2.13 TRANSPORTATION

2.13.1 INTRODUCTION

This chapter assesses the Proposed Action's potential impact on traffic, parking, transit, and pedestrian facilities in the vicinity of the Project Area. As described in **Chapter 1.0**, "Project Description," the Project Area contains a Development Area that has five different components that would generate new travel demand to the surrounding streets and would create new traffic, parking, transit, and pedestrian demands. The five components of the Development Area that would generate travel demand as a result of the Proposed Action include up to 195,000 square feet of medium- to large-format retail on Retail Site "A" (11.01 acres), 90,000 square feet of neighborhood retail on Retail Site "B" (7.28 acres), a 15,000 square-foot library on Retail Site "A", a residential use with 162 units of senior housing (9.06 acres), a 750-seat elementary/middle school (5.88 acres) and a 23.53 acre park (Fairview Park).

The mapping and construction of Englewood Avenue as a new east-west connection between Arthur Kill Road and Veterans Road West is proposed for the Development Area, which would provide access to the proposed school and senior housing sites. Project elements in the Development Area would be constructed over an approximately 7-year period. The potential for transportation impacts are assessed for both a 2015 and a 2020 analysis year. The 2015 analysis would include the development of Retail Site "A", the library, and Fairview Park, while the 2020 analysis would include the development of Retail Site "B", the school and the senior housing. The transportation analyses presented in this chapter are separated into a 2015 analysis year and a 2020 analysis year.

2.13.2 METHODOLOGY

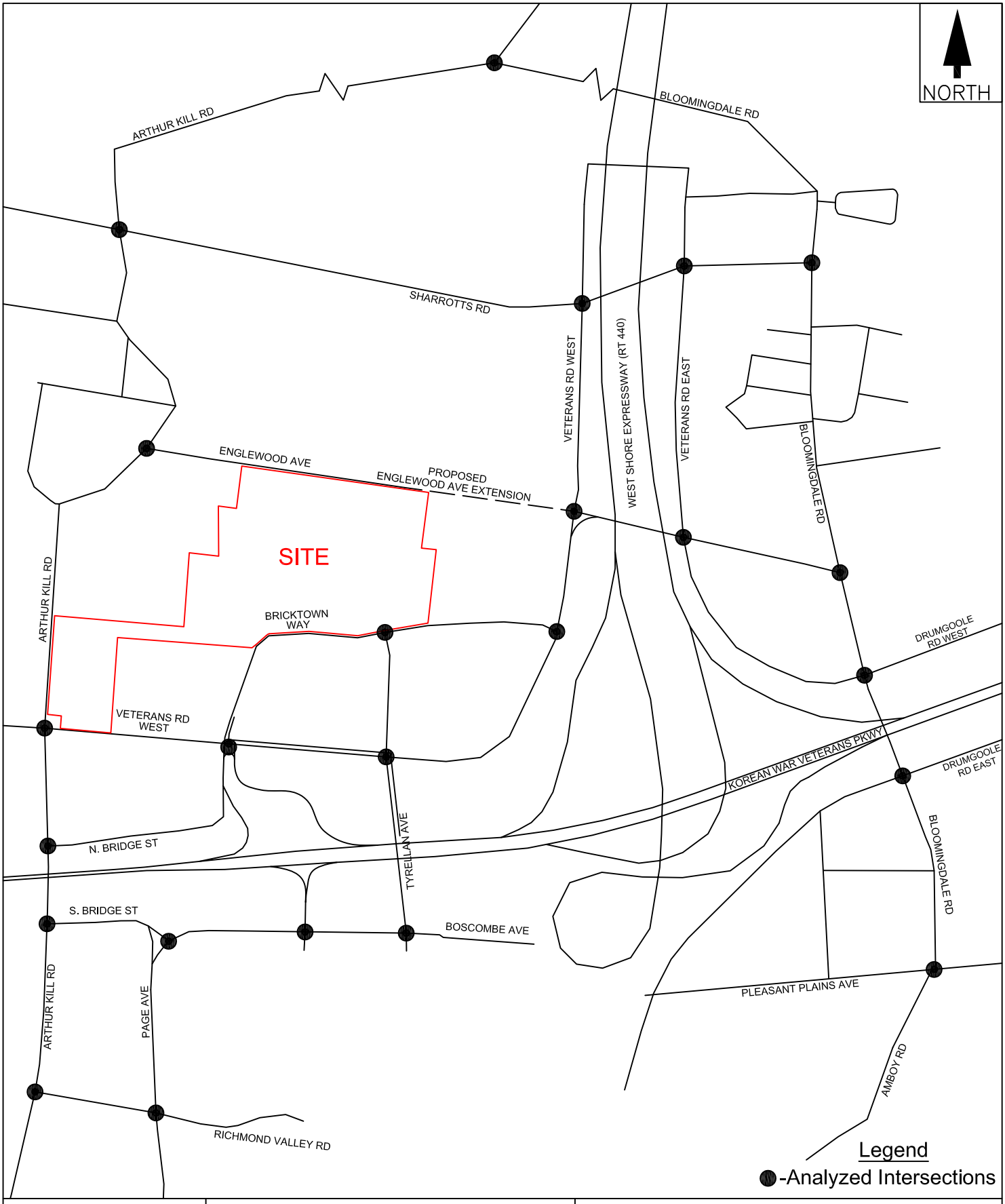
The study area identified for the transportation analysis is shown in **Figure 2.13-1**. The area was selected to encompass those roadways and other facilities most likely to be used by the majority of persons and vehicles traveling to and from the Development Area. The study area is bounded on the north and west by Arthur Kill Road, on the south by Richmond Valley Road and Amboy Road, and on the east by Bloomingdale Road. A total of 24 intersections within the study area were analyzed for potential vehicular traffic during four time periods—the weekday AM (8–9 AM), weekday midday (12–1 PM), weekday PM (5–6 PM), and Saturday midday (12:45–1:45 PM) peak hours.

2.13.3 EXISTING CONDITIONS

2.13.3.1 Traffic

Existing 2011 traffic conditions in the study area were developed from traffic volume data collected in June 2011. This data collection included turning movement counts, automatic traffic recorder (ATR) data, travel time and delay studies, and vehicle classification counts. Other sources, such as the Bricktown Centre At Charleston FEIS 2002, New York City Department of Transportation (NYCDOT) signal timing, NYCDOT accident data for 2008 to 2011, and NYCDOT bus ridership data were also utilized. **Figure 2.13-2** through **Figure 2.13-5** show the resultant traffic volumes for 2011 existing conditions during the weekday AM, midday, PM, and Saturday midday peak hours, respectively.

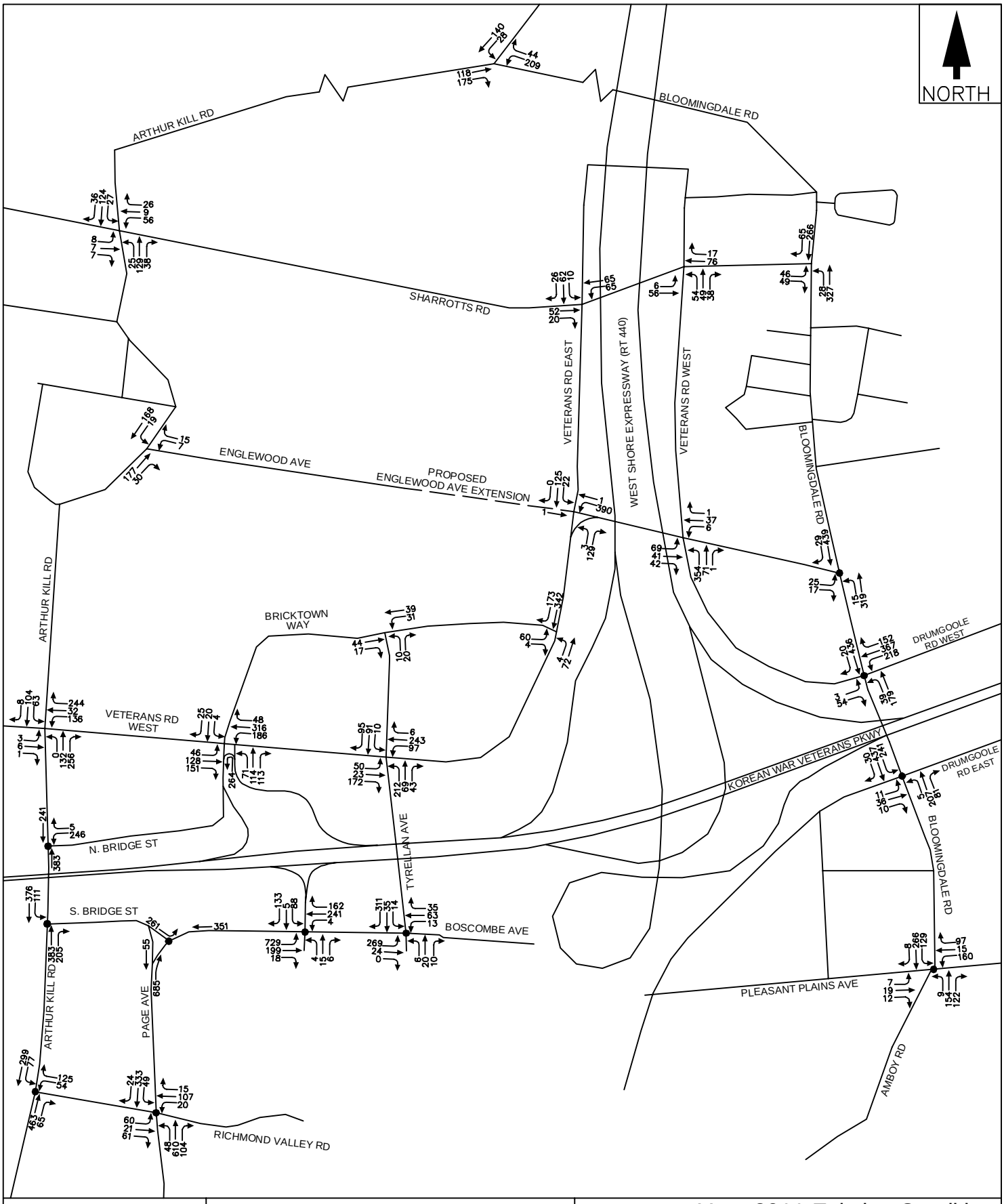
The study area, which contains a mix of commercial and residential development, is served by two limited access roadways and an irregular network of arterials and local streets. A discussion of the street network in the study area follows below.



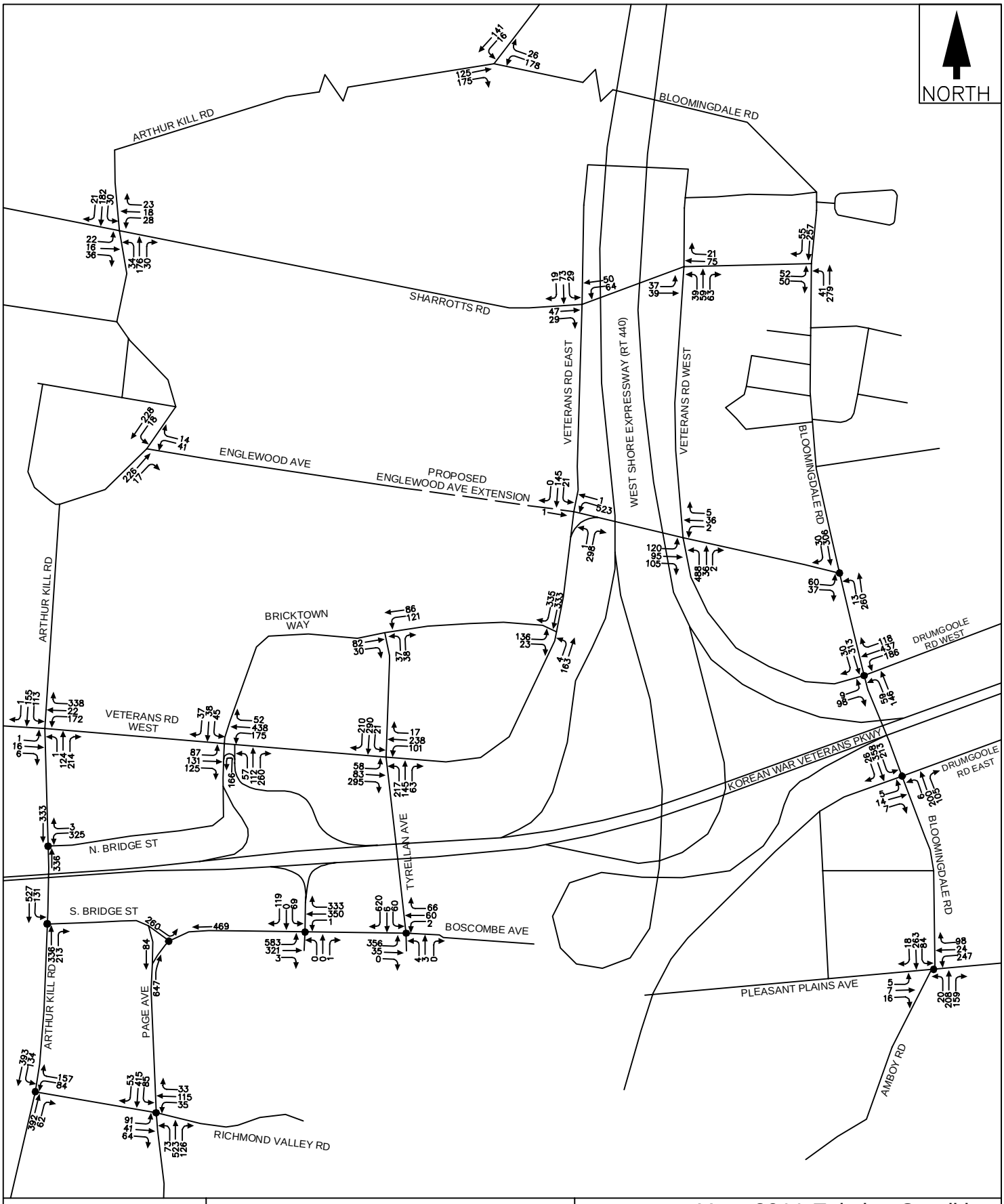
AECOM

Charleston Development EIS
Staten Island, NY

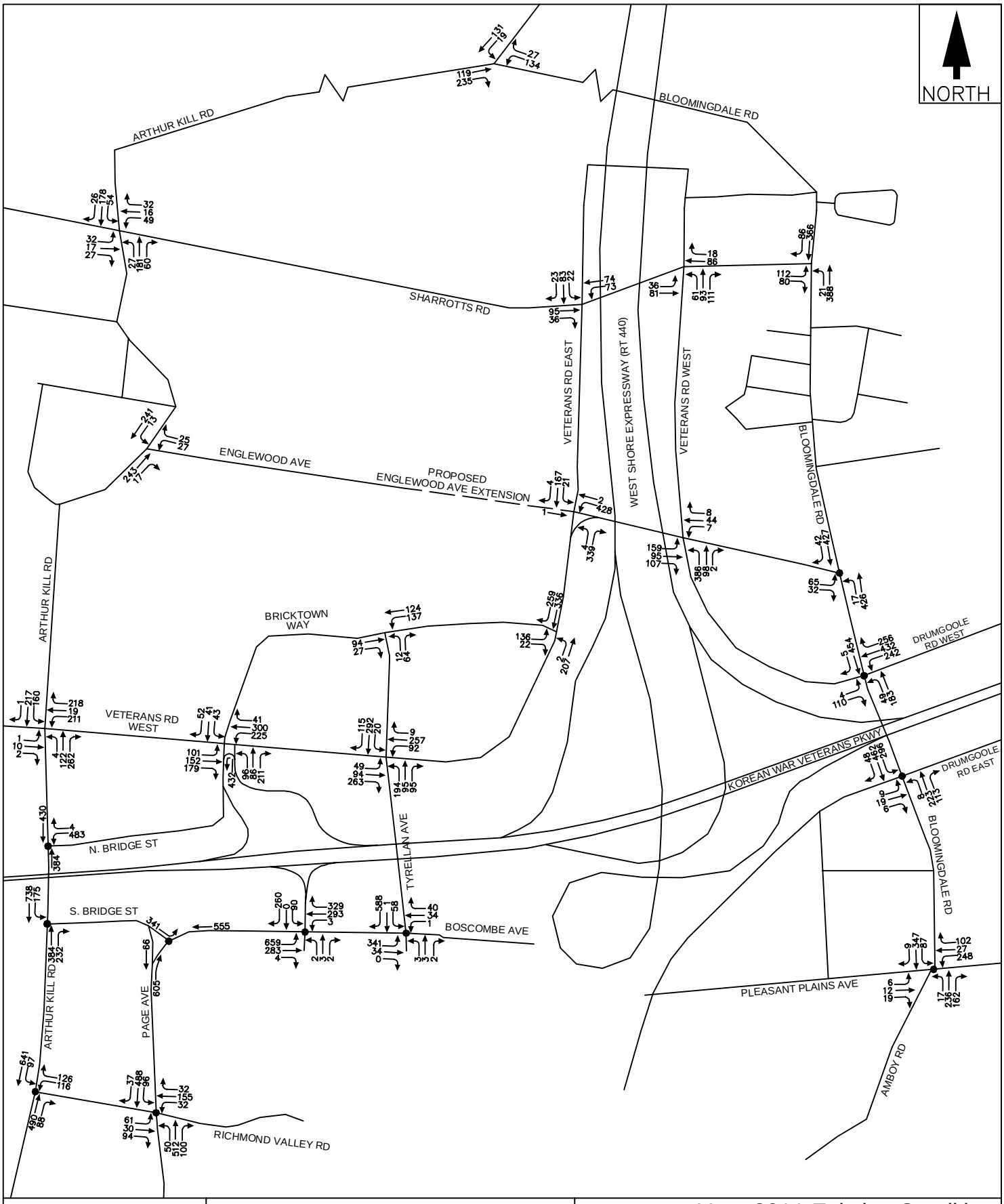
Study Area Map
Figure 2.13-1



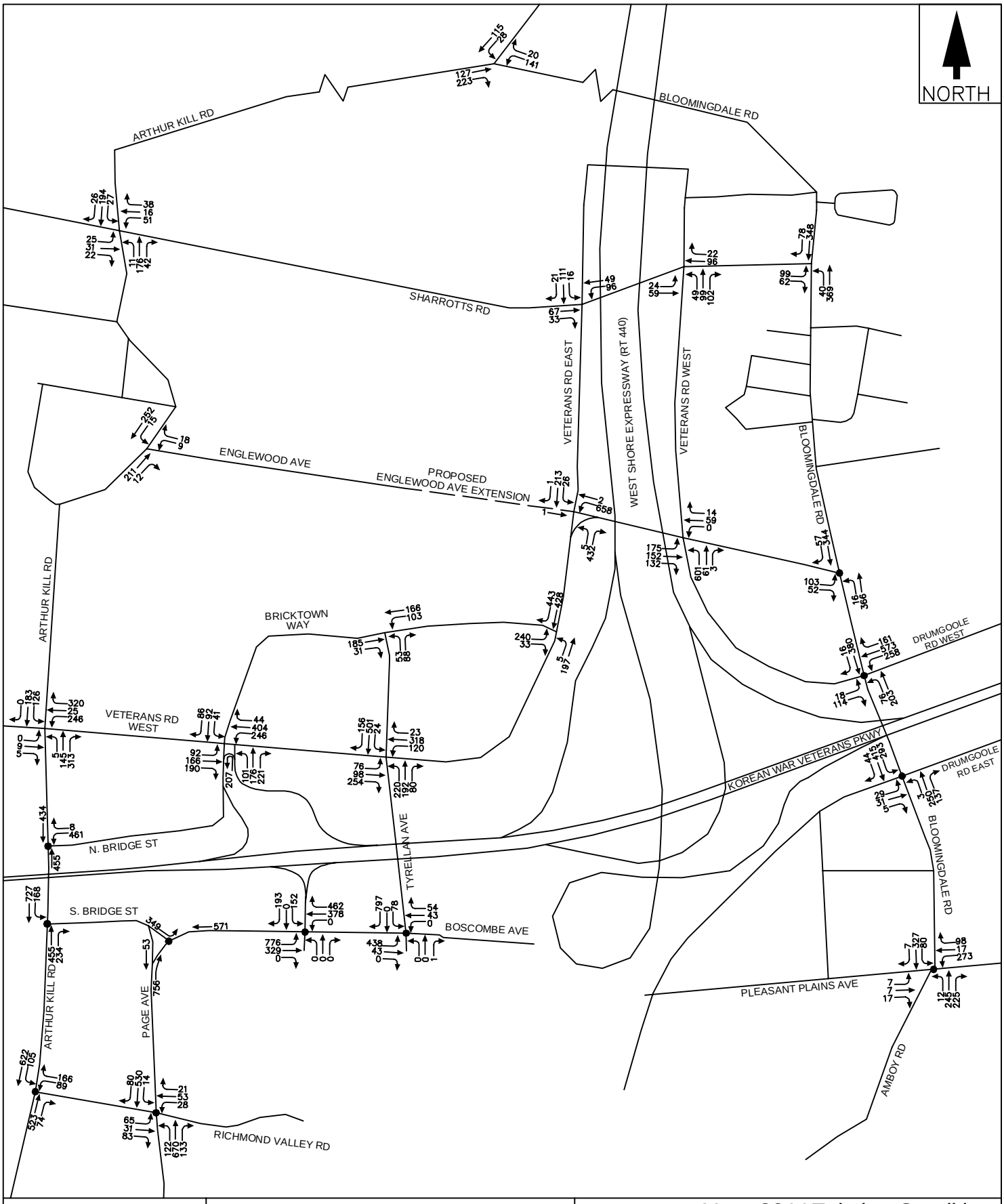
AECOM	Charleston Development EIS Staten Island, NY	Year 2011 Existing Condition Traffic Volumes Weekday AM Peak Hour (8:00 to 9:00 AM) Figure 2.13-2



AECOM	Charleston Development EIS Staten Island, NY	Year 2011 Existing Condition Traffic Volumes Weekday Midday Peak Hour (12:00 to 1:00 PM) Figure 2.13-3



AECOM	Charleston Development EIS Staten Island, NY	Year 2011 Existing Condition Traffic Volumes Weekday PM Peak Hour (5:00 to 6:00 PM) Figure 2.13-4



AECOM	Charleston Development EIS Staten Island, NY	Year 2011Existing Condition Traffic Volumes Saturday Midday Peak Hour (12:45 to 1:45 PM) Figure 2.13-5

Limited-Access Roadways

As shown in **Figure 2.13-1**, the Charleston neighborhood is readily accessible from two limited access roadways – the West Shore Expressway (Route 440) and the Korean War Veterans Parkway. The West Shore Expressway is a north-south highway that typically accommodates two travel lanes in each direction. At its southern terminus, it connects to the Korean War Veterans Parkway and continues west into New Jersey via the Outerbridge Crossing over the Arthur Kill, while to the north it connects to the Staten Island Expressway (I-278) before continuing into Bayonne, New Jersey, via the Bayonne Bridge over the Kill Van Kull.

The Korean War Veterans Parkway is also a limited access east-west roadway that typically accommodates two travel lanes in each direction. From its interchange with the West Shore Expressway within the study area, the Parkway continues eastward until terminating at Arthur Kill Road and Richmond Avenue. It is flanked on both sides by Drumgoole Road East and West which function as service roadways to the Parkway.

Entrance and exit ramps at the West Shore Expressway/Korean War Veterans Parkway interchange provide access to and from both roadways in the vicinity of the project site. Vehicles en route to the project site from the north can exit the interchange via a ramp onto Veterans Road West, and a northbound entrance ramp is located on Boscombe Avenue. Vehicles en route to the Outerbridge Crossing can enter southbound Route 440 via a ramp from Veterans Road West, while northbound vehicles en route from the Outerbridge Crossing can exit onto Boscombe Avenue. In addition, both a northbound exit ramp and a southbound entrance ramp for the West Shore Expressway are located at Sharrotts Road to the north of the project site. Corresponding northbound entrance and southbound exit ramps are located further to the north near Bloomingdale Road.

Arterial and Local Roadways

Veterans Road West is a two-way arterial road that extends from Arthur Kill Road west of the project site to Woodrow Road to the north (see **Figure 2.13-1**). It is the major roadway connecting the existing Bricktown Centre to the nearby parkways and the surrounding road network. Veterans Road West is a three-lane one-way southbound road north of Englewood Avenue. Between Englewood Avenue and Bricktown Way, Veterans Road West accommodates two travel lanes in each direction, whereas from Bricktown Way to Arthur Kill Road, it accommodates one lane in each direction. Veterans Road West accommodates the S74, S84, and S78 buses between Arthur Kill Road and Tyrellan Avenue before terminating at Bricktown Centre.

Aligned parallel to the West Shore Expressway to the east is Veterans Road East. It accommodates two-way traffic flow with three northbound and two southbound lanes south of Englewood Avenue, and one-way northbound traffic flow with three moving lanes north of Englewood Avenue.

Boscombe Avenue is a relatively short, two-way east-west road that is aligned parallel to Route 440 to the south, and extends from Page Avenue to a dead-end east of Tyrellan Avenue. As noted previously, Boscombe Avenue provides access to and from both the West Shore Expressway and the Korean War Veterans Parkway via eastbound entrance and exit ramps. Between Page Avenue and Tyrellan Avenue, Boscombe Avenue typically accommodates two travel lanes in each direction. East of Tyrellan Avenue, Boscombe Avenue accommodates one travel lane in each direction.

On the western edge of the study area is Arthur Kill Road, a north-south roadway which typically accommodates one travel lane in each direction. On-street parking is also provided in limited segments on both sides of Arthur Kill Road. The S74 and S84 buses are routed along Arthur Kill Road, north of Veterans Road West. In addition, the S78 bus runs along its length south of Veterans Road West. The S55 also runs along a short segment of Arthur Kill Road from Bloomingdale Road to the Arthur Kill Correctional Facility.

On the eastern edge of the study area is Bloomingdale Road, which is a two-way north-south road connecting Amboy Road to the south with Arthur Kill Road to the north. The roadway typically accommodates one travel lane in each direction plus on-street parking. Bloomingdale hosts the S55 bus along its entire length, the X22 express bus from Amboy Road to Woodrow Road, and the S74 and S84 buses from Woodrow Road to Arthur Kill Road.

To the north of Bricktown Centre is Sharrotts Road, a two-way east-west road which typically accommodates one travel lane in each direction with limited on-street parking. Sharrotts Road extends from Bloomingdale Road to a dead-end west of Arthur Kill Road.

Englewood Avenue is a two-way east-west roadway aligned parallel to Sharrotts Road to the south. Englewood Avenue is discontinuous between Arthur Kill Road and Bloomingdale Road: one segment dead-ends approximately 1,200 feet east of Arthur Kill Road, and another segment extends from Bloomingdale Road to a dead-end approximately 100 feet west of Veterans Road West. The second segment primarily functions as an east-west connection across the West Shore Expressway. The roadway is discontinuous as much of the segment between Veterans Road West and Arthur Kill Road has not yet been built. (As discussed later in this chapter, construction of this un-built roadway segment is being proposed as part of the Proposed Project.) The existing segments of Englewood Avenue typically accommodate one travel lane plus on-street parking in each direction.

Tyrellan Avenue, a two-way north-south local roadway, provides access across the West Shore Expressway from Boscombe Avenue to Bricktown Way (i.e., within Bricktown Centre). South of Veterans Road West, Tyrellan Avenue typically accommodates one travel lane plus on-street parking in each direction. Between Veterans Road West and Bricktown Way (i.e., within Bricktown Centre), Tyrellan Avenue is a private road that accommodates two travel lanes in each direction.

Lastly, Page Avenue is a two-way north-south roadway that connects with Boscombe Avenue at its intersection with South Bridge Street. Page Avenue extends to the southern waterfront of Staten Island and provides access to and from neighborhoods located to the south of the project site and Route 440. The roadway typically accommodates one travel lane plus on-street parking in each direction, with the exception of the segment between Richmond Valley Road and Boscombe Avenue where it accommodates two northbound travel lanes plus on-street parking.

Intersection Operations Analysis

The capacity analyses at study area intersections are based on the methodology presented in the Highway Capacity Software Version HCS+ 5.4. Traffic data required for these analyses include volumes on each approach, as well as various other physical and operational characteristics. Signal timing plans for each intersection were obtained from NYCDOT. Field inventories were also conducted to document curbside parking regulations, vehicle classifications, and other relevant characteristics.

The HCM methodology expresses quality of flow in terms of level-of-service (LOS), which is based on the average control delay that drivers experience at an intersection. Control delay includes delays associated with acceleration, deceleration, and queue move-up time, in addition to stopped delay at the intersection.

For signalized intersections, LOS ranges on a letter-grade scale from “A” (average control delays of 10 seconds or less per vehicle) to “F” (average control delays exceeding 80 seconds per vehicle). The methodology also provides a volume-to-capacity (v/c) ratio for intersection traffic movements. A ratio of under 0.85 is generally considered to represent non-congested conditions, whereas above this value, congestion increases. At a v/c ratio of between 0.95 and 1.00, near-capacity conditions are reached and delays can become substantial. Ratios of greater than 1.05 indicate saturated conditions with queuing.

As with signalized intersections, the HCM methodology for unsignalized (i.e., stop-controlled) intersections also expresses the quality of flow in terms of both v/c ratio and a letter-grade LOS, with LOS based on the average control delay. However, the relationships between delay and LOS for unsignalized

intersections are different from those for signalized intersections, primarily because motorists expect different levels of performance from these two types of intersections. For unsignalized intersections, LOS ranges from “A” (average control delays of 10 seconds or less per vehicle) to “F” (average control delays exceeding 50 seconds per vehicle).

Generally, congestion and poor service are characterized by both LOS “E” and “F” at signalized intersections and LOS “F” at unsignalized intersections. **Table 2.13-1** defines the LOS-delay relationships according to the HCM methodology for both types of intersections.

Table 2.13-1

Intersection Level of Service Criteria

Level of Service (LOS)	Average Delay (seconds per vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤10	0 - 10
B	> 10 – 20	> 10 - 15
C	> 20 – 35	> 15 - 25
D	> 35 – 55	> 25 - 35
E	>55 – 80	> 35 – 50
F	> 80	> 50

Source: *2000 Highway Capacity Manual.*

Table 2.13-2 shows the results of the capacity analysis at the 24 study area intersections analyzed in the four peak hours for 2011 existing conditions. The table highlights (with shading) those intersection movements that operate at LOS “E” or “F” or have a high v/c ratio (0.90 and above), and are therefore considered to be congested.

Table 2.13-2 shows that five of the 24 study area intersections have one or more congested movements in one or more of the analyzed peak hours. Generally, the Saturday peak hour has the most congested locations as a result of shopping activity at the Bricktown Centre. There are two intersections with one or more congested movements during the weekday AM peak hour, zero during the weekday midday peak hour, two during the weekday PM peak hour, and three during the Saturday midday peak hour. These are discussed in more detail below:

- **Richmond Valley Road/Arthur Kill Road** – During the weekday PM and Saturday midday peak hours, the southbound approach operates with a v/c ratio exceeding 0.90. In addition, the overall v/c ratio is 0.90 during the weekday PM peak hour.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp** – During the weekday PM and Saturday midday peak hours, the westbound left-turn movement operates with delays corresponding to LOS “F” and v/c ratios exceeding 0.90. In addition, the U-turn movement on the northbound approach to this intersection (an unsignalized movement) operates with delays corresponding to LOS “E” during the weekday PM peak hour.
- **Boscombe Avenue/Outerbridge Crossing ramps** – During the Saturday midday peak hour, the westbound right-turn movement operates with a v/c ratio exceeding 0.90.
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach operates with a v/c ratio exceeding 0.90.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach operates with a v/c ratio exceeding 0.90.

Table 2.13-2
Peak Hour Level-of-Service Analysis Results
Year 2011 Existing Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.04	10.5	B	0.02	10.3	B	0.02	10.3	B
	WB	LT	0.35	13.7	B	0.41	14.4	B	0.52	16.4	B	0.53	16.3	B
		R	0.54	17.1	B	0.73	22.3	C	0.51	16.2	B	0.65	19.0	B
	NB	LTR	0.65	18.1	B	0.52	15.6	B	0.56	16.1	B	0.68	18.6	B
	SB	LTR	0.39	14.3	B	0.54	16.8	B	0.85	31.9	C	0.66	20.7	C
	Overall		**0.60**	**16.4**	**B**	**0.63**	**17.5**	**B**	**0.69**	**21.0**	**C**	**0.66**	**18.6**	**B**
North Bridge Street / Arthur Kill Road	WB	LR	0.45	17.8	B	0.58	19.7	B	0.87	24.6	C	0.81	23.3	C
	NB	T	0.46	11.2	B	0.38	10.2	B	0.40	10.5	B	0.49	11.3	B
	SB	T	0.30	9.4	A	0.41	10.2	B	0.52	10.9	B	0.46	10.3	B
	Overall		**0.46**	**12.6**	**B**	**0.48**	**13.3**	**B**	**0.66**	**16.1**	**B**	**0.62**	**15.3**	**B**
Richmond Valley Road / Arthur Kill Road	WB	LR	0.50	23.1	C	0.72	30.3	C	0.72	29.9	C	0.73	30.6	C
	NB	TR	0.60	10.6	B	0.47	8.9	A	0.57	10.0	A	0.58	10.1	B
	SB	LT	0.52	9.9	A	0.80	14.6	B	0.99	20.4	C	0.92	17.6	B
	Overall		**0.57**	**12.3**	**B**	**0.77**	**15.7**	**B**	**0.90**	**18.3**	**B**	**0.86**	**16.9**	**B**
Richmond Valley Road / Page Avenue	EB	LTR	0.28	22.4	C	0.44	24.5	C	0.38	23.2	C	0.39	23.4	C
	WB	LTR	0.26	22.3	C	0.36	24.0	C	0.48	26.0	C	0.26	22.5	C
	NB	L	0.12	10.3	B	0.22	11.6	B	0.17	11.1	B	0.38	13.6	B
		TR	0.74	18.7	B	0.68	17.4	B	0.63	16.5	B	0.82	21.0	C
	SB	LTR	0.43	13.4	B	0.58	16.0	B	0.65	17.3	B	0.44	13.2	B
	Overall		**0.56**	**17.6**	**B**	**0.59**	**18.3**	**B**	**0.58**	**18.7**	**B**	**0.65**	**18.4**	**B**
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.43	25.4	C	0.45	25.7	C	0.56	27.8	C	0.61	29.1	C
		R	0.11	10.7	B	0.14	10.9	B	0.14	11.8	B	0.08	10.4	B
	NB	T	0.35	11.3	B	0.33	11.2	B	0.31	11.0	B	0.37	11.5	B
	SB	T	0.21	10.3	B	0.27	10.8	B	0.32	11.2	B	0.32	11.2	B
	Overall		*	**13.7**	**B**	*	**13.6**	**B**	*	**14.8**	**B**	*	**14.9**	**B**
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.19	22.6	C	0.47	29.8	C	0.41	26.2	C	0.47	29.0	C
		TR	0.47	25.9	C	0.45	25.7	C	0.56	27.3	C	0.57	27.4	C
	WB	L	0.82	50.8	D	0.72	40.3	D	1.02	89.6	F	1.05	98.1	F
		TR	0.38	23.9	C	0.47	25.0	C	0.35	22.8	C	0.47	24.2	C
	NB	LTR	0.36	27.3	C	0.52	29.6	C	0.44	28.2	C	0.59	30.9	C
		U-TURN	0.46	15.7	C	0.29	13.3	B	0.88	42.9	E	0.47	18.8	C
	SB	L	0.02	27.4	C	0.15	28.9	C	0.15	28.9	C	0.13	28.6	C
		TR	0.19	29.6	C	0.26	30.6	C	0.25	30.3	C	0.59	37.1	D
	Overall		*	**27.0**	**C**	*	**27.4**	**C**	*	**28.9**	**C**	*	**36.0**	**D**
Veterans Road West / Tyrellan Avenue	EB	LTR	0.26	16.2	B	0.44	18.3	B	0.38	17.6	B	0.44	18.3	B
	WB	LTR	0.33	17.0	B	0.38	17.6	B	0.39	17.7	B	0.54	20.0	B
	NB	DefL	0.49	21.2	C	0.78	37.8	D	0.53	23.1	C	0.86	50.1	D
		TR	0.16	15.4	B	0.30	16.9	B	0.26	16.4	B	0.36	17.8	B
	SB	LTR	0.22	15.8	B	0.50	19.4	B	0.35	17.2	B	0.55	20.0	C
	Overall		**0.41**	**17.2**	**B**	**0.61**	**20.8**	**C**	**0.46**	**18.0**	**B**	**0.70**	**22.4**	**C**
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	0.89	20.3	C	0.81	23.3	C	0.85	17.8	B	0.89	26.3	C
		TR	0.21	4.6	A	0.31	5.3	A	0.26	4.3	A	0.29	5.1	A
	WB	LT	0.57	34.6	C	0.86	43.5	D	0.53	27.9	C	0.87	37.1	D
		R	0.49	33.3	C	0.71	37.2	D	0.70	32.5	C	0.91	39.7	D
	NB	LTR	0.19	32.7	C	0.01	30.6	C	0.11	34.2	C	-	-	-
	SB	L	0.45	39.3	D	0.30	35.5	D	0.55	45.8	D	0.29	33.3	C
		LT	0.02	30.6	C	0.00	30.4	C	0.00	32.1	C	-	-	-
		R	0.16	6.7	A	0.13	6.5	A	0.38	11.5	B	0.22	7.1	A
	Overall		**0.71**	**22.0**	**C**	**0.77**	**25.5**	**C**	**0.80**	**20.2**	**C**	**0.82**	**25.8**	**C**
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.42	16.0	B	0.55	18.4	B	0.50	17.3	B	0.62	19.9	B
		TR	0.02	11.4	B	0.04	11.5	B	0.04	11.5	B	0.04	11.6	B
	WB	LTR	0.09	11.9	B	0.08	11.8	B	0.04	11.6	B	0.06	11.6	B
	NB	LTR	0.06	17.3	B	-	-	-	0.01	16.9	B	0.00	16.8	B
		DefL	-	-	-	0.01	16.9	B	-	-	-	-	-	-
		TR	-	-	-	0.01	19.9	B	-	-	-	-	-	-
	SB	LT	0.09	17.7	B	0.14	18.2	B	0.11	18.0	B	0.15	18.4	B
		R	0.33	20.7	C	0.58	25.4	C	0.51	23.7	C	0.69	28.3	C
	Overall		**0.38**	**16.6**	**B**	**0.56**	**19.7**	**B**	**0.50**	**18.9**	**B**	**0.65**	**22.0**	**C**

Table 2.13-2 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2011 Existing Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Bricktown Way / Veterans Road West	EB	L	0.14	15.2	B	0.29	16.7	B	0.29	16.7	B	0.49	19.3	B
		R	0.00	14.0	B	0.04	14.4	B	0.04	14.3	B	0.06	14.5	B
	NB	LT	0.06	7.3	A	0.11	7.6	A	0.14	7.7	A	0.14	7.7	A
	SB	TR	0.34	8.8	A	0.43	9.5	A	0.34	8.9	A	0.51	9.9	A
	Overall		**0.26**	**9.3**	**A**	**0.38**	**10.2**	**B**	**0.32**	**9.8**	**A**	**0.50**	**11.4**	**B**
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B
	WB	L	0.41	14.4	B	0.45	14.9	B	0.40	14.2	B	0.89	34.0	C
		LT	0.43	14.7	B	0.47	15.3	B	0.42	14.6	B	0.31	13.1	B
	NB	L	0.01	10.3	B	0.00	10.2	B	0.01	10.3	B	0.01	10.3	B
		R	0.16	9.1	A	0.32	10.1	B	0.36	10.3	B	0.47	11.5	B
	SB	LTR	0.09	10.7	B	0.10	10.8	B	0.10	10.8	B	0.13	10.9	B
	Overall		*	**12.5**	**B**	*	**12.8**	**B**	*	**12.1**	**B**	*	**22.5**	**C**
Englewood Avenue / Veterans Road East	EB	LT	0.26	15.1	B	0.43	17.4	B	0.57	20.3	C	0.82	30.7	C
		R	0.05	13.1	B	0.10	13.5	B	0.11	13.6	B	0.16	14.0	B
	WB	LTR	0.10	13.5	B	0.08	13.4	B	0.13	13.8	B	0.16	14.0	B
	NB	LTR	0.25	9.4	A	0.24	9.3	A	0.24	9.3	A	0.32	9.8	A
	Overall		**0.25**	**10.8**	**B**	**0.32**	**12.0**	**B**	**0.38**	**13.2**	**B**	**0.53**	**17.2**	**B**
Englewood Avenue / Bloomingdale Road	EB	LR	0.12	17.2	B	0.26	18.7	B	0.22	18.3	B	0.37	20.0	C
	NB	LT	0.37	8.1	A	0.29	7.4	A	0.47	8.9	A	0.37	8.0	A
	SB	TR	0.56	10.2	B	0.31	7.5	A	0.45	8.7	A	0.37	8.0	A
	Overall		**0.42**	**9.8**	**A**	**0.30**	**9.1**	**A**	**0.39**	**9.7**	**A**	**0.37**	**10.0**	**A**
Sharrotts Road / Bloomingdale Road	EB	LR	0.23	15.5	B	0.21	15.2	B	0.42	17.6	B	0.38	17.0	B
	NB	LT	0.49	11.8	B	0.43	11.0	B	0.53	12.1	B	0.51	11.9	B
	SB	TR	0.39	10.4	B	0.32	9.7	A	0.47	11.2	B	0.43	10.7	B
	Overall		**0.39**	**11.7**	**B**	**0.35**	**11.1**	**B**	**0.49**	**12.8**	**B**	**0.46**	**12.4**	**B**
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.05	23.1	C	0.02	22.7	C	0.11	23.6	C
		R	0.31	27.2	C	0.58	33.3	C	0.53	31.7	C	0.73	39.3	D
	WB	LTR	0.64	20.5	C	0.64	20.5	C	0.80	22.5	C	0.85	23.9	C
	NB	L	0.36	22.9	C	0.35	19.7	B	0.43	25.3	C	0.51	26.1	C
		T	0.35	16.6	B	0.28	15.8	B	0.32	16.2	B	0.36	16.6	B
	SB	TR	0.91	25.8	C	0.55	18.9	B	0.79	26.1	C	0.62	19.9	B
	Overall		**0.70**	**22.2**	**C**	**0.59**	**20.6**	**C**	**0.74**	**23.4**	**C**	**0.73**	**23.5**	**C**
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.15	16.8	B	0.09	16.2	B	0.12	16.5	B	0.19	17.2	B
	NB	LTR	0.36	8.7	A	0.38	8.8	A	0.39	8.9	A	0.44	9.3	A
	SB	L	0.53	10.5	B	0.41	9.5	A	0.57	11.3	B	0.62	12.8	B
		TR	0.61	10.6	B	0.42	8.9	A	0.54	9.9	A	0.49	9.4	A
	Overall		**0.45**	**10.4**	**B**	**0.31**	**9.3**	**A**	**0.42**	**10.2**	**B**	**0.47**	**10.7**	**B**
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.7	B	0.06	14.4	B	0.08	14.7	B	0.06	14.4	B
	WB	L	0.33	17.9	B	0.54	21.3	C	0.51	20.9	C	0.52	21.0	C
		T	0.02	14.1	B	0.04	14.2	B	0.04	14.2	B	0.02	14.1	B
		R	0.19	15.9	B	0.21	16.0	B	0.20	15.9	B	0.18	15.7	B
	NB	LTR	0.46	19.3	B	0.63	22.2	C	0.62	21.8	C	0.71	23.4	C
	SB	LTR	0.94	27.6	C	0.63	22.3	C	0.84	25.5	C	0.72	23.8	C
	Overall		**0.63**	**22.1**	**C**	**0.58**	**21.1**	**C**	**0.68**	**22.1**	**C**	**0.62**	**22.1**	**C**
Arthur Kill Road / Bloomingdale Road	EB	TR	0.30	14.1	B	0.31	14.2	B	0.39	15.1	B	0.39	15.1	B
	WB	LT	0.21	13.1	B	0.19	12.9	B	0.19	12.9	B	0.17	12.7	B
	NB	LR	0.50	23.7	C	0.40	21.8	C	0.41	22.0	C	0.33	20.7	C
	Overall		**0.39**	**17.4**	**B**	**0.35**	**16.5**	**B**	**0.40**	**16.7**	**B**	**0.36**	**16.0**	**B**

Table 2.13-2 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2011 Existing Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
UNSIGNALIZED INTERSECTIONS														
Sharrots Road / Arthur Kill Road	EB	LTR	0.05	12.9	B	0.18	13.6	B	0.22	16.6	C	0.41	17.7	C
	WB	LTR	0.18	13.3	B	0.18	14.9	B	0.30	18.1	C	0.30	16.7	C
	NB	LTR	0.02	7.9	A	0.03	7.8	A	0.02	7.9	A	0.01	7.8	A
	SB	LTR	0.02	7.8	A	0.03	8.0	A	0.05	8.0	A	0.02	7.8	A
Englewood Avenue / Arthur Kill Road	WB	LR	0.04	10.4	B	0.11	12.6	B	0.14	12.7	B	0.05	10.8	B
	SB	LT	0.02	7.9	A	0.02	8.0	A	0.01	8.0	A	0.01	7.8	A
South Bridge Street / Arthur Kill Road	SB	LT	0.15	10.2	B	0.17	9.7	A	0.24	10.5	B	0.22	10.5	B
Bricktown Way / Tyrellan Avenue	EB	T	0.04	7.9	A	0.07	8.8	A	0.08	8.2	A	0.16	8.9	A
		TR	0.06	7.7	A	0.12	8.8	A	0.11	8.2	A	0.20	9.0	A
	WB	LT	0.09	8.1	A	0.27	9.9	A	0.32	10.3	B	0.31	10.5	B
		T	0.03	7.5	A	0.06	7.9	A	0.09	8.1	A	0.13	8.6	A
	NB	L	0.01	7.6	A	0.06	8.3	A	0.02	8.2	A	0.09	8.9	A
		R	0.02	6.9	A	0.06	7.5	A	0.10	7.8	A	0.12	8.2	A
Sharrots Road / Veterans Road West	EB	TR	0.11	8.2	A	0.11	8.0	A	0.19	8.4	A	0.16	8.1	A
	WB	LT	0.20	8.6	A	0.18	8.5	A	0.24	9.0	A	0.22	8.9	A
	SB	LT	0.06	7.9	A	0.10	8.1	A	0.09	8.3	A	0.10	8.2	A
		TR	0.08	7.7	A	0.08	7.6	A	0.09	7.9	A	0.10	8.0	A
Sharrots Road / Veterans Road East	EB	LT	0.10	8.3	A	0.12	8.3	A	0.19	8.8	A	0.14	8.5	A
	WB	TR	0.19	8.2	A	0.15	8.1	A	0.17	8.6	A	0.17	8.5	A
	NB	LT	0.11	8.2	A	0.10	8.0	A	0.14	8.5	A	0.13	8.3	A
		TR	0.08	7.5	A	0.12	7.5	A	0.18	8.1	A	0.18	8.0	A

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

2.13.3.2 Transit - Buses

According to the Metropolitan Transportation Authority bus schedule, the S74, S84, and S78 bus lines serve the Bricktown Centre area, which is adjacent to the proposed development sites. The following provides a brief description of each route.

S74 and S84

The S74 and S84 (the S84 bus route providing limited-stop express service) bus routes serve neighborhoods northeast of Charleston, and terminate at St. George Ferry Terminal. Bricktown Centre marks the southern terminus stop for both bus routes. Buses departing from Bricktown Way, continue west onto Veterans Road West, and then travel onto Arthur Kill Road north of Veterans Road West to the greater extents of Staten Island. The S74 arrives every 10 to 15 minutes and departs every 15 to 20 minutes during the weekday AM peak hour and departs every 20 to 25 minutes during the weekday PM peak hour. The S84 limited stop express service has an arrival frequency of 40 minutes at Bricktown Centre during the weekday PM peak hour. S74 buses do not arrive at Bricktown Centre during the weekday PM peak hour, as S84 buses compensate by providing express service to Bricktown Centre during this time. S84 buses are only in service during the weekday PM peak hour.

S78

The S78 bus route serves neighborhoods south of Charleston (Tottenville, Prince's Bay), extending south of Veterans Road West & Allentown Lane (arriving at or departing from Bricktown Centre) continuing to Main Street (from Bricktown Centre) and to Craig Avenue and Amboy Road (to Bricktown Centre), and turning northeast onto Hyland Boulevard terminating at St. George Ferry Terminal. Bricktown Centre marks the southern terminus for the bus route. The S78 has a departure frequency of every 15 to 19 minutes and an arrival frequency of every 19 to 25 minutes during the weekday AM peak hour and a departure frequency of every 10 to 23 minutes and arrival frequency of every 14 to 15 minutes during the weekday PM peak hour.

Because the Charleston Mixed-Use Development, as a whole, is not projected to generate more than the CEQR threshold of 200 net peak hour bus trips during any peak hour (See **Table 2.13-5: Transportation Planning Assumptions**, and **Table 2.13-6: Trip Generation Estimates**, in the Future With-Action condition section of this chapter), a detailed bus transit analysis is not warranted.

2.13.3.3 Transit - Rail

The Staten Island Rapid Transit (SIRT) stops at the Richmond Valley station within walking distance (approximately one mile) of Bricktown Centre. The Richmond Valley station is located west of the Richmond Valley Road/Amboy Road intersection, to the south of the proposed sites. The SIRT is a single-route train that runs north-south between the St. George Ferry Terminal and the Tottenville neighborhood of Staten Island. There are three stops to the south (Tottenville-bound) of Richmond Valley station, as well as 18 stops to the north (St. George Ferry Terminal-bound). Tottenville-bound trains arrive at the nearby station every 8 to 15 minutes and every 13 to 20 minutes during the weekday AM and weekday PM peak hours, respectively. St. George Ferry Terminal-bound trains arrive every 15 to 20 minutes and every 15 minutes during the weekday AM and weekday PM peak hours, respectively. Because the number of peak hour rail transit trips in the AM and PM peak hours generated by the Charleston Mixed-Use Development, as a whole, would be below the CEQR threshold of 200 trips per hour, a detailed analysis at this station (stairways and entrance control facilities) in the AM and PM peak hours is not warranted as impacts are not expected.

2.13.3.4 Pedestrians

At present, pedestrian activity is relatively light at the sidewalks, crosswalks, and street corners in the study area. Low pedestrian activity in Charleston is due to (1) limited pedestrian facilities throughout the study area and (2) development densities that are not high enough to encourage a significant amount of pedestrian travel between desired origins and destinations. Sidewalks are typically provided in the residential neighborhoods and along commercial properties. Bricktown Way and Tyrellan Avenue both provide sidewalks on each side of the road to access the Bricktown Centre development. Sharrotts Road and the existing portion of Englewood Avenue provide pedestrian facilities for residential homes. Sidewalks are also provided along the majority of the Weiner Street, Boscombe Avenue, and, as mentioned earlier, Tyrellan Avenue, which provide the shortest route for Staten Island Railway users to Bricktown Centre. However, the majority of the roadways within the study area (including key roadways such as Bloomingdale Road, Veterans Road East, and Arthur Kill Road) have discontinuous sidewalk facilities across long distances, and as such, are not likely to encourage much pedestrian travel. Given the low number of pedestrian trips generated by the Charleston Mixed-Use Development, as a whole, detailed pedestrian analyses are not warranted for the Proposed Action. However, because the Development Area includes an elementary/middle school, a traffic safety analysis for the students is warranted and is provided in the "Traffic Safety" discussion found later in this chapter.

2.13.4 FUTURE NO-ACTION CONDITION

The Future No-Action condition traffic analysis identifies how the study area's transportation system is projected to operate in the future without the proposed action. As such, the Future No-Action condition traffic analysis includes anticipated future increases in background traffic volumes, but does not include traffic generated by the proposed project.

The traffic analysis has been performed for two study years. The first analysis year, 2015, includes the development of Retail Site "A", the library, and the park. The second analysis year, 2020, includes the development of Retail Site "B", the senior housing, and the school.

Staff from the NYCEDC, NYCDOT, and NYCDCP were contacted to identify any significant planned future developments or transportation improvement projects anticipated to occur within the study area between 2011 and 2020. Based on conversations with staff at all three agencies, there are several significant projects anticipated to occur in the study area, which are the following:

- **236 Richmond Valley Road** – Approximately 5,000 square-feet of commercial office development is planned at 236 Richmond Valley Road (Block 1791, Lot 250). This project was issued a Type II CEQR determination by City Planning on February 21, 2012. Permits for construction have been issued at the New York City Department of Buildings (DOB) and work has begun. It is expected that this project would be completed before the first analysis year (2015) of the Proposed Action.
- **245 Richmond Valley Road** – Approximately 8,000 square-feet of commercial development with 28 parking spaces is planned at 245 Richmond Valley Road (Block 7580, Lot 21). This project was issued a Type II CEQR determination by City Planning on April 3, 2012 and approved by the CPC on May 30, 2012. Permits for the demolition of the former two-story residence and detached garage have been issued by the DOB. It is expected that this project would be completed before the first analysis year (2015) of the Proposed Action.
- **Veterans Road West at Tyrellan Avenue** – Approximately 58,030 square-feet of commercial retail space with 193 parking spaces is planned for development in the southwest corner of the Veterans Road West/Tyrellan Avenue intersections, currently a vacant site. The proposal was approved by City Planning on February 22, 2012. It is expected that this project would be completed before the first analysis year (2015) of the Proposed Action.

- **4830 Arthur Kill Road** – Approximately 14,674 square-feet of new floor area and an additional 48 parking spaces are planned for construction as an extension of an existing commercial retail development at 4830 Arthur Kill Road (Block 7584, Lot 85). The proposal is under review at City Planning, and a negative declaration for its environmental review has been issued, with an expected 2013 completion date, prior to the first analysis year (2015) of the Proposed Action.
- **Veterans Plaza Food Store** – An approximately 70,000 square-foot supermarket is planned on a parcel north of Veterans Road West, and west of Bricktown Way. The proposal includes a zoning change from M1-1 to C8-2. The proposed rezoning would allow for a food store with accessory surface parking for 233 vehicles. The zoning change was certified by the City Planning Commission for public review on April 9, 2012. On August 8, 2012 the City Planning Commission approved the proposed actions for this project, which awaits final approval by the City Council. It is expected that this project would be completed after the first analysis year (2015), but before the analysis year (2020), of the Proposed Action.
- **Gateway Cathedral Residential Project** – Approximately 70 residential units with 105 parking spaces are planned as part of the Gateway Cathedral residential development project at 200 Boscombe Avenue (Block 7577, Lot 3). On the community facility portion of that site, the proposal reduced parking from 715 spaces to 618 spaces to allow room for a soccer and ball field. It is expected that this project would be completed after the first analysis year (2015), but before the analysis year (2020), of the Proposed Action.

The NYC DCP noted that Veterans Road Realty Corp. is proposing a commercial development consisting of two commercial buildings (mostly retail) totaling approximately 51,020 square feet of floor area with open accessory parking for 115 cars and enclosed parking for 55 cars, on a site located at the corner of Veterans Road West and Waunner Street. The application requires CPC approvals for cross access connection requires site planning pursuant to SRD district. In addition, as discussed further below, a new public school (P.S. 62) is under construction on the northwest quadrant of the Woodrow Road/Bloomingdale Road intersection. These projects will be further discussed and analyzed in the FEIS.

A Request for Proposals ("RFP") was issued on June 22, 2012 by the New York State Urban Development Corporation (UDC) for the redevelopment of the former Arthur Kill Correctional Facility, a 69-acre waterfront site on Arthur Kill Road approximately one mile north of the Project Area. The RFP expected possible future uses on the site would be new destination retail, maritime and light industrial development, and other options that would maximize the creation of jobs. However, Residential uses are not expected to be permitted. The UDC did not receive any acceptable responses to the RFP and UDC is currently evaluating possible next steps. As such, the potential redevelopment of the Arthur Kill Correctional Facility is not included among the projects expected to occur in the future without the Proposed Project.

There are no traffic studies available for any of the projects in the bulleted list above. Therefore, peak hour trip generation estimates for each development were prepared based on the sizes and types of the proposed land uses, standard trip rates from the *CEQR Technical Manual*, and mode split data from the respective census tracts where these projects are located. The trip distribution pattern estimated for the proposed Charleston development's retail and residential uses were applied to each project. Based on these projected trip generation and trip distribution estimates, peak hour trip assignments through the study area intersections were prepared for each project.

It is expected that existing traffic volumes in the study area will increase due to regional growth over time. In order to forecast future background traffic volumes without the proposed project between 2011 and the 2015 build year, a compounded annual growth rate of 1.00 percent was applied over four years (four percent total growth) to the existing traffic volumes, in accordance with the growth rate recommendations for Staten Island described in the *CEQR Technical Manual*. In order to forecast future background traffic volumes between 2011 and the 2020 build year, an annual growth rate of 1.00 percent was compounded for the first five years (2011 to 2016), and an annual growth rate of 0.50 percent was compounded for the remaining four years (2016 to 2020), to arrive at a total compounded growth rate of seven percent, in

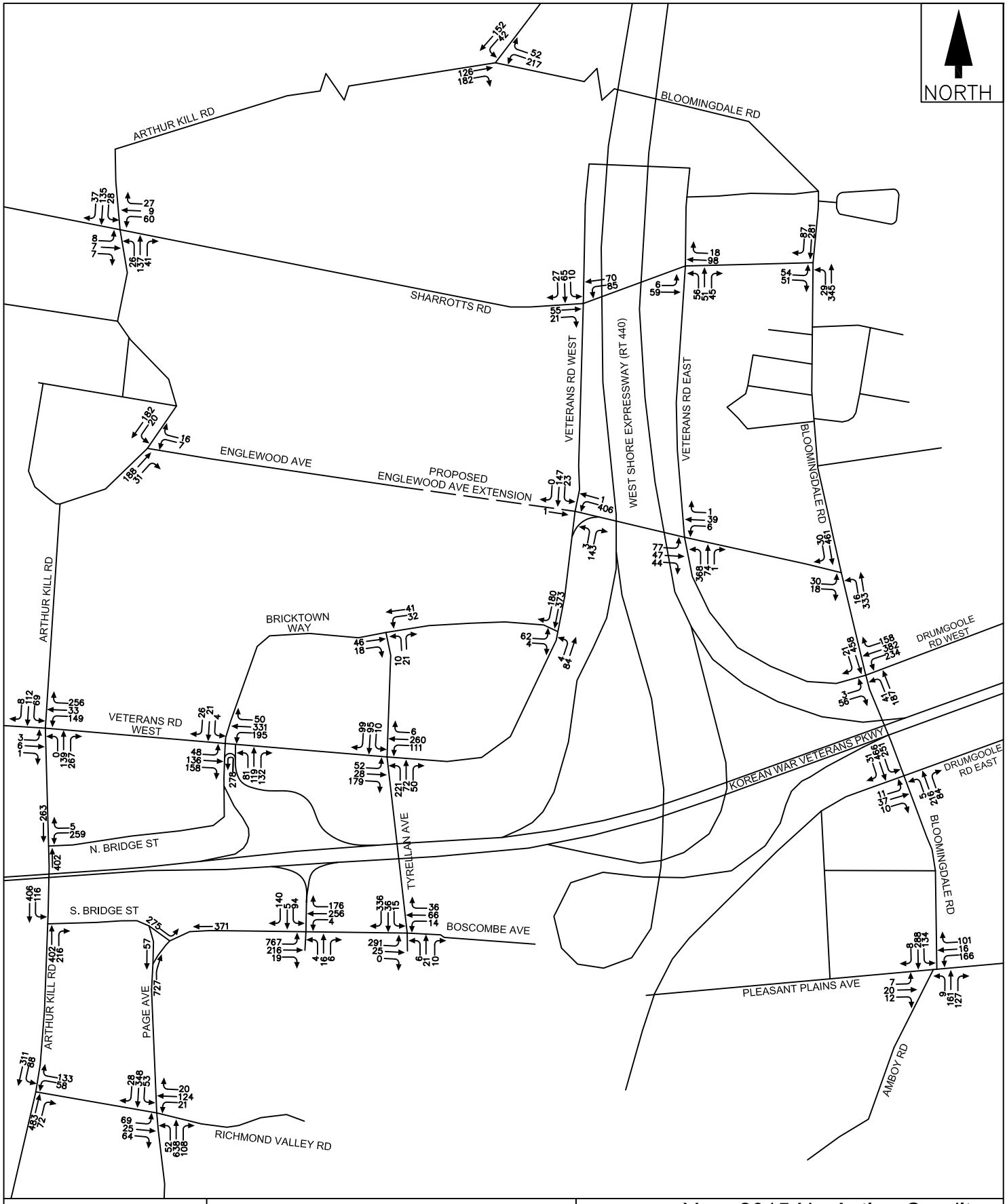
accordance with the *CEQR Technical Manual* procedures and the applicable growth rate recommendations for Staten Island. Next, the applicable traffic volumes associated with the planned development projects described above were added to the adjusted volumes based on the applicable build year(s) for each development. The resulting year 2015 and year 2020 Future No-Action condition traffic volumes are shown in **Figure 2.13-6** through **Figure 2.13-13** for each of the four analysis peak hours.

It should also be noted that the New York State Department of Transportation (NYSDOT) is advancing the design of improvements to the southbound West Shore Expressway (WSE) ramp system and adjacent surface street intersections north of Englewood Avenue just north of the Project Area. The purpose of these improvements is to improve access to and from the Charleston commercial district, improve traffic safety and alleviate congestion along the WSE and on the surrounding street system. These improvements will include:

- Construction of a new on-ramp from West Service Road to southbound WSE, just south of Bloomingdale Road (Location #1 in **Figure 2.13-13A** and **Figure 2.13-13B**)
- Removal of the existing on-ramp from West Service Road to southbound WSE, just south of Sharrotts Road) (Location #2 in **Figure 2.13-13A** and **Figure 2.13-13B**).
- Construction of a new off-ramp from southbound WSE to Veterans Road West, just north of Englewood Avenue (Location #3 in **Figure 2.13-13A** and **Figure 2.13-13B**).

Detailed quantitative analyses by NYCDOT of these ramp improvements are currently underway, but no results of those analyses are presently available. However, based on the results of the detailed traffic analyses performed for the Charleston Mixed-Use Development DEIS, the potential effects at a qualitative level of these new ramps on traffic at the Proposed Project's study area intersections are projected to include the following:

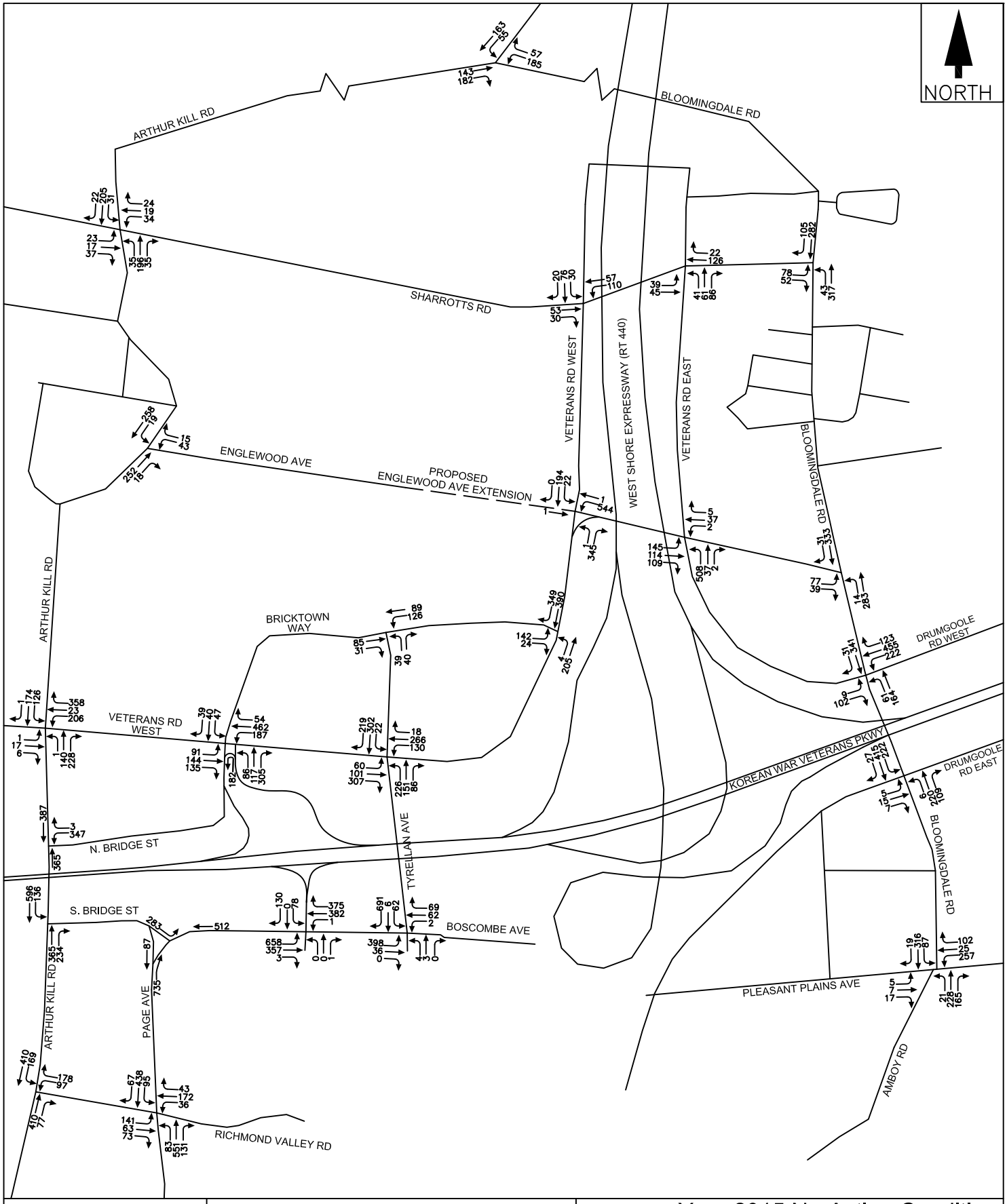
- **Veterans Road West/Bricktown Way-KWVP off-ramp (Location #1 in Figure 2.13-13C):** the new off-ramp from the southbound WSE to Veterans Road West would allow southbound WSE travelers to access the Charleston retail area via this new ramp to Veterans Road West about 1,200 feet north of the eastern entrance into Bricktown Centre, eliminating the need for these motorists to travel through this intersection. This would reduce project-related volumes as well as background volumes at this location, where the Proposed Project is projected to have a significant adverse impact on traffic (see Section 2.13.5 below).
- **Veterans Road West/Englewood Avenue (#2 in Figure 2.13-13C) and Bricktown Way/Veterans Road West (#3 in Figure 2.13-13C)**: the re-routing discussed above of background and Proposed Project traffic due to the proposed new WSE off-ramp north of Englewood Avenue would increase volumes at these two locations. NYSDOT and NYCDOT have indicated that the new off-ramp will require improvements (included as part of the ramp project) to the Veterans Road West/Englewood Avenue intersection to accommodate the additional traffic. The Bricktown Way/Veterans Road West intersection currently operates at an acceptable LOS "B" or better during all analyzed peak hour under existing and future year 2020 With-Action conditions. While it is likely that this intersection would have available capacity to accommodate additional traffic from the proposed new ramp, the potential for traffic impacts due to the Proposed Project at this location is discussed further in Section 2.13.5.
- **Sharrotts Road/Veterans Road West and Sharrotts Road/Veterans Road East (#4 and #5 in Figure 2.13-13C, respectively):** decreases in traffic are projected as motorists who formerly used one or both of these Sharrotts Road intersection to access the southbound WSE on-ramp north of Sharrotts Road would be diverted by the elimination of that ramp.
- **Arthur Kill Road/Bloomingdale Road (#6 in Figure 2.13-13C)**: Increase volumes are projected to occur at this location due to the new on-ramp from the West Service Road to the southbound WSE, approximately 1,800 feet south of Bloomingdale Road. With the pavement restriping and signal timing/phasing improvements recommended in the DEIS (see Section 4.4 in **Chapter 4: Mitigation Measures**), this intersection is projected to operate at LOS "C" or better during all peak hour time periods. NYCDDC's Bloomingdale Road improvement project (see below) is presently reviewing this location for potential future improvements, and those studies will also



AECOM

Charleston Development EIS
Staten Island, NY

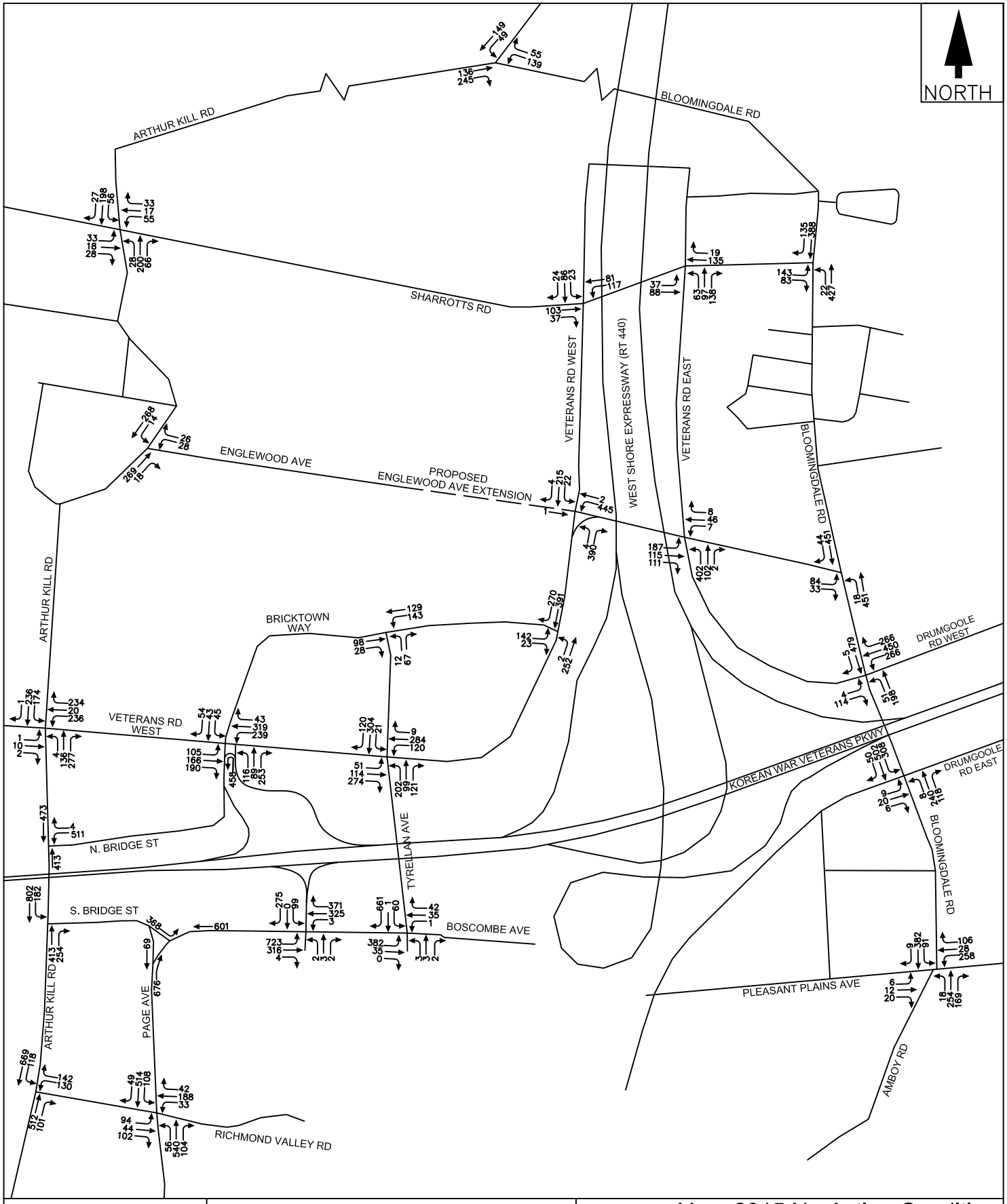
Year 2015 No-Action Conditon
Traffic Volumes
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-6



AECOM

Charleston Development EIS
Staten Island, NY

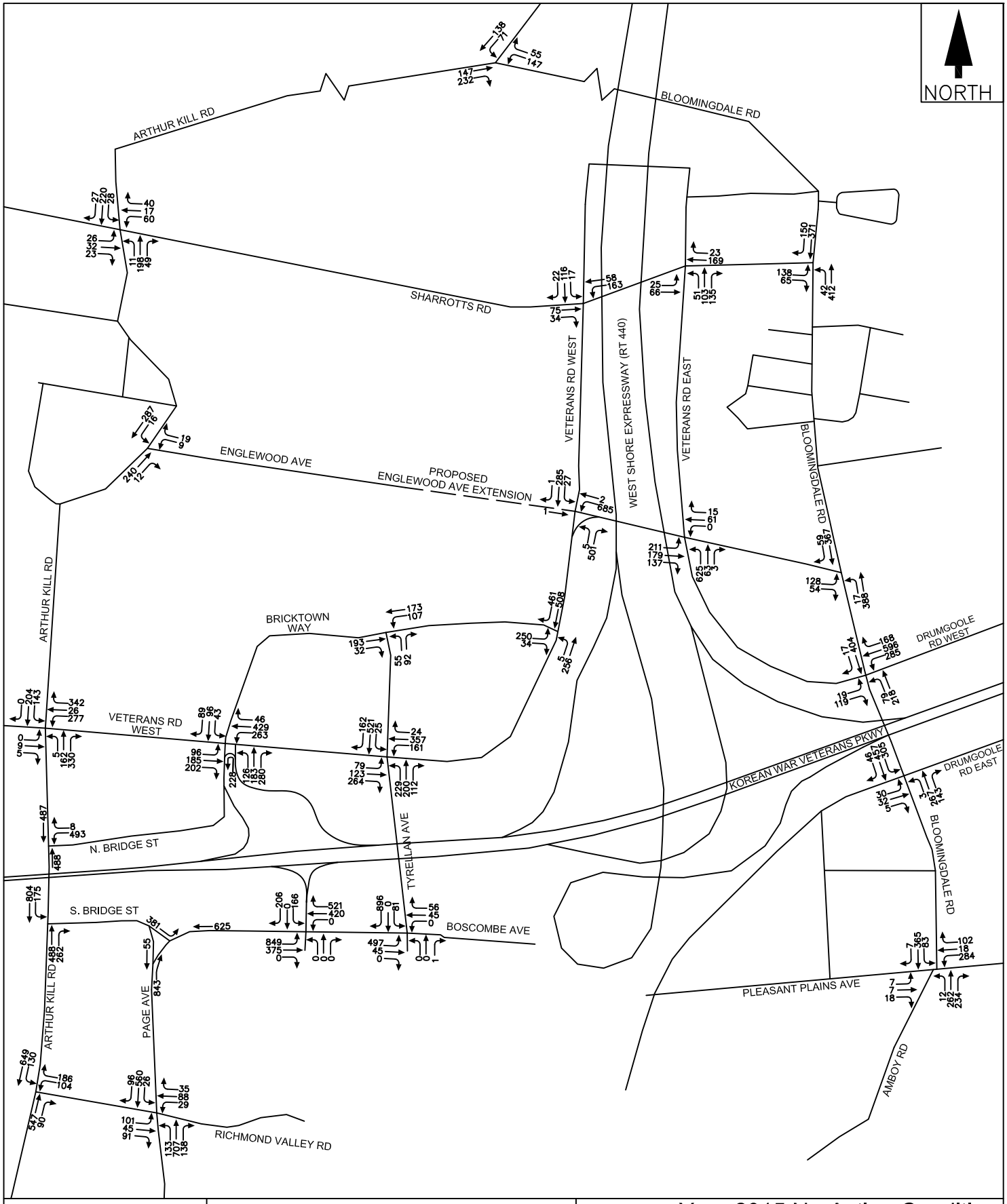
Year 2015 No-Action Condition
Traffic Volumes
Weekday Midday Peak Hour
(12:00 to 1:00 PM)
Figure 2.13-7



AECOM

Charleston Development EIS
Staten Island, NY

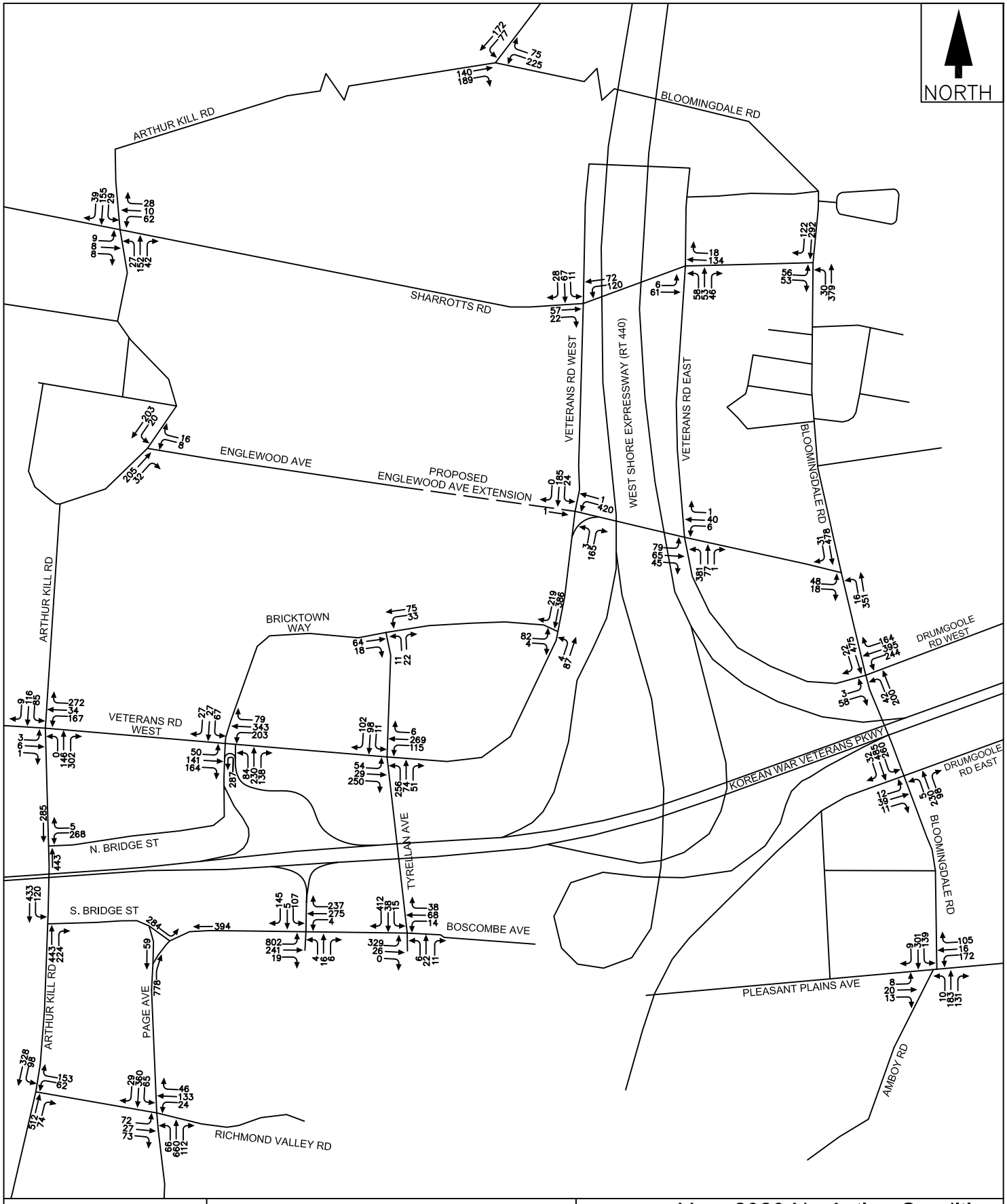
Year 2015 No-Action Condition
Traffic Volumes
Weekday PM Peak Hour
(5:00 to 6:00 PM)
Figure 2.13-8



AECOM

Charleston Development EIS
Staten Island, NY

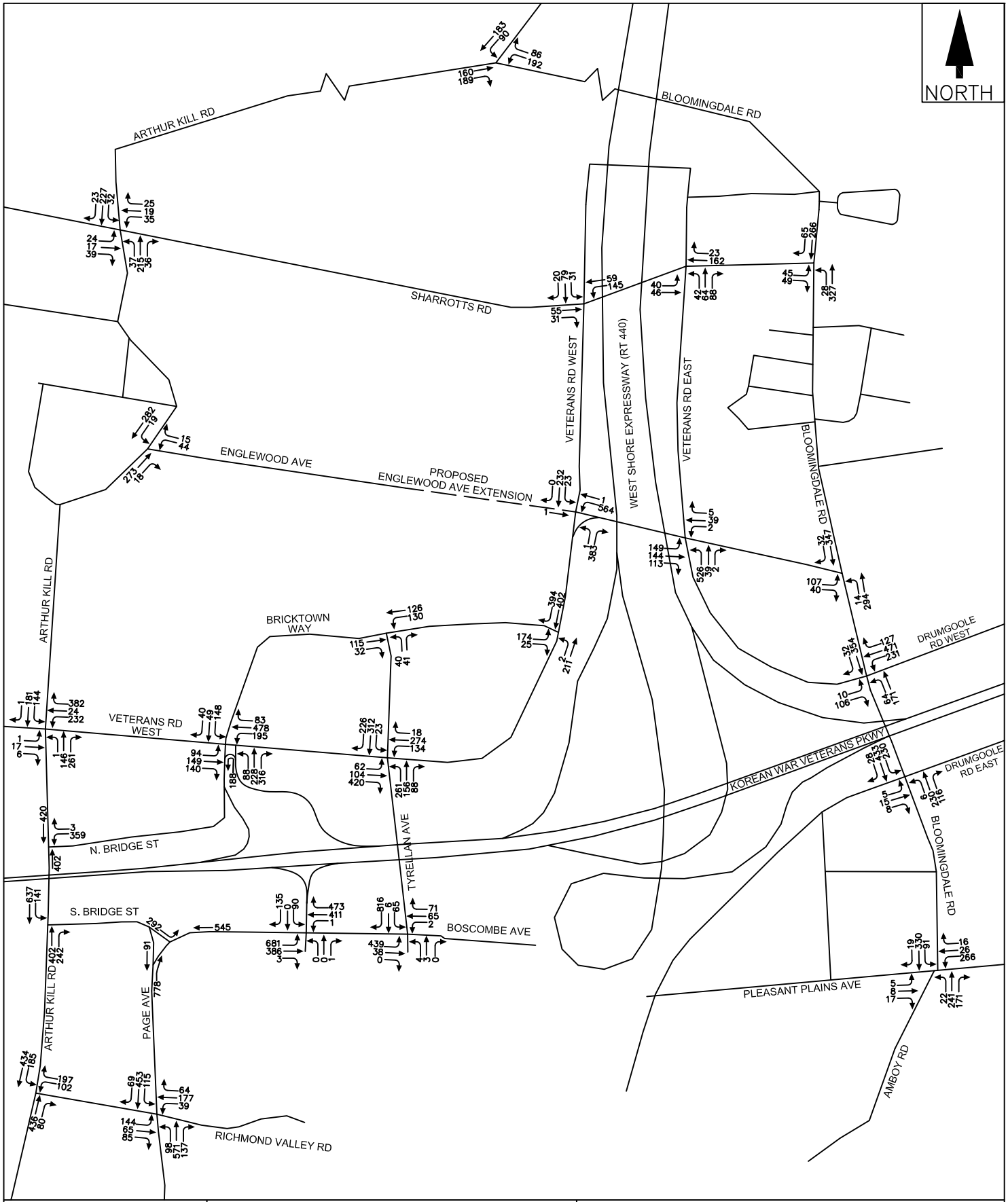
Year 2015 No-Action Condition
Traffic Volumes
Saturday Midday Peak Hour
(12:45 to 1:45 PM)
Figure 2.13-9



AECOM

Charleston Development EIS
Staten Island, NY

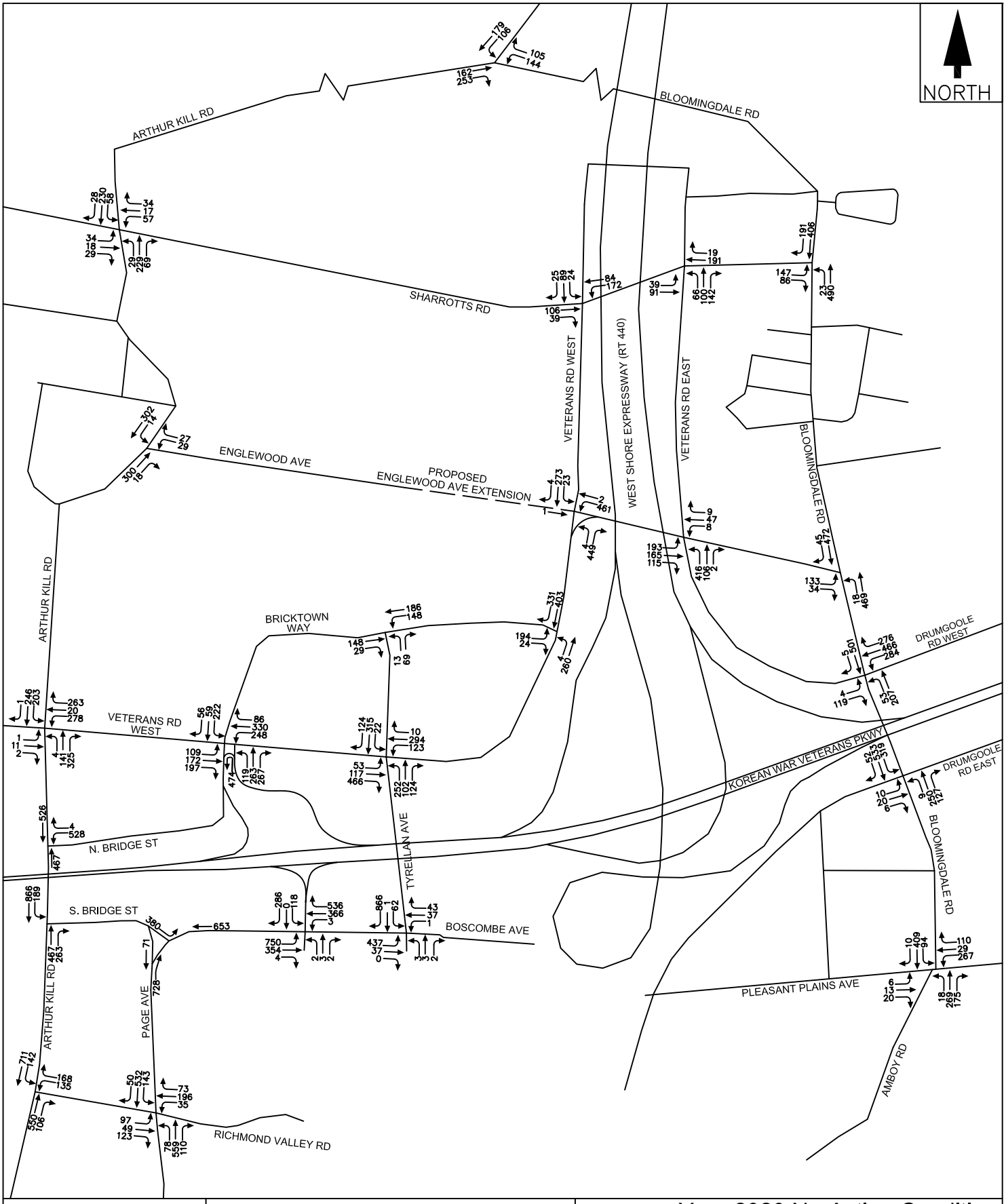
Year 2020 No-Action Condition
Traffic Volumes
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-10



AECOM

Charleston Development EIS
Staten Island, NY

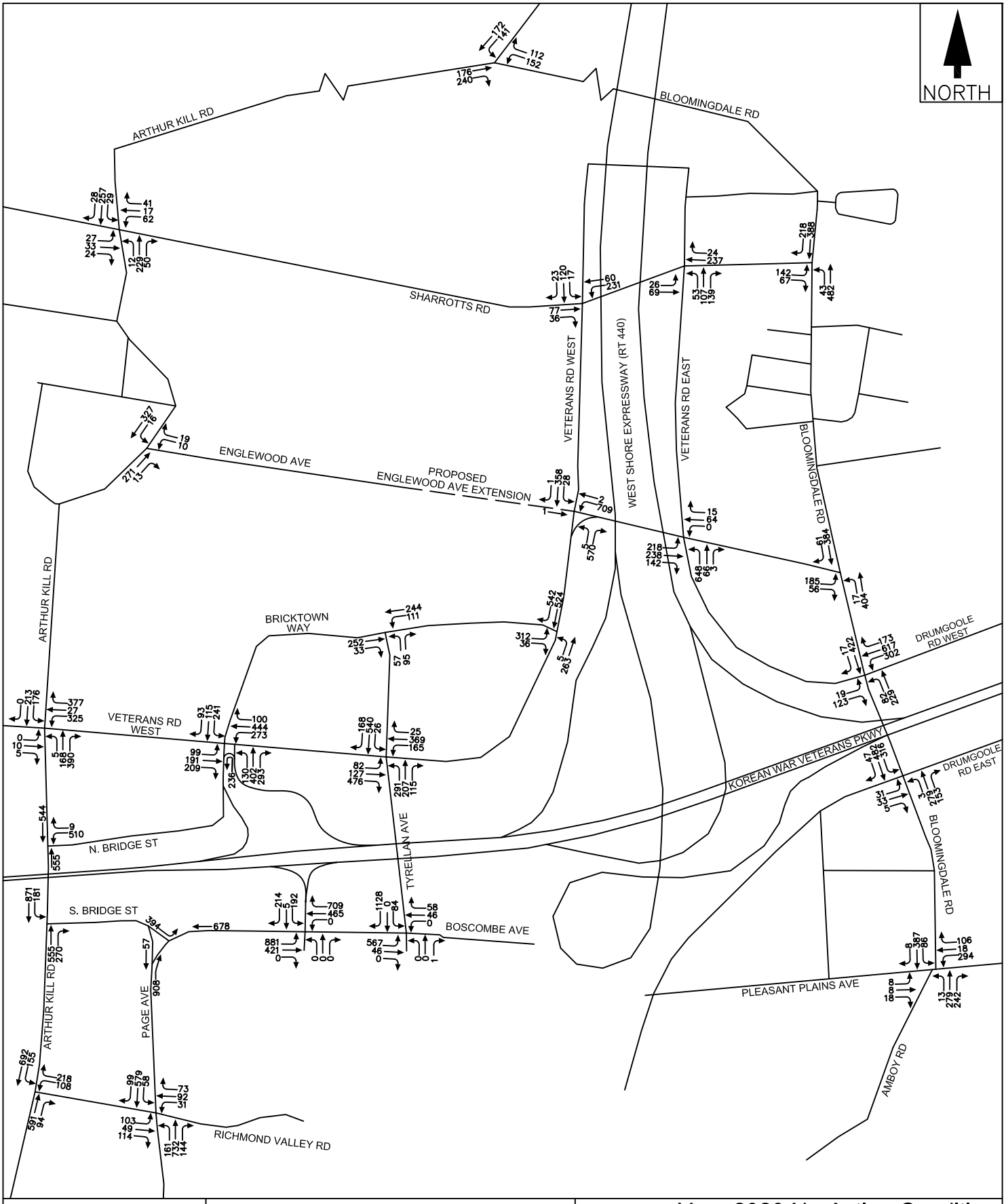
Year 2020 No-Action Condition
Traffic Volumes
Weekday Midday Peak Hour
(12:00 to 1:00 PM)
Figure 2.13-11



AECOM

Charleston Development EIS
Staten Island, NY

Year 2020 No-Action Condition
Traffic Volumes
Weekday PM Peak Hour
(5:00 to 6:00 PM)
Figure 2.13-12



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Charleston Development EIS

Staten Island, NY

Year 2020 No-Action Condition

Traffic Volumes

Saturday Midday Peak Hour

(12:45 to 1:45 PM)

Figure 2.13-13

reflect the effects of these new WSE ramps. While this intersection is likely to have available capacity to accommodate the likely additional traffic due to the new ramps, the potential for traffic impacts due to the Proposed Project at this location is discussed further in Section 2.13.5.

In summary, these initial qualitative assessments indicate that (1) traffic volumes at certain Study Area intersection would be reduced due to the proposed WSE ramps, and (2) some Study Area intersections would likely have increased volumes due to these ramps. While those intersection are likely to have available capacity to accommodate this additional traffic, the potential for traffic impacts due to the Proposed Project at those locations is discussed further in Section 2.13.5.

In addition, a second roadway improvement project is currently being initiated by the New York City Department of Design and Construction (NYCDDC) that involves improvements to Bloomingdale Road between Arthur Kill Road and Pleasant Plains Avenue/Amboy Road. This project is expected to be implemented in 2019. Because this project has just been initiated and is still in the early planning stages, no conceptual or schematic design plans are available. However, it is anticipated that the improvements would improve traffic operations along Bloomingdale Road.

Finally, by the Proposed Project's 2015 horizon year, an elementary school (Kindergarten through 5th grade), PS 62, will be developed on the northwest corner of the Woodrow Road/Bloomingdale Road intersection.

A review of the traffic analysis in the PS 62 FEIS confirms that the school's analyses shares four (4) study intersections with the Proposed Project:

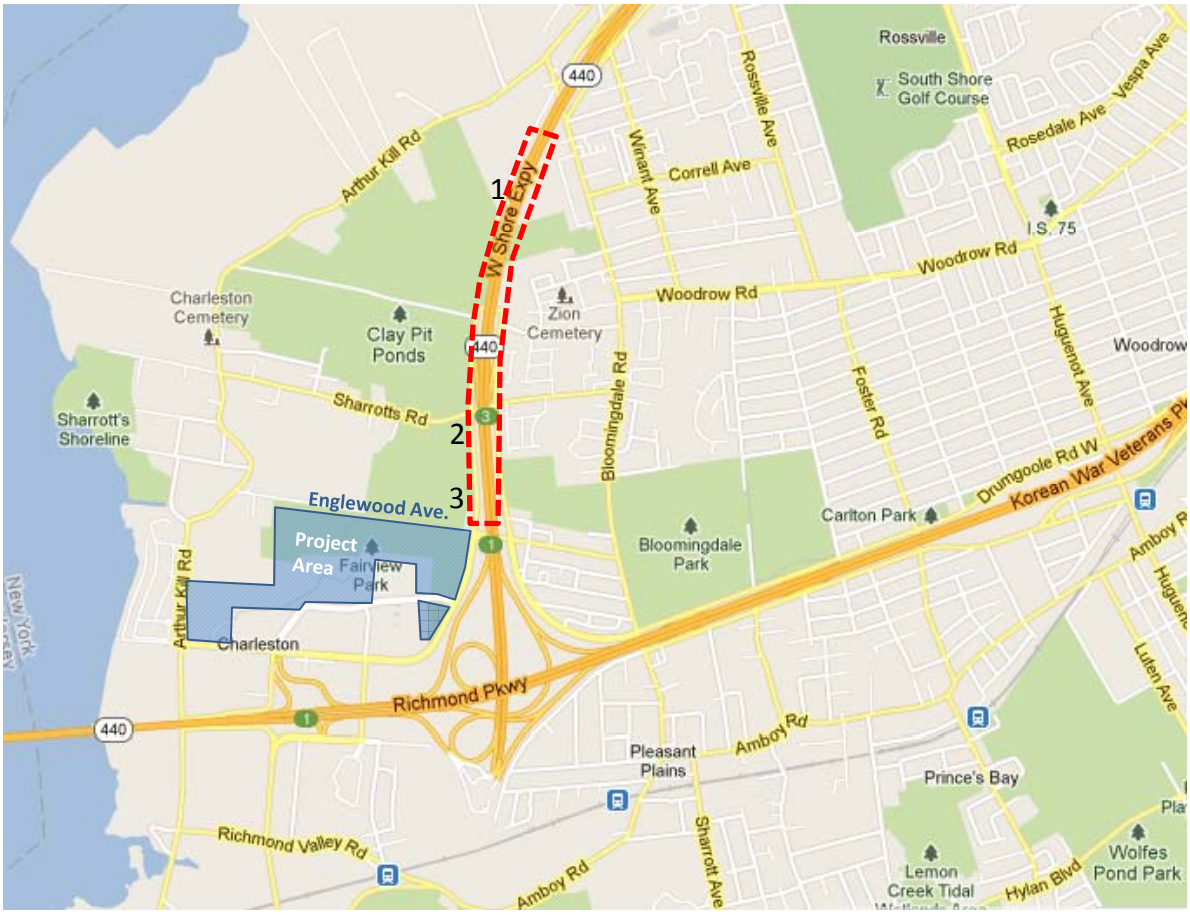
- Sharrotts Road/Veterans Road West,
- Sharrotts Road/Veterans Road East,
- Sharrotts Road/Bloomingdale Road, and
- Arthur Kill Road/Bloomingdale Road.

The peak traffic analysis periods for vehicular traffic generated are 7:30 to 8:30 AM and 3:00 to 4:00 PM. Therefore, the school's peak hours partially overlap with only one of the Proposed Project's peak hours – the weekday AM peak hour (8:00 to 9:00 AM)

A review of conditions in the AM peak period under 2020 With-Action conditions for the Proposed Project indicate the following:

- At Sharrotts Road/Veterans Road West, Sharrotts Road/Veterans Road East, and Sharrotts Road/Bloomingdale Road, all movements are projected to operate at an acceptable LOS "C" or better during all peak hours analyzed.
- Given these projected future operational levels, the modest number of projected school-generated trips to be added to these three intersections (as presented in the PS 62 FEIS) are not expected to degrade No Build traffic operations sufficiently to trigger significant traffic impacts by the Proposed Project.
- At the intersection of Arthur Kill Road/Bloomingdale Road (where mitigation measures are proposed), the magnitude of total school-generated vehicle trips during the weekday AM peak hour (i.e., 9 trips) is anticipated to have only a very marginal effect on projected future traffic operations, and is not projected to result in any additional impacts or the need for additional mitigation attributable to the Proposed Project. This is also a location projected to be upgraded as part of NYCDDC's planned Bloomingdale Road improvement project.

In summary, the two projects' traffic analyses share only four intersections and one peak analysis period (AM Peak). The inclusion of the trips generated by PS 62 at those locations in the AM Peak would not result in any additional traffic impacts due to the Proposed Project, worsen impacts already identified or alter the proposed mitigation measures at those locations. The PS 62 trips will be added to No-Build traffic volumes as part of the planned traffic re-analysis between the Draft and Final EIS.



WSE Ramp Improvement Project Area.

X Location of Proposed Ramp Changes

N

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Charleston Mixed-Use Development

Figure 2.13-13A
WSE Ramp Improvement Project Area

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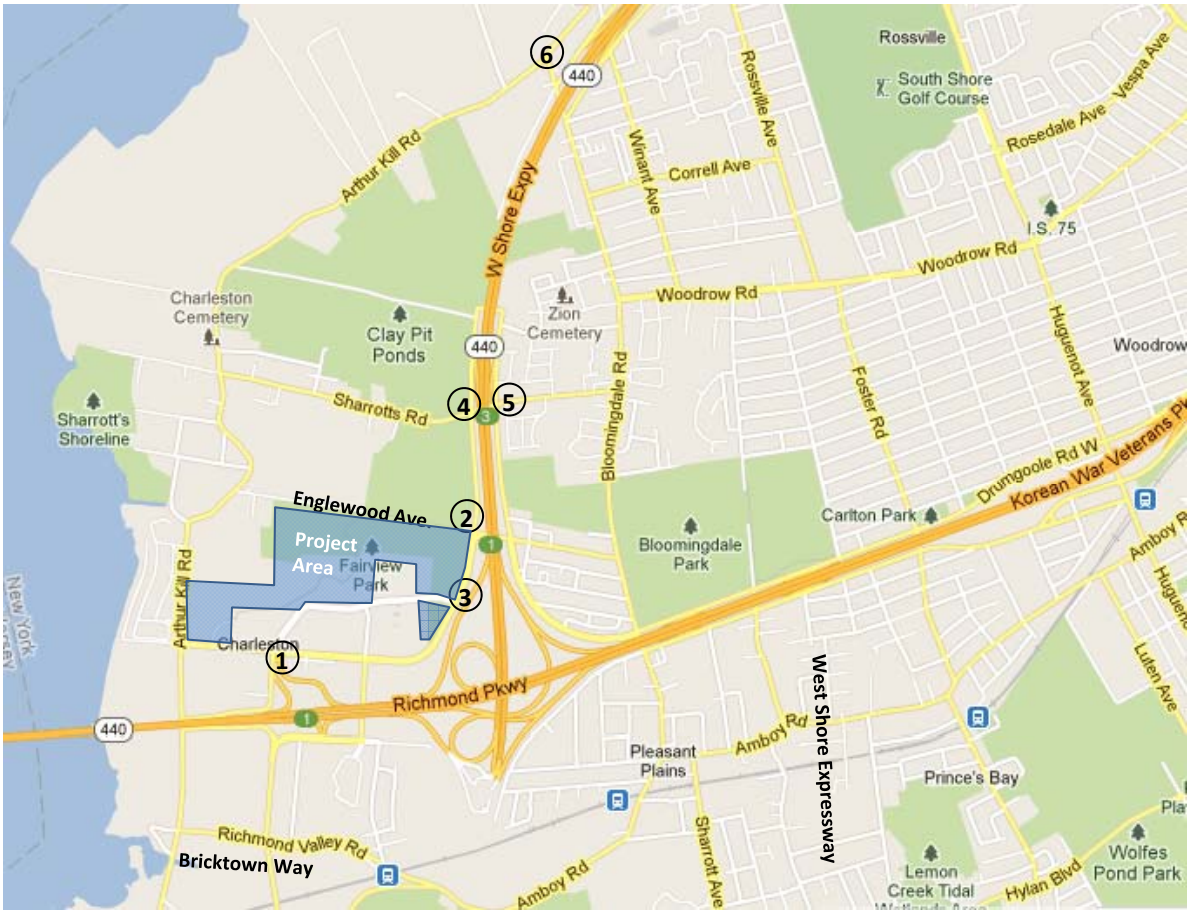
Figure 2.13-13B
WSE Ramp Improvement Locations



(X) **Intersections with Ramp Improvement Related Traffic Changes**

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Figure 2.13-13C
Sites of Potential Traffic Volume Changes due to WSE Ramps

The 2015 and 2020 No-Action and With-Action traffic analyses will be revised after the range of planned improvements described above have been clarified by NYCDOT and more information becomes available. The results of these analyses will then be presented in the Final EIS. The 2015 and 2020 No-Action and With Action traffic analyses described in this chapter assume that none of the improvements described above would be implemented by 2015, and therefore represent a reasonable worst-case assessment of potential traffic impacts of the Proposed Project on the surrounding roadway system.

Intersection Operations Analysis

Using the Future No-Action condition traffic volumes shown in **Figure 2.13-6** through **Figure 2.13-13**, intersection operations analyses were conducted using the HCM methodologies. **Table 2.13-3** and **Table 2.13-4** show the results of the capacity analysis at the 24 study area intersections analyzed in the four peak hours for 2015 and 2020 Future No-Action conditions, respectively. The tables highlight (with shading) those intersection movements that are projected to operate at LOS "E" or "F" or have a high v/c ratio (0.90 and above), and are therefore considered to be congested under Future No-Action conditions.

Table 2.13-3 shows that, under 2015 No-Action conditions, 10 of the 24 study area intersections are projected to have one or more congested movements in one or more of the analyzed peak hours. There are four intersections with one or more congested movements during the weekday AM peak hour, two during the weekday midday peak hour, five during the weekday PM peak hour, and seven during the Saturday midday peak hour. These are discussed in more detail below:

- **Allentown Lane-Veterans Road West/Arthur Kill Road** – During the weekday PM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **North Bridge Street/Arthur Kill Road** – During the weekday PM peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Richmond Valley Road/Arthur Kill Road** – During the weekday midday, weekday PM, and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90. The southbound approach is projected to operate with delays corresponding to LOS "F" during the weekday PM peak hour, and at LOS "E" during the Saturday midday peak hour. Overall, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 during the weekday midday, weekday PM, and Saturday midday peak hours.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp** – During the weekday AM peak hour, the westbound left-turn movement is projected to operate with delays corresponding to LOS "E" and a v/c ratio of 0.90. During the weekday PM and Saturday midday peak hours, the westbound left-turn movement is projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. In addition, the U-turn movement on the northbound approach to this intersection (an unsignalized movement) is projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90 during the weekday PM peak hour.
- **Veterans Road West/Tyrellan Avenue** – During the Saturday midday peak hour, northbound left-turn movements are projected to operate with delays corresponding to LOS "E" and a v/c ratio exceeding 0.90.
- **Boscombe Avenue/Outerbridge Crossing ramps** – During all four analysis peak hours, the eastbound left-turn movement is projected to operate with v/c ratios exceeding 0.90. During the weekday midday and Saturday midday peak hours, the westbound shared through/left-turn lane is projected to operate with v/c ratios exceeding 0.90. In addition, during the Saturday midday peak hour, the westbound right-turn movement is projected to operate with delays corresponding to LOS "E" with a v/c ratio exceeding 0.90.
- **Englewood Avenue/Veterans Road West** – During the Saturday midday peak hour, westbound left-turn movements are projected to operate with a v/c ratio exceeding 0.90.
- **Englewood Avenue/Veterans Road East** – During the Saturday midday peak hour, movements in the eastbound shared through/left-turn lane are projected to operate with a v/c ratio exceeding 0.90.

- **Veterans Road East-Drumgoole Road West/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90. During the Saturday midday peak hour, the westbound approach is projected to operate with a v/c ratio of 0.90.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90.

Table 2.13-4 shows that under 2020 Future No-Action conditions 11 of the 24 study area intersections are projected to have one or more congested movements in one or more of the analyzed peak hours. There are four intersections with one or more congested movements during the weekday AM peak hour, five during the weekday midday peak hour, seven during the weekday PM peak hour, and nine during the Saturday midday peak hour. These are discussed in more detail below:

- **Allentown Lane-Veterans Road West/Arthur Kill Road** – During the weekday PM and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F". Overall, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 during the weekday PM and Saturday midday peak hours.
- **North Bridge Street/Arthur Kill Road** – During the weekday PM peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Richmond Valley Road/Arthur Kill Road** – During the weekday PM and Saturday midday peak hours, the westbound approach is projected to operate with v/c ratios exceeding 0.90. During the weekday midday, weekday PM, and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F". Overall, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 during the weekday midday, weekday PM, and Saturday midday peak hours, and with delays corresponding to LOS "F" during the weekday PM and Saturday midday peak hours.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp** – During the weekday midday peak hour, the westbound left-turn movement is projected to operate with delays corresponding to LOS "E" and a v/c ratio exceeding 0.90. During the weekday AM, PM, and Saturday midday peak hours, the westbound left-turn movement is projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. The U-turn movement on the northbound approach to this intersection (an unsignalized movement) is projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90 during the weekday PM peak hour. During the Saturday midday peak hour, the northbound approach is projected to operate with a v/c ratio exceeding 0.90. Overall, the intersection as a whole is projected to operate at LOS "E" during the Saturday midday peak hour.
- **Veterans Road West/Tyrellan Avenue** – During the weekday midday and Saturday midday peak hours, northbound left-turn movements are projected to operate with delays corresponding to LOS "E" and "F", respectively, and with v/c ratios exceeding 0.90. The overall v/c ratio for the intersection as a whole is projected to exceed 0.90 during the Saturday midday peak hour.
- **Boscombe Avenue/Outerbridge Crossing ramps** – During all four analysis peak hours, the eastbound left-turn movement is projected to operate with v/c ratios exceeding 0.90. During the weekday midday and Saturday midday peak hours, the westbound shared through/left-turn lane is projected to operate with delays corresponding to LOS "E" and with v/c ratios exceeding 0.90. In addition, during the weekday midday, weekday PM, and Saturday midday peak hours, the westbound right-turn movement is projected to operate with delays corresponding at LOS "F" and with v/c ratios exceeding 0.90. During the weekday PM peak hour, delays for southbound left-turn movements are projected to correspond to LOS "E". During all four analysis peak hours, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90, and during the Saturday midday peak hour, the intersection as a whole is projected to operate with a delay corresponding to LOS "F".
- **Boscombe Avenue/Tyrellan Avenue** – During the weekday midday, weekday PM, and Saturday midday peak hours, southbound right-turn movements are projected to operate with v/c ratios exceeding 0.90; this movement is also projected to operate with delays in the LOS "E" and "F" range

during the weekday PM and Saturday midday peak hours, respectively. During the Saturday midday peak hour, the intersection as a whole is projected to operate with a v/c ratio exceeding 0.90 and with a delay corresponding to LOS "F".

- **Englewood Avenue/Veterans Road West** – During the Saturday midday peak hour, westbound left-turn movements are projected to operate with a v/c ratio exceeding 0.90.
- **Englewood Avenue/Veterans Road East** – During the Saturday midday peak hour, movements in the eastbound shared through/left-turn lane are projected to operate with a v/c ratio exceeding 0.90 and experience delays corresponding to LOS "F".
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90. During the Saturday midday peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road** – During the weekday AM and PM peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90. This approach is also projected to experience delays corresponding to LOS "E" during the weekday AM peak hour.

Table 2.13-3
Peak Hour Level-of-Service Analysis Results
Year 2015 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.04	10.5	B	0.02	10.3	B	0.02	10.3	B
	WB	LT	0.39	14.1	B	0.49	15.6	B	0.58	17.8	B	0.60	17.6	B
		R	0.57	17.7	B	0.77	24.4	C	0.54	17.0	B	0.69	20.4	C
	NB	LTR	0.68	18.9	B	0.56	16.4	B	0.60	17.0	B	0.73	20.1	C
	SB	LTR	0.45	15.5	B	0.65	20.0	C	0.96	48.5	D	0.82	30.2	C
	Overall		**0.63**	**17.1**	**B**	**0.71**	**19.2**	**B**	**0.77**	**26.9**	**C**	**0.75**	**21.9**	**C**
North Bridge Street / Arthur Kill Road	WB	LR	0.47	18.1	B	0.62	20.6	C	0.91	28.0	C	0.86	25.8	C
	NB	T	0.49	11.5	B	0.41	10.5	B	0.43	10.8	B	0.52	11.8	B
	SB	T	0.33	9.7	A	0.48	10.8	B	0.58	11.4	B	0.52	10.8	B
	Overall		**0.48**	**12.8**	**B**	**0.53**	**13.8**	**B**	**0.71**	**17.5**	**B**	**0.66**	**16.4**	**B**
Richmond Valley Road / Arthur Kill Road	WB	LR	0.53	23.9	C	0.82	37.2	D	0.81	35.7	D	0.83	37.6	D
	NB	TR	0.63	11.1	B	0.50	9.4	A	0.60	10.5	B	0.62	10.7	B
	SB	LT	0.59	11.2	B	1.01	39.0	D	1.17	90.0	F	1.12	73.2	E
	Overall		**0.60**	**13.1**	**B**	**0.95**	**28.3**	**C**	**1.05**	**53.1**	**D**	**1.03**	**43.8**	**D**
Richmond Valley Road / Page Avenue	EB	LTR	0.31	22.8	C	0.73	32.8	C	0.59	27.0	C	0.58	26.8	C
	WB	LTR	0.30	22.9	C	0.49	26.4	C	0.57	28.2	C	0.38	24.3	C
	NB	L	0.14	10.5	B	0.26	12.3	B	0.21	11.7	B	0.46	15.1	B
		TR	0.77	19.8	B	0.71	18.3	B	0.66	17.1	B	0.86	23.0	C
	SB	LTR	0.48	14.1	B	0.67	18.4	B	0.74	20.4	C	0.56	15.2	B
	Overall		**0.59**	**18.5**	**B**	**0.72**	**21.3**	**C**	**0.68**	**21.1**	**C**	**0.75**	**20.7**	**C**
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.46	25.8	C	0.49	26.4	C	0.60	28.9	C	0.66	30.8	C
		R	0.12	10.9	B	0.15	11.1	B	0.15	12.1	B	0.09	10.7	B
	NB	T	0.37	11.5	B	0.38	11.6	B	0.35	11.4	B	0.41	11.9	B
	SB	T	0.23	10.4	B	0.29	11.0	B	0.35	11.5	B	0.35	11.5	B
	Overall		*	**13.9**	**B**	*	**14.0**	**B**	*	**15.2**	**B**	*	**15.5**	**B**
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.21	22.9	C	0.52	31.8	C	0.44	27.1	C	0.53	31.3	C
		TR	0.50	26.5	C	0.50	26.6	C	0.61	28.4	C	0.63	28.8	C
	WB	L	0.90	64.1	E	0.83	52.1	D	1.11	118.2	F	1.24	167.2	F
		TR	0.40	24.1	C	0.50	25.4	C	0.37	23.1	C	0.50	24.7	C
	NB	LTR	0.41	27.9	C	0.62	31.5	C	0.52	29.5	C	0.70	33.6	C
		U-TURN	0.50	16.7	C	0.33	14.1	B	0.97	61.0	F	0.55	21.7	C
	SB	L	0.02	27.4	C	0.16	29.1	C	0.15	29.0	C	0.13	28.7	C
		TR	0.20	29.7	C	0.28	30.9	C	0.26	30.5	C	0.61	37.8	D
	Overall		*	**29.1**	**C**	*	**29.4**	**C**	*	**33.1**	**C**	*	**45.4**	**D**
Veterans Road West / Tyrellan Avenue	EB	LTR	0.27	16.4	B	0.47	18.8	B	0.42	18.0	B	0.50	19.3	B
	WB	LTR	0.37	17.5	B	0.47	19.1	B	0.48	19.2	B	0.67	22.7	C
	NB	DefL	0.52	21.9	C	0.84	45.9	D	0.56	24.4	C	0.94	65.8	E
		TR	0.18	15.6	B	0.34	17.5	B	0.30	17.0	B	0.42	18.7	B
	SB	LTR	0.22	15.9	B	0.52	19.8	B	0.36	17.4	B	0.57	20.4	C
	Overall		**0.44**	**17.5**	**B**	**0.66**	**22.2**	**C**	**0.52**	**18.7**	**B**	**0.80**	**24.9**	**C**
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	0.98	35.4	D	0.92	34.3	C	0.96	32.5	C	0.98	37.6	D
		TR	0.22	4.7	A	0.34	5.5	A	0.29	4.5	A	0.33	5.3	A
	WB	LT	0.67	38.1	D	0.93	52.1	D	0.59	29.0	C	0.97	45.8	D
		R	0.54	34.5	C	0.83	43.4	D	0.79	36.3	D	1.06	70.9	E
	NB	LTR	0.20	32.8	C	0.01	30.6	C	0.11	34.2	C	-	-	-
	SB	L	0.48	40.3	D	0.34	36.4	D	0.61	48.2	D	0.31	33.6	C
		LT	0.02	30.6	C	0.00	30.4	C	0.00	32.1	C	-	-	-
		R	0.17	6.8	A	0.14	6.6	A	0.40	11.8	B	0.23	7.3	A
	Overall		**0.85**	**29.5**	**C**	**0.84**	**32.1**	**C**	**0.86**	**23.6**	**C**	**0.87**	**36.6**	**D**
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.46	16.6	B	0.62	20.1	C	0.56	18.5	B	0.70	22.7	C
		TR	0.03	11.4	B	0.04	11.5	B	0.04	11.5	B	0.04	11.6	B
	WB	LTR	0.10	11.9	B	0.08	11.8	B	0.05	11.6	B	0.06	11.7	B
	NB	LTR	0.07	17.4	B	-	-	-	0.01	16.9	B	0.00	16.8	B
		DefL	-	-	-	0.01	16.9	B	-	-	-	-	-	-
		TR	-	-	-	0.01	16.9	B	-	-	-	-	-	-
	SB	LT	0.10	17.8	B	0.14	18.3	B	0.12	18.0	B	0.16	18.4	B
		R	0.39	21.6	C	0.71	29.7	C	0.63	26.9	C	0.86	37.9	D
	Overall		**0.43**	**17.2**	**B**	**0.66**	**22.3**	**C**	**0.59**	**20.9**	**C**	**0.77**	**27.5**	**C**

Table 2.13-3 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Bricktown Way / Veterans Road West	EB	L	0.14	15.3	B	0.30	16.9	B	0.30	16.8	B	0.51	19.6	B
		R	0.00	14.0	B	0.04	14.4	B	0.04	14.4	B	0.06	14.5	B
	NB	LT	0.07	7.3	A	0.14	7.7	A	0.17	7.9	A	0.17	7.9	A
	SB	TR	0.34	8.9	A	0.48	9.9	A	0.37	9.1	A	0.56	10.4	B
	Overall		**0.27**	**9.2**	**A**	**0.41**	**10.4**	**B**	**0.34**	**10.0**	**A**	**0.54**	**11.6**	**B**
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B
	WB	L	0.43	14.6	B	0.47	15.2	B	0.42	14.4	B	0.93	39.4	D
		LT	0.45	15.0	B	0.49	15.7	B	0.44	14.9	B	0.33	13.3	B
	NB	L	0.01	10.3	B	0.00	10.2	B	0.01	10.3	B	0.02	10.3	B
		R	0.17	9.2	A	0.37	10.5	B	0.42	11.0	B	0.55	12.6	B
	SB	LTR	0.10	10.8	B	0.13	10.9	B	0.13	10.9	B	0.17	11.2	B
	Overall		*	**12.6**	**B**	*	**12.9**	**B**	*	**12.4**	**B**	*	**24.5**	**C**
Englewood Avenue / Veterans Road East	EB	LT	0.29	15.5	B	0.52	19.0	B	0.68	23.5	C	0.98	53.0	D
		R	0.05	13.1	B	0.11	13.6	B	0.12	13.7	B	0.17	14.1	B
	WB	LTR	0.11	13.6	B	0.09	13.4	B	0.13	13.8	B	0.16	14.1	B
	NB	LTR	0.26	9.4	A	0.25	9.3	A	0.25	9.3	A	0.33	9.9	A
	Overall		**0.27**	**11.0**	**B**	**0.36**	**12.7**	**B**	**0.43**	**14.6**	**B**	**0.60**	**25.9**	**C**
Englewood Avenue / Bloomingdale Road	EB	LR	0.14	17.4	B	0.31	19.3	B	0.27	18.8	B	0.43	20.9	C
	NB	LT	0.39	8.3	A	0.31	7.6	A	0.50	9.2	A	0.40	8.3	A
	SB	TR	0.52	9.4	A	0.34	7.7	A	0.48	9.0	A	0.39	8.2	A
	Overall		**0.40**	**9.5**	**A**	**0.33**	**9.5**	**A**	**0.42**	**10.1**	**B**	**0.41**	**10.5**	**B**
Sharrotts Road / Bloomingdale Road	EB	LR	0.26	15.8	B	0.27	15.9	B	0.49	18.7	B	0.47	18.4	B
	NB	LT	0.52	12.2	B	0.49	11.8	B	0.59	13.0	B	0.58	12.9	B
	SB	TR	0.44	11.0	B	0.40	10.5	B	0.55	12.4	B	0.54	12.1	B
	Overall		**0.42**	**12.2**	**B**	**0.40**	**11.9**	**B**	**0.55**	**13.9**	**B**	**0.53**	**13.7**	**B**
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.05	23.1	C	0.02	22.7	C	0.12	23.7	C
		R	0.33	27.5	C	0.60	34.2	C	0.55	32.3	C	0.76	41.5	D
	WB	LTR	0.67	21.0	C	0.69	21.2	C	0.84	23.6	C	0.90	26.0	C
	NB	L	0.38	23.8	C	0.40	21.9	C	0.44	26.0	C	0.58	30.9	C
		T	0.36	16.8	B	0.31	16.1	B	0.35	16.5	B	0.38	16.9	B
	SB	TR	0.95	30.5	C	0.60	19.8	B	0.83	28.6	C	0.66	20.7	C
	Overall		**0.74**	**24.1**	**C**	**0.63**	**21.4**	**C**	**0.78**	**24.8**	**C**	**0.77**	**25.2**	**C**
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.15	16.8	B	0.09	16.2	B	0.12	16.5	B	0.19	17.2	B
	NB	LTR	0.38	8.8	A	0.41	9.1	A	0.42	9.1	A	0.46	9.6	A
	SB	L	0.57	11.0	B	0.44	10.0	A	0.62	12.1	B	0.67	14.0	B
		TR	0.65	11.2	B	0.48	9.6	A	0.59	10.5	B	0.53	9.9	A
	Overall		**0.48**	**10.8**	**B**	**0.35**	**9.7**	**A**	**0.45**	**10.7**	**B**	**0.51**	**11.2**	**B**
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.7	B	0.06	14.4	B	0.09	14.7	B	0.06	14.4	B
	WB	L	0.34	18.1	B	0.56	21.9	C	0.53	21.4	C	0.54	21.6	C
		T	0.02	14.1	B	0.04	14.2	B	0.04	14.2	B	0.02	14.1	B
		R	0.20	16.0	B	0.21	16.1	B	0.21	16.0	B	0.19	15.8	B
	NB	LTR	0.48	19.7	B	0.68	23.3	C	0.66	22.8	C	0.75	24.5	C
	SB	LTR	1.01	37.7	D	0.73	25.3	C	0.87	26.5	C	0.80	26.8	C
	Overall		**0.67**	**26.8**	**C**	**0.64**	**22.6**	**C**	**0.70**	**22.8**	**C**	**0.67**	**23.6**	**C**
Arthur Kill Road / Bloomingdale Road	EB	TR	0.32	14.3	B	0.34	14.5	B	0.42	15.6	B	0.43	15.6	B
	WB	LT	0.26	13.6	B	0.30	14.2	B	0.29	14.0	B	0.31	14.4	B
	NB	LR	0.53	24.4	C	0.48	23.3	C	0.50	23.8	C	0.41	22.1	C
	Overall		**0.41**	**17.8**	**B**	**0.40**	**17.4**	**B**	**0.46**	**17.7**	**B**	**0.42**	**17.0**	**B**

Table 2.13-3 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
UNSIGNALIZED INTERSECTIONS														
Sharrots Road / Arthur Kill Road	EB	LTR	0.06	13.3	B	0.21	14.6	B	0.25	18.2	C	0.46	20.1	C
	WB	LTR	0.20	13.9	B	0.22	16.7	C	0.36	20.8	C	0.38	19.8	C
	NB	LTR	0.02	7.9	A	0.03	7.9	A	0.03	7.9	A	0.01	7.8	A
	SB	LTR	0.03	7.9	A	0.03	8.1	A	0.06	8.1	A	0.02	7.9	A
Englewood Avenue / Arthur Kill Road	WB	LR	0.05	10.5	B	0.12	13.4	B	0.16	13.4	B	0.06	11.2	B
	SB	LT	0.02	7.9	A	0.02	8.1	A	0.01	8.0	A	0.01	7.9	A
South Bridge Street / Arthur Kill Road	SB	LT	0.17	10.4	B	0.18	10.0	B	0.26	11.0	B	0.24	11.0	B
Bricktown Way / Tyrellan Avenue	EB	T	0.04	7.9	A	0.07	8.8	A	0.08	8.3	A	0.16	9.0	A
		TR	0.07	7.7	A	0.12	8.8	A	0.12	8.2	A	0.21	9.1	A
	WB	LT	0.09	8.2	A	0.28	10.0	B	0.33	10.5	B	0.32	10.7	B
		T	0.03	7.5	A	0.07	8.0	A	0.10	8.1	A	0.14	8.7	A
	NB	L	0.01	7.7	A	0.07	8.4	A	0.02	8.3	A	0.09	9.0	A
		R	0.03	6.9	A	0.06	7.5	A	0.11	7.9	A	0.13	8.3	A
Sharrots Road / Veterans Road West	EB	TR	0.12	8.3	A	0.12	8.2	A	0.21	8.6	A	0.18	8.5	A
	WB	LT	0.24	8.9	A	0.27	9.3	A	0.32	9.8	A	0.34	10.1	B
	SB	LT	0.07	8.0	A	0.11	8.3	A	0.10	8.5	A	0.11	8.5	A
		TR	0.09	7.8	A	0.09	7.9	A	0.10	8.2	A	0.12	8.3	A
Sharrots Road / Veterans Road East	EB	LT	0.11	8.3	A	0.13	8.6	A	0.21	9.2	A	0.17	8.9	A
	WB	TR	0.18	8.4	A	0.24	8.9	A	0.26	9.5	A	0.29	9.6	A
	NB	LT	0.12	8.2	A	0.10	8.3	A	0.15	8.8	A	0.14	8.7	A
		TR	0.09	7.5	A	0.15	7.9	A	0.23	8.6	A	0.24	8.7	A

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

Table 2.13-4
Peak Hour Level-of-Service Analysis Results
Year 2020 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.04	10.5	B	0.02	10.4	B	0.02	10.4	B
	WB	LT	0.43	14.7	B	0.54	16.8	B	0.68	20.8	C	0.70	20.5	C
		R	0.61	18.7	B	0.82	27.6	C	0.61	18.7	B	0.76	23.3	C
	NB	LTR	0.75	21.3	C	0.63	17.7	B	0.68	18.9	B	0.83	24.9	C
	SB	LTR	0.60	20.1	C	0.78	26.7	C	1.16	113.5	F	1.07	81.6	F
	Overall		**0.68**	**19.2**	**B**	**0.80**	**22.3**	**C**	**0.92**	**47.8**	**D**	**0.91**	**36.6**	**D**
North Bridge Street / Arthur Kill Road	WB	LR	0.49	18.4	B	0.64	21.1	C	0.95	31.3	C	0.89	27.9	C
	NB	T	0.54	12.1	B	0.45	11.0	B	0.49	11.5	B	0.59	12.9	B
	SB	T	0.35	9.9	A	0.52	11.3	B	0.64	12.2	B	0.58	11.5	B
	Overall		**0.52**	**13.2**	**B**	**0.56**	**14.2**	**B**	**0.76**	**18.9**	**B**	**0.71**	**17.4**	**B**
Richmond Valley Road / Arthur Kill Road	WB	LR	0.61	26.1	C	0.89	45.0	D	0.91	46.6	D	0.93	51.2	D
	NB	TR	0.67	11.7	B	0.53	9.7	A	0.64	11.2	B	0.67	11.5	B
	SB	LT	0.68	13.5	B	1.14	87.9	F	1.42	202.6	F	1.38	184.7	F
	Overall		**0.66**	**14.7**	**B**	**1.06**	**51.8**	**D**	**1.26**	**109.7**	**F**	**1.23**	**97.2**	**F**
Richmond Valley Road / Page Avenue	EB	LTR	0.35	23.4	C	0.81	37.2	D	0.69	29.9	C	0.70	29.9	C
	WB	LTR	0.38	24.1	C	0.55	27.9	C	0.66	31.1	C	0.50	26.6	C
	NB	L	0.18	11.0	B	0.33	13.4	B	0.31	13.5	B	0.60	18.8	B
		TR	0.80	20.8	C	0.74	19.1	B	0.69	17.8	B	0.89	25.2	C
	SB	LTR	0.55	15.5	B	0.78	22.5	C	0.88	28.8	C	0.77	21.3	C
	Overall		**0.64**	**19.6**	**B**	**0.79**	**23.9**	**C**	**0.81**	**25.3**	**C**	**0.82**	**24.4**	**C**
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.47	26.1	C	0.50	26.7	C	0.62	29.4	C	0.68	31.5	C
		R	0.40	11.8	B	0.16	11.3	B	0.16	12.5	B	0.10	10.9	B
	NB	T	0.12	11.0	B	0.40	11.8	B	0.38	11.6	B	0.44	12.2	B
	SB	T	0.24	10.5	B	0.31	11.2	B	0.38	11.8	B	0.38	11.8	B
	Overall		*	**13.7**	**B**	*	**14.1**	**B**	*	**15.4**	**B**	*	**15.8**	**B**
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.24	23.5	C	0.60	36.3	D	0.52	29.7	C	0.66	39.5	D
		TR	0.53	26.9	C	0.52	27.0	C	0.63	29.0	C	0.65	29.4	C
	WB	L	0.97	80.0	F	0.90	62.9	E	1.15	132.7	F	1.35	210.9	F
		TR	0.44	24.7	C	0.55	26.2	C	0.44	23.9	C	0.58	25.0	C
	NB	LTR	0.54	30.0	C	0.75	35.5	D	0.73	34.3	C	0.97	54.0	D
		U-TURN	0.53	17.9	C	0.35	14.7	B	1.05	84.5	F	0.59	24.4	C
	SB	L	0.27	30.6	C	0.49	34.9	C	0.76	45.6	D	0.75	43.5	D
		TR	0.23	30.1	C	0.31	31.4	C	0.32	31.5	C	0.68	40.6	D
	Overall		*	**31.7**	**C**	*	**32.5**	**C**	*	**42.9**	**D**	*	**55.2**	**E**
Veterans Road West / Tyrellan Avenue	EB	LTR	0.35	17.3	B	0.57	20.3	C	0.58	20.5	C	0.64	21.8	C
	WB	LTR	0.40	17.9	B	-	-	-	-	-	-	-	-	-
		DefL	-	-	-	0.58	27.5	C	0.61	28.9	C	0.88	53.8	D
		TR	-	-	-	0.40	18.2	B	0.45	19.0	B	0.61	21.9	C
	NB	DefL	0.60	24.4	C	1.01	78.8	E	0.72	31.9	C	1.26	168.5	F
		TR	0.18	15.6	B	0.35	17.6	B	0.31	17.1	B	0.43	18.8	B
	SB	LTR	0.23	15.9	B	0.54	20.1	C	0.38	17.5	B	0.60	20.9	C
	Overall		**0.50**	**18.4**	**B**	**0.79**	**27.5**	**C**	**0.66**	**21.2**	**C**	**1.07**	**39.1**	**D**
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	1.04	53.5	D	0.96	39.4	D	1.03	53.5	D	1.01	35.7	D
		TR	0.25	4.9	A	0.37	5.8	A	0.33	4.7	A	0.38	5.6	A
	WB	LT	0.72	40.3	D	1.00	66.4	E	0.66	30.8	C	1.08	76.2	E
		R	0.72	41.6	D	1.11	103.1	F	1.13	107.4	F	1.55	286.0	F
	NB	LTR	0.20	32.8	C	0.01	30.6	C	0.11	34.2	C	-	-	-
	SB	L	0.54	42.8	D	0.40	37.8	D	0.72	55.8	E	0.36	34.3	C
		LT	0.02	30.6	C	0.00	30.4	C	0.00	32.1	C	-	-	-
		R	0.18	6.8	A	0.15	6.6	A	0.41	12.0	B	0.24	7.3	A
	Overall		**0.99**	**38.4**	**D**	**0.90**	**48.3**	**D**	**1.02**	**48.8**	**D**	**1.03**	**88.3**	**F**
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.52	17.8	B	0.68	22.2	C	0.65	20.7	C	0.80	27.6	C
		TR	0.03	11.5	B	0.04	11.5	B	0.04	11.5	B	0.05	11.6	B
	WB	LTR	0.10	12.0	B	0.09	11.9	B	0.05	11.6	B	0.06	11.7	B
	NB	LTR	0.07	17.4	B	-	-	-	0.01	16.9	B	0.00	16.8	B
		DefL	-	-	-	0.01	16.9	B	-	-	-	-	-	-
		TR	-	-	-	0.01	16.9	B	-	-	-	-	-	-
	SB	LT	0.10	17.8	B	0.15	18.3	B	0.12	18.1	B	0.17	18.5	B
		R	0.55	24.8	C	0.95	50.8	D	0.99	59.7	E	1.26	156.3	F
	Overall		**0.53**	**19.0**	**B**	**0.80**	**32.8**	**C**	**0.80**	**38.1**	**D**	**1.00**	**88.2**	**F**

Table 2.13-4 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Bricktown Way / Veterans Road West	EB	L	0.19	15.7	B	0.37	17.8	B	0.41	18.3	B	0.64	22.4	C
		R	0.00	14.0	B	0.05	14.4	B	0.04	14.4	B	0.06	14.5	B
	NB	LT	0.07	7.3	A	0.14	7.7	A	0.17	7.9	A	0.18	8.0	A
	SB	TR	0.38	9.1	A	0.52	10.2	B	0.42	9.5	A	0.62	11.0	B
	Overall		**0.31**	**9.6**	**A**	**0.46**	**10.9**	**B**	**0.41**	**10.6**	**B**	**0.63**	**12.8**	**B**
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B
	WB	L	0.44	14.8	B	0.49	15.5	B	0.43	14.7	B	0.96	45.2	D
		LT	0.46	15.3	B	0.51	16.0	B	0.45	15.1	B	0.34	13.4	B
	NB	L	0.01	10.3	B	0.00	10.2	B	0.01	10.3	B	0.02	10.4	B
		R	0.20	9.3	A	0.41	10.9	B	0.49	11.7	B	0.63	14.1	B
	SB	LTR	0.13	10.9	B	0.16	11.1	B	0.16	11.1	B	0.21	11.4	B
	Overall		*	**12.6**	**B**	*	**13.1**	**B**	*	**12.7**	**B**	*	**26.6**	**C**
Englewood Avenue / Veterans Road East	EB	LT	0.34	16.1	B	0.58	20.3	C	0.78	28.2	C	1.12	94.5	F
		R	0.05	13.1	B	0.12	13.7	B	0.13	13.8	B	0.18	14.2	B
	WB	LTR	0.11	13.6	B	0.09	13.4	B	0.14	13.9	B	0.17	14.1	B
	NB	LTR	0.27	9.5	A	0.26	9.4	A	0.26	9.4	A	0.34	10.0	A
	Overall		**0.30**	**11.3**	**B**	**0.39**	**13.3**	**B**	**0.48**	**16.8**	**B**	**0.67**	**43.1**	**D**
Englewood Avenue / Bloomingdale Road	EB	LR	0.19	17.9	B	0.39	20.4	C	0.38	20.3	C	0.56	23.6	C
	NB	LT	0.41	8.5	A	0.32	7.7	A	0.52	9.5	A	0.41	8.4	A
	SB	TR	0.54	9.6	A	0.35	7.9	A	0.50	9.3	A	0.41	8.3	A
	Overall		**0.43**	**9.9**	**A**	**0.37**	**10.2**	**B**	**0.47**	**10.8**	**B**	**0.46**	**11.7**	**B**
Sharrotts Road / Bloomingdale Road	EB	LR	0.27	16.0	B	0.28	16.0	B	0.51	19.0	B	0.48	18.6	B
	NB	LT	0.57	13.0	B	0.55	12.6	B	0.67	14.6	B	0.67	14.8	B
	SB	TR	0.50	11.8	B	0.45	11.1	B	0.64	13.9	B	0.63	13.7	B
	Overall		**0.45**	**12.9**	**B**	**0.44**	**12.5**	**B**	**0.61**	**15.2**	**B**	**0.59**	**15.0**	**B**
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.06	23.1	C	0.02	22.7	C	0.12	23.7	C
		R	0.34	27.7	C	0.63	35.3	D	0.57	33.1	C	0.79	43.3	D
	WB	LTR	0.69	21.4	C	0.71	21.7	C	0.88	25.0	C	0.94	28.7	C
	NB	L	0.39	24.2	C	0.44	23.7	C	0.47	27.1	C	0.64	36.4	D
		T	0.39	17.2	B	0.32	16.3	B	0.37	16.7	B	0.40	17.2	B
	SB	TR	0.99	36.5	D	0.62	20.3	C	0.87	31.4	C	0.69	21.4	C
	Overall		**0.76**	**26.4**	**C**	**0.66**	**21.9**	**C**	**0.82**	**26.4**	**C**	**0.80**	**27.2**	**C**
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.16	16.9	B	0.10	16.3	B	0.13	16.5	B	0.20	17.3	B
	NB	LTR	0.41	9.2	A	0.43	9.3	A	0.44	9.4	A	0.49	9.9	A
	SB	L	0.61	11.9	B	0.47	10.4	B	0.66	13.1	B	0.71	15.6	B
		TR	0.67	11.6	B	0.50	9.8	A	0.62	11.0	B	0.56	10.2	B
	Overall		**0.50**	**11.3**	**B**	**0.37**	**10.0**	**A**	**0.48**	**11.2**	**B**	**0.54**	**11.8**	**B**
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.8	B	0.06	14.5	B	0.09	14.7	B	0.06	14.5	B
	WB	L	0.36	18.2	B	0.58	22.4	C	0.55	21.8	C	0.57	22.1	C
		T	0.02	14.1	B	0.04	14.2	B	0.04	14.2	B	0.02	14.1	B
		R	0.21	16.1	B	0.22	16.2	B	0.22	16.1	B	0.20	15.9	B
	NB	LTR	0.52	20.5	C	0.71	24.3	C	0.69	23.6	C	0.79	25.9	C
	SB	LTR	1.08	64.8	E	0.78	27.4	C	0.93	30.9	C	0.86	30.6	C
	Overall		**0.72**	**38.9**	**D**	**0.68**	**23.8**	**C**	**0.74**	**24.9**	**C**	**0.71**	**25.5**	**C**
Arthur Kill Road / Bloomingdale Road	EB	TR	0.35	14.6	B	0.37	14.9	B	0.47	16.2	B	0.47	16.3	B
	WB	LT	0.36	15.1	B	0.43	16.3	B	0.57	19.5	B	0.65	22.8	C
	NB	LR	0.60	26.1	C	0.56	25.1	C	0.66	27.9	C	0.55	25.0	C
	Overall		**0.47**	**18.8**	**B**	**0.49**	**18.7**	**B**	**0.61**	**21.0**	**C**	**0.61**	**20.7**	**C**

Table 2.13-4 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 No-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
UNSIGNALIZED INTERSECTIONS														
Sharrots Road / Arthur Kill Road	EB	LTR	0.07	13.9	B	0.23	15.5	C	0.29	20.7	C	0.54	24.5	C
	WB	LTR	0.22	14.9	B	0.24	18.1	C	0.42	24.7	C	0.45	24.2	C
	NB	LTR	0.03	8.0	A	0.03	8.0	A	0.03	8.0	A	0.01	8.0	A
	SB	LTR	0.03	7.9	A	0.03	8.1	A	0.06	8.2	A	0.03	8.0	A
Englewood Avenue / Arthur Kill Road	WB	LR	0.05	10.8	B	0.13	14.0	B	0.17	14.3	B	0.40	19.1	C
	SB	LT	0.02	8.0	A	0.02	8.2	A	0.01	8.1	A	0.01	8.0	A
South Bridge Street / Arthur Kill Road	SB	LT	0.18	10.8	B	0.19	10.3	B	0.29	11.5	B	0.27	11.7	B
Bricktown Way / Tyrellan Avenue	EB	T	0.05	8.0	A	0.10	9.1	A	0.12	8.7	A	0.22	9.6	A
		TR	0.08	7.9	A	0.15	9.2	A	0.16	8.7	A	0.27	9.9	A
	WB	LT	0.12	8.3	A	0.32	10.5	B	0.39	11.3	B	0.39	11.8	B
		T	0.06	7.7	A	0.10	8.2	A	0.14	8.5	A	0.20	9.3	A
	NB	L	0.02	7.8	A	0.07	8.7	A	0.03	8.5	A	0.10	9.4	A
		R	0.03	7.0	A	0.06	7.7	A	0.11	8.2	A	0.14	8.8	A
Sharrots Road / Veterans Road West	EB	TR	0.13	8.4	A	0.13	8.4	A	0.23	8.9	A	0.19	8.7	A
	WB	LT	0.30	9.5	A	0.34	9.9	A	0.42	11.1	B	0.45	11.6	B
	SB	LT	0.07	8.2	A	0.12	8.5	A	0.11	8.8	A	0.12	8.8	A
		TR	0.09	8.0	A	0.09	8.1	A	0.10	8.5	A	0.13	8.6	A
Sharrots Road / Veterans Road East	EB	LT	0.11	8.4	A	0.14	8.7	A	0.23	9.5	A	0.18	9.2	A
	WB	TR	0.24	8.8	A	0.30	9.5	A	0.36	10.6	B	0.41	11.0	B
	NB	LT	0.12	8.4	A	0.11	8.5	A	0.16	9.1	A	0.16	9.0	A
		TR	0.10	7.6	A	0.16	8.1	A	0.24	9.0	A	0.26	9.1	A

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

2.13.5 FUTURE WITH-ACTION CONDITION

The Future With-Action condition traffic analysis identifies how the study area's transportation system is projected to operate in the future with the proposed Action. As such, the Future With-Action condition traffic analysis includes anticipated future increases in background traffic volumes, as well as traffic generated by the proposed project.

In this analysis, the projected weekday AM and PM peak hour vehicle trips associated with the proposed project were added to the respective Future No-Action condition traffic volumes to arrive at projected Future With-Action condition traffic volumes. Intersection operations analyses were then repeated for both analysis peak hours based on the projected Future With-Action condition traffic volumes, in order to evaluate the performance of the transportation system including vehicular traffic associated with the proposed project. The results of the Future No-Action and Future With-Action conditions analyses were then compared to identify any potential significant traffic impacts associated with the proposed project.

Proposed Development Plans and Site-Access Configuration

The potential for transportation impacts are assessed for both a 2015 and a 2020 analysis year. The 2015 analysis would include the development of Retail Site "A", the library, and Fairview Park, while the 2020 analysis would include the development of Retail Site "B", the school and the senior housing. **Figure 2.13-14** shows the complete development in the Development Area for the 2020 analysis year.

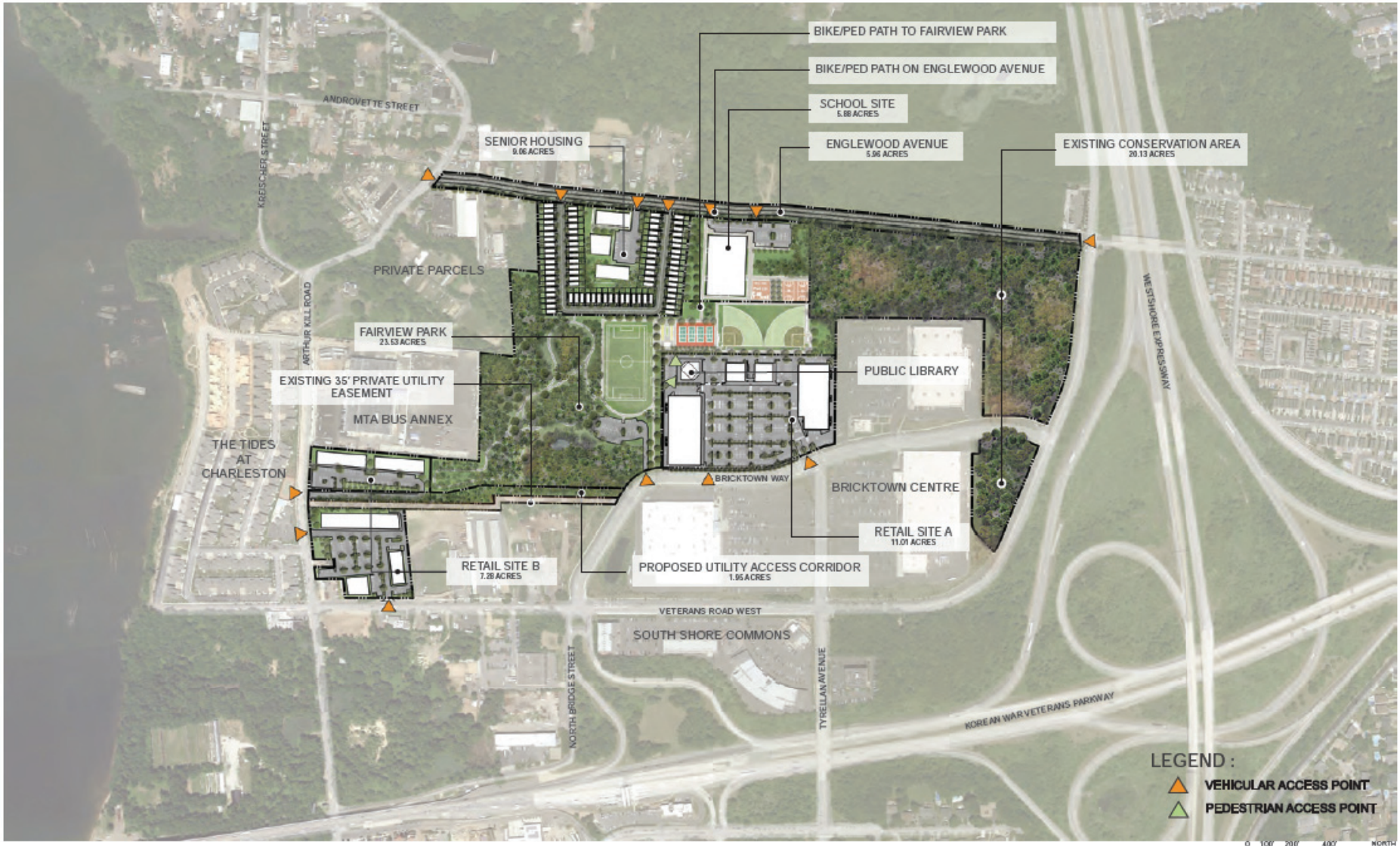
Vehicular access to Retail Site "A" and the library is proposed via two unsignalized site-access driveways located on the north side of Bricktown Way. The first of these site-access driveways would be aligned opposite Tyrellan Avenue at its intersection with Bricktown Way. The second site-access driveway would be aligned opposite the existing unsignalized driveway serving the Target retail store, to the west of Tyrellan Avenue. Vehicular access to the park is proposed via a third site-access driveway located on the north side of Bricktown Way, to the west of the two aforementioned site-access driveways.

By the 2020 analysis year, Englewood Avenue would be mapped, improved, and constructed to extend from its current terminus (east of Arthur Kill Road) to Veterans Road West, thereby providing a new, complete bi-directional roadway connection between Arthur Kill Road and Veteran Road West within an approximate 80-foot right-of-way across the northern border of the Project Area.

The fully-constructed length of Englewood Avenue would be approximately 3,265 feet and would include bicycle and pedestrian facilities (approximately 5.9 acres), with a total of four travel lanes (two in each direction) past the proposed senior housing and school sites and the Conservation Area. A portion of this proposed roadway, extending approximately 1,465 feet west from Veterans Road West, is already mapped to a width of 80 feet. The remaining approximately 1,800 feet of this approximately 3,265-foot roadway would be mapped as part of the Proposed Project.

Within the existing 80 foot wide mapped portion of Englewood Avenue, an area of approximately 45 feet deep of the mapped roadway bed, extending for approximately 1,488 feet westward from Veterans Road West, is owned by the State of New York. In order to construct Englewood Avenue to the full existing mapped width of 80 feet, a transfer of ownership of this area from the State to the City is required. There is no current acquisition agreement with the State; however, the EIS conservatively assesses the build-out of Englewood Avenue at the full 80-foot width. Before the roadway is constructed, the terms of transfer would need to be negotiated.

Englewood Avenue can accommodate expected traffic increments from the Proposed Project, and the trips generated to and from the school and senior housing sites under either a four-lane or a two-lane configuration. To ensure a conservative approach, the traffic analysis presented herein analyzes a narrower two-lane configuration. This analysis demonstrates that any vehicular traffic that leaves these sites and heads east, as well as traffic heading west from Veterans Road West towards these sites, can



CHARLESTON MIXED USE DEVELOPMENT 02.04.2013 Site Concept Plan AECOM

AECOM		Charleston Mixed-Use Development	***Figure 2.13-14*** **Preliminary Site Concept**

be accommodated with acceptable traffic operations at the intersection of Englewood Avenue and Veterans Road West.

Vehicular access to Retail Site "B" is proposed via two unsignalized site-access driveways located on the east side of Arthur Kill Road, and one unsignalized site-access driveway located on the north side of Veterans Road West. Vehicular access to the senior housing units is proposed via two unsignalized site-access driveways located on the south side of Englewood Avenue, while vehicular access to the school is proposed via two unsignalized site-access driveways located along the south side of the extended and improved segment of Englewood Avenue.

2.13.5.1 Traffic

Trip Generation Estimate

The trip generation for the Development Area was estimated using the transportation planning assumptions documented in the September 21, 2012 *Transportation Planning Factors Memo* (TPF) prepared by Philip Habib & Associates (PHA) and subsequently approved for use in this EIS by the NYCDOT. It should be noted that minor refinements in the sizes of the individual land use components were made following the preparation of the TPF. These refinements were taken into account for purposes of the Future With-Action conditions traffic analyses described in this section.

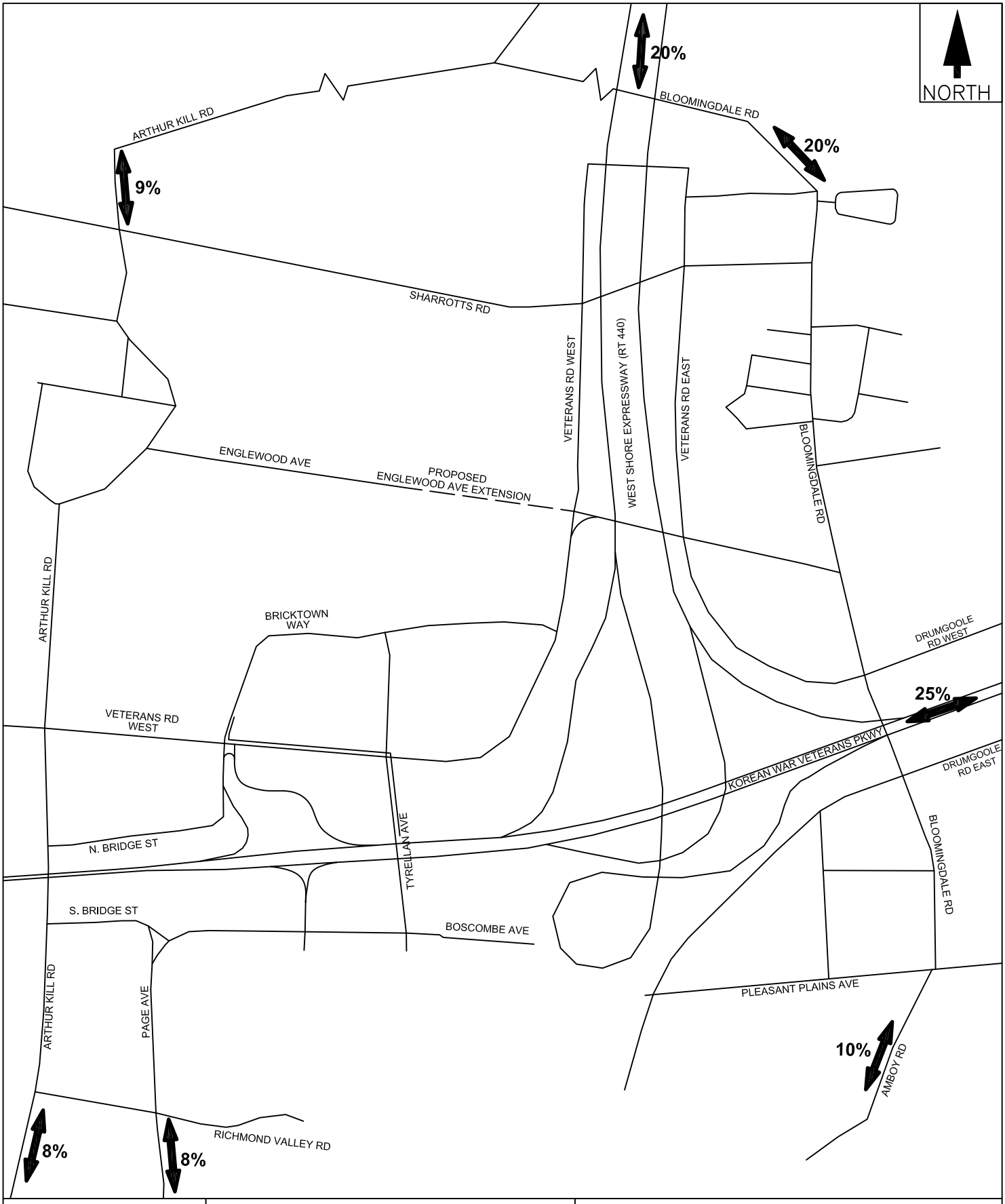
Table 2.13-5 shows the transportation planning assumptions used in the forecast for the Proposed Project in the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours. **Table 2.13-5** provides the daily generation rates, mode choice, as well as hourly and directional patterns. These transportation planning assumptions were based on standard CEQR criteria, standard professional references, Census data and studies that have been used in previous EASs and EISs for projects with similar uses in nearby areas of Staten Island, including the Bricktown Centre at Charleston FEIS completed in 2002. Based on these demand analysis patterns and the scale of the residential, retail and school components of the project, a Saturday midday analysis is included to complement the weekday AM, midday, and PM peak hours analysis. **Table 2.13-6** provides the overall resulting trip generation for the current proposed development program for the four peak hours, including person-trips for each mode of transportation and vehicle-trips for autos, taxis, and trucks.

Trip Distribution Estimate and Trip Assignment

The trip distribution patterns for the proposed project were estimated using the transportation planning assumptions documented in the September 21, 2012 TPF, prepared by Philip Habib & Associates (PHA) and subsequently approved for use in this EIS by the NYCDOT. These patterns were based on 2010 census population data within a three-mile radius. The vehicle trips generated by the school and park were distributed to the local street network based on the population data in this area of Staten Island. As vehicle trips to the retail development would have a slightly wider trip distribution area, 20 percent of the total retail trips were projected to originate from areas outside the three-mile radius, and travel to and from the project site by way of the West Shore Expressway and the Korean War Veteran's Parkway, as well as a few from the Outerbridge Crossing**. Figure 2.13-15** shows the resulting distribution percentages for the school and the park, and **Figure 2.13-16** shows the resulting distribution percentages for the retail space, library, and the senior housing.

Based on the estimated trip distribution patterns shown in **Figure 2.13-15** and **Figure 2.13-16**, **Figure 2.13-17** to **Figure 2.13-20** illustrate the resulting assignments of project-generated traffic volumes during the four peak hours, for the project build-out by the first analysis year (2015). Similarly, **Figure 2.13-21** to **Figure 2.13-24** illustrate the resulting assignments of project-generated traffic volumes during the four peak hours, for the full project build-out by the final analysis year (2020).

The projected peak hour vehicle trips associated with the Proposed Project were added to the respective Future No-Action traffic volumes to arrive at the projected Future With-Action traffic volumes for build-out



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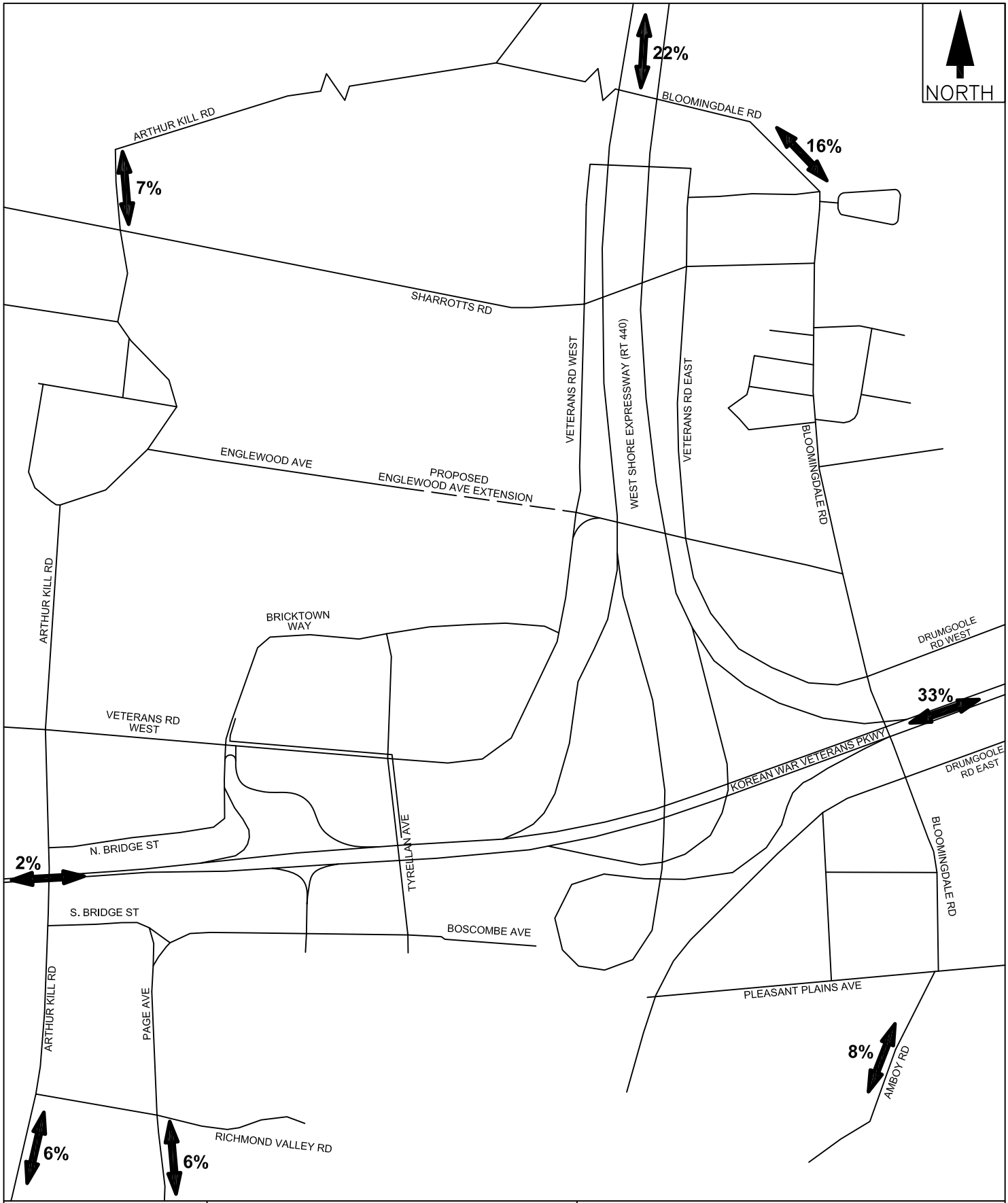
Estimated Trip Distribution Pattern:
School and Park

Figure 2.13-15



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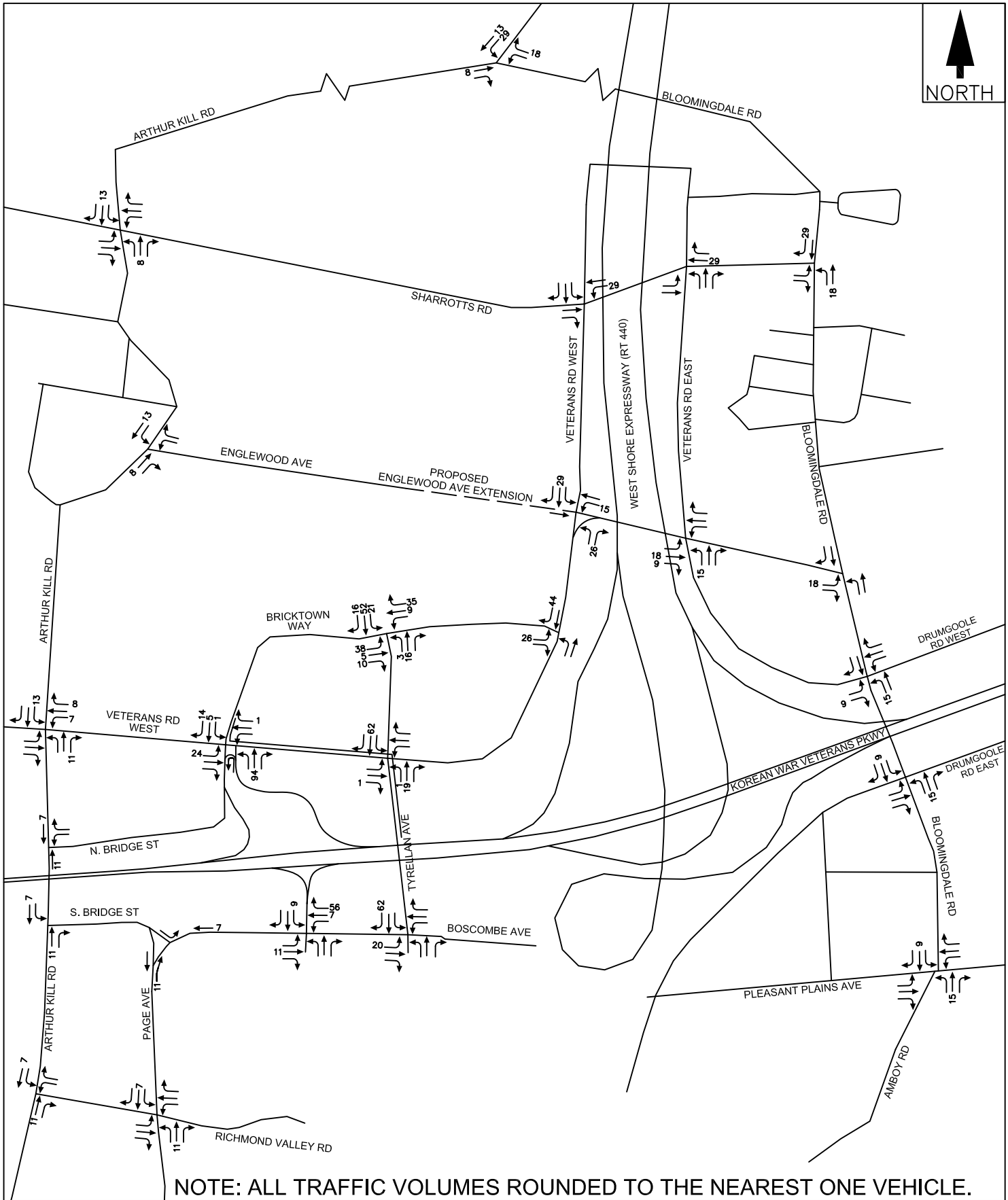
Estimated Trip Distribution Pattern:
Retail Space, Library and Senior Housing

Figure 2.13-16



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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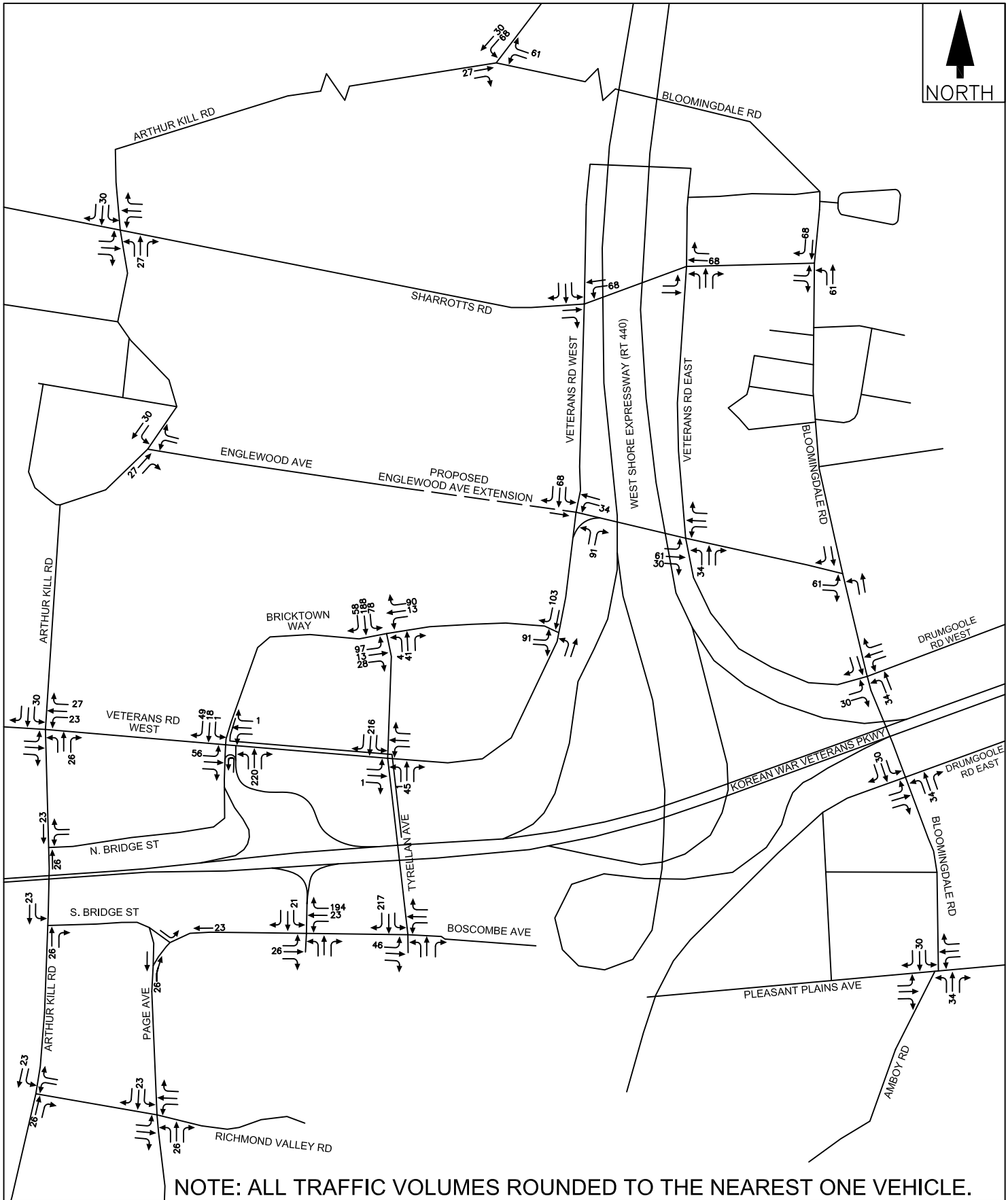
Site-Generated Traffic Assignments
Year 2015
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-17



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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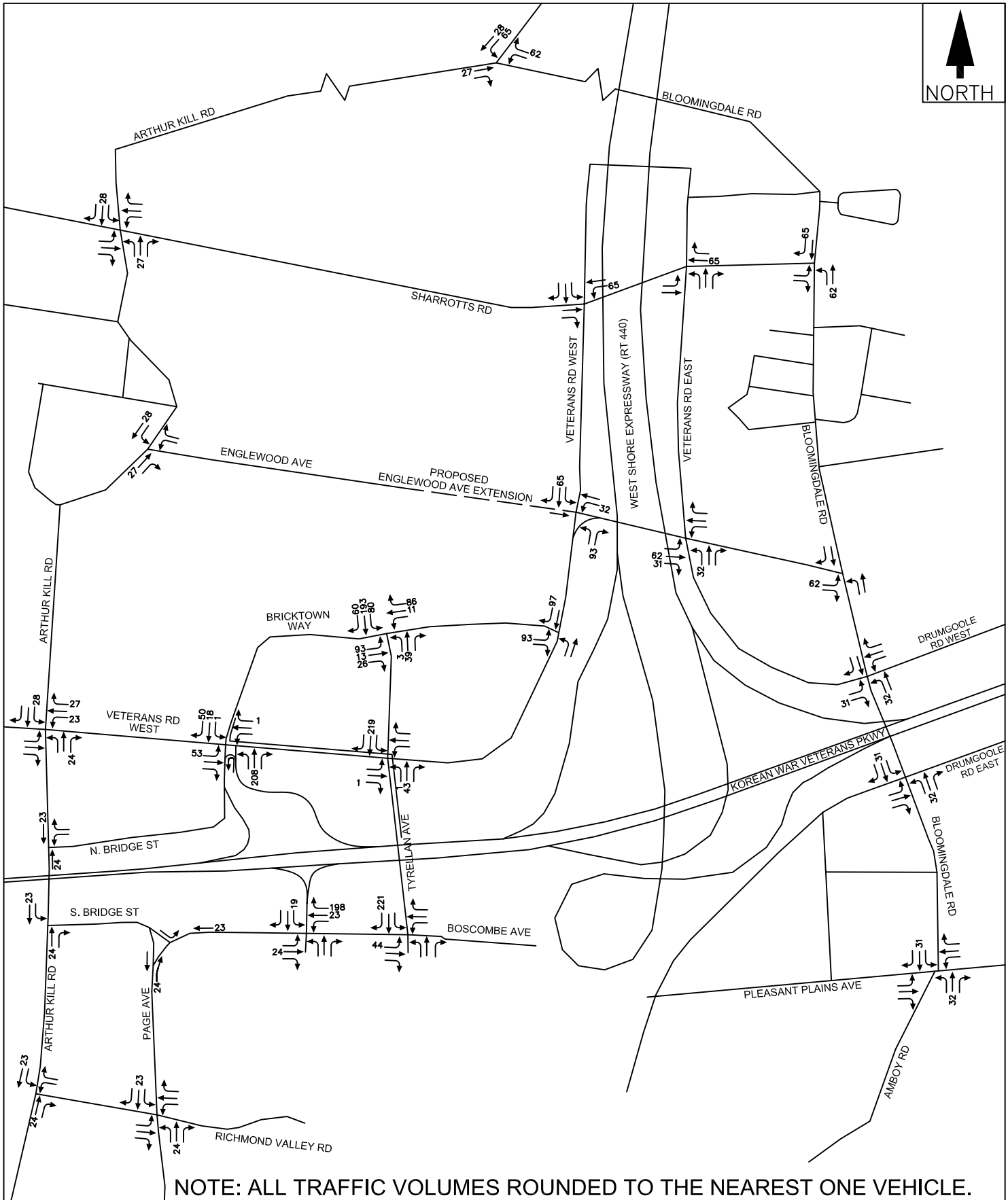
Staten Island, NY

Site-Generated Traffic Assignments
Year 2015
Weekday Midday Peak Hour
(12:00 to 1:00 PM)
Figure 2.13-18



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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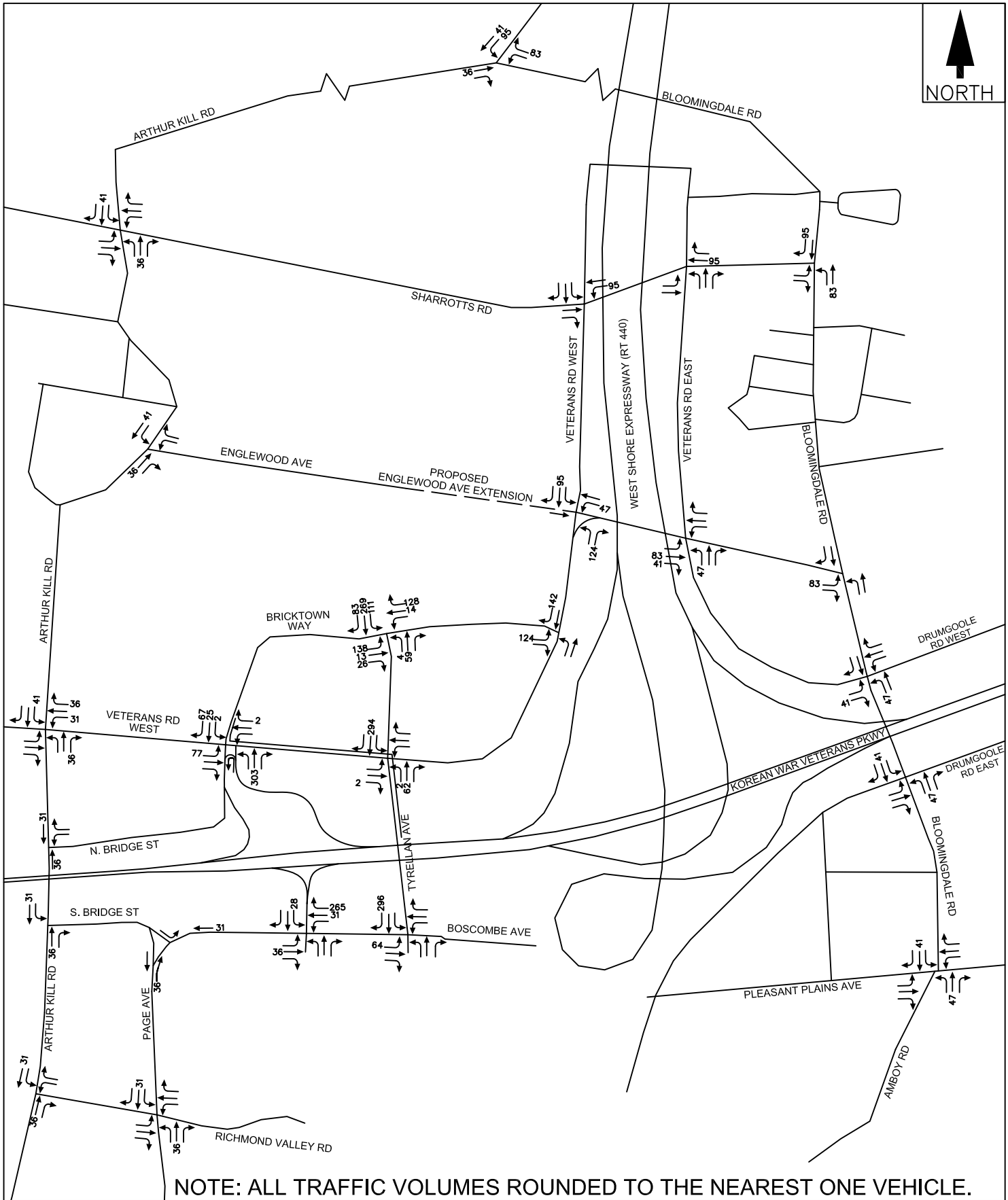
Charleston Development EIS
Staten Island, NY

Site-Generated Traffic Assignments
Year 2015
Weekday PM Peak Hour
(5:00 to 6:00 PM)
Figure 2.13-19



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

AECOM

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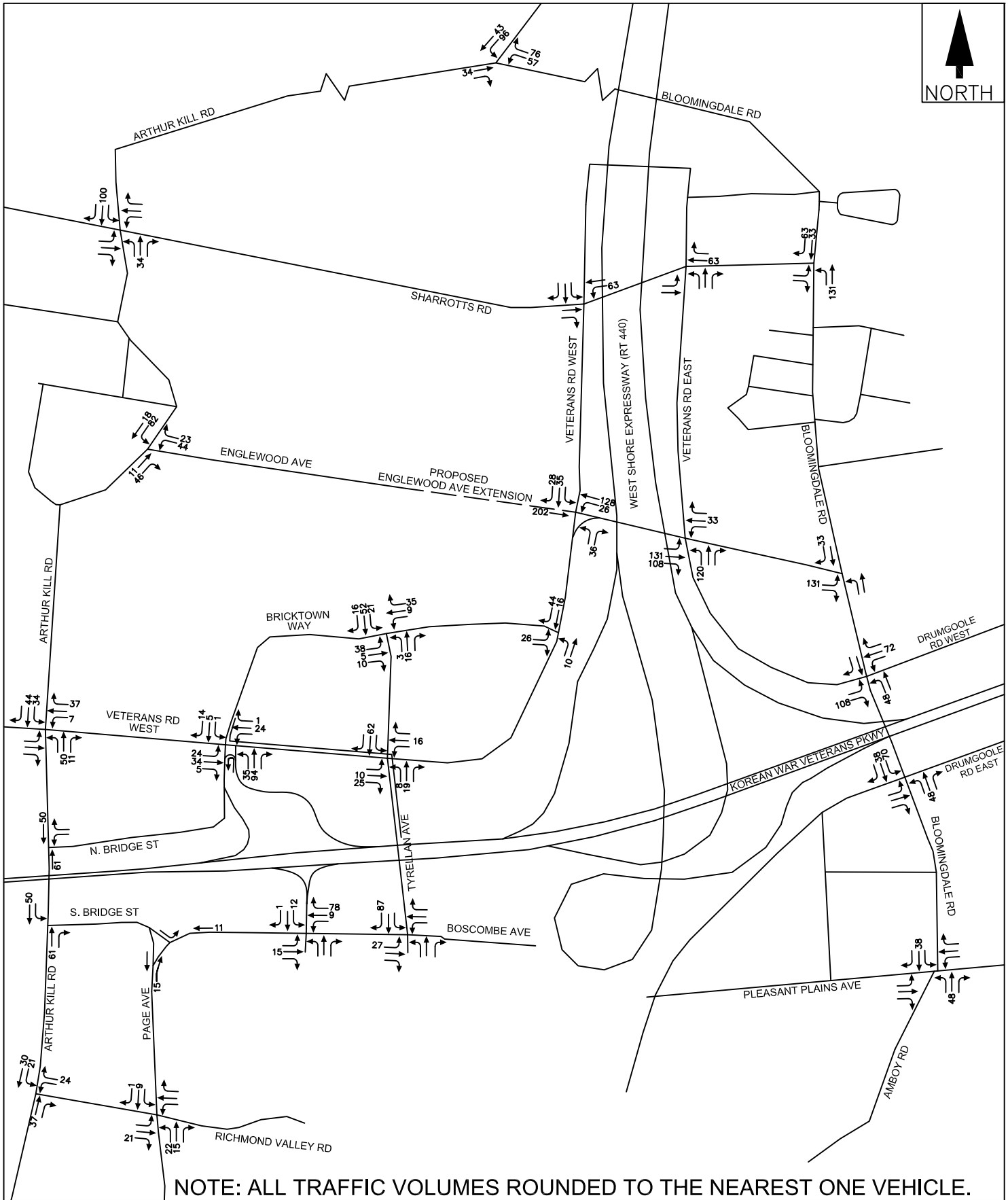
Staten Island, NY

Site-Generated Traffic Assignments
Year 2015
Saturday Midday Peak Hour
(12:45 to 1:45 PM)
Figure 2.13-20

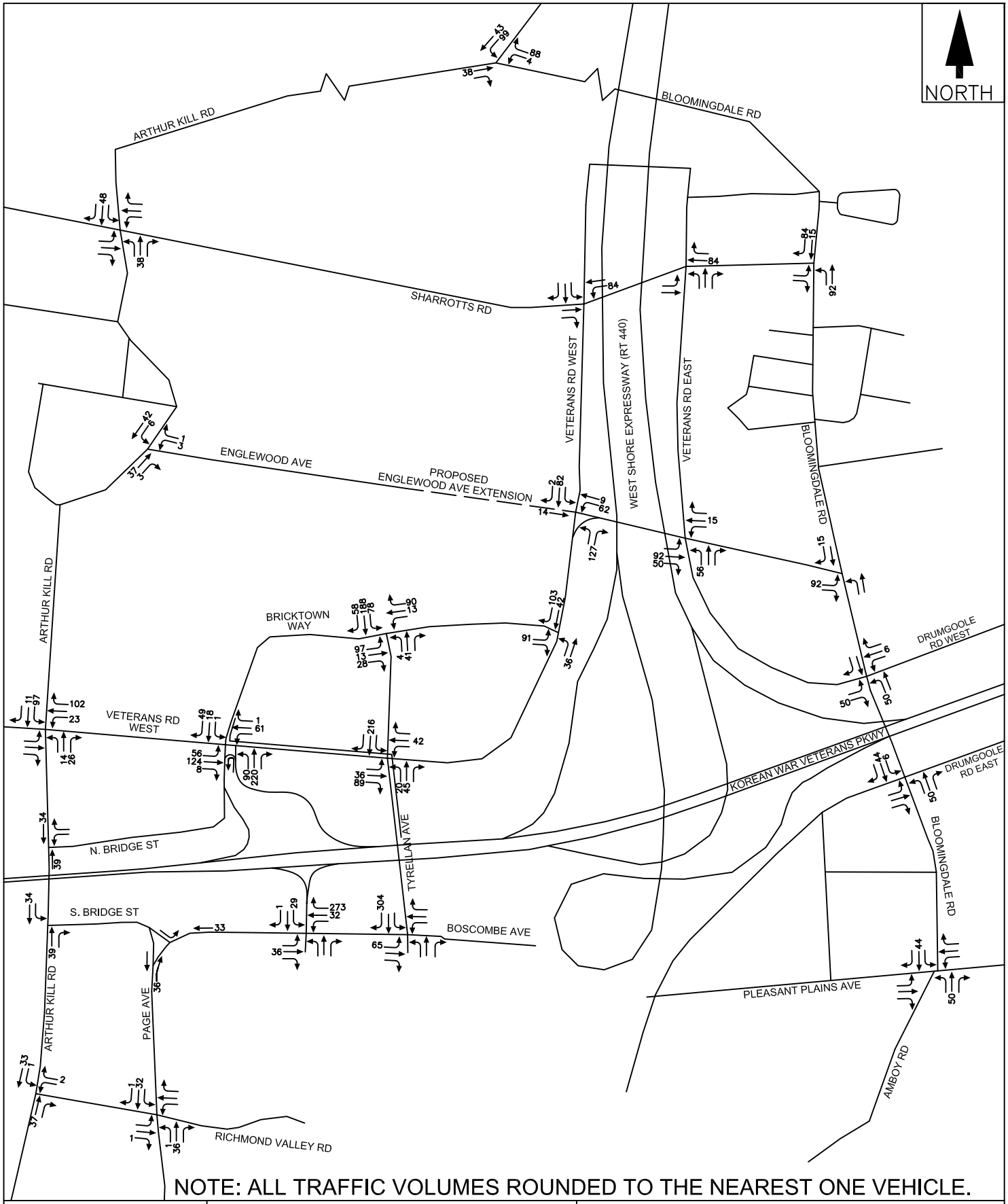


NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

AECOM

Charleston Development EIS
Staten Island, NY

Site-Generated Traffic Assignments
Year 2020
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-21



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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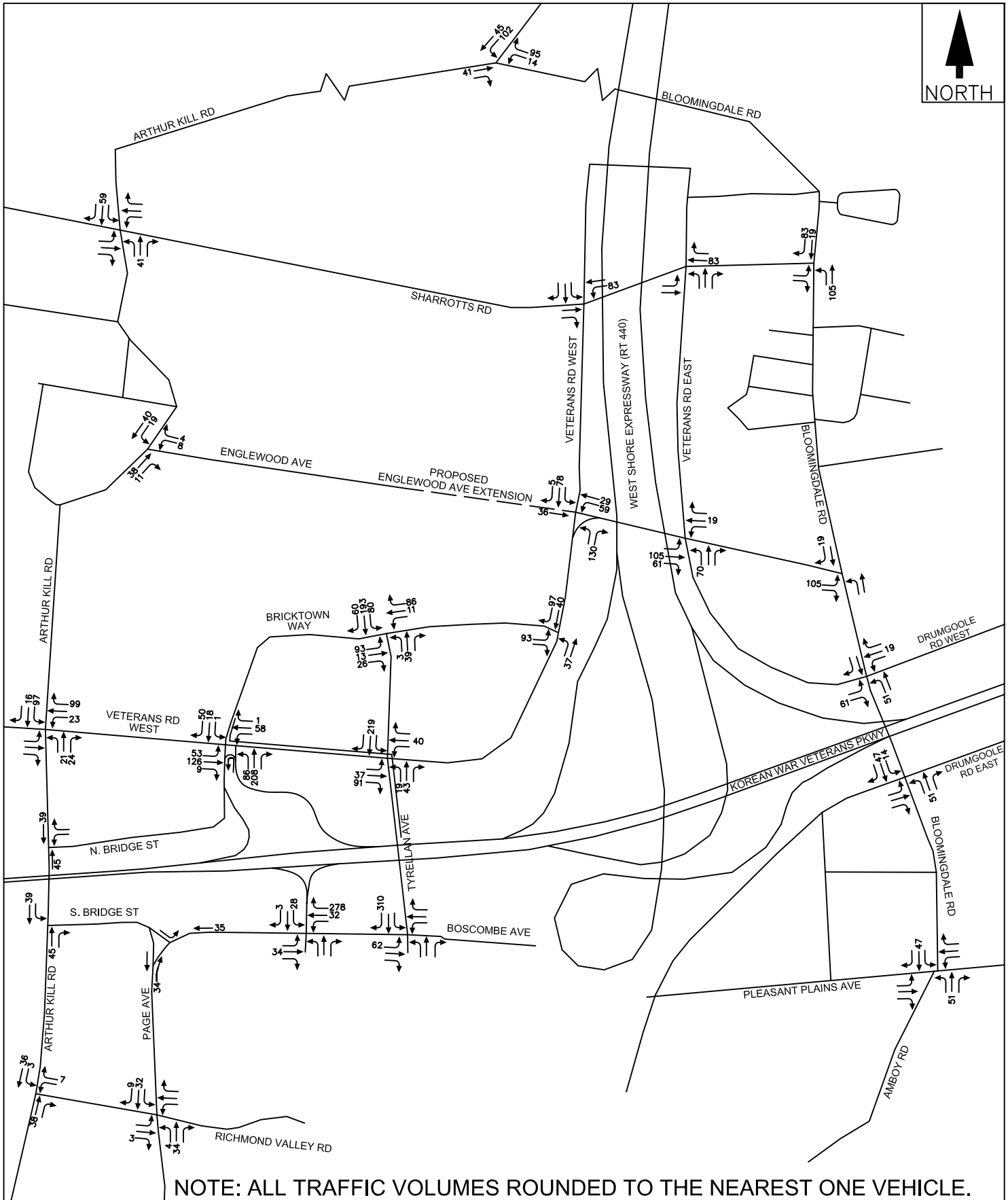
Charleston Development EIS
Staten Island, NY

Site-Generated Traffic Assignments
Year 2020
Weekday Midday Peak Hour
(12:00 to 1:00 PM)
Figure 2.13-22



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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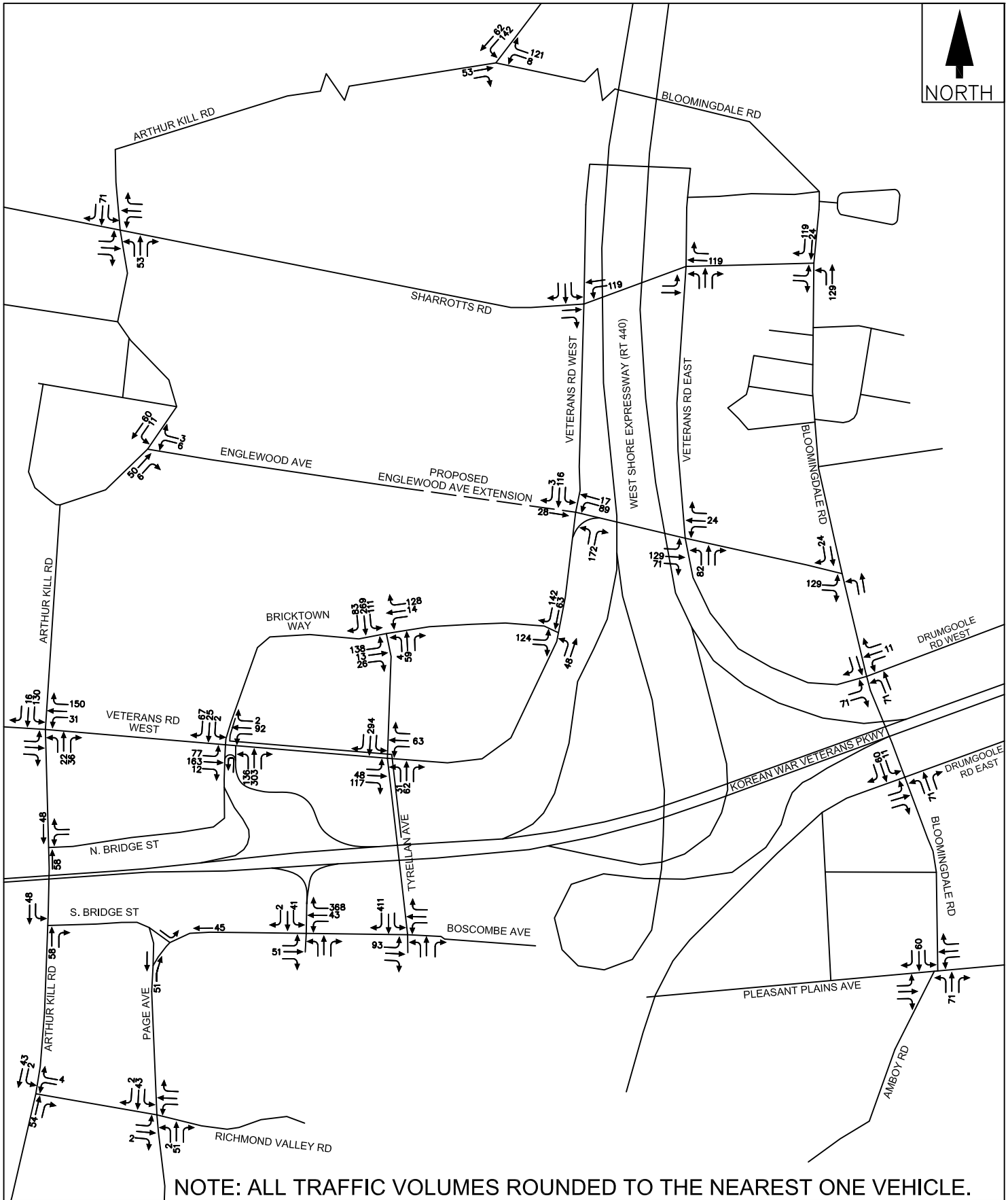
Charleston Development EIS
Staten Island, NY

Site-Generated Traffic Assignments
Year 2020
Weekday PM Peak Hour
(5:00 to 6:00 PM)
Figure 2.13-23



NOTE: ALL TRAFFIC VOLUMES ROUNDED TO THE NEAREST ONE VEHICLE.

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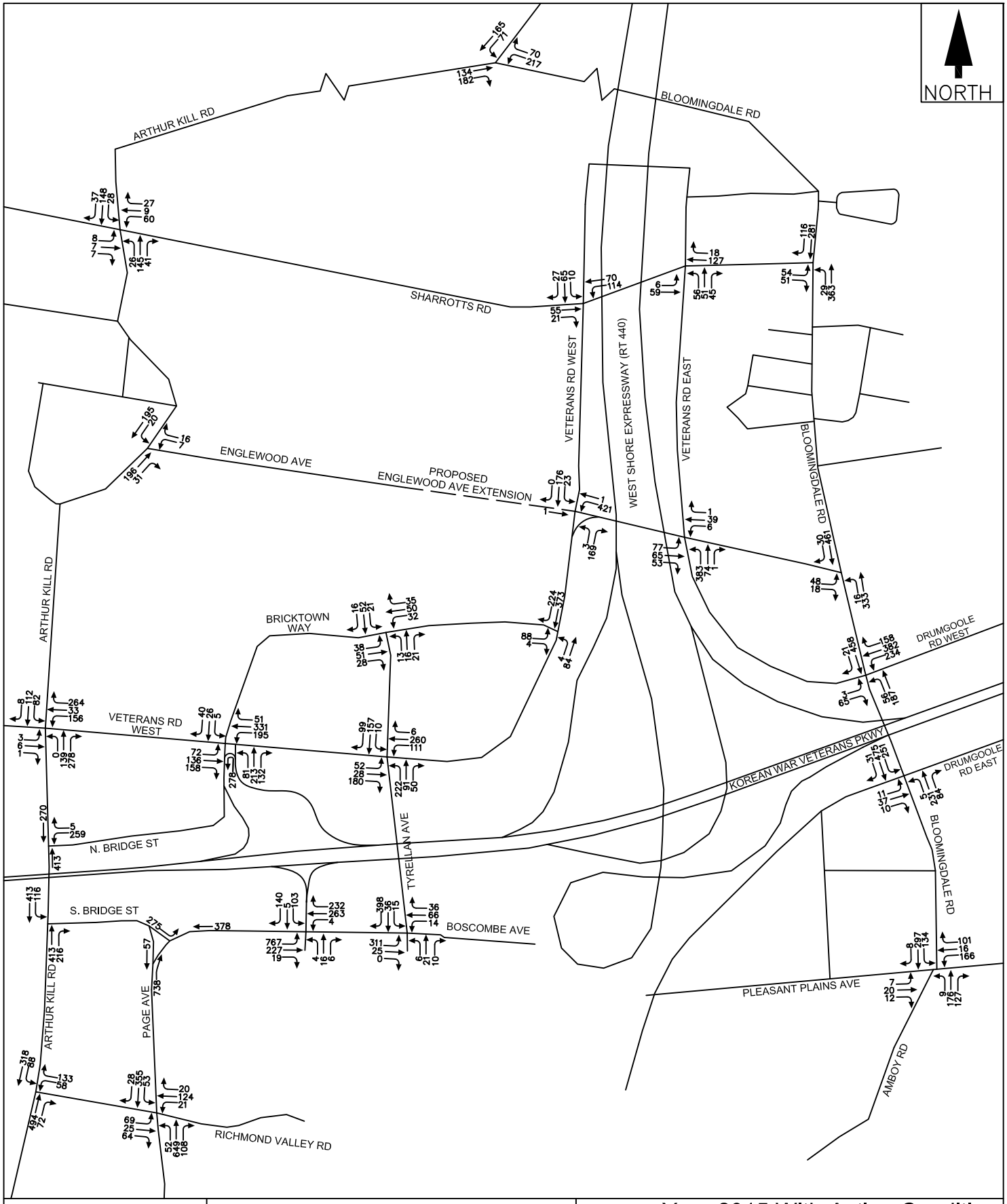
Charleston Development EIS
Staten Island, NY

Site-Generated Traffic Assignments
Year 2020
Saturday Midday Peak Hour
(12:45 to 1:45 PM)
Figure 2.13-24

by the analysis year of 2015, and full build-out by the final analysis year of 2020. In addition, under the 2020 Future With-Action condition, selected background traffic volumes during each peak hour were reassigned to Englewood Avenue to account for the potential re-routing of traffic due to the proposed extension of Englewood Avenue between Arthur Kill Road and Veterans Road West expected to occur by 2020.

Figure 2.13-25 to **Figure 2.13-28** show the resulting total traffic volumes under the year 2015 Future With-Action condition for the four analysis peak hours, which are the sum of the projected traffic volumes under the year 2015 Future No-Action condition and the 2015 project-generated traffic volumes. **Figure 2.13-29** to **Figure 2.13-32** show the resulting total traffic volumes under the year 2020 Future With-Action condition for the four analysis peak hours, which are the sum of the projected traffic volumes under the year 2020 Future No-Action condition (including re-routed background traffic to Englewood Avenue), and the full build-out project-generated traffic volumes.



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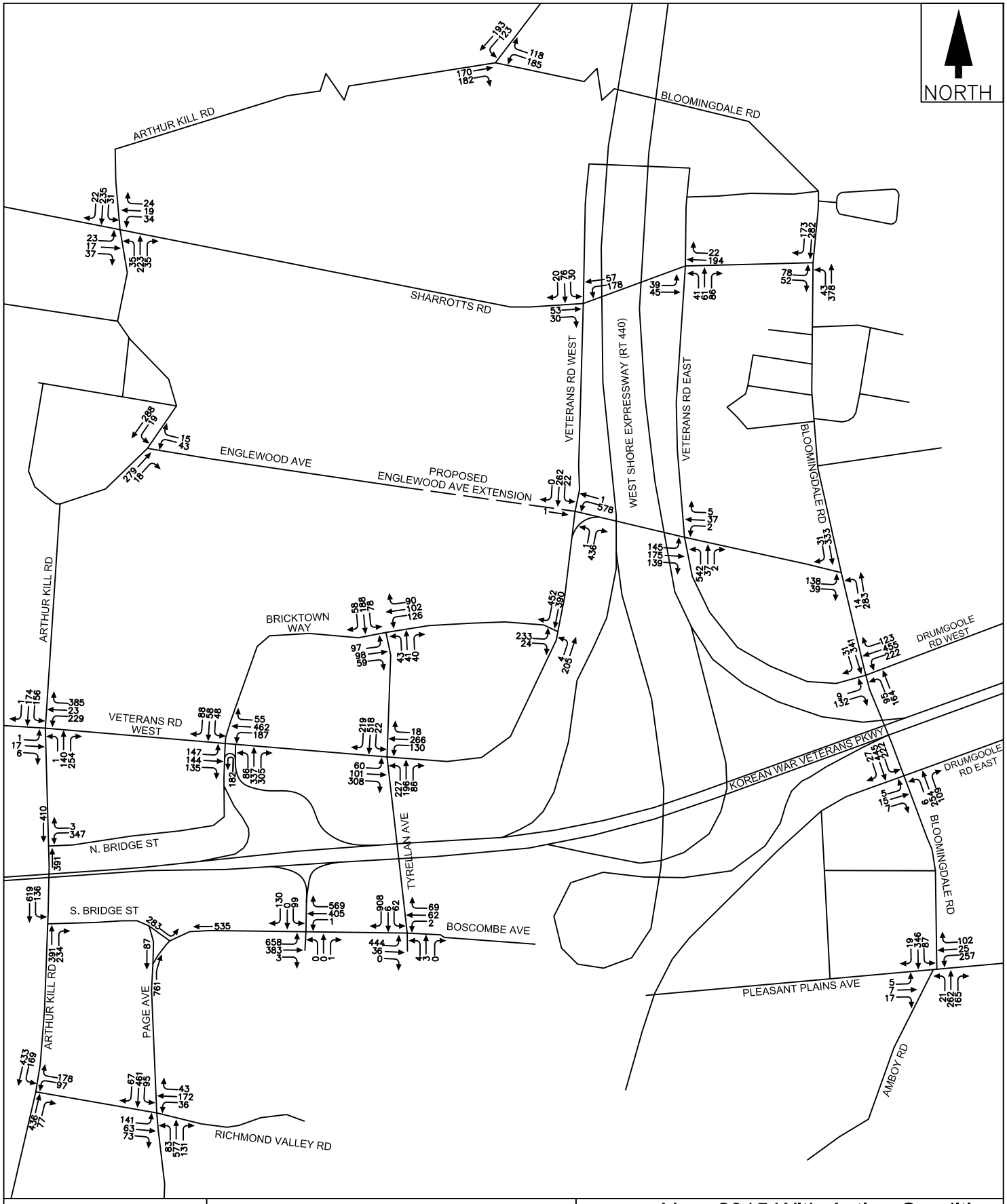
Charleston Development EIS
Staten Island, NY

Year 2015 With-Action Condition
Traffic Volumes
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-25



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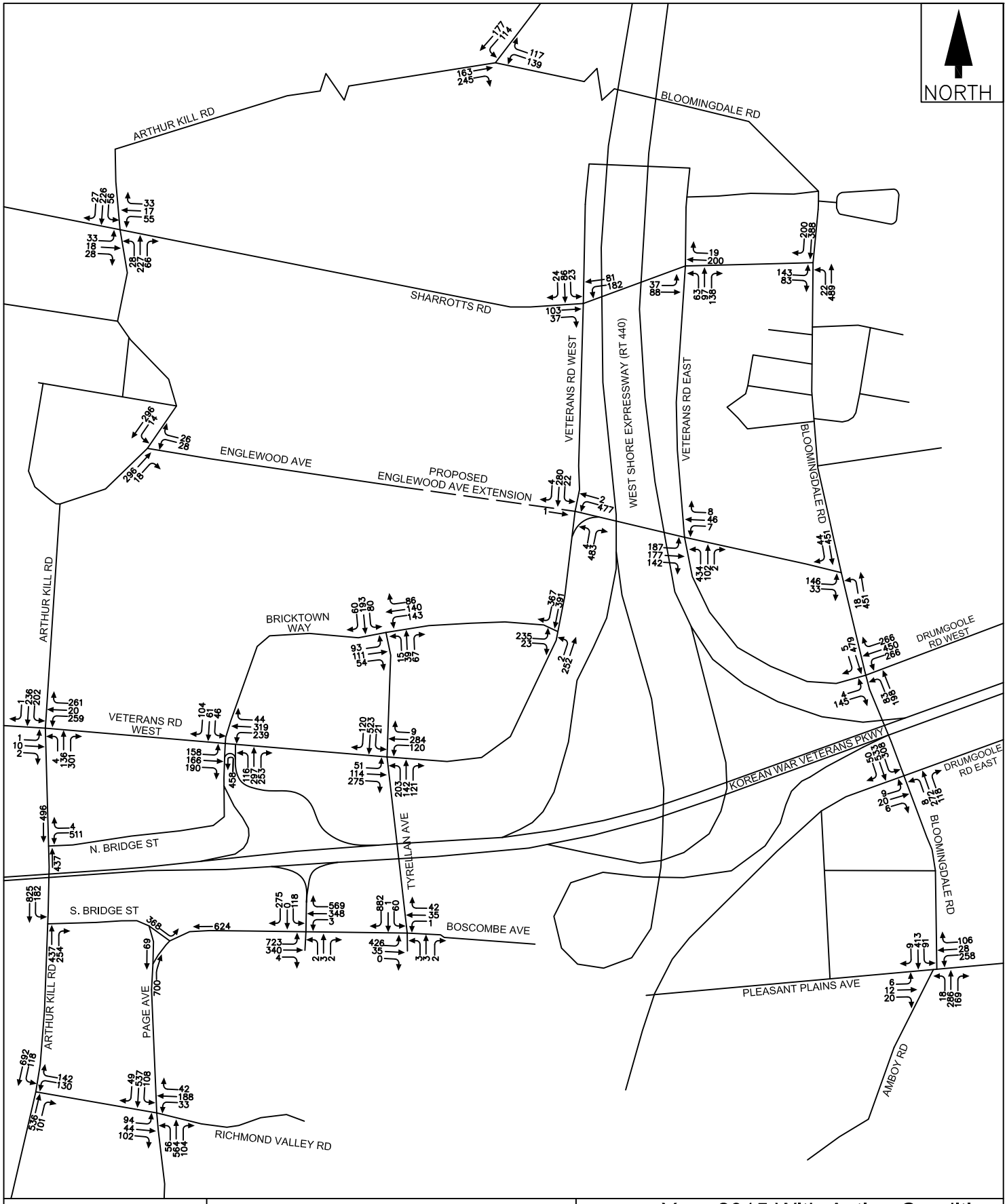
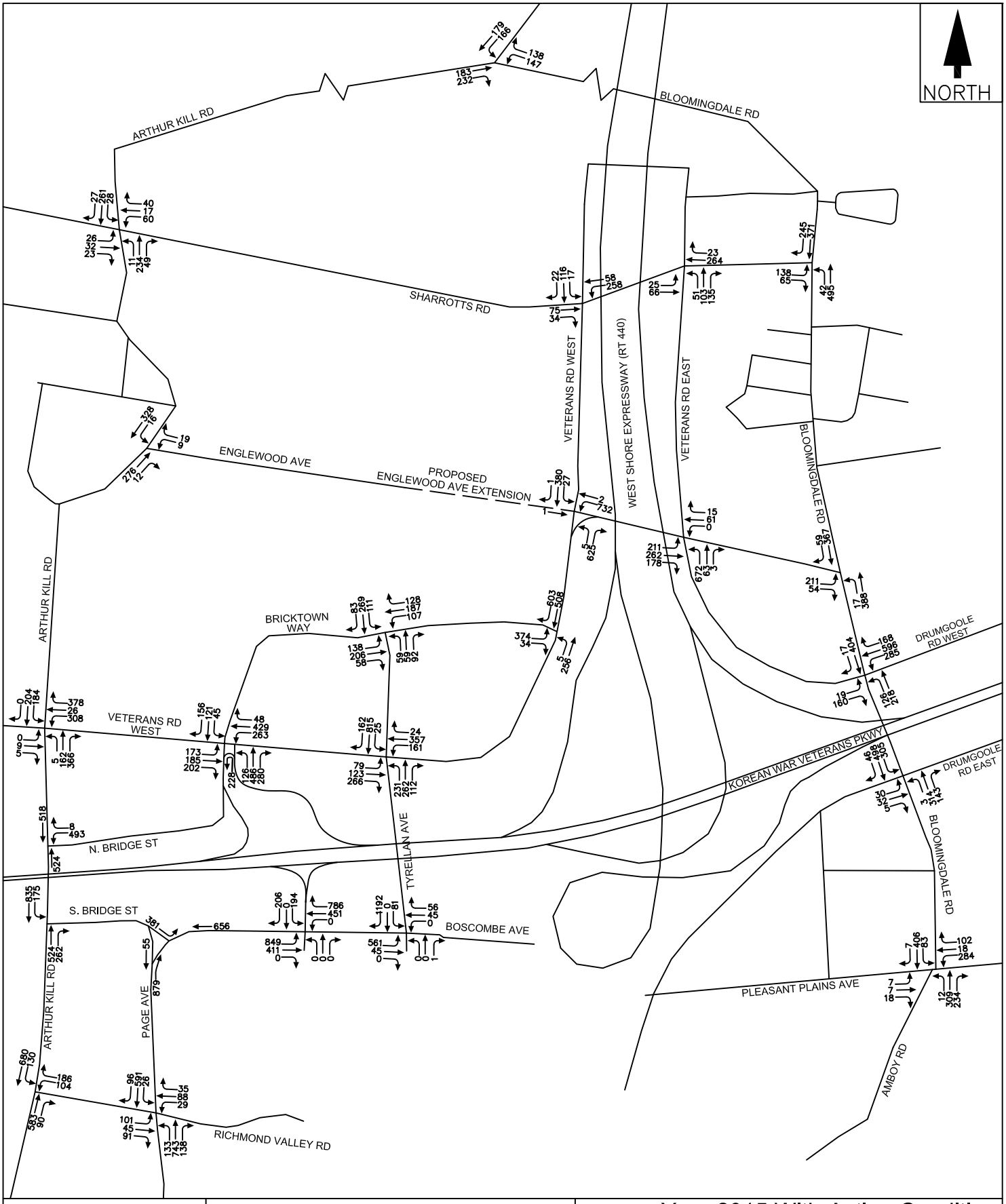
Charleston Development EIS
Staten Island, NY

Year 2015 With-Action Condition
Traffic Volumes
Weekday Midday Peak Hour
(12:00 to 1:00 PM)
Figure 2.13-26



AECOM	Charleston Development EIS Staten Island, NY	Year 2015 With-Action Condition Traffic Volumes Weekday PM Peak Hour (5:00 to 6:00 PM) Figure 2.13-27



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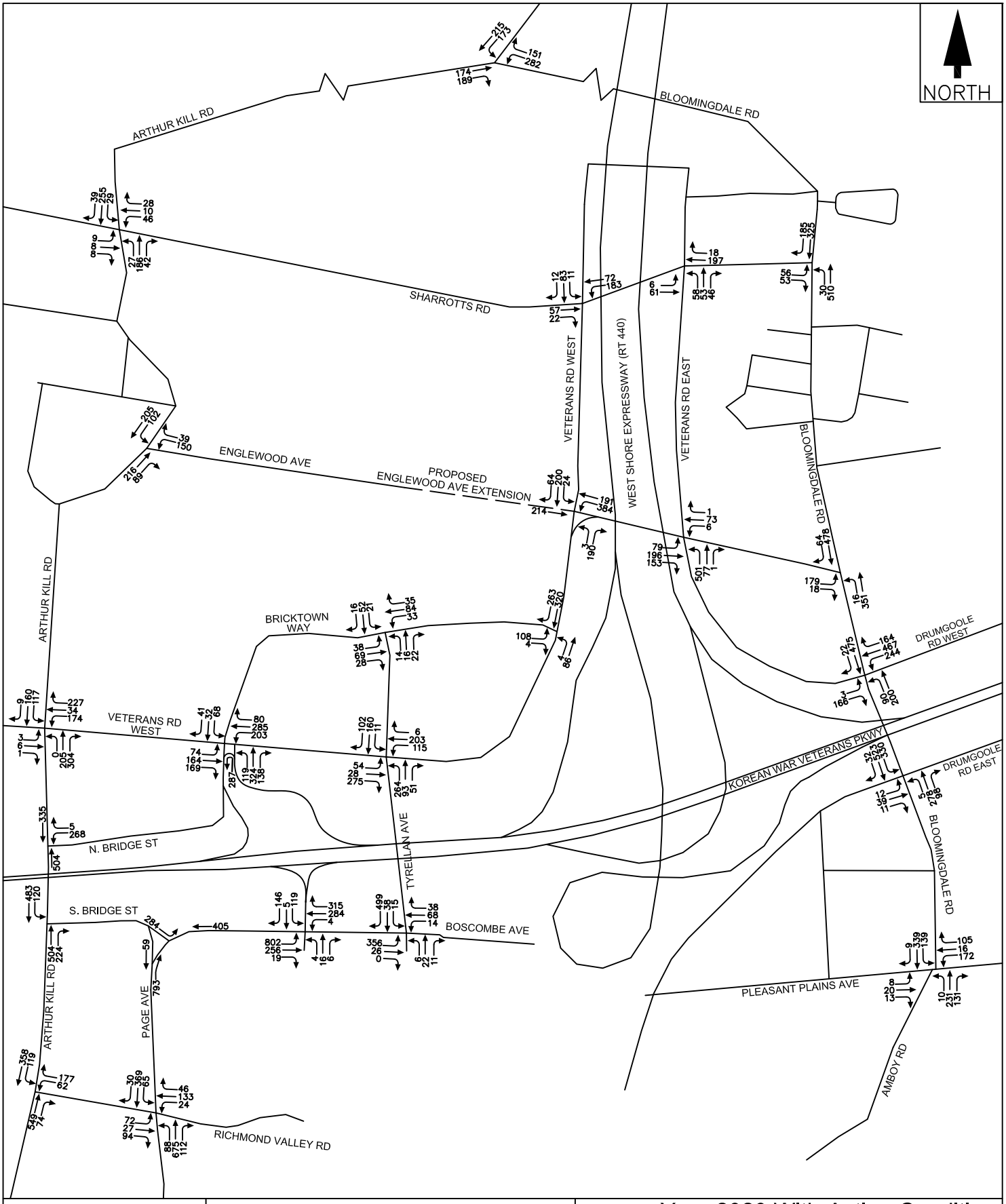
Charleston Development EIS
Staten Island, NY

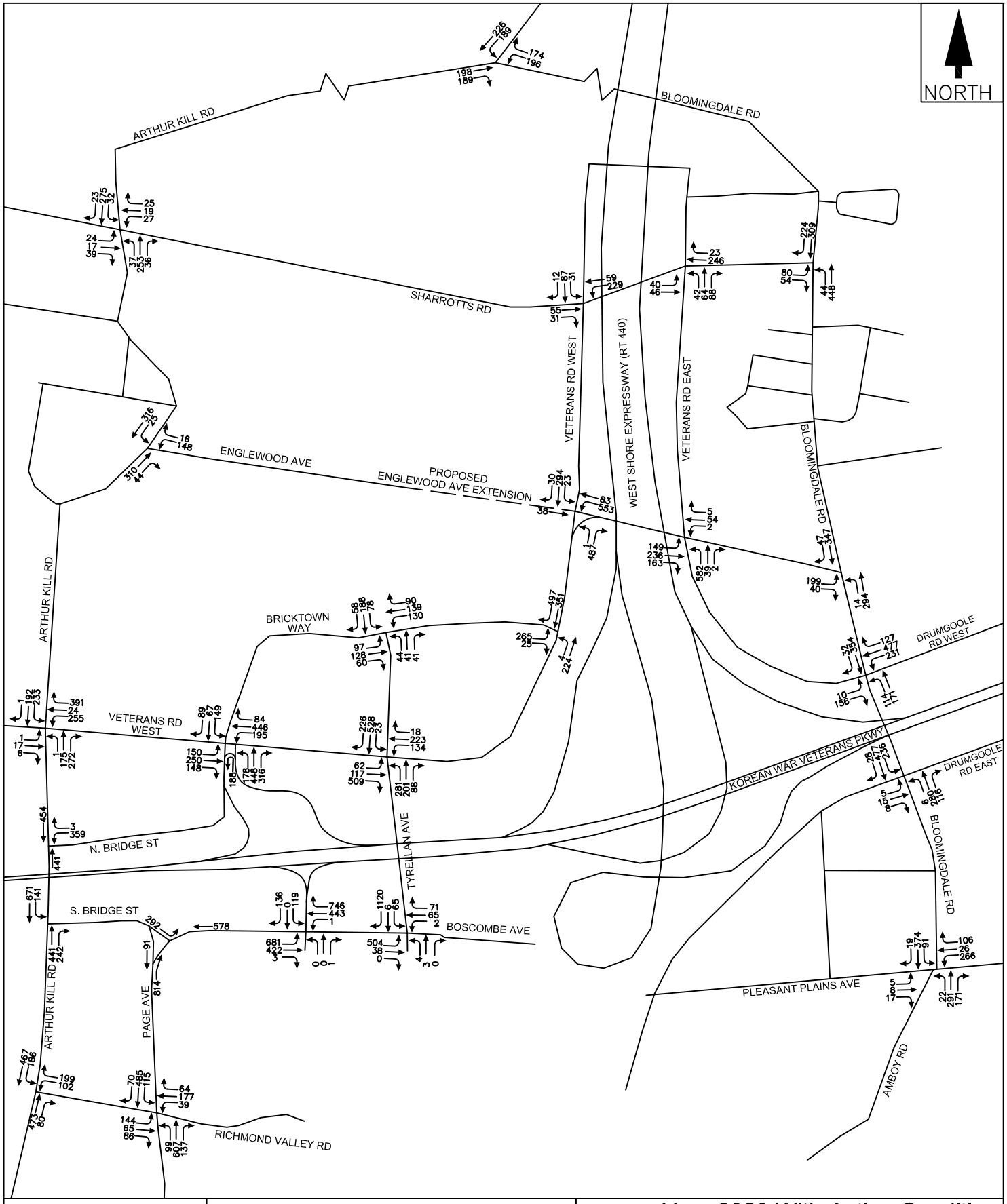
Year 2015 With-Action Condition
Traffic Volumes
Saturday Midday Peak Hour
(12:45 to 1:45 PM)
Figure 2.13-28



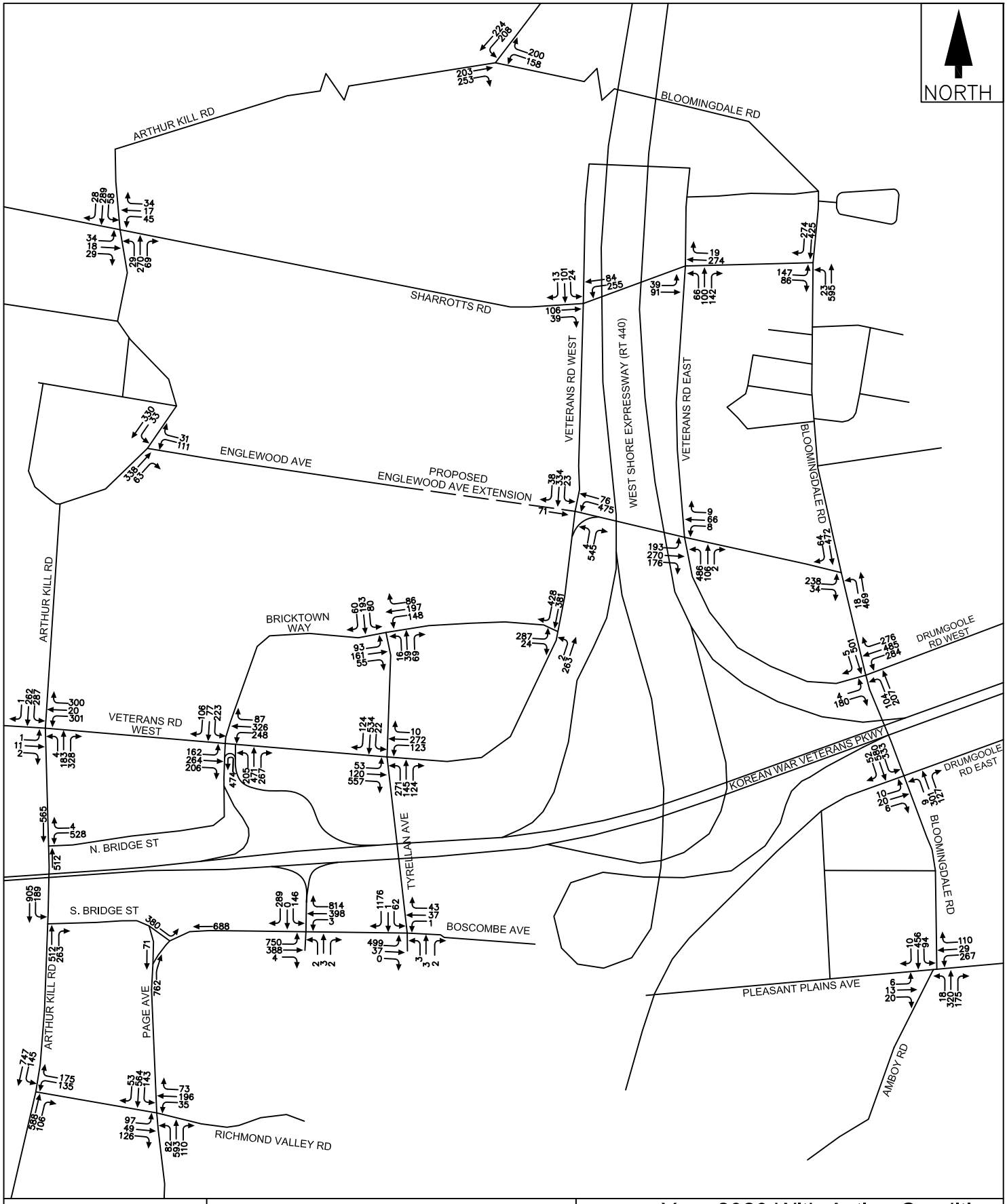
AECOM

Charleston Development EIS
Staten Island, NY

Year 2020 With-Action Condition
Traffic Volumes
Weekday AM Peak Hour
(8:00 to 9:00 AM)
Figure 2.13-29



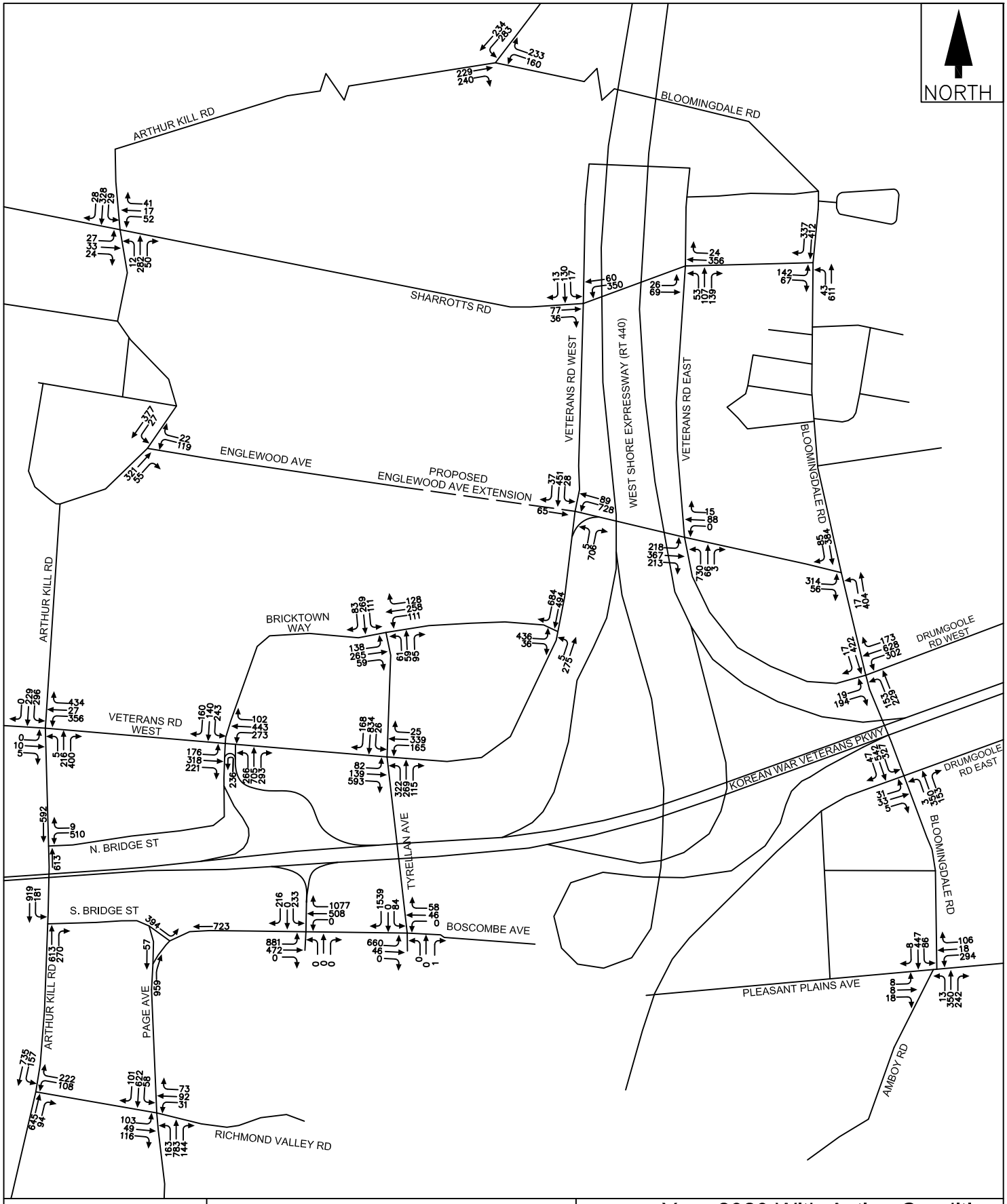
AECOM	Charleston Development EIS Staten Island, NY	Year 2020 With-Action Condition Traffic Volumes Weekday Midday Peak Hour (12:00 to 1:00 PM) Figure 2.13-30



AECOM

Charleston Development EIS
Staten Island, NY

Year 2020 With-Action Condition
Traffic Volumes
Weekday PM Peak Hour
(5:00 to 6:00 PM)
Figure 2-13-31



AECOM

Charleston Development EIS
Staten Island, NY

Year 2020 With-Action Condition
Traffic Volumes
Saturday Midday Peak Hour
(12:45 to 1:45 PM)
Figure 2.13-32

Table 2.13-5
Transportation Planning Assumptions

Land Use:	Senior Housing	Shopping Center A	Shopping Center B	School	Park	Library
Size/Units:	162 DU	195,000 gsf	90,000 gsf	750 Students 58 Staff	7.5 Acres active space 15.7 Acres passive space	15,000 gsf
Trip Generation:	(3)	(3)	(3)	(5)	(3)	(11)
Weekday	8.075	78.2	78.2	2 2	139 44	56.24
Saturday	9.6	92.5	92.5	0 0	196 62	46.55
	per DU	per 1,000 sf	per 1,000 sf	per student/staff	per acre active/passive space	per 1,000 sf
Temporal Distribution:	(3)	(3)	(3)	(7)	(3)	(11)
AM	10.0%	3.0%	3.0%	50.0% 50.0%	3.0%	7.95%
MD	5.0%	9.0%	9.0%	0.0% 0.0%	5.0%	15.0%
PM	11.0%	9.0%	9.0%	2.5% 2.5%	6.0%	12.8%
SatMD	8.0%	11.0%	11.0%	0.0% 0	6.0%	14.5%
Modal Splits:	(2) AM/MD/PM/SAT	(4) AM/MD/PM/SAT	(4) AM/MD/PM/SAT	(5) Student Staff	(10) AM/MD/PM/SAT	(14) AM/MD/PM/SAT
Auto	68.5%	95.1%	95.1%	0.0% 83.0%	90.0%	86.3%
Auto (dropoff)/Taxi	0.0%	1.5%	1.5%	36.0% 0.0%	0.0%	0.3%
Rail	5.0%	1.2%	1.2%	0.0% 0.0%	0.0%	3.1%
Bus	21.5%	1.2%	1.2%	4.0% 11.0%	5.0%	6.8%
Schoolbus	0.0%	0.0%	0.0%	34.0% 0.0%	0.0%	0.0%
Walk/Bike/Other	5.0%	1.0%	1.0%	26.0% 6.0%	5.0%	3.5%
	100.0%	100.0%	100.0%	100.0% 100.0%	100.0%	100.0%
In/Out Splits:	(1) In Out	(4) In Out	(4) In Out	(5) In Out	(10) In Out	(11) In Out
AM	36.0% 64.0%	63% 38%	63% 38%	100.0% 0.0%	55.0% 45.0%	71.0% 29.0%
MD	50.0% 50.0%	54% 46%	54% 46%	0.0% 0.0%	50.0% 50.0%	50.0% 50.0%
PM	60.0% 40.0%	52% 48%	52% 48%	0.0% 100.0%	45.0% 55.0%	48.0% 52.0%
Sat MD	50.0% 50.0%	54% 46%	57% 43%	0.0% 0.0%	50.0% 50.0%	53.0% 47.0%
Vehicle Occupancy:	(2)	(4)	(4)	(5) Student Staff	(10) Active (9) Passive	(12)
Auto	1.16	1.45	1.45	1.3 1.3	2.5 2.5	1.45
Taxi	-	1.60	1.60	1.3 1.3	- -	1.60
Truck and School Bus Trip Gene	(3)	(3)	(3)	(6) (8) School Bus Truck	(9)	
Weekday	0.06	0.35	0.35	30 0.04	0.02	0.32
Saturday	0.02	0.04	0.04	Students Trucks per	0.02	0.32
	per DU	per 1,000 sf	per 1,000 sf	per bus seat	per acre	per 1,000 sf
	(3)	(3)	(3)	(6) (8)	(9)	(13)
AM	12.0%	8.0%	8.0%	100.0% 9.7%	6.0%	9.7%
MD	9.0%	11.0%	11.0%	0.0% 7.8%	6.0%	7.8%
PM	2.0%	2.0%	2.0%	100.0% 5.1%	1.0%	5.1%
Sat MD	9.0%	11.0%	11.0%	0.0% 0.0%	1.0%	0.0%
	In Out	In Out	In Out	In Out	In Out	In Out
AM/MD/PM/Sat MD	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%	50.0% 50.0%

Notes :

(1) Based on ITE Trip Generation, Land Use 252 (Senior Housing, Attached), 8th Edition.

(2) Model split and vehicle occupancy data are based on 2006-2010 American Community Survey 5-year estimates.

(3) *2012 City Environmental Quality Review (CEQR) Technical Manual.*

(4) *Gateway Estates II FEIS*

(5) Based on the *P.S. 62R FEIS* . Trips occuring in 8-9 AM and 5-6 PM. 100% attendance rate assumed in the trip forecast summary.

(6) Full-sized schoolbus was assumed in this forecast with vehicle occupancy of 30 students

(7) *Riverside Center FEIS*

(8) *Hunters Point South FEIS*

(9) *Fairview Park EAS*

(10) *Fresh Kills FEIS*

(11) Library trip generation rates, In/Out Splits, and Saturday temporal distribution Based on ITE Trip Generation, Land Use 590 (Library), 8th Edition.

(12) Vehicle Occupancy for the Library assumed to be similar to Destination Retail Site A (the library is located on the same parcel)

(13) Truck Trips for Library assumed to be similar to that of the school

(14) Based on 2000 Census Reverse Journey to Work for Staten Island Tract 022600

Table 2.13-6
Trip Generation Estimate

Land Use:		Senior Housing		Shopping Center Sites A&B (1)				School (2)				Park				Library			
Size/Units:		162	DU	195,000	gsf	90,000	gsf	750	Students	58	Staff	7.5	Acres active space	15.7	Acres passive space	15,000	gsf	Total	
Peak Hour Trips:																			
	AM	131		343		158		750		58		31		10		67		1,549	
	MD	65		1,029		475		0		0		52		17		127		1,766	
	PM	144		1,029		475		38		3		63		20		108		1,881	
	Sat MD	124		1,488		687		0		0		88		28		101		2,517	
Person Trips:																			
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	Auto	32	58	205	122	94	56	0	0	48	0	15	12	5	5	41	17	440	270
	Dropoff/Taxi	0	0	3	2	1	1	270	0	0	0	0	0	0	0	0	0	274	3
	Rail	2	4	3	3	1	1	0	0	0	0	0	0	0	0	1	1	7	9
	Public Bus	10	18	3	3	1	1	30	0	6	0	1	1	0	0	3	1	54	24
	Schoolbus	0	0	0	0	0	0	255	0	0	0	0	0	0	0	0	0	255	0
	Walk/Bike/Other	3	4	2	1	1	1	195	0	4	0	1	1	0	0	2	1	208	8
	Total	47	84	216	131	98	60	750	0	58	0	17	14	5	5	47	20	1,238	314
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	Auto	22	21	525	454	242	210	0	0	0	0	24	24	8	8	55	55	876	772
	Dropoff/Taxi	0	0	8	7	4	3	0	0	0	0	0	0	0	0	0	0	12	10
	Rail	2	2	7	7	3	3	0	0	0	0	0	0	0	0	2	2	14	14
	Public Bus	7	7	7	6	3	3	0	0	0	0	1	1	1	0	4	5	23	22
	Schoolbus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Walk/Bike/Other	2	2	6	5	2	2	0	0	0	0	1	1	0	0	2	2	13	12
	Total	33	32	553	479	254	221	0	0	0	0	26	26	9	8	63	64	938	830
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	Auto	60	39	507	471	234	218	0	0	0	3	25	31	8	10	45	48	879	820
	Dropoff/Taxi	0	0	8	7	4	3	0	14	0	0	0	0	0	0	0	0	12	24
	Rail	4	3	6	6	3	3	0	0	0	0	0	0	0	0	2	2	15	14
	Public Bus	19	12	6	6	3	3	0	1	0	0	2	2	0	1	4	4	34	29
	Schoolbus	0	0	0	0	0	0	0	13	0	0	0	0	0	0	0	0	0	13
	Walk/Bike/Other	4	3	5	5	2	2	0	10	0	0	1	2	0	1	2	1	14	24
	Total	87	57	532	495	246	229	0	38	0	3	28	35	8	12	53	55	954	924
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Sat MD	Auto	43	43	759	657	372	281	0	0	0	0	40	40	13	13	46	41	1,273	1,075
	Dropoff/Taxi	0	0	12	10	6	4	0	0	0	0	0	0	0	0	0	0	18	14
	Rail	3	3	10	8	5	3	0	0	0	0	0	0	0	0	2	1	20	15
	Public Bus	13	13	10	8	5	4	0	0	0	0	2	2	0	0	4	3	34	30
	Schoolbus	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Walk/Bike/Other	3	3	8	6	4	3	0	0	0	0	2	2	1	1	2	2	20	17
	Total	62	62	799	689	392	295	0	0	0	0	44	44	14	14	54	47	1,365	1,151
Vehicle Trips :		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
AM	Auto	28	50	141	84	65	39	0	0	37	0	6	5	2	2	28	12	307	192
	Dropoff/Taxi	0	0	2	1	1	1	208	0	0	0	0	0	0	0	0	0	211	2
	Dropoff/Taxi Balanced	0	0	2	2	2	2	208	208	0	0	0	0	0	0	0	0	212	212
	Truck	1	1	3	3	1	1	1	1	0	0	0	0	0	0	0	0	6	6
	School Bus	0	0	0	0	0	0	9	9	0	0	0	0	0	0	0	0	9	9
	Total	29	51	146	89	68	42	218	218	37	0	6	5	2	2	28	12	534	419
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
MD	Auto	19	18	362	313	167	145	0	0	0	0	10	10	3	3	38	38	599	527
	Dropoff/Taxi	0	0	5	4	3	2	0	0	0	0	0	0	0	0	0	0	8	6
	Dropoff/Taxi Balanced	0	0	7	7	4	4	0	0	0	0	0	0	0	0	0	0	11	11
	Truck	0	0	4	4	2	2	1	1	0	0	0	0	0	0	0	0	7	7
	Total	19	18	373	324	173	151	1	1	0	0	10	10	3	3	38	38	617	545
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
PM	Auto	52	34	350	325	161	150	0	0	0	2	10	12	3	4	31	33	607	560
	Dropoff/Taxi	0	0	5	4	3	2	0	11	0	0	0	0	0	0	0	0	8	17
	Dropoff/Taxi Balanced	0	0	7	7	4	4	11	11	0	0	0	0	0	0	0	0	22	22
	Truck	0	0	1	1	0	0	1	1	0	0	0	0	0	0	0	0	2	2
	Total	52	34	358	333	165	154	12	12	0	2	10	12	3	4	31	33	631	584
		In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out	In	Out
Sat MD	Auto	37	37	523	453	257	194	0	0	0	0	16	16	5	5	32	28	870	733
	Dropoff/Taxi	0	0	8	6	4	3	0	0	0	0	0	0	0	0	0	0	12	9
	Dropoff/Taxi Balanced	0	0	10	10	5	5	0	0	0	0	0	0	0	0	0	0	15	15
	Truck	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	37	37	533	463	262	199	0	0	0	0	16	16	5	5	32	28	885	748

Intersection Operations Analysis

Using the Future With-Action condition traffic volumes shown in **Figures 2.13-25** through **2.13-32**, intersection operations analyses were conducted using the HCM methodologies. **Tables 2.13-7** and **2.13-8** show the results of the capacity analysis at the 24 study area intersections analyzed in the four peak hours for 2015 and 2020 Future With-Action conditions, respectively. The tables highlight (with shading) those intersection movements that are projected to operate at LOS "E" or "F" or have a high v/c ratio (0.90 and above), and are therefore considered to be congested under Future With-Action conditions.

Table 2.13-7 shows that, under 2015 Future With-Action conditions, 12 of the 24 study area intersections are projected to have one or more congested movements in one or more of the analyzed peak hours. There are four intersections with one or more congested movements during the weekday AM peak hour, five during the weekday midday peak hour, seven during the weekday PM peak hour, and ten during the Saturday midday peak hour. These are discussed in more detail below:

- **Allentown Lane-Veterans Road West /Arthur Kill Road** – During the weekday PM and Saturday midday peak hours, the southbound approach is projected to operate at LOS "F" and LOS "E" respectively, with v/c ratios exceeding 0.90 during both peak hours. Overall, the intersection as a whole is projected to operate with a v/c ratio of 0.90 during the Saturday midday peak hour.
- **North Bridge Street/Arthur Kill Road** – During the weekday PM peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Richmond Valley Road/Arthur Kill Road** – During the weekday midday, weekday PM, and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90, and with delays corresponding to LOS "E" during the weekday midday peak hour, and LOS "F" during the weekday PM and Saturday midday peak hours. Overall, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 during the weekday midday, weekday PM, and Saturday midday peak hours, and with delays corresponding to LOS "E" during the weekday PM and Saturday midway peak hours.
- **Richmond Valley Road/Page Avenue** – During the Saturday midday peak hour, the northbound through/right-turn lane group is projected to operate with a v/c ratio of 0.90.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp** – During the weekday AM peak hour, the westbound left-turn movement is projected to operate with delays corresponding to LOS "E" and a v/c ratio of 0.90. During the weekday midday peak hour, the eastbound left-turn movement is projected to operate with delays corresponding to LOS "E". During the weekday PM and Saturday midday peak hours, the westbound left-turn movement is projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. In addition, the U-turn movement on the northbound approach to this intersection (an unsignalized movement) is projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90 during the weekday PM peak hour. During the Saturday midday peak hour, the northbound approach, the eastbound left-turn lane, and the southbound through/right-turn lane are projected to operate with delays corresponding to LOS "E" and v/c ratios exceeding 0.90. The intersection as a whole is projected to operate at LOS "E" overall during the Saturday midday peak hour.
- **Veterans Road West/Tyrellan Avenue** – During the weekday midday and Saturday midday peak hours, northbound left-turn movements are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. The intersection as a whole is projected to operate with an overall v/c ratio exceeding 0.90 and at LOS "E" overall during the Saturday midday peak hour.
- **Boscombe Avenue/Outerbridge Crossing ramps** – During all four analysis peak hours, the eastbound left-turn lane is projected to operate with v/c ratios exceeding 0.90. During the weekday midday and Saturday midday peak hours, the westbound shared through/left-turn lane is projected to operate with delays corresponding to LOS "E" and v/c ratios exceeding 0.90. During the weekday midday, weekday PM, and Saturday midday peak hours, the westbound right-turn movement is

projected to operate with delays corresponding to LOS "F" with v/c ratios exceeding 0.90. In addition, during the weekday PM peak hour, delays for southbound left-turn movements are projected to correspond to LOS "E". The intersection as a whole is projected to operate at LOS "E" overall with a v/c ratio exceeding 0.90 during the weekday midday peak hour, and LOS "F" overall with a v/c ratio exceeding 0.90 during the Saturday midday peak hour. During the weekday PM peak hour, the intersection as a whole is projected to operate with an overall v/c ratio exceeding 0.90.

- **Boscombe Avenue/Tyrellan Avenue** – During the weekday midday and Saturday midday peak hours, southbound right-turn movements are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. During the weekday PM peak hour, southbound right-turn movements are projected to operate with delays corresponding to LOS "E" and a v/c ratio exceeding 0.90. The intersection as a whole is projected to operate at LOS "E" overall during the weekday midday peak hour, and LOS "F" overall with a v/c ratio exceeding 0.90 during the Saturday midday peak hour.
- **Englewood Avenue/Veterans Road West** – During the Saturday midday peak hour, westbound left-turn movements are projected to operate with a v/c ratio exceeding 0.90.
- **Englewood Avenue/Veterans Road East** – During the Saturday midday peak hour, movements in the eastbound shared through/left-turn lane are projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90.
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90. During the Saturday midday peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90. The eastbound right-turn lane and the northbound left-turn lane are both projected to operate with v/c ratios exceeding 0.90, with delays corresponding to LOS "F" and LOS "E", respectively. The intersection as a whole is projected to operate with an overall v/c ratio exceeding 0.90 during the Saturday midday peak hour.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road** – During the weekday AM and midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90.

Table 2.13-8 shows that, under 2020 Future With-Action conditions, 16 of the 24 study area intersections are projected to have one or more congested movements in one or more of the analyzed peak hours. There are seven intersections with one or more congested movements during the weekday AM peak hour, eight during the weekday midday peak hour, 13 during the weekday PM peak hour, and 14 during the Saturday midday peak hour. These are discussed in more detail below:

- **Allentown Lane-Veterans Road West/Arthur Kill Road** – During the Saturday midday peak hour, the northbound approach is projected to operate with a v/c ratio exceeding 0.90. During the weekday AM, weekday midday, weekday PM, and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F". The intersection as a whole is projected to operate with overall v/c ratios exceeding 0.90 during the weekday midday, weekday PM and Saturday midday peak hours, and with overall delays corresponding to LOS "F" during the weekday PM and Saturday midday peak hours.
- **North Bridge Street/Arthur Kill Road** – During the weekday PM peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Richmond Valley Road/Arthur Kill Road** – During the weekday midday, weekday PM, and Saturday midday peak hours, the westbound approach is projected to operate with v/c ratios exceeding 0.90, and the southbound approach is projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F". The intersection as a whole is projected to operate with overall v/c ratios exceeding 0.90 and with delays corresponding to LOS "F" during the weekday midday, weekday PM, and Saturday midday peak hour.

- **Richmond Valley Road/Page Avenue** – During the weekday PM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90. During the Saturday midday peak hour, the northbound through/right-turn lane is projected to operate with a v/c ratio exceeding 0.90.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp** – During the weekday AM peak hour, the westbound left-turn lane is projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90. During the weekday midday peak hour, the eastbound left-turn lane is projected to operate with delays corresponding to LOS "E". Also during the weekday midday peak hour, the westbound left-turn lane and the northbound approach are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. During the weekday PM peak hour, the westbound left-turn lane, the northbound approach, and the U-turn movement on the northbound approach (an unsignalized movement) are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. During the Saturday midday peak hour, the eastbound and westbound left-turn lanes and the northbound approach are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. Also during the Saturday midday peak hour, the southbound through/right-turn lane is projected to operate with delays corresponding to LOS "E" and with a v/c ratio exceeding 0.90. The intersection as a whole is projected to operate at LOS "E" during the weekday midday and PM peak hours, and at LOS "F" during the Saturday midday peak hour.
- **Veterans Road West/Tyrellan Avenue** – During the weekday midday, weekday PM, and Saturday midday peak hours, northbound left-turn movements are projected to operate with delays corresponding to LOS "F", and with v/c ratios exceeding 0.90. During the Saturday midday peak hour, westbound left-turn movements are projected to operate with delays corresponding to LOS "F" and a v/c ratio exceeding 0.90. The intersection as a whole is projected to operate with overall v/c ratios exceeding 0.90 during the weekday midday, weekday PM, and Saturday midday peak hours, and at LOS "E" during the weekday midday peak hour and LOS "F" during the Saturday midday peak hour.
- **Boscombe Avenue/Outerbridge Crossing ramps** – During all four analysis peak hours, the eastbound left-turn lane is projected to operate with v/c ratios exceeding 0.90. In addition, during the weekday AM and weekday PM peak hours, delays in the eastbound left-turn lane are projected to correspond to LOS "E". During the weekday midday and Saturday midday peak hours, the westbound shared through/left-turn lane is projected to operate with delays corresponding to LOS "F" and with v/c ratios exceeding 0.90. In addition, during all four analysis peak hours, the westbound right-turn lane is projected to operate with v/c ratios exceeding 0.90. The westbound right-turn lane is also projected to operate with delays corresponding to LOS "E" during the weekday AM peak hour, and at LOS "F" during the weekday midday, weekday PM, and Saturday midday peak hours. During the weekday PM peak hour, delays for southbound left-turn movements are projected to correspond to LOS "E". During all four analysis peak hours, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90, and during the weekday midday, weekday PM, and Saturday midday peak hours, the intersection as a whole is projected to operate with delays corresponding to LOS "F".
- **Boscombe Avenue/Tyrellan Avenue** – During the weekday midday, weekday PM, and Saturday midday peak hours, southbound right-turn movements are projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F". During the weekday midday, weekday PM, and Saturday midday peak hours, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 and with delays corresponding to LOS "F".
- **Bricktown Centre Road-Bricktown Way/Veterans Road West** – During the Saturday midday peak hour, the eastbound left-turn lane is projected to operate with a v/c ratio of 0.90.
- **Englewood Avenue/Veterans Road West** – During the weekday AM peak hour, the westbound through/left-turn lane is projected to operate with delays corresponding to LOS "E" and a v/c ratio exceeding 0.90. During the Saturday midday peak hour, westbound left-turn movements are projected to operate with delays corresponding to LOS "E" and a v/c ratio exceeding 0.90.
- **Englewood Avenue/Veterans Road East** – During the weekday PM peak hour, movements in the eastbound shared through/left-turn lane are projected to operate with a v/c ratio exceeding 0.90. During the Saturday midday peak hour, movements in the eastbound shared through/left-turn lane are

projected to operate with a v/c ratio exceeding 0.90 and experience delays corresponding to LOS "F". The intersection as a whole is projected to operate with a delay corresponding to LOS "F" during the Saturday midday peak hour.

- **Sharrotts Road/Bloomingdale Road** – During the Saturday midday peak hour, the northbound approach is projected to operate with a v/c ratio exceeding 0.90.
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road** – During the weekday AM peak hour, the southbound approach is projected to operate with a v/c ratio exceeding 0.90. Also during the weekday AM peak hour, the eastbound right-turn lane and the northbound left-turn lane are projected to operate with delays corresponding to LOS "F", with the eastbound right-turn lane also projected to operate with a v/c ratio exceeding 0.90. During the weekday midday peak hour, the eastbound right-turn lane is projected to operate with a delay corresponding to LOS "E" and a v/c ratio exceeding 0.90. During the weekday PM peak hour, the northbound left-turn lane is projected to operate with a delay corresponding to LOS "E" and a v/c ratio exceeding 0.90. During the Saturday midday peak hour, the westbound approach is projected to operate with a v/c ratio exceeding 0.90, and the eastbound right-turn lane and the northbound left-turn lane are projected to operate with delays corresponding to LOS "F" and v/c ratios exceeding 0.90. The intersection as a whole is projected to operate with an overall v/c ratio equal to 0.90 during the weekday AM peak hour, and exceeding 0.90 during the Saturday midday peak hour.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road** – During the weekday AM, weekday PM, and Saturday midday peak hours, the southbound approach is projected to operate with v/c ratios exceeding 0.90. During the weekday AM peak hour, the southbound approach is also projected to experience delays corresponding to LOS "F" and the intersection as a whole is projected to operate with delays corresponding to LOS "E".
- **Arthur Kill Road/Bloomingdale Road** – During the weekday PM and Saturday midday peak hours, the westbound approach is projected to operate with delays corresponding to LOS "F" and with v/c ratios exceeding 0.90. During the weekday PM peak hour, the northbound approach is projected to operate with a v/c ratio exceeding 0.90. During the weekday PM and Saturday midday peak hours, the intersection as a whole is projected to operate with v/c ratios exceeding 0.90 and at LOS "E" and LOS "F", respectively.
- **Englewood Avenue/Arthur Kill Road** – During the weekday AM peak hour, the westbound approach is projected to experience delays corresponding to LOS "E".

Traffic Impact Criteria

According to the thresholds established in the *2010 CEQR Technical Manual*, the following situations represent significant traffic impacts, for signalized intersections:

1) If a lane group under the Future With-Action condition is within LOS "A", "B" or "C" or marginally acceptable LOS "D" (average control delay less than or equal to 45.0 seconds/vehicle) the impact is not considered significant. However, if a lane group under the Future No-Action condition is within LOS "A," "B" or "C," then a deterioration under the Future With-Action condition to worse than mid-LOS "D" (delay greater than 45.0 seconds/vehicle) should be considered a significant impact.

2) For a lane group with LOS "D" under the Future No-Action condition, an increase in projected average control delay of 5.0 or more seconds should be considered significant if the Future With-Action delay exceeds mid-LOS "D" (delay greater than 45.0 seconds/vehicle).

3) For a lane group with LOS "E" under the Future No-Action condition, an increase in projected delay of 4.0 or more seconds should be considered significant.

4) For a lane group with LOS "F" under the Future No-Action condition, an increase in projected delay of 3.0 or more seconds should be considered significant.

For unsignalized intersections, the criteria above also apply. However, for the minor street at an unsignalized intersection to trigger significant impacts, 90 PCEs (passenger car equivalents) must be identified in the Future With-Action conditions in any peak hour.

The criteria described above ensure that the LOS for individual turning movements at study intersection does not degrade significantly under Future With-Action conditions. In contrast, movements that are projected to operate relatively well under Future No-Action conditions are allowed to accommodate additional volumes and marginally increased delays under Future With-Action conditions, provided the additional volume does not significantly degrade intersection operations.

Potential Traffic Impacts

Table 2.13-9 compares the Future No-Action LOS and delays (from **Table 2.13-3**) with the Future With-Action LOS and delays (from **Table 2.13-7**), and identifies where and when the proposed action has the potential to generate significant traffic impacts with build-out by the 2015 analysis, based on the CEQR criteria described above. **Table 2.13-9** also shows the incremental change in vehicle delay associated with the 2015 analysis year.

Table 2.13-7
Peak Hour Level-of-Service Analysis Results
Year 2015 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.04	10.5	B	0.02	10.3	B	0.02	10.3	B
	WB	LT	0.40	14.3	B	0.53	16.6	B	0.64	19.3	B	0.66	19.3	B
		R	0.59	18.1	B	0.83	28.2	C	0.61	18.5	B	0.76	23.4	C
	NB	LTR	0.70	19.5	B	0.61	17.2	B	0.64	17.8	B	0.79	22.3	C
	SB	LTR	0.54	17.8	B	0.80	28.0	C	1.10	89.0	F	1.04	73.2	E
	Overall		**0.64**	**17.9**	**B**	**0.81**	**22.7**	**C**	**0.87**	**40.1**	**D**	**0.90**	**33.9**	**C**
North Bridge Street / Arthur Kill Road	WB	LR	0.47	18.1	B	0.62	20.6	C	0.91	28.0	C	0.86	25.8	C
	NB	T	0.50	11.6	B	0.44	10.8	B	0.46	11.1	B	0.56	12.4	B
	SB	T	0.34	9.7	A	0.50	11.1	B	0.60	11.7	B	0.55	11.2	B
	Overall		**0.49**	**12.9**	**B**	**0.55**	**13.9**	**B**	**0.73**	**17.5**	**B**	**0.68**	**16.5**	**B**
Richmond Valley Road / Arthur Kill Road	WB	LR	0.53	23.9	C	0.82	37.2	D	0.81	35.7	D	0.83	37.6	D
	NB	TR	0.65	11.3	B	0.53	9.7	A	0.63	10.9	B	0.65	11.3	B
	SB	LT	0.60	11.5	B	1.06	56.1	E	1.22	112.8	F	1.19	104.4	F
	Overall		**0.61**	**13.3**	**B**	**0.98**	**35.9**	**D**	**1.09**	**64.2**	**E**	**1.08**	**58.1**	**E**
Richmond Valley Road / Page Avenue	EB	LTR	0.31	22.8	C	0.73	32.8	C	0.59	27.0	C	0.58	26.8	C
	WB	LTR	0.30	22.9	C	0.49	26.4	C	0.57	28.2	C	0.38	24.3	C
	NB	L	0.14	10.5	B	0.27	12.5	B	0.21	11.9	B	0.48	15.6	B
		TR	0.78	20.2	C	0.74	19.1	B	0.69	17.7	B	0.90	25.5	C
	SB	LTR	0.49	14.3	B	0.71	19.7	B	0.78	22.2	C	0.62	16.3	B
	Overall		**0.60**	**18.7**	**B**	**0.74**	**22.0**	**C**	**0.71**	**21.9**	**C**	**0.78**	**22.0**	**C**
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.46	25.8	C	0.49	26.4	C	0.60	28.9	C	0.66	30.8	C
		R	0.12	10.9	B	0.15	11.2	B	0.15	12.3	B	0.09	10.8	B
	NB	T	0.38	11.6	B	0.39	11.8	B	0.36	11.5	B	0.43	12.0	B
	SB	T	0.23	10.5	B	0.31	11.1	B	0.36	11.6	B	0.37	11.7	B
	Overall		*	**14.0**	**B**	*	**14.0**	**B**	*	**15.2**	**B**	*	**15.5**	**B**
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.31	24.7	C	0.84	56.0	E	0.67	34.5	C	0.95	72.6	E
		TR	0.50	26.5	C	0.50	26.6	C	0.61	28.4	C	0.63	28.8	C
	WB	L	0.90	64.1	E	0.83	52.1	D	1.11	118.2	F	1.24	167.2	F
		TR	0.40	24.1	C	0.50	25.5	C	0.37	23.1	C	0.50	24.7	C
	NB	LTR	0.51	29.5	C	0.85	40.8	D	0.74	34.8	C	1.04	71.2	E
		U-TURN	0.50	16.9	C	0.34	14.5	B	1.00	68.5	F	0.56	23.0	C
	SB	L	0.02	27.4	C	0.16	29.1	C	0.16	29.1	C	0.14	28.8	C
		TR	0.28	31.1	C	0.52	36.1	D	0.52	35.8	D	0.92	62.9	E
	Overall		*	**29.5**	**C**	*	**34.7**	**C**	*	**35.0**	**C**	*	**60.9**	**E**
Veterans Road West / Tyrellan Avenue	EB	LTR	0.28	16.4	B	0.47	18.8	B	0.42	18.0	B	0.50	19.3	B
	WB	LTR	0.37	17.5	B	0.47	19.1	B	0.48	19.2	B	0.67	22.8	C
	NB	DefL	0.57	23.8	C	1.28	182.9	F	0.82	46.1	D	1.80	410.6	F
		TR	0.20	15.9	B	0.40	18.4	B	0.35	17.7	B	0.50	20.0	B
	SB	LTR	0.29	16.5	B	0.71	24.0	C	0.53	19.8	B	0.80	26.6	C
	Overall		**0.47**	**17.9**	**B**	**0.88**	**38.1**	**D**	**0.65**	**21.6**	**C**	**1.23**	**55.6**	**E**
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	0.98	37.3	D	0.92	34.4	C	0.98	38.3	D	0.98	34.2	C
		TR	0.23	4.8	A	0.37	5.7	A	0.32	4.6	A	0.37	5.5	A
	WB	LT	0.69	38.9	D	0.99	62.6	E	0.63	30.0	C	1.04	64.3	E
		R	0.70	40.8	D	1.39	217.8	F	1.21	135.6	F	1.76	377.7	F
	NB	LTR	0.20	32.8	C	0.01	30.6	C	0.11	34.2	C	-	-	-
	SB	L	0.52	41.9	D	0.44	38.9	D	0.72	55.8	E	0.37	34.3	C
		LT	0.02	30.6	C	0.00	30.4	C	0.00	32.1	C	-	-	-
		R	0.17	6.8	A	0.14	6.6	A	0.40	11.8	B	0.23	7.3	A
	Overall		**0.87**	**31.4**	**C**	**0.99**	**74.4**	**E**	**1.02**	**51.7**	**D**	**1.09**	**114.2**	**F**
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.49	17.2	B	0.69	22.4	C	0.63	20.1	C	0.79	26.8	C
		TR	0.03	11.4	B	0.04	11.5	B	0.04	11.5	B	0.04	11.6	B
	WB	LTR	0.10	11.9	B	0.08	11.8	B	0.05	11.6	B	0.60	11.7	B
	NB	LTR	0.07	17.4	B	-	-	-	0.01	16.9	B	0.00	16.8	B
		DefL	-	-	-	0.01	16.9	B	-	-	-	-	-	-
		TR	-	-	-	0.01	16.9	B	-	-	-	-	-	-
	SB	LT	0.10	17.8	B	0.14	18.3	B	0.12	18.0	B	0.16	18.4	B
		R	0.52	24.1	C	1.12	100.1	F	1.02	66.7	E	1.37	204.0	F
	Overall		**0.50**	**18.5**	**B**	**0.88**	**57.5**	**E**	**0.80**	**41.8**	**D**	**1.05**	**115.8**	**F**

Table 2.13-7 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Bricktown Way / Veterans Road West	EB	L	0.21	15.9	B	0.49	19.7	B	0.49	19.7	B	0.77	27.1	C
		R	0.00	14.0	B	0.04	14.4	B	0.04	14.4	B	0.06	14.5	B
	NB	LT	0.07	7.3	A	0.14	7.7	A	0.17	7.9	A	0.18	7.9	A
	SB	TR	0.37	9.1	A	0.55	10.6	B	0.43	9.6	A	0.65	11.4	B
	Overall		**0.31**	**9.7**	**A**	**0.53**	**11.8**	**B**	**0.46**	**11.2**	**B**	**0.69**	**14.3**	**B**
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B	0.01	10.2	B
	WB	L	0.44	14.9	B	0.50	15.7	B	0.45	14.9	B	1.00	52.3	D
		LT	0.46	15.3	B	0.52	16.2	B	0.47	15.4	B	0.35	13.5	B
	NB	L	0.01	10.3	B	0.00	10.2	B	0.01	10.3	B	0.02	10.4	B
		R	0.21	9.3	A	0.47	11.5	B	0.52	12.2	B	0.68	15.6	C
	SB	LTR	0.12	10.9	B	0.17	11.2	B	0.16	11.1	B	0.22	11.5	B
	Overall		*	**12.7**	**B**	*	**13.3**	**B**	*	**12.9**	**B**	*	**29.8**	**C**
Englewood Avenue / Veterans Road East	EB	LT	0.33	15.9	B	0.62	21.2	C	0.79	28.3	C	1.14	102.3	F
		R	0.07	13.3	B	0.17	14.1	B	0.19	14.3	B	0.27	15.1	B
	WB	LTR	0.11	13.6	B	0.09	13.4	B	0.13	13.8	B	0.16	14.1	B
	NB	LTR	0.27	9.5	A	0.26	9.4	A	0.26	9.4	A	0.35	10.1	B
	Overall		**0.29**	**11.2**	**B**	**0.41**	**13.8**	**B**	**0.48**	**16.8**	**B**	**0.68**	**45.6**	**D**
Englewood Avenue / Bloomingdale Road	EB	LR	0.19	17.9	B	0.47	21.7	C	0.41	20.7	C	0.62	25.0	C
	NB	LT	0.39	8.3	A	0.31	7.6	A	0.50	9.2	A	0.40	8.3	A
	SB	TR	0.52	9.4	A	0.34	7.7	A	0.48	9.0	A	0.39	8.2	A
	Overall		**0.41**	**9.7**	**A**	**0.38**	**10.9**	**B**	**0.47**	**10.8**	**B**	**0.47**	**12.3**	**B**
Sharrotts Road / Bloomingdale Road	EB	LR	0.26	15.8	B	0.27	15.9	B	0.49	18.7	B	0.47	18.4	B
	NB	LT	0.55	12.6	B	0.57	13.1	B	0.67	14.6	B	0.68	15.2	B
	SB	TR	0.48	11.5	B	0.48	11.5	B	0.63	13.8	B	0.65	14.0	B
	Overall		**0.43**	**12.5**	**B**	**0.45**	**12.7**	**B**	**0.60**	**15.0**	**B**	**0.60**	**15.2**	**B**
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.05	23.1	C	0.02	22.7	C	0.12	23.7	C
		R	0.38	28.6	C	0.78	44.9	D	0.70	39.2	D	1.02	83.3	F
	WB	LTR	0.67	21.0	C	0.69	21.2	C	0.84	23.6	C	0.90	26.0	C
	NB	L	0.52	30.3	C	0.63	32.0	C	0.73	46.5	D	0.93	72.7	E
		T	0.36	16.8	B	0.31	16.1	B	0.35	16.5	B	0.38	16.9	B
	SB	TR	0.95	30.5	C	0.60	19.8	B	0.83	28.6	C	0.66	20.7	C
	Overall		**0.74**	**24.4**	**C**	**0.67**	**23.3**	**C**	**0.81**	**26.3**	**C**	**0.93**	**32.4**	**C**
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.15	16.8	B	0.09	16.2	B	0.12	16.5	B	0.19	17.2	B
	NB	LTR	0.40	9.0	A	0.45	9.5	A	0.45	9.5	A	0.51	10.2	B
	SB	L	0.58	11.3	B	0.46	10.4	B	0.64	12.9	B	0.71	15.8	B
		TR	0.66	11.4	B	0.51	9.9	A	0.62	10.9	B	0.58	10.4	B
	Overall		**0.49**	**11.0**	**B**	**0.37**	**10.1**	**B**	**0.47**	**11.2**	**B**	**0.54**	**12.0**	**B**
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.7	B	0.06	14.4	B	0.09	14.7	B	0.06	14.4	B
	WB	L	0.34	18.1	B	0.56	21.9	C	0.53	21.4	C	0.54	21.6	C
		T	0.02	14.1	B	0.04	14.2	B	0.04	14.2	B	0.02	14.1	B
		R	0.20	16.0	B	0.21	16.1	B	0.21	16.0	B	0.19	15.8	B
	NB	LTR	0.50	20.1	C	0.73	24.9	C	0.70	24.0	C	0.81	26.9	C
	SB	LTR	1.04	47.9	D	0.79	27.9	C	0.93	30.9	C	0.88	31.9	C
	Overall		**0.69**	**31.4**	**C**	**0.67**	**24.1**	**C**	**0.73**	**25.0**	**C**	**0.71**	**26.3**	**C**
Arthur Kill Road / Bloomingdale Road	EB	TR	0.33	14.4	B	0.37	14.9	B	0.46	16.1	B	0.47	16.2	B
	WB	LT	0.34	14.7	B	0.57	19.5	B	0.59	20.3	C	0.77	28.9	C
	NB	LR	0.57	25.4	C	0.61	26.5	C	0.68	28.7	C	0.59	26.2	C
	Overall		**0.44**	**18.4**	**B**	**0.59**	**20.3**	**C**	**0.63**	**21.5**	**C**	**0.69**	**23.2**	**C**

Table 2.13-7 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
UNSIGNALIZED INTERSECTIONS														
Sharrots Road / Arthur Kill Road	EB	LTR	0.06	13.6	B	0.22	15.7	C	0.27	20.1	C	0.51	23.6	C
	WB	LTR	0.20	14.3	B	0.24	18.2	C	0.40	23.6	C	0.43	23.4	C
	NB	LTR	0.02	8.0	A	0.03	8.0	A	0.03	8.0	A	0.01	8.0	A
	SB	LTR	0.03	7.9	A	0.03	8.2	A	0.06	8.2	A	0.03	8.0	A
Englewood Avenue / Arthur Kill Road	WB	LR	0.05	10.6	B	0.13	14.1	B	0.17	14.2	B	0.06	11.8	B
	SB	LT	0.02	8.0	A	0.02	8.2	A	0.01	8.1	A	0.01	8.0	A
South Bridge Street / Arthur Kill Road	SB	LT	0.17	10.5	B	0.19	10.2	B	0.26	11.1	B	0.25	11.3	B
Bricktown Way / Tyrellan Avenue	EB	LT	0.12	9.2	A	0.35	14.3	B	0.33	12.9	B	0.60	21.7	C
		TR	0.09	8.2	A	0.23	11.7	B	0.22	10.7	B	0.39	14.8	B
	WB	LT	0.11	8.7	A	0.38	13.8	B	0.43	14.5	B	0.48	17.9	C
		TR	0.10	7.8	A	0.27	11.0	B	0.28	11.0	B	0.49	16.9	C
	NB	LT	0.05	8.6	A	0.22	12.0	B	0.14	11.0	B	0.31	14.9	B
		R	0.03	7.5	A	0.09	9.6	A	0.12	9.8	A	0.21	12.2	B
	SB	LT	0.08	8.7	A	0.35	13.3	B	0.34	13.0	B	0.58	21.0	C
		TR	0.06	8.1	A	0.29	11.7	B	0.28	11.5	B	0.49	16.9	C
Sharrots Road / Veterans Road West	EB	TR	0.12	8.4	A	0.12	8.4	A	0.22	8.8	A	0.19	8.7	A
	WB	LT	0.29	9.4	A	0.39	10.5	B	0.43	11.2	B	0.49	12.2	B
	SB	LT	0.07	8.1	A	0.12	8.6	A	0.10	8.8	A	0.12	8.9	A
		TR	0.09	7.9	A	0.09	8.1	A	0.10	8.4	A	0.12	8.7	A
Sharrots Road / Veterans Road East	EB	LT	0.11	8.4	A	0.13	8.8	A	0.22	9.5	A	0.17	9.2	A
	WB	TR	0.22	8.7	A	0.35	10.0	A	0.38	10.7	B	0.45	11.5	B
	NB	LT	0.12	8.3	A	0.11	8.5	A	0.16	9.1	A	0.15	9.1	A
		TR	0.09	7.6	A	0.16	8.2	A	0.24	9.0	A	0.25	9.2	A

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

Table 2.13-8
Peak Hour Level-of-Service Analysis Results
Year 2020 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.04	10.5	B	0.02	10.4	B	0.02	10.4	B
	WB	LT	0.44	15.0	B	0.59	17.9	B	0.74	23.1	C	0.76	23.2	C
		R	0.51	16.3	B	0.84	29.1	C	0.70	21.5	C	0.88	31.7	C
	NB	LTR	0.84	26.3	C	0.68	19.2	B	0.74	20.9	C	0.91	31.9	C
	SB	LTR	1.08	91.7	F	1.18	122.3	F	1.63	313.6	F	1.78	381.1	F
	Overall		**0.79**	**37.4**	**D**	**1.01**	**50.4**	**D**	**1.18**	**116.6**	**F**	**1.33**	**123.2**	**F**
North Bridge Street / Arthur Kill Road	WB	LR	0.49	18.4	B	0.64	21.1	C	0.95	31.3	C	0.89	27.9	C
	NB	T	0.61	13.4	B	0.49	11.5	B	0.54	12.1	B	0.66	14.0	B
	SB	T	0.42	10.5	B	0.56	11.8	B	0.69	12.8	B	0.63	12.1	B
	Overall		**0.56**	**13.7**	**B**	**0.59**	**14.4**	**B**	**0.79**	**19.0**	**B**	**0.75**	**17.7**	**B**
Richmond Valley Road / Arthur Kill Road	WB	LR	0.67	28.6	C	0.90	46.4	D	0.93	49.9	D	0.94	53.1	D
	NB	TR	0.71	12.6	B	0.57	10.3	B	0.68	11.9	B	0.72	12.6	B
	SB	LT	0.86	23.3	C	1.24	128.2	F	1.54	257.9	F	1.53	251.7	F
	Overall		**0.80**	**19.1**	**B**	**1.13**	**70.1**	**E**	**1.35**	**137.0**	**F**	**1.34**	**128.0**	**F**
Richmond Valley Road / Page Avenue	EB	LTR	0.38	23.9	C	0.81	37.2	D	0.70	30.1	C	0.70	30.1	C
	WB	LTR	0.38	24.1	C	0.55	27.9	C	0.66	31.1	C	0.50	26.6	C
	NB	L	0.24	11.7	B	0.35	13.9	B	0.35	14.4	B	0.65	21.1	C
		TR	0.82	21.5	C	0.78	20.4	C	0.72	18.8	B	0.94	30.4	C
	SB	LTR	0.57	15.9	B	0.84	26.3	C	0.94	37.6	D	0.86	27.3	C
	Overall		**0.65**	**20.0**	**B**	**0.83**	**25.4**	**C**	**0.85**	**28.7**	**C**	**0.85**	**28.4**	**C**
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.47	26.1	C	0.50	26.7	C	0.62	29.4	C	0.68	31.5	C
		R	0.12	11.1	B	0.16	11.5	B	0.16	12.8	B	0.10	11.1	B
	NB	T	0.40	11.8	B	0.42	12.0	B	0.39	11.8	B	0.47	12.4	B
	SB	T	0.25	10.6	B	0.33	11.4	B	0.40	12.0	B	0.40	12.0	B
	Overall		*	**14.1**	**B**	*	**14.2**	**B**	*	**15.4**	**B**	*	**15.8**	**B**
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.31	24.6	C	0.89	63.6	E	0.77	42.0	D	1.18	147.3	F
		TR	0.58	28.1	C	0.73	33.1	C	0.82	36.1	D	0.89	41.8	D
	WB	L	1.07	111.4	F	1.45	262.2	F	1.15	132.7	F	2.93	921.8	F
		TR	0.38	23.9	C	0.52	25.7	C	0.43	23.9	C	0.58	26.1	C
	NB	LTR	0.69	33.4	C	1.10	92.0	F	1.05	74.8	E	1.45	242.8	F
		U-TURN	0.54	18.2	C	0.37	15.4	C	1.10	100.2	F	0.63	27.0	D
	SB	L	0.27	30.7	C	0.49	34.9	C	0.76	45.8	D	0.75	43.8	D
		TR	0.31	31.5	C	0.55	37.1	D	0.58	37.7	D	0.99	77.5	E
	Overall		*	**36.1**	**D**	*	**69.4**	**E**	*	**56.7**	**E**	*	**185.0**	**F**
Veterans Road West / Tyrellan Avenue	EB	LTR	0.37	17.5	B	0.66	22.0	C	0.66	22.2	C	0.75	24.5	C
	WB	LTR	0.35	17.3	B	-	-	-	-	-	-	-	-	-
		DefL	-	-	-	0.72	39.0	D	0.74	40.2	D	1.14	129.1	F
		TR	-	-	-	0.33	17.3	B	0.42	18.5	B	0.56	20.9	C
	NB	DefL	0.69	28.4	C	1.65	338.3	F	1.13	119.9	F	2.68	802.7	F
		TR	0.21	15.9	B	0.41	18.5	B	0.36	17.8	B	0.51	20.2	C
	SB	LTR	0.30	16.6	B	0.73	24.6	C	0.55	20.0	B	0.82	27.6	C
	Overall		**0.53**	**19.2**	**B**	**1.19**	**60.0**	**E**	**0.93**	**32.5**	**C**	**1.92**	**108.7**	**F**
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	1.05	57.2	E	0.96	32.9	C	1.07	66.5	E	1.01	46.5	D
		TR	0.26	4.9	A	0.40	6.0	A	0.36	4.9	A	0.42	5.9	A
	WB	LT	0.75	41.5	D	1.06	81.7	F	0.72	32.6	C	1.17	116.7	F
		R	0.96	68.1	E	1.90	442.4	F	1.72	362.5	F	2.53	722.4	F
	NB	LTR	0.20	32.8	C	0.01	30.6	C	0.11	34.2	C	-	-	-
	SB	L	0.61	45.6	D	0.53	41.9	D	0.89	77.3	E	0.44	35.4	D
		LT	0.02	30.6	C	0.00	30.4	C	0.00	32.1	C	-	-	-
		R	0.18	6.8	A	0.15	6.6	A	0.42	12.1	B	0.24	7.4	A
	Overall		**1.03**	**44.4**	**D**	**1.16**	**147.7**	**F**	**1.25**	**129.0**	**F**	**1.32**	**243.7**	**F**
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.56	18.7	B	0.78	26.8	C	0.74	23.8	C	0.93	41.2	D
		TR	0.03	11.5	B	0.04	11.5	B	0.04	11.5	B	0.05	11.6	B
	WB	LTR	0.10	12.0	B	0.09	11.9	B	0.05	11.6	B	0.06	11.7	B
	NB	LTR	0.07	17.4	B	-	-	-	0.01	16.9	B	0.00	16.8	B
		DefL	-	-	-	0.01	16.9	B	-	-	-	-	-	-
		TR	-	-	-	0.01	16.9	B	-	-	-	-	-	-
	SB	LT	0.10	17.8	B	0.15	18.3	B	0.12	18.1	B	0.17	18.5	B
		R	0.74	31.0	C	1.52	268.1	F	1.52	270.4	F	1.97	470.2	F
	Overall		**0.64**	**22.2**	**C**	**1.11**	**151.2**	**F**	**1.08**	**159.5**	**F**	**1.39**	**282.7**	**F**

Table 2.13-8 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
SIGNALIZED INTERSECTIONS														
Bricktown Way / Veterans Road West	EB	L	0.25	16.4	B	0.56	21.1	C	0.60	22.1	C	0.90	37.0	D
		R	0.00	14.0	B	0.05	14.4	B	0.04	14.4	B	0.06	14.5	B
	NB	LT	0.07	7.3	A	0.15	7.8	A	0.17	7.9	A	0.19	8.0	A
	SB	TR	0.37	9.1	A	0.56	10.7	B	0.46	9.9	A	0.69	11.9	B
	Overall		**0.32**	**9.9**	**A**	**0.56**	**12.2**	**B**	**0.52**	**12.2**	**B**	**0.77**	**17.3**	**B**
Englewood Avenue / Veterans Road West	EB	TR	0.34	13.1	B	0.19	11.7	B	0.18	11.5	B	0.11	11.0	B
	WB	L	1.21	132.2	F	1.12	92.8	F	1.02	63.1	E	1.42	218.0	F
		T	0.30	12.7	B	0.11	10.9	B	0.11	11.0	B	0.12	11.1	B
	NB	L	0.01	10.3	B	0.00	10.2	B	0.01	10.3	B	0.02	10.4	B
		R	0.32	12.1	B	0.57	13.8	B	0.67	16.6	C	0.86	27.3	D
	SB	LTR	0.18	11.2	B	0.22	11.5	B	0.21	11.4	B	0.29	12.0	B
	Overall		*	**48.5**	**D**	*	**42.0**	**D**	*	**28.9**	**C**	*	**88.2**	**F**
Englewood Avenue / Veterans Road East	EB	LT	0.59	20.4	C	0.74	25.2	C	0.97	51.6	D	1.42	219.3	F
		R	0.30	15.6	B	0.22	14.6	B	0.26	15.1	B	0.35	16.2	B
	WB	LTR	0.18	14.3	B	0.12	13.7	B	0.18	14.3	B	0.22	14.6	B
	NB	LTR	0.34	10.0	A	0.28	9.6	A	0.29	9.6	A	0.38	10.3	B
	Overall		**0.45**	**13.6**	**B**	**0.47**	**15.6**	**B**	**0.58**	**26.2**	**C**	**0.82**	**94.4**	**F**
Englewood Avenue / Bloomingdale Road	EB	LR	0.57	23.9	C	0.63	25.6	C	0.62	25.3	C	0.86	38.4	D
	NB	LT	0.41	8.5	A	0.32	7.7	A	0.52	9.5	A	0.41	8.4	A
	SB	TR	0.58	10.2	B	0.37	8.0	A	0.52	9.5	A	0.44	8.6	A
	Overall		**0.57**	**12.4**	**B**	**0.45**	**12.7**	**B**	**0.55**	**12.6**	**B**	**0.57**	**17.3**	**B**
Sharrotts Road / Bloomingdale Road	EB	LR	0.27	16.0	B	0.28	16.0	B	0.51	19.0	B	0.48	18.6	B
	NB	LT	0.75	17.6	B	0.67	15.2	B	0.81	19.2	B	0.91	28.4	C
	SB	TR	0.62	13.9	B	0.57	12.8	B	0.76	17.2	B	0.80	18.5	B
	Overall		**0.56**	**15.8**	**B**	**0.52**	**14.2**	**B**	**0.69**	**18.3**	**B**	**0.74**	**22.4**	**C**
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.06	23.1	C	0.02	22.7	C	0.12	23.7	C
		R	0.97	79.6	E	0.92	64.2	E	0.86	54.5	D	1.24	159.0	F
	WB	LTR	0.75	22.5	C	0.72	21.7	C	0.89	25.7	C	0.95	29.6	C
	NB	L	0.83	63.0	E	0.79	47.9	D	0.91	76.2	E	1.20	158.2	F
		T	0.39	17.2	B	0.32	16.3	B	0.37	16.7	B	0.40	17.2	B
	SB	TR	0.99	36.5	D	0.62	20.3	C	0.87	31.4	C	0.69	21.4	C
	Overall		**0.90**	**33.5**	**C**	**0.79**	**27.1**	**C**	**0.89**	**31.1**	**C**	**1.11**	**49.6**	**D**
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.16	16.9	B	0.10	16.3	B	0.13	16.5	B	0.20	17.3	B
	NB	LTR	0.47	9.8	A	0.49	10.0	A	0.50	10.1	B	0.56	11.0	B
	SB	L	0.83	19.5	B	0.52	11.5	B	0.74	15.7	B	0.82	21.3	C
		TR	0.72	12.6	B	0.55	10.4	B	0.68	11.8	B	0.63	11.1	B
	Overall		**0.60**	**13.8**	**B**	**0.40**	**10.7**	**B**	**0.53**	**12.3**	**B**	**0.61**	**13.7**	**B**
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.8	B	0.06	14.5	B	0.09	14.7	B	0.06	14.5	B
	WB	L	0.36	18.2	B	0.58	22.4	C	0.55	21.8	C	0.57	22.1	C
		T	0.02	14.1	B	0.04	14.2	B	0.04	14.2	B	0.02	14.1	B
		R	0.21	16.1	B	0.22	16.2	B	0.22	16.1	B	0.20	15.9	B
	NB	LTR	0.59	22.0	C	0.78	27.1	C	0.76	26.0	C	0.88	31.1	C
	SB	LTR	1.21	120.0	F	0.87	33.5	C	1.04	52.8	D	1.00	49.6	D
	Overall		**0.78**	**64.0**	**E**	**0.73**	**26.9**	**C**	**0.79**	**33.9**	**C**	**0.78**	**34.2**	**C**
Arthur Kill Road / Bloomingdale Road	EB	TR	0.39	15.1	B	0.41	15.5	B	0.52	17.0	B	0.54	17.4	B
	WB	LT	0.78	28.9	C	0.89	39.6	D	1.11	96.8	F	1.34	188.4	F
	NB	LR	0.87	41.0	D	0.75	32.2	C	0.96	53.7	D	0.83	37.5	D
	Overall		**0.82**	**29.5**	**C**	**0.83**	**29.8**	**C**	**1.04**	**56.7**	**E**	**1.11**	**86.4**	**F**

Table 2.13-8 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)			Weekday Midday Peak Hour (12:00 to 1:00 PM)			Weekday PM Peak Hour (5:00 to 6:00 PM)			Saturday Midday Peak Hour (12:45 to 1:45 PM)		
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS
UNSIGNALIZED INTERSECTIONS														
Sharrots Road / Arthur Kill Road	EB	LTR	0.09	16.6	C	0.26	17.5	C	0.34	25.4	D	0.65	34.9	D
	WB	LTR	0.22	16.9	C	0.24	19.5	C	0.43	28.2	D	0.50	30.2	D
	NB	LTR	0.03	8.3	A	0.04	8.1	A	0.03	8.2	A	0.01	8.2	A
	SB	LTR	0.03	8.0	A	0.03	8.3	A	0.06	8.4	A	0.03	8.1	A
Englewood Avenue / Arthur Kill Road	WB	LR	0.76	40.7	E	0.47	23.2	C	0.64	33.8	D	0.55	27.7	D
	SB	LT	0.11	8.5	A	0.03	8.4	A	0.04	8.5	A	0.03	8.3	A
South Bridge Street / Arthur Kill Road	SB	LT	0.19	11.2	B	0.20	10.6	B	0.30	11.9	B	0.28	12.2	B
Bricktown Way / Tyrellan Avenue	EB	LT	0.14	9.3	A	0.39	15.0	C	0.39	14.4	B	0.72	29.5	D
		TR	0.11	8.4	A	0.27	12.3	B	0.29	11.9	B	0.48	17.5	C
	WB	LT	0.14	8.9	A	0.42	14.7	B	0.52	16.8	C	0.60	22.3	C
		TR	0.13	8.2	A	0.31	11.6	B	0.35	12.4	B	0.60	21.0	C
	NB	LT	0.05	8.8	A	0.22	12.3	B	0.15	11.5	B	0.33	16.0	C
		R	0.03	7.7	A	0.09	9.9	A	0.17	10.7	B	0.23	13.1	B
	SB	LT	0.07	8.8	A	0.34	13.3	B	0.35	13.9	B	0.61	23.4	C
		TR	0.06	8.2	A	0.28	11.8	B	0.29	12.3	B	0.51	18.5	C
Sharrots Road / Veterans Road West	EB	TR	0.13	8.6	A	0.13	8.6	A	0.24	9.1	A	0.20	9.0	A
	WB	LT	0.41	10.7	B	0.48	11.9	B	0.57	13.7	B	0.64	16.0	C
	SB	LT	0.09	8.5	A	0.13	8.9	A	0.12	9.2	A	0.14	9.4	A
		TR	0.09	8.3	A	0.09	8.4	A	0.10	8.9	A	0.13	9.1	A
Sharrots Road / Veterans Road East	EB	LT	0.11	8.6	A	0.14	9.0	A	0.24	9.9	A	0.19	9.6	A
	WB	TR	0.34	9.8	A	0.44	11.2	B	0.51	13.0	B	0.60	14.8	B
	NB	LT	0.13	8.6	A	0.12	8.8	A	0.17	9.5	A	0.17	9.6	A
		TR	0.10	7.9	A	0.17	8.5	A	0.26	9.5	A	0.28	9.8	A

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

Table 2.13-9
Peak Hour Level-of-Service Analysis Results
Year 2015 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)							
			2015 No-Action			2015 With-Action					2015 No-Action			2015 With-Action				
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?
SIGNALIZED INTERSECTIONS																		
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.02	10.3	B	0.0		0.04	10.5	B	0.04	10.5	B	0.0	
	WB	LT	0.39	14.1	B	0.40	14.3	B	0.2		0.49	15.6	B	0.53	16.6	B	1.0	
		R	0.57	17.7	B	0.59	18.1	B	0.4		0.77	24.4	C	0.83	28.2	C	3.8	
	NB	LTR	0.68	18.9	B	0.70	19.5	B	0.6		0.56	16.4	B	0.61	17.2	B	0.8	
	SB	LTR	0.45	15.5	B	0.54	17.8	B	2.3		0.65	20.0	C	0.80	28.0	C	8.0	
	Overall		**0.63**	**17.1**	**B**	**0.64**	**17.9**	**B**	**0.8**		**0.71**	**19.2**	**B**	**0.81**	**22.7**	**C**	**3.5**	
North Bridge Street / Arthur Kill Road	WB	LR	0.47	18.1	B	0.47	18.1	B	0.0		0.62	20.6	C	0.62	20.6	C	0.0	
	NB	T	0.49	11.5	B	0.50	11.6	B	0.1		0.41	10.5	B	0.44	10.8	B	0.3	
	SB	T	0.33	9.7	A	0.34	9.7	A	0.0		0.48	10.8	B	0.50	11.1	B	0.3	
	Overall		**0.48**	**12.8**	**B**	**0.49**	**12.9**	**B**	**0.1**		**0.53**	**13.8**	**B**	**0.55**	**13.9**	**B**	**0.1**	
Richmond Valley Road / Arthur Kill Road	WB	LR	0.53	23.9	C	0.53	23.9	C	0.0		0.82	37.2	D	0.82	37.2	D	0.0	
	NB	TR	0.63	11.1	B	0.65	11.3	B	0.2		0.50	9.4	A	0.53	9.7	A	0.3	
	SB	LT	0.59	11.2	B	0.60	11.5	B	0.3		1.01	39.0	D	1.06	56.1	E	17.1	yes
	Overall		**0.60**	**13.1**	**B**	**0.61**	**13.3**	**B**	**0.2**		**0.95**	**28.3**	**C**	**0.98**	**35.9**	**D**	**7.6**	
Richmond Valley Road / Page Avenue	EB	LTR	0.31	22.8	C	0.31	22.8	C	0.0		0.73	32.8	C	0.73	32.8	C	0.0	
	WB	LTR	0.30	22.9	C	0.30	22.9	C	0.0		0.49	26.4	C	0.49	26.4	C	0.0	
	NB	L	0.14	10.5	B	0.14	10.5	B	0.0		0.26	12.3	B	0.27	12.5	B	0.2	
		TR	0.77	19.8	B	0.78	20.2	C	0.4		0.71	18.3	B	0.74	19.1	B	0.8	
	SB	LTR	0.48	14.1	B	0.49	14.3	B	0.2		0.67	18.4	B	0.71	19.7	B	1.3	
	Overall		**0.59**	**18.5**	**B**	**0.60**	**18.7**	**B**	**0.2**		**0.72**	**21.3**	**C**	**0.74**	**22.0**	**C**	**0.7**	
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.46	25.8	C	0.46	25.8	C	0.0		0.49	26.4	C	0.49	26.4	C	0.0	
		R	0.12	10.9	B	0.12	10.9	B	0.0		0.15	11.1	B	0.15	11.2	B	0.1	
	NB	T	0.37	11.5	B	0.38	11.6	B	0.1		0.38	11.6	B	0.39	11.8	B	0.2	
	SB	T	0.23	10.4	B	0.23	10.5	B	0.1		0.29	11.0	B	0.31	11.1	B	0.1	
	Overall		*	**13.9**	**B**	*	**14.0**	**B**	**0.0**		*	**14.0**	**B**	*	**14.0**	**B**	**0.1**	
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.21	22.9	C	0.31	24.7	C	1.8		0.52	31.8	C	0.84	56.0	E	24.2	yes
		TR	0.50	26.5	C	0.50	26.5	C	0.0		0.50	26.6	C	0.50	26.6	C	0.0	
	WB	L	0.90	64.1	E	0.90	64.1	E	0.0		0.83	52.1	D	0.83	52.1	D	0.0	
		TR	0.40	24.1	C	0.40	24.1	C	0.0		0.50	25.4	C	0.50	25.5	C	0.1	
	NB	LTR	0.41	27.9	C	0.51	29.5	C	1.6		0.62	31.5	C	0.85	40.8	D	9.3	
		U-TURN	0.50	16.7	C	0.50	16.9	C	0.2		0.33	14.1	B	0.34	14.5	B	0.4	
	SB	L	0.02	27.4	C	0.02	27.4	C	0.0		0.16	29.1	C	0.16	29.1	C	0.0	
		TR	0.20	29.7	C	0.28	31.1	C	1.4		0.28	30.9	C	0.52	36.1	D	5.2	
	Overall		*	**29.1**	**C**	*	**29.5**	**C**	**0.5**		*	**29.4**	**C**	*	**34.7**	**C**	**5.3**	
Veterans Road West / Tyrellan Avenue	EB	LTR	0.27	16.4	B	0.28	16.4	B	0.0		0.47	18.8	B	0.47	18.8	B	0.0	
	WB	LTR	0.37	17.5	B	0.37	17.5	B	0.0		0.47	19.1	B	0.47	19.1	B	0.0	
	NB	DefL	0.52	21.9	C	0.57	23.8	C	1.9		0.84	45.9	D	1.28	182.9	F	137.0	yes
		TR	0.18	15.6	B	0.20	15.9	B	0.3		0.34	17.5	B	0.40	18.4	B	0.9	
	SB	LTR	0.22	15.9	B	0.29	16.5	B	0.6		0.52	19.8	B	0.71	24.0	C	4.2	
	Overall		**0.44**	**17.5**	**B**	**0.47**	**17.9**	**B**	**0.4**		**0.66**	**22.2**	**C**	**0.88**	**38.1**	**D**	**15.9**	
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	0.98	35.4	D	0.98	37.3	D	1.9		0.92	34.3	C	0.92	34.4	C	0.1	
		TR	0.22	4.7	A	0.23	4.8	A	0.1		0.34	5.5	A	0.37	5.7	A	0.2	
	WB	LT	0.67	38.1	D	0.69	38.9	D	0.8		0.93	52.1	D	0.99	62.6	E	10.5	yes
		R	0.54	34.5	C	0.70	40.8	D	6.3		0.83	43.4	D	1.39	217.8	F	174.4	yes
	NB	LTR	0.20	32.8	C	0.20	32.8	C	0.0		0.01	30.6	C	0.01	30.6	C	0.0	
	SB	L	0.48	40.3	D	0.52	41.9	D	1.6		0.34	36.4	D	0.44	38.9	D	2.5	
		LT	0.02	30.6	C	0.02	30.6	C	0.0		0.00	30.4	C	0.00	30.4	C	0.0	
		R	0.17	6.8	A	0.17	6.8	A	0.0		0.14	6.6	A	0.14	6.6	A	0.0	
	Overall		**0.85**	**29.5**	**C**	**0.87**	**31.4**	**C**	**1.9**		**0.84**	**32.1**	**C**	**0.99**	**74.4**	**E**	**42.3**	yes
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.46	16.6	B	0.49	17.2	B	0.6		0.62	20.1	C	0.69	22.4	C	2.3	
		TR	0.03	11.4	B	0.03	11.4	B	0.0		0.04	11.5	B	0.04	11.5	B	0.0	
	WB	LTR	0.10	11.9	B	0.10	11.9	B	0.0		0.08	11.8	B	0.08	11.8	B	0.0	
	NB	LTR	0.07	17.4	B	0.07	17.4	B	0.0		-	-	-	-	-	-	-	
		DefL	-	-	-	-	-	-	-	-	0.01	16.9	B	0.01	16.9	B	-	-
		TR	-	-	-	-	-	-	-	-	0.01	16.9	B	0.01	16.9	B	-	-
	SB	LT	0.10	17.8	B	0.10	17.8	B	0.0		0.14	18.3	B	0.14	18.3	B	0.0	
		R	0.39	21.6	C	0.52	24.1	C	2.5		0.71	29.7	C	1.12	100.1	F	70.4	yes
	Overall		**0.43**	**17.2**	**B**	**0.50**	**18.5**	**B**	**1.3**		**0.66**	**22.3**	**C**	**0.88**	**57.5**	**E**	**35.2**	yes

Intersection	Approach	Movement	Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2015 No-Action			2015 With-Action					2015 No-Action			2015 With-Action				
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?
SIGNALIZED INTERSECTIONS																		
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.02	10.3	B	0.0		0.02	10.3	B	0.02	10.3	B	0.0	
	WB	LT	0.58	17.8	B	0.64	19.3	B	1.5		0.60	17.6	B	0.66	19.3	B	1.7	
		R	0.54	17.0	B	0.61	18.5	B	1.5		0.69	20.4	C	0.76	23.4	C	3.0	
	NB	LTR	0.60	17.0	B	0.64	17.8	B	0.8		0.73	20.1	C	0.79	22.3	C	2.2	
	SB	LTR	0.96	48.5	D	1.10	89.0	F	40.5	yes	0.82	30.2	C	1.04	73.2	E	43.0	yes
	Overall		**0.77**	**26.9**	**C**	**0.87**	**40.1**	**D**	**13.2**		**0.75**	**21.9**	**C**	**0.90**	**33.9**	**C**	**12.0**	
North Bridge Street / Arthur Kill Road	WB	LR	0.91	28.0	C	0.91	28.0	C	0.0		0.86	25.8	C	0.86	25.8	C	0.0	
	NB	T	0.43	10.8	B	0.46	11.1	B	0.3		0.52	11.8	B	0.56	12.4	B	0.6	
	SB	T	0.58	11.4	B	0.60	11.7	B	0.3		0.52	10.8	B	0.55	11.2	B	0.4	
	Overall		**0.71**	**17.5**	**B**	**0.73**	**17.5**	**B**	**0.0**		**0.66**	**16.4**	**B**	**0.68**	**16.5**	**B**	**0.1**	
Richmond Valley Road / Arthur Kill Road	WB	LR	0.81	35.7	D	0.81	35.7	D	0.0		0.83	37.6	D	0.83	37.6	D	0.0	
	NB	TR	0.60	10.5	B	0.63	10.9	B	0.4		0.62	10.7	B	0.65	11.3	B	0.6	
	SB	LT	1.17	90.0	F	1.22	112.8	F	22.8	yes	1.12	73.2	E	1.19	104.4	F	31.2	yes
	Overall		**1.05**	**53.1**	**D**	**1.09**	**64.2**	**E**	**11.1**		**1.03**	**43.8**	**D**	**1.08**	**58.1**	**E**	**14.3**	
Richmond Valley Road / Page Avenue	EB	LTR	0.59	27.0	C	0.59	27.0	C	0.0		0.58	26.8	C	0.58	26.8	C	0.0	
	WB	LTR	0.57	28.2	C	0.57	28.2	C	0.0		0.38	24.3	C	0.38	24.3	C	0.0	
	NB	L	0.21	11.7	B	0.21	11.9	B	0.2		0.46	15.1	B	0.48	15.6	B	0.5	
		TR	0.66	17.1	B	0.69	17.7	B	0.6		0.86	23.0	C	0.90	25.5	C	2.5	
	SB	LTR	0.74	20.4	C	0.78	22.2	C	1.8		0.56	15.2	B	0.62	16.3	B	1.1	
	Overall		**0.68**	**21.1**	**C**	**0.71**	**21.9**	**C**	**0.8**		**0.75**	**20.7**	**C**	**0.78**	**22.0**	**C**	**1.3**	
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.60	28.9	C	0.60	28.9	C	0.0		0.66	30.8	C	0.66	30.8	C	0.0	
		R	0.15	12.1	B	0.15	12.3	B	0.2		0.09	10.7	B	0.09	10.8	B	0.1	
	NB	T	0.35	11.4	B	0.36	11.5	B	0.1		0.41	11.9	B	0.43	12.0	B	0.1	
	SB	T	0.35	11.5	B	0.36	11.6	B	0.1		0.35	11.5	B	0.37	11.7	B	0.2	
	Overall		*	**15.2**	**B**	*	**15.2**	**B**	**0.0**		*	**15.5**	**B**	*	**15.5**	**B**	**0.0**	
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.44	27.1	C	0.67	34.5	C	7.4		0.53	31.3	C	0.95	72.6	E	41.3	yes
		TR	0.61	28.4	C	0.61	28.4	C	0.0		0.63	28.8	C	0.63	28.8	C	0.0	
	WB	L	1.11	118.2	F	1.11	118.2	F	0.0		1.24	167.2	F	1.24	167.2	F	0.0	
		TR	0.37	23.1	C	0.37	23.1	C	0.0		0.50	24.7	C	0.50	24.7	C	0.0	
	NB	LTR	0.52	29.5	C	0.74	34.8	C	5.3		0.70	33.6	C	1.04	71.2	E	37.6	yes
		U-TURN	0.97	61.0	F	1.00	68.5	F	7.5		0.55	21.7	C	0.56	23.0	C	1.3	
	SB	L	0.15	29.0	C	0.16	29.1	C	0.1		0.13	28.7	C	0.14	28.8	C	0.1	
		TR	0.26	30.5	C	0.52	35.8	D	5.3		0.61	37.8	D	0.92	62.9	E	25.1	yes
	Overall		*	**33.1**	**C**	*	**35.0**	**C**	**1.9**		*	**45.4**	**D**	*	**60.9**	**E**	**15.5**	
Veterans Road West / Tyrellan Avenue	EB	LTR	0.42	18.0	B	0.42	18.0	B	0.0		0.50	19.3	B	0.50	19.3	B	0.0	
	WB	LTR	0.48	19.2	B	0.48	19.2	B	0.0		0.67	22.7	C	0.67	22.8	C	0.1	
	NB	DefL	0.56	24.4	C	0.82	46.1	D	21.7	yes	0.94	65.8	E	1.80	410.6	F	344.8	yes
		TR	0.30	17.0	B	0.35	17.7	B	0.7		0.42	18.7	B	0.50	20.0	B	1.3	
	SB	LTR	0.36	17.4	B	0.53	19.8	B	2.4		0.57	20.4	C	0.80	26.6	C	6.2	
	Overall		**0.52**	**18.7**	**B**	**0.65**	**21.6**	**C**	**2.9**		**0.80**	**24.9**	**C**	**1.23**	**55.6**	**E**	**30.7**	
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	0.96	32.5	C	0.98	38.3	D	5.8		0.98	37.6	D	0.98	34.2	C	-3.4	
		TR	0.29	4.5	A	0.32	4.6	A	0.1		0.33	5.3	A	0.37	5.5	A	0.2	
	WB	LT	0.59	29.0	C	0.63	30.0	C	1.0		0.97	45.8	D	1.04	64.3	E	18.5	yes
		R	0.79	36.3	D	1.21	135.6	F	99.3	yes	1.06	70.9	E	1.76	377.7	F	306.8	yes
	NB	LTR	0.11	34.2	C	0.11	34.2	C	0.0		-	-	-	-	-	-	-	
	SB	L	0.61	48.2	D	0.72	55.8	E	7.6	yes	0.31	33.6	C	0.37	34.3	C	0.7	
		LT	0.00	32.1	C	0.00	32.1	C	0.0		-	-	-	-	-	-	-	
		R	0.40	11.8	B	0.40	11.8	B	0.0		0.23	7.3	A	0.23	7.3	A	0.0	
	Overall		**0.86**	**23.6**	**C**	**1.02**	**51.7**	**D**	**28.1**	yes	**0.87**	**36.6**	**D**	**1.09**	**114.2**	**F**	**77.6**	
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.56	18.5	B	0.63	20.1	C	1.6		0.70	22.7	C	0.79	26.8	C	4.1	
		TR	0.04	11.5	B	0.04	11.5	B	0.0		0.04	11.6	B	0.04	11.6	B	0.0	
	WB	LTR	0.05	11.6	B	0.05	11.6	B	0.0		0.06	11.7	B	0.60	11.7	B	0.0	
	NB	LTR	0.01	16.9	B	0.01	16.9	B	0.0		0.00	16.8	B	0.00	16.8	B	0.0	
		DefL	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
		TR	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	SB	LT	0.12	18.0	B	0.12	18.0	B	0.0		0.16	18.4	B	0.16	18.4	B	0.0	
		R	0.63	26.9	C	1.02	66.7	E	39.8	yes	0.86	37.9	D	1.37	204.0	F	166.1	yes
	Overall		**0.59**	**20.9**	**C**	**0.80**	**41.8**	**D**	**20.9**		**0.77**	**27.5**	**C**	**1.05**	**115.8**	**F**	**88.3**	

Table 2.13-9 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)								Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2015 No-Action			2015 With-Action					2015 No-Action			2015 With-Action					2015 No-Action			2015 With-Action					2015 No-Action			2015 With-Action			
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?
SIGNALIZED INTERSECTIONS																																
Bricktown Way / Veterans Road West	EB	L	0.14	15.3	B	0.21	15.9	B	0.6		0.30	16.9	B	0.49	19.7	B	2.8		0.30	16.8	B	0.49	19.7	B	2.9		0.51	19.6	B	0.77	27.1	C	7.5	
		R	0.00	14.0	B	0.00	14.0	B	0.0		0.04	14.4	B	0.04	14.4	B	0.0		0.04	14.4	B	0.04	14.4	B	0.0		0.06	14.5	B	0.06	14.5	B	0.0	
	NB	LT	0.07	7.3	A	0.07	7.3	A	0.0		0.14	7.7	A	0.14	7.7	A	0.0		0.17	7.9	A	0.17	7.9	A	0.0		0.17	7.9	A	0.18	7.9	A	0.0	
	SB	TR	0.34	8.9	A	0.37	9.1	A	0.2		0.48	9.9	A	0.55	10.6	B	0.7		0.37	9.1	A	0.43	9.6	A	0.5		0.56	10.4	B	0.65	11.4	B	1.0	
	Overall		**0.27**	**9.2**	**A**	**0.31**	**9.7**	**A**	**0.5**		**0.41**	**10.4**	**B**	**0.53**	**11.8**	**B**	**1.4**		**0.34**	**10.0**	**A**	**0.46**	**11.2**	**B**	**1.2**		**0.54**	**11.6**	**B**	**0.69**	**14.3**	**B**	**2.7**	
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.01	10.2	B	0.0		0.01	10.2	B	0.01	10.2	B	0.0		0.01	10.2	B	0.01	10.2	B	0.0		0.01	10.2	B	0.01	10.2	B	0.0	
	WB	L	0.43	14.6	B	0.44	14.9	B	0.3		0.47	15.2	B	0.50	15.7	B	0.5		0.42	14.4	B	0.45	14.9	B	0.5		0.93	39.4	D	1.00	52.3	D	12.9	yes
		LT	0.45	15.0	B	0.46	15.3	B	0.3		0.49	15.7	B	0.52	16.2	B	0.5		0.44	14.9	B	0.47	15.4	B	0.5		0.33	13.3	B	0.35	13.5	B	0.2	
	NB	L	0.01	10.3	B	0.01	10.3	B	0.0		0.00	10.2	B	0.00	10.2	B	0.0		0.01	10.3	B	0.01	10.3	B	0.0		0.02	10.3	B	0.02	10.4	B	0.1	
		R	0.17	9.2	A	0.21	9.3	A	0.1		0.37	10.5	B	0.47	11.5	B	1.0		0.42	11.0	B	0.52	12.2	B	1.2		0.55	12.6	B	0.68	15.6	C	3.0	
	SB	LTR	0.10	10.8	B	0.12	10.9	B	0.1		0.13	10.9	B	0.17	11.2	B	0.3		0.13	10.9	B	0.16	11.1	B	0.2		0.17	11.2	B	0.22	11.5	B	0.3	
	Overall		*	**12.6**	**B**	*	**12.7**	**B**	**0.1**		*	**12.9**	**B**	*	**13.3**	**B**	**0.4**		*	**12.4**	**B**	*	**12.9**	**B**	**0.6**		*	**24.5**	**C**	*	**29.8**	**C**	**5.3**	
Englewood Avenue / Veterans Road East	EB	LT	0.29	15.5	B	0.33	15.9	B	0.4		0.52	19.0	B	0.62	21.2	C	2.2		0.68	23.5	C	0.79	28.3	C	4.8		0.98	53.0	D	1.14	102.3	F	49.3	yes
		R	0.05	13.1	B	0.07	13.3	B	0.2		0.11	13.6	B	0.17	14.1	B	0.5		0.12	13.7	B	0.19	14.3	B	0.6		0.17	14.1	B	0.27	15.1	B	1.0	
	WB	LTR	0.11	13.6	B	0.11	13.6	B	0.0		0.09	13.4	B	0.09	13.4	B	0.0		0.13	13.8	B	0.13	13.8	B	0.0		0.16	14.1	B	0.16	14.1	B	0.0	
	NB	LTR	0.26	9.4	A	0.27	9.5	A	0.1		0.25	9.3	A	0.26	9.4	A	0.1		0.25	9.3	A	0.26	9.4	A	0.1		0.33	9.9	A	0.35	10.1	B	0.2	
	Overall		**0.27**	**11.0**	**B**	**0.29**	**11.2**	**B**	**0.2**		**0.36**	**12.7**	**B**	**0.41**	**13.8**	**B**	**1.1**		**0.43**	**14.6**	**B**	**0.48**	**16.8**	**B**	**2.2**		**0.60**	**25.9**	**C**	**0.68**	**45.6**	**D**	**19.7**	yes
Englewood Avenue / Bloomingdale Road	EB	LR	0.14	17.4	B	0.19	17.9	B	0.5		0.31	19.3	B	0.47	21.7	C	2.4		0.27	18.8	B	0.41	20.7	C	1.9		0.43	20.9	C	0.62	25.0	C	4.1	
	NB	LT	0.39	8.3	A	0.39	8.3	A	0.0		0.31	7.6	A	0.31	7.6	A	0.0		0.50	9.2	A	0.50	9.2	A	0.0		0.40	8.3	A	0.40	8.3	A	0.0	
	SB	TR	0.52	9.4	A	0.52	9.4	A	0.0		0.34	7.7	A	0.34	7.7	A	0.0		0.48	9.0	A	0.48	9.0	A	0.0		0.39	8.2	A	0.39	8.2	A	0.0	
	Overall		**0.40**	**9.5**	**A**	**0.41**	**9.7**	**A**	**0.2**		**0.33**	**9.5**	**A**	**0.38**	**10.9**	**B**	**1.4**		**0.42**	**10.1**	**B**	**0.47**	**10.8**	**B**	**0.7**		**0.41**	**10.5**	**B**	**0.47**	**12.3**	**B**	**1.8**	
Sharrotts Road / Bloomingdale Road	EB	LR	0.26	15.8	B	0.26	15.8	B	0.0		0.27	15.9	B	0.27	15.9	B	0.0		0.49	18.7	B	0.49	18.7	B	0.0		0.47	18.4	B	0.47	18.4	B	0.0	
	NB	LT	0.52	12.2	B	0.55	12.6	B	0.4		0.49	11.8	B	0.57	13.1	B	1.3		0.59	13.0	B	0.67	14.6	B	1.6		0.58	12.9	B	0.68	15.2	B	2.3	
	SB	TR	0.44	11.0	B	0.48	11.5	B	0.5		0.40	10.5	B	0.48	11.5	B	1.0		0.55	12.4	B	0.63	13.8	B	1.4		0.54	12.1	B	0.65	14.0	B	1.9	
	Overall		**0.42**	**12.2**	**B**	**0.43**	**12.5**	**B**	**0.3**		**0.40**	**11.9**	**B**	**0.45**	**12.7**	**B**	**0.8**		**0.55**	**13.9**	**B**	**0.60**	**15.0**	**B**	**1.1**		**0.53**	**13.7**	**B**	**0.60**	**15.2**	**B**	**1.5**	
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.02	22.7	C	0.0		0.05	23.1	C	0.05	23.1	C	0.0		0.02	22.7	C	0.02	22.7	C	0.0		0.12	23.7	C	0.12	23.7	C	0.0	
		R	0.33	27.5	C	0.38	28.6	C	1.1		0.60	34.2	C	0.78	44.9	D	10.7		0.55	32.3	C	0.70	39.2	D	6.9		0.76	41.5	D	1.02	83.3	F	41.8	yes
	WB	LTR	0.67	21.0	C	0.67	21.0	C	0.0		0.69	21.2	C	0.69	21.2	C	0.0		0.84	23.6	C	0.84	23.6	C	0.0		0.90	26.0	C	0.90	26.0	C	0.0	
	NB	L	0.38	23.8	C	0.52	30.3	C	6.5		0.40	21.9	C	0.63	32.0	C	10.1		0.44	26.0	C	0.73	46.5	D	20.5	yes	0.58	30.9	C	0.93	72.7	E	41.8	yes
		T	0.36	16.8	B	0.36	16.8	B	0.0		0.31	16.1	B	0.31	16.1	B	0.0		0.35	16.5	B	0.35	16.5	B	0.0		0.38	16.9	B	0.38	16.9	B	0.0	
	SB	TR	0.95	30.5	C	0.95	30.5	C	0.0		0.60	19.8	B	0.60	19.8	B	0.0		0.83	28.6	C	0.83	28.6	C	0.0		0.66	20.7	C	0.66	20.7	C	0.0	
	Overall		**0.74**	**24.1**	**C**	**0.74**	**24.4**	**C**	**0.3**		**0.63**	**21.4**	**C**	**0.67**	**23.3**	**C**	**1.9**		**0.78**	**24.8**	**C**	**0.81**	**26.3**	**C**	**1.5**		**0.77**	**25.2**	**C**	**0.93**	**32.4**	**C**	**7.2**	
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.15	16.8	B	0.15	16.8	B	0.0		0.09	16.2	B	0.09	16.2	B	0.0		0.12	16.5	B	0.12	16.5	B	0.0		0.19	17.2	B	0.19	17.2	B	0.0	
	NB	LTR	0.38	8.8	A	0.40	9.0	A	0.2		0.41	9.1	A	0.45	9.5	A	0.4		0.42	9.1	A	0.45	9.5	A	0.4		0.46	9.6	A	0.51	10.2	B	0.6	
	SB	L	0.57	11.0	B	0.58	11.3	B	0.3		0.44	10.0	A	0.46	10.4	B	0.4		0.62	12.1	B	0.64	12.9	B	0.8		0.67	14.0	B	0.71	15.8	B	1.8	
		TR	0.65	11.2	B	0.66	11.4	B	0.2		0.48	9.6	A	0.51	9.9	A	0.3		0.59	10.5	B	0.62	10.9	B	0.4		0.53	9.9	A	0.58	10.4	B	0.5	
	Overall		**0.48**	**10.8**	**B**	**0.49**	**11.0**	**B**	**0.2**		**0.35**	**9.7**	**A**	**0.37**	**10.1**	**B**	**0.4**		**0.45**	**10.7**	**B**	**0.47**	**11.2**	**B**	**0.5**		**0.51**	**11.2**	**B**	**0.54**	**12.0**	**B**	**0.8**	
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.7	B	0.09	14.7	B	0.0		0.06	14.4	B	0.06	14.4	B	0.0		0.09	14.7	B	0.09	14.7	B	0.0		0.06	14.4	B	0.06	14.4	B	0.0	
	WB	L	0.34	18.1	B	0.34	18.1	B	0.0		0.56	21.9	C	0.56	21.9	C	0.0		0.53	21.4	C	0.53	21.4	C	0.0		0.54	21.6	C	0.54	21.6	C	0.0	
		T	0.02	14.1	B	0.02	14.1	B	0.0		0.04	14.2	B	0.04	14.2	B	0.0		0.04	14.2	B	0.04	14.2	B	0.0		0.02	14.1	B	0.02	14.1	B	0.0	
		R	0.20	16.0	B	0.20	16.0	B	0.0		0.21	16.1	B	0.21	16.1	B	0.0		0.21	16.0	B	0.21	16.0	B	0.0		0.19	15.8	B	0.19	15.8	B	0.0	
	NB	LTR	0.48	19.7	B	0.50	20.1	C	0.4		0.68	23.3	C	0.73	24.9	C	1.6		0.66	22.8	C	0.70	24.0	C	1.2		0.75	24.5	C	0.81	26.9	C	2.4	
	SB	LTR	1.01	37.7	D	1.04	47.9	D	10.2	yes	0.73	25.3	C	0.79	27.9	C	2.6		0.87	26.5	C	0.93	30.9	C	4.4		0.80	26.8	C	0.88	31.9	C	5.1	
	Overall		**0.67**	**26.8**	**C**	**0.69**	**31.4**	**C**	**4.6**		**0.64**	**22.6**	**C**	**0.67**	**24.1**	**C**	**1.5**		**0.70**	**22.8**	**C**	**0.73**	**25.0**	**C**	**2.2**		**0.67**	**23.6**	**C**	**0.71**	**26.3**	**C**	**2.7**	
Arthur Kill Road / Bloomingdale Road	EB	TR	0.32	14.3	B	0.33	14.4	B	0.1		0.34	14.5	B	0.37	14.9	B	0.4		0.42	15.6	B	0.46	16.1	B	0.5		0.43	15.6	B	0.47	16.2	B	0.6	
	WB	LT	0.26	13.6	B	0.34	14.7	B	1.1		0.30	14.2	B	0.57	19.5	B	5.3		0.29	14.0	B	0.59	20.3	C	6.3		0.31	14.4	B	0.77	28.9	C	14.5	
	NB	LR	0.53	24.4	C	0.57	25.4	C	1.0		0.48	23.3	C	0.61	26.5	C	3.2		0.50	23.8	C	0.68	28.7	C	4.9		0.41	22.1	C	0.59	26.2	C	4.1	
	Overall		**0.41**	**17.8**	**B**	**0.44**	**18.4**	**B**	**0.6**		**0.40**	**17.4**	**B**	**0.59**	**20.3**	**C**	**2.9**		**0.46**	**17.7**	**B**	**0.63**	**21.5**	**C**	**3.8**		**0.42**	**17.0**	**B**	**0.69**	**23.2**	**C**	**6.2**	

Table 2.13-9 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2015 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)								Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2015 No-Action			2015 With-Action			Change in Delay	Impact?	2015 No-Action			2015 With-Action			Change in Delay	Impact?	2015 No-Action			2015 With-Action			Change in Delay	Impact?	2015 No-Action			2015 With-Action			Change in Delay	Impact?
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS		
UNSIGNALIZED INTERSECTIONS																																
Sharrots Road / Arthur Kill Road	EB	LTR	0.06	13.3	B	0.06	13.6	B	0.3		0.21	14.6	B	0.22	15.7	C	1.1		0.25	18.2	C	0.27	20.1	C	1.9		0.46	20.1	C	0.51	23.6	C	3.5	
	WB	LTR	0.20	13.9	B	0.20	14.3	B	0.4		0.22	16.7	C	0.24	18.2	C	1.5		0.36	20.8	C	0.40	23.6	C	2.8		0.38	19.8	C	0.43	23.4	C	3.6	
	NB	LTR	0.02	7.9	A	0.02	8.0	A	0.1		0.03	7.9	A	0.03	8.0	A	0.1		0.03	7.9	A	0.03	8.0	A	0.1		0.01	7.8	A	0.01	8.0	A	0.2	
	SB	LTR	0.03	7.9	A	0.03	7.9	A	0.0		0.03	8.1	A	0.03	8.2	A	0.1		0.06	8.1	A	0.06	8.2	A	0.1		0.02	7.9	A	0.03	8.0	A	0.1	
Englewood Avenue / Arthur Kill Road	WB	LR	0.05	10.5	B	0.05	10.6	B	0.1		0.12	13.4	B	0.13	14.1	B	0.7		0.16	13.4	B	0.17	14.2	B	0.8		0.06	11.2	B	0.06	11.8	B	0.6	
	SB	LT	0.02	7.9	A	0.02	8.0	A	0.1		0.02	8.1	A	0.02	8.2	A	0.1		0.01	8.0	A	0.01	8.1	A	0.1		0.01	7.9	A	0.01	8.0	A	0.1	
South Bridge Street / Arthur Kill Road	SB	LT	0.17	10.4	B	0.17	10.5	B	0.1		0.18	10.0	B	0.19	10.2	B	0.2		0.26	11.0	B	0.26	11.1	B	0.1		0.24	11.0	B	0.25	11.3	B	0.3	
Bricktown Way / Tyrellan Avenue	EB	LT	0.04	7.9	A	0.12	9.2	A	1.3		0.07	8.8	A	0.35	14.3	B	5.5		0.08	8.3	A	0.33	12.9	B	4.7		0.16	9.0	A	0.60	21.7	C	12.8	
		TR	0.07	7.7	A	0.09	8.2	A	0.5		0.12	8.8	A	0.23	11.7	B	2.8		0.12	8.2	A	0.22	10.7	B	2.5		0.21	9.1	A	0.39	14.8	B	5.6	
	WB	LT	0.09	8.2	A	0.11	8.7	A	0.5		0.28	10.0	B	0.38	13.8	B	3.8		0.33	10.5	B	0.43	14.5	B	4.0		0.32	10.7	B	0.48	17.9	C	7.2	
		TR	0.03	7.5	A	0.10	7.8	A	0.3		0.07	8.0	A	0.27	11.0	B	3.0		0.10	8.1	A	0.28	11.0	B	2.9		0.14	8.7	A	0.49	16.9	C	8.1	
	NB	LT	0.01	7.7	A	0.05	8.6	A	1.0		0.07	8.4	A	0.22	12.0	B	3.5		0.02	8.3	A	0.14	11.0	B	2.7		0.09	9.0	A	0.31	14.9	B	5.9	
		R	0.03	6.9	A	0.03	7.5	A	0.6		0.06	7.5	A	0.09	9.6	A	2.1		0.11	7.9	A	0.12	9.8	A	2.0		0.13	8.3	A	0.21	12.2	B	3.9	
	SB	LT	-	-	-	0.08	8.7	A	-		-	-	-	0.35	13.3	B	-		-	-	-	0.34	13.0	B	-		-	-	-	0.58	21.0	C	-	
		TR	-	-	-	0.06	8.1	A	-		-	-	-	0.29	11.7	B	-		-	-	-	0.28	11.5	B	-		-	-	-	0.49	16.9	C	-	
Sharrots Road / Veterans Road West	EB	TR	0.12	8.3	A	0.12	8.4	A	0.1		0.12	8.2	A	0.12	8.4	A	0.2		0.21	8.6	A	0.22	8.8	A	0.2		0.18	8.5	A	0.19	8.7	A	0.2	
	WB	LT	0.24	8.9	A	0.29	9.4	A	0.4		0.27	9.3	A	0.39	10.5	B	1.2		0.32	9.8	A	0.43	11.2	B	1.4		0.34	10.1	B	0.49	12.2	B	2.1	
	SB	LT	0.07	8.0	A	0.07	8.1	A	0.1		0.11	8.3	A	0.12	8.6	A	0.3		0.10	8.5	A	0.10	8.8	A	0.3		0.11	8.5	A	0.12	8.9	A	0.4	
		TR	0.09	7.8	A	0.09	7.9	A	0.1		0.09	7.9	A	0.09	8.1	A	0.3		0.10	8.2	A	0.10	8.4	A	0.3		0.12	8.3	A	0.12	8.7	A	0.4	
Sharrots Road / Veterans Road East	EB	LT	0.11	8.3	A	0.11	8.4	A	0.1		0.13	8.6	A	0.13	8.8	A	0.2		0.21	9.2	A	0.22	9.5	A	0.2		0.17	8.9	A	0.17	9.2	A	0.3	
	WB	TR	0.18	8.4	A	0.22	8.7	A	0.3		0.24	8.9	A	0.35	10.0	A	1.1		0.26	9.5	A	0.38	10.7	B	1.3		0.29	9.6	A	0.45	11.5	B	1.9	
	NB	LT	0.12	8.2	A	0.12	8.3	A	0.1		0.10	8.3	A	0.11	8.5	A	0.3		0.15	8.8	A	0.16	9.1	A	0.3		0.14	8.7	A	0.15	9.1	A	0.4	
		TR	0.09	7.5	A	0.09	7.6	A	0.1		0.15	7.9	A	0.16	8.2	A	0.3		0.23	8.6	A	0.24	9.0	A	0.4		0.24	8.7	A	0.25	9.2	A	0.5	

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

As shown in **Table 2.13-9**, significant traffic impacts have the potential to occur at the following intersections with build-out by the 2015 analysis year, for the following movements and time periods:

- **Allentown Lane-Veterans Road West/Arthur Kill Road:**
    - Weekday PM peak hour – Delay for the southbound approach is projected to increase from 48.5 seconds per vehicle (LOS "D") under Future No-Action conditions to 89.0 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the southbound approach is projected to increase from 30.2 seconds per vehicle (LOS "C") under Future No-Action conditions to 73.2 seconds per vehicle (LOS "E") under Future With-Action conditions.
- **Richmond Valley Road/Arthur Kill Road:**
    - Weekday midday peak hour – Delay for the southbound approach is projected to increase from 39.0 seconds per vehicle (LOS "D") under Future No-Action conditions to 56.1 seconds per vehicle (LOS "E") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for the southbound approach is projected to increase from 90.0 seconds per vehicle (LOS "F") under Future No-Action conditions to 112.8 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the southbound approach is projected to increase from 73.2 seconds per vehicle (LOS "E") under Future No-Action conditions to 104.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp:**
    - Weekday midday peak hour – Delay for the eastbound left-turn lane is projected to increase from 31.8 seconds per vehicle (LOS "C") under Future No-Action conditions to 56.0 seconds per vehicle (LOS "D") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the eastbound left-turn lane is projected to increase from 31.3 seconds per vehicle (LOS "C") under Future No-Action conditions to 72.6 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay for the northbound approach is projected to increase from 33.6 seconds per vehicle (LOS "C") under Future No-Action conditions to 71.2 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay for the southbound through/right-turn lane is projected to increase from 37.8 seconds per vehicle (LOS "D") under Future No-Action conditions to 62.9 seconds per vehicle (LOS "E") under Future With-Action conditions.
- **Veterans Road West/Tyrellan Avenue:**
    - Weekday midday peak hour – Delay for northbound left-turn movements is projected to increase from 45.9 seconds per vehicle (LOS "D") under Future No-Action conditions to 182.9 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for northbound left-turn movements is projected to increase from 24.4 seconds per vehicle (LOS "C") under Future No-Action conditions to 46.1 seconds per vehicle (LOS "D") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for northbound left-turn movements is projected to increase from 65.8 seconds per vehicle (LOS "E") under Future No-Action conditions to 410.6 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Boscombe Avenue/Outerbridge Crossing Ramps:**
    - Weekday midday peak hour – Delay in the westbound through/left-turn lane is projected to increase from 52.1 seconds per vehicle (LOS "D") under Future No-Action conditions to 62.6 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay in the westbound right-turn lane is projected to increase from 43.4 seconds per vehicle (LOS

"D") under Future No-Action conditions to 217.8 seconds per vehicle (LOS "F") under Future With-Action conditions.

- Weekday PM peak hour – Delay in the westbound right-turn lane is projected to increase from 36.3 seconds per vehicle (LOS "D") under Future No-Action conditions to 135.6 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the southbound left-turn lane is projected to increase from 48.2 seconds per vehicle (LOS "D") under Future No-Action conditions to 55.8 seconds per vehicle (LOS "E") under Future With-Action conditions.
- Saturday midday peak hour – Delay in the westbound through/left-turn lane is projected to increase from 45.8 seconds per vehicle (LOS "D") under Future No-Action conditions to 64.3 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay in the westbound right-turn lane is projected to increase from 70.9 seconds per vehicle (LOS "E") under Future No-Action conditions to 377.7 seconds per vehicle (LOS "F") under Future With-Action conditions.

- **Boscombe Avenue/Tyrellan Avenue:**
  - Weekday midday peak hour – Delay in the southbound right-turn lane is projected to increase from 29.7 seconds per vehicle (LOS "C") under Future No-Action conditions to 100.1 seconds per vehicle (LOS "F") under Future With-Action conditions.
  - Weekday PM peak hour – Delay in the southbound right-turn lane is projected to increase from 26.9 seconds per vehicle (LOS "C") under Future No-Action conditions to 66.7 seconds per vehicle (LOS "E") under Future With-Action conditions.
  - Saturday midday peak hour – Delay in the southbound right-turn lane is projected to increase from 37.9 seconds per vehicle (LOS "D") under Future No-Action conditions to 204.0 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Englewood Avenue/Veterans Road West:**
  - Saturday midday peak hour – Delay in the westbound left-turn lane is projected to increase from 39.4 seconds per vehicle (LOS "D") under Future No-Action conditions to 52.3 seconds per vehicle (LOS "D") under Future With-Action conditions.
- **Englewood Avenue/Veterans Road East:**
  - Saturday midday peak hour – Delay in the eastbound through/left-turn lane is projected to increase from 53.0 seconds per vehicle (LOS "D") under Future No-Action conditions to 102.3 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road:**
  - Weekday PM peak hour – Delay in the northbound left-turn lane is projected to increase from 26.0 seconds per vehicle (LOS "C") under Future No-Action conditions to 46.5 seconds per vehicle (LOS "D") under Future With-Action conditions.
  - Saturday midday peak hour – Delay in the eastbound right-turn lane is projected to increase from 41.5 seconds per vehicle (LOS "D") under Future No-Action conditions to 83.3 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the northbound left-turn lane is projected to increase from 30.9 seconds per vehicle (LOS "C") under Future No-Action conditions to 72.7 seconds per vehicle (LOS "E") under Future With-Action conditions.
- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road:**
  - Weekday AM peak hour – Delay on the southbound approach is projected to increase from 37.7 seconds per vehicle (LOS "D") under Future No-Action conditions to 47.9 seconds per vehicle (LOS "D") under Future With-Action conditions.

Potential Traffic Impacts due to Proposed West Shore Expressway Ramp Improvements

NYSDOT plans to improve the southbound West Shore Expressway (WSE) ramp system and adjacent surface street intersections north of Englewood Avenue just north of the Project Area. The purpose of these improvements is to improve access to and from the Charleston commercial district, improve traffic safety and alleviate congestion along the WSE and on the surrounding street system. As discussed in Section 2.13.4, these improvements, which are projected to be completed by the end of 2014, will likely increase volumes at the following Study Area intersections in 2015 (impacts projected in the absence of these ramp improvements are also noted):

- Veterans Road West/Englewood Avenue (shown above to be impacted in the Saturday peak hour in 2015 in the absence of the ramp improvements).
- Bricktown Way/Veterans Road West (no impacts in 2015 projected without the ramp improvements).
- Arthur Kill Road/Bloomingdale Road (no impacts projected without the ramp improvements).

The potential changes in traffic volumes and levels of service due to the proposed WSE ramps will be analyzed for the FEIS when sufficient information about this ramp improvement program is available. Therefore, until results from those studies are available, it is conservatively assumed that at these three intersections a worsening of already identified significant traffic impacts and/or the creation of additional significant impacts would potentially occur in one or more peak hour in 2015 due to increased traffic volumes associated with these ramp improvements.

No other significant traffic impacts are projected to occur at the study intersections during the four analyzed peak hours as a result of build-out by the 2015 analysis year under the Future With-Action condition.

Table 2.13-10 compares the Future No-Action LOS and delays (from **Table 2.13-4**) with the Future With-Action LOS and delays (from **Table 2.13-8**), and identifies where and when the Proposed Action has the potential to generate significant traffic impacts with full build-out by the analysis year of 2020, based on the CEQR criteria described above. **Table 2.13-10** also shows the incremental change in vehicle delay associated with full build-out by the 2020 analysis year.

Table 2.13-10
Peak Hour Level-of-Service Analysis Results
Year 2020 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)								Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS		
SIGNALIZED INTERSECTIONS																																
Allentown Lane-Veterans Rd West / Arthur Kill Road	EB	LTR	0.02	10.3	B	0.02	10.3	B	0.0		0.04	10.5	B	0.04	10.5	B	0.0		0.02	10.4	B	0.02	10.4	B	0.0		0.02	10.4	B	0.02	10.4	B	0.0	
	WB	LT	0.43	14.7	B	0.44	15.0	B	0.3		0.54	16.8	B	0.59	17.9	B	1.1		0.68	20.8	C	0.74	23.1	C	2.3		0.70	20.5	C	0.76	23.2	C	2.7	
		R	0.61	18.7	B	0.51	16.3	B	-2.4		0.82	27.6	C	0.84	29.1	C	1.5		0.61	18.7	B	0.70	21.5	C	2.8		0.76	23.3	C	0.88	31.7	C	8.4	
	NB	LTR	0.75	21.3	C	0.84	26.3	C	5.0		0.63	17.7	B	0.68	19.2	B	1.5		0.68	18.9	B	0.74	20.9	C	2.0		0.83	24.9	C	0.91	31.9	C	7.0	
	SB	LTR	0.60	20.1	C	1.08	91.7	F	71.6	yes	0.78	26.7	C	1.18	122.3	F	95.6	yes	1.16	113.5	F	1.63	313.6	F	200.1	yes	1.07	81.6	F	1.78	381.1	F	299.5	yes
	Overall		**0.68**	**19.2**	**B**	**0.79**	**37.4**	**D**	**18.2**		**0.80**	**22.3**	**C**	**1.01**	**50.4**	**D**	**28.1**		**0.92**	**47.8**	**D**	**1.18**	**116.6**	**F**	**68.8**		**0.91**	**36.6**	**D**	**1.33**	**123.2**	**F**	**86.6**	
North Bridge Street / Arthur Kill Road	WB	LR	0.49	18.4	B	0.49	18.4	B	0.0		0.64	21.1	C	0.64	21.1	C	0.0		0.95	31.3	C	0.95	31.3	C	0.0		0.89	27.9	C	0.89	27.9	C	0.0	
	NB	T	0.54	12.1	B	0.61	13.4	B	1.3		0.45	11.0	B	0.49	11.5	B	0.5		0.49	11.5	B	0.54	12.1	B	0.6		0.59	12.9	B	0.66	14.0	B	1.1	
	SB	T	0.35	9.9	A	0.42	10.5	B	0.6		0.52	11.3	B	0.56	11.8	B	0.5		0.64	12.2	B	0.69	12.8	B	0.6		0.58	11.5	B	0.63	12.1	B	0.6	
	Overall		**0.52**	**13.2**	**B**	**0.56**	**13.7**	**B**	**0.5**		**0.56**	**14.2**	**B**	**0.59**	**14.4**	**B**	**0.2**		**0.76**	**18.9**	**B**	**0.79**	**19.0**	**B**	**0.1**		**0.71**	**17.4**	**B**	**0.75**	**17.7**	**B**	**0.3**	
Richmond Valley Road / Arthur Kill Road	WB	LR	0.61	26.1	C	0.67	28.6	C	2.5		0.89	45.0	D	0.90	46.4	D	1.4		0.91	46.6	D	0.93	49.9	D	3.3		0.93	51.2	D	0.94	53.1	D	1.9	
	NB	TR	0.67	11.7	B	0.71	12.6	B	0.9		0.53	9.7	A	0.57	10.3	B	0.6		0.64	11.2	B	0.68	11.9	B	0.7		0.67	11.5	B	0.72	12.6	B	1.1	
	SB	LT	0.68	13.5	B	0.86	23.3	C	9.8		1.14	87.9	F	1.24	128.2	F	40.3	yes	1.42	202.6	F	1.54	257.9	F	55.3	yes	1.38	184.7	F	1.53	251.7	F	67.0	yes
	Overall		**0.66**	**14.7**	**B**	**0.80**	**19.1**	**B**	**4.4**		**1.06**	**51.8**	**D**	**1.13**	**70.1**	**E**	**18.3**		**1.26**	**109.7**	**F**	**1.35**	**137.0**	**F**	**27.3**		**1.23**	**97.2**	**F**	**1.34**	**128.0**	**F**	**30.8**	
Richmond Valley Road / Page Avenue	EB	LTR	0.35	23.4	C	0.38	23.9	C	0.5		0.81	37.2	D	0.81	37.2	D	0.0		0.69	29.9	C	0.70	30.1	C	0.2		0.70	29.9	C	0.70	30.1	C	0.2	
	WB	LTR	0.38	24.1	C	0.38	24.1	C	0.0		0.55	27.9	C	0.55	27.9	C	0.0		0.66	31.1	C	0.66	31.1	C	0.0		0.50	26.6	C	0.50	26.6	C	0.0	
	NB	L	0.18	11.0	B	0.24	11.7	B	0.7		0.33	13.4	B	0.35	13.9	B	0.5		0.31	13.5	B	0.35	14.4	B	0.9		0.60	18.8	B	0.65	21.1	C	2.3	
		TR	0.80	20.8	C	0.82	21.5	C	0.7		0.74	19.1	B	0.78	20.4	C	1.3		0.69	17.8	B	0.72	18.8	B	1.0		0.89	25.2	C	0.94	30.4	C	5.2	
	SB	LTR	0.55	15.5	B	0.57	15.9	B	0.4		0.78	22.5	C	0.84	26.3	C	3.8		0.88	28.8	C	0.94	37.6	D	8.8		0.77	21.3	C	0.86	27.3	C	6.0	
	Overall		**0.64**	**19.6**	**B**	**0.65**	**20.0**	**B**	**0.4**		**0.79**	**23.9**	**C**	**0.83**	**25.4**	**C**	**1.5**		**0.81**	**25.3**	**C**	**0.85**	**28.7**	**C**	**3.4**		**0.82**	**24.4**	**C**	**0.85**	**28.4**	**C**	**4.0**	
South Bridge Street / Page Avenue-Boscombe Avenue	EB	L	0.47	26.1	C	0.47	26.1	C	0.0		0.50	26.7	C	0.50	26.7	C	0.0		0.62	29.4	C	0.62	29.4	C	0.0		0.68	31.5	C	0.68	31.5	C	0.0	
		R	0.40	11.8	B	0.12	11.1	B	-0.7		0.16	11.3	B	0.16	11.5	B	0.2		0.16	12.5	B	0.16	12.8	B	0.3		0.10	10.9	B	0.10	11.1	B	0.2	
	NB	T	0.12	11.0	B	0.40	11.8	B	0.8		0.40	11.8	B	0.42	12.0	B	0.2		0.38	11.6	B	0.39	11.8	B	0.2		0.44	12.2	B	0.47	12.4	B	0.2	
	SB	T	0.24	10.5	B	0.25	10.6	B	0.1		0.31	11.2	B	0.33	11.4	B	0.2		0.38	11.8	B	0.40	12.0	B	0.2		0.38	11.8	B	0.40	12.0	B	0.2	
	Overall		*	**13.7**	**B**	*	**14.1**	**B**	**0.4**		*	**14.1**	**B**	*	**14.2**	**B**	**0.1**		*	**15.4**	**B**	*	**15.4**	**B**	**0.0**		*	**15.8**	**B**	*	**15.8**	**B**	**0.0**	
Veterans Road West / Bricktown Way-KWVP WB off-ramp	EB	L	0.24	23.5	C	0.31	24.6	C	1.1		0.60	36.3	D	0.89	63.6	E	27.3	yes	0.52	29.7	C	0.77	42.0	D	12.3		0.66	39.5	D	1.18	147.3	F	107.8	yes
		TR	0.53	26.9	C	0.58	28.1	C	1.2		0.52	27.0	C	0.73	33.1	C	6.1		0.63	29.0	C	0.82	36.1	D	7.1		0.65	29.4	C	0.89	41.8	D	12.4	
	WB	L	0.97	80.0	F	1.07	111.4	F	31.4	yes	0.90	62.9	E	1.45	262.2	F	199.3	yes	1.15	132.7	F	1.15	132.7	F	0.0		1.35	210.9	F	2.93	921.8	F	710.9	yes
		TR	0.44	24.7	C	0.38	23.9	C	-0.8		0.55	26.2	C	0.52	25.7	C	-0.5		0.44	23.9	C	0.43	23.9	C	0.0		0.58	25.0	C	0.58	26.1	C	1.1	
	NB	LTR	0.54	30.0	C	0.69	33.4	C	3.4		0.75	35.5	D	1.10	92.0	F	56.5	yes	0.73	34.3	C	1.05	74.8	E	40.5	yes	0.97	54.0	D	1.45	242.8	F	188.8	yes
		U-TURN	0.53	17.9	C	0.54	18.2	C	0.3		0.35	14.7	B	0.37	15.4	C	0.7		1.05	84.5	F	1.10	100.2	F	15.7		0.59	24.4	C	0.63	27.0	D	2.6	
	SB	L	0.27	30.6	C	0.27	30.7	C	0.1		0.49	34.9	C	0.49	34.9	C	0.0		0.76	45.6	D	0.76	45.8	D	0.2		0.75	43.5	D	0.75	43.8	D	0.3	
		TR	0.23	30.1	C	0.31	31.5	C	1.4		0.31	31.4	C	0.55	37.1	D	5.7		0.32	31.5	C	0.58	37.7	D	6.2		0.68	40.6	D	0.99	77.5	E	36.9	yes
	Overall		*	**31.7**	**C**	*	**36.1**	**D**	**4.3**		*	**32.5**	**C**	*	**69.4**	**E**	**36.9**		*	**42.9**	**D**	*	**56.7**	**E**	**13.8**		*	**55.2**	**E**	*	**185.0**	**F**	**129.8**	
Veterans Road West / Tyrellan Avenue	EB	LTR	0.35	17.3	B	0.37	17.5	B	0.2		0.57	20.3	C	0.66	22.0	C	1.7		0.58	20.5	C	0.66	22.2	C	1.7		0.64	21.8	C	0.75	24.5	C	2.7	
	WB	LTR	0.40	17.9	B	0.35	17.3	B	-0.6		-	-	-	-	-	-	-		-	-	-	-	-	-	-		-	-	-	-	-	-	-	
		DefL	-	-	-	-	-	-	-		0.58	27.5	C	0.72	39.0	D	11.5		0.61	28.9	C	0.74	40.2	D	11.3		0.88	53.8	D	1.14	129.1	F	75.3	yes
		TR	-	-	-	-	-	-	-		0.40	18.2	B	0.33	17.3	B	-0.9		0.45	19.0	B	0.42	18.5	B	-0.5		0.61	21.9	C	0.56	20.9	C	-1.0	
	NB	DefL	0.60	24.4	C	0.69	28.4	C	4.0		1.01	78.8	E	1.65	338.3	F	259.5	yes	0.72	31.9	C	1.13	119.9	F	88.0	yes	1.26	168.5	F	2.68	802.7	F	634.2	yes
		TR	0.18	15.6	B	0.21	15.9	B	0.3		0.35	17.6	B	0.41	18.5	B	0.9		0.31	17.1	B	0.36	17.8	B	0.7		0.43	18.8	B	0.51	20.2	C	1.4	
	SB	LTR	0.23	15.9	B	0.30	16.6	B	0.7		0.54	20.1	C	0.73	24.6	C	4.5		0.38	17.5	B	0.55	20.0	B	2.5		0.60	20.9	C	0.82	27.6	C	6.7	
	Overall		**0.50**	**18.4**	**B**	**0.53**	**19.2**	**B**	**0.8**		**0.79**	**27.5**	**C**	**1.19**	**60.0**	**E**	**32.5**		**0.66**	**21.2**	**C**	**0.93**	**32.5**	**C**	**11.3**		**1.07**	**39.1**	**D**	**1.92**	**108.7**	**F**	**69.6**	
Boscombe Avenue / Outerbridge Crossing ramps	EB	L	1.04	53.5	D	1.05	57.2	E	3.7		0.96	39.4	D	0.96	32.9	C	-6.5		1.03	53.5	D	1.07	66.5	E	13.0	yes	1.01	35.7	D	1.01	46.5	D	10.8	yes
		TR	0.25	4.9	A	0.26	4.9	A	0.0		0.37	5.8	A	0.40	6.0	A	0.2		0.33	4.7	A	0.36	4.9	A	0.2		0.38	5.6	A	0.42	5.9	A	0.3	
	WB	LT	0.72	40.3	D	0.75	41.5	D	1.2		1.00	66.4	E	1.06	81.7	F	15.3	yes	0.66	30.8	C	0.72	32.6	C	1.8		1.08	76.2	E	1.17	116.7	F	40.5	yes
		R	0.72	41.6	D	0.96	68.1	E	26.5	yes	1.11	103.1	F	1.90	442.4	F	339.3	yes	1.13	107.4	F	1.72	362.5	F	255.1	yes	1.55	286.0	F	2.53	722.4	F	436.4	yes
	NB	LTR	0.20	32.8	C	0.20	32.8	C	0.0		0.01	30.6	C	0.01	30.6	C	0.0		0.11	34.2	C	0.11	34.2	C	0.0		-	-	-	-	-	-	-	
	SB	L	0.54	42.8	D	0.61	45.6	D	2.8		0.40	37.8	D	0.53	41.9	D	4.1		0.72	55.8	E	0.89	77.3	E	21.5	yes	0.36	34.3	C	0.44	35.4	D	1.1	
		LT	0.02	30.6	C	0.02	30.6	C	0.0		0.00	30.4	C	0.00	30.4	C	0.0		0.00	32.1	C	0.00	32.1	C	0.0		-	-	-	-	-	-	-	
		R	0.18	6.8	A	0.18	6.8	A	0.0		0.15	6.6	A	0.15	6.6	A	0.0		0.41	12.0	B	0.42	12.1	B	0.1		0.24	7.3	A	0.24	7.4	A	0.1	
	Overall		**0.99**	**38.4**	**D**	**1.03**	**44.4**	**D**	**6.0**		**0.90**	**48.3**	**D**	**1.16**	**147.7**	**F**	**99.4**		**1.02**	**48.8**	**D**	**1.25**	**129.0**	**F**	**80.2**		**1.03**	**88.3**	**F**	**1.32**	**243.7**	**F**	-	
Boscombe Avenue / Tyrellan Avenue	EB	DefL	0.52	17.8	B	0.56	18.7	B	0.9		0.68	22.2	C	0.78	26.8	C	4.6		0.65	20.7	C	0.74	23.8	C	3.1		0.80	27.6	C	0.93	41.2	D	13.6	
		TR	0.03	11.5	B	0.03	11.5	B	0.0		0.04	11.5	B	0.04	11.5	B	0.0		0.04	11.5	B	0.04	11.5	B	0.0		0.05	11.6	B	0.05	11.6	B	0.0	
	WB	LTR	0.10	12.0	B	0.10	12.0	B	0.0		0.09	11.9	B	0.09	11.9	B	0.0		0.05	11.6	B	0.05	11.6	B	0.0		0.06	11.7	B	0.06	11.7	B	0.0	
	NB	LTR	0.07	17.4	B	0.07	17.4	B	0.0		-	-	-	-	-	-	-		0.01	16.9	B	0.01	16.9	B	0.0		0.00	16.8	B	0.00	16.8	B	0.0	
		DefL	-	-	-	-	-	-	-		0.01	16.9	B	0.01	16.9	B	0.0		-	-	-	-	-	-	-		-	-	-	-	-	-	-	
		TR	-	-	-	-	-	-	-		0.01	16.9	B	0.01	16.9	B	0.0		-	-	-	-	-	-	-		-	-	-	-	-	-	-	
	SB	LT	0.10	17.8	B	0.10	17.8	B	-		0.15	18.3	B	0.15	18.3	B	0.0		0.12	18.1	B	0.12	18.1	B	0.0		0.17	18.5	B	0.17	18.5	B	0.0	
		R	0.55	24.8	C	0.74	31.0	C	-		0.95	50.8	D	1.52	268.1	F	217.3	yes	0.99	59.7	E	1.52	270.4	F	210.7	yes	1.26	156.3	F	1.97	470.2	F	313.9	yes
	Overall		**0.53**	**19.0**	**B**	**0.64**	**22.2**	**C**	**3.2**		**0.80**	**32.8**	**C**	**1.11**	**151.2**	**F**	**118.4**		**0.80**	**38.1**	**D**	**1.08**	**159.5**	**F**	**121.4**		**1.00**	**88.2**	**F**	**1.39**	**282.7**	**F**	**194.5**	

Table 2.13-10 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)								Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2020 No-Action			2020 With-Action					2020 No-Action			2020 With-Action					2020 No-Action			2020 With-Action					2020 No-Action			2020 With-Action				
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?	v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS	Change in Delay	Impact?
SIGNALIZED INTERSECTIONS																																
Bricktown Way / Veterans Road West	EB	L	0.19	15.7	B	0.25	16.4	B	0.7		0.37	17.8	B	0.56	21.1	C	3.3		0.41	18.3	B	0.60	22.1	C	3.8		0.64	22.4	C	0.90	37.0	D	14.6	
		R	0.00	14.0	B	0.00	14.0	B	0.0		0.05	14.4	B	0.05	14.4	B	0.0		0.04	14.4	B	0.04	14.4	B	0.0		0.06	14.5	B	0.06	14.5	B	0.0	
	NB	LT	0.07	7.3	A	0.07	7.3	A	0.0		0.14	7.7	A	0.15	7.8	A	0.1		0.17	7.9	A	0.17	7.9	A	0.0		0.18	8.0	A	0.19	8.0	A	0.0	
	SB	TR	0.38	9.1	A	0.37	9.1	A	0.0		0.52	10.2	B	0.56	10.7	B	0.5		0.42	9.5	A	0.46	9.9	A	0.4		0.62	11.0	B	0.69	11.9	B	0.9	
	Overall		**0.31**	**9.6**	**A**	**0.32**	**9.9**	**A**	**0.3**		**0.46**	**10.9**	**B**	**0.56**	**12.2**	**B**	**1.3**		**0.41**	**10.6**	**B**	**0.52**	**12.2**	**B**	**1.6**		**0.63**	**12.8**	**B**	**0.77**	**17.3**	**B**	**4.5**	
Englewood Avenue / Veterans Road West	EB	TR	0.01	10.2	B	0.34	13.1	B	2.9		0.01	10.2	B	0.19	11.7	B	1.5		0.01	10.2	B	0.18	11.5	B	1.3		0.01	10.2	B	0.11	11.0	B	0.8	
	WB	L	0.44	14.8	B	1.21	132.2	F	117.4	yes	0.49	15.5	B	1.12	92.8	F	77.3	yes	0.43	14.7	B	1.02	63.1	E	48.4	yes	0.96	45.2	D	1.42	218.0	F	172.8	yes
		T	0.46	15.3	B	0.30	12.7	B	-2.6		0.51	16.0	B	0.11	10.9	B	-5.1		0.45	15.1	B	0.11	11.0	B	-4.1		0.34	13.4	B	0.12	11.1	B	-2.3	
	NB	L	0.01	10.3	B	0.01	10.3	B	0.0		0.00	10.2	B	0.00	10.2	B	0.0		0.01	10.3	B	0.01	10.3	B	0.0		0.02	10.4	B	0.02	10.4	B	0.0	
		R	0.20	9.3	A	0.32	12.1	B	2.8		0.41	10.9	B	0.57	13.8	B	2.9		0.49	11.7	B	0.67	16.6	C	4.9		0.63	14.1	B	0.86	27.3	D	13.2	
	SB	LTR	0.13	10.9	B	0.18	11.2	B	0.3		0.16	11.1	B	0.22	11.5	B	0.4		0.16	11.1	B	0.21	11.4	B	0.3		0.21	11.4	B	0.29	12.0	B	0.6	
	Overall		*	**12.6**	**B**	*	**48.5**	**D**	**35.8**	yes	*	**13.1**	**B**	*	**42.0**	**D**	**28.9**		*	**12.7**	**B**	*	**28.9**	**C**	**16.2**		*	**26.6**	**C**	*	**88.2**	**F**	**61.5**	
Englewood Avenue / Veterans Road East	EB	LT	0.34	16.1	B	0.59	20.4	C	4.3		0.58	20.3	C	0.74	25.2	C	4.9		0.78	28.2	C	0.97	51.6	D	23.4	yes	1.12	94.5	F	1.42	219.3	F	124.8	yes
		R	0.05	13.1	B	0.30	15.6	B	2.5		0.12	13.7	B	0.22	14.6	B	0.9		0.13	13.8	B	0.26	15.1	B	1.3		0.18	14.2	B	0.35	16.2	B	2.0	
	WB	LTR	0.11	13.6	B	0.18	14.3	B	0.7		0.09	13.4	B	0.12	13.7	B	0.3		0.14	13.9	B	0.18	14.3	B	0.4		0.17	14.1	B	0.22	14.6	B	0.5	
	NB	LTR	0.27	9.5	A	0.34	10.0	A	0.5		0.26	9.4	A	0.28	9.6	A	0.2		0.26	9.4	A	0.29	9.6	A	0.2		0.34	10.0	A	0.38	10.3	B	0.3	
	Overall		**0.30**	**11.3**	**B**	**0.45**	**13.6**	**B**	**2.3**		**0.39**	**13.3**	**B**	**0.47**	**15.6**	**B**	**2.3**		**0.48**	**16.8**	**B**	**0.58**	**26.2**	**C**	**9.4**		**0.67**	**43.1**	**D**	**0.82**	**94.4**	**F**	**51.3**	
Englewood Avenue / Bloomingdale Road	EB	LR	0.19	17.9	B	0.57	23.9	C	6.0		0.39	20.4	C	0.63	25.6	C	5.2		0.38	20.3	C	0.62	25.3	C	5.0		0.56	23.6	C	0.86	38.4	D	14.8	
	NB	LT	0.41	8.5	A	0.41	8.5	A	0.0		0.32	7.7	A	0.32	7.7	A	0.0		0.52	9.5	A	0.52	9.5	A	0.0		0.41	8.4	A	0.41	8.4	A	0.0	
	SB	TR	0.54	9.6	A	0.58	10.2	B	0.6		0.35	7.9	A	0.37	8.0	A	0.1		0.50	9.3	A	0.52	9.5	A	0.2		0.41	8.3	A	0.44	8.6	A	0.3	
	Overall		**0.43**	**9.9**	**A**	**0.57**	**12.4**	**B**	**2.5**		**0.37**	**10.2**	**B**	**0.45**	**12.7**	**B**	**2.5**		**0.47**	**10.8**	**B**	**0.55**	**12.6**	**B**	**1.8**		**0.46**	**11.7**	**B**	**0.57**	**17.3**	**B**	**5.6**	
Sharrotts Road / Bloomingdale Road	EB	LR	0.27	16.0	B	0.27	16.0	B	0.0		0.28	16.0	B	0.28	16.0	B	0.0		0.51	19.0	B	0.51	19.0	B	0.0		0.48	18.6	B	0.48	18.6	B	0.0	
	NB	LT	0.57	13.0	B	0.75	17.6	B	4.6		0.55	12.6	B	0.67	15.2	B	2.6		0.67	14.6	B	0.81	19.2	B	4.6		0.67	14.8	B	0.91	28.4	C	13.6	
	SB	TR	0.50	11.8	B	0.62	13.9	B	2.1		0.45	11.1	B	0.57	12.8	B	1.7		0.64	13.9	B	0.76	17.2	B	3.3		0.63	13.7	B	0.80	18.5	B	4.8	
	Overall		**0.45**	**12.9**	**B**	**0.56**	**15.8**	**B**	**2.9**		**0.44**	**12.5**	**B**	**0.52**	**14.2**	**B**	**1.7**		**0.61**	**15.2**	**B**	**0.69**	**18.3**	**B**	**3.1**		**0.59**	**15.0**	**B**	**0.74**	**22.4**	**C**	**7.4**	
Veterans Road East-Drumgoole Road West / Bloomingdale Road	EB	L	0.02	22.7	C	0.02	22.7	C	0.0		0.06	23.1	C	0.06	23.1	C	0.0		0.02	22.7	C	0.02	22.7	C	0.0		0.12	23.7	C	0.12	23.7	C	0.0	
		R	0.34	27.7	C	0.97	79.6	E	51.9	yes	0.63	35.3	D	0.92	64.2	E	28.9	yes	0.57	33.1	C	0.86	54.5	D	21.4	yes	0.79	43.3	D	1.24	159.0	F	115.7	yes
	WB	LTR	0.69	21.4	C	0.75	22.5	C	1.1		0.71	21.7	C	0.72	21.7	C	0.0		0.88	25.0	C	0.89	25.7	C	0.7		0.94	28.7	C	0.95	29.6	C	0.9	
	NB	L	0.39	24.2	C	0.83	63.0	E	38.8	yes	0.44	23.7	C	0.79	47.9	D	24.2	yes	0.47	27.1	C	0.91	76.2	E	49.1	yes	0.64	36.4	D	1.20	158.2	F	121.8	yes
		T	0.39	17.2	B	0.39	17.2	B	0.0		0.32	16.3	B	0.32	16.3	B	0.0		0.37	16.7	B	0.37	16.7	B	0.0		0.40	17.2	B	0.40	17.2	B	0.0	
	SB	TR	0.99	36.5	D	0.99	36.5	D	0.0		0.62	20.3	C	0.62	20.3	C	0.0		0.87	31.4	C	0.87	31.4	C	0.0		0.69	21.4	C	0.69	21.4	C	0.0	
	Overall		**0.76**	**26.4**	**C**	**0.90**	**33.5**	**C**	**7.1**		**0.66**	**21.9**	**C**	**0.79**	**27.1**	**C**	**5.2**		**0.82**	**26.4**	**C**	**0.89**	**31.1**	**C**	**4.7**		**0.80**	**27.2**	**C**	**1.11**	**49.6**	**D**	**22.4**	
South Service Road-Drumgoole Road East / Bloomingdale Road	EB	LTR	0.16	16.9	B	0.16	16.9	B	0.0		0.10	16.3	B	0.10	16.3	B	0.0		0.13	16.5	B	0.13	16.5	B	0.0		0.20	17.3	B	0.20	17.3	B	0.0	
	NB	LTR	0.41	9.2	A	0.47	9.8	A	0.6		0.43	9.3	A	0.49	10.0	A	0.7		0.44	9.4	A	0.50	10.1	B	0.7		0.49	9.9	A	0.56	11.0	B	1.1	
	SB	L	0.61	11.9	B	0.83	19.5	B	7.6		0.47	10.4	B	0.52	11.5	B	1.1		0.66	13.1	B	0.74	15.7	B	2.6		0.71	15.6	B	0.82	21.3	C	5.7	
		TR	0.67	11.6	B	0.72	12.6	B	1.0		0.50	9.8	A	0.55	10.4	B	0.6		0.62	11.0	B	0.68	11.8	B	0.8		0.56	10.2	B	0.63	11.1	B	0.9	
	Overall		**0.50**	**11.3**	**B**	**0.60**	**13.8**	**B**	**2.5**		**0.37**	**10.0**	**A**	**0.40**	**10.7**	**B**	**0.7**		**0.48**	**11.2**	**B**	**0.53**	**12.3**	**B**	**1.1**		**0.54**	**11.8**	**B**	**0.61**	**13.7**	**B**	**1.9**	
Pleasant Plains Avenue-Amboy Road / Bloomingdale Road	EB	LTR	0.09	14.8	B	0.09	14.8	B	0.0		0.06	14.5	B	0.06	14.5	B	0.0		0.09	14.7	B	0.09	14.7	B	0.0		0.06	14.5	B	0.06	14.5	B	0.0	
	WB	L	0.36	18.2	B	0.36	18.2	B	0.0		0.58	22.4	C	0.58	22.4	C	0.0		0.55	21.8	C	0.55	21.8	C	0.0		0.57	22.1	C	0.57	22.1	C	0.0	
		T	0.02	14.1	B	0.02	14.1	B	0.0		0.04	14.2	B	0.04	14.2	B	0.0		0.04	14.2	B	0.04	14.2	B	0.0		0.02	14.1	B	0.02	14.1	B	0.0	
		R	0.21	16.1	B	0.21	16.1	B	0.0		0.22	16.2	B	0.22	16.2	B	0.0		0.22	16.1	B	0.22	16.1	B	0.0		0.20	15.9	B	0.20	15.9	B	0.0	
	NB	LTR	0.52	20.5	C	0.59	22.0	C	1.5		0.71	24.3	C	0.78	27.1	C	2.8		0.69	23.6	C	0.76	26.0	C	2.4		0.79	25.9	C	0.88	31.1	C	5.2	
	SB	LTR	1.08	64.8	E	1.21	120.0	F	55.2	yes	0.78	27.4	C	0.87	33.5	C	6.1		0.93	30.9	C	1.04	52.8	D	21.9	yes	0.86	30.6	C	1.00	49.6	D	19.0	yes
	Overall		**0.72**	**38.9**	**D**	**0.78**	**64.0**	**E**	**25.1**		**0.68**	**23.8**	**C**	**0.73**	**26.9**	**C**	**3.1**		**0.74**	**24.9**	**C**	**0.79**	**33.9**	**C**	**9.0**		**0.71**	**25.5**	**C**	**0.78**	**34.2**	**C**	**8.7**	
Arthur Kill Road / Bloomingdale Road	EB	TR	0.35	14.6	B	0.39	15.1	B	0.5		0.37	14.9	B	0.41	15.5	B	0.6		0.47	16.2	B	0.52	17.0	B	0.8		0.47	16.3	B	0.54	17.4	B	1.1	
	WB	LT	0.36	15.1	B	0.78	28.9	C	13.8		0.43	16.3	B	0.89	39.6	D	23.3		0.57	19.5	B	1.11	96.8	F	77.3	yes	0.65	22.8	C	1.34	188.4	F	165.6	yes
	NB	LR	0.60	26.1	C	0.87	41.0	D	14.9		0.56	25.1	C	0.75	32.2	C	7.1		0.66	27.9	C	0.96	53.7	D	25.8	yes	0.55	25.0	C	0.83	37.5	D	12.5	
	Overall		**0.47**	**18.8**	**B**	**0.82**	**29.5**	**C**	**10.7**		**0.49**	**18.7**	**B**	**0.83**	**29.8**	**C**	**11.1**		**0.61**	**21.0**	**C**	**1.04**	**56.7**	**E**	**35.7**		**0.61**	**20.7**	**C**	**1.11**	**86.4**	**F**	**65.7**	

Table 2.13-10 (cont'd)
Peak Hour Level-of-Service Analysis Results
Year 2020 Comparison of Future No-Action and With-Action Traffic Conditions

Intersection	Approach	Movement	Weekday AM Peak Hour (8:00 to 9:00 AM)								Weekday Midday Peak Hour (12:00 to 1:00 PM)								Weekday PM Peak Hour (5:00 to 6:00 PM)								Saturday Midday Peak Hour (12:45 to 1:45 PM)							
			2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?	2020 No-Action			2020 With-Action			Change in Delay	Impact?
			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS			v/c	Average Control Delay	LOS	v/c	Average Control Delay	LOS		
UNSIGNALIZED INTERSECTIONS																																
Sharrots Road / Arthur Kill Road	EB	LTR	0.07	13.9	B	0.09	16.6	C	2.7		0.23	15.5	C	0.26	17.5	C	2.0		0.29	20.7	C	0.34	25.4	D	4.7		0.54	24.5	C	0.65	34.9	D	10.4	yes
	WB	LTR	0.22	14.9	B	0.22	16.9	C	2.0		0.24	18.1	C	0.24	19.5	C	1.4		0.42	24.7	C	0.43	28.2	D	3.5		0.45	24.2	C	0.50	30.2	D	6.0	yes
	NB	LTR	0.03	8.0	A	0.03	8.3	A	0.3		0.03	8.0	A	0.04	8.1	A	0.1		0.03	8.0	A	0.03	8.2	A	0.2		0.01	8.0	A	0.01	8.2	A	0.2	
	SB	LTR	0.03	7.9	A	0.03	8.0	A	0.1		0.03	8.1	A	0.03	8.3	A	0.2		0.06	8.2	A	0.06	8.4	A	0.2		0.03	8.0	A	0.03	8.1	A	0.1	
Englewood Avenue / Arthur Kill Road	WB	LR	0.05	10.8	B	0.76	40.7	E	29.9	yes	0.13	14.0	B	0.47	23.2	C	9.2		0.17	14.3	B	0.64	33.8	D	19.5	yes	0.40	19.1	C	0.55	27.7	D	8.6	
	SB	LT	0.02	8.0	A	0.11	8.5	A	0.5		0.02	8.2	A	0.03	8.4	A	0.2		0.01	8.1	A	0.04	8.5	A	0.4		0.01	8.0	A	0.03	8.3	A	0.3	
South Bridge Street / Arthur Kill Road	SB	LT	0.18	10.8	B	0.19	11.2	B	0.4		0.19	10.3	B	0.20	10.6	B	0.3		0.29	11.5	B	0.30	11.9	B	0.4		0.27	11.7	B	0.28	12.2	B	0.5	
Bricktown Way / Tyrellan Avenue	EB	LT	0.05	8.0	A	0.14	9.3	A	1.3		0.10	9.1	A	0.39	15.0	C	5.9		0.12	8.7	A	0.39	14.4	B	5.7		0.22	9.6	A	0.72	29.5	D	19.9	
		TR	0.08	7.9	A	0.11	8.4	A	0.5		0.15	9.2	A	0.27	12.3	B	3.1		0.16	8.7	A	0.29	11.9	B	3.2		0.27	9.9	A	0.48	17.5	C	7.6	
	WB	LT	0.12	8.3	A	0.14	8.9	A	0.6		0.32	10.5	B	0.42	14.7	B	4.2		0.39	11.3	B	0.52	16.8	C	5.6		0.39	11.8	B	0.60	22.3	C	10.5	
		TR	0.06	7.7	A	0.13	8.2	A	0.5		0.10	8.2	A	0.31	11.6	B	3.4		0.14	8.5	A	0.35	12.4	B	3.9		0.20	9.3	A	0.60	21.0	C	11.7	
	NB	LT	0.02	7.8	A	0.05	8.8	A	1.0		0.07	8.7	A	0.22	12.3	B	3.6		0.03	8.5	A	0.15	11.5	B	3.0		0.10	9.4	A	0.33	16.0	C	6.6	
		R	0.03	7.0	A	0.03	7.7	A	0.7		0.06	7.7	A	0.09	9.9	A	2.1		0.11	8.2	A	0.17	10.7	B	2.5		0.14	8.8	A	0.23	13.1	B	4.3	
	SB	LT	-	-	-	0.07	8.8	A	-		-	-	-	0.34	13.3	B	-		-	-	-	0.35	13.9	B	-		-	-	-	0.61	23.4	C	-	
		TR	-	-	-	0.06	8.2	A	-		-	-	-	0.28	11.8	B	-		-	-	-	0.29	12.3	B	-		-	-	-	0.51	18.5	C	-	
Sharrots Road / Veterans Road West	EB	TR	0.13	8.4	A	0.13	8.6	A	0.2		0.13	8.4	A	0.13	8.6	A	0.2		0.23	8.9	A	0.24	9.1	A	0.3		0.20	9.0	A	0.20	9.0	A	0.0	
	WB	LT	0.30	9.5	A	0.41	10.7	B	1.2		0.34	9.9	A	0.48	11.9	B	2.0		0.42	11.1	B	0.57	13.7	B	2.7		0.64	16.0	C	0.64	16.0	C	0.0	
	SB	LT	0.07	8.2	A	0.09	8.5	A	0.3		0.12	8.5	A	0.13	8.9	A	0.4		0.11	8.8	A	0.12	9.2	A	0.4		0.14	9.4	A	0.14	9.4	A	0.0	
		TR	0.09	8.0	A	0.09	8.3	A	0.3		0.09	8.1	A	0.09	8.4	A	0.4		0.10	8.5	A	0.10	8.9	A	0.4		0.13	9.1	A	0.13	9.1	A	0.0	
Sharrots Road / Veterans Road East	EB	LT	0.11	8.4	A	0.11	8.6	A	0.1		0.14	8.7	A	0.14	9.0	A	0.2		0.23	9.5	A	0.24	9.9	A	0.3		0.19	9.6	A	0.19	9.6	A	0.0	
	WB	TR	0.24	8.8	A	0.34	9.8	A	0.9		0.30	9.5	A	0.44	11.2	B	1.7		0.36	10.6	B	0.51	13.0	B	2.4		0.60	14.8	B	0.60	14.8	B	0.0	
	NB	LT	0.12	8.4	A	0.13	8.6	A	0.3		0.11	8.5	A	0.12	8.8	A	0.3		0.16	9.1	A	0.17	9.5	A	0.4		0.17	9.6	A	0.17	9.6	A	0.0	
		TR	0.10	7.6	A	0.10	7.9	A	0.2		0.16	8.1	A	0.17	8.5	A	0.4		0.24	9.0	A	0.26	9.5	A	0.5		0.28	9.8	A	0.28	9.8	A	0.0	

Notes:
v/c = volume-to-capacity ratio; LOS = Level-of-Service
NB = Northbound; SB = Southbound; EB = Eastbound; WB = Westbound; SEB = Southeastbound
L = Left-Turn; T = Through; R = Right-Turn;
LT = Left-Turn/Through; TR = Through/Right-Turn; LR = Left-Turn/Right-Turn; LTR = Left-Turn/Through/Right-Turn
Average Control Delay shown in units of seconds/vehicle
- = No volumes for this approach or movement.

As shown in **Table 2.13-10**, significant traffic impacts have the potential to occur at the following intersections with the full build-out by the 2020 analysis year, for the following movements and time periods:

- **Allentown Lane-Veterans Road West/Arthur Kill Road:**
    - Weekday AM peak hour – Delay for the southbound approach is projected to increase from 20.1 seconds per vehicle (LOS "C") under Future No-Action conditions to 91.7 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday midday peak hour – Delay for the southbound approach is projected to increase from 26.7 seconds per vehicle (LOS "C") under Future No-Action conditions to 122.3 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for the southbound approach is projected to increase from 113.5 seconds per vehicle (LOS "F") under Future No-Action conditions to 313.6 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the southbound approach is projected to increase from 81.6 seconds per vehicle (LOS "F") under Future No-Action conditions to 381.1 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Richmond Valley Road/Arthur Kill Road:**
    - Weekday midday peak hour – Delay for the southbound approach is projected to increase from 87.9 seconds per vehicle (LOS "F") under Future No-Action conditions to 128.2 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for the southbound approach is projected to increase from 202.6 seconds per vehicle (LOS "F") under Future No-Action conditions to 257.9 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the southbound approach is projected to increase from 184.7 seconds per vehicle (LOS "F") under Future No-Action conditions to 251.7 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Veterans Road West/Bricktown Way/Korean War Veterans Parkway westbound off-ramp:**
    - Weekday AM peak hour – Delay for the westbound left-turn lane is projected to increase from 80.0 seconds per vehicle (LOS "F") under Future No-Action conditions to 111.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday midday peak hour – Delay for the eastbound left-turn lane is projected to increase from 36.3 seconds per vehicle (LOS "D") under Future No-Action conditions to 63.6 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay for the westbound left-turn lane is projected to increase from 62.9 seconds per vehicle (LOS "E") under Future No-Action conditions to 262.2 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay for the northbound approach is projected to increase from 35.5 seconds per vehicle (LOS "D") under Future No-Action conditions to 92.0 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for the northbound approach is projected to increase from 34.3 seconds per vehicle (LOS "C") under Future No-Action conditions to 74.8 seconds per vehicle (LOS "E") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for the eastbound left-turn lane is projected to increase from 39.5 seconds per vehicle (LOS "D") under Future No-Action conditions to 147.3 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay for the westbound left-turn lane is projected to increase from 210.9 seconds per vehicle (LOS "F") under Future No-Action conditions to 921.8 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay for the northbound approach is projected to increase from 54.0 seconds per vehicle (LOS "D") under Future No-Action conditions to

242.8 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay for the southbound through/right-turn lane is projected to increase from 40.6 seconds per vehicle (LOS "D") under Future No-Action conditions to 77.5 seconds per vehicle (LOS "E") under Future With-Action conditions.

- **Veterans Road West/Tyrellan Avenue:**
    - Weekday midday peak hour – Delay for northbound left-turn movements is projected to increase from 78.8 seconds per vehicle (LOS "E") under Future No-Action conditions to 338.3 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay for northbound left-turn movements is projected to increase from 31.9 seconds per vehicle (LOS "C") under Future No-Action conditions to 119.9 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Saturday midday peak hour – Delay for westbound left-turn movements is projected to increase from 53.8 seconds per vehicle (LOS "D") under Future No-Action conditions to 129.1 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay for northbound left-turn movements is projected to increase from 168.5 seconds per vehicle (LOS "F") under Future No-Action conditions to 802.7 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Boscombe Avenue/Outerbridge Crossing Ramps:**
    - Weekday AM peak hour – Delay in the westbound right-turn lane is projected to increase from 41.6 seconds per vehicle (LOS "D") under Future No-Action conditions to 68.1 seconds per vehicle (LOS "E") under Future With-Action conditions.
    - Weekday midday peak hour – Delay in the westbound through/left-turn lane is projected to increase from 66.4 seconds per vehicle (LOS "E") under Future No-Action conditions to 89.9 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the westbound right-turn lane is projected to increase from 103.1 seconds per vehicle (LOS "F") under Future No-Action conditions to 442.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay in the eastbound left-turn lane is projected to increase from 53.5 seconds per vehicle (LOS "D") under Future No-Action conditions to 66.5 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay in the westbound right-turn lane is projected to increase from 107.4 seconds per vehicle (LOS "F") under Future No-Action conditions to 362.5 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the southbound left-turn lane is projected to increase from 55.8 seconds per vehicle (LOS "E") under Future No-Action conditions to 77.3 seconds per vehicle (LOS "E") under Future With-Action conditions.
    - Saturday midday peak hour – Delay in the eastbound left-turn lane is projected to increase from 35.7 seconds per vehicle (LOS "D") under Future No-Action conditions to 46.5 seconds per vehicle (LOS "D") under Future With-Action conditions. Delay in the westbound through/left-turn lane is projected to increase from 76.2 seconds per vehicle (LOS "E") under Future No-Action conditions to 116.7 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the westbound right-turn lane is projected to increase from 286.0 seconds per vehicle (LOS "F") under Future No-Action conditions to 772.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Boscombe Avenue/Tyrellan Avenue:**
    - Weekday midday peak hour – Delay in the southbound right-turn lane is projected to increase from 50.8 seconds per vehicle (LOS "D") under Future No-Action conditions to 268.1 seconds per vehicle (LOS "F") under Future With-Action conditions.

- Weekday PM peak hour – Delay in the southbound right-turn lane is projected to increase from 59.7 seconds per vehicle (LOS "E") under Future No-Action conditions to 270.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
- Saturday midday peak hour – Delay in the southbound right-turn lane is projected to increase from 156.3 seconds per vehicle (LOS "F") under Future No-Action conditions to 470.2 seconds per vehicle (LOS "F") under Future With-Action conditions.

- **Englewood Avenue/Veterans Road West:**
  - Weekday AM peak hour – Delay in the westbound left-turn lane is projected to increase from 14.8 seconds per vehicle (LOS "B") under Future No-Action conditions to 132.2 seconds per vehicle (LOS "F") under Future With-Action conditions.
  - Weekday midday peak hour – Delay in the westbound left-turn lane is projected to increase from 15.5 seconds per vehicle (LOS "B") under Future No-Action conditions to 92.8 seconds per vehicle (LOS "F") under Future With-Action conditions.
  - Weekday PM peak hour – Delay in the westbound left-turn lane is projected to increase from 14.7 seconds per vehicle (LOS "B") under Future No-Action conditions to 63.1 seconds per vehicle (LOS "E") under Future With-Action conditions.
  - Saturday midday peak hour – Delay in the westbound left-turn lane is projected to increase from 45.2 seconds per vehicle (LOS "D") under Future No-Action conditions to 218.0 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Englewood Avenue/Veterans Road East:**
  - Weekday PM peak hour – Delay in the eastbound through/left-turn lane is projected to increase from 28.2 seconds per vehicle (LOS "C") under Future No-Action conditions to 51.6 seconds per vehicle (LOS "D") under Future With-Action conditions.
  - Saturday midday peak hour – Delay in the eastbound through/left-turn lane is projected to increase from 94.5 seconds per vehicle (LOS "F") under Future No-Action conditions to 219.3 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Veterans Road East-Drumgoole Road West/Bloomingdale Road:**
  - Weekday AM peak hour – Delay in the eastbound right-turn lane is projected to increase from 27.7 seconds per vehicle (LOS "C") under Future No-Action conditions to 79.6 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay in the northbound left-turn lane is projected to increase from 24.2 seconds per vehicle (LOS "C") under Future No-Action conditions to 63.0 seconds per vehicle (LOS "E") under Future With-Action conditions.
  - Weekday midday peak hour – Delay in the eastbound right-turn lane is projected to increase from 35.3 seconds per vehicle (LOS "D") under Future No-Action conditions to 64.2 seconds per vehicle (LOS "E") under Future With-Action conditions. Delay in the northbound left-turn lane is projected to increase from 23.7 seconds per vehicle (LOS "C") under Future No-Action conditions to 47.9 seconds per vehicle (LOS "D") under Future With-Action conditions.
  - Weekday PM peak hour – Delay in the eastbound right-turn lane is projected to increase from 33.1 seconds per vehicle (LOS "C") under Future No-Action conditions to 54.5 seconds per vehicle (LOS "D") under Future With-Action conditions. Delay in the northbound left-turn lane is projected to increase from 27.1 seconds per vehicle (LOS "C") under Future No-Action conditions to 76.2 seconds per vehicle (LOS "E") under Future With-Action conditions.
  - Saturday midday peak hour – Delay in the eastbound right-turn lane is projected to increase from 43.3 seconds per vehicle (LOS "D") under Future No-Action conditions to 159.0 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay in the

northbound left-turn lane is projected to increase from 36.4 seconds per vehicle (LOS "D") under Future No-Action conditions to 158.2 seconds per vehicle (LOS "F") under Future With-Action conditions.

- **Pleasant Plains Avenue-Amboy Road/Bloomingdale Road:**
    - Weekday AM peak hour – Delay on the southbound approach is projected to increase from 64.8 seconds per vehicle (LOS "E") under Future No-Action conditions to 120.0 seconds per vehicle (LOS "F") under Future With-Action conditions.
    - Weekday PM peak hour – Delay on the southbound approach is projected to increase from 30.9 seconds per vehicle (LOS "C") under Future No-Action conditions to 52.8 seconds per vehicle (LOS "D") under Future With-Action conditions.
    - Saturday midday peak hour – Delay on the southbound approach is projected to increase from 30.6 seconds per vehicle (LOS "C") under Future No-Action conditions to 49.6 seconds per vehicle (LOS "D") under Future With-Action conditions.
- **Arthur Kill Road/Bloomingdale Road:**
    - Weekday PM peak hour – Delay on the westbound approach is projected to increase from 19.5 seconds per vehicle (LOS "B") under Future No-Action conditions to 96.8 seconds per vehicle (LOS "F") under Future With-Action conditions. Delay on the northbound approach is projected to increase from 27.9 seconds per vehicle (LOS "C") under Future No-Action conditions to 53.7 seconds per vehicle (LOS "D") under Future With-Action conditions.
    - Saturday midday peak hour – Delay on the westbound approach is projected to increase from 22.8 seconds per vehicle (LOS "C") under Future No-Action conditions to 188.4 seconds per vehicle (LOS "F") under Future With-Action conditions.
- **Sharrotts Road/Arthur Kill Road:**
    - Saturday midday peak hour – Delay on the eastbound approach is projected to increase from 24.5 seconds per vehicle (LOS "C") under Future No-Action conditions to 34.9 seconds per vehicle (LOS "D") under Future With-Action conditions. Delay on the westbound approach is projected to increase from 24.2 seconds per vehicle (LOS "C") under Future No-Action conditions to 30.2 seconds per vehicle (LOS "D") under Future With-Action conditions.
- **Englewood Avenue/Arthur Kill Road:**
    - Weekday AM peak hour – Delay on the westbound approach is projected to increase from 10.8 seconds per vehicle (LOS "B") under Future No-Action conditions to 40.7 seconds per vehicle (LOS "E") under Future With-Action conditions.
    - Weekday PM peak hour – Delay on the westbound approach is projected to increase from 14.3 seconds per vehicle (LOS "B") under Future No-Action conditions to 33.8 seconds per vehicle (LOS "D") under Future With-Action conditions.

Potential Traffic Impacts due to Proposed West Shore Expressway Ramp Improvements

NYSDOT plans to improve the southbound West Shore Expressway (WSE) ramp system and adjacent surface street intersections north of Englewood Avenue just north of the Project Area. The purpose of these improvements is to improve access to and from the Charleston commercial district, improve traffic safety and alleviate congestion along the WSE and on the surrounding street system. As discussed in Section 2.13.4, these improvements, which are projected to be completed by the end of 2014, will likely increase volumes at the following Study Area intersections in 2020 (impacts projected in the absence of these ramp improvements are also noted):

- Veterans Road West/Englewood Avenue (shown above to be impacted in all four peak hours in 2020 in the absence of the ramp improvements).

- Bricktown Way/Veterans Road West (traffic impacts in 2020 are projected without the ramp improvements in all four peak periods).
- Arthur Kill Road/Bloomingdale Road (traffic impacts in 2020 are projected in the Weekday AM and PM peak hours without the ramp improvements).

The potential changes in traffic volumes and levels of service due to the proposed WSE ramps will be analyzed for the FEIS when sufficient information about this ramp improvement program is available. Therefore, until results from those studies are available, it is conservatively assumed that at these three intersections a worsening of already identified significant traffic impacts and/or the creation of additional significant impacts would potentially occur in one or more peak hour in 2020 due to increased traffic volumes associated with these ramp improvements.

No other significant traffic impacts are projected to occur at the study intersections during the four analyzed peak hours as a result of full build-out of the Development Area by the 2020 analysis year under the Future With-Action condition.

Traffic Safety

The *CEQR Technical Manual* defines a "high crash location" as any location with 48 or more total reportable and non-reportable crashes, or five 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 compiled by the NYCDOT for the most recent available three-year period (i.e., 2008 to 2010) was reviewed to identify the crash history at the study intersections. The data is summarized in **Tables 2.13-11** and **2.13-12** and includes both reportable and non-reportable crashes. **Table 2.13-11** summarizes the total crashes at both intersections, as well as the number of pedestrian, bicyclist, and fatal crashes. **Table 2.13-12** summarizes the numbers of pedestrian and bicycle crashes, by year, at the study intersections. It should be noted that crash data for the intersections of Bricktown Centre Road-Bricktown Way/Veterans Road West and Bricktown Way/Tyrellan Avenue are not available from NYCDOT because Bricktown Way is a private roadway and not under NYCDOT jurisdiction.

Table 2.13-11

Summary of NYCDOT Crash Data by Year (2008 to 2010)

Intersection	Total Crashes	Pedestrian Crashes	Bicyclist Crashes	Fatal Crashes
Allentown Lane-Veterans Road West/Arthur Kill Road	8	0	0	0
North Bridge Street/Arthur Kill Road	1	0	0	0
Richmond Valley Road/Arthur Kill Road	3	0	0	0
Richmond Valley Road/Page Avenue	2	0	0	0
South Bridge Street/Page Avenue-Boscombe Avenue	4	1	0	0
Veterans Road West/Bricktown Way-Korean War Veterans Parkway ramps	0	0	0	0
Veterans Road West/Tyrellan Avenue	5	0	0	0
Boscombe Avenue/Outerbridge crossing on- & off-ramps	0	0	0	0
Boscombe Avenue/Tyrellan Avenue	1	0	0	0
Bricktown Centre Road-Bricktown Way/Veterans Road West	*	*	*	*
Englewood Avenue/Veterans Road West	0	0	0	0
Englewood Avenue/Veterans Road East	2	0	0	0
Englewood Avenue/Bloomingdale Road	0	0	0	0
Sharrotts Road/Bloomingdale Road	3	1	0	0
Veterans Road East-Drumgoole Road West/Bloomingdale Road	1	0	0	0
South Service Road-Drumgoole Road East/Bloomingdale Road	1	0	0	0
Pleasant Plains Avenue-Amboy Road/Bloomingdale Road	5	0	0	0
Arthur Kill Road/Bloomingdale Road	3	0	0	0
Sharrotts Road/Arthur Kill Road	4	0	0	0
Englewood Avenue/Arthur Kill Road	0	0	0	0
South Bridge Street/Arthur Kill Road	0	0	0	0
Bricktown Way/Tyrellan Avenue	*	*	*	*
Sharrotts Road/Veterans Road West	0	0	0	0
Sharrotts Road/Veterans Road East	0	0	0	0
Totals =	**43**	**2**	**0**	**0**

Source: New York State Department of Motor Vehicles and New York City Department of Transportation (2008-2010).
*Bricktown Way is a private street. Crash data not available from the New York City Department of Transportation.

As shown in **Table 2.13-11**, the NYCDOT data indicates that there were no fatal crashes at the study intersections during the three-year period between 2008 and 2010. There were also no more than eight total crashes at any one intersection during the three-year period. Therefore, the total numbers of crashes at each study intersection are well below the 48-crash CEQR threshold for a "high-crash location."

A detailed review of the crash data was also conducted to determine the number of pedestrian and bicyclist crashes per year. **Table 2.13-12** summarizes, by year, the total number of pedestrian and bicyclist crashes at the study intersections between 2008 and 2010.

Table 2.13-12

Summary of NYCDOT Pedestrian and Bicyclist Crash Data by Year (2008 to 2010)

Intersection	Total Pedestrian/ Bicyclist Crashes	2008 Pedestrian/ Bicyclist Crashes	2009 Pedestrian/ Bicyclist Crashes	2010 Pedestrian/ Bicyclist Crashes
Allentown Lane-Veterans Road West/Arthur Kill Road	0	0	0	0
North Bridge Street/Arthur Kill Road	0	0	0	0
Richmond Valley Road/Arthur Kill Road	0	0	0	0
Richmond Valley Road/Page Avenue	0	0	0	0
South Bridge Street/Page Avenue-Boscombe Avenue	1	1	0	0
Veterans Road West/Bricktown Way-Korean War Veterans Parkway ramps	0	0	0	0
Veterans Road West/Tyrellan Avenue	0	0	0	0
Boscombe Avenue/Outerbridge crossing on- & off-ramps	0	0	0	0
Boscombe Avenue/Tyrellan Avenue	0	0	0	0
Bricktown Centre Road-Bricktown Way/Veterans Road West	*	*	*	*
Englewood Avenue/Veterans Road West	0	0	0	0
Englewood Avenue/Veterans Road East	0	0	0	0
Englewood Avenue/Bloomingdale Road	0	0	0	0
Sharrotts Road/Bloomingdale Road	1	0	1	0
Veterans Road East-Drumgoole Road West/Bloomingdale Road	0	0	0	0
South Service Road-Drumgoole Road East/Bloomingdale Road	0	0	0	0
Pleasant Plains Avenue-Amboy Road/Bloomingdale Road	0	0	0	0
Arthur Kill Road/Bloomingdale Road	0	0	0	0
Sharrotts Road/Arthur Kill Road	0	0	0	0
Englewood Avenue/Arthur Kill Road	0	0	0	0
South Bridge Street/Arthur Kill Road	0	0	0	0
Bricktown Way/Tyrellan Avenue	*	*	*	*
Sharrotts Road/Veterans Road West	0	0	0	0
Sharrotts Road/Veterans Road East	0	0	0	0
Totals =	**2**	**1**	**1**	**0**

Source: New York State Department of Motor Vehicles and New York City Department of Transportation (2008-2010).
*Bricktown Way is a private street. Crash data not available from the New York City Department of Transportation.

As shown in **Table 2.13-12**, there were two pedestrian/bicyclist crashes in the study area from 2008 to 2010. Based on the crash detail reports, the first pedestrian crash occurred on May 4, 2008 at 1:30 AM when a pedestrian crossed near the South Bridge Street/Page Avenue-Boscombe Avenue intersection at a location with no crosswalk. The second pedestrian crash occurred at the Sharrotts Road/Bloomingdale Road intersection on June 25, 2009 at 6:43 AM when the pedestrian was crossing with the traffic signal. Both pedestrian crashes were described as resulting in a "possible injury."[1] None of the other study intersections had any pedestrian and bicyclist crashes over the three-year period. Based on the findings noted above, none of the study intersections are classified as "high crash locations" as defined in the *CEQR Technical Manual*.

[1] A "possible injury" is defined by NYCDOT as: "No visible signs of injury, but complaint of pain or momentary unconsciousness."

According to the *CEQR Technical Manual*, pedestrian safety is especially of concern at sensitive land use locations, such as hospitals, schools, parks, nursing homes, and elderly housing, where there would be substantial child or elderly activities. The proposed project would include a 750-student elementary/middle school as well as senior housing on the project site, with access points for both uses along Englewood Avenue. It is projected that approximately 36 percent of the students at the school would be dropped off via automobile. It is also projected that the majority of the seniors would drive themselves to and from the senior housing development. According to **Table 2.13-5** (Transportation Planning Assumptions), approximately 10 percent of the children are projected to travel to and from the school on foot or bicycle. Similarly, approximately two percent of the seniors are projected to travel to and from the senior housing on foot or bicycle. This pedestrian and bicycle activity is expected to concentrate at the intersections of Englewood Avenue/Arthur Kill Road and Englewood Avenue/Veterans Road West. While these intersections are presently not high-accident locations (limited pedestrian activity), the potential for vehicle-pedestrian conflicts would be expected to increase substantially with the ProposedProject. To address the increased presence of children, improvements to Englewood Avenue would include school crossing signs and pavement markings at the intersections of Englewood Avenue/Arthur Kill Road and Englewood Avenue/Veterans Road West, as well as mid-block pavement markings within the vicinity of the school.

2.13.5.2 Parking

A parking analysis was conducted to determine the extent to which the projected parking demand associated with the Proposed Project would be accommodated by the proposed on-site parking supply (i.e., the proposed number of on-site parking spaces). The projected hourly parking demand for each land use under the Proposed Project was estimated throughout the course of a 24-hour period for both a typical weekday and a typical weekend day. This estimate was based on the sizes and types of land uses proposed, the associated transportation planning assumptions used in the trip generation estimates, and data from standard reference sources such as the Institute of Transportation Engineer's *Parking Generation* manual.

The individual hourly parking generation profiles for all land uses were then aggregated to arrive at the combined total parking accumulation profile under the Future With-Action condition. The parking generation profiles for both the typical weekday, and the typical weekend day, were then compared to the proposed on-site parking supply to estimate the propensity, if any, for possible overflow of parked vehicles onto surrounding public streets and neighboring properties.

It is important to note here that the parking supply and projected parking demand profiles for each of the land uses under the 2020 analysis year —the senior housing, the school, and Retail Site "B"—were analyzed separately. This is because they are discrete development components that will operate independently and not share common parking areas. In contrast, the land uses proposed as part of the 2015 analysis year (Retail Site "A," the library, and the park) are intended to share common parking areas. For this reason, the projected hourly parking demand profiles for each of the land uses proposed under the 2015 analysis year were combined, and the resulting total combined demand profile was then compared to the total on-site parking supply intended to be provided under the 2015 analysis year. Under the 2020 analysis year, the parking demand and parking supply for the senior housing, school, and Retail Site "B" were analyzed independently. This approach ensures a realistic comparison of the parking supply and demand associated with each of the proposed development components.

Table 2.13-13 summarizes the results of the parking demand analysis on a typical weekday, including each land use, each analysis year, and for the project as a whole. Similarly, **Table 2.13-14** summarizes these results on a typical weekend day.

Figure 2.13-33 graphically illustrates the parking demand throughout the course of a typical weekday for each land use and for the site as a whole. Similarly, **Figure 2.13-34** graphically illustrates these results throughout the course of a typical weekend day.

Figure 2.13-33: Weekday Parking Demand by Hour: Projected With-Action Conditions

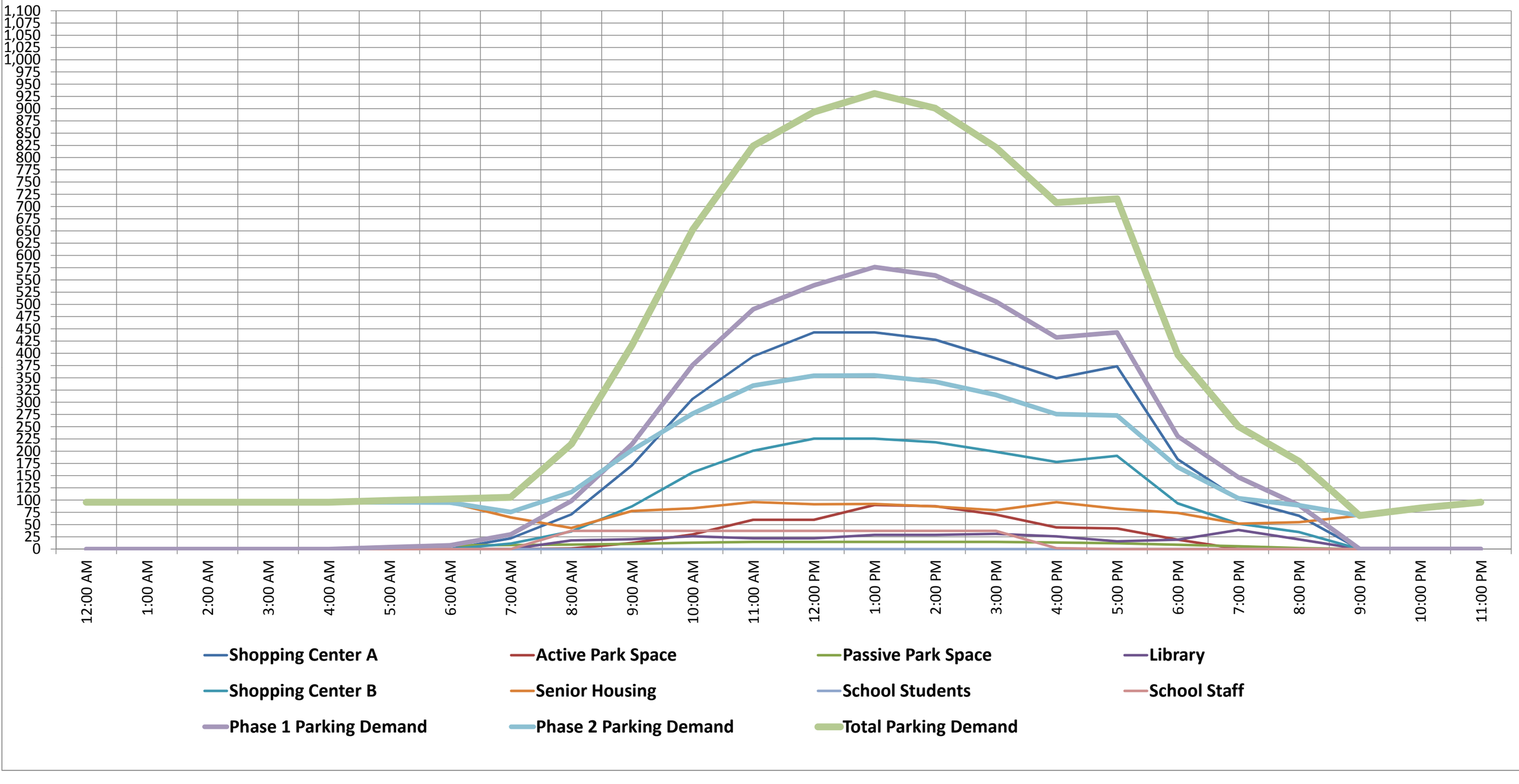
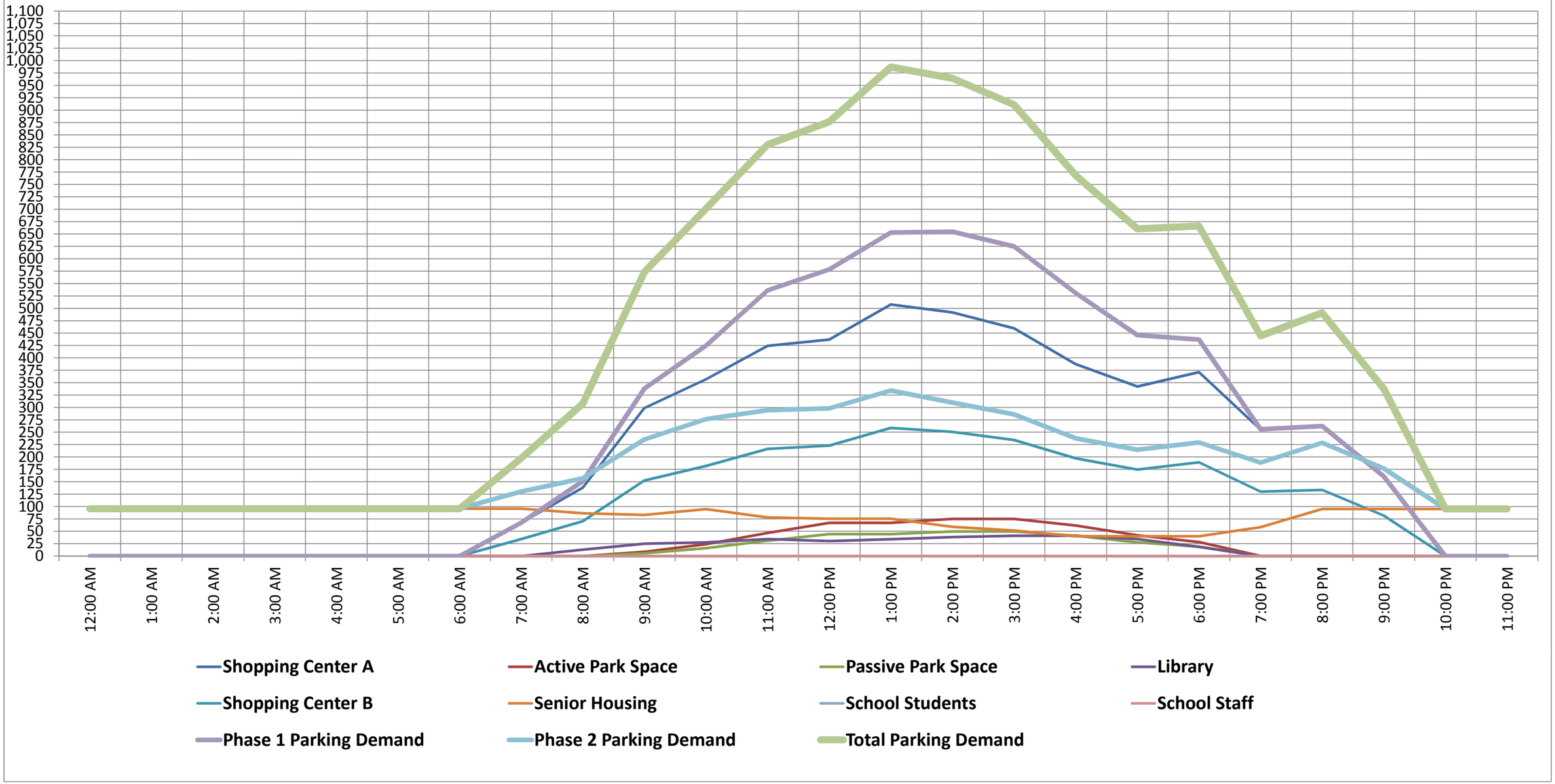


Figure 2.13-34: Weekend Parking Demand by Hour: Projected With-Action Conditions



As shown in **Tables 2.13-13** and **2.13-14**, and **Figures 2.13-33** and **2.13-34**, the total hourly parking demands over the course of both a typical weekday, and a typical weekend day, are not projected to exceed the proposed on-site parking supply for any development component. This applies to the proposed development components under both the 2015 analysis year (where the parking supply for Retail Site "A", the library, and the park are shared) and the 2020 analysis year (where the parking supply and demand for the senior housing, school, and Retail Site "B" are independent of one another).

Based on the findings of this parking analysis, the proposed project is anticipated to have sufficient on-site parking supply to accommodate projected hourly parking demands throughout the course of both a typical weekday and a typical weekend day. Therefore, no overflows of parked vehicles are projected to occur onto surrounding public streets and neighboring properties, and no significant parking impacts are anticipated, under typical weekday and weekend conditions.

Table 2.13-13
Weekday Parking Demand Analysis - With-Action Condition

Time Period	Shopping Center % Total[1]	Shopping Center % In	Shopping Center % Out	Park - Active % Total[2]	Park - Active % In	Park - Active % Out	Park - Passive % Total[3]	Park - Passive % In	Park - Passive % Out	Library % Total[4]	Library % In	Library % Out	Senior Housing % Total[5]	Senior Housing % In	Senior Housing % Out	School Students % Total[2]	School Students % In	School Students % Out	School Staff % Total[2]	School Staff % In	School Staff % Out
12:00 AM to 1:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	1.7%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
1:00 AM to 2:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.7%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
2:00 AM to 3:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.1%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
3:00 AM to 4:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
4:00 AM to 5:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
5:00 AM to 6:00 AM	0.0%	50%	50%	0.0%	50%	50%	3.0%	75%	25%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
6:00 AM to 7:00 AM	0.0%	50%	50%	0.0%	50%	50%	3.0%	75%	25%	0.0%	50%	50%	0.1%	0%	100%	0.0%	50%	50%	0.0%	50%	50%
7:00 AM to 8:00 AM	2.0%	58%	42%	0.0%	50%	50%	3.0%	55%	45%	0.0%	50%	50%	3.9%	0%	100%	0.0%	50%	50%	0.0%	50%	50%
8:00 AM to 9:00 AM	3.0%	62%	38%	3.0%	55%	45%	3.0%	55%	45%	8.0%	72%	28%	10.0%	36%	64%	50.0%	100%	0%	50.0%	100%	0%
9:00 AM to 10:00 AM	2.0%	87%	13%	3.0%	100%	0%	7.0%	55%	45%	6.0%	54%	46%	6.6%	84%	16%	0.0%	50%	50%	0.0%	50%	50%
10:00 AM to 11:00 AM	5.0%	70%	30%	6.0%	89%	11%	9.0%	55%	45%	6.0%	60%	40%	5.0%	57%	43%	0.0%	50%	50%	0.0%	50%	50%
11:00 AM to 12:00 PM	8.0%	58%	42%	12.0%	83%	17%	7.0%	55%	45%	6.0%	43%	57%	4.4%	69%	31%	0.0%	50%	50%	0.0%	50%	50%
12:00 PM to 1:00 PM	9.0%	54%	46%	5.0%	50%	50%	5.0%	50%	50%	15.0%	50%	50%	5.0%	44%	56%	0.0%	0%	0%	0.0%	0%	0%
1:00 PM to 2:00 PM	22.0%	50%	50%	13.0%	81%	19%	10.0%	50%	50%	7.0%	60%	40%	4.6%	51%	49%	0.0%	50%	50%	0.0%	50%	50%
2:00 PM to 3:00 PM	11.0%	49%	51%	15.0%	48%	52%	12.0%	50%	50%	6.0%	50%	50%	4.2%	42%	58%	22.5%	0%	100%	0.0%	50%	50%
3:00 PM to 4:00 PM	7.0%	46%	54%	12.0%	31%	69%	10.0%	50%	50%	7.0%	53%	47%	5.4%	41%	59%	22.5%	0%	100%	0.0%	50%	50%
4:00 PM to 5:00 PM	10.0%	47%	53%	10.0%	15%	85%	6.0%	45%	55%	5.0%	40%	60%	11.0%	60%	40%	2.5%	0%	100%	47.5%	0%	100%
5:00 PM to 6:00 PM	9.0%	52%	48%	6.0%	45%	55%	6.0%	45%	55%	12.8%	42%	58%	7.2%	38%	62%	2.5%	0%	100%	2.5%	0%	100%
6:00 PM to 7:00 PM	7.0%	30%	70%	8.0%	12%	88%	6.0%	40%	60%	4.3%	58%	42%	9.4%	44%	56%	0.0%	50%	50%	0.0%	50%	50%
7:00 PM to 8:00 PM	3.0%	30%	70%	7.0%	14%	86%	6.0%	40%	60%	9.0%	72%	28%	8.3%	33%	67%	0.0%	50%	50%	0.0%	50%	50%
8:00 PM to 9:00 PM	1.0%	25%	75%	0.0%	50%	50%	3.0%	25%	75%	4.0%	2%	98%	3.8%	55%	45%	0.0%	50%	50%	0.0%	50%	50%
9:00 PM to 10:00 PM	1.0%	0%	100%	0.0%	50%	50%	1.0%	10%	90%	4.0%	1%	99%	2.9%	80%	20%	0.0%	50%	50%	0.0%	50%	50%
10:00 PM to 11:00 PM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	3.3%	80%	20%	0.0%	50%	50%	0.0%	50%	50%
11:00 PM to 12:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	2.4%	82%	18%	0.0%	50%	50%	0.0%	50%	50%
	100.0%			100.0%			100.0%			100.0%			100.0%			100.0%			100.0%		

TRIP GENERATION PARAMETERS

	Shopping Center A (sq. ft.)	Park - Active (acres)	Park - Passive (acres)	Library (sq. ft.)
Size =	176,560	7.5	15.7	15,000
Daily person-trip rate (trips/unit size)[6] =	78.2	139.0	44.0	56.24
Auto mode split (% of total trips)[6] =	95.1%	90.0%	90.0%	86.3%
Auto occupancy[6] =	1.45	2.50	2.50	1.45
Auto ownership[7] =				
Linked-trip reduction[6] =	25.0%			
Daily vehicle trips =	6,792	375	249	502

WEEKDAY PARKING DEMAND CALCULATIONS — PHASE 1

Time Period	Shopping Center A IN	Shopping Center A OUT	Shopping Center A PARK	Park - Active IN	Park - Active OUT	Park - Active PARK	Park - Passive IN	Park - Passive OUT	Park - Passive PARK	Library IN	Library OUT	Library PARK	Phase 1 Parking Demand (vehicles)	Phase 1 Parking Supply On-Site	Phase 1 Supply - Demand
12:00 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
1:00 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
2:00 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
3:00 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
4:00 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
5:00 AM to 6:00 AM	0	0	0	0	0	0	6	2	4	0	0	0	4	693	689
6:00 AM to 7:00 AM	0	0	0	0	0	0	6	2	7	0	0	0	7	693	686
7:00 AM to 8:00 AM	79	57	22	0	0	0	4	3	8	0	0	0	30	693	663
8:00 AM to 9:00 AM	126	77	71	6	5	1	4	3	9	29	11	18	98	693	595
9:00 AM to 10:00 AM	118	18	171	11	0	12	10	8	11	16	14	20	214	693	479
10:00 AM to 11:00 AM	238	102	307	20	2	30	12	10	13	18	12	26	376	693	317
11:00 AM to 12:00 PM	315	228	394	37	8	60	10	8	15	13	17	22	490	693	203
12:00 PM to 1:00 PM	330	281	443	9	9	60	6	6	15	38	38	22	539	693	154
1:00 PM to 2:00 PM	747	747	443	40	9	90	12	12	15	21	14	29	576	693	117
2:00 PM to 3:00 PM	366	381	428	27	29	88	15	15	15	15	15	29	559	693	134
3:00 PM to 4:00 PM	219	257	390	14	31	71	12	12	15	19	17	31	506	693	187
4:00 PM to 5:00 PM	319	360	349	6	32	44	7	8	13	10	15	26	432	693	261
5:00 PM to 6:00 PM	318	293	374	10	12	42	7	8	12	27	37	16	443	693	250
6:00 PM to 7:00 PM	143	333	183	4	26	19	6	9	9	12	9	19	230	693	463
7:00 PM to 8:00 PM	61	143	102	4	23	0	6	9	6	33	13	39	147	693	546
8:00 PM to 9:00 PM	17	51	68	0	0	0	2	6	2	0	20	20	90	693	603
9:00 PM to 10:00 PM	0	68	0	0	0	0	0	2	0	0	20	0	0	693	693
10:00 PM to 11:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
11:00 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
In and Out Totals =	3,396	3,396		188	188		124	124		251	251				
Total Daily Trips Check =	6,792			375			249			502					

Notes:
1) Based on department store temporal distribution from Pushkarev & Zupan, *Urban Space for Pedestrians*, Table 2.7, p. 40 and weekday parking demand profile for Shopping Center (Land Use Code 820) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010
2) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
3) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
4) Based on temporal distribution for Library (Land Use Code 590) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
5) Based on residential temporal distribution from Pushkarev & Zupan, *Urban Space for Pedestrians*, Table 2.6, p. 37 and weekday parking demand profile for Assisted Living (Land Use Code 254) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
6) Obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
7) Based on average peak parking demand rate for Senior Adult Housing-Attached (Land Use Code 252) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.

TRIP GENERATION PARAMETERS

	Shopping Center B (sq. ft.)	Supply	Supply-Demand	Senior Housing (units)	Supply	Supply-Demand	School - Students (students)	School - Staff (staff)	School (Total) Demand	School (Total) Supply	School (Total) Supply-Demand
Size =	90,000			162			750	58			
Daily person-trip rate (trips/unit size)[6] =	78.2			8.075			2.0	2.0			
Auto mode split (% of total trips)[6] =	95.1%			68.5%			0.0%	83.0%			
Auto occupancy[6] =	1.45			1.16			1.30	1.30			
Auto ownership[7] =				0.59							
Linked-trip reduction[6] =	25.0%										
Daily vehicle trips =	3,462			772			0	74			

WEEKDAY PARKING DEMAND CALCULATIONS — PHASE 2

Time Period	Shopping Center B IN	Shopping Center B OUT	Shopping Center B PARK	Senior Housing IN	Senior Housing OUT	Senior Housing PARK	School - Students IN	School - Students OUT	School - Students PARK	School - Staff IN	School - Staff OUT	School - Staff PARK	Phase 2 Parking Demand (vehicles)	Phase 2 Parking Supply On-Site	Phase 2 Supply - Demand	Total Parking Demand (vehicles)	Total Parking Supply On-Site	Total Supply - Demand
12:00 AM to 1:00 AM	0	0	0	7	7	96	0	0	0	0	0	0	96	555	459	96	1,248	1,152
1:00 AM to 2:00 AM	3	3	96	195	99	0	0	0	0	0	0	0	96	555	459	96	1,248	1,152
2:00 AM to 3:00 AM	0	0	96	195	99	0	0	0	0	0	0	0	96	555	459	96	1,248	1,152
3:00 AM to 4:00 AM	0	0	96	195	99	0	0	0	0	0	0	0	96	555	459	96	1,248	1,152
4:00 AM to 5:00 AM	0	0	96	195	99	0	0	0	0	0	0	0	96	555	459	96	1,248	1,152
5:00 AM to 6:00 AM	0	0	96	195	99	0	0	0	0	0	0	0	96	555	459	99	1,248	1,149
6:00 AM to 7:00 AM	0	1	95	195	100	0	0	0	0	0	0	0	95	555	460	102	1,248	1,146
7:00 AM to 8:00 AM	40	29	11	300	289	0	30	65	195	130	0	0	76	555	479	106	1,248	1,142
8:00 AM to 9:00 AM	64	39	36	300	264	28	49	43	195	152	0	0	116	555	439	214	1,248	1,034
9:00 AM to 10:00 AM	60	9	87	300	213	43	8	78	195	117	0	0	202	555	353	416	1,248	832
10:00 AM to 11:00 AM	121	52	156	300	144	22	17	83	195	112	0	0	277	555	278	652	1,248	596
11:00 AM to 12:00 PM	161	116	201	300	99	23	11	96	195	99	0	0	334	555	221	824	1,248	424
12:00 PM to 1:00 PM	168	143	226	300	74	17	22	91	195	104	0	0	354	555	201	893	1,248	355
1:00 PM to 2:00 PM	381	381	226	300	74	18	17	92	195	103	0	0	355	555	200	931	1,248	317
2:00 PM to 3:00 PM	187	194	218	300	82	14	19	87	195	108	0	0	342	555	213	901	1,248	347
3:00 PM to 4:00 PM	111	131	199	300	101	17	25	79	195	116	0	0	315	555	240	821	1,248	427
4:00 PM to 5:00 PM	163	183	178	300	122	51	34	96	195	99	0	0	276	555	279	708	1,248	540
5:00 PM to 6:00 PM	162	150	190	300	110	21	34	82	195	113	0	0	273	555	282	716	1,248	532
6:00 PM to 7:00 PM	73	170	93	300	207	32	41	74	195	121	0	0	167	555	388	397	1,248	851
7:00 PM to 8:00 PM	31	73	52	300	248	21	43	52	195	143	0	0	104	555	451	251	1,248	997
8:00 PM to 9:00 PM	9	26	35	300	265	16	13	55	195	140	0	0	89	555	466	179	1,248	1,069
9:00 PM to 10:00 PM	0	35	0	300	300	18	4	68	195	127	0	0	68	555	487	68	1,248	1,180
10:00 PM to 11:00 PM	0	0	0	300	300	20	5	84	195	111	0	0	84	555	471	84	1,248	1,164
11:00 PM to 12:00 AM	0	0	0	300	300	15	3	95	195	100	0	0	95	555	460	96	1,248	1,152
In and Out Totals =	1,731	1,731		386	386		0	0		37	37							
Total Daily Trips Check =	3,462			772			0			74								

Notes:
1) Based on department store temporal distribution from Pushkarev & Zupan, *Urban Space for Pedestrians*, Table 2.7, p. 40 and weekday parking demand profile for Shopping Center (Land Use Code 820) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010
2) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
3) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
4) Based on temporal distribution for Library (Land Use Code 590) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
5) Based on residential temporal distribution from Pushkarev & Zupan, *Urban Space for Pedestrians*, Table 2.6, p. 37 and weekday parking demand profile for Assisted Living (Land Use Code 254) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
6) Obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
7) Based on average peak parking demand rate for Senior Adult Housing-Attached (Land Use Code 252) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.

Table 2.13-14
Weekend Parking Demand Analysis - With-Action Condition

Time Period	WEEKEND TEMPORAL DISTRIBUTIONS BY LAND USE: Shopping Center % Total[1]	Shopping Center % In	Shopping Center % Out	Park - Active % Total[2]	Park - Active % In	Park - Active % Out	Park - Passive % Total[3]	Park - Passive % In	Park - Passive % Out	Library % Total[4]	Library % In	Library % Out	Senior Housing % Total[5]	Senior Housing % In	Senior Housing % Out	School Students % Total[2]	School Students % In	School Students % Out	School Staff % Total[2]	School Staff % In	School Staff % Out
12:00 AM to 1:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
1:00 AM to 2:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
2:00 AM to 3:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
3:00 AM to 4:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
4:00 AM to 5:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
5:00 AM to 6:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
6:00 AM to 7:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
7:00 AM to 8:00 AM	1.0%	92%	8%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
8:00 AM to 9:00 AM	4.0%	61%	39%	0.0%	50%	50%	0.0%	50%	50%	5.0%	81%	19%	1.0%	0%	100%	0.0%	50%	50%	0.0%	50%	50%
9:00 AM to 10:00 AM	5.0%	70%	30%	1.6%	100%	0%	1.6%	100%	0%	6.0%	74%	26%	9.0%	48%	52%	0.0%	50%	50%	0.0%	50%	50%
10:00 AM to 11:00 AM	6.0%	56%	44%	5.9%	75%	25%	5.9%	75%	25%	7.0%	55%	45%	9.0%	57%	43%	0.0%	50%	50%	0.0%	50%	50%
11:00 AM to 12:00 PM	7.0%	56%	44%	8.5%	75%	25%	8.5%	75%	25%	8.0%	60%	40%	9.0%	40%	60%	0.0%	50%	50%	0.0%	50%	50%
12:00 PM to 1:00 PM	8.0%	51%	49%	10.7%	68%	32%	10.7%	68%	32%	10.0%	45%	55%	8.0%	48%	52%	0.0%	50%	50%	0.0%	50%	50%
1:00 PM to 2:00 PM	11.0%	54%	46%	6.0%	50%	50%	6.0%	50%	50%	14.5%	53%	47%	8.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
2:00 PM to 3:00 PM	10.0%	49%	51%	15.0%	55%	45%	15.0%	55%	45%	11.0%	55%	45%	8.0%	39%	61%	0.0%	50%	50%	0.0%	50%	50%
3:00 PM to 4:00 PM	10.0%	48%	52%	13.0%	50%	50%	13.0%	50%	50%	10.0%	53%	47%	8.0%	45%	55%	0.0%	50%	50%	0.0%	50%	50%
4:00 PM to 5:00 PM	9.0%	45%	55%	13.0%	40%	60%	13.0%	40%	60%	9.0%	50%	50%	9.0%	43%	57%	0.0%	50%	50%	0.0%	50%	50%
5:00 PM to 6:00 PM	7.0%	46%	54%	12.5%	35%	65%	12.5%	35%	65%	8.0%	40%	60%	9.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
6:00 PM to 7:00 PM	6.0%	53%	47%	8.5%	35%	65%	8.5%	35%	65%	7.0%	23%	77%	9.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
7:00 PM to 8:00 PM	8.0%	41%	59%	5.3%	0%	100%	5.3%	0%	100%	4.5%	0%	100%	9.0%	61%	39%	0.0%	50%	50%	0.0%	50%	50%
8:00 PM to 9:00 PM	4.0%	51%	49%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	4.0%	100%	0%	0.0%	50%	50%	0.0%	50%	50%
9:00 PM to 10:00 PM	2.0%	18%	82%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
10:00 PM to 11:00 PM	2.0%	0%	100%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
11:00 PM to 12:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
	100.0%			100.0%			100.0%			100.0%			100.0%			0.0%			0.0%		

TRIP GENERATION PARAMETERS	Shopping Center A (sq. ft.)			Park - Active (acres)			Park - Passive (acres)			Library (sq. ft.)		
Size =	176,560			7.5			15.7			15,000		
Daily person-trip rate (trips/unit size)[6]=	92.5			196.0			62.0			46.55		
Auto mode split (% of total trips)[6] =	95.1%			90.0%			90.0%			86.3%		
Auto occupancy[6] =	1.45			2.50			2.50			1.45		
Auto ownership[7] =												
Linked-trip reduction[6] =	25.0%											
Daily vehicle trips =	8,034			529			350			416		

WEEKEND PARKING DEMAND CALCULATIONS	Shopping Center A (sq. ft.)			Park - Active (acres)			Park - Passive (acres)			Library (sq. ft.)			Phase 1 Parking Demand (vehicles)	Phase 1 Parking Supply On-Site	Phase 1 Supply - Demand
Time Period	IN	OUT	PARK	IN	OUT	PARK	IN	OUT	PARK	IN	OUT	PARK			
12:00 AM to 1:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
1:00 AM to 2:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
2:00 AM to 3:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
3:00 AM to 4:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
4:00 AM to 5:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
5:00 AM to 6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
6:00 AM to 7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
7:00 AM to 8:00 AM	74	6	67	0	0	0	0	0	0	0	0	0	67	693	626
8:00 AM to 9:00 AM	196	125	138	0	0	0	0	0	0	17	4	13	151	693	542
9:00 AM to 10:00 AM	281	121	299	8	0	8	6	0	6	18	6	25	338	693	355
10:00 AM to 11:00 AM	270	212	357	23	8	24	16	5	16	16	13	28	424	693	269
11:00 AM to 12:00 PM	315	247	424	34	11	47	22	7	31	20	13	34	536	693	157
12:00 PM to 1:00 PM	328	315	437	39	18	67	25	12	44	19	23	30	579	693	114
1:00 PM to 2:00 PM	477	406	508	16	16	67	11	11	44	32	28	34	653	693	40
2:00 PM to 3:00 PM	394	410	492	44	36	75	29	24	50	25	21	38	655	693	38
3:00 PM to 4:00 PM	386	418	460	34	34	75	23	23	50	22	20	41	625	693	68
4:00 PM to 5:00 PM	325	398	387	28	41	62	18	27	41	19	19	41	531	693	162
5:00 PM to 6:00 PM	259	304	342	23	43	42	15	28	28	13	20	34	446	693	247
6:00 PM to 7:00 PM	255	227	371	16	29	28	10	19	19	7	22	19	437	693	256
7:00 PM to 8:00 PM	264	379	255	0	28	0	0	19	0	0	19	0	256	693	437
8:00 PM to 9:00 PM	164	157	262	0	0	0	0	0	0	0	0	0	262	693	431
9:00 PM to 10:00 PM	30	131	160	0	0	0	0	0	0	0	0	0	161	693	532
10:00 PM to 11:00 PM	0	161	0	0	0	0	0	0	0	0	0	0	0	693	693
11:00 PM to 12:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	693	693
In and Out Totals =	4,017	4,017		265	264		175	175		208	208				
Total Daily Trips Check =	8,034			529			350			416					

Notes:
1) Based on Saturday parking demand profile for Shopping Center (Land Use Code 820) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010
2) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
3) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
4) Based on temporal distribution for Library (Land Use Code 590) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
5) Based on Saturday parking demand profile for Assisted Living (Land Use Code 254) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
6) Obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
7) Based on average peak parking demand rate for Senior Adult Housing-Attached (Land Use Code 252) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.

WEEKEND TEMPORAL DISTRIBUTIONS BY LAND USE: Time Period	Shopping Center % Total[1]	Shopping Center % In	Shopping Center % Out	Park - Active % Total[2]	Park - Active % In	Park - Active % Out	Park - Passive % Total[3]	Park - Passive % In	Park - Passive % Out	Library % Total[4]	Library % In	Library % Out	Senior Housing % Total[5]	Senior Housing % In	Senior Housing % Out	School Students % Total[2]	School Students % In	School Students % Out	School Staff % Total[2]	School Staff % In	School Staff % Out
12:00 AM to 1:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
1:00 AM to 2:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
2:00 AM to 3:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
3:00 AM to 4:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
4:00 AM to 5:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
5:00 AM to 6:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
6:00 AM to 7:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
7:00 AM to 8:00 AM	1.0%	92%	8%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
8:00 AM to 9:00 AM	4.0%	61%	39%	0.0%	50%	50%	0.0%	50%	50%	5.0%	81%	19%	1.0%	0%	100%	0.0%	50%	50%	0.0%	50%	50%
9:00 AM to 10:00 AM	5.0%	70%	30%	1.6%	100%	0%	1.6%	100%	0%	6.0%	74%	26%	9.0%	48%	52%	0.0%	50%	50%	0.0%	50%	50%
10:00 AM to 11:00 AM	6.0%	56%	44%	5.9%	75%	25%	5.9%	75%	25%	7.0%	55%	45%	9.0%	57%	43%	0.0%	50%	50%	0.0%	50%	50%
11:00 AM to 12:00 PM	7.0%	56%	44%	8.5%	75%	25%	8.5%	75%	25%	8.0%	60%	40%	9.0%	40%	60%	0.0%	50%	50%	0.0%	50%	50%
12:00 PM to 1:00 PM	8.0%	51%	49%	10.7%	68%	32%	10.7%	68%	32%	10.0%	45%	55%	8.0%	48%	52%	0.0%	50%	50%	0.0%	50%	50%
1:00 PM to 2:00 PM	11.0%	54%	46%	6.0%	50%	50%	6.0%	50%	50%	14.5%	53%	47%	8.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
2:00 PM to 3:00 PM	10.0%	49%	51%	15.0%	55%	45%	15.0%	55%	45%	11.0%	55%	45%	8.0%	39%	61%	0.0%	50%	50%	0.0%	50%	50%
3:00 PM to 4:00 PM	10.0%	48%	52%	13.0%	50%	50%	13.0%	50%	50%	10.0%	53%	47%	8.0%	45%	55%	0.0%	50%	50%	0.0%	50%	50%
4:00 PM to 5:00 PM	9.0%	45%	55%	13.0%	40%	60%	13.0%	40%	60%	9.0%	50%	50%	9.0%	43%	57%	0.0%	50%	50%	0.0%	50%	50%
5:00 PM to 6:00 PM	7.0%	46%	54%	12.5%	35%	65%	12.5%	35%	65%	8.0%	40%	60%	9.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
6:00 PM to 7:00 PM	6.0%	53%	47%	8.5%	35%	65%	8.5%	35%	65%	7.0%	23%	77%	9.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
7:00 PM to 8:00 PM	8.0%	41%	59%	5.3%	0%	100%	5.3%	0%	100%	4.5%	0%	100%	9.0%	61%	39%	0.0%	50%	50%	0.0%	50%	50%
8:00 PM to 9:00 PM	4.0%	51%	49%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	4.0%	100%	0%	0.0%	50%	50%	0.0%	50%	50%
9:00 PM to 10:00 PM	2.0%	18%	82%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
10:00 PM to 11:00 PM	2.0%	0%	100%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
11:00 PM to 12:00 AM	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%	0.0%	50%	50%
	100.0%			100.0%			100.0%			100.0%			100.0%			0.0%			0.0%		

TRIP GENERATION PARAMETERS	Shopping Center B (sq. ft.)					Senior Housing (units)					School - Students (students)			School - Staff (staff)			School (Total)			Phase 2 Parking Demand (vehicles)	Phase 2 Parking Supply On-Site	Phase 2 Supply - Demand	Total Parking Demand (vehicles)	Total Parking Supply On-Site	Total Supply - Demand
Size =	90,000			Supply	Supply-Demand	162			Supply	Supply-Demand	750			58			Demand	Supply	Supply-Demand						
Daily person-trip rate (trips/unit size)[6]=	92.5					9.6					0.0			0.0											
Auto mode split (% of total trips)[6] =	95.1%					68.5%					0.0%			83.0%											
Auto occupancy[6] =	1.45					1.15					1.30			1.30											
Auto ownership[7] =						0.59																			
Linked-trip reduction[6] =	25.0%																								
Daily vehicle trips =	4,095					918					0			0											

WEEKEND PARKING DEMAND CALCULATIONS	Shopping Center B (sq. ft.)			Senior Housing (units)			School - Students (students)			School - Staff (staff)			School (Total)			Phase 2 Parking Demand (vehicles)	Phase 2 Parking Supply On-Site	Phase 2 Supply - Demand	Total Parking Demand (vehicles)	Total Parking Supply On-Site	Total Supply - Demand
Time Period	IN	OUT	PARK	IN	OUT	PARK	IN	OUT	PARK	IN	OUT	PARK										
12:00 AM to 1:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
1:00 AM to 2:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
2:00 AM to 3:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
3:00 AM to 4:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
4:00 AM to 5:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
5:00 AM to 6:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
6:00 AM to 7:00 AM	0	0	0	0	0	96	0	0	0	0	0	0	0	60	60	96	555	459	96	1,248	1,152
7:00 AM to 8:00 AM	38	3	34	0	0	96	0	0	0	0	0	0	0	60	60	130	555	425	197	1,248	1,051
8:00 AM to 9:00 AM	100	64	70	0	9	86	0	0	0	0	0	0	0	60	60	157	555	398	308	1,248	940
9:00 AM to 10:00 AM	143	61	152	0	43	83	0	0	0	0	0	0	0	60	60	235	555	320	573	1,248	675
10:00 AM to 11:00 AM	138	108	182	0	36	95	0	0	0	0	0	0	0	60	60	276	555	279	701	1,248	547
11:00 AM to 12:00 PM	161	126	216	0	50	78	0	0	0	0	0	0	0	60	60	294	555	261	830	1,248	418
12:00 PM to 1:00 PM	167	161	223	0	45	75	0	0	0	0	0	0	0	60	60	298	555	257	877	1,248	371
1:00 PM to 2:00 PM	243	207	259	0	37	75	0	0	0	0	0	0	0	60	60	334	555	221	987	1,248	261
2:00 PM to 3:00 PM	201	209	251	0	45	59	0	0	0	0	0	0	0	60	60	310	555	245	964	1,248	284
3:00 PM to 4:00 PM	197	213	234	0	40	52	0	0	0	0	0	0	0	60	60	286	555	269	911	1,248	337
4:00 PM to 5:00 PM	166	203	197	0	47	40	0	0	0	0	0	0	0	60	60	237	555	318	768	1,248	480
5:00 PM to 6:00 PM	132	155	174	0	41	40	0	0	0	0	0	0	0	60	60	215	555	340	661	1,248	587
6:00 PM to 7:00 PM	130	115	189	0	41	40	0	0	0	0	0	0	0	60	60	229	555	326	666	1,248	582
7:00 PM to 8:00 PM	134	193	130	0	32	58	0	0	0	0	0	0	0	60	60	189	555	366	445	1,248	803
8:00 PM to 9:00 PM	84	80	133	0	167	37	0	0	0	0	0	0	0	60	60	229	555	326	491	1,248	757
9:00 PM to 10:00 PM	15	67	82	0	218	0	0	0	0	0	0	0	0	60	60	177	555	378	338	1,248	910
10:00 PM to 11:00 PM	0	82	0	0	300	0	0	0	0	0	0	0	0	60	60	95	555	460	95	1,248	1,153
11:00 PM to 12:00 AM	0	0	0	0	300	0	0	0	0	0	0	0	0	60	60	95	555	460	95	1,248	1,153
In and Out Totals =	2,047	2,048		459	459		0	0		0	0										
Total Daily Trips Check =	4,095			918			0			0											

Notes:
1) Based on Saturday parking demand profile for Shopping Center (Land Use Code 820) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010
2) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
3) Based on temporal distribution obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously, and *Brooklyn Bridge Park EIS*.
4) Based on temporal distribution for Library (Land Use Code 590) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
5) Based on Saturday parking demand profile for Assisted Living (Land Use Code 254) from Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.
6) Obtained from Transportation Planning Factors Memo from PHA dated September 21, 2012, prepared previously.
7) Based on average peak parking demand rate for Senior Adult Housing-Attached (Land Use Code 252) in Institute of Transportation Engineers *Parking Generation, 4th Edition*, 2010.