Identified Problems

Vehicular Traffic

Analysis of the 2002 existing traffic conditions, and comparison to the 2012 future conditions, determines whether any impacts or changes are expected in the future. According to the *2001 CEQR Technical Manual*, a LOS in the range of A through mid D, is an acceptable standard in heavily traveled, dense urban settings and is not considered significant. A mid LOS D corresponds to an approximate delay of 45 seconds per vehicle for signalized intersections, and 30 seconds per vehicle for unsignalized intersections. The *CEQR Technical Manual* provides a delay criteria to determine poor conditions for LOS D, LOS E, and LOS F.

A comparison of 2002 existing, and 2012 future traffic conditions within the Charleston study area identified the following four signalized intersections where the average approach delay time would increase to 45 seconds or more per vehicle. The locations are:

- Arthur Kill Road at Bloomingdale Road
- Bloomingdale Road at Drumgoole Road West
- Bloomingdale Road at Veterans Road West
- Bloomingdale Road at Woodrow Road

Bloomingdale Road at Drumgoole Road West

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		v/c	Delay	LOS	v/c	Delay	LOS
Eastbound	L	0.02	21.0	C	0.02	21.0	C
	R	0.31	25.1	C	1.22	154.7	F
Westbound	L	0.36	20.0	B	0.41	20.8	B
	T	0.52	22.6	C	1.00	63.9	E
	R	0.62	26.0	C	0.78	33.8	C
Northbound	LT	0.26	15.9	B	0.46	18.1	B
Southbound	TR	0.46	17.8	B	0.64	20.4	C
Intersection Delay			**20.3**	**C**		**47.3**	**D**

Bloomingdale Road at Woodrow Road

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		v/c	Delay	LOS	v/c	Delay	LOS
Eastbound							
Westbound	L	0.31	23.2	C	0.43	25.1	C
	R	0.15	21.3	C	0.45	26.0	C
Northbound	TR	0.43	21.9	C	0.67	27.3	C
	R	0.26	19.6	B	0.36	20.9	C
Southbound	L	0.39	23.7	C	0.83	57.5	E
	LT	0.52	23.8	C	0.85	37.5	D
Intersection Delay			**22.4**	**C**		**31.4**	**C**

Arthur Kill Road at Bloomingdale Road

Direction	Appr.	MD						PM					
		2002 Existing			2012 Future			2002 Existing			2012 Future		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Eastbound	TR	0.63	15.7	B	1.24	135.7	F	0.83	23.2	C	1.52	258.1	F
Westbound	LT	0.19	9.4	A	0.26	10.1	B	0.20	9.5	A	0.31	10.6	B
Northbound	L	0.32	14.5	B	0.39	15.3	B	0.45	16.2	B	0.57	18.4	B
	LR	0.08	12.2	B	0.09	12.3	B	0.04	11.8	B	0.05	11.9	B
Southbound													
Intersection Delay			**14.0**	**B**		**92.3**	**F**		**19.1**	**B**		**177.6**	**F**

Bloomingdale Road at Veterans Road West

Direction	Appr.	MD						PM					
		2002 Existing			2012 Future			2002 Existing			2012 Future		
		v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS	v/c	Delay	LOS
Eastbound													
Westbound	L	0.46	26.0	C	0.61	29.8	C	0.78	37.6	D	1.15	115.7	F
	T	0.05	20.1	C	0.36	23.9	C	0.07	20.3	C	0.39	24.4	C
	R	0.26	22.7	C	0.32	23.6	C	0.33	23.7	C	0.43	25.5	C
Northbound	DefL				1.08	109.6	F	0.27	20.9	C	2.18	584.1	F
	LT	0.16	18.2	B									
	T				0.19	18.7	B	0.19	18.7	B	0.22	19.0	B
Southbound	TR	0.27	19.3	B	0.52	22.6	C	0.36	20.1	C	0.62	24.1	C
Intersection Delay			**21.4**	**C**		**36.4**	**D**		**25.8**	**C**		**112.0**	**F**

Additionally, the following ten unsignalized intersections were identified, where the average approach delay time would increase to 30 seconds or more per vehicle. The locations are:

- Arthur Kill Road at Bridge Street North
- Arthur Kill Road at Richmond Valley Road
- Arthur Kill Road at Veterans Road West
- Drumgoole Road East at Bloomingdale Road
- Tyrellan Avenue at Boscombe Avenue
- Boscombe Avenue at WSE Ramp
- Englewood Avenue at Veterans Road West
- Tyrellan Avenue at Veterans Road West
- West Shore Parkway at Veterans Road West
- Pathmark Entrance/Exit at Arthur Kill Road

Arthur Kill Road at Bridge Street North

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Arthur Kill Road at Bridge Street North (AWSC)							
Eastbound							
Westbound	L		11.83	B		15.86	C
	R		7.80	A		8.73	A
Northbound	T		10.49	B		14.04	B
Southbound	T		13.10	B		36.53	E
Intersection Delay			**11.99**	**B**		**25.64**	**D**

Arthur Kill Road at Richmond Valley Road

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Arthur Kill Road at Richmond Valley Road (AWSC)							
Eastbound							
Westbound	L		10.36	B		11.47	B
	R		9.64	A		11.59	B
Northbound	TR		13.59	B		19.96	C
Southbound	LT		21.32	C		83.64	F
Intersection Delay			**16.65**	**C**		**50.11**	**F**

Arthur Kill Road at Veterans Road West

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Arthur Kill Road at Veterans Road West (AWSC)							
Eastbound	LT		9.54	A		11.49	B
	TR		8.67	A		10.95	B
Westbound	LT		11.85	B		17.38	C
	TR		8.59	A		14.88	B
Northbound	LTR		9.96	A		16.17	C
Southbound	LTR		12.16	B		93.07	F
			11.09	**B**		**50.48**	**F**

Drumgoole Road East at Bloomingdale Road

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	L		9.38	A		10.26	B
	TR		9.16	A		10.09	B
Westbound							
Northbound	L		8.61	A		9.30	A
	TR		12.57	B		30.98	D
Southbound	L		15.32	C		78.33	F
	TR		12.47	B		22.65	C
Intersection Delay			**13.36**	**B**		**46.23**	**E**

Englewood Avenue at Veterans Road West

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	T		8.06	A		9.77	A
	R		7.50	A		9.25	A
Westbound	L		11.25	B		38.49	E
	T		7.99	A		9.03	A
Northbound	L		8.58	A		9.76	A
	R		7.88	A		17.22	C
Southbound	L		9.11	A		11.24	B
	TR		8.71	A		11.28	B
Intersection Delay			**9.78**	**A**		**25.46**	**D**

Tyrellan Avenue at Boscombe Avenue

Direction	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
Eastbound	L	0.14	7.7	A	0.23	8.0	A	0.12	7.7	A	0.35	8.7	A	0.13	7.7	A	0.45	9.2	A
Westbound																			
Northbound					0.12	32.7	D											7.3	A
Southbound	L	0.05	13.2	B	0.10	21.1	C	0.04	12.2	B	0.18	36.8	E	0.07	13.0	B	0.59	115.6	F
	R	0.24	9.6	A	0.33	10.8	B	0.22	9.5	A	0.56	14.3	B	0.34	10.1	B	0.95	39.9	E
Intersection Delay			**9.9**	**A**		**32.7**	**D**		**9.7**	**A**		**15.3**	**C**		**10.4**	**B**		**43.1**	**E**

Boscombe Avenue at WSE Ramp

Direction	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
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																			
Northbound																			
Southbound	L	0.97	215.0	**F**			**F**	0.37	86.0	**F**			F	0.77	231.5	**F**			
	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
Intersection Delay			**52.5**	**F**			**F**		**24.2**	**C**			**F**		**41.5**	**E**		**F**	

Entrance/Exit to Pathmark at Arthur Kill Road

Intersection	Appr	Midday						PM					
		2002 Existing			2012 Future			2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS	V/C	Delay	LOS
Westbound	LT		8.20	A		9.70	A		8.60	A		10.90	B
Northbound	L		15.60	C		30.80	D		19.80	C		48.60	E
	R		11.20	B		18.30	C		14.20	B		45.70	E
Intersection Delay			**12.50**	**B**		**21.90**	**C**		**14.80**	**B**		**46.00**	**E**

Tyrellan Avenue at Veterans Road West

Direction	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	T		8.49	A		13.18	B
	R		9.71	A		28.61	D
Westbound	L		10.57	B		21.12	C
	T		10.03	B		24.08	C
Northbound	L		10.45	B		46.57	E
	R		8.01	A			
	TR					59.49	F
Southbound	LTR					118.98	F
Intersection Delay			**9.93**	**A**		**59.13**	**F**

West Shore Parkway at Veterans Road West

Intersection	Appr.	PM					
		2002 Existing			2012 Future		
		V/C	Delay	LOS	V/C	Delay	LOS
Eastbound	T		9.24	A		14.20	B
	R		8.73	A		27.53	D
Westbound	L		11.66	B		26.47	D
	T		9.77	A		28.03	D
Northbound	L		9.46	A		17.95	C
	R		9.04	A			
	TR					119.62	F
Southbound	LTR					18.36	C
Intersection Delay			**9.79**	**A**		**51.23**	**F**

Streets, Pavement and Sidewalk Conditions

The study area local street system is not well developed. Many mapped streets are not built and other streets are in poor physical condition, are very narrow or have varied widths. The community feels that some of the mapped streets should be built to complete the local street network. Among these streets are Englewood Avenue and Kent Street.

Some streets are not built to the mapped width. Arthur Kill Road is the only north/south arterial in the study area with a mapped width of 80 feet. Currently it is between 35 and 50 feet wide and heavily utilized by trucks and buses. If vehicles are parked on both sides of the street, it is difficult for heavy vehicles to maneuver. The streets without curbs and sidewalks hamper traffic flow, and create unsafe conditions for drivers as well as for pedestrians.

These conditions also exist along Bloomingdale Road, Sharrotts Road, Englewood Avenue, Richmond Valley Road, Clay Pit Road, Veterans Road West between Arthur Kill Road and West Shore Parkway, Kreischer Street, Androvette Street, Winant Place, Carlin Street and Manley Street. Street conditions are shown in Photos 1 and 2.

Photo 1. Arthur Kill Road without curbs and sidewalks

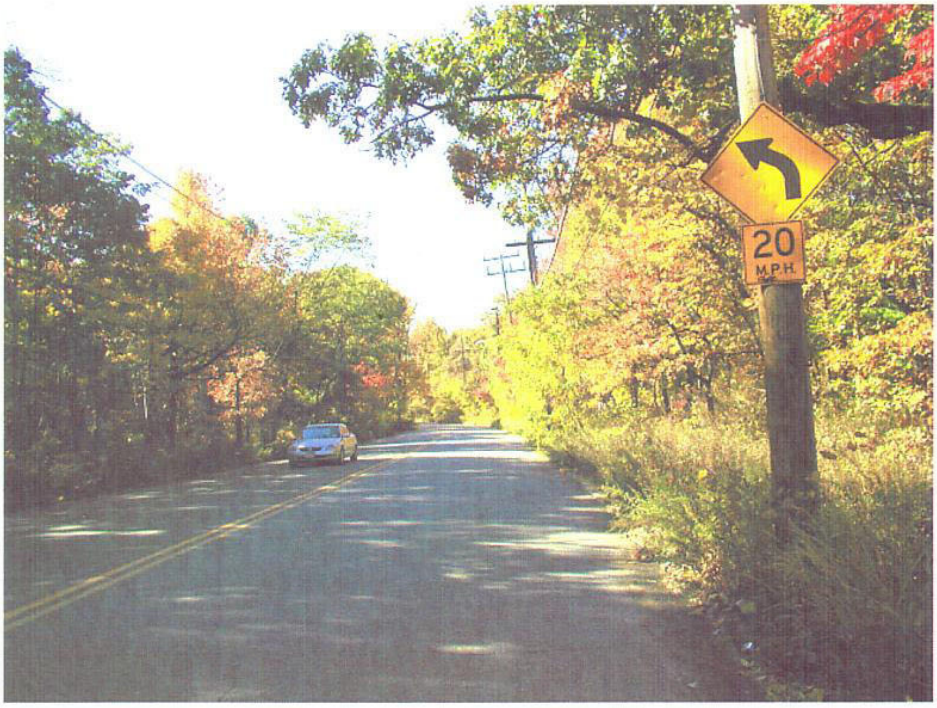

Photo 2. Bloomingdale Road without curbs and sidewalks

Truck Regulations and Route Signage

The lack of adequate truck route signage results in utilization by heavy vehicles of residential streets. There is no comprehensive signage program that provides direct information on how to access and move within the study area. Many of the designated local truck routes in the study area have no signage.

"Local Truck Route" signage was found at several locations, as indicated in Photos 3 and 4. Among them are:

- Boscombe Avenue at Tyrellan Avenue
- Veterans Road East at Sharrotts Road
- Sharrotts Road at Veterans Road West
- Arthur Kill Road at Main Street

Photo 3. "Local Truck Route" signage at Boscombe Avenue and Tyrellan Avenue

Additionally a few signs were observed in the midblocks along Arthur Kill Road and on northbound Bloomingdale Road at Mason Boulevard.

Sharrotts Road between Veterans Road East and Veterans Road West is a designated truck route, however between Veterans Road West and Arthur Kill Road it is not. The community expressed concern that tractor trailer trucks, oil tanker trucks and other heavy vehicles going to the transfer station on Arthur Kill Road use this portion of Sharrotts Road as a short-cut.

Truck traffic is considerable along local streets, and it is expected that without enforcement, proper signage, and improvements, these streets will continue to be utilized by heavy vehicles.

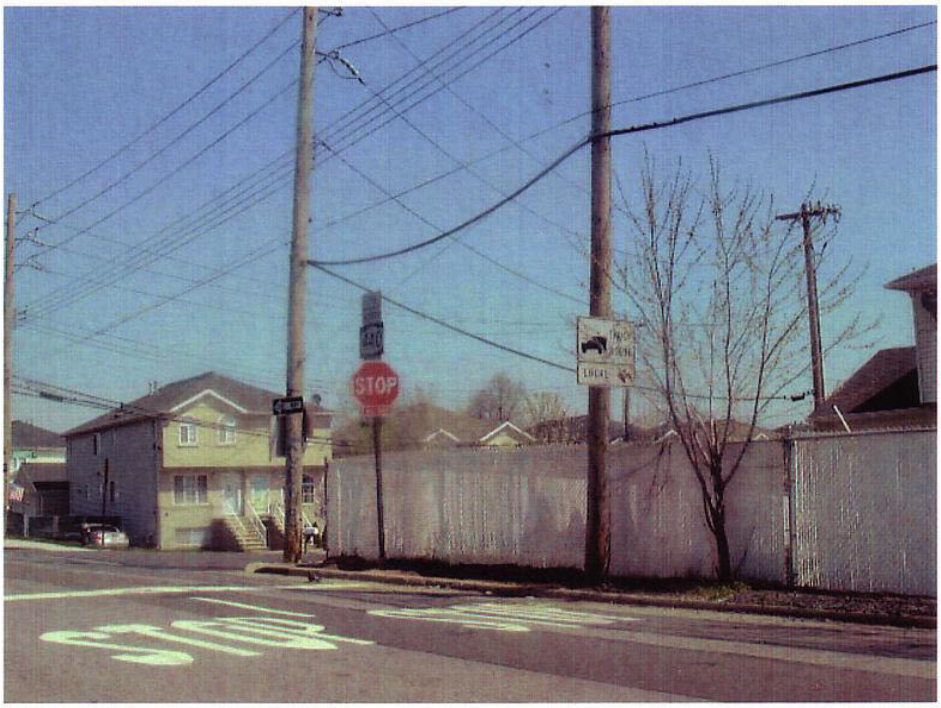

Photo 4. "Local Truck Route" signage at Veterans Road East and Sharrotts Road

Parking

Field observation revealed that because of no parking restrictions along most of the streets, local businesses parking their vehicles along local roads make the traffic conditions even worse.

The community indicated that employees of businesses located on Arthur Kill Road and a bus company located on Manley Street, park their cars along Arthur Kill Road.

Many businesses cannot fit all of their vehicles in their driveways, which causes unsafe conditions by blocking the street and obstructing traffic. For example, near Carlin Street, vehicles protrude onto Sharrotts Road for about 5 feet or more. This creates a hazard when exiting Carlin Street onto Sharrotts Road. It is also impossible to see oncoming traffic.

Another problem was identified on Carlin Street. Carlin Street is the only street which provides access to the Clay Pit Ponds Park entrance. It is a narrow road frequently used by school buses. If cars were parked on both sides of the street there would not be adequate space for a bus to turn down Carlin Street as it traveled to Clay Pit Ponds State Park. Currently there are "No Parking Anytime" signs on the east side of Carlin Street.

Additionally, parking problems exist on local streets adjacent to Staten Island Railroad stations, due to a lack of park-and-ride facilities for commuters using the railroad (Photos 5 and 6).

Photo 5. Commuter parking at the Tottenville Railroad Station

Photo 6. Commuter parking at the Nassau Railroad Station

Transit Service

Staten Island Railroad

The future growth in population is not expected to have an impact in 2012 on the stairways at the analyzed stations. All analyzed locations would continue to operate at a comfortable level of service. However, with the increase of ridership, the local streets located in proximity to the railroad stations will most likely have a worse parking problem.

Bus

Field observation revealed that most (if not all) bus stops are currently in a state of disrepair. Bus stop signage is usually located in overgrown areas. There are no platforms or shelters for passengers waiting for a bus as indicated in Photos 7 and 8. Most of the time, people have to wait for a bus in the roadbed. Even along the commercial strips on Arthur Kill Road, and in front of the school for disabled students, the bus stops do not have shelters or appropriate pavement in the waiting areas.

Photo 7. One of the many bus stops on Arthur Kill Road without a platform or shelter

Maximum load point analysis indicates that local buses serving the study area currently operate at available capacity. However, in the future there would be an increase in demand during the evening peak hour. Based on the current service for the S84 bus route, there could be only a few extra buses required.

Photo 8. Bus stop in front of the school for disabled students on Arthur Kill Road

Equestrian Issues

The Staten Island Horse Association (SIHA) promotes the horse industry not only to those in and around the study area but to all of the Staten Island public. Through local civic involvement, this organization strongly responds to the dedication of preserving local parks and recreation areas, including the dwindling bridal paths left in Staten Island. The entrance to a horse pass is shown in Photo 9.

The local riding academies and stables provide to the adults and children of the Staten Island community the experience of learning first hand about life with horses. They act as places of learning, and riders exercise their knowledge in the spirit of competition.

There are 27 horse crossing intersections within the study area, 12 of which were analyzed for LOS conditions. The following three are signalized:
Bloomingdale Road & Arthur Kill Road
Bloomingdale Road & Veterans Road West
Bloomingdale Road & Sharrotts Road

The following nine are unsignalized:
Veterans Road West & Sharrotts Road
Veterans Road East & Sharrotts Road
Veterans Road West & Englewood Avenue
Veterans Road East & Englewood Avenue
Arthur Kill Road & Sharrotts Road
Arthur Kill Road & Veterans Road West

Veterans Road West & West Shore Parkway
Veterans Road West & Tyrellan Avenue
Boscombe Avenue & Tyrellan Avenue

To ensure the compatibility of the horse industry with future traffic growth, adequate signage is necessary. The signage should be installed and maintained at the existing crossings, and at entrance and exit points to the stables.

Photo 9. Horse pass at Sharrotts Road and Veterans Road West

Parkland and Open Space
Most parks, open space and streams in the study area are natural preserves, which are protected by limiting changes in topography and by clustering development to minimize impacts to these natural features.

Additionally, there is no city sewer plan for this part of Staten Island. Most of the area within the study boundaries, has a high level of ground water and wetlands. Often, developers do not do enough research, or ignore sensitivity to the land before the construction starts. This ignorance creates problems for the neighborhood, and impacts surrounding natural areas.

Pedestrian

The Charleston area does not have typical pedestrian activity, like other parts of Staten Island, since there is such a high percentage of undeveloped land. Field observation indicated that most of the streets within the study area have no sidewalks or crosswalks, and there is minimal pedestrian activity. Therefore, the pedestrian analysis (even with an increase in population) indicate that five of the analyzed locations would continue to operate at a comfortable level of service. The intersections we analyzed for pedestrian circulation indicate the following:

Sidewalks

The pedestrian analysis revealed that, with the proposed developments, there will be a substantial increase in pedestrian activity. However, the current sidewalk width (wherever it exists) is adequate to accommodate future pedestrian circulation.

Corners

The corner analysis revealed that most of the corners would operate at LOS mid D and above with the exception of Bloomingdale Road at Woodrow Road. The northeast corner of this intersection would operate at LOS F during all peak hours, and the southeast corner would operate at LOS F during the morning and the evening peak hours.

Crosswalks

The crosswalk analysis identified that all analyzed crosswalks would operate at a comfortable level of service during the AM, MD and PM peak hours.

With the population continuously growing, it is essential to promote pedestrian circulation by providing more sidewalks and pedestrian crossings in the area.

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