



KINGSBORO PSYCHIATRIC CENTER MIXED-USE PROJECT

FSOW Appendix B: Draft Transportation Planning Factors and Travel Demand Forecast



To: NYCDOT
From: STV Incorporated
Date: September 18, 2023
Project: Kingsboro Psychiatric Center Redevelopment Project
Reference: Draft Transportation Planning Factors and Travel Demand Forecast

This memorandum summarizes the transportation planning factors to be considered for analyses of traffic, parking, transit, and pedestrian conditions as part of the proposed project, the redevelopment of the westernmost portion of the Kingsboro Psychiatric Center campus: the Kingsboro Psychiatric Center Redevelopment Project (“KPC Redevelopment Project”). Estimates of the peak travel demand for the proposed project are provided herein, along with a discussion of trip assignment methodologies and study area definitions.

PROPOSED ACTIONS

The proposed project site is an underutilized portion of the existing Kingsboro Psychiatric Center campus, located in the East Flatbush neighborhood of Brooklyn (Kings County), New York (see Figure 1, “Project Site”). The existing Kingsboro Psychiatric Center campus spans a 27-acre area from Albany Avenue to Utica Avenue and Clarkson Avenue to Winthrop Street. The proposed KPC Redevelopment Project site (part of Block 4833, Lot 1) is a 7.2-acre area on the west side of the existing campus, bounded by Clarkson Avenue to the south, Albany Avenue to the west, Winthrop Street to the north, and a metal perimeter fence to the east separating the site from the remainder of the campus, where the Psychiatric Center continues to operate. The project site is currently partially occupied by two existing shelters: the Salvation Army Men’s Shelter located to the northwest of the project site and the Kingsborough Star Men’s Shelter to the southwest of the project site. Other portions of the project site are used as storage areas by State agencies. The areas surrounding the project site to the south and north are almost all residential buildings including 2-3 floor attached townhouses or low- to mid-rise apartment buildings. The area located to the west of the project site and west of Albany Avenue includes residential apartment buildings.

The proposed KPC Redevelopment Project is a comprehensive redevelopment initiative for a 7.2-acre portion of the Kingsboro Psychiatric Center campus proposed by the New York State Urban Development Corporation d/b/a Empire State Development (“ESD”) in collaboration with New York State Homes and Community Renewal. The Proposed Project involves the disposition of a part of Lot 1 of Block 4833 to a conditionally designated developer to facilitate the development of affordable housing, commercial space, community facilities, at-grade parking, and open space. Construction of the Proposed Project would begin in 2024 and would be expected to be completed and occupied by 2031.



THE PROPOSED DEVELOPMENT PROJECT

The project site would be developed with multi-use buildings with at-grade parking facilities. The site would comprise of residential, commercial, and community facility land uses including housing, a supermarket, community facility space, and daycare. The project site would have access points at Clarkson Avenue, Albany Avenue, and Winthrop Street.

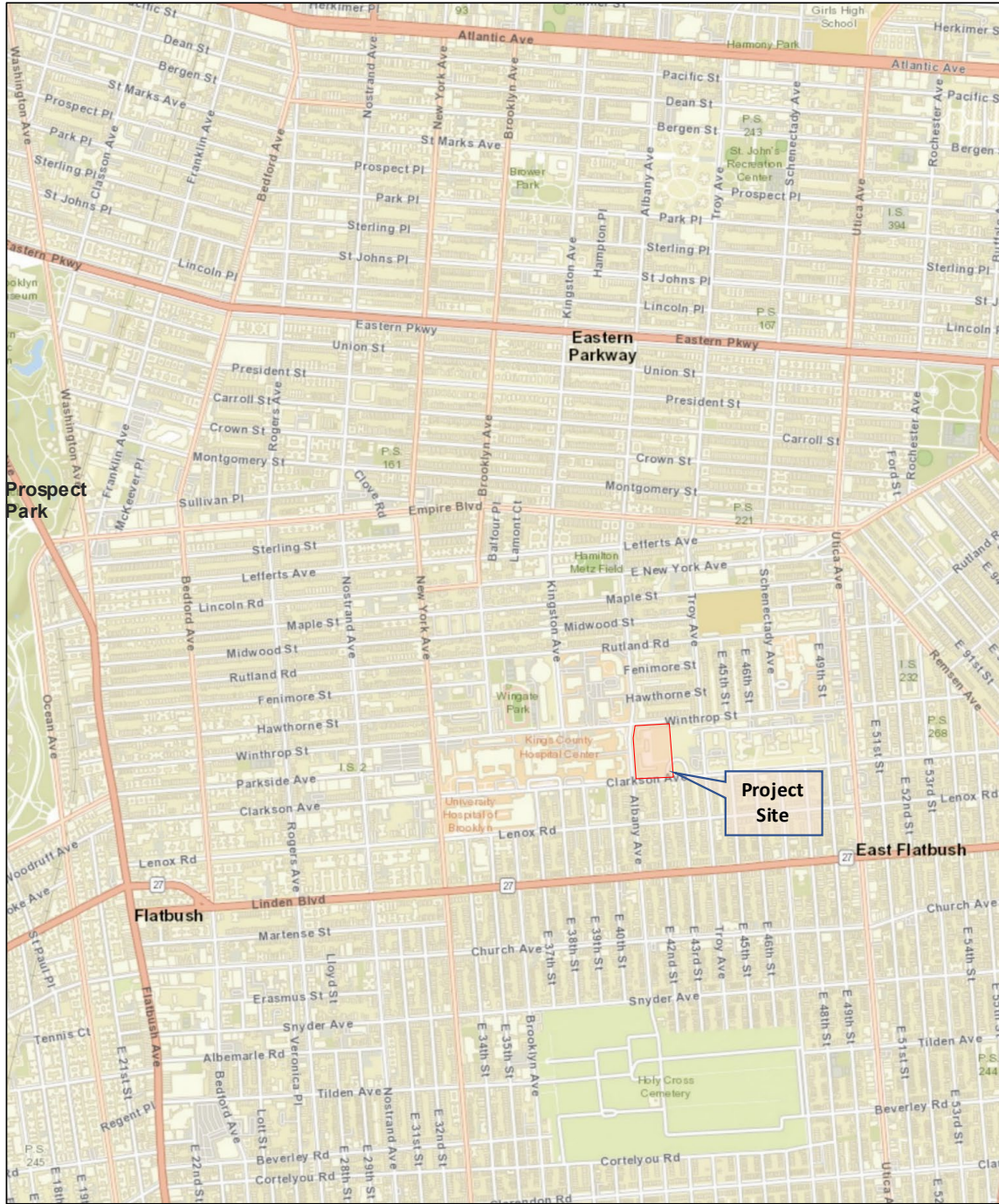
It is currently assumed that the total project would include 1,090 residential dwelling units, of which 337 housing units would be affordable units dedicated for seniors (income- and age-restricted housing) and 326 units would be supportive housing for residents, including:

- those with behavioral health (serious mental illness) disabilities,
- youth aging out of foster care,
- young adults between the ages of 18 and 25, and
- the chronically homeless.

The remaining 427 residential units would be affordable units with resident incomes ranging between 40 and 80 percent of the Area Median Income (AMI).

In addition, there would be approximately 8,092 gross square feet (gsf) of commercial space, approximately 38,378 gsf of community facility space, and approximately 5,000 gsf of daycare space (see Table 1, "Proposed Project Incremental Land Uses"). It is assumed that the commercial space would include a neighborhood-oriented grocery store with no on-site food preparation. It is assumed that the community facility space would include a ballet studio, an emergency food service center, and a Service Employees International Union ("SEIU") facility. A total of 2.8 acres of open space would be provided, including 0.64 acres of private gardens that would be restricted to development residents and 2.16 acres of publicly accessible open space.

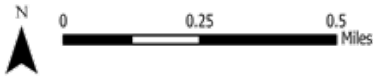
The Project Site currently consists of two homeless shelters that will be rebuilt and relocated on the Project Site to fully replace the existing 364 beds currently available. The existing shelter facilities operating on the Project Site would remain in operation with 364 shelter beds available in the No Action condition if the Proposed Project were not built; therefore, these two shelters are not considered new incremental land uses and are not included in the summary of Proposed Project incremental land uses in Table 1.



Project Site

Figure - 1
Project Site

Source: STV, Incorporated, 2022



Kingsboro Psychiatric Center Redevelopment Project



Table 1 - Proposed Project Incremental Land Uses

Land Use	With Action Condition ¹	
Residential		
Affordable Housing	427	DU
Senior Housing	337	DU
Supportive Housing	326	DU
Total Residential	1,090	DU
Commercial		
Supermarket	8,092	sf
Total Commercial	8,092	sf
Community Facility		
Community Facility Space	33,378	sf
Daycare	5,000	sf
Total Community Facility	38,378	sf
Open Space		
Private Gardens for Development Residents	0.64	acres
Publicly Accessible	2.16	acres
Total Open Space	2.80	acres
¹ . For trip generation purposes, supportive housing units for behavioral health disabilities and chronically homeless are considered supportive units, but supportive units for young adults and youths aging out of foster care are considered as regular affordable housing units. Of the 326 supportive housing units shown in the chart above, 51 units are reserved for young adults and youths aging out of foster care. Consequently, for transportation analysis purposes, the affordable and supportive housing unit counts in the chart above will be adjusted to 478 (427 + 51) affordable housing units and 275 (326 – 51) supportive housing units. Also, the Proposed Project includes the full replacement of an existing 364-bed homeless shelter, which is not included in this table as the homeless shelter will continue to operate in the No Action condition.		

PRELIMINARY TRANSPORTATION PLANNING FACTORS

The preliminary transportation planning factors proposed for use in forecasting travel demand for the proposed project (expressed as land uses) are summarized in Table 2, “Transportation Planning Factors,” and discussed below. The trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for each of the land uses were based on those cited in the *City Environmental Quality Review (CEQR) Technical Manual*, 2015-2019 American Community Survey (“ACS”) Census data, 2012-2016 Census Transportation Planning Products (CTPP), or recent New York City Department of Transportation (“NYCDOT”) trip generation survey data. Also, factors developed for a few studies including the *East New York Rezoning EIS (2015)*, and *Brooklyn Developmental Center Mixed-Use Project*



FEIS (2021) were utilized to obtain the trip generation rates, temporal distributions, modal splits, vehicle occupancies, and truck trip factors for certain land uses. Factors are shown for the weekday AM and PM peak hours (typical peak periods for commuter travel demand) and the weekday/Saturday midday (typical peak periods for retail demand).

Residential

The residential person trip generation rates, temporal distributions, and directional distributions reflect those cited in the *CEQR Technical Manual* and survey data provided by NYCDOT. Modal split and vehicle occupancies were based on the 2015-2019 ACS data for census tracts that include and surround the proposed project site (Kings County Census Tracts 808, 810, 814, 816, 870, 872, 874.01, 876, and 878).

It is noted that Census vehicle occupancy data reflects the average vehicle occupancy for personal auto trips to and from work, and therefore do not present the complete picture of average vehicle occupancy for other purposes (e.g., shopping, errands, social and recreational activities, school trips, etc.). In general, vehicle occupancy rates for non-work-related trips have been found to be higher than vehicle occupancy rates for work-related trips. While not all AM and PM peak hour trips are work-related, the lower vehicle occupancy rates for trips to and from work are conservatively applied to all auto trips in these peak travel hours.

Residential-based trips in the weekday midday and Saturday peak hours would more likely be local, compared to non-local trips made during the commuter peak hours (local trips would be expected to have a higher walk share, for example). However, modal splits based on the Census data are conservatively assumed for all periods. The residential units dedicated for young adults (ages 18 to 25) and for youth aging out of foster care are included in the residential unit total for trip generation purposes.

Senior Housing

The senior housing person trip generation rates were conservatively assumed to have the same trip generation characteristics as the residential land use. The in and out splits for the senior housing land use would be slightly different than for the residential land use. This is consistent with the analyses that were performed in ESD's Final Environmental Impact Statement ("FEIS") for the *Brooklyn Developmental Center Mixed-Use Project (2021)*.

Supportive Housing

The residential units (275 dwelling units) dedicated to those individuals with behavioral health (BH) disabilities and the chronically homeless have been considered supportive housing for trip generation purposes. Residents of the supportive housing facilities are not anticipated to own a personal vehicle. The trips associated with this land use are anticipated to primarily be work trips generated by the staff that support these residents. The trip generation rates for supportive housing were assumed to be most similar to those for an assisted living facility, whereby person trips are predominantly associated with the



staff working on site. Therefore, the supportive housing person trip and truck trip generation rates, vehicle occupancy rates, temporal distributions, and in/out splits are based on the *Brooklyn Developmental Center Mixed-Use Project FEIS (2021)*, which were based on a survey performed on an assisted living facility in Manhattan for the *Jewish Lifecare EIS* and the *Hebrew Home for the Aged Expansion EAS (2018)*. CTPP 2012-2016 (5-Year) data for the workers in Kings County Census tract numbers 808, 810, 814, 816, 870, 872, 874.01, 876 and 878 was utilized to calculate modal split rates. The Saturday temporal and directional distributions were assumed to be similar to the weekday afternoon peak hour. Of the 326 total supportive housing units, 51 units are dedicated for youth aging out of foster care or young adults between the ages of 18 and 25. These 51 units have been categorized as “Residential” units for trip generating purposes as their trip-making characteristics would be most similar to the Residential land use category.

Table 2 - Transportation Planning Factors

Land Use	Supportive Housing (8)		Residential (Affordable- 3 or more)		Senior Housing		Day Care (Children)		Day Care (Parents)		Day Care (Staff)		Grocery Store		Community Center		Passive Park		Office (SEIU)	
Size/Units	275	DU	478	DU	337	DU	5,000	sf	5,000	sf	5,000	sf	8,092	sf	16,994	sf	2.16	acres	16,384	sf
Trip Generation	(5)		(1)		(1)		(1)		(1)		(1)		(1)		(9)		(1)		(1)	
Weekday	3.70		8.18		8.18		22		44		6		256		51.6		44		18	
Saturday	3.70		9.08		9.08		0		0		0		300		50.4		62		3.9	
	per DU		per DU		per DU		per 1,000 sf		per 1,000 sf		per 1,000 sf		per 1,000 sf		per 1,000 sf		per 1 acre		per 1,000 sf	
Temporal Distribution	(5)		(1)		(1)		(1)		(1)		(1)		(1)		(9)		(1)		(1)	
AM	13.0%		9.3%		9.3%		25.0%		25.0%		25.0%		4.0%		9.0%		3.0%		12.4%	
MD	4.0%		5.6%		5.6%		0.0%		0.0%		2.5%		7.0%		7.4%		14.0%		11.0%	
PM	16.0%		8.5%		8.5%		25.0%		25.0%		25.0%		10.6%		9.0%		14.0%		10.5%	
Sat MD	10.0%		8.4%		8.4%		0.0%		0.0%		0.0%		9.5%		12.6%		16.0%		14.1%	
Modal Splits	(3)		(4)		(4)		(4)		(4)		(3)		(6)		(2)		(11)		(3)	
Auto	49.0%		24.8%		24.8%		24.8%		24.8%		49.0%		39.0%	39.0%	11.0%		0.0%		49.0%	
Taxi	1.0%		0.6%		0.6%		0.6%		0.6%		1.0%		0.0%	0.0%	0.0%		0.0%		1.0%	
Subway	24.0%		50.0%		50.0%		50.0%		50.0%		24.0%		5.0%	2.0%	3.0%		0.0%		24.0%	
Bus	16.0%		17.2%		17.2%		17.2%		17.2%		16.0%		5.0%	2.0%	2.0%		0.0%		16.0%	
Walk/Other	10.0%		7.3%		7.3%		7.3%		7.3%		10.0%		51.0%	57.0%	84.0%		100.0%		10.0%	
In/Out Splits	(5)		(1)		(5)		(1)		(1)		(1)		(1)		(2)		(11)		(1)	
AM	In 74%	Out 26%	In 22%	Out 78%	In 47%	Out 53%	In 100%	Out 0%	In 50%	Out 50%	In 100%	Out 0%	In 51%	Out 49%	In 61%	Out 39%	In 50%	Out 50%	In 89%	Out 11%
MD	In 55%	Out 45%	In 50%	Out 50%	In 50%	Out 50%	In 0%	Out 0%	In 0%	Out 0%	In 50%	Out 50%	In 51%	Out 49%	In 55%	Out 45%	In 50%	Out 50%	In 48%	Out 52%
PM	In 19%	Out 81%	In 63%	Out 37%	In 53%	Out 47%	In 0%	Out 100%	In 50%	Out 50%	In 0%	Out 100%	In 50%	Out 50%	In 29%	Out 71%	In 50%	Out 50%	In 17%	Out 83%
Sat MD	In 38%	Out 62%	In 51%	Out 49%	In 62%	Out 38%	In 0%	Out 0%	In 0%	Out 0%	In 0%	Out 0%	In 50%	Out 50%	In 49%	Out 51%	In 50%	Out 50%	In 50%	Out 50%
Vehicle Occupancy	(5)		(4 & 2)		(4 & 2)		(2)		(2)		(3)		(2)		(2)		(11)		(3)	
Auto	1.24		AM/PM 1.24	MD/Sat 1.49	AM/PM 1.24	MD/Sat 1.49	1.00		n/a		1.07		1.65		1.65		2		1.07	
Taxi	1.41		1.24	1.30	1.24	1.30	1.00		n/a		1.07		1.40		1.30		2.00		1.07	
Truck Trip Generation	(5)		(1)		(1)		(2)		(2)		(2)		(2)		(2)		(11)		(1)	
Weekday	0.07		0.06		0.06		0.03		0.00		0.00		0.35		0.29		0.00		0.32	
Saturday	0.07		0.02		0.02		0.03		0.00		0.00		0.04		0.29		0.00		0.01	
Temporal Distribution	(5)		(1)		(1)		(2)		(2)		(2)		(2)		(2)		(11)		(1)	
AM	17.0%		12.0%		12.0%		9.6%		0.0%		0.0%		10.0%		9.6%		0.0%		10.0%	
MD	13.0%		9.0%		9.0%		11.0%		0.0%		0.0%		8.0%		11.0%		0.0%		11.0%	
PM	0.0%		2.0%		2.0%		1.0%		0.0%		0.0%		5.0%		1.0%		0.0%		2.0%	
Sat MD	0.0%		9.0%		9.0%		0.0%		0.0%		0.0%		10.0%		0.0%		0.0%		11.0%	
Truck In/Out Splits	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%	In 50%	Out 50%

(1) Based on data from the *City Environmental Quality Review (CEQR) Technical Manual*, 2021.

(2) Based on data from *East New York Rezoning Proposal FEIS*, 2015.

(3) Based on *2012-2016 Census Transportation Planning Products (CTPP) 5-Year "Workplace"* Estimates for tract numbers 808, 810, 814, 816, 870, 872, 874.01, 876 and 878

(4) Based on *2015-2019 American Community Survey (ACS)* data for tract numbers 808, 810, 814, 816, 870, 872, 874.01, 876 and 878

(5) Based on *Brooklyn Developmental Center Mixed-Use Project FEIS*, 2021

(6) Based on NYCDOT survey data.

(7) Senior Housing transportation planning factors was assumed to be same as the residential units (3 or more floors).

(8) For trip-generating purposes, only the units (275 of 326) dedicated to behavioral health disabilities and the chronically homeless have been classified as "Supportive Housing" units. The remaining 51 units for youth aging out of foster care and young adults (18-25 age) have been classified as "Residential" units.

(9) Based on NYCDOT recommended data.

(10) The two existing homeless shelters will be relocated (rebuilt) from west to east side of the proposed site to fully replace the existing 364 beds currently available. No additional trips will be generated. All vehicular and pedestrian trips will be shifted from west to east side of the site.

(11) Based *Saint Vincents Campus Redevelopment FEIS*, 2012

Grocery Store

The trip generation rates, temporal distributions, modal splits and in/out splits are based on the 2021 *CEQR Technical Manual*, NYCDOT surveys for mode share, and *East New York Rezoning FEIS (2015)* for vehicle occupancy and truck trip generation and temporary distribution.

Community Facility Space

The community facility land use in the project comprises a ballet studio, day care center, emergency food service center and Service Employees International Union (“SEIU”) facility, which would include a day care element. Factors for the community facility spaces are based on the NYCDOT recommended rates and *East New York Rezoning EIS (2015)*. Transportation planning factors for the daycare are based on the *East New York Rezoning EIS (2015)*, *CEQR Technical Manual*, journey-to-work and reverse journey-to-work census data. The balance of the SEIU was assumed to have similar trip-making characteristics as an office; therefore, factors used to forecast the travel demand of an office were development from the *CEQR Technical Manual* and reverse journey-to-work census data.

Open Space

The open space component of the Proposed Project comprises 0.64 acres of private gardens that would be restricted to the residents of the development and 2.16 acres of passive publicly accessibly open space. The private gardens would not generate additional trips to the Project Site beyond the residents and their guests included in the residential tripmaking assumptions. Transportation planning factors for the public open space are based on the *CEQR Technical Manual* and Saint Vincent’s Campus Redevelopment FEIS (2012), for a passive park space land use. All trips generated by the open space were assumed to be walk trips given the size of the space and the lack of specific programmed space (i.e., no playground, baseball fields, basketball courts, etc.).

TRIP GENERATION

The person and vehicle trips expected to result from the Proposed Project are expressed as an “incremental change” or “net change” in trips. This incremental change is calculated by comparing estimated numbers of trips resulting from the Proposed Project (in the 2031 analysis year) to numbers of trips estimated to be occurring in the vicinity of the Project Site without the Proposed Actions in 2031. Person and vehicle trips are calculated based on the transportation planning factors shown previously in Table 2, “Transportation Planning Factors.”

Table 3, “Travel Demand Forecast,” lists the estimate of the incremental change in peak-hour person trips and vehicle trips, respectively (as compared to conditions in the area without the Proposed Project) that would occur in 2031 with implementation of the Proposed Project.

The Proposed Project would be expected to generate a net increase of approximately 1,043 person trips in the weekday AM peak hour, 670 person trips in the weekday midday hour, 1,162 person trips in the weekday PM peak hour, and 1,092 person trips in the Saturday midday peak hour. These person trips can be translated into modal trip “types” for the entire study area as follows:



- Peak hour vehicle trips (including auto, truck, and taxi trips balanced to reflect that some taxis arrive or depart empty) would be expected to result in additional trips – approximately 255, 145, 277, and 209 vehicle trips (“in” and “out” trips, combined) in the weekday AM, midday, PM, and Saturday midday peak hours, respectively.
- Peak hour transit trips (approximately 555, 298, 543, and 484 transit trips estimated for weekday AM, midday, PM, and Saturday midday peak hours, respectively). The transit trips are expected to be subway and bus trips. The nearest subway stations are over 0.7 miles away. The majority of the transit trips are expected to be subway trips with bus connecting trips to from the subway stations.
- Peak hour walk trips would increase by approximately 181, 177, 259, and 293 trips during the respective weekday AM, midday, PM, and Saturday midday peak hours, respectively.

Analysis Periods

According to *CEQR Technical Manual* guidelines, a quantified traffic analysis is typically required if a proposed action would result in more than 50 peak-hour vehicle trip ends. As listed in Table 3, “Travel Demand Forecast,” the Proposed Project is expected to result in more than 50 total vehicle trips during each weekday analysis hour; therefore, all of these periods will be included in the quantified analysis of traffic conditions. The specific hours to be analyzed in each peak period will be determined based on traffic count data collected along the street network in the study area.

According to *CEQR Technical Manual* guidelines, a quantified analysis of pedestrian conditions is typically required if a proposed action would result in 200 or more peak hour pedestrian trips. The net increase in pedestrian trips resulting from the Proposed Project would exceed the 200-trip *CEQR Technical Manual* analysis threshold during the weekday AM and PM commuter peak hours and the weekday midday and Saturday peak hours for commercial demand. Therefore, all four of these peak hours will be considered for inclusion in the analysis of pedestrian conditions. The specific analysis peak hours will be determined based on pedestrian count data in the study area.

TRAFFIC STUDY AREA

Area Street Network

The project site is part of a city block (Block 4833, Lot 1) bounded by Clarkson Avenue to the south, Albany Avenue to the west, Winthrop Street to the north, and the operating Kingsboro Psychiatric Center site to the east. Kings County Hospital is located one block west of the project site (west of Albany Avenue).

Primary East-West Corridors

Clarkson Avenue is a local roadway east of Albany Avenue and a major collector roadway west of Albany Avenue. Clarkson Avenue runs east-west from Flatbush Avenue to the west to Remsen Avenue to the east. Within the project area, Clarkson Avenue is generally 50 feet wide with a striped median and provides one moving travel lane per direction, a left-turn lane at selected intersections, and a curbside parking lane on each side of the street.

Winthrop Street is a major east-west collector roadway between New York Avenue to the west and Remsen Avenue to the east. Within the project area, Winthrop Street is generally 35 feet wide and operates with one travel lane and a curbside parking lane in each direction.

Linden Boulevard (SR 27) is a principal arterial that parallels Clarkson Avenue two blocks to the south. Linden Boulevard runs east-west, connecting with Caton Avenue at Bedford Avenue to the west to North and South Conduit Avenues to the east. South of the project site, Linden Boulevard is generally 50 feet wide, providing one travel lane and curbside parking in each direction, with dedicated left-turn lanes at intersections.

Primary North-South Corridors

Utica Avenue is a principal arterial roadway that runs north-south from Fulton Street to the north to Flatbush Avenue to the south. The roadway is 65 feet wide and provides one travel lane, one bus lane, and curbside parking in each direction.

Albany Avenue is a minor arterial roadway that runs north-south from Decatur Street to the north and Snyder Avenue to the south. The roadway is 45 feet wide and provides one travel lane and curbside parking in each direction adjacent to the project site.

Proposed Project Site

The proposed project would create vehicular access points along Winthrop Street at its intersections with East 42nd and East 43rd streets, and along Clarkson Avenue at East 43rd Street. A new, privately owned private driveway at the intersection of East 43rd Street would provide one-way northbound traffic flow between Clarkson Avenue and Winthrop Street with curbside parking/loading areas. A second private driveway entrance would be provided on Winthrop Street west of East 43rd Street that would serve a 200-foot-long cul-de-sac driveway. There would be multiple pedestrian access points off of Albany Avenue, Clarkson Avenue, and Winthrop Street to the proposed development.

Traffic Assignment and Analysis Locations

The assignments of vehicle trips were based on the location of the project site and the anticipated origins and destinations of vehicle trips associated with the different land uses projected for the project site (e.g., residential, community facility, commercial, etc.).

Residential Trip Distribution

The origins/destinations of the residential use are based on the American Association of State Highway Transportation Officials (AASHTO), CTPP 2012-2016 (5-Year) data for residents in Kings County Census tract numbers 808, 810, 814, 816, 870, 872, 874.01, 876, and 878.

The 2012-2016 CTPP 5-Year "Residence" Estimate (Journey to Work or JTW) data were utilized to estimate the proposed residential and senior housing trip distribution percentages for the weekday AM and PM peak hours. The residential and senior housing land uses were assumed to have similar trip distribution patterns as the commercial and community facility land uses during the weekday midday and Saturday peak hours.

Employee Trip Distribution

It is assumed that the supportive housing trips would be generated predominantly by the supportive housing staff and employees. The origins/destinations of the supportive housing, SEIU, and daycare employees are also based on the 2012-2016 CTPP data for workers in Kings County Census tract numbers 808, 810, 814, 816, 870, 872, 874.01, 876, and 878.

The 2012-2016 CTPP 5-Year "Workplace" Estimate (Reverse Journey to Work or RJTW) data were utilized to estimate employee trip distribution percentages for the supportive housing, SEIU, and daycare staff during the weekday AM and PM peak hours. The supportive housing employees, SEIU, and daycare staff were assumed to have similar trip distribution patterns as the retail customers during the weekday midday and Saturday peak hours.

Local Trip Distribution

It is assumed that the other community facility- and commercial-related vehicular trips as well as other land use midday and Saturday vehicular trips to/from the project site would be a function of the local resident trips or local commercial uses. The origins/destinations of the community facility- and commercial-related land use auto and truck trips as well as the midday and Saturday time periods for all other land uses are determined based upon the residential unit density within a one-mile radius from the project site. The residential unit density data is based on the latest New York City MapPluto data.

As noted previously, the proposed redevelopment would be expected to generate a net increase of 255 vehicle trips during the weekday AM peak hour, 145 vehicle trips during the weekday midday peak hour, 277 vehicle trips during the weekday PM peak hour, and 209 vehicle trips during the Saturday midday peak hour. As these traffic volumes would exceed 50 trips in each peak hour (the *CEQR Technical Manual* Level 1 screening threshold for a detailed analysis), a preliminary assignment of net increment traffic volumes has been prepared to identify critical intersections that would potentially exceed 50 trips per hour (a Level 2 screening assessment). Net incremental peak hour vehicle trips were assigned to intersections within the project study area. The intersections most likely to be used by concentrations of action-generated vehicles traveling to and from the projected development sites are then selected for detailed analysis. Figure 2, "Traffic Study Intersections," identifies the eleven intersections selected for detailed analysis:

- Clarkson Avenue with New York Avenue, Albany Avenue, East 42nd Street, East 43rd Street, and Utica Avenue
- Winthrop Street with Albany Avenue, Troy Avenue, Schenectady Avenue, and Utica Avenue
- Future Winthrop Street intersections with the proposed two new driveway access points
- **Parking Space Supply**
- The proposed project would provide 15 on-street parking spaces on the new privately owned driveway extending from East 43rd Street for the community facility uses.



- Project Site
- Study Intersections

Source: STV, Incorporated, 2022

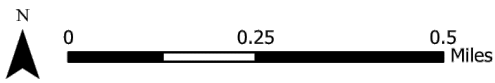


Figure - 2
Traffic Study Intersections

Kingsboro Psychiatric Center Redevelopment Project



Transit

According to the general thresholds used by the Metropolitan Transportation Authority (“MTA”) and specified in the *CEQR Technical Manual*, detailed transit analyses are generally not required if a proposed action is projected to result in fewer than 200 peak hour rail or bus transit riders. If a proposed action would result in 50 or more bus passengers being assigned to a single bus line (in one direction), or if it would result in an increase of 200 or more passengers at a single subway station or on a single subway line, a detailed bus or subway analysis would be warranted.

The proposed development is expected to generate over 200 peak hour rail trips on a single line and will also result in greater than 50 bus passengers assigned to a single bus line in one direction. Therefore, a detailed bus and subway analysis is warranted.

Bus Analysis

Bus Routes

The project site is served by four MTA local bus routes (see Figure 3, “Study Area Bus and Subway Routes”). The MTA local bus routes serving the project area include the following:

- B12 runs along Clarkson Avenue and Albany Avenue adjacent to the site and provides service between Prospect Lefferts Gardens and Jewel Square in East New York.
- B44 provides service between Knapp Street in Sheepshead Bay and Williamsburg Bridge Plaza via Nostrand and New York avenues less than three-quarters-of-a-mile west of the Proposed Project site.
- B46 provides service between Kings Plaza and Williamsburg Bridge Plaza via Utica Avenue about one half mile east of the Proposed Project site.
- B35 provides service between Mother Gaston Boulevard in Brownsville and McDonald Avenue via Church Avenue about one half mile south of the Proposed Project site.

The B12 bus stops are located adjacent to the Proposed Project site on Clarkson and Albany avenues. The B35 and B46 bus stops are located within a half-mile walking distance and the B44 bus stops are located within the three-quarters-of-a-mile walking distance from the Proposed Project site.

Bus Assignment and Analyzed Routes

The Proposed Project site is located within a short walking distance of the B12 bus. The B35, B44, and B46 bus stops are located between a quarter-mile and three-quarters-of-a-mile from the Project site (see Figure 3, “Study Area Bus and Subway Routes”). For the purpose of the bus analysis, the bus trip data was extracted from the 2012-2016 CTPP JTW and RJTW data for the residents and workers adjacent to the Project site. The bus route assignment was estimated for the best bus routes to/from the site based on the MTA bus schedule and minimum travel time to/from the Project site.

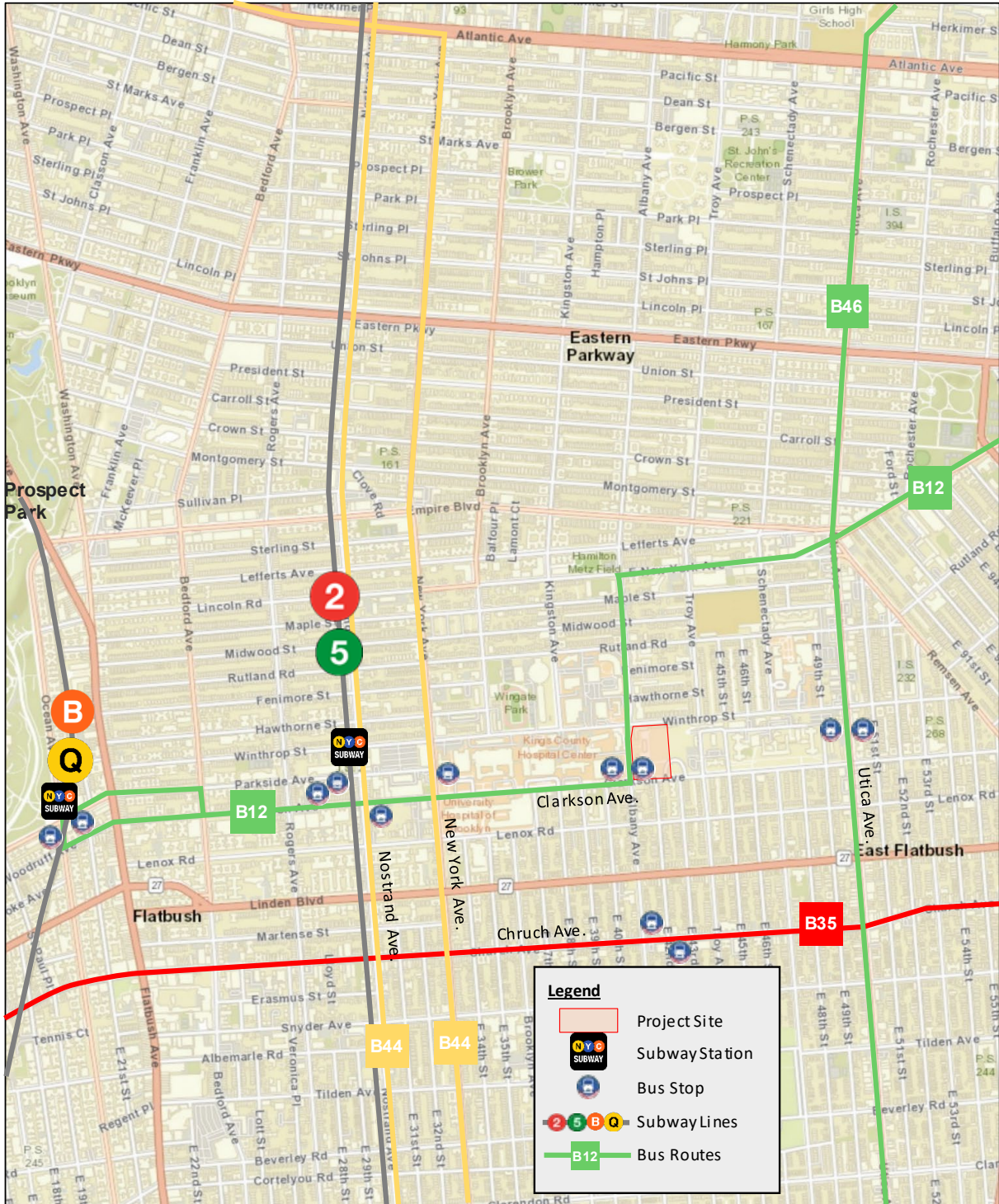
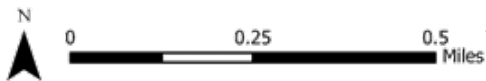


Figure - 3
Study Area Bus Routes and Subway Lines

Source: STV, Incorporated, 2022



Kingsboro Psychiatric Center Redevelopment Project



The proposed development would generate approximately 429, 231, 421, and 374 bus trips during the weekday AM, midday, PM, and Saturday midday peak hours, respectively. A portion of the subway trips would start and end as bus trips near the project site and have been included in these bus trip totals. All subway trips assigned to/from the Q train at the Parkside Avenue Station and half of the 2/5 train passengers at the Winthrop Street Station were assumed to transfer to buses. As a result of the Proposed Project, only the B12 bus route is expected to carry 50 or more new trips in each direction in the analysis peak hours and will be analyzed for the weekday AM, midday, PM, and Saturday midday peak hours. Table 4, “Proposed Project Peak Hour Bus Trips,” identifies the bus route project trips for each of the four bus routes serving the proposed redevelopment site.

Table 4 – Proposed Project Peak Hour Bus Trips

Bus Route	Direction	AM	MD	PM	SAT
B12	Eastbound	<u>158</u>	<u>99</u>	<u>178</u>	<u>169</u>
	Westbound	<u>209</u>	<u>98</u>	<u>180</u>	<u>152</u>
B35	Eastbound	8	5	8	7
	Westbound	12	6	14	8
B44	Northbound	9	5	10	8
	Southbound	10	5	9	8
B46	Northbound	9	6	12	11
	Southbound	13	6	10	10

Subway Analysis

Subway Stations

There are two primary NYCT subway stations in proximity to the project site that are expected to be used by the new trips generated from the proposed development (see Figure 3, “Study Area Bus and Subway Routes”). Similar to the bus trips, the subway trip data was extracted from 2012-2016 CTPP JTW and RJTW data for the residents and workers adjacent to the project site. The subway trip assignment was estimated for the best subway routes to/from the project site based on the subway schedule and minimum travel time to/from the project site. Subway trips between the proposed development and each of these stations are summarized in Table 5, “Subway Line Distribution Percentages.” The preferred stations for subway trips generated by the proposed development are the Winthrop Street Station (2 and 5 Trains) and Parkside Avenue (Q and B Trains).

Table 5 – Subway Station Distribution Percentages

Subway Line	In		Out	
	Q/B	2/5	Q/B	2/5
Percent Distribution	39%	61%	40%	60%

Subway Assignment and Analyzed Stations

As shown in Table 3, “Travel Demand Forecast,” the Proposed Project would generate a net increment of approximately 400, 214, 386, and 349 subway trips during the weekday AM, midday, PM, and Saturday midday peak hours, respectively. Trips from the proposed development site were assigned to the two subway stations in the proximity of the study site. Table 6, “Net Incremental Peak Hour Subway Trips by Station,” identifies the estimated net incremental subway trips generated by the Proposed Project during the weekday AM, midday, PM, and Saturday midday peak hours at each of the two subway stations in proximity of the study site.

Table 6 - Net Incremental Peak Hour Subway Trips by Station

Subway Station	AM			Midday			PM			Saturday		
	To KPC Site	From KPC Site	Total	To KPC Site	From KPC Site	Total	To KPC Site	From KPC Site	Total	To KPC Site	From KPC Site	Total
Project Summary												
Peak Hour Project-Generated Trips	485	558	1,043	341	329	670	537	626	1,162	567	525	1,092
Peak Hour Project-Generated Subway Trips	164	236	400	107	106	214	195	191	386	187	162	349
Subway Station/ Subway Line												
Winthrop St. (2/5)	100	143	<u>243</u>	65	64	130	119	115	<u>235</u>	114	98	<u>212</u>
Parkside Ave. (Q)	64	93	157	42	42	84	76	75	152	73	64	137
Total	164	236	400	107	106	214	195	191	386	187	162	349

Note: Underlined/ Italicized numbers show stations and time periods requiring detail transit analysis as per NYC CEQR Technical Manual.

Based on these projections, a detailed subway analysis would be required for the Winthrop Street Station (No. 2 and 5 trains) during the AM and PM peak hours as this station would exceed the 200-trip *CEQR Technical Manual* analysis threshold. For this station, key circulation elements (e.g., street stairs, platform stairs, and fare arrays) expected to be used by the concentrations of new demand from the proposed development would be analyzed for the weekday AM and PM peak hours, including street stairs on the northeast corner of Nostrand Avenue and Winthrop Street and street stairs on the southwest corner of Nostrand Avenue and Parkside Avenue.

PEDESTRIANS

Per the *CEQR Technical Manual*, detailed pedestrian analyses are generally warranted if a proposed action is projected to result in 200 or more new peak hour pedestrians at any sidewalk, corner reservoir area, or crosswalk. As shown previously in Table 3, “Travel Demand Forecast,” the Proposed Project is expected to generate approximately 181 walk-only trips in the weekday AM peak hour, 177 in the midday peak hour, 259 in the PM peak hour, and 293 in the Saturday midday peak hour. Persons en route to and from bus stops would add approximately 155, 85, 157, and 135 pedestrian trips to area sidewalks and crosswalks during these same periods, respectively. Also, persons en route to and from subway stations would add approximately 400, 214, 386, and 349 pedestrian trips to area sidewalks and crosswalks during these same periods, respectively. Total pedestrian trips to from the project site are estimated at approximately 736, 476, 802, and 777 pedestrian trips to area sidewalks and crosswalks during these same periods, respectively. It is expected that during the AM and PM peak periods, pedestrian trips attributable to the Proposed Project would be concentrated on sidewalks and crosswalks adjacent to the project site and along routes to and from the bus stops and subway stations. During the weekday and Saturday



midday periods, pedestrian trips would be expected to be dispersed, as people travel throughout the area for restaurants, shopping, or errands at the local commercial land uses located adjacent to the proposed redevelopment.

The pedestrian trip distribution patterns were estimated using the New York City MapPluto data for the residential unit density within a quarter-mile of the proposed redevelopment. Walking trips to/from the bus stops and/or subway stations in the vicinity of the Proposed Project site are included in the pedestrian trip assignments.

The analysis of pedestrian conditions in the Kingsboro Psychiatric Center Mixed-Use Project EIS will focus on the representative pedestrian elements where new trips generated by the proposed development are expected to be most concentrated. Specifically, pedestrian elements would be examined at:

- Clarkson Avenue and Albany Avenue – north crosswalk and northwest and northeast corners
- Winthrop Street and Albany Avenue – south crosswalk and southwest and southeast corners
- Clarkson Avenue between Albany Avenue and East 42nd Street – north sidewalk
- Clarkson Avenue between East 42nd Street and East 43rd Street – north sidewalk
- Albany Avenue between Clarkson Avenue and Winthrop Street – east sidewalk

PARKING

Peak parking demand from commercial and retail uses typically occurs in the weekday midday period and declines during the afternoon and evening. In contrast, peak parking demand associated with residential uses typically occurs during the overnight period.

The proposed number of on-site parking spaces is not anticipated to accommodate the overall incremental parking demand that would be generated by the Proposed Project. As such, detailed existing off-street parking inventories will be conducted to document the existing supply and demand during each period. On-street parking surveys will be conducted to determine the number of spaces within an acceptable walking distance (i.e., a quarter-mile radius) of the project site. Surveys will be conducted during the weekday overnight period (when the highest residential parking demand would be expected), during the weekday midday period (when the fewest number of on-street parking spaces are available due to street-cleaning regulations), and during the Saturday midday period, which experiences the second highest on-street parking demand from the Proposed Project due to the weekend residential and employee parking demand for the supportive housing and shelter land uses. The weekday PM peak period experiences a lower parking demand than the weekday AM, midday, and Saturday midday peak periods. Furthermore, no on-street street-cleaning parking regulations are in effect during the weekday PM peak period. Based on this information, detailed parking surveys will be performed for the more critical weekday AM, midday, and Saturday midday peak periods. The parking analyses will document the parking supply and utilization on the project site and within a quarter-mile radius of the project site, both with and without the Proposed Project.

Parking demand generated by the affordable residential and senior housing component of the Proposed Project would be forecasted based on Census ACS data for Kings County Census Tract 820, which includes

several 6- and 8-story residential buildings with no off-street parking that would be comparable to the Proposed Project. The household vehicle ownership for these census tracts is 0.29 vehicles per household and would be used for estimating the residential parking demand. Parking demand generated from all other uses will be derived from the forecasts of daily auto trips from these uses. The projected new on-site parking supply associated with the Proposed Project will be incorporated into the analysis to determine the incremental on-street parking demand generated by the Proposed Project.

HIGH CRASH LOCATIONS

According to *CEQR Technical Manual* guidelines, high-crash locations with trips assigned to them within a quarter-mile of the site and high-crash locations within the traffic study area intersections determined by the Level 1 and 2 screening assessment should be identified as part of the Travel Demand Forecast memorandum. A high-crash location is defined as a location identified along a Vision Zero corridor/intersection or with five or more pedestrian/bicyclists injury crashes in any consecutive 12 months of the most recent three-year period for which data is available. In addition, a high crash location is any location along a Vision Zero Priority Corridor with three or more pedestrian/bicyclist injury crashes in any consecutive 12 months of the most recent three-year period for which data is available.

Crash data for intersections within a quarter-mile from the proposed redevelopment site as well as the intersection within the traffic study area were obtained from NYCDOT for the three-year period between January 1, 2017 and December 31, 2019 (see Table 7). Five intersections would be considered high-crash intersections and include the four Albany Avenue intersections at Rutland Road, Winthrop Street, Clarkson Avenue, and Linden Boulevard as well as the intersection of Clarkson Avenue at East 37th Street due to the number of pedestrian /bicycle crashes. Four of the five intersections are located along Vision Zero Priority Corridors except the intersection of Albany Avenue and Winthrop Street.

Table 7: Summary of Crash Data 2017-2019

Intersection		Vision Zero Corridor	Total Crashes			Injury Crashes												Fatalities		
						Motor Vehicle			Pedestrian			Bicycle			Total					
			2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019	2017	2018	2019
East 37th Street	Clarkson Avenue	Y	22	20	13	2	1	1	1	3	1	0	1	0	3	5	2	0	0	0
	Lenox Road	N	6	6	7	0	1	1	0	0	0	0	0	0	1	1	1	0	0	0
East 38th Street	Clarkson Avenue	Y	4	7	4	1	1	1	0	0	0	0	1	0	1	2	1	0	0	0
	Lenox Road	N	5	5	5	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0
Kingston Avenue	Rutland Road	Y	9	4	8	0	0	0	2	0	1	0	0	0	2	0	1	0	0	0
	Winthrop Street	Y	10	16	14	2	2	3	1	0	0	0	2	1	0	0	0	0	0	0
East 39th Street	Clarkson Avenue	Y	2	5	3	1	1	1	0	1	0	0	0	0	1	2	1	0	0	0
	Lenox Road	N	5	5	5	0	0	1	0	1	1	0	0	0	0	1	2	0	0	0
	Linden Blvd.	Y	5	4	7	1	1	1	0	0	0	0	0	1	1	1	2	0	0	0
East 40th Street	Clarkson Avenue	Y	5	1	5	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0
	Lenox Road	N	4	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Linden Blvd.	Y	3	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Albany Avenue	Midwood Street	N	5	6	4	3	0	2	0	1	1	0	1	0	3	2	3	0	0	0
	Rutland Road	Y	14	11	9	4	1	1	1	3	0	0	0	0	5	4	1	0	0	0
	Fenimore Street	N	3	5	7	1	1	1	0	1	1	0	0	0	1	2	2	0	0	0
	Hawthorne Street	N	4	3	7	0	0	3	0	0	1	0	0	0	0	0	4	0	0	0
	Winthrop Street	N	27	21	27	3	6	2	2	4	2	1	1	1	6	11	5	0	0	0
	Clarkson Avenue	Y	15	24	16	3	8	2	2	4	5	0	0	0	5	11	7	0	1	0
	Lenox Road	N	9	16	8	3	5	4	0	0	0	0	0	0	3	5	4	0	0	0
East 42nd Street	Linden Blvd.	Y	12	13	9	4	2	6	0	2	0	0	1	0	4	5	6	0	0	0
	Clarkson Avenue	Y	5	3	2	0	0	0	0	1	1	0	0	1	0	1	2	0	0	0
	Lenox Road	N	3	4	4	1	0	2	0	0	0	0	0	1	0	2	0	0	0	
East 43rd Street	Linden Blvd.	Y	9	6	12	2	1	4	0	0	1	0	0	0	2	1	5	0	0	0
	Clarkson Avenue	Y	4	1	7	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0
	Lenox Road	N	5	2	3	1	0	0	1	0	0	0	0	0	2	0	0	0	0	
Troy Avenue	Linden Blvd.	Y	9	7	4	1	0	2	0	1	0	0	1	0	1	2	2	0	0	0
	Midwood Street	N	3	3	2	0	1	0	0	0	0	0	0	0	0	1	0	0	0	
	Rutland Road	Y	10	6	1	1	1	0	0	1	0	0	0	0	1	2	0	0	0	
	Fenimore Street	N	2	3	3	0	0	1	0	0	1	0	0	0	0	0	2	0	0	
	Hawthorne Street	N	3	3	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Winthrop Street	N	4	6	6	0	2	1	2	0	0	0	0	0	2	2	1	0	0	
	Clarkson Avenue	Y	2	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
East 45th Street	Lenox Road	N	2	2	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0	
	Linden Blvd.	Y	7	4	6	1	0	3	2	1	0	0	0	0	3	1	3	0	0	
	Rutland Road	Y	1	3	2	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
	Winthrop Street	N	2	7	4	0	2	1	0	0	0	0	0	0	2	1	0	0	0	
East 46th Street	Clarkson Avenue	Y	1	3	2	0	1	0	0	0	0	0	0	0	1	0	0	0	0	
	Lenox Road	N	3	5	5	0	1	0	0	0	0	0	0	0	1	0	0	0	0	
	Linden Blvd.	Y	4	4	5	0	0	3	0	1	0	0	0	0	1	3	0	0	0	
	Rutland Road	Y	0	2	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	
Schenectady Avenue	Winthrop Street	N	6	4	4	1	0	0	0	1	0	0	1	0	1	2	0	0	0	
	Clarkson Avenue	Y	1	0	3	1	0	2	0	0	0	0	0	0	1	0	2	0	0	
	Lenox Road	N	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Linden Blvd.	Y	8	5	4	2	1	1	0	1	0	0	0	0	2	2	1	0	0	
East 48th Street	Rutland Road	Y	13	7	13	2	1	5	0	0	0	0	0	0	2	1	5	0	0	
	Winthrop Street	Y	11	14	15	1	3	6	1	0	0	0	0	0	2	3	6	0	0	
	Clarkson Avenue	Y	3	3	1	0	0	0	0	1	0	0	0	0	1	0	0	0	0	
	Lenox Road	N	5	0	9	2	0	0	0	0	2	0	0	0	2	0	2	0	0	
East 48th Street	Clarkson Avenue	Y	3	3	5	0	0	2	0	0	0	0	0	0	0	2	0	0	0	
	Lenox Road	N	3	3	3	1	1	2	0	0	0	0	0	1	1	2	0	0	0	

Note: shaded cells indicate high-crash intersections

Source: NYCDOT crash data from January 1, 2017 to December 31, 2019