

2012 Future Conditions

Land Use

The census data for the 10-year period (from 1990 to 2000) revealed that overall, the Staten Island population increased by 17 percent, however, during the same time period, the population in the study area increased by 90.2 percent. Assuming that over the 10-year period from 2002 to 2012, the study area's population will increase by 17 percent per year, the projected total study area population is expected to be approximately 8,488.

Currently, there are 2,268 total households within the study area. The proposed projects would contribute an additional 1,607 households to the study area, resulting in a total of 3,875 households. Assuming 3 persons per household, the overall projected population of the study area is approximately 11,625 persons.

According to Census data, approximately 91.2 percent of the households in the study area would have access to vehicles. Therefore, it is anticipated that approximately 1,465 households in the proposed projects would own one or more vehicles.

The future development scenario (illustrated in Figure 15) identifies seventeen (17) potential development sites, with completion dates between 2003 and 2012. The development sites are as follows:

Site 1: Charles Kreisher House Site/Arthur Kill Road and Englewood Avenue

Site 2: Bloomingdale Woods

Site 3: The Tides

Site 4: Sharrots Road and Carlin Street

Site 5: Mason Boulevard

Site 6: McBain Estates

Site 7: Turner Street and Woodrow Road

Site 8: Rossville and Alverson avenues

Site 9: Veterans Road East and Wirt Lane

Site 10: Maguire Estates

Site 11: Westshore Center

Site 12: Bricktown Retail

Site 13: AKR Office Building

Site 14: Shops at Page Avenue

Site 15: Gateway Cathedral Expansion

Site 16: MTA Bus Depot

Site 17: Interstate Materials Corporation Waste Transfer Station Expansion

Site 1: Charles Kreischer House

This project is located at Arthur Kill Road near Englewood Avenue and is zoned for residential development. It will consist of 130 units and parking for 181 cars. The site has an historic house on it that served as a restaurant up to several years ago. The house is now vacant.

Site 2: Bloomingdale Woods

This residential project consists of 400 units and a parking space for each unit. The project is located west of Bloomingdale Road and east of Veterans Road East.

Site 3: The Tides

This residential project will have 199 units with a parking space for each unit. The site is located west of Arthur Kill Road between Allentown Land and Kreischer Street.

Site 4: Sharrotts Road and Carlin Street

This residential project will have approximately 50 units and parking for 50 cars. The project is located south of Sharrotts Road and Carlin Street.

Site 5: Mason Boulevard

This residential project will have 104 units with a parking space for each unit. The site is located on Mason Boulevard between Bombay Street and Rossville Avenue.

Site 6: McBain Estates

This residential project is located at Bloomingdale and Woodrow roads, and will consist of 115 units and a parking space for each unit.

Site 7: Turner Street and Woodrow Road

This residential project will have 63 units with a parking space for each unit. The site is located east of Turner Street and north of Crabtree Avenue.

Site 8: Rossville and Alverson Avenues

This residential project will have 78 units with a parking space for each unit. The site is located south of Veterans Road East, between Rossville and Alverson avenues.

Site 9: Veterans Road East and Wirt Avenue

This residential project will have 118 units with a parking space for each unit. The project is located south of Veterans Road East and north of Wirt Avenue.

Site 10: Maguire Estates

This residential project is located on the northeast corner of Ramona and Maguire avenues, and will consist of 350 units and a parking space for each unit.

Site 11: Westshore Center

This project is to be located between Arthur Kill Road and the West Shore Expressway (approximately 600 feet west of Bloomingdale Road) and will consist of a 68,000 square foot food store, a 159,000 square foot hardware store, and 17,500 square feet of retail space on 16.7 acres. It will include parking for 930 cars. Formerly, the site housed a piping contractor, which has been out of business for about five years.

Site 12: Bricktown Retail

This project is located on Veterans Road West and Outerbridge Plaza and will consist of a 412,474 square foot building on a 42 acre lot, with parking for 1725 cars.

Site 13: AKR Office Building

This project will consist of a 23,000 square foot office building with parking space for 78 cars. The site is located north of Veterans Road West and south of Arthur Kill Road, between St. Lukes Avenue and Engert Street.

Site 14: Shops at Page Avenue

This project will consist of 60,000 square feet of fast food and retail shops on 5.34 acres with parking space for 200 cars. The project is located south of the Staten Island Railway and west of Page Avenue.

Site 15: Gateway Cathedral

This project is located at 200 Boscombe Avenue and will consist of an expansion of a cathedral which will have 3,000 seats on 22 acres with parking for 951 cars.

Site 16: MTA Bus Depot

This project will consist of a 99,225 square foot bus depot on a 10.8 acre lot with parking for 200 buses and 332 cars. The proposed site will be located east of Arthur Kill Road and north of Veterans Road West.

Site 17: Interstate Materials Corporation Industry Lane

This project will consist of an expansion of a materials manufacturer on 18.0 acres with parking provided on a construction waste transfer station on the existing site. The company has operated a clean fill material transfer station on the site, providing fill material for construction projects in the metropolitan area. The site is located at 211 Johnson Street, north of Arthur Kill Road.

Traffic

The Future traffic conditions were calculated, using a general background traffic growth factor within the study area. The background growth rate recommended by the City Environmental Quality Review (CEQR) Technical Manual for the borough of Staten Island is 1.5 percent per year. This growth factor reflects the general long-term trend rather than quick deviations from the general trend.

Per community request, an additional intersection was included in the traffic analysis. This intersection is located on Arthur Kill Road at the new Pathmark Plaza entrance/exit, between Bloomingdale Road and Chemical Lane.

The Future traffic analysis was performed for AM, Midday, and PM peak hours for the analyzed year, 2012.

The assessment of the 2012 future conditions consists of a series of steps:

- Balancing the future baseline traffic volume map (with the growth factor considered);
- Conducting trip assignments for the proposed future development projects and adding them to the future balanced traffic volume map;
- Conducting traffic level of service analysis;
- Comparing and analyzing the change from the 2002 existing conditions to the 2012 future scenario.

The future 2012 traffic conditions were calculated by adding the trips generated by projects within the study area to balanced traffic volumes with the growth factor. The future traffic analysis was performed for AM, Midday, and PM peak hours for the analyzed year, 2012.

The projected development scenario identified in Table 29 provides the basis for calculating the person and vehicle trip generation characteristics for the proposed developments. As noted in the table, it is estimated that the proposed development scenario would result in a combination of

Table 29
Projected Development Scenario

Site Name/Location	Resident D.U.	Office S.F.	Local Retail S.F.	Destination Retail, S.F.	Hardware S.F.	Supmarket S.F.	Office S.F.	Community Facil S.F.	Bus depot S.F.
Charles Kreisher House Site	130								
Bloomingdale Woods	400								
The Tides	199								
Sharrots Road and Carlin St.	50								
Mason Boulevard	104								
McBain Estates	115								
Turner Street and Woodrow Rd.	63								
Rossville/Alverson avenues	78								
Veterans Rd E.and Wirt Lane	118								
Maguire Estates	350								
Westshore Center			17,500		159,000	68,000			
Bricktown Retail				412,474					
AKR Office Building		23,000					23,000		
Shops at Page Avenue			60,000						
Gateway Cathedral Expansion								97,774	
MTA Bus Depot									99,225
TOTAL	1607	23,000	77,500	412,474	159,000	68,000	23,000	97,774	99,225

Table 30
Trip Generation Characteristics

Land Use	Residential (1)		Office (2)		Local Retail (3)		Destination Retail (4)		Church (5)	
	Daily Trip Rate Per Unit	D.U.	18	1000 sf	205	1000 sf	184.5	1000 sf	10.8	1000 sf
Size	1607		23		77.5		412.474		97.774	
Peak Hour In/Out Split										
Daily	In	0.50	Out	0.50	In	0.50	Out	0.50	In	0.50
AM		0.17		0.83		0.50		0.50		0.54
Midday		0.50		0.52		0.50		0.38		0.50
PM		0.68		0.85		0.50		0.46		0.54
Mode Split										
Auto		0.706	AM/PM	0.830	Midday	0.05		0.200		0.40
Taxi		0.000		0.002		0.03		0.150		0.05
Bus		0.117		0.061		0.06		0.200		0.10
Subway		0.034		0.004		0.06		0.100		0.10
Walk		0.031		0.054		0.80		0.350		0.30
Other		0.113		0.048		0.00		0.000		0.05
		1.000		1.000		1.00		1.000		1.00
Vehicle Occupancy										
Auto		1.50		1.65		1.65		2.3		1.50
Taxi		1.40		1.40		1.40		2.1		1.40
Truck Trips Generation Characteristics*										
per unit		0.08		0.15		0.35		0.35		0.10
		D.U.		1000 sf		1000 sf		1000sf		1000 sf
Truck Demand (peak hour)										
AM		0.06		0.10		0.08		0.10		0.06
Midday		0.07		0.11		0.11		0.11		0.10
PM		0.10		0.01		0.01		0.00		0.06

* - Source: 1 - Pushkarev @ Zupan, "Urban Space for Pedestrians", 2 - Coliseum EIS, 3 - River Center EIS, 4 and 5 - ITE, Trip Generation, 6th Edition

residential, commercial, local retail, community facility and manufacturing development on seventeen sites within the study area. In total, the future with the proposed scenario consists of 1,607 dwelling units, 64 acres of commercial, local and destination retail space, 22 acres of community facility space, a 10.8 acre lot for a bus depot and 18 acres for a waste transfer station.

The objective of the future build condition analyses is:

- to determine projected future conditions for the proposed developments in place and fully operational; and
- to determine whether traffic infrastructure improvements would be warranted, to facilitate the study area's traffic flow.

The assessment of the projected future action conditions consists of the trip generation characteristics for all components of the proposed action. For the residential component, Journey-to-Work data from the 1990 Census was used to determine modal split characteristics. Vehicle occupancy rates were also derived from the 1990 Census.

For the trip generation characteristic components, information was derived from the Manhattan West FEIS, Pushkarev & Zupan, "Urban Space for Pedestrians" and ITE Trip Generation, 6th Edition. Table 30 summarizes the trip generation characteristics of all components of the proposed action.

Vehicle Trip Distribution

The vehicle trip distribution was developed using Journey-to-Work data from the 1990 Census. To determine origin and destination information, census tracts 106.01, 106.02, 108 and 110 were used, since they are located within the study area.

The peak hour project generated trips are summarized in Table 31. These project generated volumes were applied to the volumes with the growth factor thus yielding 2012 future condition scenario peak volumes for weekday traffic.

Table 31
Projected Vehicle Trips

Development Name	AM		MID		PM	
	IN	OUT	IN	OUT	IN	OUT
Charles Kreisher House Site	8	38	12	12	37	18
Bloomingtondale Woods	25	117	38	38	114	55
The Tides	13	58	19	19	57	27
Sharrots Road and Carlin Street	3	15	5	5	14	7
Mason Boulevard	7	30	10	10	30	14
McBain Estates	7	34	11	11	33	16
Turner Street and Woodrow Road	4	18	6	6	18	9
Rossville and Alverson avenues	5	23	7	7	22	11
Veterans Road East and Wirt Lane	8	34	11	11	34	16
Maguire Estates	22	101	33	32	100	46
Westshore Center	207	210	500	489	518	573
Bricktown Retail	14	14	497	409	822	927
AKR Office Building	24	2	2	2	4	24
Shops at Page Avenue	16	16	88	88	43	43
Gateway Cathedral Expansion	27	19	35	35	20	19
MTA Bus Depot	15	13	25	25	14	12
Sub-Total	398	743	1408	1308	1924	1862
15% Linked Trip Rate	60	112	211	196	289	279
Total Trips	338	631	1197	1112	1635	1583

Intersection Analysis

The future LOS conditions were analyzed using the *2000 Highway Capacity Manual (HCM)* methodology (previously described in the analysis of the existing conditions).

Tables 32 and 33 summarizes the 2002 existing and 2012 future conditions during the three peak periods, including the resulting V/C ratios, delay time and LOS for signalized and unsignalized intersections.

Unsignalized Intersections

Figures 16A, 16M and 16P illustrate 2012 future traffic volumes during the morning, midday, and evening peak hours respectively, and the detailed Highway Capacity Software analysis is on file at NYCDCP.

Signalized Intersections

With the proposed developments, most approaches would continue to operate at LOS D (with delay time of 45 seconds per vehicle) or better for all peak hours. There would be a deterioration in traffic level of service at the following four intersections:

Table 32
Comparison of 2002 Existing and 2012 Future Level of Service Conditions
Signalized Intersections

Intersection	Appr.	AM						MD						PM					
		2002 Existing			2012 Future			2002 Existing			2012 Future			2002 Existing			2012 Future		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Arthur Kill Road at Bloomingdale Road																			
Eastbound	TR	0.48	12.9	B	0.78	21.7	C	0.63	15.7	B	1.24	135.7	F	0.83	23.2	C	1.52	258.1	F
Westbound	LT	0.16	9.2	A	0.20	9.5	A	0.19	9.4	A	0.26	10.1	B	0.20	9.5	A	0.31	10.6	B
Northbound	L	0.53	17.6	B	0.63	19.9	B	0.32	14.5	B	0.39	15.3	B	0.45	16.2	B	0.57	18.4	B
Southbound	LR	0.05	11.9	B	0.07	12.1	B	0.08	12.2	B	0.09	12.3	B	0.04	11.8	B	0.05	11.9	B
Intersection Delay		14.1		B	18.8		B	14.0		B	92.3		F	19.1		B	177.6		F
Bloomingdale Road at Clay Pit Road																			
Eastbound	L	0.06	20.2	C	0.07	20.3	C	0.10	20.6	C	0.12	20.8	C	0.07	20.3	C	0.08	20.4	C
Westbound	R	0.05	20.1	C	0.06	20.2	C	0.04	20.0	B	0.05	20.1	C	0.07	20.3	C	0.08	20.4	C
Northbound	LT	0.21	11.0	B	0.33	12.2	B	0.18	10.8	B	0.28	11.6	B	0.28	11.7	B	0.43	13.2	B
Southbound	TR	0.46	14.3	B	0.62	17.4	B	0.40	13.4	B	0.58	16.4	B	0.53	15.2	B	0.82	24.0	C
Intersection Delay		13.4		B	15.3		B	13.1		B	14.8		B	14.1		B	19.1		B
Bloomingdale Road at Drumgoole Road West																			
Eastbound	L	0.02	21.0	C	0.02	21.1	C	0.02	21.0	C	0.02	21.1	C	0.02	21.0	C	0.02	21.0	C
Westbound	R	0.17	22.9	C	0.21	23.5	C	0.14	22.5	C	0.56	32.2	C	0.31	25.1	C	1.22	154.7	F
Northbound	L	0.25	18.6	B	0.29	19.1	B	0.29	19.0	B	0.33	19.6	B	0.36	20.0	B	0.41	20.8	B
Southbound	TR	0.45	21.7	C	0.53	23.5	C	0.36	20.1	C	0.67	27.4	C	0.52	22.6	C	1.00	63.9	E
Intersection Delay		19.7		B	20.7		C	19.9		B	21.1		C	26.0		C	33.8		C
Eastbound	LT	0.22	15.6	B	0.30	16.4	B	0.23	15.6	B	0.36	16.9	B	0.26	15.9	B	0.46	18.1	B
Westbound	TR	0.36	16.8	B	0.52	18.6	B	0.33	16.5	B	0.48	18.0	B	0.46	17.8	B	0.64	20.4	C
Intersection Delay		18.3		B	19.4		B	17.9		B	21.2		C	20.3		C	47.3		D
Bloomingdale Road at Sharrotts Road																			
Eastbound	L	0.08	14.1	B	0.10	14.3	B	0.07	14.0	B	0.08	14.1	B	0.10	14.2	B	0.12	14.4	B
Westbound	R	0.06	14.0	B	0.08	14.1	B	0.07	14.1	B	0.09	14.2	B	0.10	14.3	B	0.11	14.4	B
Northbound	LT	0.16	7.4	A	0.26	8.0	A	0.17	7.5	A	0.27	8.1	A	0.26	8.1	A	0.40	9.1	A
Southbound	TR	0.19	7.6	A	0.27	8.1	A	0.19	7.6	A	0.29	8.2	A	0.27	8.0	A	0.42	9.2	A
Intersection Delay		8.2		A	8.6		A	8.2		A	8.7		A	8.6		A	9.5		A

Intersection	Appr.	AM						MD						PM					
		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future			
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Bloomingdale Road at Veterans Road West																			
Eastbound	L	0.38	24.3	C	0.49	26.2	C	0.46	26.0	C	0.61	29.8	C	0.78	37.6	D	1.15	115.7	F
Westbound	T	0.03	19.9	B	0.18	21.5	C	0.05	20.1	C	0.36	23.9	C	0.07	20.3	C	0.39	24.4	C
	R	0.43	25.5	C	0.53	27.6	C	0.26	22.7	C	0.32	23.6	C	0.33	23.7	C	0.43	25.5	C
Northbound	Defl				0.32	21.5	C				1.08	109.6	F	0.27	20.9	C	2.18	584.1	F
	LT	0.15	18.0	B				0.16	18.2	B									
	T				0.24	19.3	B				0.19	18.7	B	0.19	18.7	B	0.22	19.0	B
Southbound	TR	0.22	18.8	B	0.36	20.4	C	0.27	19.3	B	0.52	22.6	C	0.36	20.1	C	0.62	24.1	C
Intersection Delay			21.9	C		23.3	C		21.4	C		36.4	D		25.8	C		112.0	F
Bloomingdale Road at Woodrow Road																			
Eastbound	L	0.18	21.5	C	0.25	22.4	C	0.23	22.1	C	0.25	22.4	C	0.31	23.2	C	0.43	25.1	C
Westbound	R	0.14	21.3	C	0.31	23.6	C	0.10	20.7	C	0.31	23.6	C	0.15	21.3	C	0.45	26.0	C
Northbound	TR	0.33	20.3	C	0.53	23.6	C	0.31	19.5	B	0.53	23.6	C	0.43	21.9	C	0.67	27.3	C
	R	0.16	18.4	B	0.23	19.3	B	0.23	18.7	B	0.23	19.3	B	0.26	19.6	B	0.36	20.9	C
Southbound	L	0.17	19.0	B	0.31	22.5	C	0.24	20.0	C	0.31	22.5	C	0.39	23.7	C	0.83	57.5	E
	LT	0.53	24.2	C	0.70	29.4	C	0.39	21.5	C	0.70	29.4	C	0.52	23.8	C	0.85	37.5	D
Intersection Delay			21.6	C		24.8	C		20.6	C		24.8	C		22.4	C		31.4	C
Page Avenue at Richmond Valley Road																			
Eastbound	Defl	0.27	26.3	C	0.33	27.4	C	0.17	24.4	C	0.33	27.4	C	0.18	25.0	C	0.33	26.2	C
	LTR				0.27	26.1	C				0.27	26.1	C	0.14	24.3	C			
Westbound	TR	0.12	24.0	C	0.12	23.8	C	0.06	23.2	C	0.12	23.8	C	0.07	23.3	C	0.12	23.8	C
	LTR	0.04	23.0	C	0.06	23.3	C	0.05	23.2	C	0.06	23.3	C	0.05	23.2	C	0.07	23.4	C
Northbound	R	0.04	23.1	C	0.06	23.3	C	0.05	23.2	C	0.06	23.3	C	0.05	23.2	C	0.07	23.4	C
Southbound	LTR	0.37	10.2	B	0.48	11.6	B	0.34	9.9	A	0.48	11.6	B	0.35	10.1	B	0.55	12.6	B
	LTR	0.22	9.0	A	0.27	9.4	A	0.17	8.6	A	0.27	9.4	A	0.24	9.1	A	0.37	10.3	B
Intersection Delay	R	0.12	8.4	A	0.14	8.6	A	0.07	8.0	A	0.14	8.6	A	0.09	8.2	A	0.10	8.3	A
			11.9	B		13.6	B		11.9	B		13.6	B		11.8	B		13.9	B
Page Avenue at Bridge Street South/Page Avenue																			
Eastbound	L		unsignalized		0.25	15.0	B		unsignalized			unsignalized		unsignalized					
Westbound	T				0.50	11.0	B				0.44	10.4	B				0.48	10.8	B
Northbound	T				0.32	9.4	A				0.26	8.9	A				0.41	10.1	B
Southbound	T				0.32	9.4	A				0.26	8.9	A				0.41	10.1	B
Intersection Delay					11.1	B					10.1	B					10.5	B	

Table 33
Comparison of 2002 Existing and 2012 Future Level of Service Conditions
Unsignalized Intersections

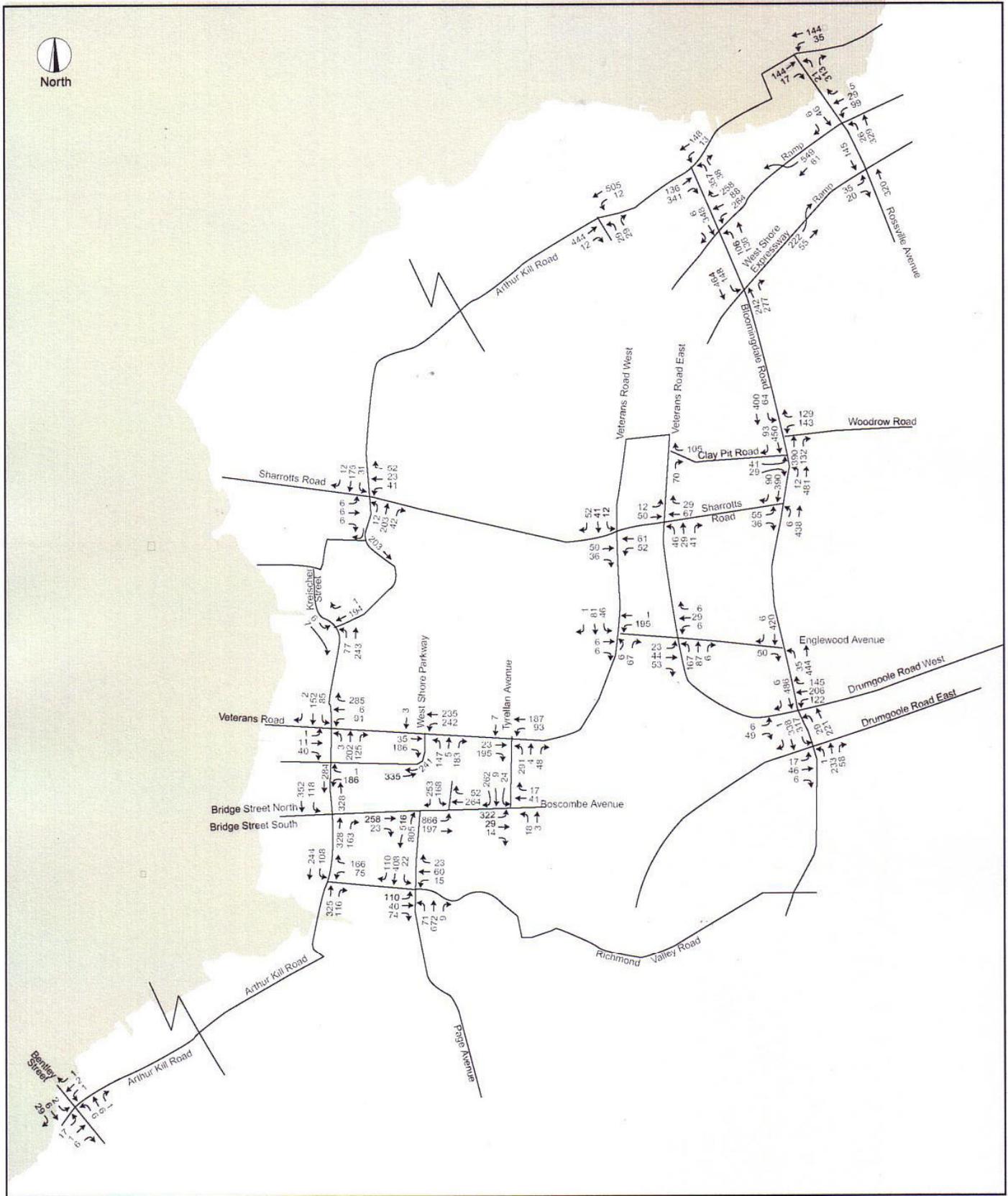
Intersection	Appr.	AM						Midday						PM								
		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future						
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS			
Arthur Kill Road at Bentley Street (AWSC)																						
Eastbound	LTR		6.62	A		6.65	A		6.62	A		6.62	A		6.62	A		6.59	A		6.61	A
Westbound	LTR		7.07	A		7.10	A		7.09	A		7.12	A		7.10	A		7.10	A		7.15	A
Northbound	LTR		7.10	A		7.12	A		7.21	A		7.24	A		7.31	A		7.31	A		7.36	A
Southbound	LTR		6.93	A		6.94	A		6.84	A		6.85	A		6.90	A		6.90	A		6.94	A
Intersection Delay			6.86	A		6.88	A		7.10	A		7.13	A		7.05	A		7.05	A		7.10	A
Arthur Kill Road at Bridge Street North (AWSC)																						
Eastbound	L		9.93	A		11.82	B		9.87	A		11.66	B		11.83	B		11.83	B		15.86	C
Westbound	R		7.37	A		8.07	A		7.57	A		8.35	A		7.80	A		7.80	A		8.73	A
Northbound	T		10.04	B		13.65	B		9.82	A		12.77	B		10.49	B		10.49	B		14.04	B
Southbound	T		10.01	B		13.64	B		11.18	B		19.28	C		13.10	B		13.10	B		36.53	E
Intersection Delay			9.99	A		13.21	B		10.41	B		15.70	C		11.99	B		11.99	B		25.64	D
Arthur Kill Road at Kreischer Street (TWSC)																						
Northbound	LT	0.05	7.8	A	0.07	8.1	A	0.01	7.80	A	0.02	8.20	A		8.0	A	0.02	8.0	A		8.6	A
Southbound																						
Westbound																						
Eastbound	L	0.01	11.3	B	0.01	13.0	B	0.01	10.90	B	0.01	13.10	B		11.6	B	0.02	11.6	B		15.1	B
	R	0.01	8.6	A	0.01	8.9	A	0.02	9.00	A	0.03	9.40	A		9.2	A	0.07	9.2	A		9.9	A
Intersection Delay			9.8	A		10.8	B		9.30	A		10.10	B		9.8	A		9.8	A		11.2	B
Arthur Kill Road at Richmond Valley Road (AWSC)																						
Eastbound	L		9.91	A		10.86	B		9.23	A		10.16	B		10.36	B		10.36	B		11.47	B
Westbound	R		8.81	A		10.97	B		8.91	A		10.76	B		9.64	A		9.64	A		11.59	B
Northbound	TR		12.78	B		19.27	C		10.72	B		14.04	B		13.59	B		13.59	B		19.96	C
Southbound	LT		11.24	B		16.67	C		12.13	B		20.93	C		21.32	C		21.32	C		83.64	F
Intersection Delay			11.64	B		16.48	C		10.95	B		16.20	C		16.65	C		16.65	C		50.11	F
Arthur Kill Road at Rosseville Avenue (TWSC)																						
Eastbound	LT	0.02	7.5	A	0.03	7.6	A	0.03	7.70	A	0.04	8.10	A	0.04	7.70	A	0.06	7.70	A	0.06	8.20	A
Westbound	L	0.02	10.6	B	0.04	11.5	B	0.04	11.30	B	0.07	13.30	B	0.05	11.80	B	0.08	11.80	B	0.08	14.50	B
Northbound	R	0.32	10.6	B	0.4	11.9	B	0.23	10.30	B	0.32	12.30	B	0.24	10.30	B	0.35	10.30	B	0.35	12.60	B
Southbound																						
Intersection Delay			10.6	B		11.9	B		10.40	B		12.40	B		10.50	B		10.50	B		12.80	B

Intersection	Appr.	AM						Midday						PM							
		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future					
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS		
Arthur Kill Road at Sharrots Road (AWSC)																					
Eastbound	L		9.31	A	9.87	A		9.08	A	10.00	B		9.32	A	10.52	B		8.60	A	9.92	A
	TR		8.16	A	8.73	A		8.51	A	9.52	A		8.60	A	9.92	A		8.60	A	9.92	A
Westbound	L		8.95	A	9.62	A		9.15	A	10.17	B		9.59	A	11.10	B		9.59	A	11.10	B
	TR		8.71	A	9.41	A		8.60	A	9.68	A		8.69	A	9.98	A		8.69	A	9.98	A
Northbound	LTR		9.17	A	10.87	B		9.42	A	12.56	B		9.31	A	13.23	B		9.31	A	13.23	B
Southbound	LTR		9.12	A	10.53	B		9.86	A	13.63	B		11.24	B	21.51	C		11.24	B	21.51	C
Intersection Delay			9.05	A	10.44	B		9.42	A	12.48	B		10.18	B	16.88	B		10.18	B	16.88	B
Arthur Kill Road at Veterans Road West (AWSC)																					
Eastbound	LT		8.90	A	10.08	B		8.82	A	10.83	B		9.54	A	11.49	B		8.67	A	10.95	B
	TR		8.05	A	9.93	A		8.68	A	10.61	B		8.67	A	10.95	B		8.67	A	10.95	B
Westbound	LT		9.78	A	11.70	B		10.49	B	14.36	B		11.85	B	17.38	C		8.59	A	14.88	B
	TR		8.42	A	14.36	B		8.24	A	13.88	B		8.59	A	14.88	B		9.96	A	16.17	C
Northbound	LTR		9.38	A	15.78	C		9.58	A	15.80	C		9.96	A	16.17	C		12.16	B	93.07	F
Southbound	LTR		9.18	A	14.32	B		10.32	B	30.51	D		12.16	B	93.07	F		11.09	B	50.48	F
Intersection Delay			9.17	A	14.34	B		9.84	A	20.82	C		11.09	B	50.48	F		11.09	B	50.48	F
Drumgoole Road East at Bloomingdale Road (AWSC)																					
Eastbound	L		8.93	A	9.45	A		8.85	A	9.60	A		9.38	A	10.26	B		8.74	A	10.09	B
	TR		9.00	A	9.65	A		8.74	A	9.58	A		9.16	A	10.09	B		8.74	A	10.09	B
Westbound	L		8.43	A	8.73	A		8.31	A	8.71	A		8.61	A	9.30	A		8.31	A	9.30	A
Northbound	TR		10.92	B	13.86	B		10.80	B	16.46	C		12.57	B	30.98	D		10.80	B	30.98	D
Southbound	L		11.88	B	14.59	B		10.63	B	14.86	B		15.32	C	78.33	F		10.63	B	78.33	F
	TR		10.59	B	13.78	B		10.86	B	15.22	C		12.47	B	22.65	C		10.86	B	22.65	C
Intersection Delay			10.98	B	13.78	B		10.67	B	15.28	C		13.36	B	46.23	E		10.67	B	46.23	E
Tyrellan Avenue at Boscombe Avenue (TWSC)																					
Eastbound	L		7.7	A	8.00	A		7.7	A	8.7	A		7.7	A	9.2	A		7.7	A	9.2	A
Westbound	L		0.14	A	0.23	A		0.12	A	0.35	A		0.13	A	0.45	A		0.12	A	0.45	A
Northbound	L		13.2	B	32.70	D		0.04	B	0.18	E		0.07	B	0.59	F		0.04	B	0.59	F
Southbound	R		9.6	A	10.80	B		0.22	A	0.56	B		0.34	B	0.95	E		0.22	A	0.95	E
Intersection Delay			9.9	A	32.70	D		9.7	A	15.3	C		10.4	B	43.1	E		9.7	A	43.1	E

Intersection	Appr.	AM						Midday						PM					
		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future			
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Boscombe Avenue at WSE Ramp (TWSC)																			
Eastbound	L	0.62	12.4	B	0.80	18.9	C	0.46	10.1	B	0.75	18.4	C	0.55	11.8	B	1.15	105.7	F
Westbound	L	0.97	215.0	F	0.37	86.0	F	0.37	86.0	F	0.77	231.5	F	0.77	231.5	F			
Northbound	R	0.30	11.6	B	0.38	12.9	B	0.14	10.1	B	0.20	11.3	B	0.26	11.5	B	0.39	15.1	C
Southbound	R	52.5		F	24.2		F	24.2		F	41.5		F	41.5		F			
Intersection Delay																			
Englewood Avenue at Veterans Road East (AWSC)																			
Eastbound	L	8.42	8.42	A	8.65	8.65	A	8.57	8.57	A	9.2	9.2	A	8.93	8.93	A	10.03	10.03	B
Westbound	TR	7.83	7.83	A	8.32	8.32	A	7.56	7.56	A	9.2	9.2	A	8.08	8.08	A	16.45	16.45	C
Northbound	L	8.35	8.35	A	8.55	8.55	A	8.33	8.33	A	9.0	9.0	A	8.61	8.61	A	9.98	9.98	A
Southbound	TR	7.69	7.69	A	8.18	8.18	A	7.58	7.58	A	8.4	8.4	A	8.05	8.05	A	9.67	9.67	A
Intersection Delay	L	8.27	8.27	A	8.89	8.89	A	8.31	8.31	A	10.7	10.7	B	9.15	9.15	A	18.73	18.73	C
Intersection Delay	TR	7.74	7.74	A	8.02	8.02	A	7.74	7.74	A	8.3	8.3	A	8.00	8.00	A	9.29	9.29	A
Intersection Delay		8.02	8.02	A	8.49	8.49	A	8.05	8.05	A	9.68	9.68	A	8.63	8.63	A	16.09	16.09	C
Englewood Avenue at Veterans Road West (AWSC)																			
Eastbound	T	7.77	7.77	A	8.03	8.03	A	7.72	7.72	A	8.37	8.37	A	8.06	8.06	A	9.77	9.77	A
Westbound	R	7.06	7.06	A	7.32	7.32	A	7.04	7.04	A	7.68	7.68	A	7.50	7.50	A	9.25	9.25	A
Northbound	L	9.63	9.63	A	11.03	11.03	B	9.69	9.69	A	14.06	14.06	B	11.25	11.25	B	38.49	38.49	E
Southbound	T	7.61	7.61	A	7.77	7.77	A	7.65	7.65	A	8.05	8.05	A	7.99	7.99	A	9.03	9.03	A
Intersection Delay	L	8.27	8.27	A	8.55	8.55	A	8.28	8.28	A	8.85	8.85	A	8.58	8.58	A	9.76	9.76	A
Intersection Delay	R	7.31	7.31	A	7.77	7.77	A	7.31	7.31	A	9.11	9.11	A	7.88	7.88	A	17.22	17.22	C
Intersection Delay	L	8.57	8.57	A	8.92	8.92	A	8.51	8.51	A	9.33	9.33	A	9.11	9.11	A	11.24	11.24	B
Intersection Delay	TR	8.13	8.13	A	8.70	8.70	A	8.14	8.14	A	9.08	9.08	A	8.71	8.71	A	11.28	11.28	B
Intersection Delay		8.74	8.74	A	9.66	9.66	A	8.80	8.80	A	11.57	11.57	B	9.78	9.78	A	25.46	25.46	D
Veterans Road East at Rossville Avenue (TWSC)																			
Eastbound	L	0.02	7.2	A	7.30	7.30	A	0.01	7.2	A	0.02	7.2	A	0.02	7.2	A	0.07	7.3	A
Westbound	T	12.3	12.3	B	13.40	13.40	B	0.26	10.8	B	0.31	11.3	B	0.26	11.0	B	1.31	11.5	B
Northbound	T	0.18	10.7	B	11.10	11.10	B	0.29	11.1	B	0.34	11.7	B	0.53	14.8	B	4.58	17.7	C
Southbound	T	12.3	12.3	B	13.40	13.40	B	11.1	11.1	B	11.3	11.3	B	14.8	14.8	B	17.7	17.7	C
Intersection Delay		12.3	12.3	B	13.40	13.40	B	11.1	11.1	B	11.3	11.3	B	14.8	14.8	B	17.7	17.7	C

Intersection	Appr.	AM						Midday						PM					
		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future		2002 Existing		2012 Future			
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Veterans Road West at Rossville Avenue (AWSC)																			
Eastbound	L		8.79	A	9.18	A		9.38	A	9.99	A		11.87	B		13.83	B		
Westbound	TR		7.98	A	8.22	A		8.06	A	8.29	A		7.95	A		8.23	A		
Northbound	L		8.26	A	8.39	A		8.56	A	8.73	A		9.03	A		9.31	A		
Southbound	T		11.58	B	13.22	B		10.24	B	11.17	B		11.20	B		12.66	B		
Intersection Delay	R		8.17	A	8.39	A		8.60	A	8.93	A		9.69	A		10.32	B		
			7.41	A	7.56	A		7.39	A	7.58	A		7.80	A		8.09	A		
Intersection Delay			10.36	B	11.45	B		9.43	A	10.07	B		10.94	B		12.38	B		
S. Bridge Street at Boscombe/Page Avenues (TWSC)																			
Northbound					SIGNALIZED					SIGNALIZED									SIGNALIZED
Southbound					SIGNALIZED					SIGNALIZED									SIGNALIZED
Westbound	L	0.54	24.4	C			0.35	15.7	C			0.54	22.7	C					
Eastbound	R	0.03	9.9	A			0.06	9.5	A			0.05	10.1	B					
Intersection Delay			23.0	C				14.3	B				20.9	C					
Sharrots Road at Veterans Road East (AWSC)																			
Eastbound	L		8.08	A	8.18	A		8.17	A	8.26	A		8.23	A		8.34	A		
Westbound	T		7.74	A	7.96	A		7.80	A	7.96	A		7.99	A		8.21	A		
Northbound	T		7.77	A	8.08	A		7.97	A	8.22	A		8.06	A		8.42	A		
Southbound	R		7.08	A	7.18	A		7.01	A	7.11	A		7.01	A		7.12	A		
Intersection Delay	L		7.74	A	7.92	A		7.84	A	7.99	A		7.97	A		8.18	A		
	TR		7.11	A	7.32	A		7.35	A	7.54	A		7.36	A		7.60	A		
Intersection Delay			7.51	A	7.75	A		7.65	A	7.84	A		7.75	A		8.01	A		
Sharrots Road at Veterans Road West (AWSC)																			
Eastbound	T		7.76	A	7.95	A		7.71	A	7.83	A		7.99	A		8.18	A		
Westbound	R		6.96	A	7.06	A		6.87	A	6.94	A		7.10	A		7.25	A		
Northbound	L		8.25	A	8.52	A		8.15	A	8.28	A		8.38	A		8.60	A		
Southbound	T		8.17	A	8.33	A		8.16	A	8.33	A		8.13	A		8.39	A		
Intersection Delay	L		7.67	A	7.69	A		7.58	A	7.68	A		7.74	A		7.90	A		
	TR		7.38	A	7.61	A		7.36	A	7.51	A		7.54	A		7.77	A		
Intersection Delay			7.74	A	7.90	A		7.71	A	7.86	A		7.80	A		8.03	A		

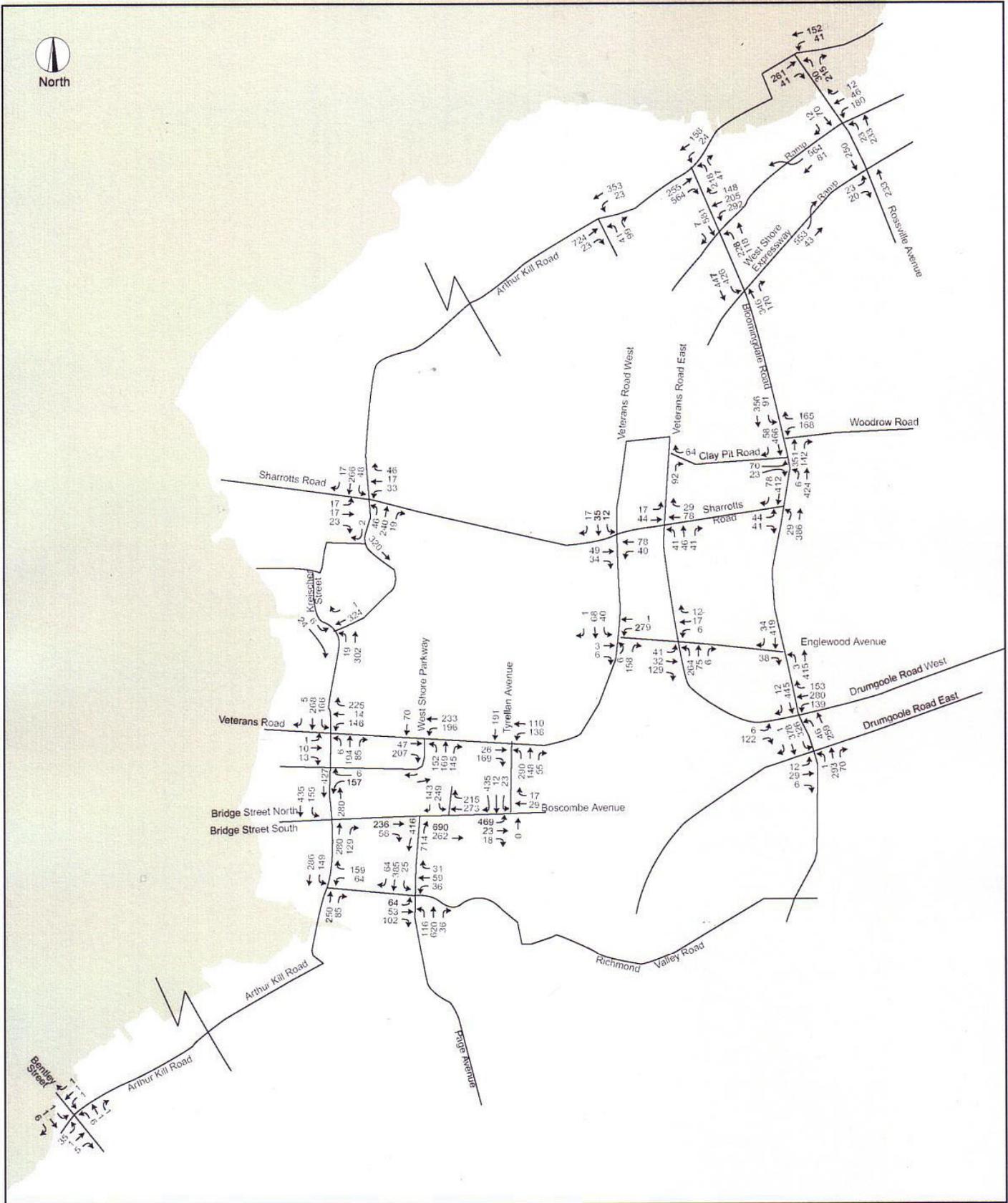
Intersection	Appr.	AM						Midday						PM					
		2002 Existing			2012 Future			2002 Existing			2012 Future			2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Tyrellan Avenue at Veterans Road West (AWSC)																			
Eastbound	T		8.23	A	9.19	A		8.15	A	10.49	B		8.49	A	13.18	B			
	R		8.89	A	11.13	B		8.50	A	13.12	B		9.71	A	28.61	D			
Westbound	L		9.47	A	10.81	B		9.53	A	13.16	B		10.57	B	21.12	C			
	T		9.21	A	12.02	B		8.93	A	13.09	B		10.03	B	24.08	C			
Northbound	L		10.05	B	17.79	C		9.90	A	22.26	C		10.45	B	46.57	E			
	R		7.45	A				7.39	A				8.01	A					
Southbound	TR				8.52	A				13.09	B				59.49	F			
	LTR				9.45	A				14.35	B				118.98	F			
Intersection Delay			9.29	A	13.36	C		9.08	A	15.63	C		9.93	A	59.13	F			
West Shore Parkway at Veterans Road West (AWSC)																			
Eastbound	T		8.42	A	9.56	A		8.34	A	10.82	B		9.24	A	14.20	B			
	R		8.24	A	11.11	B		8.05	A	14.45	B		8.73	A	27.53	D			
Westbound	L		10.61	B	15.07	C		10.42	B	16.30	C		11.66	B	26.47	D			
	T		9.35	A	13.16	B		8.97	A	16.64	C		9.77	A	28.03	D			
Northbound	L		8.94	A	13.16	B		8.64	A	13.91	B		9.46	A	17.95	C			
	R		8.66	A				8.17	A				9.04	A					
Southbound	TR				11.54	B				20.72	C				119.62	F			
	LTR				9.78	A				11.80	B				18.36	C			
Intersection Delay			9.24	A	12.82	B		8.99	A	16.43	C		9.79	A	51.23	F			
Pathmark at Arthur Kill Road																			
Westbound	LT		7.90	A	8.40	A		8.20	A	9.70	A		8.60	A	10.90	B			
	L		16.00	C	22.90	C		15.60	C	30.80	D		19.80	C	48.60	E			
Northbound	R		10.10	B	11.80	B		11.20	B	18.30	C		14.20	B	45.70	E			
Intersection Delay			13.00	B	17.30	C		12.50	B	21.90	C		14.80	B	46.00	E			



2012 Future Traffic Volumes - AM (7:15 - 8:15)

Charleston Transportation Study
 NYC Department of City Planning

Figure 16A



2012 Future Traffic Volumes - MD (12:00 - 1:00)

Charleston Transportation Study
NYC Department of City Planning

Figure 16M

Arthur Kill Road at Bloomingdale Road

During the midday peak hour, the intersection's eastbound approach would deteriorate from LOS B to LOS F in the future condition with the delay time deteriorating from 15.7 seconds in the existing condition to 135.7 seconds per vehicle for the through-right movement.

During the evening peak hour, the intersection's eastbound approach would deteriorate from LOS C to LOS F with the delay time deteriorating from 23.2 seconds to 258.1 seconds per vehicle for the through-right movement in the future conditions.

Bloomingdale Road at Drumgoole Road West

In the future conditions, during the evening peak hour, the eastbound approach would deteriorate from LOS C to LOS F with the delay time deteriorating from 25.1 seconds in the existing condition to 154.7 seconds per vehicle for the right movement in the future condition. The westbound approach through movement would deteriorate from LOS C to LOS E with the delay time deteriorating from 22.6 seconds in the existing condition to 63.9 seconds per vehicle in the future condition. Overall performance at this intersection would be at LOS D, deteriorating from 20.3 seconds per vehicle in the existing condition to 47.3 seconds per vehicle in the future conditions.

Bloomingdale Road at Veterans Road West

Currently, the northbound left-through movement at this intersection operates at LOS B during the midday peak hour. It would deteriorate to LOS F for the left movement with delay time deteriorating from 18.2 seconds of delay per vehicle in the existing condition to 109.6 seconds of delay per vehicle in the future conditions. Overall performance at this intersection would be at LOS D, deteriorating from 21.4 seconds per vehicle in the existing condition to 36.4 seconds per vehicle in the future conditions.

During the evening peak hour, the westbound left movement at this intersection would deteriorate from LOS D to LOS F with the delay time deteriorating from 37.6 seconds per vehicle in the existing condition to 115.7 seconds of delay per vehicle in the future conditions. The northbound left-through movement at this intersection operates at LOS C during the evening peak hour. It would deteriorate to LOS F for the left movement with delay time deteriorating from 20.9 seconds of delay per vehicle in the existing condition to 584.1 seconds of delay per vehicle in the future conditions.

The overall performance at this intersection would have LOS F during evening peak hour with delay time of 112.0 seconds per vehicle in the future conditions.

Bloomingdale Road at Woodrow Road

Currently, the intersection's southbound left movement operates at LOS C during the evening peak hour with 23.7 seconds of delay per vehicle. In the future conditions, this movement would deteriorate to LOS E with delay time deteriorating to 57.5 seconds per vehicle.

Unsignalized Intersections

With the proposed developments, as indicated in Table 12, most approaches would continue to operate at LOS D (with delay time of 30 seconds per vehicle) or better for all peak hours. There would be a deterioration in traffic level of service at the following ten unsignalized intersections:

Arthur Kill Road at Bridge Street North

The analysis of the future conditions during the evening peak hour indicates that the level of service in the southbound-through movement would deteriorate from LOS B to LOS E with the delay time deteriorating from 13.1 seconds per vehicle to 36.53 seconds per vehicle.

Arthur Kill Road at Richmond Valley Road

During the evening peak, the southbound left-through movement would deteriorate from LOS C to LOS F with the delay time deteriorating from 21.32 seconds to 83.64 seconds per vehicle.

The overall performance at this intersection would have LOS F during the evening peak hour with delay time of 50.11 seconds per vehicle in the future conditions.

Arthur Kill Road at Veterans Road West

Currently, the southbound left-through-right movement operates at LOS B during the midday peak hour. It would deteriorate to LOS D with delay time deteriorating from 10.32 seconds per vehicle in the existing condition to 30.51 seconds per vehicle in the future conditions. Overall performance at this intersection would be at LOS C, deteriorating from 9.84 seconds per vehicle in the existing condition to 20.82 seconds per vehicle in the future conditions.

During the evening peak hour, the same movement would deteriorate from LOS B to LOS F with the delay time deteriorating from 12.16 seconds per vehicle in the existing condition to 93.07 seconds of delay per vehicle in the future conditions.

Bloomington Road at Drumgoole Road East

During the evening peak, the northbound through-right movement would deteriorate from LOS B to LOS D with the delay time deteriorating from 12.57 seconds to 30.98 seconds per vehicle. The southbound left movement would deteriorate from LOS C to LOS F with the delay time deteriorating from 15.32 seconds to 78.33 seconds per vehicle.

The overall performance at this intersection would have LOS E during the evening peak hour with a delay time of 46.23 seconds per vehicle in the future conditions.

Tyrellan Avenue at Boscombe Avenue

Currently, the southbound left movement operates at LOS B during the midday peak hour. It would deteriorate to LOS E with the delay time deteriorating from 12.2 seconds per vehicle in the existing condition to 36.8 seconds per vehicle in the future conditions.

During the evening peak hour, the same movement would deteriorate from LOS B to LOS F with the delay time deteriorating from 13.00 second per vehicle in the existing condition to 115.6 seconds of delay per vehicle in the future conditions. The southbound right movement would deteriorate from LOS B to LOS E with the delay time deteriorating from 10.1 seconds to 39.9 seconds per vehicle.

The overall performance at this intersection would have LOS E during the evening peak hour with a delay time of 43.1 seconds per vehicle in the future conditions.

Boscombe Avenue at West Shore Expressway Ramp

Currently, the southbound left movement operates at LOS F during the morning, midday and evening peak hours. It would continue to operate at LOS F with continuing deterioration of delay time. The overall performance at this intersection would be LOS F during all three peak periods.

Englewood Avenue at Veterans Road West

During the evening peak, the westbound left movement would deteriorate from LOS B to LOS E with the delay time deteriorating from 11.25 seconds to 38.49 seconds per vehicle.

The overall performance at this intersection would be LOS D during the evening peak hour with delay time of 25.46 seconds per vehicle in the future conditions.

Tyrellan Avenue at Veterans Road West

During the evening peak, the northbound left movement would deteriorate from LOS B to LOS E with the delay time deteriorating from 10.45 seconds to 46.57 seconds per vehicle. Currently, there are no northbound through movements at this intersection. In the future the northbound right movement would be combined with the through movement and would deteriorate from LOS A to LOS F with the delay time deteriorating from 8.01 seconds to 59.49 seconds per vehicle.

Currently, there is no southbound approach at this intersection. In the future there would be a southbound approach with left-through-right movements to Bricktown Retail Plaza. With the new design, this movement would operate at LOS F during the evening peak hour with a delay time of 118.98 seconds per vehicle.

The overall performance at this intersection would be LOS F during the evening peak hour with a delay time of 59.13 seconds per vehicle in the future conditions.

West Shore Parkway at Veterans Road West

Currently, there are no northbound through movements at this intersection. In the future there would be a northbound through movement, combined with the northbound right movement. The performance at this approach would deteriorate from LOS A to LOS F with the delay time deteriorating from 9.04 seconds to 119.62 seconds per vehicle.

Currently, there is no southbound approach at this intersection. In the future there would be a southbound approach with left-through-right movements to the Bricktown Retail Plaza. The overall performance at this intersection would be LOS F during the evening peak hour with a delay time of 51.23 seconds per vehicle in the future conditions.

Pathmark Entrance/Exit at Arthur Kill Road

Currently, all approaches at this intersection operate at LOS C or better during all peak periods. In the future, during the midday peak hour, the northbound approach left movement would deteriorate from LOS C to LOS D with the delay time deteriorating from 15.6 seconds to 30.80 seconds per vehicle. During the evening peak hour the northbound approach left movement would deteriorate from LOS C to LOS E with the delay time deteriorating from 19.80 seconds to 48.60 seconds per vehicle. The northbound approach right movement would deteriorate from LOS B to LOS E with the delay time deteriorating from 14.20 seconds to 45.70 seconds per vehicle.

The overall intersection would operate at LOS E during the evening peak hour with a delay time of 46.00 seconds per vehicle in the future conditions.

Parking

Throughout the study area there are no off-street parking facilities, except the recently built park-and-ride at the interchange of the West Shore Expressway and the Korean War Veterans Parkway.

Transit

Staten Island Railroad

Most of the Staten Island Railroad station elements would continue operating at LOS A. Table 34 summarizes the railroad person trips (derived from the trip generation characteristics), which were used to analyze the future railroad and bus conditions with the projects in place and in operation.

**Table 34
Projected Staten Island Railroad Person Trips**

Site #	SIR Station	Trip Generated (1Hour)				15% Linked Trips (15 min.)			
		AM		PM		AM		PM	
		IN	OUT	IN	OUT	IN	OUT	IN	OUT
1	Nassau	1	3	3	1	1	3	3	1
3	Nassau	1	4	4	2	1	4	4	2
4	Nassau	0	1	1	0	0	1	1	0
12	Richmond Valley	0	0	358	403	0	0	76	86
14	Richmond Valley	11	11	35	35	2	2	7	7
15	Richmond Valley	6	5	5	4	1	1	1	1
16	Nassau	0	0	0	0	0	0	0	0
17	Nassau	0	0	0	0	0	0	0	0
Station Totals									
	Tottenville	0	0	0	0	0	0	0	0
	Atlantic	0	0	0	0	0	0	0	0
	Nassau	2	8	8	3	2	8	8	3
	Richmond Valley	17	16	398	442	3	3	84	94
	Total	19	24	406	445	5	11	92	97

Table 35 summarizes the results of the railroad analysis for the 2012 future conditions at four locations. The analysis of the railroad control areas has identified no significant project impacts at any of the stairs.

Table 35
2012 Future Conditions - Staten Island Railroad

Station Stairs	Width (ft)	Effect. Width (ft)	15-Minute Pedestrian Vol.		15-Minute SVCD Capacity		V/SVCD Ratio		Level of Service	
			AM	PM Down/Up	AM	PM	AM	PM Down/Up	AM	PM
Tottenville Station										
Bentley Street	5.3	4.3	19	12	987	987	0.03	0.02	A	A
<u>To/From Pedestrian Bridge</u>										
Ellis Street	2.8	1.8	3	21	413	413	0.01	0.09	A	A
Utah @ Main streets	3.1	2.1	27	15	482	482	0.10	0.05	A	A
Center Platform stairs	3.3	2.3	30	36	528	528	0.10	0.12	A	A
Atlantic Station										
Tracy Avenue	4.0	3.0	35	21	689	689	0.09	0.05	A	A
To/From Pedestrian Bridge	3.8	2.8	2	11	643	643	0.01	0.03	A	A
To/From Pedestrian Bridge	3.7	2.7	2	11	620	620	0.01	0.03	A	A
Ellis Street	3.2	2.2	4	11	505	505	0.01	0.04	A	A
Nassau Station										
<u>St. Andrews Place</u>										
Northbound Service Platform	3.5	2.5	52	15	574	574	0.15	0.04	A	A
To/From Pedestrian Bridge	5.2	4.2	29	21	964	964	0.05	0.04	A	A
<u>To/From Pedestrian Bridge</u>										
Southbound Service Platform	3.4	2.4	13	12	551	551	0.04	0.04	A	A
Nassau Place	4.7	3.7	22	29	849	849	0.04	0.06	A	A
Richmond Valley Station										
Amboy Road	3.5	2.5	42	52	574	574	0.12	0.15	A	A
To/From Pedestrian Bridge	3.0	2.0	35	1	459	459	0.13	0.00	A	A
To/From Pedestrian Bridge	3.0	2.0	35	1	459	459	0.13	0.00	A	A
Champ Court	3.2	2.2	1	45	505	505	0.00	0.15	A	A
<u>Richmond Valley Road</u>										
Northbound Service Platform	4.3	3.3	6	47	757	757	0.01	0.11	A	A
Southbound Service Platform	4.3	3.3	6	47	757	757	0.01	0.11	A	A

Note: The Capacity for Stairs = 17 persons per minute per foot

(1) Used actual existing peak 15 minute pedestrian volume.

Source: New York City Transit, Stations Operations Planning Division

Environmental Assessment and Review Division, Department of City Planning, October, 2001.

City Environmental Quality Review Technical Manual

Bus Service

Future bus ridership was projected using a compounded annual growth rate of 1.5 percent per year (for the ten year period totaling to 16.05 percent), which is added to the existing conditions. Additionally, demand for study area bus services would increase as a result of the proposed development's generated bus trips. Future condition bus ridership demand was projected by applying the 1990 Census Journey to Work modal split data to the trip generation characteristics discussed above in the traffic and parking analyses. Specific patron trips which would be generated by the proposed developments are assigned to the appropriate public transit component.

Seventeen potential development projects have been identified, out of which only nine proposed projects are in close proximity to the bus routes (S74, S84) and possibly would utilize the bus services. The remaining excluded eight proposed projects are located at a considerably long distance from S74 and S84 and are less likely to utilize these bus routes. The list of the nine selected projects are in Table 36. It summarizes the bus person trips, which were used to analyze the future bus conditions with the projects in place.

Table 36
Projected Bus Person Trips

Development Name	AM		PM	
	IN	OUT	IN	OUT
Charles Kreisher House Site	2	9	9	4
The Tides	3	14	14	6
Sharrots Road and Carlin Street	1	4	3	2
Mason Boulevard	2	7	7	3
McBain Estates	2	8	8	4
Turner Street and Woodrow	1	4	4	2
Veterans Road East and Wirt Lane	2	8	8	4
Westshore Center	3	3	10	10
Bricktown Retail	0	0	456	514
Sub-Total	16	57	519	549

The S74 bus line is anticipated to have a capacity shortfall during the AM and PM peak hours. This line would require 2 additional buses to accommodate ridership demand in the AM peak, and 9 buses during the PM peak hours. Table 37 presents the results of the bus ridership analysis for the 2012 future conditions.

Table 37
2012 Future Conditions - Bus Service
AM Peak

Bus line	Direct.	Buses/ Hour	Hourly Capacity	With Growth	Project Trips	Future Volum.	Av. vol. Per bus	Avail. Cap.	No. of Buses required
S74	NB	4	280	325	36	361	90	-81	2
	SB	7	490	571	36	605	86	-115	2
S84	NB	No Service in the AM Peak							
	SB								
PM Peak									
Bus line	Direct.	Buses/ Hour	Hourly Capacity	With Growth	Project Trips	Future Volum.	Av. vol. Per bus	Avail. Cap.	No. of Buses required
S74	NB	7	490	569	534	1,103	158	-615	9
	SB	7	490	569	534	1,103	158	-615	9
S84	NB	Limited Service in the PM Peak							
	SB								

The demand for bus services in the study area would increase as a result of the additional trips generated by the proposed developments. As mentioned earlier, the future conditions bus ridership demand was projected by applying the 1990 census journey to work modal split data for the trip generation characteristics discussed earlier in the traffic and parking analysis.

Based on this operation, the required extra number of buses for (S74) in the AM peak hour are: 2 northbound and 2 southbound buses; and during the PM peak hour 9 northbound and 9 southbound buses would be required.

The numbers of buses in the AM peak hour are insignificant, however in the PM peak hour they are significant but manageable, by combining two services for S74 and S84. The S84 is a relatively new service and according to the MTA provides little or no service in the AM; however during the PM it operates as limited-stop service from the St. George Ferry to Main Street at Amboy Road, as needed. The S84 route utilizes between five and six buses for this purpose. Additional increases in ridership could meet the future service requirement with just a few extra buses during the evening peak hour.

Pedestrians

Future pedestrian conditions were analyzed for the year 2012. The pedestrian volumes were estimated using the area's general background growth (1.5 percent per year for the South Shore, Staten Island) and adding the pedestrian trips generated by proposed developments. Table 38 summarizes the total pedestrian trips generated by new developments during the peak hour.

Table 38
Projected Pedestrian Trips

Development Name	AM		MID		PM	
	IN	OUT	IN	OUT	IN	OUT
Charles Kreisler House Site	16	79	25	25	76	36
Bloomingdale Woods	50	244	76	76	235	111
The Tides	25	121	38	38	117	55
Mason Boulevard	13	63	20	20	61	29
McBain Estates	14	70	22	22	68	32
Turner Street and Woodrow Road	8	38	12	12	37	17
Veterans Road East and Wirt Lane	15	72	22	22	69	33
Maguire Estates	44	213	66	66	206	97
Westshore Center	262	233	819	809	729	737
Bricktown Retail	0	0	314	257	537	605
Sub-Total	447	1133	1414	1347	2135	1752

Level of Service Analysis and Methodology

The level of service analyses of the future conditions were performed at six locations to determine the projected future pedestrian circulation within the study area and whether or not they would significantly affect the study area's pedestrian facilities and require improvements.

The LOS for regular weekdays for the peak 15-minute periods during AM, Midday and PM were calculated and performed for walkways, sidewalks and crosswalks.

The LOS summary sheets document the future conditions pedestrian level of service during three peak periods at the following six intersections and are on file at the NYCDOP:

- Bloomingdale Road at Arthur Kill Road
- Bloomingdale Road at Woodrow Road
- Bloomingdale Road at Sharrotts Road
- Bloomingdale Road at Drumgoole Road West
- Veterans Road East at Englewood Avenue
- Arthur Kill Road at Kreisler Avenue

Sidewalk Analysis

The analysis of the future conditions indicate that pedestrian traffic at the midblocks of sidewalks (or walkways) of the selected intersections generally operate at an excellent LOS A for all three peak periods. The summary of the future conditions sidewalk LOS is presented in Table 39. The LOS analysis presented below reflects the pedestrian conditions only.

Table 39
2012 Future Conditions - Sidewalk Level of Service

Walkway location	Walkway #	AM		MD		PM	
		p/min/f	LOS	p/min/f	LOS	p/min/f	LOS
Bloomingtondale Road at Arthur Kill Road							
north		no walkways					
south/west		no walkways					
south/east		no walkways					
Bloomingtondale Road at Woodrow Road							
west		no walkway					
north/east	1	2	A	0.3	A	0.7	A
	2	1.5	A	1.1	A	3.2	A
south/east	1	2	A	1.1	A	2.2	A
	2	0.2	A	0.2	A	0.3	A
Bloomingtondale Road at Sharrotts Road							
north/west	1	0.3	A	0.2	A	0.5	A
	2	0	A	0	A	0	A
south/west	1	0.4	A	0.2	A	0.2	A
	2	0.3	A	0.3	A	0.3	A
east	1	0.3	A	0.8	A	1.1	A
	2	1.9	A	0.4	A	0.7	A
Bloomingtondale Road at Veterans Road East/ Drumgoole Road West							
north/west		no walkway					
south/west	1	0	A	0	A	0	A
	2	1.2	A	0.6	A	1.5	A
north/east		no walkway					
south/east	1	0	A	0	A	0	A
	2	no walkway					
Veterans Road East at Englewood Avenue							
north/west	1	no walkway					
	2	0.1	A	0	A	2.3	A
south/west	1	no walkway					
	2	0	A	0	A	0	A
north/east	1	0	A	2.3	A	3.7	A
	2	0.1	A	0	A	0.1	A
south/east	1	no walkway					
	2	no walkway					
Arthur Kill Road at Kreischer Street							
north/west	1	no walkway					
	2	no walkway					
south/west	1	no walkway					
	2	no walkway					
east	1	no walkway					
	2	no walkway					

Note: LOS* - Average Walkway LOS (p/m/f); LOS** - Platoon LOS (p/m/f)

Corner Analysis

The analysis of the future conditions indicated that all of the corners would operate at LOS D or better as presented in Table 40, with the exception the northeast corner of Bloomingdale Road at Woodrow Road which would operate at LOS F during all peak periods, and the southeast corner which would operate at LOS F during the morning and evening peak.

**Table 40
2012 Future Conditions - Corner Level of Service**

Intersection	Corner	AM		MID		PM	
		SF/P	LOS	SF/P	LOS	SF/P	LOS
Bloomingdale Road at Arthur Kill Road	Southeast	no corner					
	Southwest	no corner					
Bloomingdale Road at Woodrow Road	Northeast	1.04	F	6.62	F	2.44	F
	Southeast	-8.48	F	21.00	D	2.28	F
Bloomingdale Road at Sharrotts Road	Northwest	26.08	C	31.28	C	16.91	D
	Southwest	20.25	D	28.67	C	32.25	C
Bloomingdale Road at Veterans Road East/Drumgoole Road West	Northeast	no corner					
	Southeast	914.36	A	1899	A	3169.5	A
	Southwest	33.15	C	66.54	A	24.4	C
	Northwest	no corner					

Crosswalk Analysis

The crosswalk analysis was performed for all crosswalks at the four corners of each of the selected intersections, that would be utilized by the pedestrians generated by new projects, on their path to the railroad, bus, and to/from parking lots.

The results of these analyses indicated that most crosswalks would operate mainly at comfortable LOS B and better for all peak periods as indicated in Table 41.

Table 41
2012 Future Build Conditions - Crosswalk Level of Service

Intersection	Location	AM		MD		PM	
		SF/P	LOS	SF/P	LOS	Vol.	LOS
Bloomingdale Road at Arthur Kill Road							
	East	no crosswalk					
	South	no crosswalk					
	West	no crosswalk					
Bloomingdale Road at Woodrow Road							
	North	405.59	A	790.52	A	456.5	A
	South	no crosswalk					
	East	77.9	A	206.62	A	120.57	A
Bloomingdale Road at Sharrotts Road							
	North	1790.36	A	10768.8	A	10768.8	A
	South	1332.99	A	10680.1	A	10627.2	A
	West	1466.24	A	1123.24	A	1123.24	A
Bloomingdale Road at Veterans Road East/Drumgoole Road West							
	North	5946.08	A	2979.45	A	5946.08	A
	East	2150.73	A	5381.53	A	10772.4	A
	South	no crosswalk					
	West	56.34	B	120.86	A	45.73	B