoint Avenue) during the weekday PM construction peak hour with signal timing modifications. However, signal timing modifications at the intersection of McGuinness Boulevard and Greenpoint could mitigate just one (the westbound left-turn movement) of the two significant impacts at this location, therefore this intersection would remain unmitigated.

The Project Developer will submit an MPT plan to OCMC prior to the start of construction. As part of this plan, OCMC may request the deployment of traffic enforcement agents (TEAs) at the intersection of McGuiness Boulevard and Greenpoint Avenue or at other locations. The deployment of TEAs is at the discretion of the NYPD.

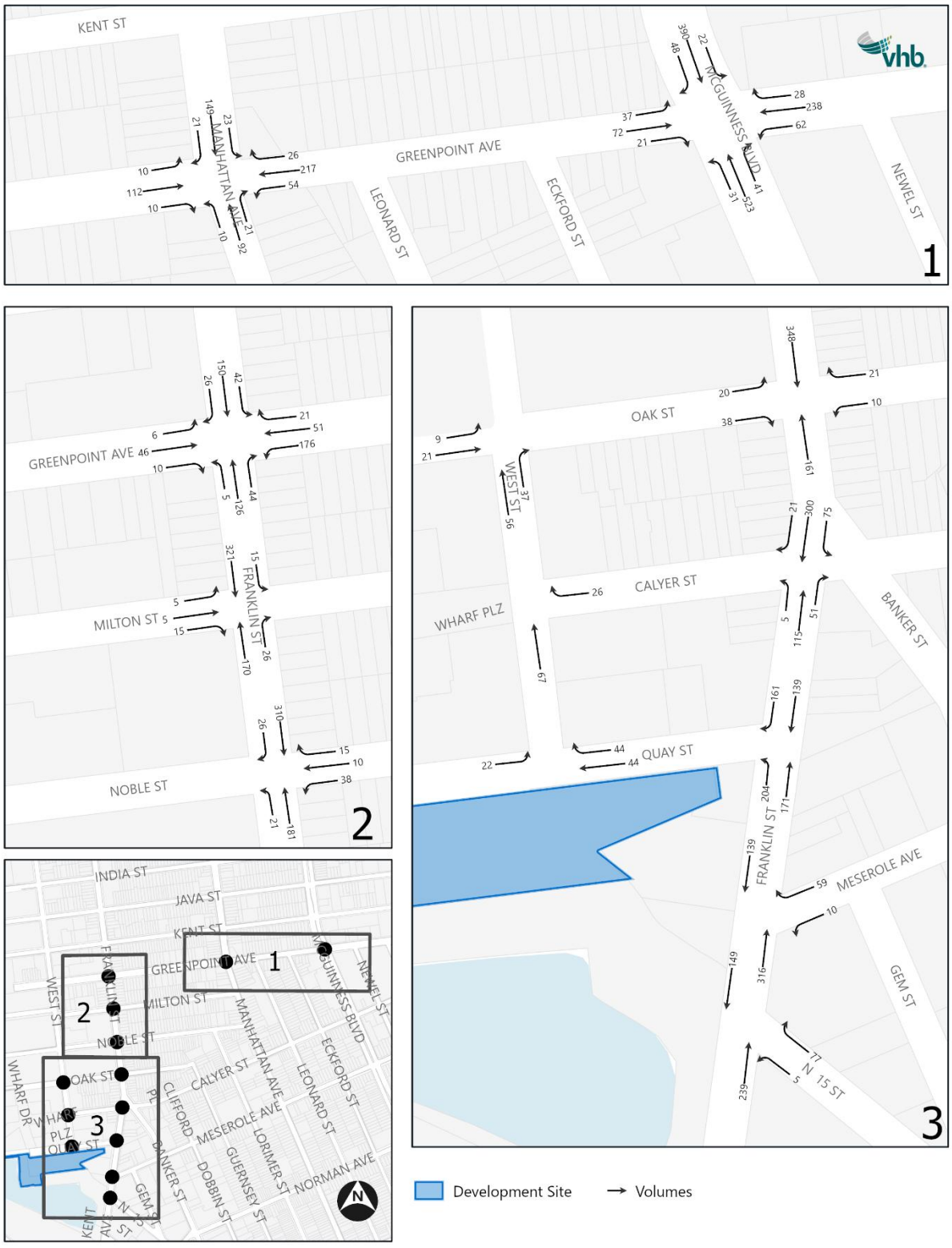
## Figure 18-6 Construction Increment Traffic Volumes – Weekday AM Peak Hour



## Figure 18-7 Construction Increment Traffic Volumes – Weekday PM Peak Hour



## Figure 18-8 With-Action with Construction Traffic Volumes – Weekday AM Peak Hour



## Figure 18-9 With-Action with Construction Traffic Volumes – Weekday PM Peak Hour

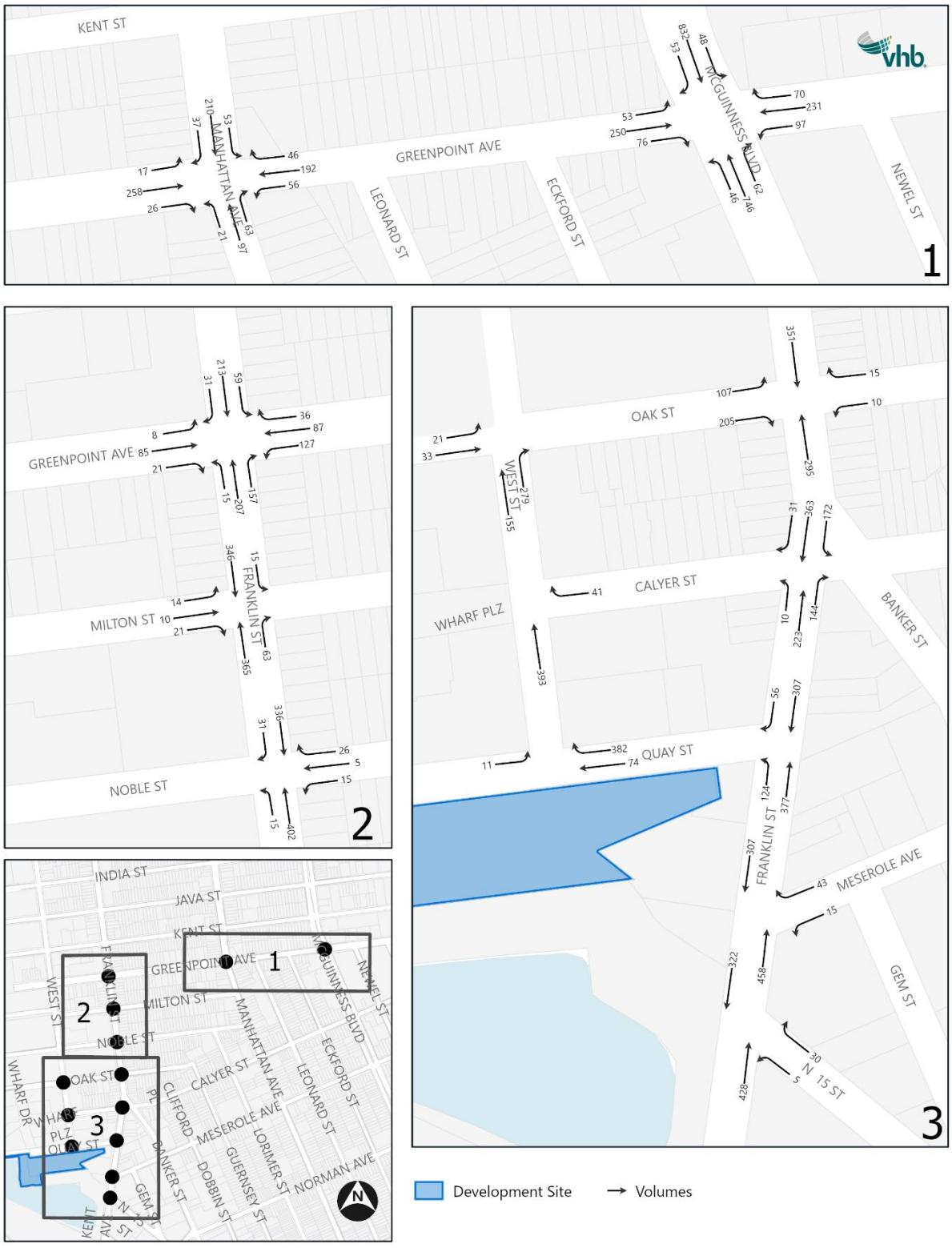


**Table 18-7 Future Construction Conditions Traffic Levels of Service – Weekday AM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **Signalized Intersections** | | | | | | | | | | | | | | |
| **Franklin Street and Quay Street** | | | | | | | | | | | | | | |
| Franklin Street | NB | LT | 0.37 | 10.2 | B | LT | 1.06 | 74.2 | E | LT | 0.97 | 47.6 | D | **Mitigated** |
| | SB | TR | 0.24 | 5.7 | A | TR | 0.56 | 8.1 | A | TR | 0.52 | 5.0 | A | Modify signal timing: Shift 2 sec of green time from Pedestrian-only phase to NB/SB phase. (Pedestrian-only phase shifts from 24 sec to 22 sec; NB/SB phase green time shifts from 36 sec to 38 sec) |
| **Overall Intersection[2]** | | - | - | **8.3** | **A** | - | - | **44.7** | **D** | - | - | **28.6** | **C** | |
| **Franklin Street and Calyer Street** | | | | | | | | | | | | | | |
| Franklin Street | NB | LTR | 0.29 | 3.9 | A | LTR | 0.29 | 5.3 | A | LTR | 0.29 | 6.3 | A | **No significant impact[3]** |
| | SB | LTR | 0.47 | 8.0 | A | LTR | 0.71 | 10.3 | B | LTR | 0.71 | 10.7 | B | |
| **Overall Intersection[2]** | | - | - | **6.3** | **A** | - | - | **8.8** | **A** | - | - | **9.4** | **A** | |
| **Franklin Street and Oak Street** | | | | | | | | | | | | | | |
| Oak Street | EB | LR | 0.12 | 15.1 | B | LR | 0.17 | 15.6 | B | LR | 0.17 | 15.6 | B | **No significant impact[3]** |
| | WB | LR | 0.09 | 14.8 | B | LR | 0.09 | 14.8 | B | LR | 0.09 | 14.8 | B | |
| Franklin Street | NB | T | 0.26 | 5.1 | A | T | 0.26 | 7.3 | A | T | 0.26 | 6.9 | A | |
| | SB | T | 0.31 | 3.7 | A | T | 0.52 | 5.3 | A | T | 0.52 | 6.2 | A | |
| **Overall Intersection[2]** | | - | - | **6.1** | **A** | - | - | **7.4** | **A** | - | - | **7.8** | **A** | |

**Table 18-7 Future Construction Conditions Traffic Levels of Service – Weekday AM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **Franklin Street and Noble Street** | | | | | | | | | | | | | | |
| Noble Street | WB | LTR | 0.09 | 14.8 | B | LTR | 0.17 | 15.6 | B | LTR | 0.17 | 15.6 | B | **No significant impact[3]** |
| Franklin Street | NB | LT | 0.32 | 6.6 | A | LT | 0.34 | 8.5 | A | LT | 0.34 | 8.3 | A | |
| | SB | TR | 0.35 | 6.4 | A | TR | 0.53 | 8.4 | A | TR | 0.53 | 11.4 | B | |
| **Overall Intersection[2]** | | - | - | **7.2** | **A** | - | - | **9.2** | **A** | - | - | **10.8** | **B** | |
| **Franklin Street and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.17 | 15.8 | B | LTR | 0.21 | 16.3 | B | LTR | 0.16 | 23.8 | C | **Mitigated** Modify signal timing from 60-sec cycle to 120-sec cycle: EB/WB phase green time shifts from 19 sec to 48 sec; NB/SB phase green time shifts from 24 sec to 55 sec; LPI of 7 sec remains. |
| | WB | LTR | 0.66 | 43.0 | D | LTR | 1.17 | 147.1 | F | LTR | 0.88 | 48.5 | D | |
| Franklin Street | NB | LTR | 0.42 | 20.0 | B | LTR | 0.46 | 21.3 | C | LTR | 0.39 | 26.8 | C | |
| | SB | LTR | 0.52 | 17.8 | B | LTR | 0.58 | 19.3 | B | LTR | 0.50 | 26.3 | C | |
| **Overall Intersection[2]** | | - | - | **25.2** | **C** | - | - | **64.5** | **E** | - | - | **34.0** | **C** | |
| **Manhattan Avenue and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LT | 0.26 | 23.5 | C | LT | 0.29 | 23.6 | C | LT | 0.29 | 23.2 | C | **No significant impact[3]** |
| | | R | 0.03 | 20.8 | C | R | 0.03 | 20.6 | C | R | 0.03 | 18.9 | B | |
| | WB | LTR | 0.43 | 12.0 | B | LTR | 0.75 | 14.9 | B | LTR | 0.75 | 17.2 | B | |
| Manhattan Avenue | NB | LTR | 0.30 | 21.9 | C | LTR | 0.30 | 21.9 | C | LTR | 0.30 | 21.9 | C | |
| | SB | LTR | 0.46 | 25.2 | C | LTR | 0.46 | 25.2 | C | LTR | 0.46 | 25.2 | C | |
| **Overall Intersection[2]** | | - | - | **20.3** | **C** | - | - | **20.2** | **C** | - | - | **21.0** | **C** | |

**Table 18-7 Future Construction Conditions Traffic Levels of Service – Weekday AM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **McGuinness Boulevard and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.44 | 53.8 | D | LTR | 0.65 | 67.3 | E | LTR | 0.54 | 57.9 | E | **Mitigated** Modify signal timing: Shift 4 sec. of green time from NB/SB phase to EB/WB phase. (NB/SB phase green time shifts from 64 sec to 60 sec.; EB/WB phase green time shifts from 36 sec to 40 sec); LPI of 10 sec. remains. |
| | WB | L | 0.35 | 37.1 | D | L | 0.36 | 37.5 | D | L | 0.31 | 33.1 | C | |
| | | TR | 0.53 | 40.3 | D | TR | 0.88 | 64.6 | E | TR | 0.79 | 50.6 | D | |
| McGuinness Boulevard | NB | L | 0.12 | 14.8 | B | L | 0.13 | 14.9 | B | L | 0.14 | 17.2 | B | |
| | | TR | 0.46 | 18.4 | B | TR | 0.46 | 18.4 | B | TR | 0.49 | 21.1 | C | |
| | SB | L | 0.11 | 14.9 | B | L | 0.11 | 14.9 | B | L | 0.13 | 17.2 | B | |
| | | TR | 0.34 | 16.6 | B | TR | 0.35 | 16.8 | B | TR | 0.38 | 19.3 | B | |
| **Overall Intersection[2]** | | - | - | **24.2** | **C** | - | - | **31.2** | **C** | - | - | **29.5** | **C** | |
| **Franklin Street and Oak Street** | | | | | | | | | | | | | | |
| Oak Street | EB | LR | 0.12 | 15.1 | B | LR | 0.17 | 15.6 | B | LR | 0.17 | 15.6 | B | **No significant impact[3]** |
| | WB | LR | 0.09 | 14.8 | B | LR | 0.09 | 14.8 | B | LR | 0.09 | 14.8 | B | |
| Franklin Street | NB | T | 0.26 | 5.1 | A | T | 0.26 | 7.3 | A | T | 0.26 | 6.9 | A | |
| | SB | T | 0.31 | 3.7 | A | T | 0.52 | 5.3 | A | T | 0.52 | 6.2 | A | |
| **Overall Intersection[2]** | | - | - | **6.1** | **A** | - | - | **7.4** | **A** | - | - | **7.8** | **A** | |
| **Unsignalized Intersections** | | | | | | | | | | | | | | |
| **West Street and Quay Street** | | | | | | | | | | | | | | |
| Quay Street | EB | L | - | 7.0 | A | L | - | 7.3 | A | L | - | 7.3 | A | **No significant impact** |
| | WB | TR | - | 7.0 | A | TR | - | 7.3 | A | TR | - | 7.3 | A | |
| **Overall Intersection[2]** | | - | - | **7.0** | **A** | - | - | **7.3** | **A** | - | - | **7.3** | **A** | |

**Table 18-7 Future Construction Conditions Traffic Levels of Service – Weekday AM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **West Street and Calyer Street** | | | | | | | | | | | | | | |
| Calyer Street | WB | R | - | 9.2 | A | R | - | 9.5 | A | R | - | 9.5 | A | **No significant impact** |
| West Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **3.6** | **A** | **-** | **-** | **2.6** | **A** | **-** | **-** | **2.6** | **A** | |
| **West Street and Oak Street** | | | | | | | | | | | | | | |
| Oak Street | EB | LT | - | 14.8 | B | LT | - | 16.3 | C | LT | - | 16.3 | C | **No significant impact** |
| West Street | NB | TR | - | 0.0 | A | TR | - | 0.0 | A | TR | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **4.6** | **A** | **-** | **-** | **4.0** | **A** | **-** | **-** | **4.0** | **A** | |
| **Franklin Street and North 15th Street** | | | | | | | | | | | | | | |
| North 15th Street | WB | LR | - | 12.1 | B | LR | - | 13.4 | B | LR | - | 13.4 | B | **No significant impact** |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **0.5** | **A** | **-** | **-** | **2.4** | **A** | **-** | **-** | **2.4** | **A** | |
| **Franklin Street and Meserole Avenue** | | | | | | | | | | | | | | |
| Meserole Ave | WB | LR | - | 12.3 | B | LR | - | 20.4 | C | LR | - | 20.4 | C | **No significant impact** |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **0.8** | **A** | **-** | **-** | **2.7** | **A** | **-** | **-** | **2.7** | **A** | |

### Table 18-7 Future Construction Conditions Traffic Levels of Service – Weekday AM Peak Hour

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **Franklin Street and Milton Street** | | | | | | | | | | | | | | |
| Milton Street | EB | LTR | - | 15.6 | C | LTR | - | 22.8 | C | LTR | - | 22.8 | C | **No significant impact** |
| Franklin Street | NB | RT | - | 0.0 | A | RT | - | 0.0 | A | RT | - | 0.0 | A | |
| | SB | LT | - | 0.7 | A | LT | - | 0.6 | A | LT | - | 0.6 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **1.3** | **A** | **-** | **-** | **1.4** | **A** | **-** | **-** | **1.4** | **A** | |

Mvt=Movement; Ctrl=Control; Sec=Second(s)
[1] Control delay is measured in seconds per vehicle.
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
[3] Changes in delay due to signal timing mitigation at nearby intersection.
Shading denotes a significantly impacted movement

**Table 18-8 Future Construction Conditions Traffic Levels of Service – Weekday PM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **Signalized Intersections** | | | | | | | | | | | | | | |
| **Franklin Street and Quay Street** | | | | | | | | | | | | | | |
| Franklin Street | NB | LT | 0.93 | 35.9 | D | LT | 1.08 | 76.6 | E | LT | 0.97 | 57.1 | D | **Mitigated** |
| | SB | TR | 0.43 | 6.2 | A | R | 0.52 | 6.0 | A | R | 0.48 | 9.1 | A | Modify signal timing: Shift 2 sec of green time from Pedestrian-only phase to NB/SB phase. (Pedestrian-only phase shifts from 24 sec to 22 sec; NB/SB phase green time shifts from 36 sec to 38 sec.) |
| **Overall Intersection[2]** | | - | - | **24.5** | **C** | - | - | **46.8** | **D** | - | - | **28.7** | **C** | |
| **Franklin Street and Calyer Street** | | | | | | | | | | | | | | |
| Franklin Street | NB | LTR | 0.61 | 6.3 | A | LTR | 0.62 | 5.6 | A | LTR | 0.48 | 11.1 | B | **Mitigated** |
| | SB | LTR | 0.73 | 12.6 | B | LTR | 1.19 | 112.4 | F | LTR | 0.92 | 38.1 | D | Modify signal timing from 60-sec cycle to 120-sec cycle: NB/SB phase green time shifts from 31 sec to 80 sec; Pedestrian-only phase shifts from 24 sec to 35 sec. |
| **Overall Intersection[2]** | | - | - | **9.6** | **A** | - | - | **69.6** | **E** | - | - | **27.3** | **C** | |
| **Franklin Street and Oak Street** | | | | | | | | | | | | | | |
| Oak Street | EB | LR | 0.19 | 15.8 | B | LR | 0.87 | 40.0 | D | LR | 0.87 | 40.0 | D | **No significant impact[4]** |
| | WB | LR | 0.07 | 14.6 | B | LR | 0.07 | 14.7 | B | LR | 0.07 | 14.7 | B | |
| Franklin Street | NB | T | 0.42 | 7.7 | A | T | 0.42 | 7.8 | A | T | 0.42 | 8.0 | A | |
| | SB | T | 0.50 | 5.8 | A | T | 0.51 | 5.9 | A | T | 0.51 | 4.3 | A | |
| **Overall Intersection[2]** | | - | - | **7.9** | **A** | - | - | **17.6** | **B** | - | - | **17.1** | **B** | |

**Table 18-8 Future Construction Conditions Traffic Levels of Service – Weekday PM Peak Hour**

| Intersection and Approach | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | Mitigation Measures |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mvt | V/C | Ctrl Delay[1] | LOS | Mvt | V/C | Ctrl Delay[1] | LOS | Mvt | V/C | Ctrl Delay[1] | LOS | |
| **Franklin Street and Noble Street** | | | | | | | | | | | | | | |
| Noble Street | WB | LTR | 0.14 | 15.4 | B | LTR | 0.15 | 15.5 | B | LTR | 0.15 | 15.5 | B | **No significant impact[4]** |
| Franklin Street | NB | LT | 0.48 | 8.2 | A | LT | 0.61 | 11.5 | B | LT | 0.61 | 10.9 | B | |
| | SB | TR | 0.54 | 6.6 | A | TR | 0.55 | 6.6 | A | TR | 0.55 | 13.3 | B | |
| **Overall Intersection[2]** | | - | - | **7.9** | **A** | - | - | **9.6** | **A** | - | - | **12.2** | **B** | |
| **Franklin Street and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 0.35 | 18.5 | B | LTR | 0.40 | 19.5 | B | LTR | 0.36 | 31.6 | C | **Mitigated** Modify signal timing from 60-sec cycle to 120-sec cycle: EB/WB phase green time shifts from 19 sec to 42 sec; NB/SB phase green time shifts from 24 sec to 61 sec; LPI of 7 sec remains. |
| | WB | LTR | 1.18 | 139.9 | F | LTR | 1.20 | 147.3 | F | LTR | 1.14 | 129.9 | F | |
| Franklin Street | NB | LTR | 0.82 | 37.4 | D | LTR | 1.14 | 111.9 | F | LTR | 0.87 | 52.3 | D | |
| | SB | LTR | 0.83 | 32.6 | C | LTR | 0.87 | 36.9 | D | LTR | 0.68 | 29.0 | C | |
| **Overall Intersection[2]** | | - | - | **60.6** | **E** | - | - | **88.6** | **F** | - | - | **61.9** | **E** | |
| **Manhattan Avenue and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LT | 0.40 | 27.3 | C | LT | 0.58 | 31.4 | C | LT | 0.58 | 27.6 | C | **No significant impact[4]** |
| | EB | R | 0.09 | 22.1 | C | R | 0.10 | 22.4 | C | R | 0.10 | 17.4 | B | |
| | WB | LTR | 0.73 | 29.7 | C | LTR | 0.79 | 32.8 | C | LTR | 0.79 | 29.1 | C | |
| Manhattan Avenue | NB | LTR | 0.42 | 24.7 | C | LTR | 0.53 | 27.9 | C | LTR | 0.53 | 27.9 | C | |
| | SB | LTR | 0.78 | 39.1 | D | LTR | 0.78 | 39.4 | D | LTR | 0.78 | 39.4 | D | |
| **Overall Intersection[2]** | | - | - | **31.1** | **C** | - | - | **33.2** | **C** | - | - | **31.1** | **C** | |

**Table 18-8 Future Construction Conditions Traffic Levels of Service – Weekday PM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **McGuinness Boulevard and Greenpoint Avenue** | | | | | | | | | | | | | | |
| Greenpoint Avenue | EB | LTR | 1.24 | 162.9 | F | LTR | 1.75 | 380.8 | F | LTR | 1.35 | 202.8 | F | **Partially Mitigated[4]** Modify signal timing: Shift 5 sec of green time from NB/SB phase to EB/WB phase. (NB/SB phase green time shifts from 64 sec to 59 sec; EB/WB phase green time shifts from 36 sec to 41 sec); LPI of 10 sec remains. |
| | WB | L | 0.69 | 57.6 | E | L | 0.98 | 116.4 | F | L | 0.75 | 61.5 | E | |
| | | TR | 0.89 | 64.5 | E | TR | 0.90 | 65.6 | E | TR | 0.79 | 48.4 | D | |
| McGuinness Boulevard | NB | L | 0.37 | 23.1 | C | L | 0.37 | 23.1 | C | L | 0.45 | 30.7 | C | |
| | | TR | 0.61 | 21.0 | C | TR | 0.61 | 21.0 | C | TR | 0.66 | 25.2 | C | |
| | SB | L | 0.35 | 21.5 | C | L | 0.35 | 21.5 | C | L | 0.40 | 27.5 | C | |
| | | TR | 0.65 | 22.0 | C | TR | 0.65 | 22.1 | C | TR | 0.70 | 26.6 | C | |
| **Overall Intersection[2]** | | **-** | **-** | **44.3** | **D** | **-** | **-** | **85.6** | **F** | **-** | **-** | **57.2** | **E** | |
| **Unsignalized Intersections** | | | | | | | | | | | | | | |
| **West Street and Quay Street** | | | | | | | | | | | | | | |
| Quay Street | EB | L | - | 7.3 | A | L | - | 7.6 | A | L | - | 7.6 | A | **No significant impact** |
| | WB | TR | - | 7.6 | A | TR | - | 10.7 | B | TR | - | 10.7 | B | |
| **Overall Intersection[2]** | | - | - | 7.6 | A | - | - | 10.6 | B | - | - | 10.6 | B | |
| **West Street and Calyer Street** | | | | | | | | | | | | | | |
| Calyer Street | WB | R | - | 9.7 | A | R | - | 12.8 | B | R | - | 12.8 | B | **No significant impact** |
| West Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **2.7** | **A** | **-** | **-** | **1.2** | **A** | **-** | **-** | **1.2** | **A** | |
| **West Street and Oak Street** | | | | | | | | | | | | | | |
| Oak Street | EB | LT | - | 30.9 | D | LT | - | 62.8 | F[3] | LT | - | 62.8 | F[3] | **No significant impact** |
| West Street | NB | TR | - | 0.0 | A | TR | - | 0.0 | A | TR | - | 0.0 | A | |
| **Overall Intersection[2]** | | **-** | **-** | **8.4** | **A** | **-** | **-** | **7.0** | **A** | **-** | **-** | **7.0** | **A** | |

**Table 18-8 Future Construction Conditions Traffic Levels of Service – Weekday PM Peak Hour**

| | | No-Action Without Construction | | | | With-Action with Construction | | | | Mitigation with Construction | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Intersection and Approach** | | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mvt** | **V/C** | **Ctrl Delay[1]** | **LOS** | **Mitigation Measures** |
| **Franklin Street and North 15th Street** | | | | | | | | | | | | | | |
| North 15th Street | WB | LR | - | 15.8 | C | LR | - | 16.8 | C | LR | - | 16.8 | C | **No significant impact** |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | - | - | **0.8** | **A** | - | - | **0.8** | **A** | - | - | **0.8** | **A** | |
| **Franklin Street and Meserole Avenue** | | | | | | | | | | | | | | |
| Meserole Ave | WB | LR | - | 29.4 | B | LR | - | 91.0 | F[3] | LR | - | 90.1 | F[3] | **No significant impact[4]** |
| Franklin Street | NB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| | SB | T | - | 0.0 | A | T | - | 0.0 | A | T | - | 0.0 | A | |
| **Overall Intersection[2]** | | - | - | **2.2** | **A** | - | - | **6.6** | **A** | - | - | **6.6** | **A** | |
| **Franklin Street and Milton Street** | | | | | | | | | | | | | | |
| Milton Street | EB | LTR | - | 25.7 | D | LTR | - | 47.8 | E[3] | LTR | - | 47.8 | E[3] | **No significant impact** |
| Franklin Street | NB | RT | - | 0.0 | A | RT | - | 0.0 | A | RT | - | 0.0 | A | |
| | SB | LT | - | 0.6 | A | LT | - | 0.7 | A | LT | - | 0.7 | A | |
| **Overall Intersection[2]** | | - | - | **1.6** | **A** | - | - | **2.9** | **A** | - | - | **2.9** | **A** | |

Mvt=Movement; Ctrl=Control; Sec=Second(s)
[1] Control delay is measured in seconds per vehicle.
[2] Overall intersection v/c ratio is the critical lane groups' v/c ratio.
[3] Approach would not be significantly impacted as total approach volumes would be under 90 PCEs.
[4] Changes in delay due to signal timing mitigation at nearby intersection.
Shading denotes a significantly impacted movement

## Deliveries

Construction trucks would be required to use NYC DOT-designated truck routes, including Kent Avenue/Franklin Street, Greenpoint Avenue, and McGuinness Boulevard and would serve the construction site at the designated loading zones. Delivery vehicles would enter the construction area via a gate to be erected at the intersection of Quay Street and West Street.

## Curb Lane Closures and Staging

During construction, sidewalk and curbside bike lane closures are expected along the south side of Quay Street abutting the Development Site and would require NYC DOT's OCMC's review and approval. These closures are needed to accommodate crane footings as well as the reconstruction of the street prior to completion of the Proposed Development. While the sidewalk is closed, pedestrians who would typically use this sidewalk segment would need to cross Quay Street at the existing west crosswalk of the intersection with Franklin Street and use the existing north sidewalk of Quay Street to travel between West Street and Franklin Street instead. No closure of corner space or crosswalks is anticipated. A pedestrian diversion plan would be finalized as the MPT plans are developed and reviewed with NYC DOT.

While the bike lane is temporarily closed during construction, bicyclists would still be able use the general traffic lanes on Quay Street to travel between West Street and Franklin Street. No diversion of bike trips is proposed. However, during the design approval process, a bicycle detour plan would be developed in coordination with NYC DOT to identify alternative routes and would be included as part of the MPT plans.

## Parking

Construction workers would generate an estimated maximum daily parking demand of 308 spaces during the Q4 2029 peak quarter. As shown in **Table 18-9**, a parking utilization analysis was conducted and determined that there would be approximately 100 off-street parking spaces and 144 on-street parking spaces available during the critical weekday midday period. After accounting for construction worker parking demand, there would be a deficit of 64 parking spaces under With-Action with construction conditions. As the Development Site is located outside of CEQR Parking Zone 2, this shortfall may be considered significant. However, as the Development Site is located on the border of Parking Zone 2, and is served by alternative transportation options, such as the citywide Ferry Service, public bus, the G subway line, and dedicated bicycle routes, the lead agency determined that this shortfall is not considered significant. Per *CEQR Technical Manual* guidance, parking shortfalls are not considered an impact.

**Table 18-9 With-Action with Construction Parking Demand and Utilization**

| | Midday Period |
|---|---|
| **Construction Worker Parking Demand** | **308** |
| Off-Street No-Action Development Availability[1] | 100 |
| Change in Off-Street Availability due to Construction | 0 |
| **Off-Street With-Action with Construction Availability** | **100** |
| **Construction Worker Demand Accommodated Off-Street** | **100** |
| **Off-Street Parking Surplus (Deficit)** | **(208)** |
| On-Street No-Action Without Construction Availability | 144 |
| Change in On-Street Availability Due to Construction | 0 |
| **On-Street With-Action with Construction Availability** | **144** |
| **Construction Worker Demand Accommodated On-Street** | **144** |
| **On-Street Parking Surplus (Deficit)** | **(64)** |

[1] Reflects the surplus capacity provided by the No-Action developments.

## Transit and Pedestrians

Based on census data for the construction industry, it is anticipated that approximately 31.5 percent of construction workers would commute to the Development Site by public transportation and 9.4 percent would walk to the Development Site. During Q4 2029, construction would be expected to generate 636 daily construction workers, of which 200 would be expected to use public transportation—15 workers via ferry, 43 workers via bus, and 142 workers via subway—and 60 would be expected to walk. It is expected that the majority of construction workers (approximately 90 percent) would arrive during the weekday AM construction peak hour and depart during the PM construction peak hour, and they would generate approximately 181 construction worker trips by public transportation—14 trips via ferry, 39 trips via bus, and 128 trips via subway—and 54 walk-only trips during both weekday construction peak hours. As the number of construction worker transit trips would be below the *CEQR* screening thresholds for detailed analysis (50 or more trips via bus or ferry, and 200 or more trips via subway), construction activity would not result in significant transit impacts.

The number of pedestrian trips generated by construction workers (walk-only plus transit trips and walk trips to and from on-street parking spaces) would total 567 pedestrians during both the weekday AM and PM construction peak hours. This number of pedestrian trips would exceed the *CEQR* Level 1 screening threshold of 200 or more generated pedestrian trips. These construction worker pedestrian trips would be low compared to the levels of operational pedestrian trips assessed in **Chapter 12, Transportation.** As shown in **Chapter 12, Transportation**, the Proposed Development would generate between 1,262 and 2,278 pedestrian trips during the peak hours analyzed. During the weekday AM and PM peak hours analyzed for operational conditions, which correspond with the commuting peak hours, the project-generated demand would result in significant adverse impact to the south crosswalk at the intersection of Franklin Street and Quay Street. As shown in **Chapter 19, Mitigation**, mitigation measures were not identified for this crosswalk and therefore the significant adverse pedestrian impacts would remain unmitigated under

operational conditions. The number of pedestrian trips that would traverse this crosswalk would be lower than the volumes under operational conditions. Therefore, the potential for significant pedestrian impacts during construction would be no worse than what has been identified for the operational condition.

## Air Quality

Construction impacts on air quality levels may occur because of PM (fugitive dust) created by demolition, excavation, transfer of debris into trucks, emissions from on-site diesel equipment, and emissions from increased truck traffic to and from the construction site on local roadways. As discussed in the *CEQR Technical Manual,* the determination of whether it is sufficient to conduct a qualitative analysis of these emissions or whether a quantitative analysis is required should take into account factors such as duration of construction activities, location of the Development Site in relation to existing residential uses and residential land uses or other sensitive receptors created by the Proposed Development, the intensity of the construction activity, and the extent to which the Proposed Development incorporates commitments to appropriate emission control measures.

The most intense construction activities in terms of emissions are typically from demolition, excavation, and foundation stages, since it is during these stages that the largest number of large, non-road diesel engines are employed. The combination of diesel engines and fugitive dust from debris-moving operations result in the highest levels of air pollutant emissions. The other stages of construction, including superstructure, exterior façades, interior finishes, and Development Site work, typically result in lower air pollutant emissions since they require fewer pieces of heavy-duty diesel equipment. Equipment used in the latter stages of construction generally involves small engines, with use of electric tools dispersed vertically throughout the building, resulting in very low concentration increments in adjacent areas. Additionally, the latter stages of construction do not involve soil disturbance activities and therefore result in significantly lower fugitive dust emissions. Construction activities associated with interior finishes are shielded from nearby sensitive receptors by the proposed structures themselves.

For the Proposed Development, the overall construction period would exceed 2 years. Given that multiple buildings would be constructed for a duration of more than 2 years and that the construction would occur within close proximity to sensitive receptors, a detailed quantitative analysis of construction air quality impacts was undertaken.

Additionally, as described above, impacts of construction traffic emissions at intersections and streets near the Development Site were considered using *CEQR Technical Manual* screening methodologies. Based on the screening analysis, a detailed mobile source air quality analysis is warranted for construction.

### Air Quality Analysis Methodologies

#### *On-Site Construction Impacts*

Peak cumulative short-term and annual $PM_{2.5}$ emissions were evaluated for all construction phases (i.e., demolition, foundations, superstructure, exterior construction through interior fit-out and site work) based on a conceptual schedule developed for construction of the Development Site. Construction of the Development Site consists of three buildings and publicly accessible open space. The phase with the highest $PM_{2.5}$ emissions was selected as the period with the highest potential

$PM_{2.5}$ effects. This analysis, which is the intensity assessment, was used to identify the peak construction month and year for the dispersion impact modeling analysis.

A dispersion analysis—which considers $PM_{2.5}$, $NO_x$, and CO emissions from on-site sources (e.g., construction equipment, fugitive dust and trucks idling, loading and unloading and entering the site)—was performed to determine potential air quality effects during the peak emission construction phase.

The effects of the trucks approaching and departing the site on public or internal roadways were also included in the emission calculations for the emission intensity analysis. For the dispersion analysis, roadway access for the selected phase was included as a line source, which represents truck approach and departure from the site. Additionally, impacts of construction traffic emissions at intersections and streets elsewhere in the city were considered separately using *CEQR Technical Manual* screening methodologies (see the **Off-Site Construction Impacts** subsection).

The following sections provide additional details relevant to the on-site construction air quality analysis methodology. For a review of the applicable regulations, standards and criteria, and benchmarks for stationary and mobile source air quality analyses, refer to **Chapter 13, Air Quality**.

The analysis was performed following the USEPA and *CEQR Technical Manual* procedures and analytical tools, as well as New York City Department of City Planning (DCP) recommendations to determine source emission rates. The estimated emission rates were then used as an input to the air quality dispersion model to determine potential impacts.

### *Emission Estimation Process*

The construction analyses used an emission estimation method and a modeling approach previously developed for evaluating air quality impacts of construction projects in New York City in consultation with DCP. Because the level and types of construction activities would vary from month to month, the approach includes a determination of the worst-case emission period based on an estimated monthly construction work schedule, which includes the number and type of on-site construction equipment, quantities of materials to be excavated, and number of trucks arriving and leaving the site.

The worst-case short-term emissions (i.e., maximum daily emissions) and the maximum annual emissions (based on a 12-month rolling average) were determined based on the construction schedule activities and equipment projected to be required for the construction period. This information was provided by the Proposed Development's construction manager. The assessment considered several main phases of construction: demolition, excavation/foundation, superstructure, exterior construction, interior fit-out, and site work and landscaping.

The specific construction information used to calculate emissions generated from the construction process included, but is not limited to, the following:

- The number of units and fuel-type of construction equipment to be used;
- Rated horsepower and load factors for each piece of equipment;
- Utilization rates for equipment;
- Hours of equipment operation on-site; and
- Distance traveled by trucks to approach and depart the site
- Truck idling time

*Emissions Reduction Measures Considered*

As discussed above, construction activities could affect air quality because of engine emissions from on-site construction equipment and dust-generating activities. In general, much of the heavy equipment used in construction has diesel-powered engines, which produce relatively high levels of nitrogen oxides and PM. Gasoline engines produce relatively high levels of CO. Construction activities also generate fugitive dust emissions. As a result, the air pollutants analyzed for construction activities include nitrogen dioxide ($NO_2$), particulate matter with an aerodynamic diameter of less than or equal to 2.5 micrometers ($PM_{2.5}$), and CO.

Since ULSD will be used for all diesel engines related to construction activities due to federal and state mandates, sulfur dioxides ($SO_2$) emitted from those construction activities would be negligible. Therefore, an analysis of $SO_2$ emissions is not warranted. For more details on a description of air pollutants and standards, see **Chapter 13, Air Quality**.

As stated above, construction activity in general, and large-scale construction in particular, has the potential to adversely affect air quality as a result of diesel emissions. The main component of diesel exhaust that has been identified as having an adverse effect on human health is fine particulates. To ensure that the construction of the Proposed Project results in the lowest feasible DPM emissions, a series of emissions reduction strategies required by DEP and state mandates would be implemented.

The evaluation performed in this section therefore assumes a combination of emission reduction measures that are mandated by law and are common practice in large-scale NYC construction projects, and follow the requirements included in NYC Law 77 and the NYC Air Pollution Control Code. These include the following:

- Fugitive Dust Control Plans. In compliance with the NYC Air Pollution Control Code provisions regarding control of fugitive dust, contractors would be required to ensure that all trucks carrying loose material use water as a dust suppression measure, that trucks hauling loose material be equipped with tight-fitting tailgates and their loads securely covered prior to leaving the site, that streets adjacent to the site be cleaned as frequently as needed by the construction contractor, and that water sprays be used for transfer of soils to ensure that materials are dampened as necessary to avoid the suspension of dust into the air. These measures would be expected to reduce dust generation by more than 50 percent.
- Clean Fuel. ULSD would be used exclusively for diesel engines related to construction activities for the Proposed Development. This is a federal requirement since 2010 that reduces diesel particulate matter and $SO_2$ emissions.
- Diesel Equipment Reduction. Hoists and small equipment, such as lifts, compressors, welders, and pumps would use electric engines that operate on grid power instead of diesel-powered engines, to the extent practical. This is a common practice that has been achieving wider use as technology improves.
- Restrictions on Vehicle Idling. This would be required in compliance with local law to restrict unnecessary idling. On-site vehicle idle time would be restricted to three minutes for all equipment and vehicles that are not using their engines to operate a loading, unloading, or processing device (e.g., concrete mixing trucks) or otherwise required for the proper operation of the engine.
- If contractors choose to use older diesel equipment, the use of diesel particulate filters (DPF) in Tier 3 emission standard for diesel engines (model years 2006-2011 for engine sizes between 50

and 600 hp)[7] would be implemented. Tier 3 with DPF achieves the same $PM_{2.5}$ emission reductions as a newer Tier 4 emission standard for diesel engines. The Tier 3 engines with DPF would achieve DPM reductions of approximately 90 percent when compared to older uncontrolled engines. This construction air quality control measure would be implemented as a Project Component Related to the Environment (PCRE) to reduce air pollutant emissions and avoid the potential for significant adverse air quality impacts during construction.

› Source Location and Shielding. To reduce concentration increments at sensitive receptors, large emissions sources and activities such as concrete trucks, generators, and large compressors can be located away from the sensitive receptors to the extent practical.

Overall, these emission control measures would be expected to significantly reduce DPM emissions. In addition, as per *CEQR Technical Manual* recommendations, all necessary measures would be implemented to ensure that the NYC Air Pollution Control Code provisions regulating construction-related dust emissions are followed.

*Engine Exhaust Emissions Estimation Process*

Emission factors for $NO_x$, $PM_{2.5}$, and CO from the combustion of fuel for on-site construction equipment were developed using the EPA MOVES4-NONROAD Emission Model.

The MOVES4-NONROAD model can generate unitary emission factors, in grams per horsepower-hour (g/hp-hr) by engine size (hp), equipment type, engine technology type, fuel type, and year of analysis. The model estimates emissions as the average emission factor by year for the county fleet sorted by the above-mentioned parameters. As an example, if New York County and the year 2022 were selected for diesel engines, the output generates emissions (g/hp-hr) for each type of equipment from 3 hp to 3,000 hp rating for each one of the model years of the County fleet going back up to 40 years. The model calculates how many pieces of equipment for each engine technology group and model year are present in the County fleet and produces the yearly average emission factor. Because the model years of the actual construction equipment to be used for the Proposed Development are unknown, emission factors for the different equipment types were estimated by using the weighted average (emission factor and activity level) of the model years 2008 to 2028 to account for the use of tier 4 engines (for model years 2012 to 2028) and tier 3 engines retrofitted with DPF to achieve a 90-percent removal rate of DPM (for model years 2008 to 2011).

Emission rates from combustion of fuel for on-site dump trucks and other heavy trucks such as tractor-trailers were developed using the EPA MOVES4 Emission Model. NYC restrictions placed on idling times were applied for all heavy trucks except for concrete trucks where one hour of idling was assumed. Short-term and annual emission rates were adjusted from the peak-hour emissions by applying usage factors for each equipment unit.

*Fugitive Sources Emission Estimation Process*

Construction vehicles will travel on paved and unpaved surfaces in and around the construction site during the demolition and foundations phases. The roadway adjacent to the construction site (Quay Street) would be paved. Roadway surfaces within the perimeter of the construction fence during the foundation phase would be unpaved. Therefore, paved road dust and unpaved road dust emissions were included in the emissions. Road dust ($PM_{2.5}$) emissions from trucks moving (approach and departure from the construction site) were calculated using equations from EPA's AP-42, Section

[7] See Table 2-1 of the USEPA's Exhaust and Crankcase Emission Factors for Nonroad Compression-Ignition Engines in MOVES2014b document

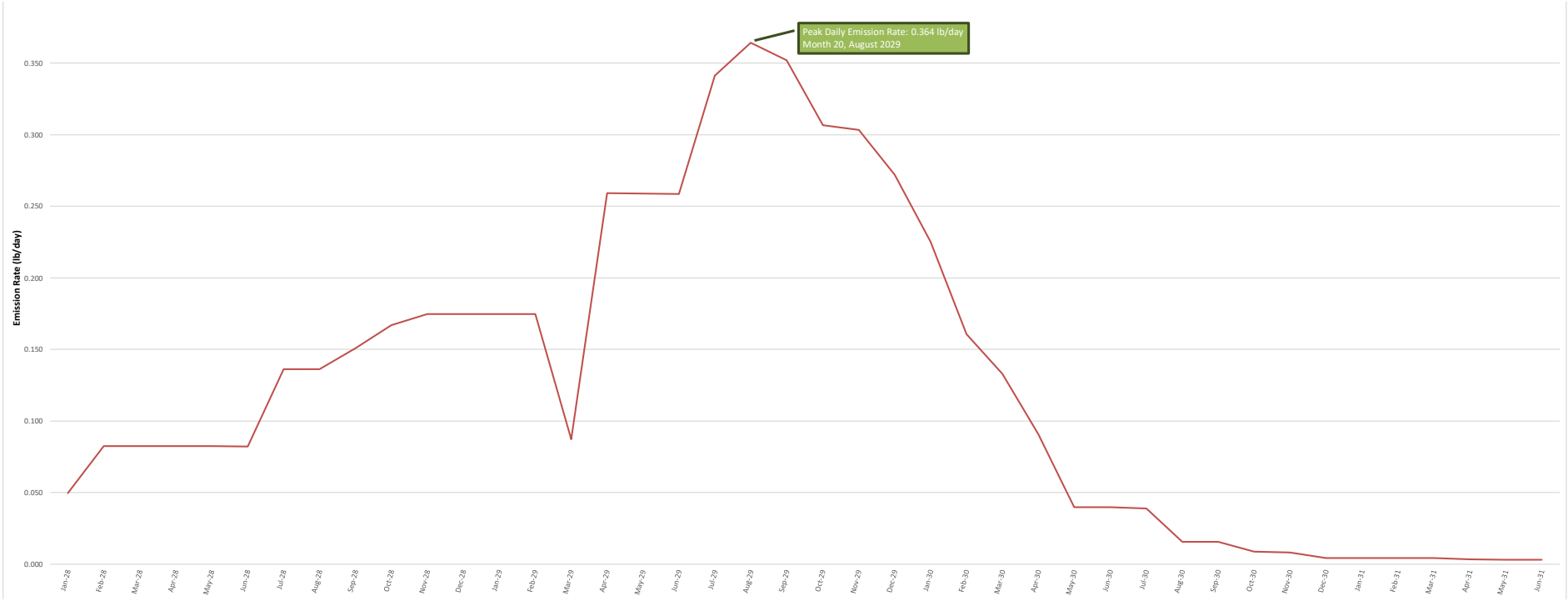
13.2.1 for the paved roadway adjacent to the construction site. For dump trucks and concrete mixer trucks traveling around foundation areas, unpaved road dust emissions were calculated using EPA's AP-42 Section 13.2.2 equations. Average vehicle weights (i.e., unloaded going in and loaded going out) were used in the analysis and reasonably conservative travel distances were estimated for travel on paved and unpaved roads. Additionally, fugitive emissions from material removal were estimated using EPA's AP-42 Section 13.2.4 equations. Dust control measures (described above) that would provide at least a 50 percent reduction in $PM_{2.5}$ emissions were incorporated.

*Construction Activity Emissions Intensity Assessment*

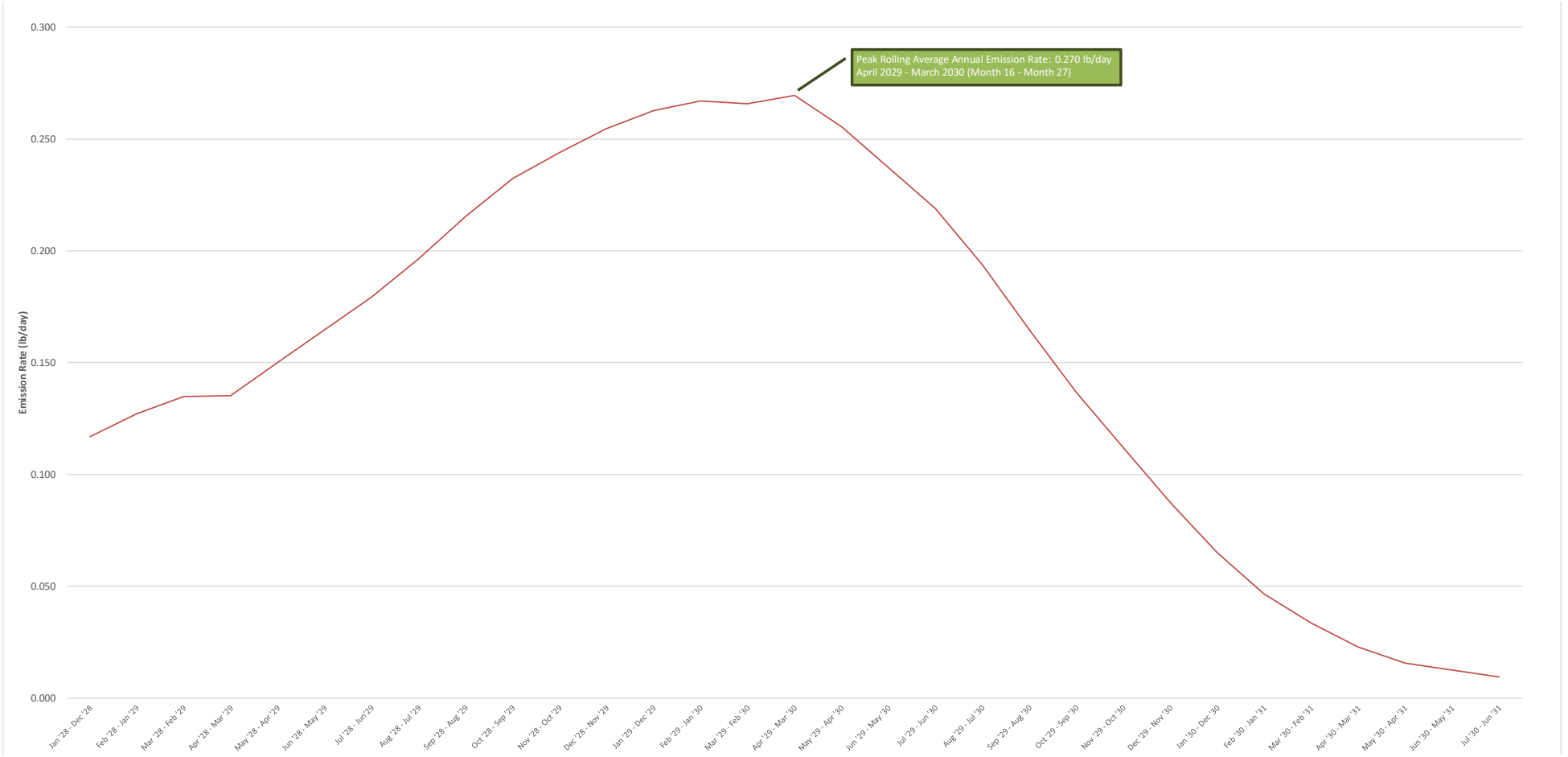
To determine the construction phase that constitutes the worst-case period for the pollutants of concern, construction-related emissions were calculated throughout the duration of construction on a monthly basis using daily emissions for short term $PM_{2.5}$, and the rolling average emissions for annual $PM_{2.5.}$

To determine the worst short-term emission and the worst annual emission, an emission intensity assessment (emission profiles) was conducted for each phase of construction. Based on the resulting profiles for all phases of construction by month, the worst-case short-term impact period was identified as month 20 (August 2029) (see **Figure 18-10**). The highest annual emission period was estimated for months 16 to 27 (April 2029 to March 2030) (see **Figure 18-11**). This peak includes an overlap of the West Building's superstructure phase, the East Building and Museum's foundation phases and landscaping work.

## Figure 18-10 Projected Peak Daily $PM_{2.5}$ Construction Emissions Profile



## Figure 18-11 Projected Rolling Average Annual $PM_{2.5}$ Construction Emissions Profile



## Impact Assessment

### *On-Site Construction Impacts*

The effects of construction emissions from the relevant air pollutants on the surrounding environment were quantified using the USEPA's AERMOD dispersion model.

The emission intensity analysis indicated that the highest $PM_{2.5}$ emissions would result from construction activities in month 20 for the short-term period and between months 16 through 27 for the rolling average annual period. The peak occurs with the overlap in superstructure of the West building and foundations of the East Building and Museum. This period is expected to yield the highest levels of non-road equipment emissions and fugitive dust emissions and thus was selected for modeling of short-term and annual impacts.

*Dispersion Modeling – Source Simulation*

Potential impacts from on-site construction equipment and truck emissions were evaluated using the USEPA's AERMOD dispersion model (version 23132). AERMOD is a steady-state plume model that incorporates current concepts about flow and dispersion in complex terrain, including updated treatment of the boundary layer theory, understanding of turbulence and dispersion; it also includes handling of terrain interaction. The AERMOD model calculates pollutant concentrations from one or more points (e.g., exhaust stacks) based on hourly meteorological data, and has the capability to calculate pollutant concentrations at locations where the plume from the exhaust stack is affected by the aerodynamic wakes and eddies (downwash) produced by the source building itself or by nearby structures. When plume gets entrapped in a wake, it could potentially result in excessive concentrations, especially close to the source. AERMOD can be run with and without building downwash (the downwash option accounts for the effects on plume dispersion created by the wake).

During construction, various types of construction equipment would be used throughout the site. Some of the equipment is mobile and would operate throughout the site, while some would remain stationary on-site at distinct locations during short-term periods (i.e., daily and hourly). Stationary emission sources include (but are not limited to) air compressors, generators, and concrete pumps. Equipment such as excavators would operate throughout the site.

The dispersion analysis included an area source and a line source to model all emissions from truck deliveries, fugitive dust and equipment. All truck idling, truck moving within the construction site, transfer operation, unpaved road dust, and equipment emissions from all buildings' construction were conservatively modeled as one area source. All truck moving and paved road dust emissions were modeled as one line source. Furthermore, while short-term emissions accounted for peak daily equipment and vehicle usage, annual emissions accounted for a factor representing construction workdays over the course of a year.

*Receptor Locations*

AERMOD was used to predict maximum pollutant concentrations at nearby residential, community use and commercial locations of likely public exposure ("sensitive receptors"). Discrete receptors were placed along nearby sensitive receptor locations, such as residential buildings to the north of the construction site facing Quay Street. This includes the future residential buildings at Calyer Place and 79 Quay Street that would be built before 2029, and the existing buildings at 85 Quay Street and

33 Franklin Street. Additional receptors were placed on the façades of the commercial buildings southeast of the construction site and at Bushwick Inlet Park.

*Meteorological Data*

All analyses were conducted using 5 consecutive years of meteorological data (2017 to 2021) from NYSDEC. Surface data were from LaGuardia Airport and upper air data were from Brookhaven station, New York.

*Background Concentrations*

Where needed to determine potential air quality impacts from the construction of the Proposed Development, background ambient air quality data for criteria pollutants (See **Chapter 13, Air Quality, Table 15-2**) were added to the predicted site concentrations. The background data represents the latest available 3 years of data and was obtained from a nearby NYSDEC monitoring station that best represents the area surrounding the site.

The 24-hour average $PM_{2.5}$ background concentration of 19.8 µg/m$^3$ from the 3-year period of 2019 to 2021 was used to establish the *de minimis* value. Consistent with the guidance provided in the *CEQR Technical Manual*, the 24-hour *de minimis* value was estimated to be half of the difference between the NAAQS and background. The annual average $PM_{2.5}$ impacts were assessed on an incremental basis and compared with the $PM_{2.5}$ *de minimis* criteria threshold, without considering the annual background.

*Results*

The peak emissions for all pollutants were predicted to occur during overlap of the West Building's superstructure stage and foundations stages of the East Building and Museum in 2029.

**Table 18-10** presents the highest predicted total concentration (including background for appropriate pollutants) due to construction activities of the Proposed Development, including the on-site sources (construction equipment, unpaved dust, and transfer operation activities) and sources adjacent to the site (construction trucks and fugitive dust on paved road).

As indicated in **Table 18-10**, the highest predicted total concentrations of 1-hour CO, 8-hour CO, and annual $NO_2$ would not result in any concentrations that exceed the NAAQS. The highest predicted 8-hour CO concentration is well below the City's *de minimis* criteria. The highest predicted 24-hour and annual $PM_{2.5}$ incremental concentration would not exceed the City's *de minimis* criteria of 7.6 µg/m$^3$ and 0.3 µg/m$^3$ respectively.

**Table 18-10 Highest Predicted Total Concentrations for Construction Activities**

| Pollutant | Averaging Period | Highest Modeled Concentration | Background Concentration | Total Concentration | NAAQS/De Minimis |
|---|---|---|---|---|---|
| CO | 1-Hour[1] | 1.02 ppm | 1.95 ppm | 2.97 ppm | 35 ppm |
| | 8-Hour[1] | 0.66 ppm | 1.7 ppm | 2.4 ppm | 9 ppm/*3.65 ppm* |
| $NO_2$ | Annual[1] | 2.1 ppb | 13.0 ppb | 15.1 ppb | 53 ppb |
| $PM_{2.5}$ | 24-Hour[2] | 3.42 µg/m$^3$ | --- | 3.42 µg/m$^3$ | *7.6 µg/m$^3$* |
| | Annual[3] | 0.20 µg/m$^3$ | --- | 0.20 µg/m$^3$ | *0.3 µg/m$^3$* |

Notes:
[1] CO and $NO_2$ concentrations can be converted from ppm/ppb to µg/m3 based on 1 ppm = 1145 µg/m3 for CO and 1 ppb=1.88 µg/m3 for $NO_2$.
[2] The 24-hour $PM_{2.5}$ background concentration is used to develop the de minimis criteria.
Annual $PM_{2.5}$ impacts are compared with the $PM_{2.5}$ de minimis criteria of 0.3 µg/m3, without considering the annual background.

The results of this quantitative analysis indicate that the Proposed Development would not result in any concentrations of $NO_2$ and CO that exceed the NAAQS. In addition, the maximum predicted incremental concentrations of $PM_{2.5}$ would not exceed the City's *de minimis* criteria. Therefore, no significant adverse air quality impacts are expected from the peak period of the Proposed Development's construction.

### *Off-Site Construction Impacts*

*Screening Assessment*

As outlined in the *CEQR Technical Manual*, in this area of the city, actions that would result in the generation of 170 or more peak-hour vehicle trips at an intersection may cause adverse air quality impacts and require a detailed air quality analysis for CO.

For $PM_{2.5}$, the screening procedure outlined in the *CEQR Technical Manual* is based on determining whether the projected number of peak hourly vehicle trips at an intersection exceeds thresholds based on heavy-duty diesel vehicle (HDDV) equivalents. The thresholds are as follows:

- 12 or more HDDV for paved roads with average daily traffic fewer than 5,000 vehicles;
- 19 or more HDDV for collector roads;
- 23 or more HDDV for principal and minor arterials; or
- 23 or more HDDV for expressways and limited access roads.

To determine whether any of these thresholds are exceeded, the worksheet referenced in Section 201 of the *CEQR Technical Manual* is utilized to calculate the equivalent number of HDDV equivalents at intersections in the traffic study area. The worksheet uses vehicle classification information based on the traffic data collected for the Proposed Development and assigns these classifications to vehicle categories using a table referenced in the *CEQR Technical Manual*. Roadway classifications are determined by corridor at each intersection, based on NYCDOT functional class criteria and generated truck trips and worker trips during construction phase.

Based on the screening analysis, the intersection of Franklin Street and Quay Street was selected for a CO and $PM_{2.5}$ mobile source detailed analysis as it is predicted to have the highest increment.

The prediction of vehicle-generated emissions and their dispersion in an urban environment incorporates meteorological phenomena, traffic conditions, and physical configuration. Air pollutant dispersion models mathematically simulate how traffic, meteorology, and physical configuration combine to affect pollutant concentrations. The mathematical expressions and formulations contained in the various models attempt to describe an extremely complex physical phenomenon as closely as possible. However, because all models contain simplifications and approximations of actual conditions and interactions, and since it is necessary to predict the reasonable worst-case condition, most dispersion analyses predict conservatively high concentrations of pollutants, particularly under adverse meteorological conditions.

The mobile source analyses for the Proposed Development employ models approved by the U.S. EPA that have been used for evaluating air quality impacts of projects in New York City, other parts of New York State, and throughout the country. The modeling approach includes a series of conservative assumptions relating to traffic, and background concentration levels resulting in a conservatively high estimate of expected pollutant concentrations that could ensue from the Proposed Development.

*On-Road Vehicle Emissions*

Vehicular CO and $PM_{2.5}$ engine emission factors were computed using the EPA mobile source emissions model, Motor Vehicle Emission Simulator (MOVES4.0).[8] This emissions model is capable of calculating engine emission factors for various vehicle types, based on the fuel type (gasoline, diesel, or natural gas), meteorological conditions, vehicle speeds, vehicle age, roadway type and grade, number of starts per day, engine soak time, and various other factors that influence emissions, such as inspection maintenance programs. The inputs and use of MOVES incorporate the most current guidance available from NYSDEC.

*On-Road Fugitive Dust*

$PM_{2.5}$ emission rates were determined with fugitive road dust to account for their impacts. However, fugitive road dust was not included in the annual average $PM_{2.5}$ microscale analyses, per *CEQR Technical Manual* guidance for mobile source analyses. Road dust emission factors were calculated according to the latest procedure delineated by EPA.[9] An average weight of 22.5 tons and 3.0 tons was assumed for construction trucks and worker vehicles in the analysis, respectively.

*Traffic Data*

Traffic data for the intersection analysis were derived from existing traffic counts, construction generated trips in traffic, and other information developed as part of the traffic analysis for the Proposed Development (see above **Transportation** section). The weekday morning (6:00 AM to 7:00 AM) and afternoon (3:00 PM to 4:00 PM) peak period were analyzed.

*Dispersion Model*

The EPA AERMOD model (version 23132) was used in the analyses of CO and $PM_{2.5}$ at the selected intersection. The intersection links were modeled using the area source option in the model and following EPA guidance.

[8] EPA. Motor Vehicle Emission Simulator (MOVES): MOVES4.0 Technical Guidance. EPA- 420-F-23-019. August 2023.

[9] EPA. Compilations of Air Pollutant Emission Factors AP-42, Fifth Edition, Volume I: Stationary Point and Area Sources, Ch. 13.2.1, NC, http://www.epa.gov/ttn/chief/ap42, January 2011.

*Receptor Placement*

Sensitive receptors near the intersection selected for the analysis were placed at sidewalks and at 1.8 meters above grade. The model used the same receptors for CO and $PM_{2.5}$ (24-hour) analyses. For the $PM_{2.5}$ annual neighborhood analysis, receptors will be placed at a distance of 15 meters from the edge of the roadway and 25 meters apart along the intersection links.

*Meteorological Data*

The dispersion analysis used the latest available 5 years (2017-2021) of hourly meteorological observations from LaGuardia Airport National Weather Service station and upper air data obtained from the Brookhaven Station, New York. This meteorological data for the AERMOD model was obtained from NYSDEC.

*Background Concentrations*

The background concentrations measured at the nearest monitoring stations are presented in **Table 18-10**. The data was obtained from NYSDEC for the years of 2019 to 2021. These values were used as background concentrations for the mobile source analysis.

*Results*

A microscale (detailed) analysis of the impacts of the construction-generated trips was conducted at the intersection of Franklin Street and Quay Street. Emissions of CO and $PM_{2.5}$ (24-hour and annual) at all links were estimated using MOVES4.0 model using traffic data developed for the Proposed Development and the NYSDEC inputs for Kings County, New York.

The intersection analysis was conducted using the latest version of the AERMOD dispersion model and incorporated microscale receptors for the CO impacts and PM 24-hour impacts, as well as neighborhood scale receptors for the annual $PM_{2.5}$ impacts. The results of this analysis are presented in **Table 18-11**.

**Table 18-11 Mobile Source Analysis Results**

| Pollutant | Averaging Period | Background Concentration | Increment/Total Concentration | Impact Threshold (*De Minimis*/ NAAQS) |
|---|---|---|---|---|
| CO | 1-hour | 1.95 ppm | 0.13/2.08 ppm | 35 ppm |
| | 8-hour | 1.7 ppm | 0.017/1.717 ppm | 3.7/9 ppm |
| $PM_{2.5}$ | 24-hour | 19.8 µg/$m^3$ | 0.64/20.44 µg/$m^3$ | 7.6/35 µg/$m^3$ |
| $PM_{2.5}$ | Annual | 7.5 µg/$m^3$ | 0.004/7.504 µg/$m^3$ | 0.1/9 µg/$m^3$ |

As **Table 18-11** shows, the CO 1-hour and 8-hour, $PM_{2.5}$ 24-hour, and annual impacts would be below their corresponding *de minimis* thresholds or NAAQS, respectively.

Therefore, construction of the Proposed Development for both on-site and on-road sources would not result in significant adverse air quality impacts.

# Noise

Construction activities have the potential to affect the noise conditions of receptors near the Development Sites. Construction noise can vary widely depending on the phase of construction (e.g., demolition, excavation, foundation, steel, and concrete erection, mechanical and interior fit out) and the specific equipment and methods being used. The most significant construction noise sources at a construction site are generally backup alarms, and equipment such as excavators, drill rigs, and cranes. The noisiest phase of construction is typically during demolition, excavation, and foundation work. The superstructure phase of construction can also have higher noise levels associated with concrete trucks and cranes. Similar to air emissions, interior fit out typically results in lower noise emissions, since it requires fewer pieces of heavy-duty diesel equipment.

Pursuant to Section 310 of the Construction chapter of the *CEQR Technical Manual*:

*"For stationary sources, construction noise, generated by pile driving, truck traffic, blasting, demolition, etc., is generally analyzed in detail only when it affects a sensitive receptor over a long period of time. The determination whether it is sufficient to conduct a qualitative analysis or whether a quantitative analysis is required cannot be made based solely on the duration of the construction period and should take into account such factors as the location of the project site in relation to existing residential uses or other sensitive receptors, the intensity of the construction activity, and the extent to which the project incorporates commitments to appropriate noise control measures."*

The determining factors identified in Section 310 are assessed below.

For the Proposed Development, the overall construction period would be approximately 42 months; including the demolition, excavation/foundation, superstructure, superstructure/interior fit-out overlapping, superstructure/façade/interior fit-out overlapping, façade/interior fit-out overlapping, and interior fit-out phases. In addition, the relatively intense construction activities would be sequenced to minimize the impact, meaning the noisiest activities would be expected to occur across the Development Site at different times during the duration of the construction period.

## Noise Reduction Measures

Noise from construction activities and some construction equipment is regulated by the New York City Noise Control Code and by the EPA. The New York City Noise Control Code limits construction activities to weekdays between the hours of 7:00 AM and 6:00 PM, sets noise limits for specific pieces of construction equipment, and requires the implementation of a Construction Noise Mitigation Plan. The Construction Noise Mitigation Plan outlines project-specific noise control measures and identifies applicable noise source and noise path controls. Source noise controls are designed to mitigate noises at their origin, while path noise controls focus on the available route(s) between a noise source and any receptors.

In terms of source controls (i.e., reducing noise levels at the source or during the most sensitive time periods), the following measures, under New York regulations, would be implemented:

- The contractor would self-certify that all construction tools and equipment have been maintained to not generate excessive or unnecessary noise and that the noise emissions would not exceed the levels specified in Subchapter 5 of the NYC Noise Control Code and Table 22-1 of the *CEQR Technical Manual*.
- Where feasible, practical, and safe, the use of backup alarms would be minimized and/or quieter backup alarms would be installed in accordance with OSHA standards.

- Vehicles would not be allowed to idle more than 3 minutes, in accordance with New York City Administrative Code §24-163.
- The contractor would implement a training program to inform workers of methods that can minimize construction noise.
- The following measure, beyond New York regulations, would be implemented as a Project Component Related to the Environment (PCRE):
- Grid power would be used instead of generators during Foundation, Superstructure, and Finishing phase. In the event that grid power is not sufficient or not yet available, generators would be used on a temporary basis.

In terms of path controls (e.g., placement of equipment, implementation of barriers or enclosures between equipment and sensitive receptors), the following measures, included under New York regulations, for construction would be implemented:

- When the DOB regulations require a perimeter barrier or "construction fence" and the site is within 200 feet of a receptor, the barrier shall be constructed in a specific manner (as described in the New York City Noise Code) to provide sufficient sound attenuation. Section 3307.7 of the New York City Building Code requires that a solid 8-foot-tall wall made of wood or other suitable material is installed where a new building is being constructed, or a building is being demolished to grade. The Proposed Development would include an 8-foot-tall perimeter wall surrounding the Development Site.
- Where logistics allow, noisy equipment, such as cranes, concrete pumps, concrete trucks, and delivery trucks, could be located away from and shielded from sensitive receptor locations.
- Should noise complaints occur during construction, the contractor would use path noise control measures such as temporary noise barriers, jersey barriers and/or portable noise enclosures for small equipment

## Construction Noise Criteria

The construction noise analysis methodology involves identifying noise-sensitive receptors, including residential, commercial office spaces, and community facilities near the Development Sites assessing the potential for construction noise impacts due to mobile sources (i.e., construction trucks and construction worker vehicles), and assessing potential stationary construction noise impacts by evaluating the noise emissions during each month of construction, identifying the loudest periods for each phase (i.e., demolition, excavation/foundation, superstructure, facade and interior fit-out), predicting construction noise levels at each receptor location, assessing potential impacts according to applicable construction noise impact criteria, and evaluating whether noise mitigation is warranted, feasible, and effective.

The noise impact criteria described in Chapter 19, Section 410 of the *CEQR Technical Manual* serve as a screening-level threshold for potential construction noise impacts. As described in Chapter 19, Section 410, there would be a potential for significant noise impact from operational conditions and more detailed assessment would be needed if ambient sound levels increase by 3 to 5 dBA (Leq) or more depending on the baseline Leq noise levels. The significance of construction noise effects depends on the intensity and duration of construction activities. If construction of a proposed project would not result in any exceedances of these criteria at a given receptor, then that receptor would not have the potential to experience a construction noise impact. However, if construction would result in exceedances of these noise impact criteria, then further consideration of the intensity and

duration of construction noise is warranted at that receptor to determine significant adverse construction noise impact.

The detailed construction noise analysis evaluates the specific activities, types of equipment, duration of activities, and locations of nearby sensitive receptors. Based on the results of the detailed analysis, there would be a significant adverse noise impact if construction noise due to the Proposed Development exceeds the following:

- Noise levels ($L_{eq}$) would increase by 15 dBA or more for 12 consecutive months or more or 20 dBA or more for three consecutive months or more.
- For receptors that represent interior spaces, interior noise levels ($L_{10}$) would exceed 45 dBA for residential and community facility spaces and 50 dBA for commercial office spaces as a result of above significant noise increases (15 dBA and 20 dBA or above) for a prolonged period of time, thus considered significant.

## Construction Noise Receptors

The Development Site is near existing residential and commercial land uses. Based on the proximity of these noise-sensitive land uses, there is the potential for construction noise levels to exceed the CEQR screening criteria. As shown in **Figure 18-12** and **Table 18-12**, the study area for construction noise includes 24 buildings (or building façades) with residential, commercial office, community facility or open space uses. Receptors were included on the closest location of each building, or building façade, to the Development Site and on each floor of the buildings. Multiple receptors were included for any sensitive receptors immediately adjacent to the Development Site where there is the greatest potential for construction noise impacts.

The outdoor-to-indoor noise reduction of the receptor buildings has been estimated based on a visual survey of the buildings' facades. Buildings with certain windows and A/C conditions were assessed using the following window/wall reduction assumptions:

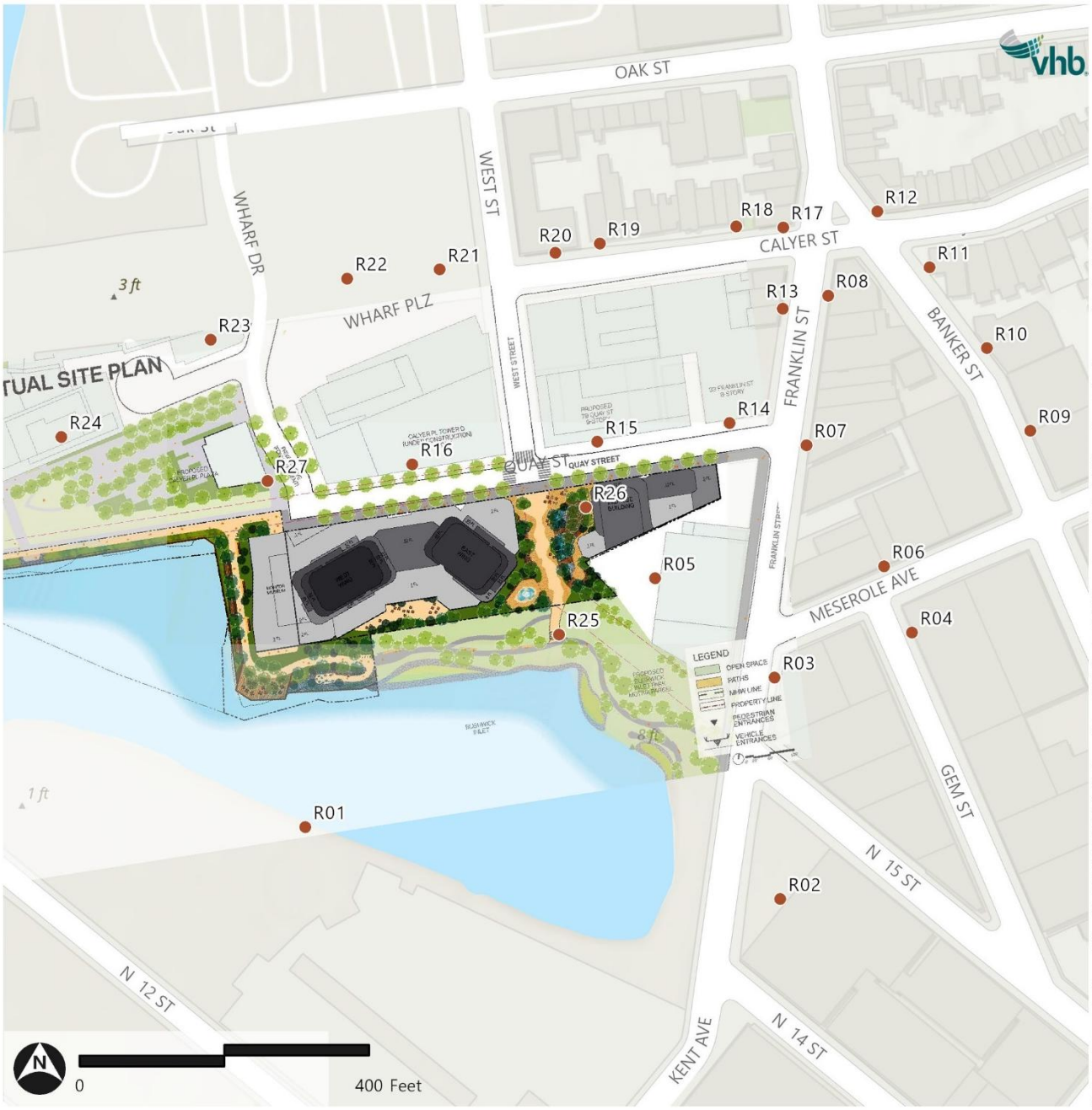
- 25 dBA of attenuation for any single glazed window/wall condition;
- 28 dBA of attenuation for any insulated glass window with through-window A/C unit;
- 30 dBA of attenuation for insulated window with through-wall A/C unit;
- 32 dBA of attenuation for insulated window with central A/C.

**Table 18-12 Construction Noise Receptor Locations and Land Use Descriptions**

| Receptor | Location | Land Use Description | Attenuation |
|---|---|---|---|
| **R01** | 26 North 12th Street | Open Space | |
| **R02** | 22 North 12th Street | Open Space | |
| **R03** | 12 Franklin Street | Residential/Commercial | 32 |
| **R04** | 11 Franklin Street | Commercial/Office | 25 |
| **R05** | 93 Quay Street | Residential/Commercial | 32 |
| **R06** | 85 Quay Street | Commercial | 25 |
| **R07** | 79 Quay Street | Residential | 35 |
| **R08** | 3 West Street | Residential | 32 |
| **R09** | 27 West Street | Residential | 32 |
| **R10** | 239 Banker Street | Residential | 25 |
| **R11** | 259 Banker Street | Residential | 25 |
| **R12** | 102 Calyer Street | Residential | 25 |
| **R13** | 76 Franklin Street | Residential/Commercial | 25 |
| **R14** | 43 Franklin Street | Residential/Commercial | 25 |
| **R15** | 49 Franklin Street | Residential/Commercial | 32 |
| **R16** | 87 Calyer Street | Residential | 32 |
| **R17** | 71 Calyer Street | Residential | 32 |
| **R18** | 26 West Street | Residential | 32 |
| **R19** | 29 West Street | Residential | 32 |
| **R20** | 50 West Street | Residential | 32 |
| **R21** | 60 Wharf Drive | Residential | 32 |
| **R22** | 30 Wharf Drive | Residential | 32 |
| **R23** | Bushwick Inlet Park | Open Space | |
| **R24** | 40 Quay (East Building) | Residential | 28* |

Source: VHB, 2025
Note:
* Noise Attenuation Requirement listed in **Chapter 15, Noise**

## Figure 18-12 Construction Noise Receptor Locations




● Noise Receptor Locations

## Construction Noise Assessment Methodology

The detailed construction noise analysis includes both mobile and stationary construction noise sources. Stationary sources are based on typical equipment used during all phases of construction including foundation, superstructure, façade, and finishes. There would be overlapping construction activities during foundation and superstructure activities, as well as during façade and fit-out activities.

Construction mobile sources include worker vehicles and trucks. Construction noise has been evaluated for the construction mobile source peak period of 6:00 AM to 7:00 AM. During this period, there would be no construction noise from stationary sources.

### *Construction Mobile Source Noise Assessment*

The construction mobile source noise assessment evaluated the intersections/sections listed in **Chapter 15, Noise** during the 6:00 to 7:00 AM period. Due to the construction activities within the vicinity of the Development Site, it is considered that the existing noise measurement result would not be representative of the ambient noise condition as the background condition. Therefore, a detailed noise modeling has been performed using FHWA's TNM per instructions in *CEQR Technical Manual*, Chapter 19 Noise, Section 332.

As described in the **Construction Transportation** section of this chapter, peak construction vehicle trips during the peak construction quarter (fourth quarter of 2029) would include 277 construction worker auto trips, 10 construction worker taxi trips, and 22 truck trips in the 6:00 AM to 7:00 AM period. These vehicle trips would be distributed throughout the study area. However, to be conservative, the traffic assignments assume construction related trips would concentrate at the construction site frontage. These vehicles were assigned to arrive at the site via Quay Street, and depart via West Street. To be consistent with the traffic assignments, the construction mobile source noise assessment reflects the peak concentration of vehicles approaching the site, which includes a total of 282 inbound passenger vehicle trips and 11 truck trips on Quay Street between West Street and Franklin Street during the construction AM peak hour analyzed.

A detailed mobile source analysis using TNM was performed comparing the noise levels modeled for the No-Action without construction condition and With-Action with construction condition traffic volumes that were presented in the **Construction Transportation** section.

As shown in **Table 18-13,** noise from construction mobile sources between 6:00 AM and 7:00 AM would typically increase up to 2.5 dBA compared to the No-Action without construction condition. As the construction mobile source noise levels would not increase by 3 dBA or more, there would be no significant adverse construction mobile source noise impact.

**Table 18-13 Construction Mobile Source Analysis (6 AM-7 AM)**

| | Receptors | NA Noise Levels (dBA) | WA Noise Levels (dBA) | Construction Mobile Source Sound Increase (dBA) |
|---|---|---|---|---|
| **R01** | 26 North 12th Street | 65.6 | 65.5 | 0.0 |
| **R02** | 22 North 12th Street | 66.4 | 66.1 | 0.3 |
| **R03** | 12 Franklin Street | 68.6 | 67.6 | 1.0 |
| **R04** | 11 Franklin Street | 70.7 | 69.3 | 1.5 |
| **R05** | 93 Quay Street | 69.6 | 67.1 | 2.5 |
| **R06** | 85 Quay Street | 68.9 | 66.6 | 2.2 |
| **R07** | 79 Quay Street | 68.3 | 66.2 | 2.2 |
| **R08** | 3 West Street | 66.0 | 65.6 | 0.4 |
| **R09** | 27 West Street | 65.7 | 65.5 | 0.1 |
| **R10** | 239 Banker Street | 65.7 | 65.6 | 0.1 |
| **R11** | 259 Banker Street | 65.7 | 65.6 | 0.1 |
| **R12** | 102 Calyer Street | 66.2 | 66.0 | 0.1 |
| **R13** | 76 Franklin Street | 67.3 | 67.0 | 0.3 |
| **R14** | 43 Franklin Street | 67.7 | 67.3 | 0.4 |
| **R15** | 49 Franklin Street | 68.6 | 68.1 | 0.5 |
| **R16** | 87 Calyer Street | 66.3 | 66.2 | 0.1 |
| **R17** | 71 Calyer Street | 65.7 | 65.6 | 0.0 |
| **R18** | 26 West Street | 65.7 | 65.6 | 0.1 |
| **R19** | 29 West Street | 65.7 | 65.6 | 0.1 |
| **R20** | 50 West Street | 65.5 | 65.5 | 0.0 |
| **R21** | 60 Wharf Drive | 65.5 | 65.5 | 0.0 |
| **R22** | 30 Wharf Drive | 65.5 | 65.5 | 0.0 |
| **R23** | Bushwick Inlet Park | 66.5 | 66.1 | 0.3 |

Source: VHB, 2025

### *Construction Stationary Source Noise Modeling*

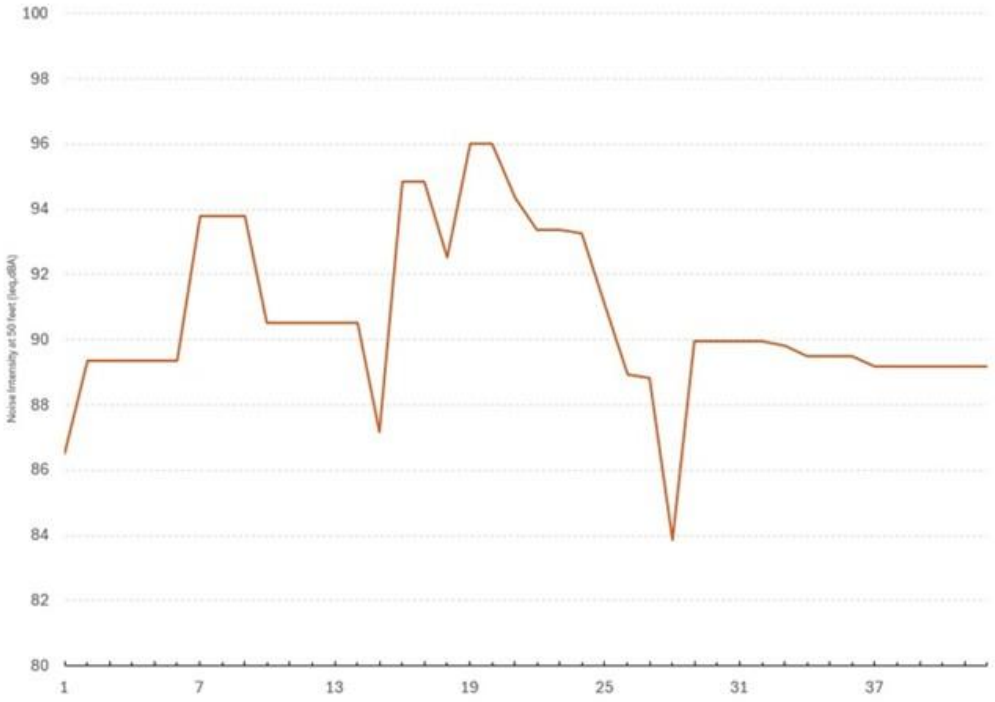
Construction noise from stationary sources has been evaluated for seven different phases of construction. For each phase of the Proposed Development, there would be demolition, foundation, superstructure, façade, and finishes phases of construction of the proposed buildings (i.e., West Building, East Building, and Museum). **Figure 18-13** presents the cumulative sound emissions from stationary construction equipment during each month for With-Action conditions. The cumulative sound emissions represent the total energy-average (Leq) level of all equipment operating at a distance of 50 feet. This sound emission is not the actual sound level that would exist on the Development Site since actual equipment is distributed throughout the site, but the cumulative emissions level indicates which periods of construction are expected to be the loudest and which months are used for analysis. This figure shows that the foundation phases of construction are generally the loudest and that the noise intensity levels typically range from the upper 80s to the

mid-90s dBA. Based on this construction noise intensity analysis, noise has been evaluated during the following months:

- **Phase A**: From Month 1 through 6, the Demolition phase for entire Development Site would occur. Construction has been evaluated based on Month 6 as this period has the highest construction sound emissions.
- **Phase B**: From Month 7 through 14, the Foundation phases for the West Building would occur. Construction has been evaluated based on Month 9 as this period has the highest construction sound emissions.
- **Phase C**: From Month 15 through 24, the Superstructure phase for the West Building and Foundation phases for the East Building and Museum would occur. Construction has been evaluated based on Month 19 as this period has the highest construction sound emissions.
- **Phase D**: From Month 25 through 28, the Superstructure phases for the West Building, East Building, and Museum would occur. Construction has been evaluated based on Month 25 as this period has the highest construction sound emissions.
- **Phase E**: From Month 29 through 33, the Finishing phases for the West Building and East Building, along with the Façade phase for the Museum would occur. Construction has been evaluated based on Month 29 as this period has the highest construction sound emissions.
- **Phase F**: From Month 34 through 39, the Finishing phase for the Museum would occur. Construction has been evaluated based on Month 34 as this period has the highest construction sound emissions.
- **Phase G**: From Month 40 through 42, the Finishing phase for the West Building would continue. Construction has been evaluated based on Month 41 as this period has the highest construction sound emissions. During this phase, construction of the East Building would be completed, and it would be considered as receptors for analysis.

**Table 18-14** presents the type of equipment, the maximum sound level at 50 feet, the utilization factors (percentage of time the equipment is operating at full power), and the number of each piece of equipment that is used during the loudest month of each phase of construction based on the *CEQR Technical Manual*. These equipment assumptions are based on conceptual site plans and construction schedules. Therefore, this represents a worst-case condition regarding the number of pieces of construction equipment and the duration of construction activities. This table does not include trucks at the Development Site such as box trucks, pickup trucks, tractor trailers, packer trucks, container trucks, and dump trucks since they are not allowed to idle more than three minutes in accordance with New York City Administrative Code §24-163.

**Figure 18-13 Cumulative Sound Emissions from Stationary Equipment During Each Month**




Source: VHB, 2025

**Table 18-14 Construction Equipment by Month of Analysis**

| Equipment | Maximum Sound Level at 50 feet (dBA, $L_{max}$) | Utilization Factor (%) | Number of Construction Equipment Pieces by Analysis Month | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | 6 | 9 | 19 | 25 | 29 | 34 | 41 |
| Concrete Mixer Truck | 85 | 40 | 0 | 3 | 9 | 6 | 3 | 3 | 3 |
| Concrete Pump Truck | 82 | 20 | 0 | 1 | 3 | 2 | 1 | 1 | 1 |
| Excavator | 85 | 40 | 2 | 3 | 6 | 0 | 3 | 3 | 3 |
| Impact Pile Driver | 95 | 20 | 0 | 2 | 2 | 0 | 0 | 0 | 0 |
| Compressor | 80 | 40 | 1 | 2 | 3 | 0 | 0 | 0 | 0 |
| Generator | 82 | 50 | 0 | 2 | 3 | 0 | 0 | 0 | 0 |
| Forklift | 64 | 40 | 0 | 0 | 4 | 7 | 3 | 0 | 0 |
| Crane | 85 | 16 | 0 | 0 | 2 | 3 | 0 | 0 | 0 |
| Rebar Bender | 80 | 20 | 0 | 3 | 5 | 4 | 0 | 0 | 0 |
| Welder | 73 | 40 | 0 | 0 | 3 | 5 | 0 | 0 | 0 |
| Skid Steer/Track Loader | 80 | 40 | 2 | 0 | 0 | 0 | 0 | 0 | 0 |

Source: VHB, 2025

### *Existing Ambient Sound Levels*

Due to the nearby construction activities within the vicinity of the Development Site, the measured sound levels are not representative for the existing ambient conditions. Therefore, the existing background sound levels at all receptor locations have been modeled by using the existing condition AM traffic volumes from **Chapter 12, Transportation**. See **Table 18-15** for the existing ambient noise levels at each receptor building.

**Table 18-15 Construction Mobile Source Analysis (6 AM-7 AM)**

| Receptors | | Land Use | Background Noise Levels (dBA, Leq)[1] |
|---|---|---|---|
| **R01** | 26 North 12th Street | Open Space | 65.5 - 65.5 |
| **R02** | 22 North 12th Street | Open Space | 66.2 - 66.2 |
| **R03** | 12 Franklin Street | Residential/Commercial | 67.5 - 67.5 |
| **R04** | 11 Franklin Street | Commercial Office | 65.5 - 65.5 |
| **R05** | 93 Quay Street | Residential/Commercial | 66.3 - 66.5 |
| **R06** | 85 Quay Street | Commercial | 66.1 - 66.2 |
| **R07** | 79 Quay Street | Residential | 65.6 – 66.0 |
| **R08** | 3 West Street | Residential | 65.5 - 67.5 |
| **R09** | 27 West Street | Residential | 65.5 - 65.5 |
| **R10** | 239 Banker Street | Residential | 65.7 - 65.8 |
| **R11** | 259 Banker Street | Residential | 65.7 - 65.8 |
| **R12** | 102 Calyer Street | Residential | 65.8 - 65.9 |
| **R13** | 76 Franklin Street | Residential/Commercial | 66.3 - 66.5 |
| **R14** | 43 Franklin Street | Residential/Commercial | 67.3 - 67.3 |
| **R15** | 49 Franklin Street | Residential/Commercial | 66.5 - 66.5 |
| **R16** | 87 Calyer Street | Residential | 65.6 - 65.7 |
| **R17** | 71 Calyer Street | Residential | 65.6 - 65.6 |
| **R18** | 26 West Street | Residential | 65.6 - 65.6 |
| **R19** | 29 West Street | Residential | 65.5 - 65.5 |
| **R20** | 50 West Street | Residential | 65.5 - 65.5 |
| **R21** | 60 Wharf Drive | Residential | 65.5 - 65.5 |
| **R22** | 30 Wharf Drive | Residential | 65.5 - 65.5 |
| **R23** | Bushwick Inlet Park | Open Space | 65.5 - 65.6 |
| **R24** | 40 Quay (East Building) | Residential | 65.5 - 65.7 |

Source: VHB, 2025
Notes:
[1] The background noise level represents the ground level noise level modeled for each receptor building.

The background sound level assumed for each receptor was the noise level $L_{eq}$ measured during morning peak period. Based on this analysis, the existing daytime ambient sound levels range from 65.5 to 67.5 dBA ($L_{eq}$).

### *Construction Noise Impact Assessment*

Construction noise has been modeled using the Cadna-A sound prediction model at 24 noise sensitive receptors (buildings or building façades) ,including the completed and occupied East Building that is part of the Proposed Development, for the demolition (month 6), excavation/foundation for the West Building (month 9), excavation/foundation for the East Building and Museum overlapping superstructure for the West Building (month 19), superstructure for all three buildings (month 25), façade of the East Building and Museum overlapping with finishes for the West Building (month 29), and finishes for the West Building (month 34 and month 41) phases of construction. During the last phase, the East Building and Museum are constructed and open for use. The Cadna-A model implements the International Standards Organization standard 9613-2 "Outdoor Sound Propagation" that accounts for ground type, intervening objects such as buildings, sound reflections, and atmospheric conditions. The construction noise model assumes that the ground is acoustically hard (ground absorption coefficient of 0), buildings have a brick façade with minimal acoustic absorption, and three orders of sound reflections.

The minimum composite window/wall attenuation required for the proposed new buildings presented in **Chapter 15, Noise**, was used to assess interior construction noise levels for new receptors to be constructed as part of the Proposed Development. As such, receptors at the East Building facing proposed West Building would have 28 dBA window/wall attenuation.

The *CEQR Technical Manual* defines 45 dBA ($L_{10}$) as an acceptable interior noise level limit for residential and community facility, as discussed in **Chapter 15, Noise**. Interior noise level of 50 dBA ($L_{10}$) is typically considered to be an acceptable interior noise level limit for commercial office spaces. As mentioned earlier, these acceptable interior $L_{10}$ noise level limits were used to determine significant adverse construction noise impact and if additional mitigation measures are needed at receptors identified with significant adverse construction noise impact. The $L_{10}$ metric is calculated by adding a 3-dBA adjustment factor to the calculated $L_{eq}$ according to FHWA's Roadway Construction Noise Model (RCNM) guidance.

**Table 18-16** shows the estimated worst-case hourly noise levels at the nearby receptors of concern during each construction stage, while **Table 18-17** shows the maximum increase in noise levels during construction by stage. It appears that the maximum noise level increase would only exceed the thresholds for exterior increase at R05, R06, R07, R08, R09, and R23.

*Building by Building Conclusions*

R05: This is the receptor that represents the residential building located at 93 Quay Street. The south facade was assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 69.4 to 82.7 dBA, which would be an increase of up to 16.4 dBA. However, the duration of the noise increase of 15 dBA or more would last for ten months. Therefore, the effects of construction noise associated with the Proposed Actions would not result in significant adverse construction noise impacts at receptor R05.

R06: This is the receptor that represents the residential building located at 85 Quay Street. The south facade was assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 70.0 to 84.3 dBA, which would be an increase of up to 18.2 dBA. However, the duration of the noise increase of 15 dBA or more would last for ten months. Therefore, the effects of construction noise associated with the Proposed Actions would not result in significant adverse construction noise impacts at receptor R06.

R07: This is the receptor that represents the residential building located at 79 Quay Street. The south and west facades were assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 69.5 to 84.4 dBA, which would be an increase of up to 18.4 dBA. However, the duration of the noise increase of 15 dBA or more would last for ten months. Therefore, the effects of construction noise associated with the Proposed Actions would not result in significant adverse construction noise impacts at receptor R07.

R08: This is the receptor that represents the future residential building located at 3 West Street. The south and east facades were assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 65.8 to 83.4 dBA, which would be an increase of up to 17.8 dBA. The duration of the noise level increase due to construction exceeding 15 dBA or more would exceed the 12-month impact threshold. Furthermore, despite assuming insulated glass window and central air conditioning with corresponding 32 dBA of window/wall attenuation for this future building, the interior noise levels would exceed the criteria of 45 dBA ($L_{10}$) for residential use during those periods of significant noise increases. Therefore, the effects of construction noise associated with the Proposed Actions would result in significant adverse construction noise impacts at receptor R08. These receptors are discussed further in **Chapter 19, Mitigation**.

R09: This is the receptor that represents the future residential building located at 27 West Street. The south and east facades were assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 69.2 to 84.9 dBA, which would be an increase of up to 19.3 dBA. However, the duration of the noise increase of 15 dBA or more would only last for ten months. Therefore, the effects of construction noise associated with the Proposed Actions would not result in significant adverse construction noise impacts at receptor R09.

R23: This is the receptor that represents the open space at Bushwick Inlet Park. The north boundary of the park was assessed for potential noise impacts from the construction of the Proposed Development. Future noise levels ($L_{eq}$) during construction would range from 67.5 to 84.0 dBA, which would be an increase of up to 18.4 dBA, due to the immediate adjacency to the Proposed Development. However, the duration of the noise increase of 15 dBA or more would only last for eight months. Therefore, the effects of construction noise associated with the Proposed Actions would not result in significant adverse construction noise impacts at receptor R23..

## Table 18-16 Worst-Case Construction Noise Levels by Phase (dBA, $L_{eq}$)

| Receptors | Address | Background Noise Level (dBA, $L_{eq}$)[1] | Phase A (Month 6) | Phase B (Month 9) | Phase C (Month 19) | Phase D (Month 25) | Phase E (Month 29) | Phase F (Month 34) | Phase G (Month 41) |
|---|---|---|---|---|---|---|---|---|---|
| **R01** | 26 North 12th Street | 65.5 - 65.5 | 68.6 - 68.6 | 76.1 - 76.1 | 77.9 - 77.9 | 73.4 - 73.4 | 71.9 - 71.9 | 71.7 - 71.7 | 72.0 – 72.0 |
| **R02** | 22 North 12th Street | 66.2 - 66.2 | 69.5 - 69.5 | 75.5 - 75.5 | 76.5 - 76.5 | 73.0 – 73.0 | 72.0 – 72.0 | 71.8 - 71.8 | 71.8 - 71.8 |
| **R03** | 12 Franklin Street | 67.5 - 67.5 | 67.8 - 67.8 | 69.6 - 69.6 | 71.0 – 71.0 | 69.2 - 69.2 | 68.3 - 68.3 | 68.3 - 68.3 | 68.2 - 68.2 |
| **R04** | 11 Franklin Street | 65.5 - 65.5 | 70.5 - 70.5 | 74.5 - 74.5 | 79.4 - 79.4 | 75.6 - 75.6 | 71.2 - 71.2 | 70.5 - 70.5 | 69.3 - 69.3 |
| **R05** | 93 Quay Street | 66.3 - 66.5 | 69.4 - 70.6 | 73.3 - 74.7 | 79.0 - 82.7 | 75.0 - 76.4 | 70.8 - 71.9 | 69.9 - 70.5 | 70.0 - 71.2 |
| **R06** | 85 Quay Street | 66.1 - 66.2 | 70.0 - 71.8 | 73.7 - 75.4 | 80.5 - 84.3 | 77.1 – 79.0 | 71.7 - 73.3 | 70.4 - 71.3 | 71.4 - 73.1 |
| **R07** | 79 Quay Street | 65.6 – 66.0 | 69.5 – 74.0 | 73.7 - 76.8 | 74.7 - 84.4 | 70.9 - 80.7 | 70.6 - 74.5 | 70.3 - 72.8 | 71.3 - 74.6 |
| **R08** | 3 West Street | 65.5 - 67.5 | 67.2 - 77.1 | 65.9 - 82.1 | 68.5 - 83.4 | 67.6 - 79.8 | 66.2 - 77.9 | 65.8 - 78.5 | 65.9 - 78.7 |
| **R09** | 27 West Street | 65.5 - 65.5 | 69.2 - 74.7 | 75.2 - 80.3 | 74.6 - 84.9 | 70.3 - 76.5 | 71.7 - 76.6 | 71.5 - 76.6 | 71.8 - 76.5 |
| **R10** | 239 Banker Street | 65.7 - 65.8 | 66.2 – 67.0 | 68.5 – 70.0 | 70.3 – 72.0 | 67.6 - 69.2 | 66.7 - 67.6 | 66.6 - 67.5 | 66.0 - 66.5 |
| **R11** | 259 Banker Street | 65.7 - 65.8 | 65.8 - 66.1 | 66.3 – 68.0 | 67.6 - 70.5 | 66.7 - 67.9 | 66.0 - 66.7 | 65.9 - 66.3 | 65.8 - 65.8 |
| **R12** | 102 Calyer Street | 65.8 - 65.9 | 65.8 - 65.9 | 65.9 - 65.9 | 66.6 - 67.5 | 65.9 – 66.0 | 65.9 - 65.9 | 65.8 - 65.9 | 65.9 – 66.0 |
| **R13** | 76 Franklin Street | 66.3 - 66.5 | 66.3 - 66.5 | 66.3 - 66.5 | 66.7 - 70.1 | 66.4 - 66.7 | 66.4 - 66.5 | 66.3 - 66.5 | 66.3 - 66.5 |
| **R14** | 43 Franklin Street | 67.3 - 67.3 | 67.3 - 67.3 | 67.4 - 67.4 | 67.6 - 67.6 | 67.4 - 67.4 | 67.4 - 67.4 | 67.4 - 67.4 | 67.4 - 67.4 |
| **R15** | 49 Franklin Street | 66.5 - 66.5 | 66.5 - 66.5 | 66.5 - 66.5 | 66.7 - 66.7 | 66.6 - 66.6 | 66.5 - 66.5 | 66.5 - 66.5 | 66.5 - 66.5 |
| **R16** | 87 Calyer Street | 65.6 - 65.7 | 65.7 - 65.7 | 65.7 - 65.7 | 65.8 - 65.9 | 65.7 - 65.7 | 65.7 - 65.7 | 65.7 - 65.7 | 65.7 - 65.7 |
| **R17** | 71 Calyer Street | 65.6 - 65.6 | 65.6 - 65.8 | 65.8 - 67.3 | 65.9 - 66.9 | 65.7 - 66.3 | 65.7 – 67.0 | 65.7 - 66.5 | 65.8 - 67.6 |
| **R18** | 26 West Street | 65.6 - 65.6 | 65.7 – 66.0 | 65.8 - 67.1 | 66.2 - 66.5 | 66.0 - 66.3 | 65.8 – 67.0 | 65.8 - 66.7 | 65.9 - 69.2 |
| **R19** | 29 West Street | 65.5 - 65.5 | 65.6 - 65.6 | 65.6 - 65.7 | 65.8 - 65.8 | 65.6 - 65.7 | 65.6 - 65.6 | 65.6 - 65.6 | 65.6 - 65.6 |
| **R20** | 50 West Street | 65.5 - 65.5 | 65.5 - 65.5 | 65.6 - 65.7 | 66.1 - 66.2 | 65.8 - 65.8 | 65.6 - 65.6 | 66.0 - 66.2 | 66.0 - 66.1 |
| **R21** | 60 Wharf Drive | 65.5 - 65.5 | 67.0 - 68.5 | 73.0 - 74.8 | 75.2 – 77.0 | 69.2 - 71.2 | 69.3 - 70.9 | 68.8 - 70.6 | 69.1 - 70.7 |
| **R22** | 30 Wharf Drive | 65.5 - 65.5 | 66.9 - 67.9 | 72.8 - 74.2 | 75.9 - 76.6 | 69.1 - 70.5 | 69.3 - 70.5 | 69.2 - 70.3 | 69.4 - 70.5 |
| **R23** | Bushwick Inlet Park | 65.5 - 65.6 | 67.5 - 72.5 | 74.8 – 84.0 | 75.7 - 80.3 | 70.0 - 76.7 | 70.7 - 79.7 | 70.1 – 79.0 | 70.7 - 79.6 |
| **R24** | 40 Quay (East Building) | 65.5 - 65.7 | | | | | | | 69.8 - 77.3 |

Source: VHB, 2025

Notes:

[1] The background noise level ranges represent the range from ground level to the highest building floors modeled for each façade of each receptor building.

### Table 18-17 Worst-Case Construction Noise Increase by Phase (dBA, $L_{eq}$)

| Receptors | Address | Background Noise Level (dBA, $L_{eq}$)[1] | Phase A (Month 6) | Phase B (Month 9) | Phase C (Month 19) | Phase D (Month 25) | Phase E (Month 29) | Phase F (Month 34) | Phase G (Month 41) |
|---|---|---|---|---|---|---|---|---|---|
| **R01** | 26 North 12th Street | 65.5 - 65.5 | 3.0 | 10.6 | 12.3 | 7.8 | 6.3 | 6.2 | 6.5 |
| **R02** | 22 North 12th Street | 66.2 - 66.2 | 3.3 | 9.2 | 10.3 | 6.8 | 5.8 | 5.6 | 5.6 |
| **R03** | 12 Franklin Street | 67.5 - 67.5 | 0.3 | 2.1 | 3.5 | 1.6 | 0.8 | 0.7 | 0.7 |
| **R04** | 11 Franklin Street | 65.5 - 65.5 | 5.0 | 9.0 | 13.9 | 10.1 | 5.7 | 5.0 | 3.8 |
| **R05** | 93 Quay Street | 66.3 - 66.5 | 4.2 | 8.4 | 16.4 | 10.1 | 5.6 | 4.2 | 4.9 |
| **R06** | 85 Quay Street | 66.1 - 66.2 | 5.7 | 9.2 | 18.2 | 12.9 | 7.2 | 5.2 | 7.0 |
| **R07** | 79 Quay Street | 65.6 – 66.0 | 8.1 | 11.2 | 18.4 | 14.8 | 8.6 | 7.2 | 8.9 |
| **R08** | 3 West Street | 65.5 - 67.5 | 11.6 | 16.6 | 17.8 | 14.2 | 12.3 | 13.0 | 13.1 |
| **R09** | 27 West Street | 65.5 - 65.5 | 9.1 | 14.8 | 19.3 | 10.9 | 11.0 | 11.0 | 10.9 |
| **R10** | 239 Banker Street | 65.7 - 65.8 | 1.2 | 4.3 | 6.2 | 3.4 | 1.8 | 1.7 | 0.8 |
| **R11** | 259 Banker Street | 65.7 - 65.8 | 0.3 | 2.3 | 4.7 | 2.2 | 1.0 | 0.6 | 0.1 |
| **R12** | 102 Calyer Street | 65.8 - 65.9 | 0.0 | 0.1 | 1.7 | 0.1 | 0.0 | 0.0 | 0.2 |
| **R13** | 76 Franklin Street | 66.3 - 66.5 | 0.0 | 0.0 | 3.7 | 0.4 | 0.1 | 0.0 | 0.0 |
| **R14** | 43 Franklin Street | 67.3 - 67.3 | 0.0 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| **R15** | 49 Franklin Street | 66.5 - 66.5 | 0.0 | 0.1 | 0.3 | 0.2 | 0.0 | 0.0 | 0.0 |
| **R16** | 87 Calyer Street | 65.6 - 65.7 | 0.0 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 |
| **R17** | 71 Calyer Street | 65.6 - 65.6 | 0.2 | 1.7 | 1.4 | 0.7 | 1.5 | 0.9 | 2.1 |
| **R18** | 26 West Street | 65.6 - 65.6 | 0.5 | 1.5 | 0.9 | 0.7 | 1.4 | 1.1 | 3.6 |
| **R19** | 29 West Street | 65.5 - 65.5 | 0.1 | 0.1 | 0.3 | 0.2 | 0.1 | 0.0 | 0.1 |
| **R20** | 50 West Street | 65.5 - 65.5 | 0.0 | 0.2 | 0.7 | 0.3 | 0.1 | 0.7 | 0.6 |
| **R21** | 60 Wharf Drive | 65.5 - 65.5 | 3.0 | 9.3 | 11.5 | 5.7 | 5.4 | 5.1 | 5.2 |
| **R22** | 30 Wharf Drive | 65.5 - 65.5 | 2.4 | 8.7 | 11.1 | 5.0 | 5.0 | 4.8 | 5.0 |
| **R23** | Bushwick Inlet Park | 65.5 - 65.6 | 6.9 | 18.4 | 14.8 | 11.2 | 14.1 | 13.5 | 14.0 |
| **R24** | 40 Quay (East Building) | 65.5 - 65.7 | | | | | | | 11.0 |

Source: VHB, 2025
Notes:
[1] The background noise level ranges represent the range from ground level to the highest building floors modeled for each façade of each receptor building..

### Table 18-18 Interior Noise Levels during Construction by Phase (dBA, $L_{10}$)

| Receptors | Address | Background Noise Level (dBA, $L_{eq}$)[1] | Phase A (Month 6) | Phase B (Month 9) | Phase C (Month 19) | Phase D (Month 25) | Phase E (Month 29) | Phase F (Month 34) | Phase G (Month 41) |
|---|---|---|---|---|---|---|---|---|---|
| **R01** | 26 North 12th Street | 65.5 - 65.5 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **R02** | 22 North 12th Street | 66.2 - 66.2 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **R03** | 12 Franklin Street | 67.5 - 67.5 | 38.8 - 38.8 | 40.6 - 40.6 | 42.0 – 42.0 | 40.2 - 40.2 | 39.3 - 39.3 | 39.3 - 39.3 | 39.2 - 39.2 |
| **R04** | 11 Franklin Street | 65.5 - 65.5 | 48.5 - 48.5 | 52.5 - 52.5 | 57.4 - 57.4 | 53.6 - 53.6 | 49.2 - 49.2 | 48.5 - 48.5 | 47.3 - 47.3 |
| **R05** | 93 Quay Street | 66.3 - 66.5 | 40.4 - 41.6 | 44.3 - 45.7 | 50.0 - 53.7 | 46.0 - 47.4 | 41.8 - 42.9 | 40.9 - 41.5 | 41.0 - 42.2 |
| **R06** | 85 Quay Street | 66.1 - 66.2 | 48.0 - 49.8 | 51.7 - 53.4 | 58.5 - 62.3 | 55.1 – 57.0 | 49.7 - 51.3 | 48.4 - 49.3 | 49.4 - 51.1 |
| **R07** | 79 Quay Street | 65.6 – 66.0 | 37.5 – 42.0 | 41.7 - 44.8 | 42.7 - 52.4 | 38.9 - 48.7 | 38.6 - 42.5 | 38.3 - 40.8 | 39.3 - 42.6 |
| **R08** | 3 West Street | 65.5 - 67.5 | 38.2 - 48.1 | 36.9 - 53.1 | 39.5 - 54.4 | 38.6 - 50.8 | 37.2 - 48.9 | 36.8 - 49.5 | 36.9 - 49.7 |
| **R09** | 27 West Street | 65.5 - 65.5 | 40.2 - 45.7 | 46.2 - 51.3 | 45.6 - 55.9 | 41.3 - 47.5 | 42.7 - 47.6 | 42.5 - 47.6 | 42.8 - 47.5 |
| **R10** | 239 Banker Street | 65.7 - 65.8 | 44.2 – 45.0 | 46.5 – 48.0 | 48.3 – 50.0 | 45.6 - 47.2 | 44.7 - 45.6 | 44.6 - 45.5 | 44.0 - 44.5 |
| **R11** | 259 Banker Street | 65.7 - 65.8 | 43.8 - 44.1 | 44.3 – 46.0 | 45.6 - 48.5 | 44.7 - 45.9 | 44.0 - 44.7 | 43.9 - 44.3 | 43.8 - 43.8 |
| **R12** | 102 Calyer Street | 65.8 - 65.9 | 43.8 - 43.9 | 43.9 - 43.9 | 44.6 - 45.5 | 43.9 – 44.0 | 43.9 - 43.9 | 43.8 - 43.9 | 43.9 – 44.0 |
| **R13** | 76 Franklin Street | 66.3 - 66.5 | 44.3 - 44.5 | 44.3 - 44.5 | 44.7 - 48.1 | 44.4 - 44.7 | 44.4 - 44.5 | 44.3 - 44.5 | 44.3 - 44.5 |
| **R14** | 43 Franklin Street | 67.3 - 67.3 | 45.3 - 45.3 | 45.4 - 45.4 | 45.6 - 45.6 | 45.4 - 45.4 | 45.4 - 45.4 | 45.4 - 45.4 | 45.4 - 45.4 |
| **R15** | 49 Franklin Street | 66.5 - 66.5 | 37.5 - 37.5 | 37.5 - 37.5 | 37.7 - 37.7 | 37.6 - 37.6 | 37.5 - 37.5 | 37.5 - 37.5 | 37.5 - 37.5 |
| **R16** | 87 Calyer Street | 65.6 - 65.7 | 36.7 - 36.7 | 36.7 - 36.7 | 36.8 - 36.9 | 36.7 - 36.7 | 36.7 - 36.7 | 36.7 - 36.7 | 36.7 - 36.7 |
| **R17** | 71 Calyer Street | 65.6 - 65.6 | 36.6 - 36.8 | 36.8 - 38.3 | 36.9 - 37.9 | 36.7 - 37.3 | 36.7 – 38.0 | 36.7 - 37.5 | 36.8 - 38.6 |
| **R18** | 26 West Street | 65.6 - 65.6 | 36.7 – 37.0 | 36.8 - 38.1 | 37.2 - 37.5 | 37.0 - 37.3 | 36.8 – 38.0 | 36.8 - 37.7 | 36.9 - 40.2 |
| **R19** | 29 West Street | 65.5 - 65.5 | 36.6 - 36.6 | 36.6 - 36.7 | 36.8 - 36.8 | 36.6 - 36.7 | 36.6 - 36.6 | 36.6 - 36.6 | 36.6 - 36.6 |
| **R20** | 50 West Street | 65.5 - 65.5 | 36.5 - 36.5 | 36.6 - 36.7 | 37.1 - 37.2 | 36.8 - 36.8 | 36.6 - 36.6 | 37.0 - 37.2 | 37.0 - 37.1 |
| **R21** | 60 Wharf Drive | 65.5 - 65.5 | 38.0 - 39.5 | 44.0 - 45.8 | 46.2 – 48.0 | 40.2 - 42.2 | 40.3 - 41.9 | 39.8 - 41.6 | 40.1 - 41.7 |
| **R22** | 30 Wharf Drive | 65.5 - 65.5 | 37.9 - 38.9 | 43.8 - 45.2 | 46.9 - 47.6 | 40.1 - 41.5 | 40.3 - 41.5 | 40.2 - 41.3 | 40.4 - 41.5 |
| **R23** | Bushwick Inlet Park | 65.5 - 65.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| **R24** | 40 Quay (East Building) | 65.5 - 65.7 | N/A | N/A | N/A | N/A | N/A | N/A | 44.8 - 52.3 |

Source: VHB, 2025
Notes:
[1] The background noise level ranges represent the range from ground level to the highest building floors modeled for each façade of each receptor building..

### Conclusion

Construction of the Proposed Development would have the potential to result in a significant adverse construction noise impact on the future building to be located at 3 West Street as noise levels would exceed the thresholds for exterior increase as well as the thresholds for acceptable interior noise levels for residential uses. No construction noise impact would occur at other existing and future receptors analyzed. With the adherence to existing construction noise regulations and the implementation of a Construction Noise Mitigation Plan, as required by the New York City Noise Code, including an 8-foot construction noise barrier and a commitment to use grid power in lieu of generators during Foundation, Superstructure, and Finishing phase (where grid power would be sufficient and available), construction noise would still exceed the thresholds for significant construction noise impact at one residential receptor.

## Vibration

Construction activities have the potential to generate ground-borne vibration that can potentially cause structural or architectural damage or annoy people in nearby vibration-sensitive spaces, such as residences. The most substantial sources of construction vibration are equipment associated with the excavation and foundation phase, such as pile drivers, drill rigs, bulldozers, and jack hammers.

There are no buildings within 90 feet of the Development Site listed by LPC or S/NR which would require special protections from potential damage due to vibration. There is the potential for construction vibration from some construction equipment, such as pile rigs to cause annoyance in nearby residences. However, these construction activities would only occur for limited periods of time at any particular location and there would be no significant adverse impact as a result of construction vibration.