

APPENDIX 24:
LESSER DENSITY ALTERNATIVE

**APPENDIX 24:
LESSER DENSITY
ALTERNATIVE**

**HUNTER’S POINT SOUTH
REZONING AND RELATED ACTIONS
Final Environmental Impact Statement**

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**APPENDIX TABLE 24-1
HUNTER'S POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE**

INTERSECTION & APPROACH	<u>AM (7:45 - 8:45 AM)</u>				<u>Midday (1:00 - 2:00 PM)</u>				<u>PM (4:45 - 5:45 PM)</u>				
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
SIGNALIZED INTERSECTIONS													
<u>VERNON BOULEVARD</u>													
VERNON BOULEVARD & BORDEN AVENUE													
Vernon Boulevard	SB	L	1.12	89.4	F	L	0.98	46.6	D	L	1.09	75.4	E
		LR	1.20+	120+	F*	LR	0.95	45.2	D	LR	1.06	72.4	E
Borden Avenue	EB	LT	1.20+	120+	F*	LT	1.20+	120+	F*	LT	1.20+	120+	F*
	WB	T	0.48	14.4	B	T	0.61	16.4	B	T	0.97	37.7	D
Overall Intersection	-	1.20+	120+	F*	-	1.18	82.4	F	-	1.20+	120+	F*	
<u>JACKSON AVENUE/NORTHERN BOULEVARD</u>													
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)													
11th Street (Pulaski Bridge)	NB	LT	1.20+	120+	F*	LT	0.98	60.6	E	LT	1.20+	120+	F*
		R	1.15	120+	F*	R	0.81	45.0	D	R	0.93	57.9	E
Jackson Avenue	SB	LTR	0.72	32.8	C	LTR	0.56	31.3	C	LTR	0.76	34.0	C
	EB	LT	0.76	39.6	D	LT	0.77	40.1	D	DefL	0.72	52.6	D
		-	-	-	-	-	-	-	-	T	0.78	42.9	D
	WB	DefL	1.20+	120+	F*	DefL	1.18	120+	F*	DefL	1.15	104.8	F
		T	0.66	24.1	C	T	0.65	23.7	C	T	0.73	26.3	C
11th Street Service Road	NB	R	1.20+	120+	F*	R	0.89	65.5	E	R	0.60	46.5	D
Overall Intersection	-	1.20+	120+	F*	-	1.20+	60.3	E	-	1.20+	101.3	F	
JACKSON AVENUE & 21ST STREET													
21st Street	NB	LTR	0.87	41.8	D	LTR	1.09	101.5	F	LTR	1.20+	120+	F*
	SB	LTR	0.67	31.5	C	LTR	0.81	44.2	D	LTR	1.20+	120+	F*
Jackson Avenue	EB	L	1.20+	120+	F*	L	1.02	92.5	F	L	1.14	119.7	F
		TR	0.90	46.9	D	TR	0.56	25.6	C	TR	0.58	27.7	C
	WB	L	0.56	26.2	C	L	0.45	15.7	B	L	0.50	17.0	B
		TR	0.95	53.8	D	TR	0.77	31.4	C	TR	0.97	49.2	D
Overall Intersection	-	1.20+	62.0	E	-	1.05	50.5	D	-	1.20+	93.0	F	

**APPENDIX TABLE 24-1
HUNTER'S POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE**

INTERSECTION & APPROACH	AM (7:45 - 8:45 AM)				Midday (1:00 - 2:00 PM)				PM (4:45 - 5:45 PM)					
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS		
<u>VAN DAM STREET</u>														
VAN DAM STREET & THOMSON AVENUE/QUEENS BOULEVARD														
Van Dam Street	NB	L	1.20+	120+	F*	L	1.20+	120+	F*	L	1.20+	120+	F*	
		TR	1.08	116.7	F	TR	1.11	111.2	F	TR	1.12	120+	F*	
Queens Boulevard (to Queens Boulevard.)	EB	T	1.10	118.1	F	T	0.67	31.0	C	T	1.20	120+	F*	
Queens Boulevard (to Van Dam Street)		T	1.03	97.8	F	T	0.94	61.7	E	T	1.08	111.7	F	
Queens Boulevard (to Thomson Avenue WB)		R	0.09	47.9	D	R	0.08	35.5	D	R	0.07	46.7	D	
Thomson Avenue	EB	T	0.28	15.6	B	T	0.66	22.7	C	T	1.17	110.0	F	
		R	1.00	66.2	E	R	1.17	115.4	F	R	0.97	55.1	E	
Queens Boulevard (to Thomson Avenue WB)	WB	L	1.20+	120+	F*	L	0.95	71.5	E	L	0.67	64.1	E	
Queens Boulevard (to Viaduct)		TR	0.51	12.3	B	TR	0.33	9.2	A	TR	0.34	9.1	A	
Overall Intersection	-		1.15	109.7	F	-	1.20+	69.2	E	-	1.20+	107.0	F	
VAN DAM STREET & LIE EXIT RAMP														
Van Dam Street	NB	LT	0.42	22.6	C	LT	0.23	15.8	B	LT	0.35	21.6	C	
		SB	TR	0.94	42.0	D	TR	1.14	120+	F*	TR	1.20+	120+	F*
Queens Midtown Exp.		WB	TR	1.20+	120+	F*	TR	1.20+	120+	F*	TR	1.20+	120+	F*
Overall Intersection	-		1.11	120+	F*	-	1.19	120+	F*	-	1.20+	120+	F*	
VAN DAM STREET & BORDEN AVENUE														
Van Dam Street	NB	TR	0.63	42.6	D	TR	0.67	40.5	D	TR	0.50	39.4	D	
		SB	DefL	0.97	52.1	D	DefL	0.88	27.1	C	DefL	1.20+	120+	F*
		T	0.30	14.7	B	T	0.22	10.6	B	T	0.66	21.6	C	
Borden Avenue	EB	LTR	0.62	33.8	C	LTR	0.61	27.0	C	LTR	1.15	114.8	F	
Overall Intersection	-		0.84	41.4	D	-	0.79	27.5	C	-	1.20+	120+	F*	

**APPENDIX TABLE 24-1
HUNTER'S POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE**

INTERSECTION & APPROACH	<u>AM (7:45 - 8:45 AM)</u>				<u>Midday (1:00 - 2:00 PM)</u>				<u>PM (4:45 - 5:45 PM)</u>				
	Control				Control				Control				
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
UN SIGNALIZED INTERSECTIONS													
11TH STREET/11TH PLACE													
11TH STREET & BORDEN AVENUE AT QMT TOLL PLAZA EXIT RAMP													
11th Street	NB	LTR	-	120+	F*	LTR	-	120+	F*	LTR	-	120+	F*
	SB	LTR	-	120+	F*	LTR	-	120+	F*	LTR	-	120+	F*
Borden Avenue	EB	LTR	-	120+	F*	LTR	-	55.8	F	LTR	-	120+	F*
	WB	LTR	-	8.0	A	LTR	-	7.8	A	LTR	-	8.0	A
Overall Intersection	-	-	Note (5)	F*	-	-	Note (5)	F*	-	-	Note (5)	F*	

(1) Control delay is measured in seconds per vehicle.

(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.

(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.

(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.

(5) Overall delay cannot be calculated since the delay for some of the movements is beyond the threshold delay of HCS methodology.

**APPENDIX TABLE 24-2
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (AM PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build				2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures		
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS			
SIGNALIZED INTERSECTIONS															
VERNON BOULEVARD															
VERNON BOULEVARD & BORDEN AVENUE															
Vernon Boulevard	SB	L	1.12	89.4	F	L	1.12	89.4	F	L	0.87	34.8	C	<p>- Partially Mitigated.</p> <ul style="list-style-type: none"> - Install "No Standing Anytime" regulation along the west curb of SB Vernon Boulevard for 120 ft. and restripe the approach from one 9 ft. left turn lane and one 15 ft. left-right lane to two 11 ft. left turn lanes and one 11 ft. right turn lane by switching the parking on the east side from angle to parallel to gain an additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation along the south curb of EB Borden Avenue 250 ft. from the intersection and restripe the approach from one 24 ft. lane with parking to one 12 ft. shared left-through lane and one 12 ft. through lane. - Shift the centerline of WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe the receiving side of EB Borden Avenue as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right turn lane to one 11 ft. through lane and one 11 ft. through-right lane. - Restripe the receiving side of WB Borden Avenue from one 30 ft. lane with parking to one 11 ft. lane and one 19 ft. lane with parking. - Modify cycle length from 60 s to 90 s. [EB/WB green time shifts from 25 s to 48 s; SB green time shifts from 25 s to 32 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.67	19.6	B	LR	1.20+	120+	F*	R	0.82	41.8	D		
Borden Avenue	EB	LT	0.81	23.0	C	LT	1.20+	120+	F*	LT	1.03	53.5	D		
	WB	T	0.27	12.2	B	T	0.48	14.4	B	TR	0.63	16.2	B		
Overall Intersection	-		0.97	43.9	D	-	1.20+	120+	F*	-	0.97	36.1	D		
JACKSON AVENUE/NORTHERN BOULEVARD															
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)															
11th Street (Pulaski Bridge)	NB	-	-	-	F*	-	-	-	-	L	0.75	50.7	D		<ul style="list-style-type: none"> - Post signs on the Pulaski Bridge to direct right turning traffic to the 11th Street service road with signs for Queens Boulevard/Queensboro Bridge traffic. - Restripe NB 11th Street service road approach traffic island to allow for two 12 ft. right turn lanes by removing parking along the west curb. - Restripe NB Pulaski Bridge shared left-through lane to an exclusive left turn lane. - Post signs along WB Jackson Avenue to advise motorists of the double left turn onto the Pulaski Bridge and one through lane for Jackson Avenue traffic. - Install "No Standing Anytime" regulation along the north curb of WB Jackson Avenue for the entire block and restripe the approach from one 10 ft. shared left-through lane and one 20 ft. through lane with parking to two 10 ft. left turn lanes and one 10 ft. through lane. - Prohibit the WB Jackson Avenue left-turn during the permitted EB/WB phase.
		LT	1.20+	120+	F*	LT	1.20+	120+	F*	T	0.90	43.1	D		
		R	1.09	99.8	F	R	1.15	120+	F*	-	-	-	-		
Jackson Avenue	SB	LTR	0.71	32.6	C	LTR	0.72	32.8	C	LTR	0.72	32.9	C		
	EB	LT	0.47	31.8	C	LT	0.76	39.6	D	LT	0.76	39.6	D		
	WB	DefL	1.15	116.4	F	DefL	1.20+	120+	F*	L	1.00	74.0	E		
		T	0.40	120+	F*	T	0.66	24.1	C	T	0.71	25.9	C		
11th Street Service Road	NB	R	1.20+	120+	F*	R	1.20+	120+	F*	R	0.70	15.8	B		
Overall Intersection	-		1.20+	109.5	F	-	1.20+	120+	F*	-	0.88	38.6	D		
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	0.85	39.7	D	LTR	0.87	41.8	D	LTR	0.90	44.9	D	<ul style="list-style-type: none"> - Partially Mitigated. - Install "No Standing 7:00 AM - 10:00 AM; 4:00 PM - 7:00 PM" regulation on the north curb of WB Jackson Avenue. - Modify signal timing: shift 1 s of green time from NB/SB phase to EB/WB phase [NB/SB phase green time shifts from 50 s to 49 s; EB/WB phase green time shifts from 42 s to 43 s]. 	
	SB	LTR	0.60	29.4	C	LTR	0.67	31.5	C	LTR	0.69	32.6	C		
Jackson Avenue	EB	L	1.00	88.9	F	L	1.20+	120+	F*	L	1.20+	120+	F*		
		TR	0.76	38.8	D	TR	0.90	46.9	D	TR	0.88	44.3	D		
	WB	L	0.51	23.5	C	L	0.56	26.2	C	L	0.54	25.1	C		
		TR	0.81	40.9	D	TR	0.95	53.8	D	TR	0.87	43.4	D		
Overall Intersection	-		0.93	41.5	D	-	1.20+	62.0	E	-	1.20+	58.2	E		

**APPENDIX TABLE 24-2
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (AM PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build					2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures
	Mvt.	V/C	Delay	LOS		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
VAN DAM STREET														
VAN DAM STREET & THOMSON AVENUE/QUEENS BOULEVARD														
Van Dam Street	NB	L	1.20+	120+	F*	L	1.20+	120+	F*					- Unmitigatable Impact.
		TR	1.08	116.7	F	TR	1.08	116.7	F					
Queens Boulevard (to Queens Boulevard.)	EB	T	1.10	118.1	F	T	1.10	118.1	F					
Queens Boulevard (to Van Dam Street)		T	1.03	97.8	F	T	1.03	97.8	F					
Queens Boulevard (to Thomson Avenue WB)		R	0.09	47.9	D	R	0.09	47.9	D					
Thomson Avenue	EB	T	0.23	15.0	B	T	0.28	15.6	B					
		R	1.00	66.2	E	R	1.00	66.2	E					
Queens Boulevard (to Thomson Avenue WB)	WB	L	1.18	120+	F*	L	1.20+	120+	F*					
Queens Boulevard (to Viaduct)		TR	0.51	12.3	B	TR	0.51	12.3	B					
Overall Intersection	-		1.15	103.5	F	-	1.15	109.7	F					
VAN DAM STREET & LIE EXIT RAMP														
Van Dam Street	NB	LT	0.42	22.6	C	LT	0.42	22.6	C	LT	0.70	40.3	D	- Restripe WB Queens Midtown Expressway Exit Ramp from two 11 ft. through lanes and one 11 ft. shared through right lane to two 11 ft. through lanes and one 11 ft. exclusive right turn lane.
	SB	TR	0.94	42.0	D	TR	0.94	42.0	D	TR	0.96	45.4	D	
Queens Midtown Exp.	WB	TR	1.20+	120+	F*	TR	1.20+	120+	F*	T	1.13	120+	F*	
		-	-	-	-	-	-	-	-	R	1.01	53.0	D	
		-	-	-	-	-	-	-	-					
Overall Intersection	-		1.08	119.8	F	-	1.11	120+	F*	-	1.05	94.5	F	
VAN DAM STREET & BORDEN AVENUE														
Van Dam Street	NB	TR	0.63	42.6	D	TR	0.63	42.6	D	TR	0.70	46.8	D	- Mitigation not required. - Modify signal timing plan to coordinate with Van Dam Street and LIE Exit Ramp: Maintain the existing 120 s cycle length with the following signal timing: EB green time is 43 s, NB/SB green time is 28 s, and SB green time is 34 s (each phase has 3 s amber and 2 s all red).
	SB	DefL	0.97	52.1	D	DefL	0.97	52.1	D	DefL	0.92	43.6	D	
		T	0.30	14.7	B	T	0.30	14.7	B	T	0.30	14.7	B	
Borden Avenue	EB	LTR	0.54	32.1	C	LTR	0.62	33.8	C	LTR	0.62	33.8	C	
		-	-	-	-	-	-	-	-	-	-	-	-	
Overall Intersection	-		0.81	41.3	D	-	0.84	41.4	D	-	0.82	38.4	D	
UNSIGNALIZED INTERSECTIONS														
11TH STREET/11TH PLACE														
11TH STREET & BORDEN AVENUE AT QMT TOLL PLAZA EXIT RAMP														
11th Street	NB	LTR	-	120+	F*	(UNSIGNALIZED INTERSECTION)				(SIGNALIZED INTERSECTION)				- Prohibit NB 11th Street left turns (on to Borden Avenue) and through movement (on to QMT/LIE) and restripe this approach as one 20 ft. right turn only lane. - Prohibit SB QMT Exit left turns (on to Borden Avenue) and through movement (on to 11th Street) and restripe this approach as one 26 ft. right turn only lane. - Restripe EB Borden Avenue from one 20 ft. lane to one 10 ft. left turn lane and one 10 ft. through right lane. - Restripe WB Borden Avenue from one 22 ft. lane to one 11 ft. shared left-through lane and one 11 ft. shared through right lane. - Install a new traffic signal with a 90-second cycle length. [EB+SB right turn green time is 44 s; WB+EB-left+NB right turn green time is 36 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from SB QMT Exit. - Provide signage along the QMT to direct traffic headed to 11th Street and EB Borden Avenue to use the 21st Street ramp.
	SB	LTR	-	120+	F*	LTR - 120+ F*				R 0.05 16.7 B				
Borden Avenue	EB	LTR	-	120+	F*	LTR - 120+ F*				R 0.17 13.1 B				
		-	-	-	-	-				L 1.20+ 120+ F*				
	WB	LTR	-	7.8	A	LTR - 8.0 A				TR 0.42 15.9 B				
		-	-	-	-	-				LTR 0.97 40.0 D				
Overall Intersection	-		-	Note (5)	F*	-				-				
						-				-				
						-				-				
						-				-				

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.
(5) Overall delay cannot be calculated since the delay for some of the movements is beyond the threshold delay of HCS methodology.

**APPENDIX TABLE 24-3
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (MIDDAY PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build				2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures		
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS			
SIGNALIZED INTERSECTIONS															
VERNON BOULEVARD															
VERNON BOULEVARD & BORDEN AVENUE															
Vernon Boulevard	SB	L	0.98	46.6	D	L	0.98	46.6	D	L	0.85	35.1	D	<ul style="list-style-type: none"> - Install "No Standing Anytime" regulation on the west curb of SB Vernon Boulevard for 120 ft. and restripe the approach from one 9 ft. left turn lane and one 15 ft. left-right lane to two 11 ft. left turn lanes and one 11 ft. right turn lane by switching the parking on the east side from angle to parallel to gain an additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation along the south curb of EB Borden Avenue 250 ft. from the intersection and restripe the approach from one 24 ft. lane with parking to one 12 ft. shared left-through lane and one 12 ft. through lane. - Shift the centerline of WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe the receiving side of EB Borden Avenue as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right turn lane to one 11 ft. through lane and one 11 ft. through-right lane. - Restripe the receiving side of WB Borden Avenue from one 30 ft. lane with parking to one 11 ft. lane and one 19 ft. lane with parking. - Modify cycle length from 60 s to 90 s. [EB/WB green time shifts from 25 s to 50 s; SB green time shifts from 25 s to 30 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.56	16.6	B	LR	0.95	45.2	D	R	0.56	30.2	C		
Borden Avenue	EB	LT	0.58	16.6	B	LT	1.20+	120+	F*	DefL	0.81	34.3	C		
		-	-	-	-	-	-	-	-	T	0.41	12.4	B		
	WB	T	0.50	14.7	B	T	0.61	16.4	B	TR	0.69	16.4	B		
Overall Intersection	-	-	0.78	26.5	C	-	1.18	82.4	F	-	0.82	23.8	C		
JACKSON AVENUE/NORTHERN BOULEVARD															
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)															
11th Street (Pulaski Bridge)	NB	-	-	-	-	-	-	-	-	L	0.52	36.0	D		<ul style="list-style-type: none"> - Post signs on the Pulaski Bridge to direct right turning traffic to the 11th Street service road with signs for Queens Boulevard/Queensboro Bridge traffic. - Restripe NB 11th Street service road approach traffic island to allow for two 12 ft. right turn lanes by removing parking along the west curb. - Restripe NB Pulaski Bridge shared left-through lane to an exclusive left turn lane. - Post signs along WB Jackson Avenue to advise motorists of the double left turn onto the Pulaski Bridge and one through lane for Jackson Avenue traffic. - Install "No Standing Anytime" regulation along the north curb of WB Jackson Avenue for the entire block and restripe the approach from one 10 ft. shared left-through lane and one 20 ft. through lane with parking to two 10 ft. left turn lanes and one 10 ft. through lane. - Prohibit WB Jackson Avenue left turn during the permitted EB/WB phase.
		LT	0.82	40.0	D	LT	0.98	60.6	E	T	0.63	32.6	C		
		R	0.81	45.0	D	R	0.81	45.0	D	-	-	-	-		
Jackson Avenue	SB	LTR	0.53	30.6	C	LTR	0.56	31.3	C	LTR	0.56	31.5	C		
	EB	LT	0.47	31.7	C	LT	0.77	40.1	D	LT	0.77	40.1	D		
	WB	DefL	1.07	90.6	F	DefL	1.18	120+	F*	L	0.91	59.7	E		
		T	0.47	19.6	B	T	0.65	23.7	C	T	0.69	25.4	C		
11th Street Service Road	NB	R	0.89	65.5	E	R	0.89	65.5	E	R	0.47	11.4	B		
Overall Intersection	-	-	1.00	48.1	D	-	1.20+	60.3	E	-	0.75	33.4	C		
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	1.06	89.5	F	LTR	1.09	101.5	F	LTR	1.02	78.2	E	<ul style="list-style-type: none"> - Partially Mitigated. - Install "No Standing 10:00 AM - 7:00 PM" regulation on the east curb of NB 21st Street. 	
	SB	LTR	0.74	40.8	D	LTR	0.81	44.2	D	LTR	0.81	44.2	D		
Jackson Avenue	EB	L	0.71	24.4	C	L	1.02	92.5	F	L	1.02	92.5	F		
		TR	0.52	24.8	C	TR	0.56	25.6	C	TR	0.56	25.6	C		
	WB	L	0.43	15.2	B	L	0.45	15.7	B	L	0.45	15.7	B		
		TR	0.71	29.4	C	TR	0.77	31.4	C	TR	0.77	31.4	C		
Overall Intersection	-	-	0.87	41.7	D	-	1.05	50.5	D	-	1.03	46.1	D		

**APPENDIX TABLE 24-3
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (MIDDAY PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build				2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures			
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS				
VAN DAM STREET																
VAN DAM STREET & THOMSON AVENUE/QUEENS BOULEVARD																
Van Dam Street	NB	L	1.20+	120+	F*	L	1.20+	120+	F*					- Unmitigatable Impact.		
		TR	1.11	111.2	F	TR	1.11	111.2	F							
Queens Boulevard (to Queens Boulevard.)	EB	T	0.67	31.0	C	T	0.67	31.0	C							
Queens Boulevard (to Van Dam Street)		T	0.94	61.7	E	T	0.94	61.7	E							
Queens Boulevard (to Thomson Avenue WB)		R	0.08	35.5	D	R	0.08	35.5	D							
Thomson Avenue	EB	T	0.64	22.4	C	T	0.66	22.7	C							
		R	1.17	115.4	F	R	1.17	115.4	F							
Queens Boulevard (to Thomson Avenue WB)	WB	L	0.92	67.2	E	L	0.95	71.5	E							
Queens Boulevard (to Viaduct)		TR	0.33	9.2	A	TR	0.33	9.2	A							
Overall Intersection	-		1.20+	68.8	E	-	1.20+	69.2	E							
VAN DAM STREET & LIE EXIT RAMP																
Van Dam Street	NB	LT	0.23	15.8	B	LT	0.23	15.8	B	LT	0.58	34.8	C	- Restripe WB Queens Midtown Expressway Exit Ramp from two 11 ft. through lanes and one 11 ft. shared through right lane to two 11 ft. through lanes and one 11 ft. exclusive right turn lane. - Modify signal phasing plan: Add a new lag phase for SB approach with WB right turn only; maintain the existing 90 s cycle length with the following signal timing: WB green time is 40 s, NB/SB green time is 20 s, and SB/WB-right only green time is 15 s (each phase has 3 s amber and 2 s all red).		
		SB	1.14	120+	F*	TR	1.14	120+	F*	TR	1.14	120+	F*			
Queens Midtown Exp.	WB	TR	1.18	109.2	F	TR	1.20+	120+	F*	T	1.03	52.4	D			
		-	-	-	-	-	-	-	-	R	0.95	29.1	C			
Overall Intersection	-		1.16	108.3	F	-	1.19	120+	F*	-	1.08	72.3	E			
VAN DAM STREET & BORDEN AVENUE																
Van Dam Street	NB	TR	0.67	40.5	D	TR	0.67	40.5	D	TR	0.67	40.5	D		- Mitigation not required. - Modify signal phasing to allowed pedestrian movements to match AM/PM peak periods.	
		SB	DefL	0.88	27.1	C	DefL	0.88	27.1	C	DefL	0.90	28.7			C
		T	0.22	10.6	B	T	0.22	10.6	B	T	0.22	10.6	B			
Borden Avenue	EB	LTR	0.59	26.6	C	LTR	0.61	27.0	C	LTR	0.61	27.0	C			
Overall Intersection	-		0.78	27.4	C	-	0.79	27.5	C	-	0.80	28.3	C			
UNSIGNALIZED INTERSECTIONS																
11TH STREET/11TH PLACE																
11TH STREET & BORDEN AVENUE AT QMT TOLL PLAZA EXIT RAMP																
11th Street			(UNSIGNALIZED INTERSECTION)			(UNSIGNALIZED INTERSECTION)			(SIGNALIZED INTERSECTION)					- Prohibit NB 11th Street left turns (on to Borden Avenue) and through movement (on to QMT/LIE) and restripe this approach as one 20 ft. right turn only lane. - Prohibit SB QMT Exit left turns (on to Borden Avenue) and through movement (on to 11th Street) and restripe this approach as one 26 ft. right turn only lane. - Restripe EB Borden Avenue from one 20 ft. lane to one 10 ft. left turn lane and one 10 ft. through right lane. - Restripe WB Borden Avenue from one 22 ft. lane to one 11 ft. shared left-through lane and one 11 ft. shared through right lane. - Install a new traffic signal with a 90-second cycle length. [EB+SB right turn green time is 41 s; WB+EB-left+NB right turn green time is 39 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from SB QMT Exit. - Provide signage along the QMT to direct traffic headed to 11th Street and EB Borden Avenue to use the 21st Street ramp.		
	NB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.13	15.7	B			
	SB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.19	15.0	B			
Borden Avenue	EB	LTR	-	28.5	D	LTR	-	55.8	F	L	0.88	21.9	C			
		-	-	-	-	-	-	-	-	TR	0.36	16.9	B			
	WB	LTR	-	7.7	A	LTR	-	7.8	A	LTR	0.66	21.9	C			
Overall Intersection	-		-	Note (5)	F*	-	-	Note (5)	F*	-	0.85	20.7	C			

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.
(5) Overall delay cannot be calculated since the delay for some of the movements is beyond the threshold delay of HCS methodology.

**APPENDIX TABLE 24-4
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (PM PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build				2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures		
	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS			
SIGNALIZED INTERSECTIONS															
VERNON BOULEVARD															
VERNON BOULEVARD & BORDEN AVENUE															
Vernon Boulevard	SB	L	1.09	75.4	E	L	1.09	75.4	E	L	0.93	41.5	D	<p>- Partially Mitigated.</p> <ul style="list-style-type: none"> - Install "No Standing Anytime" regulation along the west curb of SB Vernon Boulevard for 120 ft. and restripe the approach from one 9 ft. left turn lane and one 15 ft. left-right lane to two 11 ft. left turn lanes and one 11 ft. right turn lane by switching the parking on the east side from angle to parallel to gain an additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation along the south curb of EB Borden Avenue 250 ft. from the intersection and restripe the approach from one 24 ft. lane with parking to one 12 ft. shared left-through lane and one 12 ft. through lane. - Shift the centerline of WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe the receiving side of EB Borden Avenue as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right turn lane to one 11 ft. through lane and one 11 ft. through-right lane. - Restripe the receiving side of WB Borden Avenue from one 30 ft. lane with parking to one 11 ft. lane and one 19 ft. lane with parking. - Modify cycle length from 60 s to 90 s. [EB/WB green time shifts from 25 s to 50 s; SB green time shifts from 25 s to 30 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.59	16.9	B	LR	1.06	72.4	E	R	0.63	32.6	C		
Borden Avenue	EB	LT	0.91	35.9	D	LT	1.20+	120+	F*	DefL	1.20+	120+	F*		
		-	-	-	-	-	-	-	-	T	0.50	13.6	B		
	WB	T	0.58	15.7	B	T	0.97	37.7	D	TR	0.83	19.9	B		
Overall Intersection	-	1.00	40.9	D	-	1.20+	120+	F*	-	1.20+	50.1	D			
JACKSON AVENUE/NORTHERN BOULEVARD															
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)															
11th Street (Pulaski Bridge)	NB	-	-	-	-	-	-	-	-	L	1.20	120+	F		<p>- Partially Mitigated.</p> <ul style="list-style-type: none"> - Post signs on the Pulaski Bridge to direct right turning traffic to the 11th Street service road with signs for Queens Boulevard/Queensboro Bridge traffic. - Restripe NB 11th Street service road approach traffic island to allow for two 12 ft. right turn lanes by removing parking along the west curb. - Restripe NB Pulaski Bridge shared left-through lane to an exclusive left turn lane. - Post signs along WB Jackson Avenue to advise motorists of the double left turn onto the Pulaski Bridge and one through lane for Jackson Avenue traffic. - Install "No Standing Anytime" regulation along the north curb of WB Jackson Avenue for the entire block and restripe the approach from one 10 ft. shared left-through lane and one 20 ft. through lane with parking to two 10 ft. left turn lanes and one 10 ft. through lane. - Prohibit WB Jackson Avenue left turn during the permitted EB/WB phase. - Modify signal timing: shift 4 s of green time from NB/SB phase to WB-lead phase [NB/SB phase green time shifts from 45 s to 41 s; WB-lead phase green time shifts from 28 s to 32 s].
		LT	1.17	120+	F*	LT	1.20+	120+	F*	T	0.82	41.4	D		
		R	0.89	50.7	D	R	0.93	57.9	E	-	-	-	-		
Jackson Avenue	SB	LTR	0.75	33.3	C	LTR	0.76	34.0	C	LTR	0.84	40.9	D		
	EB	LT	0.48	31.9	C	DefL	0.72	52.6	D	LT	0.77	40.5	D		
		-	-	-	-	T	0.78	42.9	D	-	-	-	-		
	WB	DefL	1.15	104.9	F	DefL	1.15	104.8	F	L	1.11	103.5	F		
		T	0.47	19.5	B	T	0.73	26.3	C	T	0.74	24.4	C		
11th Street Service Road	NB	R	0.60	46.5	D	R	0.60	46.5	D	R	0.47	11.4	B		
Overall Intersection	-	1.16	73.1	E	-	1.20+	101.3	F	-	1.05	53.4	D			
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	1.20+	120+	F*	LTR	1.20+	120+	F*	LTR	1.18	120+	F*	<p>- Partially Mitigated.</p> <ul style="list-style-type: none"> - Install "No Standing 10:00 AM - 7:00 PM" regulation on the east curb of NB 21st Street. - Install "No Standing 7:00 AM - 10:00 AM; 4:00 PM - 7:00 PM" regulation on the north curb of WB Jackson Avenue. 	
	SB	LTR	1.13	109.9	F	LTR	1.20+	120+	F*	LTR	1.20+	120+	F*		
Jackson Avenue	EB	L	0.86	40.0	D	L	1.14	119.7	F	L	1.14	119.7	F		
		TR	0.52	26.6	C	TR	0.58	27.7	C	TR	0.58	27.7	C		
	WB	L	0.47	16.1	B	L	0.50	17.0	B	L	0.50	17.0	B		
		TR	0.88	38.3	D	TR	0.97	49.2	D	TR	0.91	40.5	D		
Overall Intersection	-	1.02	72.0	E	-	1.20+	93.0	F	-	1.20+	84.9	F			

**APPENDIX TABLE 24-4
HUNTERS POINT SOUTH REZONING AND RELATED ACTIONS EIS
2017 NO BUILD VS. BUILD AND MITIGATION - LESSER DENSITY ALTERNATIVE TRAFFIC LEVELS OF SERVICE COMPARISON (PM PEAK HOUR)**

INTERSECTION & APPROACH	2017 No Build					2017 Build - Lesser Density Alt.				2017 Build with Mitigation - L.D. Alt.				Mitigation Measures
	Mvt.	V/C	Delay	LOS		Mvt.	V/C	Delay	LOS	Mvt.	V/C	Delay	LOS	
VAN DAM STREET														
VAN DAM STREET & THOMSON AVENUE/QUEENS BOULEVARD														
Van Dam Street	NB	L	1.20+	120+	F*	L	1.20+	120+	F*					- Unmitigable Impact.
		TR	1.12	120+	F*	TR	1.12	120+	F*					
Queens Boulevard (to Queens Boulevard.)	EB	T	1.20	120+	F*	T	1.20	120+	F*					
Queens Boulevard (to Van Dam Street)		T	1.08	111.7	F	T	1.08	111.7	F					
Queens Boulevard (to Thomson Avenue WB)		R	0.07	46.7	D	R	0.07	46.7	D					
Thomson Avenue	EB	T	1.14	99.3	F	T	1.17	110.0	F					
		R	0.97	55.1	E	R	0.97	55.1	E					
Queens Boulevard (to Thomson Avenue WB)	WB	L	0.59	61.9	E	L	0.67	64.1	E					
Queens Boulevard (to Viaduct)		TR	0.34	9.1	A	TR	0.34	9.1	A					
Overall Intersection	-		1.20+	104.3	F	-	1.20+	107.0	F					
VAN DAM STREET & LIE EXIT RAMP														
Van Dam Street	NB	LT	0.35	21.6	C	LT	0.35	21.6	C	LT	0.52	35.5	D	- Unmitigable Impact. - Restripe WB Queens Midtown Expressway Exit Ramp from two 11 ft. through lanes and one 11 ft. shared through right lane to two 11 ft. through lanes and one 11 ft. exclusive right turn lane. - Modify signal phasing plan: Add a new lag phase for the SB approach with the WB right-turn only; maintain the existing 120 s cycle length with the following signal timing: WB green time is 55 s, NB/SB green time is 38 s, and SB/WB-right only green time is 12 s (each phase has 3 s amber and 2 s all red).
	SB	TR	1.20+	120+	F*	TR	1.20+	120+	F*	TR	1.20+	120+	F*	
Queens Midtown Exp.	WB	TR	1.08	76.0	E	TR	1.20+	120+	F*	T	1.18	119.0	F	
		-	-	-	-	-	-	-	-	R	0.88	29.3	C	
Overall Intersection	-		1.20+	118.8	F	-	1.20+	120+	F*	-	1.20+	120+	F*	
VAN DAM STREET & BORDEN AVENUE														
Van Dam Street	NB	TR	0.50	39.4	D	TR	0.50	39.4	D	TR	0.59	44.9	D	- Modify signal timing plan to coordinate with Van Dam Street and LIE Exit Ramp: Maintain the existing 120 s cycle length with the following signal timing: EB green time is 45 s, NB/SB green time is 26 s, and SB green time is 34 s (each phase has 3 s amber and 2 s all red).
	SB	DefL	1.20+	120+	F*	DefL	1.20+	120+	F*	DefL	1.20+	120+	F*	
		T	0.66	21.6	C	T	0.66	21.6	C	T	0.68	23.4	C	
Borden Avenue	EB	LTR	1.13	104.0	F	LTR	1.15	114.8	F	LTR	1.10	92.7	F	
Overall Intersection	-		1.20+	120+	F*	-	1.20+	120+	F*	-	1.20+	120+	F*	
UNSIGNALIZED INTERSECTIONS														
11TH STREET/11TH PLACE														
11TH STREET & BORDEN AVENUE AT QMT TOLL PLAZA EXIT RAMP														
						(UNSIGNALIZED INTERSECTION)				(SIGNALIZED INTERSECTION)				- Prohibit NB 11th Street left turns (on to Borden Avenue) and through movement (on to QMT/LIE) and restripe this approach as one 20 ft. right turn only lane. - Prohibit SB QMT Exit left turns (on to Borden Avenue) and through movement (on to 11th Street) and restripe this approach as one 26 ft. right turn only lane. - Restripe EB Borden Avenue from one 20 ft. lane to one 10 ft. left turn lane and one 10 ft. through right lane. - Restripe WB Borden Avenue from one 22 ft. lane to one 11 ft. shared left-through lane and one 11 ft. shared through right lane. - Install a new traffic signal with a 90-second cycle length. [EB+SB right turn green time is 37 s; WB+EB-left+NB right turn green time is 43 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from SB QMT Exit. - Provide signage along the QMT to direct traffic headed to 11th Street and EB Borden Avenue to use the 21st Street ramp.
11th Street	NB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.06	12.7	B	
	SB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.20	17.4	B	
Borden Avenue	EB	LTR	-	117.8	F	LTR	-	120+	F*	L	1.14	94.6	F	
		-	-	-	-	-	-	-	-	TR	0.58	22.7	C	
	WB	LTR	-	8.1	A	LTR	-	8.0	A	LTR	0.90	27.2	C	
Overall Intersection	-		-	Note (5)	F*	-	-	Note (5)	F*	-	1.20+	48.1	D	

(1) Control delay is measured in seconds per vehicle.
(2) Level of service (LOS) for signalized intersections is based upon average control delay per vehicle (sec/veh) for each lane group as listed in the 2000 Highway Capacity Manual -- TRB.
(3) Level of service (LOS) for unsignalized intersections is based upon control delay per vehicle (sec/veh) for each minor-approach as listed in the 2000 Highway Capacity Manual -- TRB.
(4) Overall intersection V/C ratio is the critical lane groups' V/C ratio, not the weighted average of all the movements.
(5) Overall delay cannot be calculated since the delay for some of the movements is beyond the threshold delay of HCS methodology.









Not to Scale



Not to Scale



Not to Scale