

h. Case Studies

1. East New York

Land Use

The East New York study area is bounded by Atlantic Avenue to the north, Sutter Avenue to the south, Granville Payne Avenue, or Pennsylvania Avenue, to the east and Van Sinderen Avenue to the west (see Figure 4-17). The study area encompasses most of the East Brooklyn Industrial Park and is comprised mainly of light industrial land uses, which include low-rise warehouses used for distribution, and large garages for automobile maintenance and storage. Atlantic Avenue is a designated Through Truck Route and Granville Payne Avenue is a designated Local Truck Route. There are no designated truck routes located within the study area boundaries.

Due to the amount of industrial uses within the study area, there is no one site within the study area that is a truck generator in itself but rather, for this analysis, a smaller section of the study area is considered as the truck generator site. With the exception of the northern boundary of the truck generator site, which is Liberty Avenue, the truck generator site has the same boundaries as the study area. The NYC Economic Development Corporation (EDC) refers to locations such as this one as an “In-Place” industrial park

The industrial uses tend to be concentrated in the center of the study area and extend west to Van Sinderen Avenue. A railroad right-of-way traverses the study area and is adjacent to Van Sinderen Avenue. In addition to the low-rise warehouse facilities, there are other industrial uses in the study area, which include waste recycling centers and scrap yards.

The southern section of the study area is primarily industrial with intermittent residential and mixed-use development. Continuing north, past Liberty Avenue, the land uses become more mixed. Residential uses are sprinkled among vacant lots, abandoned warehouses, and small commercial uses line the southern edge Atlantic Avenue. The majority of the residential units are located on the second and third floors of low-rise mixed-use buildings. In most of the buildings, the ground floor use, intended for a commercial use is vacant.

The eastern and southern boundaries of the study area are lined with commercial and residential uses as well as various institutional uses. Granville Payne Avenue, a Local Truck Route, predominately consists of mixed-use buildings that have small retail uses in the ground floor and residential units on the second and third floors. The retail uses include small grocery stores, hardware stores, and drycleaners. Additionally, fronting on the western edge of Granville Payne Avenue, there is a school, a community center, and a job-training center. Granville Payne Avenue is a designated Local Truck Route.

The land uses that front on Sutter Avenue are primarily low-rise mixed-use buildings that have locally oriented retail uses occupying the ground floor and residential units occupying the remaining floors. There are also two public housing complexes located on the southern edge of Sutter Avenue.

While the majority of residential and institutional uses are located in the eastern portion of the study area, there are also small pockets of residential areas located throughout the entire study area. The residential uses are primarily attached multi-family homes. The institutional uses are primarily small religious organizations that are located in renovated warehouses and garages.

A map of the land uses within and surrounding the East New York study area can be found in Figure 4-18.

Zoning

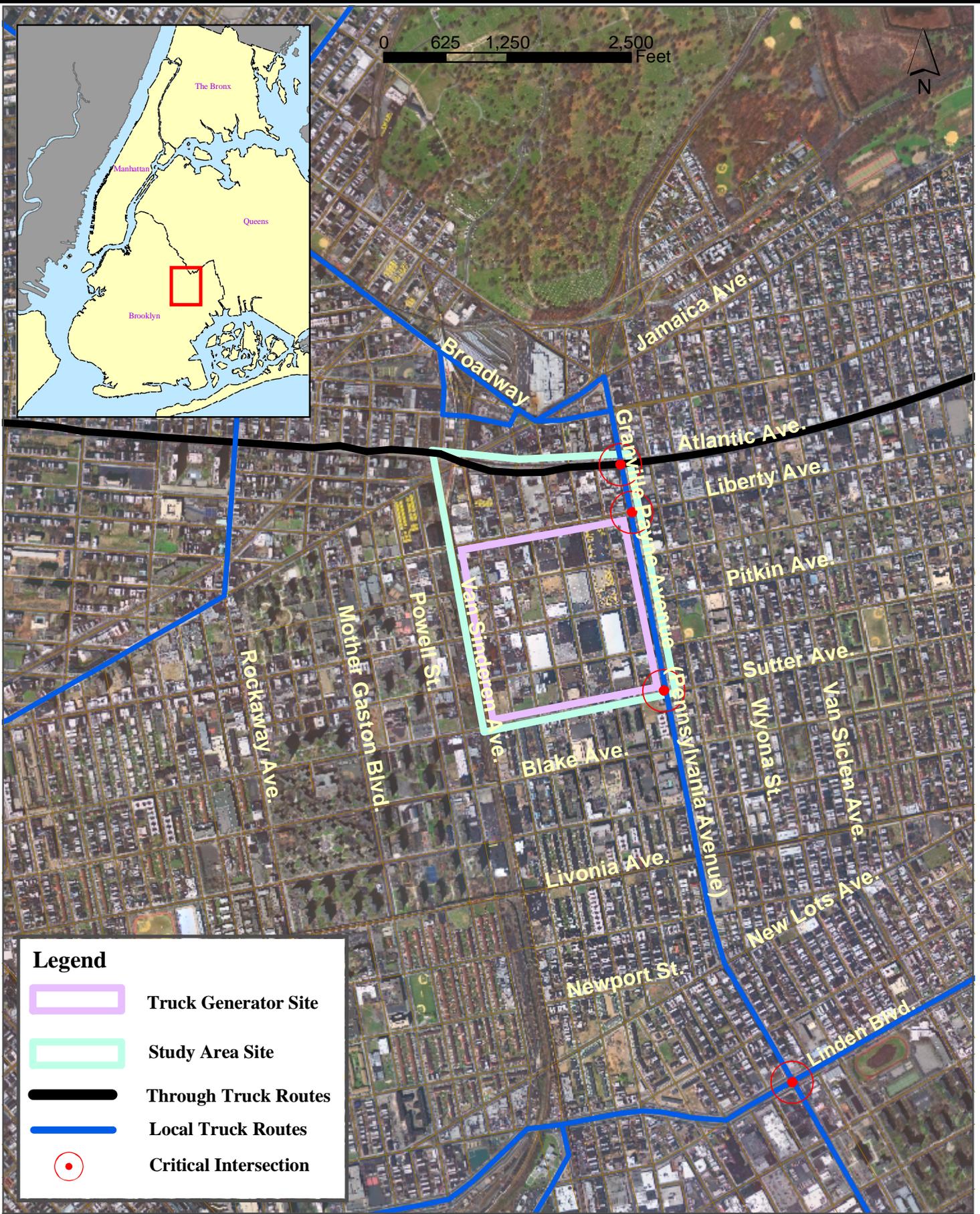
As seen in Figure 4-19, the East New York study area is comprised of residential, commercial and manufacturing zoning districts. The majority of the area bound by Atlantic Avenue to the north, Sutter Avenue to the south, Granville Payne (Pennsylvania) Avenue to the east and Van Sinderen Avenue to the west contains parcels that are zoned R5, R6, C4-3, C8-2, M1-1, M1-4 and M3-2. While the Atlantic Avenue truck route lies on the northern border of the site and study area, Granville Payne (Pennsylvania) Avenue provides access to the industrial park and is designated a Local Truck Route. The truck generator site occupies all parcels of the study area south of Liberty Avenue.

Parcels zoned for manufacturing uses occupy a majority of the site and study area. The M1-4 zoning district contains many of the properties in the western portion of the industrial park. In acting as a buffer between more intense industrial areas and residential and commercial zoning districts this light-manufacturing district requires uses adhere to strict performance standards. In addition, certain community facilities and retail, commercial and recreational uses are permitted in the M1-4 district. Maximum floor area ratios (FAR) of 2.0 for industrial and commercial uses and 6.50 for community facilities are permitted in the zoning district.

Similarly, the M1-1 zoning district that contains a small area along the eastern edge of Sheffield Avenue is a light-manufacturing district used to buffer more intense industrial zoning districts from neighboring residential and commercial areas similar to the R5 district fronting Granville Payne (Pennsylvania) Avenue. Certain retail, commercial, community facility and recreational uses are permitted in the district. M1-1 zoning districts have a maximum permitted FAR of 1.0 for manufacturing uses and 2.40 for community facilities. Off-street parking requirements vary depending on land use contained on the parcel.

As seen in Figure 4-8, seven blocks generally located between Sheffield and Alabama Avenues, north of Pitkin Avenue are zoned M3-2. This heavy manufacturing district permits more noxious industrial uses that are required to conform to minimal performance standards. A maximum FAR of 2.0 is permitted in the M3-2 district.

Residential zoning districts contain properties fronting Granville Payne (Pennsylvania) Avenue in the eastern portion of the truck generator site and study area. The R5 and R6 zoning districts are general residence districts that permit all types of residential uses and community facilities. The R5 zoning district is intended to function as a transition area between low- and high-density neighborhoods. A maximum FAR of 1.25 and lot coverage of 55% are permitted in the R5 zoning district. The R5 district requires one off-street parking space per dwelling unit or one space per 85% of the apartments if the structure contains multiple units. The R6 zoning district primarily contains medium density housing that ranges from three to twelve stories. The R6 zoning district permits a maximum FAR of 0.78 to 2.43. Larger FAR values are applied when new buildings provide more open space.



Legend

- Truck Generator Site
- Study Area Site
- Through Truck Routes
- Local Truck Routes
- Critical Intersection

Figure 4-17
Site Map
East New York - Brooklyn

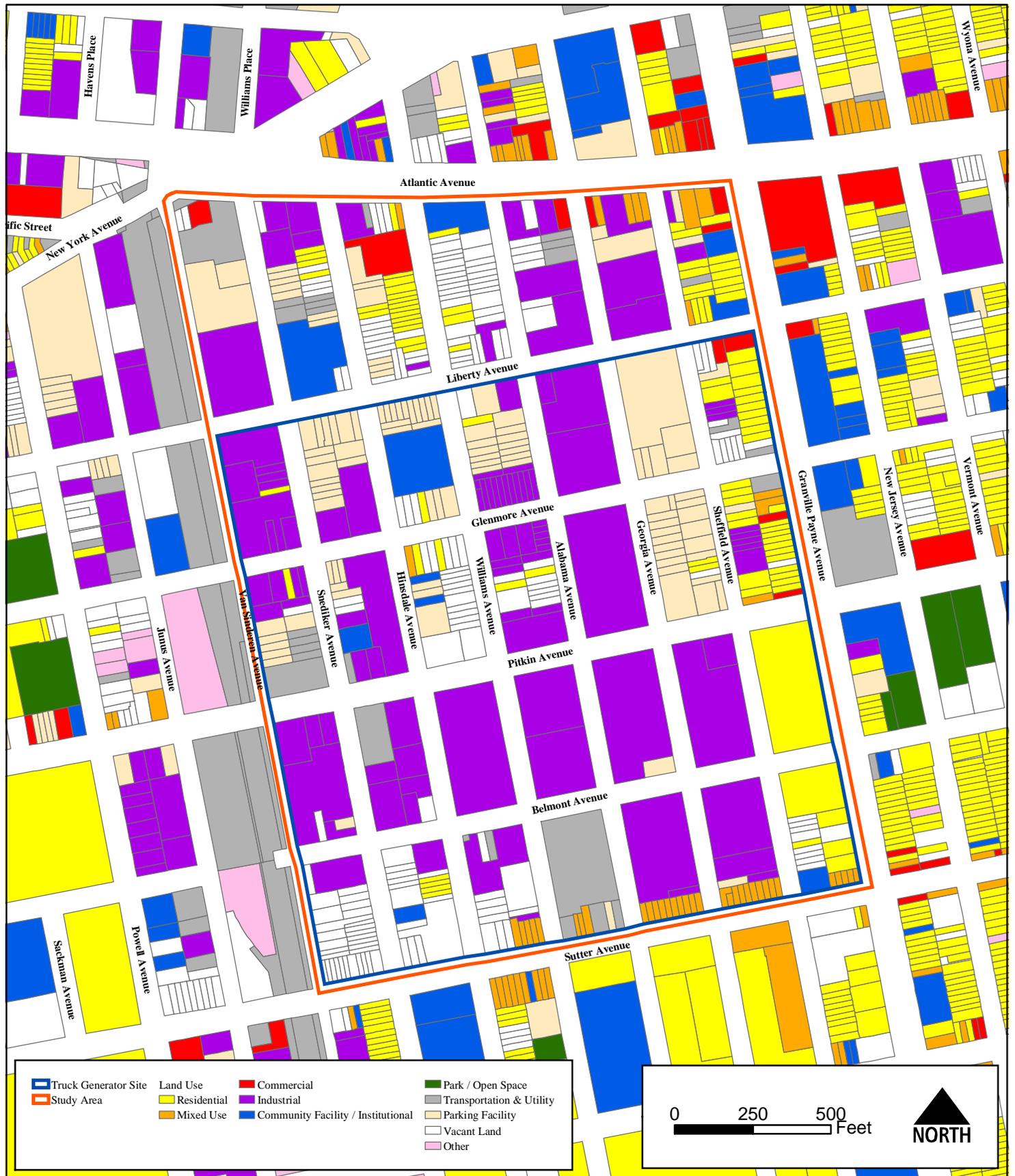


Figure 4-18
Land Use
East New York - Brooklyn

NYC Truck Route Management and Community Impact Reduction Study



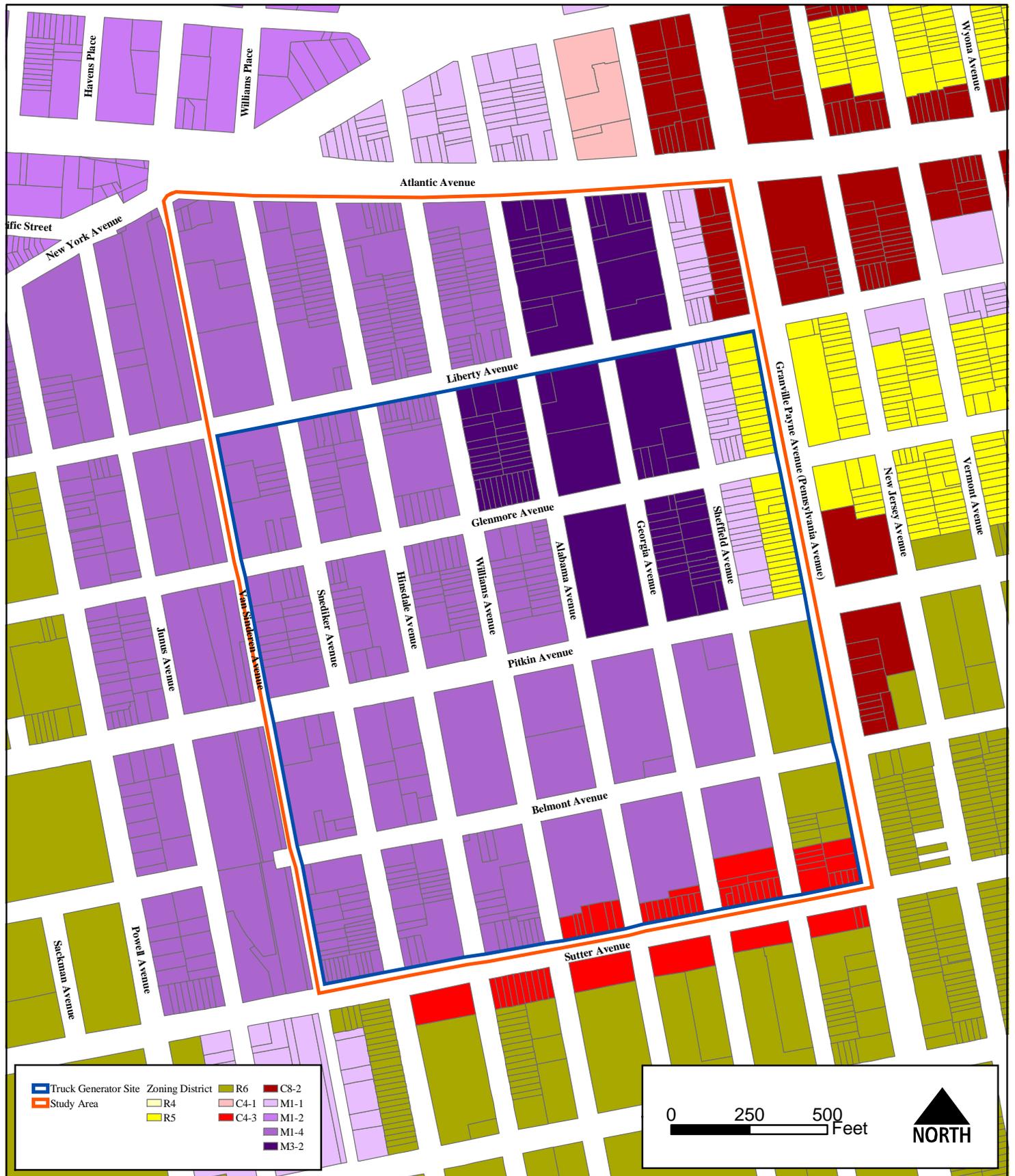


Figure 4-19
Zoning
East New York - Brooklyn

In addition to a small number of parcels zoned C8-2 front Granville Payne (Pennsylvania) Avenue in the northeastern portion of the truck route site and study area, a C4-3 zoning district extends into the southern portion of the area along the northern edge on Sutter Avenue. The C8-2 district is a general service zone that is appropriate for heavy uses and functions as a bridge between commercial and manufacturing uses. No new residential uses are permitted in the zone. The C8-2 zoning district has a maximum permitted FAR of 2.0 for commercial uses and 4.8 for community facilities. The C4-3 zoning district is a general commercial district permitting retail and office uses in densely developed areas. Residential uses and community facilities are also permitted in the C4-3 district. This district has a maximum permitted FAR of 3.4 for commercial uses and 0.78 to 2.43 for residential uses. Off-street parking requirements for the C8-2 and C4-3 zoning districts vary based on land use.

Community Facilities

The **TLC Sculpture Park Garden**, located on Glenmore Avenue between Hinsdale Street and Williams Avenue, is a .172-acre garden under NYC Department of Parks and Recreation jurisdiction. This park is not located on a NYC truck route.

The **William H. Maxwell Vocational School**, located at 145 Pennsylvania Avenue, accommodates approximately 1,528 students in grades 8 through 12. This school is under the jurisdiction of the New York City Department of Education and fronts on a NYC Local Truck Route along Granville Payne Avenue.

A **US Post Office** is located on the northeast corner of Atlantic Avenue and Granville Payne Avenue. The post office is located at the intersection of a local (Granville Payne Avenue) and a through (Atlantic Avenue) NYC truck route.

The **Arnold and Marie Schwartz Community Center** is located on the northeast corner of Granville Payne and Liberty Avenues. Granville Payne Avenue is a local NYC truck route.

The **East New York Diagnostic and Treatment Center** is located on the southeast corner of Granville Payne and Pitkin Avenues.

The **EMS Pennsylvania Station Battalion #39** is located on Granville Payne Avenue just north of Belmont Avenue.

Access to Truck Routes from Site/Study Area

The East New York study area is directly accessible to two designated truck routes: Atlantic Avenue, which is a regional Through Truck Route, and Pennsylvania Avenue, which is a Local Truck Route. As noted earlier, the East New York study area is bounded by Atlantic Avenue to the north and Pennsylvania Avenue to the east. Atlantic Avenue is the only regional Through Truck Route within the vicinity of the East New York study area. There are several Local Truck Routes that are accessible from the East New York study area beyond the study area boundaries. North of Atlantic Avenue, Pennsylvania Avenue is named Granville Payne Avenue and Granville Payne Avenue intersects with Broadway, which is another Local Truck Route. South of the study area, Pennsylvania Avenue intersects with Linden Boulevard (State Route 27), a major roadway that is a designated Local Truck Route.

Critical Intersections

There are four intersections within the East New York study area that have been identified as critical intersections. These intersections include:

- Pennsylvania Avenue at Sutter Avenue
- Pennsylvania Avenue at Atlantic Avenue
- Pennsylvania Avenue at Liberty Avenue
- Pennsylvania Avenue at Linden Boulevard

Three of the four intersections are located on the eastern boundary of the East New York study area. The fourth intersection, Pennsylvania Avenue at Linden Boulevard, was chosen because it is an intersection of two Local Truck Routes with high traffic volumes. Truckers accessing East New York from origins south of the study area pass through the intersection of Pennsylvania Avenue and Linden Avenue. The intersection of Pennsylvania Avenue and Atlantic Avenue is at the northeast corner of the study area and is the access point to a regional Through Truck Route from East New York. Liberty Avenue and Sutter Avenue are two additional east-west roadways that intersect Pennsylvania Avenue and have direct access to truck generating sites within the East New York study area.

Traffic Operations

Traffic counts were conducted at the four critical intersections within the East New York study area on Tuesday, June 29, 2004, with the exception of Pennsylvania Avenue at Linden Boulevard, which was counted on Thursday, November 21, 2002. The traffic counts were conducted to determine the amount of heavy vehicle traffic at the intersection and to conduct an operations analysis of the intersection. The morning hours were determined to be the time of day where the most significant amount of truck traffic was likely to occur. A map of the AM peak hour truck traffic at four key intersections within the East New York study area can be found in Figure 4-20.

The truck traffic counts, conducted at the four critical intersections, indicate that Pennsylvania Avenue is being utilized by truckers traversing through the East New York study area and that there is a significant amount of truck traffic at the intersection of Pennsylvania Avenue and Linden Boulevard, two designated Local Truck Routes. The truck traffic volumes also indicate that there is minimal truck traffic accessing the East New York truck generator sites at Sutter Avenue and at Liberty Avenue. Although not destined to East New York, there is a considerable amount of trucks accessing Granville Payne Avenue from Atlantic Avenue eastbound.

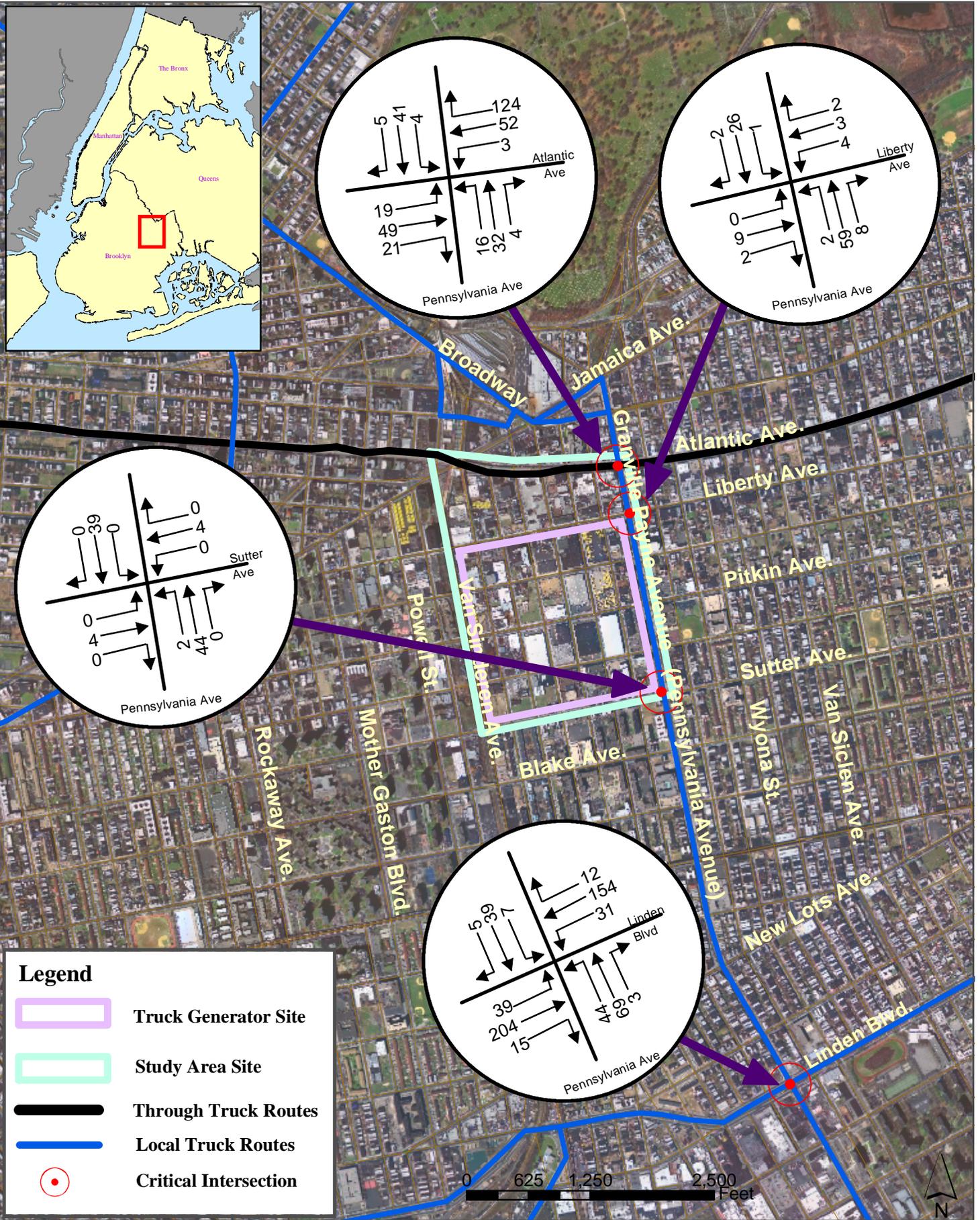


Figure 4-20
AM Peak Hour Truck Traffic Counts
East New York - Brooklyn

The results of the Level of Service (LOS) analysis for the four key intersections within the East New York study area are shown in Table 4-3. A description of the LOS analyses and the movement of truck traffic at each intersection are discussed below:

Table 4-3: Intersection Operational Levels of Service 2004 Existing Conditions East New York – Brooklyn

Intersection	Approach	Lane Group	AM Peak Hour	
			Delay	LOS
Pennsylvania Ave. at Sutter Avenue	EB	LTR	33.5	C
	WB	LTR	35.5	D
	NB	LTR	12.6	B
	SB	LTR	11.8	B
	Intersection		15.2	B
Pennsylvania Ave. at Atlantic Avenue	EB	L	43.9	D
	EB	TR	50.2	D
	EB	R	24.1	C
	WB	LTR	63.1	D
	NB	L	78.5	E
	NB	TR	49.5	D
	SB	L	36.7	D
	SB	TR	63.3	E
	SB	R	27.4	C
Intersection		55.5	E	
Pennsylvania Ave. at Liberty Avenue	EB	LTR	35.2	D
	WB	LTR	40.5	D
	NB	L	13.7	B
	NB	TR	15.1	B
	SB	LTR	11.8	B
	Intersection		17.6	B
Pennsylvania Ave. at Linden Boulevard	EB	L	88.1	F
	EB	TR	54.2	D
	WB	L	60.4	E
	WB	TR	58.3	E
	NB	L	92.0	F
	NB	T	53.4	D
	NB	R	30.3	C
	SB	L	45.3	D
	SB	TR	63.6	E
	Intersection		59.9	E

Pennsylvania Avenue at Sutter Avenue

The intersection of Pennsylvania Avenue and Sutter Avenue is a two-phase signalized intersection. Pennsylvania Avenue is a two-lane (left-through, through-right) approach in each direction while Sutter Avenue is a one-lane approach in each direction. The turning movement counts that were conducted at the intersection indicate that the morning peak hour of traffic is from 9:15 AM to 10:15 AM.

There was a minimal amount of truck traffic counted at the intersection. 8% of the through traffic along Sutter Avenue eastbound is trucks, which is the highest percentage for each approach at the intersection. 5% of the vehicles passing through the intersection on Pennsylvania Avenue are trucks. 4% of the vehicles making a left-turn from Pennsylvania Avenue northbound to Sutter Avenue westbound are trucks.



Queuing of traffic on Pennsylvania Avenue northbound approaching Sutter Avenue

The operations analysis for the intersection of Pennsylvania Avenue and Sutter Avenue indicates that the intersection operates at LOS B. Both of the Pennsylvania Avenue approaches operate at LOS B, which indicates that truckers passing through the intersection on Pennsylvania Avenue do not experience any significant delays during the morning peak hour. The Sutter Avenue westbound approach operates at LOS D, as a result of the decreased amount of green time as opposed to Pennsylvania Avenue. However, the turning movement counts suggest there is minimal truck activity along Sutter Avenue westbound.

Pennsylvania Avenue at Atlantic Avenue

The intersection of Pennsylvania Avenue and Atlantic Avenue is a signalized intersection with extra green time for the left-turn approaches at Pennsylvania Avenue northbound and southbound and for the eastbound approach of Atlantic Avenue. Pennsylvania Avenue is a three-lane approach (left, through, through-right) in both the northbound and southbound directions while Atlantic Avenue is a three-lane approach (left-through, through, through-right) in the westbound direction and a four-lane approach (left, left, through, through-right) in the eastbound direction.



Truck turning onto Pennsylvania Avenue southbound from Atlantic Avenue eastbound

The turning movement counts conducted at the intersection indicates that the morning peak hour of traffic is between 8:30 AM and 9:30 AM. There is a significant amount of traffic at the intersection during the AM peak hour, and since Atlantic Avenue is a designated Through Truck Route and Pennsylvania Avenue is a designated Local Truck Route, there are a large number of trucks

passing through the intersection. Between 10 and 25% of the turning movements from Atlantic Avenue to Pennsylvania Avenue are trucks. 11% of the right-turn movements from Pennsylvania Avenue northbound to Atlantic Avenue eastbound are trucks. Atlantic Avenue is the designated Through Truck Route in the area and trucks originating from and destined to the East New York area from Atlantic Avenue are accessing the truck generator sites from Pennsylvania Avenue.

The operations analysis for the intersection of Pennsylvania Avenue and Atlantic Avenue indicates that the intersection operates at LOS E. There are significant delays at all four approaches. The most significant delays occur at the westbound and southbound approaches. The Atlantic Avenue westbound approach contains the highest traffic volume of all four approaches, yet, has the shortest green time. The Atlantic Avenue eastbound thru traffic also experience significant delays. Therefore, truckers passing through the intersection on Atlantic Avenue experience over two minutes of delays at both approaches. At the Pennsylvania Avenue northbound approach, truckers making the left turn to Atlantic Avenue westbound experience long delays as the result of the high volume of traffic making the left-turn. In summary, the intersection is above capacity at all four approaches and truckers accessing the East New York truck generator sites from this intersection will experience long delays.

Pennsylvania Avenue at Liberty Avenue

The intersection of Pennsylvania Avenue and Liberty Avenue is a signalized intersection that is located at the northeast corner of the designated East New York truck generator site. Liberty



Backup of traffic along Liberty Avenue approaching East Brooklyn Industrial Park

Avenue is a one-lane approach in both the eastbound and westbound approaches, while Pennsylvania Avenue is a two-lane approach in the northbound direction and a three-lane approach, which includes a left-turn lane, in the southbound direction. The turning movement counts conducted at the intersection indicates that the morning peak hour of traffic is between 8:30 AM and 9:30 AM.

There is a high volume of traffic along Pennsylvania Avenue at the intersection but a minimal amount of traffic volumes at the Liberty Avenue approaches. The truck percentages at each approach indicate that 21% of the right-turn movements from Pennsylvania Avenue

northbound to Liberty Avenue eastbound are trucks, while 11% of the left-turn movements from Liberty Avenue westbound to Pennsylvania Avenue southbound are trucks. This is the most significant truck movement within the intersection. 14% of the vehicles at the Liberty Avenue eastbound approach are trucks, which indicate that truckers are using Liberty Avenue to depart the East New York study area.

The operations analysis of the intersection indicates that the intersection operates at LOS B. The eastbound and westbound approaches operate at LOS D, so there is some delay at the Liberty Avenue approaches. Since there is significantly more traffic along Pennsylvania Avenue, there is more green time for the northbound and southbound approaches. However, the operations analysis suggests that there is minimal delay for truckers traversing through this intersection.

Pennsylvania Avenue at Linden Boulevard

The intersection of Pennsylvania Avenue and Linden Boulevard is a signalized intersection that is located to the south of the East New York truck generator site. Linden Boulevard is a major roadway through this intersection. The local and mainline traffic are divided at both approaches. Local thru and right-turns use the local approach to the intersection while left-turn and mainline thru traffic use a four-lane approach to the intersection. Pennsylvania Avenue is a four-lane approach (left, through, through, right) in the northbound direction and a three-lane approach (left, through, through-right) in the southbound direction. The traffic signal at the intersection is timed for extra green time for the left-turn movements from all four approaches.

The turning movement counts conducted at the intersection indicates that the morning peak hour of traffic is from 8:15 AM to 9:15 AM. During the morning peak hour, there is a substantial amount of traffic at this intersection. There were almost 2,200 vehicles passing through the intersection along Linden Boulevard westbound, including over 200 trucks. Over 150 trucks passed through the intersection on Linden Boulevard eastbound, as well. At the Linden Boulevard eastbound approach, 20% of the vehicles making the left turn onto Pennsylvania Avenue northbound are trucks while 19% of the vehicles passing through the intersection on Linden Boulevard are trucks. Since both Linden Boulevard and Pennsylvania Avenue are designated Local Truck Routes, the large percentage of trucks is expected. 28% of the left-turn movements from Linden Boulevard westbound to Pennsylvania Avenue southbound are trucks. Along Pennsylvania Avenue, over 12% of the left-turn movements in both directions are trucks and over 7% of the through movements are trucks. Truckers originating from and destined to the East New York truck generator sites would be passing through the intersection along Pennsylvania Avenue to access Linden Boulevard.



Truck making right-turn from Pennsylvania Avenue southbound to Linden Blvd. westbound

The operations analysis of the intersection indicates that the intersection is operating at LOS E, with significant delays at the Linden Boulevard westbound and Pennsylvania Avenue northbound approaches. The green time for each approach is distributed evenly throughout the intersection. However, the substantial amount of vehicles passing through the intersection at all four approaches creates a large queuing of traffic. The operations analyses suggest that there is a queuing of traffic at the left-turn approach from Pennsylvania Avenue northbound to Linden Boulevard westbound. There are also lengthy delays for truckers making the left-turn from Linden Boulevard eastbound to Pennsylvania Avenue northbound. Therefore, truckers along Linden Boulevard eastbound destined to the East New York truck generator sites from Pennsylvania Avenue are experiencing some delay at the intersection. There is a backup of traffic at the Linden Boulevard westbound approach, mainly the result of the 2,200 vehicles passing through the intersection. Therefore, truckers along Linden Boulevard westbound are experiencing the same delays as the eastbound truckers, if they are trying to access East New York.

Roadway Network Capacity/Geometrics

The designated truck route roads approaching the site are sufficiently wide to accommodate truck traffic. Van Sinderen Avenue is a narrow street one-way southbound roadway, on the western border of the area that blocks most of the east-west streets and limits access to the area from the west. Trucks most frequently access the area from Pennsylvania Avenue.

Pitkin Avenue and Sutter Avenue are the only two-way streets in the area and carry most of the truck traffic. Field observations noted that trucks were observed parking on Pitkin Avenue between Snediker Avenue and Van Sinderen Avenue. A number of trucks were observed at two gated sites located across from each other on Pitkin Avenue. Truck route signs were not posted along any of the designated truck routes.

Accidents

A map of the truck-related accident locations, within and around the East New York study area, is shown in Figure 4-21. In the area around the East New York site, truck accidents occurred at 30 locations during the two-month study period. Thirteen of these accident locations occurred on a designated truck route, while seventeen occurred off-route. Accidents were recorded at two critical intersections: the intersection of Pennsylvania Avenue and Atlantic Avenue and the intersection of Pennsylvania Avenue and Linden Boulevard. These are intersections with high traffic volumes. The locations that experienced greater numbers of truck accidents were on designated truck routes. The highest number of truck accidents occurred on Atlantic Avenue, which is a regional Through Truck Route.

Accident data was accumulated for a three-year period, between 1999 and 2001, to determine the amount of truck-related accidents within the City of New York and rank the top 115 locations within the City based on the total amount of truck related accidents. Two of the four critical intersections that were identified within the East New York study area are ranked in the top 115 locations. Between 1999 and 2001, the intersection of Pennsylvania Avenue and Linden Boulevard ranked #22 in the amount of truck related accidents, per location, in the City of New York with 17 truck-related accidents. Furthermore, between 1999 and 2001, the intersection of Pennsylvania Avenue and Atlantic Avenue ranked #75 in the number of truck related accidents, per location, in the City of New York with 11 reported truck-related accidents.

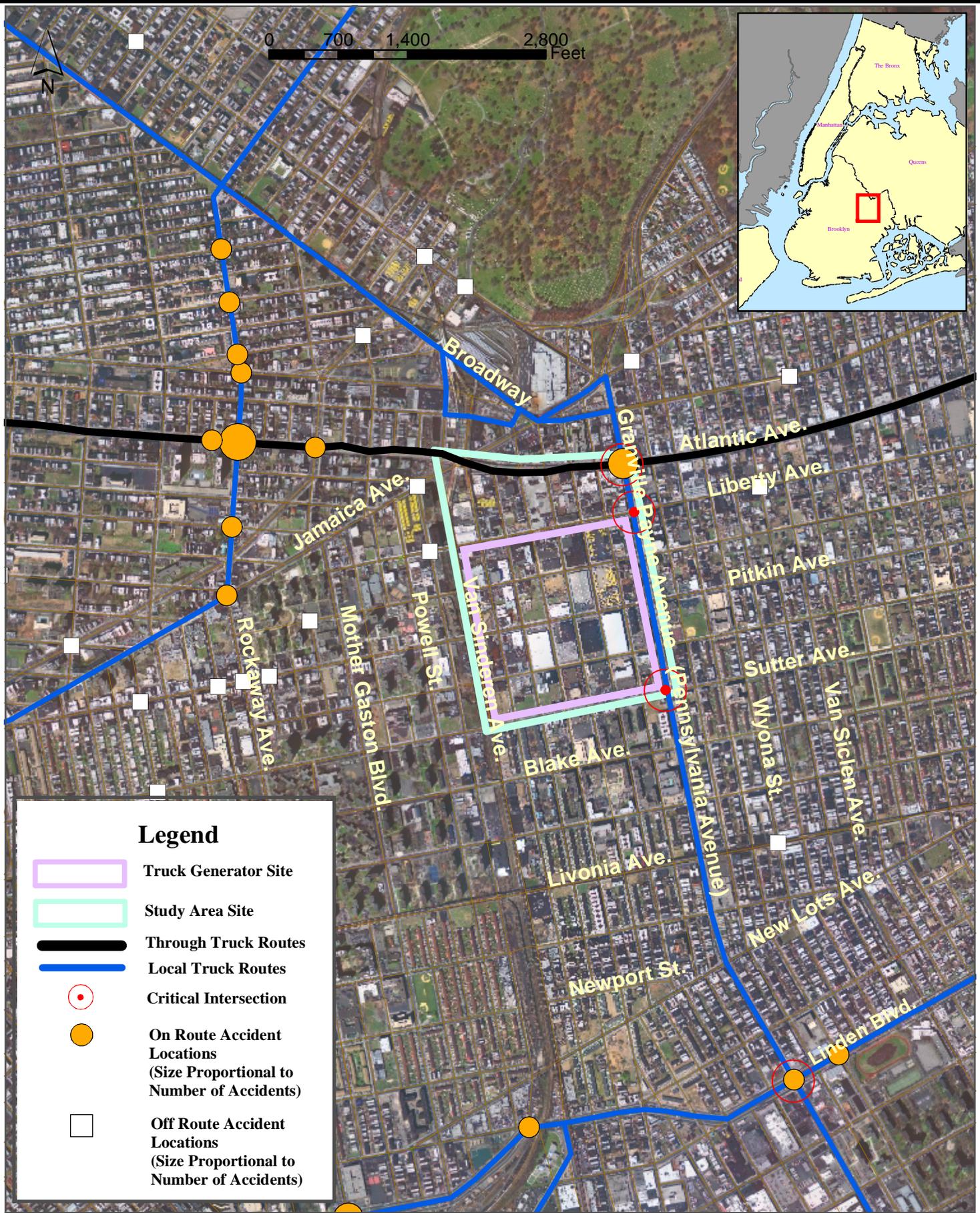


Figure 4-21
Truck Accidents
East New York - Brooklyn

Recommendations for East New York

There currently exists a minimal amount of truck route designation signs within the East New York study area. Field observations noted that the only truck route designation signage exists on Linden Boulevard eastbound at Pennsylvania Avenue and Pennsylvania Avenue southbound at Atlantic Avenue. Truck route designation signage should be placed at all four approaches of the noted two intersections. Two signs indicating truck route designation should be placed at each approach; one sign before the intersection and one sign beyond the intersection. The signage should also indicate Local Truck Route or Through Truck Route, which in the case of Pennsylvania Avenue and Linden Boulevard should indicate Through Truck Route while Local Truck Route designation should be indicated for Atlantic Avenue.

Pitkin Avenue should be designated as the primary access street from Pennsylvania Avenue to the East New York Industrial Complex. Pitkin Avenue is a two-way roadway with a signalized intersection at Pennsylvania Avenue. Truck route designation signage should be placed at the Pitkin Avenue eastbound approach as well as both Pennsylvania Avenue approaches. Curb parking along Pitkin Avenue should also be prohibited during weekday daytime hours to allow enhanced mobility for truckers using Pitkin Avenue to industrial sites within the East New York complex.

2. East Williamsburg

Land Use

The East Williamsburg study area is bounded by Grand Street to the north, Flushing Avenue to the south, and Scott Avenue to the east, and Bushwick Avenue to the west (see Figure 4-22). The study area is representative of two neighborhoods. The western portion of the study area encompasses part of the East Williamsburg residential neighborhood while the eastern portion is part of the East Williamsburg Industrial Park. Metropolitan and Flushing Avenues and Grand Street are designated Local Truck Routes. There are no designated truck routes within the study area boundaries.

The truck generator site is a facility operated by Waste Management of New York, Inc. The site is bound by Grand Street to the north, Johnson Avenue to the south, Varick Avenue to the east and Morgan Avenue to the west. The English Kills bisects the site. There are single story buildings on the site in addition to the truck loading and parking areas.

East of the truck generator site, the study area is comprised of industrial uses. There is a mix of single-story buildings and multi-level loft buildings that are used for light manufacturing. Many of the warehouses and buildings are used for food processing, printing, distribution and warehousing, wood-related manufacturing, and garment production.

West of the truck generator site, industrial uses are prevalent with various residential, commercial, and institutional uses sprinkled throughout. The residential uses are primarily two-story connected row homes, or apartments. Many of the commercial uses are located in the ground floor of mixed-use buildings, which have residential units occupying the second and third floors. In the northwest corner, fronting on Grand Street and extending south along Bushwick Avenue, is an educational campus, which consists of three separate schools and various athletic facilities.

South of the truck generator site, the industrial pattern continues, however, there is a greater number of mixed-use, residential, and commercial uses. The residential uses include low-rise apartment buildings, and single- and multi-family homes. The commercial uses include newsstands, restaurants, and a hotel. Fronting on Flushing Avenue, there are a few two- to four-story mixed-use buildings with locally oriented retail uses in the ground floor and residential uses occupying the higher floors. There is a large public housing complex and a library in the southwest corner of the study area. Additionally, scattered throughout the southwest section of the study area are two schools, small parks, and religious facilities.

A map of the land uses within and surrounding the East Williamsburg study area can be found in Figure 4-23.

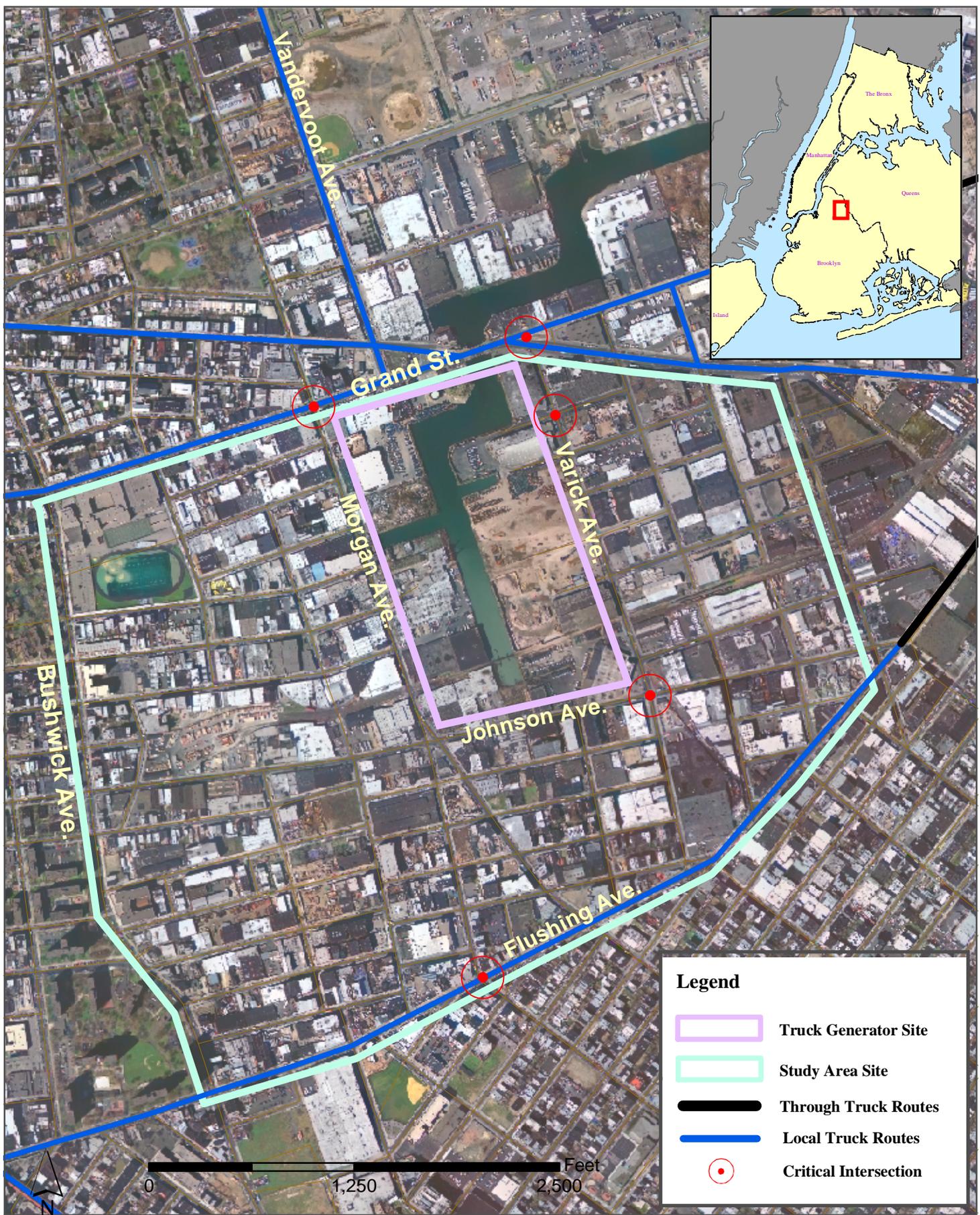


Figure 4-22
Site Map
East Williamsburg - Brooklyn

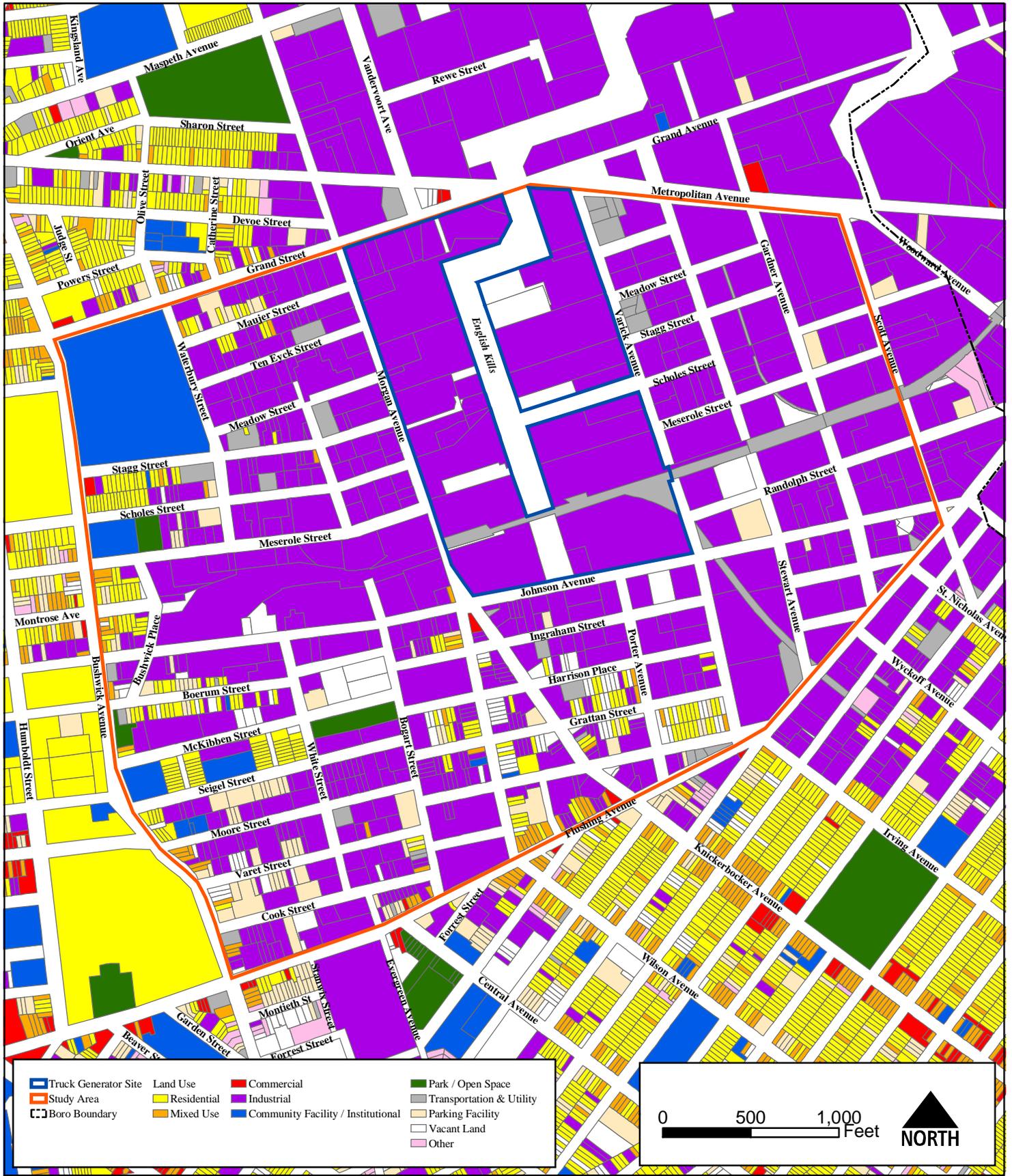


Figure 4-23
Land Use
East Williamsburg - Brooklyn

NYC Truck Route Management and Community Impact Reduction Study



Zoning

As shown in Figure 4-24, the East Williamsburg study area contains parcels that are zoned for residential and manufacturing uses. Bound by Grand Street and Metropolitan Avenue to the north, Flushing Avenue to the south, Scott Avenue to the east and Bushwick Avenue to the west, the parcels are contained within the R6, M1-1, M1-2 and M3-1 zoning districts. In addition, the Grand Street, Metropolitan Avenue and Flushing Avenue corridors that represent the northern and southern boundaries of the study area are designated truck routes and provide truck access to this portion of East Williamsburg.

The northeastern portion of the study area, including the truck generator site, which is bound, by Grand Street to the north, Johnson Avenue to the south, Varick Avenue to the east and Morgan Avenue to the west is contained within the M3-1 zoning district. This district permits heavy industrial uses, which are not expected to conform to strict performance standards and are usually buffered from residential areas. These uses include but are not limited to dumps and marine waste transfer stations for garbage and slag such as the facility operated by Waste Management of New York, Inc. This facility occupies a majority of the parcels east of English Kills Channel, which traverses the truck generator site. A floor area ratio (FAR) of 2.0 is the maximum permitted in the M3-1 district.

The southern and western portions of the study area are zoned for light manufacturing uses in the M1-1 and M1-2 zoning districts. These districts which require uses to adhere to high performance standards function as a buffer between more intense industrial uses and adjacent residential and commercial areas including the R6 and C8-2 zoning districts that line Grand Street, as well as Bushwick and Flushing Avenues. In addition to the manufacturing uses permitted in these districts, certain retail, commercial, community facility and recreational uses are permitted in M1-1 and M1-2 districts. These zoning districts vary in that M1-1 districts have a maximum permitted floor area ratio (FAR) of 1.0 as compared to a maximum FAR of 2.0 permitted in the M1-2 district. Off-street parking requirements vary depending on land use contained on the parcel in each district.

Extending into the western portion of the study area, a R6 zoning district fronts Bushwick Avenue. The general residence district permits medium density housing that typically ranges from three to twelve stories. The R6 zoning district permits a maximum FAR of 0.78 to 2.43. Larger FAR values are applied when new buildings provide more open space.

Community Facilities

Grand Street High Schools, all located at 850 Grand Street and run by the NYC Board of Education, consist of Progress High School, the High School of Legal Studies, and the High School of Enterprise and Technology. Progress High School has 601 students, the High School of Legal Studies has 574 students and the High School of Enterprise and Technology has 560 students. These schools front on Grand Street, which is a NYC Local Truck Route.

P.S. 196, Ten Eyck School and Playground, a k-6 school is located at 207 Bushwick Avenue, between Scholes and Meserole Streets. Currently, the school has 693 students in grades k-6. The Playground is located east of P.S. 196, between Meserole and Scholes Streets. The New York City Department of Parks and Recreation playground is 0.972 acres. The school and playground are not located on a NYC truck route.

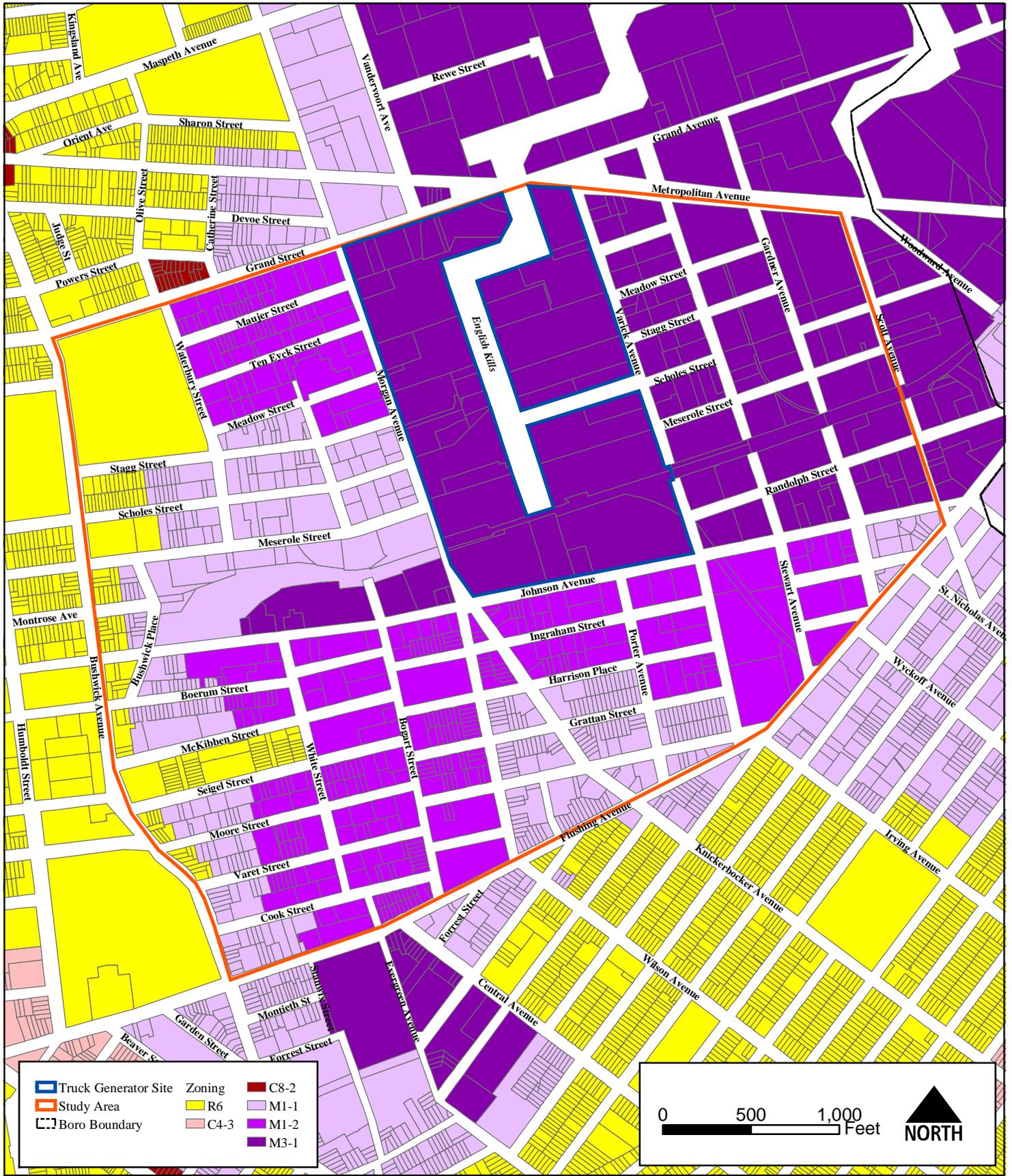


Figure 4-24
Zoning
East Williamsburg - Brooklyn

NYC Truck Route Management and Community Impact Reduction Study



P.S. 147, Issac Remsen Elementary (grades k-6) is located at 325 Bushwick Avenue. Current enrollment is approximately 588 students. The school does not front on a NYC truck route.

The **McKibbin and White Playground** is bound by McKibbin, White, Bogart and Seigal Streets. This 1.046-acre park is under the jurisdiction of the New York City Department of Parks and Recreation. The park does not front on a NYC truck route.

The **Justice Gilbert Ramirez Park**, consisting of 1.034 acres, is bound by White, McKibbin and Bogart Streets. This park, under NYC Department of Parks and Recreation jurisdiction, does not front on a NYC truck route.

FDNY Engine Company 237 is located on Morgan Street between Thames and Grattan Streets. This facility does not front on a NYC truck route.

Access to Truck Routes from Site/Study Area

The East Williamsburg truck generator site is located at a point where three Local Truck Routes converge: Grand Street, Metropolitan Avenue, and Vandervoort Avenue. (Grand Street also becomes a Through Truck Route in Queens.) The truck generator site has two direct access points to this convergence, at Morgan Avenue and at Varick Avenue. The southern boundary of the East Williamsburg study area is Flushing Avenue, which is also a designated Local Truck Route in Brooklyn and becomes a regional Through Truck Route in Queens. Flushing Avenue is the only Through Truck Route in the vicinity of the East Williamsburg study area.

Critical Intersections

There are five intersections within the East Williamsburg study area that have been identified as critical intersections. The five intersections include:

- Varick Avenue at Metropolitan Avenue/Grand Street
- Varick Avenue at Waste Management of New York, Inc. gate near Ten Eyck
- Varick Avenue at Johnson Avenue
- Morgan Avenue at Grand Street
- Morgan Avenue at Flushing Avenue

Two of the five intersections are located at Grand Street, which directly links the East Williamsburg truck generator site to a Local Truck Route. Therefore, high percentages of truck traffic are expected. Metropolitan Avenue, another designated Local Truck Route, also intersects at Grand Street and Varick Avenue. Three of the intersections are located at Varick Avenue. Though not a designated truck route, Varick Avenue comprises the eastern boundary of the East Williamsburg truck generator site and runs between Metropolitan Avenue and Flushing Avenue, two Local Truck Routes. Therefore, significant truck traffic is expected along Varick Avenue. Johnson Avenue intersects Varick Avenue at the southeast corner of the East Williamsburg truck generator site. The intersection of Flushing Avenue and Morgan Avenue is not within the East Williamsburg truck generator site. However, Morgan Avenue runs between Flushing Avenue and Grand Street and comprises the western boundary of the truck generator site. Therefore, truckers are expected to use Morgan Avenue, from Flushing Avenue, as a means of accessing the East Williamsburg truck generator site and accessing Grand Street and points north of the site.

Traffic Operations

Traffic counts were conducted at the five key intersections within the East Williamsburg study area on the following dates:

- Morgan Avenue at Grand Street – Wednesday, June 12, 2002
- Varick Avenue at Waste Management Gate near Ten Eyck – Thursday, June 25, 2004
- Morgan Avenue at Flushing Avenue – Tuesday, June 29, 2004
- Varick Avenue at Metropolitan Avenue/Grand Avenue – Tuesday, June 29, 2004
- Varick Avenue at Johnson Avenue – Tuesday, June 29, 2004

The traffic counts were conducted to determine the amount of heavy vehicle traffic at the intersection and to conduct an operations analysis of the intersection. The morning hours were determined to be the time of day where the most significant amount of truck traffic was likely to occur. A map of the AM peak hour truck traffic at the five critical intersections within the East Williamsburg study area can be found in Figure 4-25.

The truck traffic counts indicate that truckers are using local roadways, to access East Williamsburg, that are not designated truck routes, including Morgan Avenue, Varick Avenue, and Johnson Avenue. The counts indicate that truckers exit the Waste Management of New York, Inc. facility at Varick Avenue, travel southbound to Johnson Avenue, then westbound to Morgan Avenue before turning north to access Grand Street. The counts also indicate that Varick Avenue is the prime roadway for truckers accessing the East Williamsburg truck generator site from Flushing Avenue.

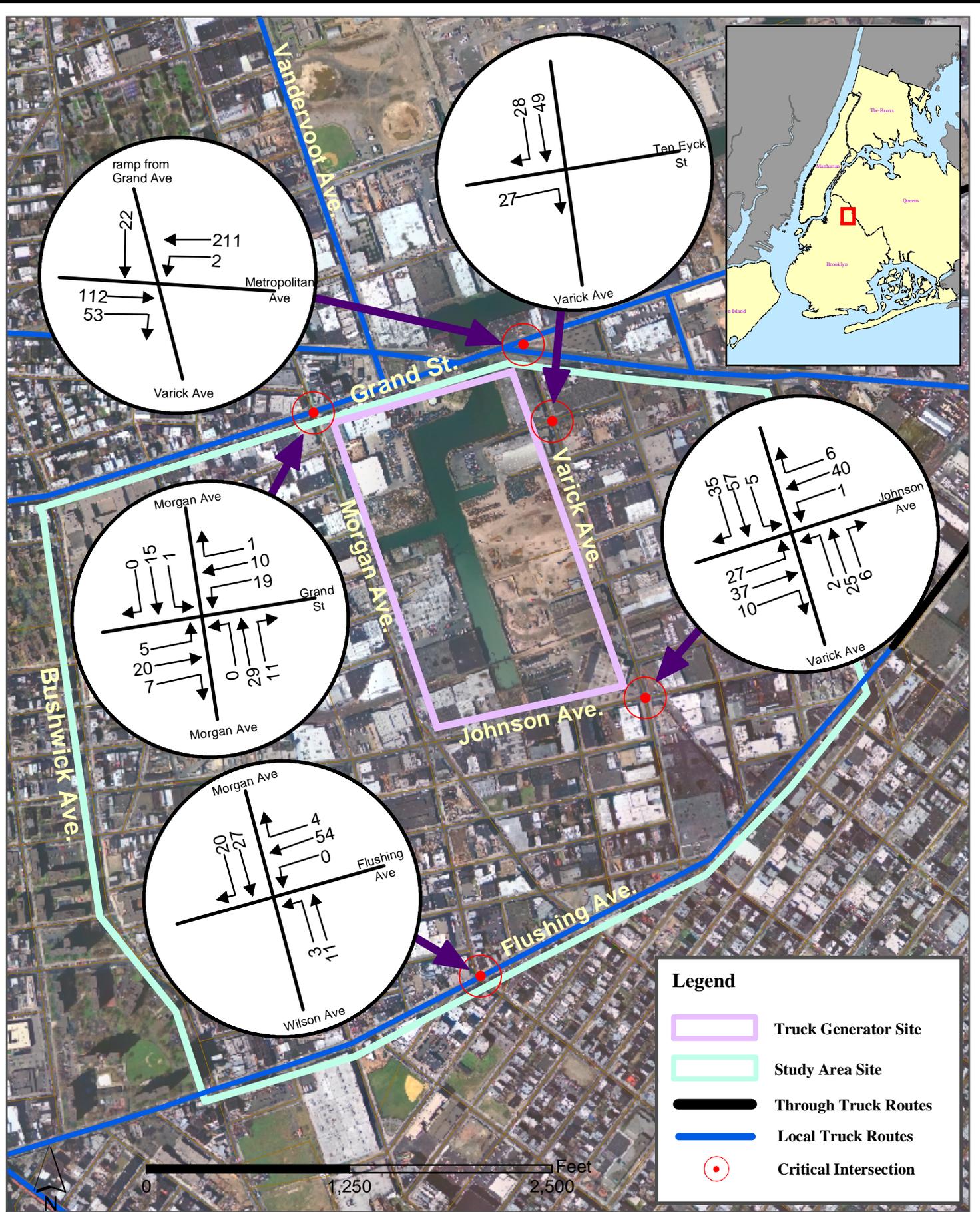


Figure 4-25
AM Peak Hour Truck Traffic Counts
East Williamsburg - Brooklyn

The results of the Level of Service (LOS) analysis for the five critical intersections within the East Williamsburg study area are shown in Table 4-4. A description of the LOS analyses and the movement of truck traffic at each intersection are discussed below:

**Table 4-4: Intersection Operational Levels of Service 2004
 Existing Conditions East Williamsburg - Brooklyn**

Intersection	Approach	Lane Group	AM Peak Hour	
			Delay	LOS
Varick Avenue at Metropolitan Ave./Grand Street	EB	LTR	11.6	B
	WB	L	10.1	B
	SB	R	33.5	D
	Intersection		-	-
Varick Avenue at Waste Management Gate/Ten Eyck St.	EB	R	13.1	B
	SB	TR	-	-
	Intersection		-	-
Varick Avenue at Johnson Avenue	EB	LTR	17.0	B
	WB	LTR	17.5	B
	NB	LTR	21.2	C
	SB	LTR	26.7	C
	Intersection		19.6	B
Morgan Avenue at Grand Street	EB	LTR	16.6	B
	WB	LTR	21.2	C
	NB	LTR	40.4	D
	SB	LTR	32.8	C
	Intersection		26.1	C
Morgan Avenue at Flushing Avenue	WB	LTR	31.4	C
	NB	LT	10.6	B
	SB	TR	10.8	B
	Intersection		20.3	C

Varick Avenue at Metropolitan Avenue/Grand Street

The intersection of Varick Avenue and Metropolitan Avenue is an unsignalized intersection that is located near the intersection of Metropolitan Avenue and Grand Street. The intersection of Varick Avenue and Metropolitan Street is a T-intersection. However, a ramp from Grand Street to Metropolitan Street is located across from the T-intersection. Traffic accessing Varick Avenue from Grand Street westbound use this ramp. Varick Avenue is a one-way facility in the southbound direction at this location.

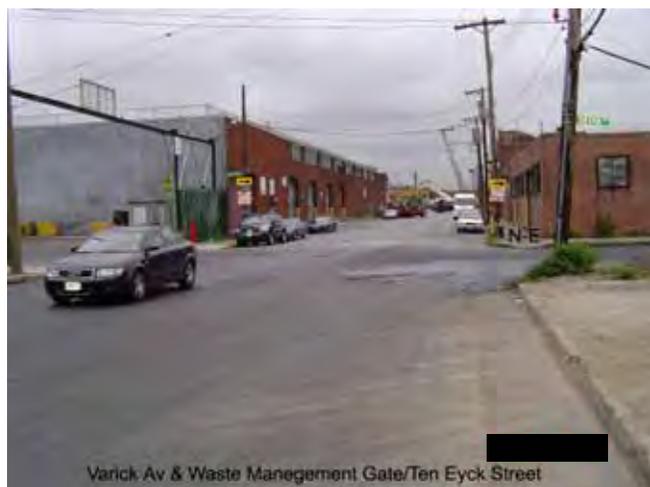


Metropolitan Avenue and Varick Avenue looking west

The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic at the intersection is from 8:15 AM to 9:15 AM. There is a high level of traffic volumes along Metropolitan Avenue, particularly in the westbound direction, where traffic volumes of 1,000 vehicles have been counted. Over twenty percent of the vehicles passing through the intersection on Grand Street are trucks. Although there were very few left-turn movements from Metropolitan Avenue westbound to Varick Avenue, forty percent of those movements were trucks. Over thirty percent of the vehicles coming off the Grand Street ramp to access Varick Avenue were trucks. Thus, a large number of truckers that are destined to the East Williamsburg truck generator sites are accessing Varick Avenue at this intersection.

The intersection of Varick Avenue and Metropolitan Avenue is operating at LOS D. The Varick Avenue eastbound and westbound approaches operate at LOS B, while the ramp off of Grand Street to Varick Avenue operates at LOS D. Therefore, truckers coming off Grand Street to access Varick Avenue experience some delay as the result of the high volumes of traffic on Metropolitan Avenue.

Varick Avenue at Waste Management of New York Gate/Ten Eyck Street



Varick Av & Waste Management Gate/Ten Eyck Street
Varick Avenue at Waste Management of New York, Inc. facility looking north

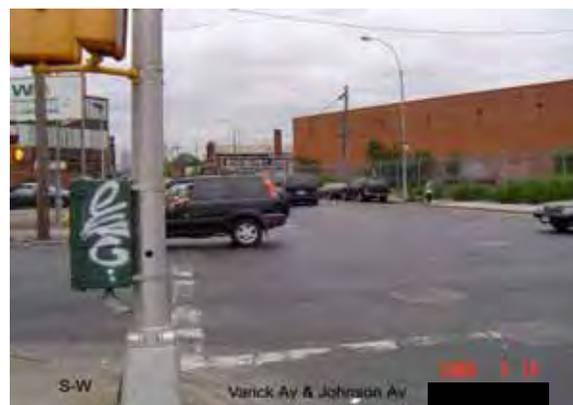
The intersection of Varick Avenue at Waste Management of New York Gate/Ten Eyck Street is an unsignalized intersection. Varick Avenue is a one-way facility at the southbound approach and a two-way facility south of the intersection. The Ten Eyck Street westbound approach is parallel to the entrance/exit of the Waste Management of New York facility. Ten Eyck Street and the entrance/exit of the Waste Management of New York facility are stop-controlled.

The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic is from 8:15 AM to 9:15 AM. All of the traffic entering and exiting the waste management facility are trucks.

Sixteen percent of the traffic passing through the intersection is trucks. The operations analysis of the intersection indicates that the intersection is operating at LOS B. There is minimal delay for truckers exiting the waste management facility and truckers entering the facility experience minimal difficulty.

Varick Avenue at Johnson Avenue

The intersection of Varick Avenue and Johnson Avenue is a signalized intersection with a one-lane approach in each direction. The intersection is located at the southeast corner of the East Williamsburg truck generator site. The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic is from 7:45 AM to 8:45 AM.



Varick Avenue and Johnson Avenue looking north

There is a significant amount of truck traffic at the intersection despite neither roadway being designated as a truck route. Over 40% of the traffic passing through the intersection on Varick Avenue is trucks. Over 20% of the traffic turning onto Johnson Avenue from Varick Avenue is trucks. At the Johnson Avenue approaches, over 30% of the traffic turning onto Varick Avenue are trucks. Therefore, both roadways are being used by truckers to navigate to and from the Waste Management of New York facility and other truck generator sites within the study area.

The operations analysis of the intersection indicates that the intersection is operating at LOS B. There are minimal delays at all four approaches. Therefore, truckers passing through the intersection do not experience a backup of traffic at the intersection. The Varick Avenue approaches experience a small increase in delay as opposed to Johnson Avenue because Johnson Avenue has fourteen more seconds of green time than Varick Avenue. Johnson Avenue has a higher volume of traffic than Varick Avenue so the signal timing at the intersection is adequate.

Morgan Avenue at Grand Street

The intersection of Morgan Avenue and Grand Street is a signalized intersection with a one-lane approach in each direction. The intersection is located at the northwest corner of the East Williamsburg truck generator site. The turning movement counts conducted at the intersection



Truck making left-turn from Grand Avenue eastbound to Morgan Avenue southbound

indicate that the morning peak hour of traffic is from 7:30 AM to 8:30 AM. The turning movements also indicate that 10 percent of the traffic passing through the intersection on Morgan Avenue northbound is trucks as are 7% of the traffic southbound. . 22% of the right-turn movements from Morgan Street northbound to Grand Street eastbound are trucks. Therefore, truckers are using this intersection to access Grand Street from the Waste Management of New York facility and other truck generators. 18% of the right-turn movements from Grand Street eastbound to Morgan Avenue southbound are trucks, while 14% of the left-turn movements from Grand Street westbound to Morgan Avenue southbound are trucks. Truckers are also utilizing Morgan Avenue from

Grand Street to access the waste management facility.

The operations analysis of the intersection indicates the intersection is operating at LOS C. The only notable delay at the intersection is at the Morgan Avenue northbound approach, which is operating at LOS D. Therefore, truckers who are accessing Grand Street from Morgan Avenue are experiencing delays at the intersection. There is significantly more green time for the Grand Street approaches as opposed to the Morgan Avenue approaches. However, there is also a higher amount of traffic volume along Grand Street. Truckers accessing Morgan Avenue from Grand Street are experiencing minimal delay at the intersection.

Morgan Avenue at Flushing Avenue

The intersection of Morgan Avenue and Flushing Avenue is a signalized intersection. Flushing Avenue is a two-way facility at the westbound approach but becomes a one-way facility west of the intersection. There is no eastbound approach at the intersection. The southbound approach is Morgan Avenue and the northbound approach is Wilson Avenue. All three approaches have one-lane. The turning movement counts indicate that the morning peak hour of traffic is from 7:00 AM to 8:00 AM.

Flushing Avenue is a designated Local Truck Route. Seventeen percent of the traffic passing through the intersection on Flushing Avenue is trucks. Over fifty percent of the right-turn movements from Wilson Avenue northbound to Flushing Avenue eastbound are trucks, so Flushing Avenue is used to access Flushing Avenue from origins south of the East Williamsburg study area. Seventeen percent of the northbound traffic passing thru the intersection on Morgan Avenue is trucks. Over eight percent of the southbound traffic at the intersection is trucks.

The operations analysis of the intersection indicates that the intersection is operating at LOS C. The northbound and southbound approaches are operating at LOS B, while the westbound approach operates at LOS C, as the result of an increase in traffic volumes. Truckers passing through the intersection or using the intersection to access Morgan Avenue and the East Williamsburg truck generator sites are experiencing minimal delays.

Roadway Network Capacity/Geometrics/Other Observations

The designated truck routes adjacent to the East Williamsburg truck generator site are wide enough to carry truck traffic. The narrow two-lane bridge, on Metropolitan Avenue that crosses the Newtown Creek, also serves the area traffic. The gate to the Waste Management facility is located at the Varick Avenue and Ten Eyck intersection. Varick Avenue is a one-way southbound roadway. Trucks destined to the Waste Management facility must circle around to Varick Avenue, Johnson Avenue and Morgan Avenue to return to Grand Avenue. Morgan Avenue is not designated as a truck route. No vehicle height restrictions were posted in the area. Truck route signs were not posted along any of the designated truck routes.

Accidents

A map of the truck-related accident locations, within and around the East Williamsburg study area, is shown in Figure 4-26. Accidents were recorded at two identified critical intersections: the intersection of Grand Street and Morgan Avenue and the intersection of Flushing Avenue and Morgan Avenue. Both these locations experienced a small number of truck accidents. Accidents were recorded at ten locations within the East Williamsburg study area that were not on a designated truck route. The intersection of Grand Street and Vandervoort Avenue experienced the highest number of accidents of all accident locations recorded within and surrounding the East Williamsburg study area.

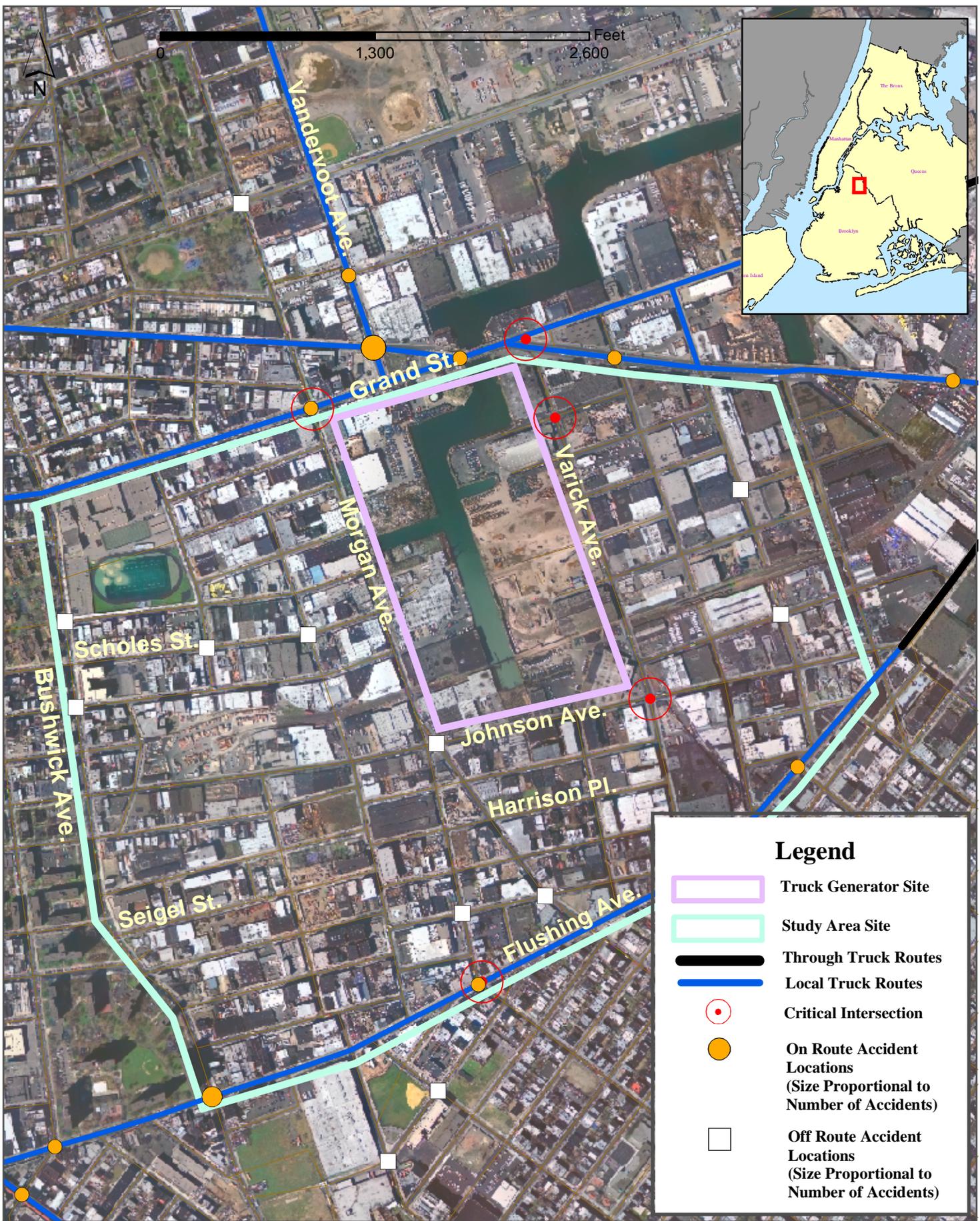


Figure 4-26
Truck Accidents
East Williamsburg - Brooklyn

Recommendations for East Williamsburg

Additional truck route designation signs should be placed along designated truck routes within the East Williamsburg study area, including Grand Avenue, Metropolitan Avenue, Vandervoort Avenue and Flushing Avenue. Truck route designation should be placed at the following intersections, with two signs depicting truck route designation at each approach:

- Grand Avenue at Metropolitan Avenue
- Grand Avenue at Varick Avenue
- Grand Avenue at Vandervoort Avenue
- Flushing Avenue at Varick Avenue

An additional recommendation to improve vehicle circulation and reduce illegal truck traffic on surrounding streets in the area is to designate portions of Morgan Avenue and/or Varick Avenue as additions to the Local Truck Route in the East Williamsburg Area. There are limited opportunities to travel north-south through this area. Varick Avenue is a one-way southbound roadway between Metropolitan Avenue and Ten Eyck Street and then two-way south of this point. Morgan Avenue runs two-way until Johnson Avenue, where Morgan Avenue continues southbound, and Knickerbocker Avenue serves as the northbound roadway. Community comments have indicated that there are public safety concerns along Morgan Avenue, as well as some residential land uses toward Myrtle Avenue.

In addition, it is recommended that the Department continue to work with the Department of Sanitation and the local Industrial Development Corporation on improving truck access in the area

3. Sunset Park

Land Use

The Bush Terminal study area stretches along 4th Avenue and Upper New York Bay from 39th Street to 63rd Street. The study area encompasses the industrial facilities along 1st and 2nd Avenues as well as the residential and commercial areas along 3rd and 4th Avenues (see Figure 4-27). Designated Local Truck Routes within the study area are 39th and 43rd Streets and 1st and 3rd Avenues. The Gowanus Expressway is a designated Through Truck Route.

The truck generator site is the Bush Terminal, which is located on 1st Avenue and extends from 39th Street to 51st Street. The Bush Terminal is comprised of an integrated system of piers, rail links, warehouses and a series of six- to eight-story light industrial buildings. Included in the Bush Terminal is the New York Cross Harbor Railroad complex, which contains a rail yard, an active rail network, and three six-story warehouses.

South of the Bush Terminal, warehouses and industrial land uses continue south along First Avenue. The industrial land pattern is briefly interrupted by a medical center, which occupies the entire block bounded by 55th Street to the north, 56th Street to the south, First Avenue to the west, and Second Avenue to the east.

East of the Bush Terminal, along 2nd Avenue, the study area is comprised mainly of light industrial buildings used for shipping and receiving, automobile repair, food distribution, and storage. Continuing further east, along the northern edge of 3rd Avenue, residential uses are prevalent with various industrial uses and vacant lots scattered throughout this section of the study area. Many of the buildings in this area are two to three stories and have commercial uses in the ground floors with residential units on the higher floors. South of 52nd Street, the residential pattern becomes more pronounced and primarily consists of three-story connected row homes or apartment buildings, and continues west towards Fourth Avenue.

The Gowanus Expressway, elevated over Third Avenue, serves as the general boundary between the industrial uses to the west and the residential uses to the east. With the exception of a few auto-related uses on the southern edge of Third Avenue, the land uses are primarily residential or mixed-use with locally oriented retail occupying the ground floor and residential units occupying the remaining floors. Additionally, interspersed with the residential uses between Third and Fourth Avenues are religious organizations, schools, and outpatient medical facilities.

A map of the land uses within and surrounding the Sunset Park study area can be found in Figure 4-28.

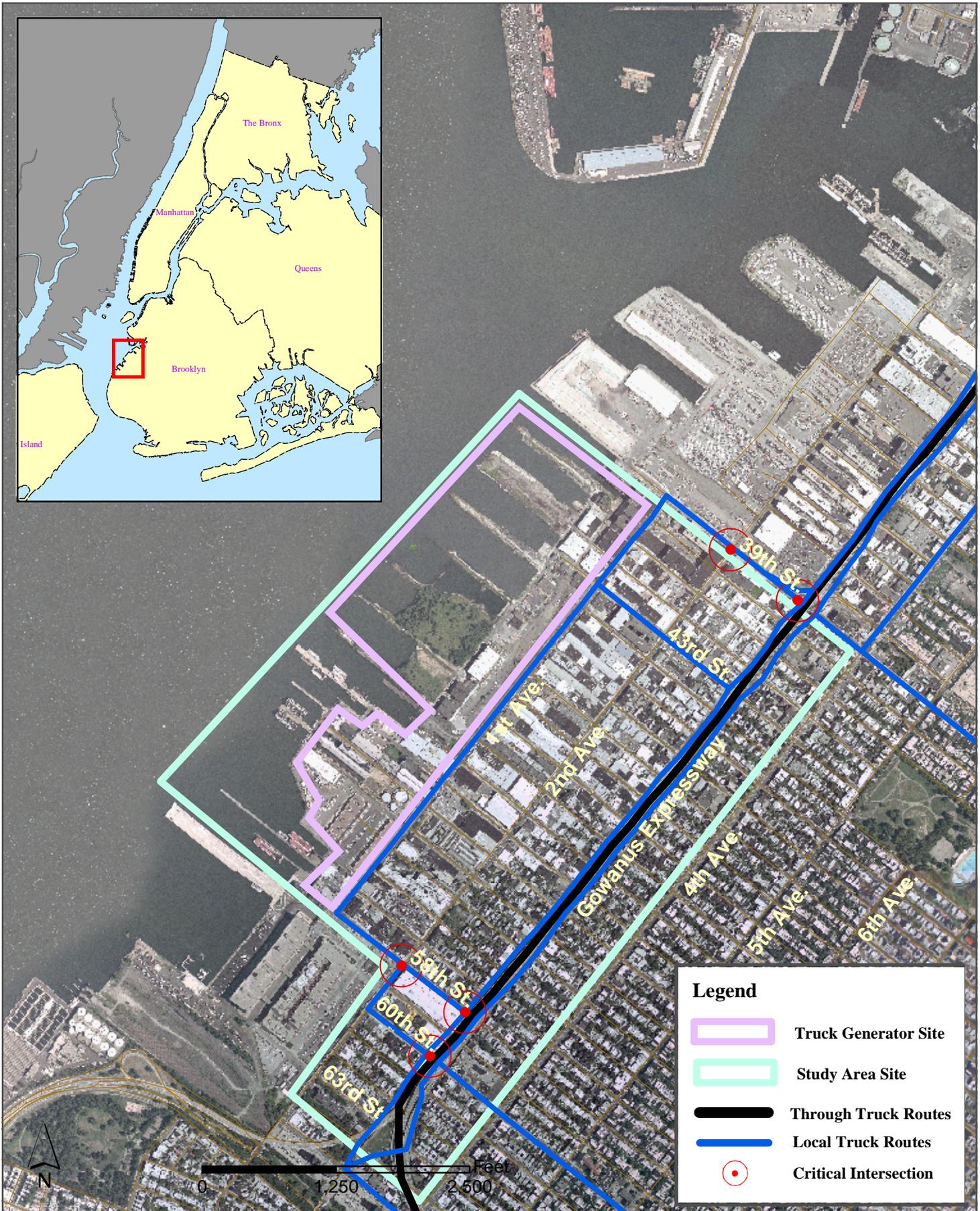
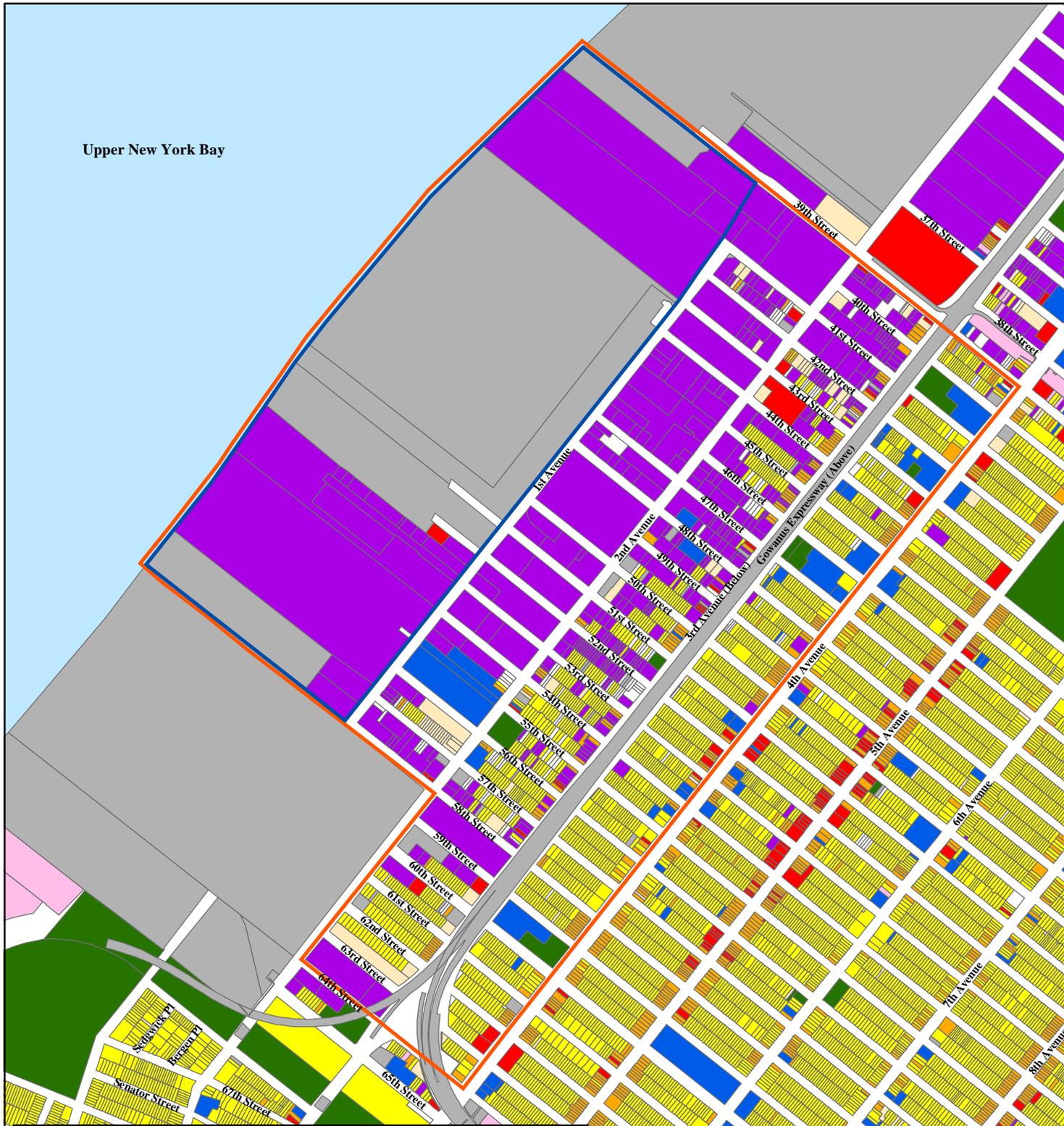


Figure 4-27
Site Map
Sunset Park - Brooklyn



Truck Generator Site	Land Use	Commercial	Park / Open Space
Study Area	Residential	Industrial	Transportation & Utility
	Commercial	Community Facility / Institutional	Parking Facility
			Vacant Land
			Other

0 500 1,000 Feet

NORTH

Figure 4-28
Land Use
SunsetPark (Bush Terminal) - Brooklyn

Zoning

The Sunset Park study area generally extends southeast from Upper New York Bay to 4th Avenue, between 39th and 64th Streets. As seen in Figure 4-29, residential and manufacturing zoning districts, including R6, R6A, R6B, M1-2, M1-2D, M2-1 and M3-1 zones regulate land use in the study area. Numerous designated truck routes traverse and provide access to the area, including 1st and 3rd Avenues, 39th, 43rd, 58th and 60th Streets and the Gowanus Expressway.

Manufacturing zoning districts contain a majority of the parcels in the western portion of the study area. Containing most of the Bush Terminal which represents the truck generator site in the Sunset Park neighborhood and extending southeast to 2nd Avenue, the M3-1, heavy manufacturing zoning district permits manufacturing uses, as well as certain retail and commercial uses. This district is typically located near the waterfront and buffered from residential areas. A floor area ratio (FAR) of 2.0 is the maximum permitted in the M3-1 district. A small portion of the truck generator site is located in the M2-1 zoning district. Generally applied to older industrial areas, the M2-1 district has a maximum permitted FAR of 2.0 and requires off-street parking. The medium manufacturing district permits uses that require performance standards that are less strict than M1 zones. In addition to manufacturing uses, the M2-1 zoning district allows retail, commercial and certain recreational uses.

Located between 2nd and 3rd Avenues, M1-2 and M1-2D zoning districts function as buffers between the residential uses southeast of 3rd Avenue and more intense manufacturing uses to the northwest. Both M1-2 and M1-2D districts are light manufacturing districts that require uses to adhere to strict performance standards established in the *New York City Zoning Ordinance*. Although residential development is prohibited within the M1-2 zoning district, dwelling units are permitted in the M1-2D district, pursuant to discretionary approval by the City Planning Commission. Maximum floor area ratios of 2.0 for industrial uses and 4.8 for community facilities are permitted in both zoning districts. A FAR of 1.65 is the maximum permitted in the M1-2D district. The number of off-street parking spaces required in the M1-2 zoning district depends on land use. There is no parking requirement in the M1-2D district.

Residential zoning districts regulate property in the eastern portion of the study area. The R6, general residence district contains a majority of the parcels southeast of 3rd Avenue. The district primarily contains medium density residential uses that range between three and twelve stories. A maximum FAR of 0.78 to 2.43 is permitted in the R6 district. The larger FAR values may be applied when more open space is provided. R6A and R6B zoning districts are similar to R6 districts. The only difference is that the R6A and R6B districts permit greater lot coverage. While the R6B zoning district has a maximum permitted FAR of 2.0, the R6A district permits a FAR of 3.0. Each district requires one off-street parking space per dwelling unit or one space per 50% of the apartments.

Community Facility

The **Martin Luther Playground** is a small park located at 56th Street and 2nd Avenue and contains playgrounds, trees, and benches. This park does not front on a local or through NYC truck route.

The **Lutheran Medical Center** is located on the south side of 55th Street between 1st and 2nd Avenues. This facility has a 476-bed capacity and employs 2,744 people, including 600 physicians and dentists. Services offered include a pediatric unit, a center for behavioral health, a surgery unit, a cardio-pulmonary unit, an obstetrics/gynecology unit, a patient care center and a research laboratory. The Lutheran Medical Center is classified as a Level 1 Trauma Center for local emergencies. The center fronts a NYC Local Truck Route along 1st Avenue.

The **Augustana Lutheran Home**, which is affiliated with the Lutheran Medical Center, is located at on the north side of 55th Street between 1st and 2nd Avenues. The 240 bed nursing facility provides long term and rehabilitative care with a staff of approximately 200 people. The Home is connected to Lutheran Medical Center by an enclosed bridge on the third floor to provide residents with safe and convenient access to the Medical Center for acute and emergency care. This facility is located just east of the truck route along 1st Avenue.

JHS 136th Playground and Playground 340, 1.236 acres, are under the jurisdiction of the New York City Department of Parks and Recreation. These parks are located on 3rd Avenue between 40th and 41st Streets. Playground 340 fronts on the NYC truck route located on 3rd Avenue. The 39th Street truck route is located one block north of these playgrounds.

The **P.S. 1 Playground**, also known as Penna Harrera Park, is located on 3rd Avenue between 46th and 47th Street. This 1.552-acre park is operated by the NYC Department of Parks and Recreation. This park fronts the NYC Truck Route located on 3rd Avenue.

P.S. 1, Bergen School, operated by the New York City Board of Education, is bound by 46th and 47th Streets and 3rd and 4th Avenues. This school accommodates grades K through 5 and has a current enrollment of approximately 1,032 students. This school does not front on a NYC truck route; however, the 3rd Avenue truck route is located approximately one half block to the west.

M.S. 136, Charles O. Dewey School, operated by the New York City Board of Education is located on Fourth Avenue between 40th and 41st Streets. The school accommodates grades 6 through 8 and has a current enrollment of approximately 620 students. This school does not front on a NYC truck route, but is located just west of the 3rd Avenue truck route and one block south of the 39th Street truck route.

The **Sunset Park School of Music** is located on 4th Avenue between 45th and 46th Streets. The School of Music is not located on or adjacent to a NYC truck route.

The **Ambulatory Surgery Center** is located on 3rd Avenue between 44th and 45th Street. This facility is under the jurisdiction of the New York State Department of Health and provides outpatient ambulatory care. This facility fronts on the 3rd Avenue NYC truck route.

St. Michaels School is located on Fourth Avenue between 42nd and 43rd Streets. This private/parochial elementary school accommodates approximately 197 students in grades K-8. This school is not located on or adjacent to a NYC truck route.

Sunset Park Senior Citizens, Inc. is located on Fourth Avenue between 42nd and 43rd Streets. This facility, under the jurisdiction of the NYC Department for the Aging (NYCDA), provides housing for approximately 2,400 senior citizens. It is not located on or in close proximity to a NYC truck route.

The **Concerned Citizens of Sunset Park Headstart** Facility is located on Fourth Avenue between 42nd and 43rd Streets. This facility provides services for 3 and 4 year old children. It is not located on or in close proximity to a NYC truck route.

The **Fourth Avenue United Methodist Children's School and Day Care Center** is located on 4th Avenue between 46th and 47th Street. This facility is not located on or in close proximity to a NYC truck route.

P.S. 314, the Luis Munoz Marin School, is located on 59th Street between 3rd and 4th Avenues. This elementary school accommodates approximately 2,000 students in grades k-5. The school fronts a NYC truck route at both 3rd Avenue and 58th Street.

The **Bay Ridge Day Nursery**, a public group day care and headstart facility, is located on the southeast corner of 3rd Avenue and 44th Street. This facility, under NYC DOHMH jurisdiction, cares for approximately 90 children. The west side of the day nursery is located on 3rd Avenue, a NYC truck route.

Lifespire, Inc. is located on both the north and south side of 48th Street between 2nd and 3rd Avenues. These two facilities, operated by the NYS Office of Mental Retardation and Developmental Disabilities (OMRDD), have approximately 270 cases. The OMRDD provides access to services and opportunities for people with mental retardation and developmental disabilities and their families, offering individualized planning and services. These two facilities are not located on a NYC truck route, but are located one half block west of the 3rd Avenue truck route.

Access to Truck Routes from Site/Study Area

The Gowanus Expressway (I-278) passes through the Sunset Park study area and is a designated Through Truck Route. The Gowanus Expressway is a limited access, elevated highway that runs above 3rd Avenue. 3rd Avenue is a designated Local Truck Route and has direct access to the Sunset Park study area. Access points to and from the Gowanus Expressway are located along 3rd Avenue. Other Local Truck Routes within the Sunset Park study area include 1st Avenue, 39th Street, 58th Street, and 60th Street. Therefore, Sunset Park has sufficient access to the Local Truck Route network and access to a regional truck route from 3rd Avenue. However, there are limited options and access/egress ramps to the Gowanus expressway from the mainline streets in the area.

Critical Intersections

There are five intersections within the Sunset Park study area that have been identified as critical intersections. These intersections include:

- 2nd Avenue at 39th Street
- 2nd Avenue at 58th Street
- 3rd Avenue at 39th Street
- 3rd Avenue at 58th Street
- 3rd Avenue at 60th Street

Three of the identified intersections are located along 3rd Avenue, which is a designated Local Truck Route, as well as the primary roadway used to access the Gowanus Expressway. 39th Street, 58th Street, and 60th Street are designated Local Truck Routes that run perpendicular to 3rd Avenue and the Gowanus Expressway and are gateways into the Sunset Park study area. The two intersections along 2nd Avenue that were chosen are at the northern and southern ends of the study area and are considered access points into the truck generator site, as 2nd Avenue passes directly through the site.

Traffic Operations

Traffic counts were conducted at the five key intersections within the Sunset Park study area on the following dates:

- 2nd Avenue at 39th Street – Tuesday, April 20, 2002
- 2nd Avenue at 58th Street – Thursday, July 1, 2004
- 3rd Avenue at 39th Street – Tuesday, April 20, 2002
- 3rd Avenue at 58th Street – Thursday, July 1, 2004
- 3rd Avenue at 60th Street – Tuesday, April 20, 2002

The traffic counts were conducted to determine the amount of heavy vehicle traffic at the intersection and to conduct an operations analysis of the intersection. The morning hours were determined to be the time of day where the most significant amount of truck traffic was likely to occur. Maps of the AM peak hour truck traffic at the five critical intersections within the Sunset Park study area can be found in Figure 4-30 and Figure 4-31.

The truck traffic counts determined that 39th Street is the major roadway that truckers are using to access the truck generator site. The roadways that access the truck generator site near the southern end of the study area, such as 58th Street and 60th Street, do not carry as much truck traffic.

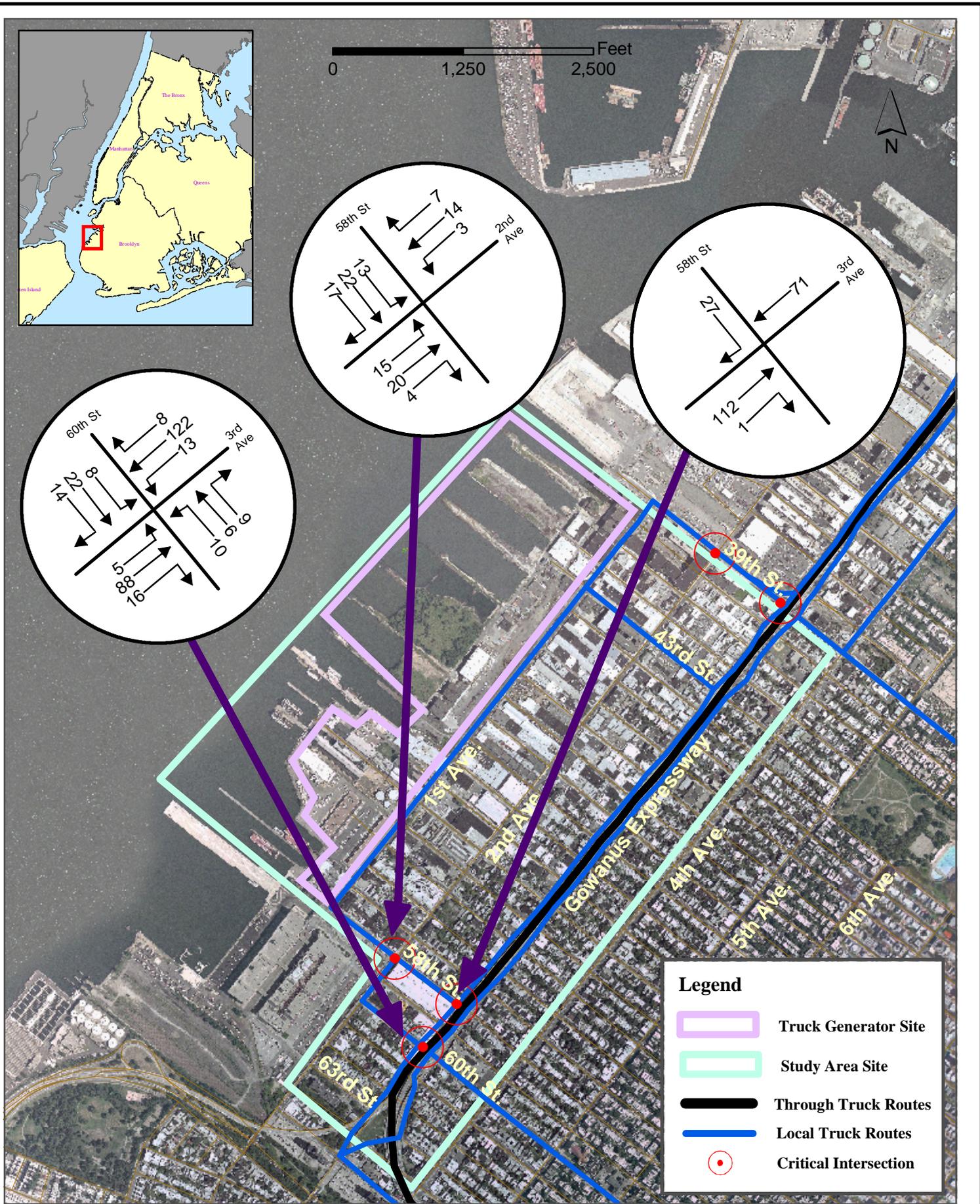


Figure 4-31
AM Peak Hour Truck Traffic Counts
Sunset Park - Brooklyn

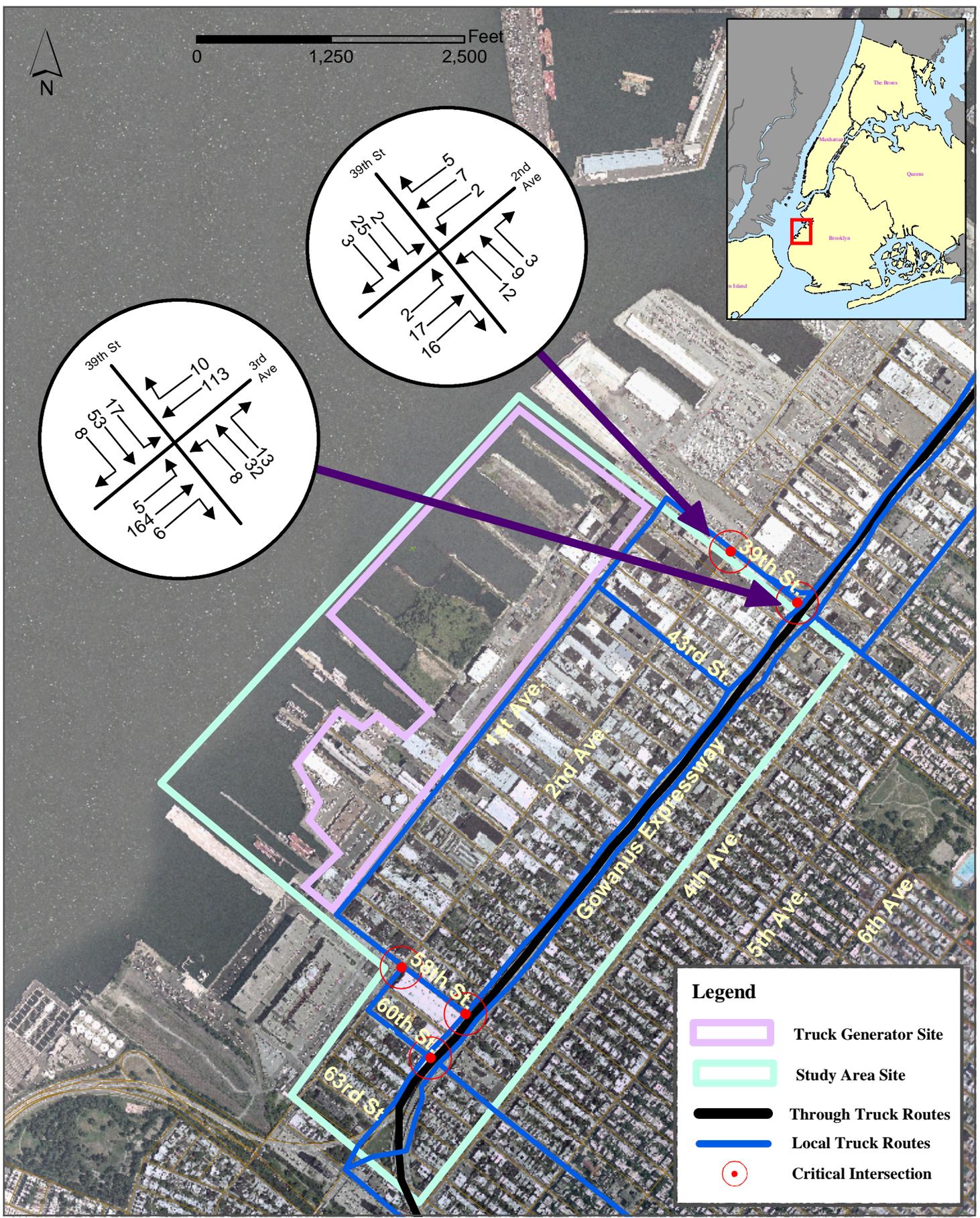


Figure 4-30
AM Peak Hour Truck Traffic Counts
Sunset Park - Brooklyn

The results of the Level of Service (LOS) analysis for the five critical intersections within the Sunset Park study area are shown in Table 4-5. A description of the LOS analyses and the movement of truck traffic at each intersection are discussed below:

Table 4-5: Intersection Operational Levels of Service 2004 Existing Conditions Sunset Park - Brooklyn

Intersection	Approach	Lane Group	AM Peak Hour	
			Delay	LOS
2 nd Avenue at 39 th Street	EB	LTR	40.5	D
	WB	LTR	44.7	D
	NB	LTR	42.2	D
	SB	LTR	33.6	C
	Intersection		41.2	D
2 nd Avenue at 58 th Street	EB	LTR	26.3	C
	NB	LTR	131.5	F
	SB	LTR	11.9	B
	Intersection		94.9	F
3 RD Avenue at 39 th Street	EB	LTR	218.2	F
	WB	LTR	74.6	E
	NB	LTR	17.1	B
	SB	LTR	8.4	A
	Intersection		39.8	D
3 rd Avenue at 58 th Street	EB	R	34.3	C
	NB	TR	12.1	B
	SB	T	9.9	A
	Intersection		12.8	A
3 rd Avenue at 60 th Street	EB	LTR	65.0	E
	WB	L	66.7	E
	WB	TR	37.9	D
	NB	L	81.4	F
	NB	TR	35.5	D
	SB	L	53.3	D
	SB	TR	19.4	B
	Intersection		37.3	D

2nd Avenue at 39th Street

The intersection of 2nd Avenue and 39th Street is a signalized intersection located on the north side of the Sunset Park study area. An exit ramp from the Gowanus Expressway (I-278) to 39th Street also terminates at the intersection, making the intersection a five-point intersection. The traffic signal at the intersection is a three-phase signal with one phase for the 39th Street approaches, one phase for the 2nd Avenue approaches, and one phase for the Gowanus Expressway exit ramp. The ramp is exit-only with no access to I-278. All five approaches are one-lane approaches.



Trucks turning onto 2nd Avenue southbound from 39th Street westbound

The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic is from 7:15 AM to 8:15 AM. Although there is a minimal amount of traffic at the intersection, a high percentage of the traffic is trucks. Almost 70% of the through traffic on 39th Street eastbound is truck traffic, which indicates that 39th Street is being used by truckers leaving the Sunset Park study area. 33% of the traffic making the right-turn from 39th Street eastbound to 2nd Avenue southbound are trucks, while 32% of the traffic making the left-turn from 39th Street westbound to 2nd Avenue southbound are trucks. Therefore, truckers are using 2nd Avenue for destinations within the Sunset Park study area. 21% of the traffic

passing through the intersection on 39th Street westbound is trucks. Along 2nd Avenue, 31% of the right-turn movements from 2nd Avenue northbound to 39th Street eastbound are trucks while 40% of the left-turn movements from 39th Street westbound to 2nd Avenue southbound are trucks.

The operations analysis of the intersection indicates the intersection of 2nd Avenue and 39th Street is operating at LOS D, primarily because of the three-phase signal for the exit ramp off of the Gowanus Expressway. Both 39th Street approaches operate at LOS D, while the 2nd Avenue northbound and southbound approaches operate at LOS C and D, respectively. Therefore, truckers passing through the intersection that are destined to or originating from the Sunset Park truck generator sites are experiencing some delay at the intersection.

2nd Avenue at 58th Street

The intersection of 2nd Avenue and 58th Street is a signalized intersection. 58th Street is a one-way facility in the eastbound direction at this location. All three approaches at the intersection are one-lane approaches.

The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic is from 7:30 AM to 8:30 AM. The highest volume of traffic at this intersection is at the 2nd Avenue northbound approach. Only 4% of the traffic passing through the intersection along 2nd Avenue southbound is truck traffic. 12% of the traffic passing through the intersection along 2nd Avenue northbound is truck traffic, which indicates that 2nd Avenue is being used by truckers to access Sunset Park from the south. 40% of the traffic passing through the intersection on 58th Street eastbound are trucks so a significant amount of truckers leaving Sunset Park are using 58th Street to access 3rd Avenue, the Gowanus Expressway, and points to the east of Sunset Park.

The operations analysis of the intersection indicates the intersection is operating at LOS F. The 2nd Avenue northbound approach is operating at LOS F, primarily as the result of the high volume of traffic (950 vehicles) at the approach. Furthermore, almost 40% of that traffic is making the left-turn onto 58th Street westbound. Therefore, truckers accessing Sunset Park from 2nd Avenue northbound are experiencing a substantial delay at this intersection. The 2nd Avenue southbound approach operates at LOS B, while the 58th Street eastbound approach operates at LOS C, so truckers do not experience as much delay at these two approaches.

3rd Avenue at 39th Street

The intersection of 3rd Avenue at 39th Street is a signalized intersection with a one-lane approach for the 39th Street eastbound and westbound approaches and three-lane approaches at the 3rd Avenue northbound and southbound approaches. There is a channelized right-turn lane at the 3rd Avenue southbound approach. The traffic signal at the intersection is a two-phase signal.

The turning movement counts conducted at the intersection indicate that the morning peak hour of traffic is between 7:15 AM and 8:15 AM. There is significantly more traffic along 3rd Avenue as opposed to 39th Street. 20% of the traffic at the 39th Street eastbound and westbound approaches is truck traffic. The number of trucks passing through the intersection on 39th Street indicates that 39th Street is the major roadway east-west roadway for truckers originating from and destined to the Sunset Park truck generator site. At the 3rd Avenue southbound approach, 22% of the right-turn movements are trucks, while 16% of the traffic passing through the intersection is truck traffic. At the 3rd Avenue northbound approach, 13% of the turning movements are trucks and 7% of the through traffic is trucks.

The operations analysis of the intersection indicates that the intersection is operating at LOS D. The 39th Street eastbound approach is operating at LOS F, while the 39th Street westbound approach is operating at LOS E. Therefore, truckers using 39th Street as a Local Truck Route are experiencing lengthy delays at the intersection, particularly truckers leaving the Sunset Park truck generator sites. The 3rd Avenue northbound and southbound approaches are operating at LOS B and A, respectively. Since the 3rd Avenue approaches have significantly more traffic volumes as opposed to the 39th Street approaches, the 3rd Avenue approaches have more green time. The one-lane approaches at 39th Street also amplify the delay at the approaches.



Queueing of traffic along 39th Street westbound approaching 3rd Avenue

3rd Avenue at 58th Street

The intersection of 3rd Avenue at 58th Street is a signalized intersection with 58th Street eastbound, a one-way facility, having access to 3rd Avenue southbound only. The Gowanus Expressway, a limited access elevated highway, runs above the intersection of 3rd Avenue and 58th Street, with a support structure placed within the intersection. There are no through movements along 58th Street. The 3rd Avenue approaches are five lanes in both directions, while 58th Street is a one-lane approach.

The turning movement counts indicate that the morning peak hour of traffic is from 7:00 AM to 8:00 AM. 20% of the traffic exiting 58th Street onto 3rd Avenue southbound is truck traffic. Approximately 6% of the 3rd Avenue northbound traffic is truck traffic while 10% of the southbound traffic is truck traffic. The intersection of 3rd Avenue and 58th Street is operating at LOS B. The 58th Street eastbound approach is operating at LOS C. Truck traffic, originating

from Sunset Park and exiting onto 3rd Avenue southbound from 58th Street, experience minor delay at the intersection.

3rd Avenue at 60th Street

The intersection of 3rd Avenue and 60th Street is a three-phase signalized intersection with additional green time for left-turn movements from 3rd Avenue to 60th Street. 3rd Avenue is a five-lane approach, including a left-turn only lane, in both the northbound and southbound directions. 60th Street is a one-lane approach eastbound and a two-lane approach westbound. This intersection is currently being studied under NYCDOT's priority school initiative.

The turning movement counts conducted at the intersection suggests that the morning peak hour of traffic is between 7:15 AM and 8:15 AM. There is a high percentage of truck traffic at the 60th Street eastbound approach. Over 25% of the right-turn movements onto 3rd Avenue southbound are trucks, while 17% of the left-turn movements are trucks. Along 60th Street westbound, 7% of the through traffic, 9% of the left-turn movements and 14% of the right-turn movements are trucks. 60th Street is a designated Local Truck Route and the truck percentages indicate that truckers, particularly truckers leaving the Sunset Park study area, are utilizing that 60th Street. Along 3rd Avenue northbound, 22% of the right-turn movements to 60th Street eastbound are trucks, while along 3rd Avenue southbound, 30% of the left-turn movements and 32% of the right-turn movements are trucks. The truck percentages indicate that there are a large number of truckers turning onto 60th Street from 3rd Avenue to access Sunset Park and other truck generator sites in the area.



Traffic at 3rd Avenue southbound approach

The operations analysis of the intersection indicates that the intersection is operating at LOS D. The 60th Street eastbound approach is operating at LOS E, so truckers exiting the Sunset Park area from 60th Street are experiencing delays at the intersection. The 60th Street westbound left-turn approach is operating at LOS E, so truckers making the left onto 3rd Avenue southbound are also experiencing delays. Since the 60th Street traffic volumes are significantly lower than the traffic volumes on 3rd Avenue, there is less green time for the 60th Street traffic than 3rd Avenue traffic. The 3rd Avenue northbound and southbound approaches are operating at LOS D and C,

respectively. The left-turn movement from 3rd Avenue northbound to 60th Street westbound is operating at LOS F, as a result of the high volume of left-turn movements at that approach. However, there is minimal truck volume at this approach. Traffic coming off an exit ramp from the Gowanus Expressway to 3rd Avenue northbound is also included in the operations analysis. The analysis indicates that truckers traveling on 3rd Avenue experience a small delay at the northbound approach, as a result of heavy traffic volumes.

Roadway Network Capacity/Geometrics

The turning radius at some of the streets intersecting 1st Avenue and 2nd Avenue are too sharp for tractor-trailers and trucks must turn wide over the opposing lanes. Additionally, if any vehicle is present on the side street, trucks lack the pavement to complete a turning maneuver. There is an abundance of trucks parked on the side streets throughout the study area, so trucks making their way through the side streets or making deliveries may encounter obstacles as a result of the parked trucks.

Accidents

A map of the truck-related accident locations, within and around the Sunset Park study area, is shown in Figure 4-32. There were several locations within the Sunset Park study area where recorded truck accidents occurred. The majority of the accidents occurred along 3rd Avenue, which runs beneath the Gowanus Expressway (I-278) and is a designated Local Truck Route. The highest number of recorded accidents occurred at the intersection of 3rd Avenue and 49th Street, which indicates that truckers are utilizing 49th Street to access Sunset Park. Accidents were recorded at four of the five critical intersections, the highest amount of accidents occurring at the intersection of 2nd Avenue and 39th Street. This intersection also includes an exit ramp off of the Gowanus Expressway and is an access point into the Sunset Park study area. Accidents were also recorded along 1st Avenue, which is along the Sunset Park truck generator site. Between 1999 and 2001, the intersection of 3rd Avenue and 60th Street was ranked #46 out of the top-115 intersections in the City of New York for the total amount of truck-related accidents within the city. In summary, truckers entering and exiting Sunset Park are passing through intersections that are operating at-capacity and induce truck related incidents.

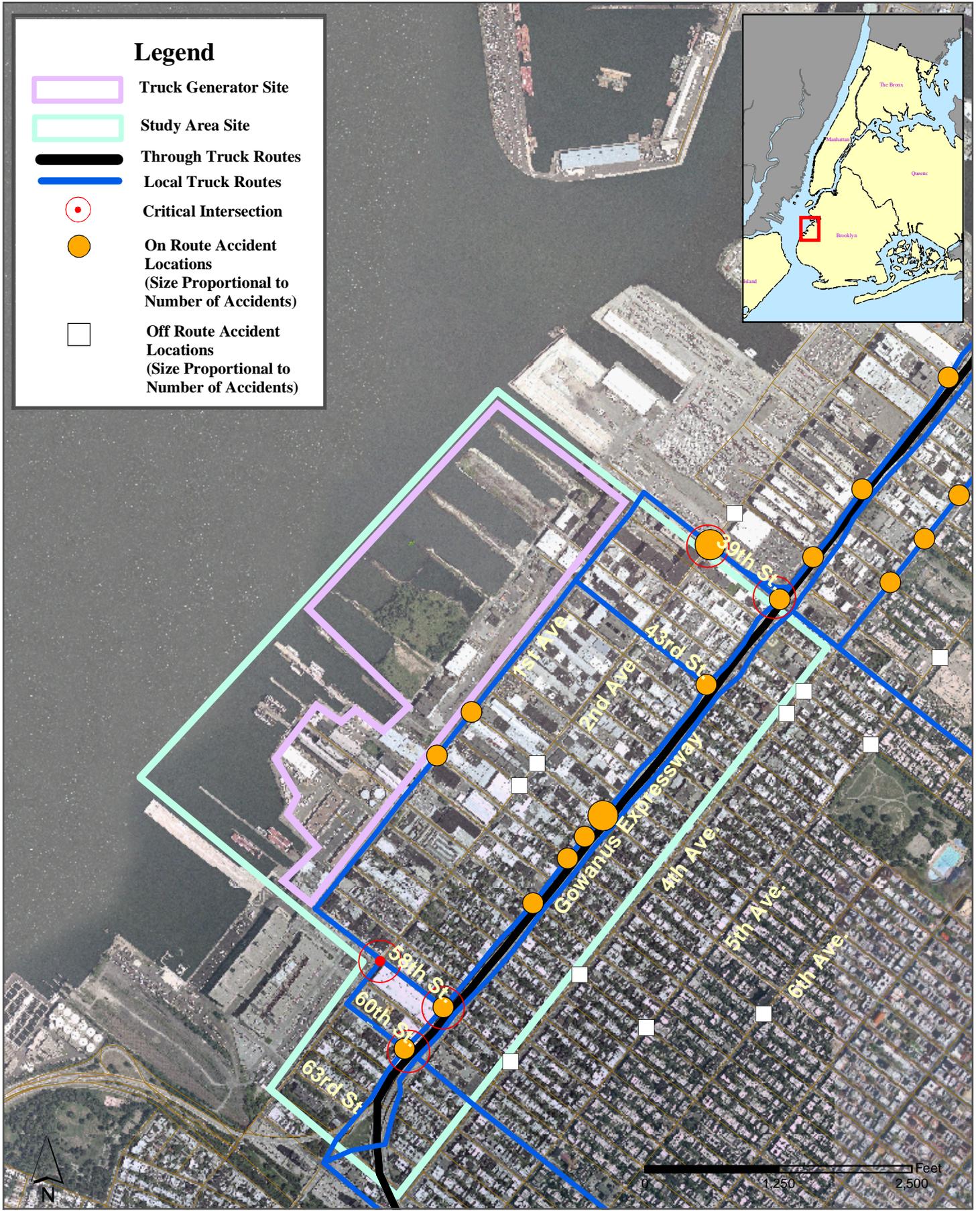


Figure 4-32
Truck Accidents
Sunset Park - Brooklyn

Recommendations for Sunset Park

Signal timing improvements are recommended at the intersection of 2nd Avenue and 58th Street to allow more green time for 2nd Avenue northbound movement. The results of the operation analysis for the intersection indicate a lengthy delay at the northbound approach of the intersection and field observations indicate a significant backup of traffic at the approach. Allowing more green time at the 2nd Avenue northbound approach will help to alleviate the high amount of queuing at the approach.

Investigate designating a one-way eastbound street between 39th Street and 58th Street as a Local Truck Route to give truckers another option to access 3rd Avenue southbound. 44th Street is primarily industrial and commercial land uses and would be an optimum choice as a designated Local Truck Route in certain parts. Two other streets that may be designated as Local Truck Routes are 51st and 52nd Streets, as both streets have minimal residential land uses and are zoned industrial. These two streets, designated as Local Truck Routes, will give truckers another option to enter/exit the Sunset Park area via 3rd Avenue.

Truck route designation signage should be placed at the following intersections:

- 2nd Avenue at 39th Street
- 2nd Avenue at 43rd Street
- 2nd Avenue southbound at 44th Street (with designation of Local Truck Route)
- 2nd Avenue southbound at 51st Street (with designation of Local Truck Route)
- 2nd Avenue southbound at 52nd Street (with designation of Local Truck Route)
- 2nd Avenue at 58th Street
- 2nd Avenue at 60th Street
- 3rd Avenue at 39th Street
- 3rd Avenue southbound at 43rd Street
- 3rd Avenue southbound at 44th Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 51st Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 52nd Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 58th Street
- 3rd Avenue at 60th Street

Increased emphasis on the maintenance of signage especially under the Gowanus Expressway should be maintained, as with ongoing construction these signs may become dirty or obscure.

Two truck route designation signs should be placed at each approach, one sign before the approach and one sign beyond the approach. There is currently minimal signage at several of these intersections. However, the current signage should be replaced with new signage for better visibility. It is recommended that curb parking along designated truck routes within the Sunset Park study area should also be prohibited during weekday daytime hours to allow enhanced mobility for truckers.

Additional recommendations for the area include investigation of intersections for improved daylighting opportunities to provide for safer visibility and improved turning radius for vehicles. Also, the implementation of some of the Safe Routes to School treatments for some of the area's schools should provide for increased safety and improved operation of the neighborhood streets.

i. Recommendations

1. It is recommended that NYCDOT consider establishing a Through Truck Route by changing the following streets in Brooklyn from Local to Through Routes:

<u>Street</u>	<u>Type</u>	<u>Limits</u>
Linden Boulevard	Through	North & South Conduit Avenues to Caton Avenue
Caton Avenue	Through	Linden Boulevard to Coney Island Avenue
Coney Island Avenue	Through	Caton Avenue to Church Avenue
Church Avenue	Through	Coney Island Avenue to Fort Hamilton Parkway
Fort Hamilton Parkway	Through	Church Avenue to Prospect Expressway
Prospect Expressway	Through	Fort Hamilton Parkway to Gowanus Expressway

The New York State Department of Transportation and the New York Metropolitan Transportation Council have completed studies that identified the need for additional east-west truck route capacity through Brooklyn. Feedback from businesses and the trucking community in this study also mentioned the need for improved truck access through Brooklyn. However, residents have expressed concerns about existing levels of truck traffic on these streets -- and the impacts of such a designation change along this route should be taken into consideration.

An additional option would be to change Linden Boulevard to a Through Truck Route from the Queens County line to Rockaway Avenue; and change Rockaway Avenue to a Through Truck Route from Linden Boulevard to the Bay Ridge rail line, constructing an express truck route from Rockaway Avenue to 4th Avenue with access ramps at either end; and changing 4th Avenue to a Through Truck Route between 68th Street and the Gowanus Expressway. This would also require improving ramp access to the Gowanus Expressway. This route should also be designated as Route 27 for trucks through trucks. This option would eliminate the intrusion of tractor trailers into the residential areas on Linden Boulevard west of Rockaway Avenue.

2. Consider prohibiting trucks from using the following Local Truck Route streets between 10 PM and 6 AM.

<u>Street</u>	<u>Type</u>	<u>Limits</u>
Church Avenue	Local	Linden Boulevard to Flatbush Avenue
Metropolitan Avenue	Local	Kent Avenue to Grand Street
Empire Boulevard	Local	Flatbush Avenue to Utica Avenue

These streets are located in areas with parallel Local Truck Route streets can accommodate anticipated truck route activity.

3. Possible investigation for development of traffic mitigation measures, focusing on truck movements at locations where there have been 15 or more truck accidents over a thirty-six month time period. Several of these locations correspond to intersections where NYCDOT has already undertaken measures to improve conditions for all street users.

The following intersections met this criterion over a thirty-six month period from 1999 to 2001:

<u>Location</u>	<u>Truck Accidents</u>
Flatbush Ave. Ext. and Tillary St.	33
Metropolitan Ave. and Meeker Ave.	24
Flushing Ave. and Classon Ave.	22
Flatbush Ave. and Nevins St.	21
Flatbush Ave. and Caton Ave.	19
Hamilton Ave. and Clinton St.	17
Linden Blvd. and Pennsylvania Ave.	17
Metropolitan Ave. and Grand St.	17
Metropolitan Ave. and Stewart Ave.	17
Hamilton Ave. and 14 th St.	16
Hamilton Ave. and Smith St.	16
Flatbush Ave. and Church Ave.	15
Jay St. and Sands St.	15
Meeker Ave. and Vandervoort Ave.	15

Possible short-term improvements include establishing wide-turn zones, modifying traffic signal timing, and providing additional signage to address localized intersection issues.

4. Greenpoint / Williamsburg Area

A primary recommendation for this area is to eliminate the discontinuities in Local and Through Truck Routes between Brooklyn and Queens. The current system is inadequate for westbound or Brooklyn-bound trucks if they do not have a destination in Brooklyn. However, it is not feasible to designate all the local routes in Brooklyn that connect with through routes, nor would it make sense because many of these routes are not typical for a Queens originating truck utilizing Brooklyn to go to points outside of Brooklyn. Truck access should also be consistent with the truck routing proposal for Maspeth. Therefore, the logical choice for designation would be Grand Avenue in Brooklyn to the BQE. Flushing Avenue takes trucks too far to the south, and Metropolitan Avenue is a local route in Queens.

In addition, additional signage treatments should be investigated for the area. This may include an expanded sign program to illustrate the overall routes in the area, and a renewed investigation into both positive and negative signage at select intersections to account for the changes in land use.

Finally, the East Williamsburg Study area proposes some additional detailed recommendations for the improvements which are detailed later in this document

5 Bay Ridge Area

Improved negative signage and directional “To Truck Route” signage would be appropriate on some northbound streets to keep the trucks on the wider Avenues to 86th Street rather than navigating through residential areas. One such area for negative signage should be at the intersection of 86th Street and 4th Avenue, which is the end of the truck route.

There are some major generators in the Bay Ridge area (i.e. Walgreens, Supermarkets) that frequently get deliveries by large trucks. The Department should pursue further outreach initiatives with the area businesses to explore better routing options.

Another problem is commercial traffic traveling between Staten Island and southern Queens via the Verrazano Narrows Bridge. With no Through Truck Routes in southern Brooklyn, truckers must take a long circuitous route along the western edge of Brooklyn into northern Queens. This routing is problematic for truck traffic, especially air freight, to/from JFK International Airport. This routing adds approximately 22 miles to each truck trip between JFK Airport and the Verrazano Narrows Bridge. Trucks that are less than 55 feet in length can also use Conduit Avenue to Atlantic Avenue to the Brooklyn Queens Expressway as a Through Truck Route.

Local Borough deliveries also experience problems. Some trucks coming from Staten Island and making deliveries within southern Brooklyn or to other points east utilize the Local Truck Routes and illegal routes to access the east-west corridors in the southern part of the Borough.

Similarly, the lack of the north-south designated routes encourages trucks to utilize various streets to reach their destinations. The preferred roadways are typically those streets identified as principal arterials on typical commercially purchased maps. However, many of these arterials are not part of the City's truck route network.

Negative signage exists in several areas, however their effectiveness is unclear. The presence of signs in some locations only reinforces the point to truckers that they can use streets that do not have negative signs. A policy that depends on the installation of negative signs can jeopardize the enforcement of a positive sign program advocated in *Technical Memorandum 3, Truck Signage Program*.

6. Linden Boulevard, Caton Avenue and Church Avenue

Confusion occurs due to the state highway designation and truck access on Linden Boulevard. Nearly the entire length of Church Avenue is designated as a Local Truck Route, but the section between McDonald and Flatbush Avenues is a Through Truck Route in the area. At the Prospect Expressway; Local and Through Truck Route signage should be prominently placed. For example, signage indicating that "THROUGH TRUCKS USE CHURCH AVENUE" should be placed on eastbound approaches (i.e. on Prospect Expressway) to advise trucks of the routes.

One possible solution is to redesignate Linden Boulevard, Caton Avenue and Church Avenue as Through Truck Routes (see Recommendation #1 in this section). A shorter-term recommendation to address truck traffic on these corridors is to improve truck route signing and information posted on the Prospect Expressway.

7. East New York

There currently exists a minimal amount of truck route designation signs within the East New York study area. Field observations noted that the only truck route designation signage exists on Linden Boulevard eastbound at Pennsylvania Avenue and Pennsylvania Avenue southbound at Atlantic Avenue. Truck route designation signage should be placed at all four approaches of the noted two intersections. Two signs indicating truck route designation should be placed at each approach; one sign before the intersection and one sign beyond the intersection. The signage should also indicate Local Truck Route or Through Truck Route, which in the case of

Pennsylvania Avenue and Linden Boulevard should indicate Through Truck Route while Local Truck Route designation should be indicated for Atlantic Avenue.

Pitkin Avenue should be designated as the primary access street from Pennsylvania Avenue to the East New York Industrial Complex. Pitkin Avenue is a two-way roadway with a signalized intersection at Pennsylvania Avenue. Truck route designation signage should be placed at the Pitkin Avenue eastbound approach as well as both Pennsylvania Avenue approaches. Curb parking along Pitkin Avenue should also be prohibited during weekday daytime hours to allow enhanced mobility for truckers using Pitkin Avenue to industrial sites within the East New York complex.

8. East Williamsburg

Additional truck route designation signs should be placed along designated truck routes within the East Williamsburg study area, including Grand Avenue, Metropolitan Avenue, Vandervoort Avenue and Flushing Avenue. Truck route designation should be placed at the following intersections, with two signs depicting truck route designation at each approach:

- Grand Avenue at Metropolitan Avenue
- Grand Avenue at Varick Avenue
- Grand Avenue at Vandervoort Avenue
- Flushing Avenue at Varick Avenue

An additional recommendation to improve vehicle circulation and reduce illegal truck traffic on surrounding streets in the area is to designate portions of Morgan Avenue and/or Varick Avenue as additions to the Local Truck Route in the East Williamsburg Area. There are limited opportunities to travel north-south through this area. Varick Avenue is a one-way southbound roadway between Metropolitan Avenue and Ten Eyck Street and then two-way south of this point. Morgan Avenue runs two-way until Johnson Avenue, where Morgan Avenue continues southbound, and Knickerbocker Avenue serves as the northbound roadway. Community comments have indicated that there are public safety concerns along Morgan Avenue, as well as some residential land uses toward Myrtle Avenue.

In addition, it is recommended that the Department continue to work with the Department of Sanitation and the local Industrial Development Corporation on improving truck access in the area

9. Sunset Park

Signal timing improvements are recommended at the intersection of 2nd Avenue and 58th Street to allow more green time for 2nd Avenue northbound movement. The results of the operation analysis for the intersection indicate a lengthy delay at the northbound approach of the intersection and field observations indicate a significant backup of traffic at the approach. Allowing more green time at the 2nd Avenue northbound approach will help to alleviate the high amount of queuing at the approach.

Investigate designating a one-way eastbound street between 39th Street and 58th Street as a Local Truck Route to give truckers another option to access 3rd Avenue southbound. 44th Street is primarily industrial and commercial land uses and would be an optimum choice as a designated Local Truck Route in certain parts. Two other streets that may be designated as Local Truck Routes are 51st and 52nd Streets, as both streets have minimal residential land uses

and are zoned industrial. These two streets, designated as Local Truck Routes, will give truckers another option to enter/exit the Sunset Park area via 3rd Avenue.

Truck route designation signage should be placed at the following intersections:

- 2nd Avenue at 39th Street
- 2nd Avenue at 43rd Street
- 2nd Avenue southbound at 44th Street (with designation of Local Truck Route)
- 2nd Avenue southbound at 51st Street (with designation of Local Truck Route)
- 2nd Avenue southbound at 52nd Street (with designation of Local Truck Route)
- 2nd Avenue at 58th Street
- 2nd Avenue at 60th Street
- 3rd Avenue at 39th Street
- 3rd Avenue southbound at 43rd Street
- 3rd Avenue southbound at 44th Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 51st Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 52nd Street (with designation of Local Truck Route)
- 3rd Avenue southbound at 58th Street
- 3rd Avenue at 60th Street

Increased emphasis on the maintenance of signage especially under the Gowanus Expressway should be maintained, as with ongoing construction these signs may become dirty or obscured

Two truck route designation signs should be placed at each approach, one sign before the approach and one sign beyond the approach. There is currently minimal signage at several of these intersections. However, the current signage should be replaced with new signage for better visibility. It is recommended that curb parking along designated truck routes within the Sunset Park study area should also be prohibited during weekday daytime hours to allow enhanced mobility for truckers.

Additional recommendations for the area include investigation of intersections for improved daylighting opportunities to provide for safer visibility and improved turning radius for vehicles. Also, the implementation of some of the Safe Routes to School treatments at some of the area's schools should provide for increased safety and improved operation of the neighborhood streets.

10. Prospect Park Southwest – Park Slope/Windsor Terrace

Community complaints have been raised about trucks using Prospect Park Southwest, north of Caton Avenue in the Park Slope and Windsor Terrace sections of Brooklyn. Trucks appear to use this street to avoid bottlenecks southbound on Flatbush Avenue at Grand Army Plaza at the north end of Prospect Park. Vehicle queues spillback upstream of the Plaza. The following actions are recommended to address this problem:

- Post "THROUGH TRUCK ROUTE" signs along Flatbush Avenue to advise truckers of the truck route.
- Post signs at the entrance to Plaza Street West at the intersection with 8th Avenue and Flatbush Avenue indicating "NO TRUCKS EXCEPT LOCAL DELIVERIES".
- Prohibit parking on both sides of Flatbush Avenue between Prospect Park West and

Lincoln Road from 7-10 AM and 4-7 PM on weekdays.

- Retime the traffic signals at:
 - Flatbush Avenue at Empire Boulevard/Washington Avenue; and
 - Empire Boulevard and Washington Avenue
- Examine whether negative signage is appropriate in the vicinity of the Grand Army Plaza, including Union and Plaza Streets

11. Columbia Street, Clinton Street and Hicks Street

With the exception of the short portion of Columbia Street and Van Brunt Streets, there are no streets designated as Local Truck Routes between Hamilton Avenue and Atlantic Avenue. South of Hamilton Avenue, Columbia Street was designated as a local truck route between Hamilton Avenue and Bay Street and was a source of community complaints. It was subsequently removed as part of the Red Hook Truck Study. In addition to the removal of this portion of Columbia Street, a significant number of improvements were proposed and implemented to mitigate concerns in the Red Hook areas.

To address this local concern, the following actions are recommended:

- Post the “LOCAL TRUCK ROUTE” signs on Hamilton Avenue and Columbia Street and oversized “NO TRUCKS EXCEPT LOCAL DELIVERY” signage at intersection.
- Post a “THROUGH TRUCK ROUTE” sign on Columbia Street southbound between Atlantic Avenue and the BQE access ramps;
- Post “NO TRUCKS EXCEPT LOCAL DELIVERIES” signs at the intersections of Hamilton Avenue with Clinton Street, Hicks Street, and Henry Street; and
- Provide enforcement details at the truck route violation areas.

In addition, there are several commercial and residential developments as well as changes to land use that have taken place since this study was undertaken and completed. It is recommended that the Department of Transportation continue to address truck routing in this area, including investigations for the posting of appropriate wayfinding, negative and positive signage.

12. Dean Street

Dean Street is a narrow, east-west street with parking on both sides of the street in the Cobble Hill and Boerum Hill sections of the Borough. The street accommodates one-way traffic and runs between Court Street and 3rd Avenue. The area is residential but the street is used to access Hospital of the Holy Family. While the street runs parallel to Atlantic Avenue, there were no indications that the street is used as an alternate truck route to Atlantic Avenue. Fewer than five trucks were observed traveling on Dean Street on a weekday morning. The completion of construction on Atlantic Avenue, posting of “THROUGH TRUCK ROUTE” signs on Atlantic Avenue and random police enforcement should remedy the problem.

13. Ditmas Avenue

The residents of the Parkville section are concerned about trucks on Ditmas Avenue, which runs from McDonald Avenue to Ocean Avenue. There is no advantage for trucks to use Ditmas Avenue rather than McDonald Avenue or Bay Parkway, which are Local Truck Routes. To address the community concern, the following measures are recommended:

- The placement of Local Truck Route signs at the intersections of Ditmas Avenue with McDonald Avenue, Coney Island Avenue, and 65th Street.
- Placement of Local Truck Route wayfinding signs along Ditmas Avenue

Negative signing is not recommended for this situation because the presence of trucks does not appear to be attributed to trucks avoiding a bottleneck, using the street as a short-cut but rather an absence of understanding of the truck route network in the Borough.

14. Schenectady Avenue

Schenectady Avenue is a north-south street that runs southbound between Fulton Street and Winthrop Street. It is parallel to Utica Avenue, which is a Local Truck Route. Curb parking lines both sides of the street and hospitals are located at each end of the street. At the north end is the Interfaith Hospital and Medical Center and at the south end is Kingsbrook Jewish Medical Center and Kingsboro Psychiatric Center. Inappropriate truck use of this street can be addressed by the following measures:

- The placement of Local Truck Route signs at the intersections of Schenectady Avenue with Atlantic Avenue, Empire Boulevard, Linden Boulevard, and Church Avenue.
- The placement of Negative truck signage, at the intersections of Atlantic Avenue and Schenectady Avenue
- Placement of Local Truck Route wayfinding signs along Schenectady Avenue.
- Improved Truck Route signs on all approaches at the intersection of East New York Avenue, Empire Boulevard, Remsen Avenue and Utica Avenue.

15. 20th Street and McDonald Avenue

Because of the truck route designation, trucks are limited to either McDonald Avenue or 20th Street at this intersection. Both trucks and tractor trailers tended to use 10th Avenue for access to McDonald Avenue from the Prospect Expressway. Very few (7% of trucks and 3% of tractor trailers) accessed 20th Street from 10th Avenue.

Both 3rd and 4th Avenues are Local Truck Routes and there are a number of sites in the area that generate truck activity especially along 20th Street between 4th Avenue and the waterfront. Due to the close proximity to the Gowanus Expressway and the Prospect Expressway, it is reasonable to assume that the truck traffic has a local origin or destination that warrants their using 20th Street, especially since there is no outlet at the west end of 20th Street. However, the following actions are recommended:

- Post the new “LOCAL TRUCK ROUTE” signs at the key intersections along 3rd and 4th Avenues
- Post wayfinding signs along 20th Street to the Local Truck Routes (3rd and 4th Avenues)
- Post wayfinding signs on 4th Avenue to Atlantic Avenue, the Gowanus Expressway, and Flatbush Avenue.