

APPENDIX 24: ALTERNATIVES
LESSER DENSITY ALTERNATIVE

HUNTER’S POINT SOUTH REZONING AND RELATED ACTIONS EIS
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HUNTER’S POINT SOUTH REZONING AND RELATED ACTIONS EIS
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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	AM (7:45 - 8:45 AM)				Midday (1:00 - 2:00 PM)				PM (4:45 - 5:45 PM)				
	Control				Control				Control				
	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	1.10	82.1	F	L	0.97	44.7	D	L	1.08	72.7	E
		LR	1.02	58.2	E	LR	0.95	44.1	D	LR	1.11	89.3	F
Borden Avenue	EB	LT	1.20+	120+	F*	LT	1.20+	120+	F*	LT	1.20+	120+	F*
	WB	T	0.48	14.3	B	T	0.60	16.3	B	T	0.96	35.9	D
Overall Intersection	-		1.20+	120+	F*	-	1.16	77.5	E	-	1.20+	120+	F*
JACKSON AVENUE/NORTHERN BOULEVARD													
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)													
11th Street (Pulaski Bridge)	NB	LT	1.20+	120+	F*	LT	0.98	60.3	E	LT	1.20+	120+	F*
		R	1.18	120+	F*	R	0.81	45.0	D	R	0.88	50.9	D
	SB	LTR	0.71	32.7	C	LTR	0.56	31.3	C	LTR	0.76	33.9	C
Jackson Avenue	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	1.16	120+	F*	DefL	1.16	107.4	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+	58.8	E	-	1.20+	101.1	F
JACKSON AVENUE & 21ST STREET													
21st Street	NB	LTR	0.87	41.2	D	LTR	1.08	97.8	F	LTR	1.20+	120+	F*
	SB	LTR	0.65	30.9	C	LTR	0.80	43.4	D	LTR	1.20+	120+	F*
Jackson Avenue	EB	L	1.20+	120+	F*	L	1.02	91.1	F	L	1.15	120+	F*
		TR	0.91	48.4	D	TR	0.56	25.6	C	TR	0.56	27.3	C
	WB	L	0.56	26.5	C	L	0.45	15.7	B	L	0.49	16.7	B
		TR	0.93	50.0	D	TR	0.77	31.2	C	TR	0.97	50.5	D
Overall Intersection	-		1.20+	60.4	E	-	1.04	49.5	D	-	1.20+	90.2	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	Control		Mvt.	V/C	Control		Mvt.	V/C	Control			
			Delay	LOS			Delay	LOS			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*	L	1.20+	120+	F*	
		TR	1.06	107.8	F	TR	1.10	107.6	F	TR	1.11	120+	F*	
Queens Boulevard (to Queens Boulevard.)	EB	T	1.09	113.5	F	T	0.66	30.9	C	T	1.20	120+	F*	
Queens Boulevard (to Van Dam Street)		T	1.03	96.8	F	T	0.93	61.3	E	T	1.08	111.1	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	0.67	23.0	C	T	1.17	113.1	F	
		R	1.01	68.5	E	R	1.19	120+	F*	R	1.00	62.8	E	
Queens Boulevard (to Thomson Avenue WB)	WB	L	1.20+	120+	F*	L	0.98	76.3	E	L	0.68	64.2	E	
Queens Boulevard (to Viaduct)		TR	0.50	12.2	B	TR	0.32	9.1	A	TR	0.34	9.1	A	
Overall Intersection	-		1.17	111.9	F	-	1.20+	71.7	E	-	1.20+	108.2	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	-	53.4	F	LTR	-	120+	F*
	WB	LTR	-	8.0	A	LTR	-	7.8	A	LTR	-	8.0	A
	Overall Intersection	-	-	120+	F*	-	-	120+	F*	-	-	120+	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) F* indicates levels of service F conditions with delays in excess of two minutes for the movement with the asterik (*).

**APPENDIX TABLE 24-2
HUNTER'S 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	1.10	82.1	F	L	1.10	82.1	F	L	0.81	38.7	D	<ul style="list-style-type: none"> - Install "No Standing Anytime" regulation on the west curb of the 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 additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation on the south curb of the EB Borden Avenue 120 ft. from the intersection and restripe the approach from one 16 ft. travel lane with parking to one 12 ft. shared left through and one 12 ft. through lane. - Shift centerline of the WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe EB Borden Avenue receiving as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right-turn lane to two 11 ft. through lane and one 11 ft. right-turn lane by shifting the north curb 11 ft. to the north. - Restripe WB Borden Avenue receiving from one 22 ft. lane with parking to two 11 ft. lanes with parking. - Modify cycle length from 60 s to 120 s with EB-lead phase. [SB green time is 45 s; EB-lead green time is 21 s; EB/WB green time is 39 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.67	19.3	B	LR	1.02	58.2	E	R	0.55	32.7	C		
Borden Avenue	EB	LT	0.81	22.9	C	LT	1.20+	120+	F*	LT	0.79	25.5	C		
	WB	T	0.27	12.1	B	T	0.48	14.3	B	T	0.37	31.8	C		
Overall Intersection	-		0.95	41.2	D	-	1.20+	120+	F*	-	0.78	31.3	C		
JACKSON AVENUE/NORTHERN BOULEVARD															
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)															
11th Street (Pulaski Bridge)	NB	-	-	-	-	-	-	-	-	L	0.75	50.2	D		<ul style="list-style-type: none"> - Post signs on the Pulaski Bridge to direct the right turning traffic to the 11th Street service road with signs for Queens Boulevard/Jackson Avenue East traffic. - Restripe the 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 the NB Pulaski Bridge shared left-through lane to an exclusive left-turn lane. - Install "No Standing Anytime" regulation on the north curb of the WB Jackson Avenue approach for 150 ft. and restripe the approach from a 10 ft. shared left-through and a 12 ft. through lane with parking to two 10 ft. left-turn lanes and a 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	43.0	D		
		R	1.12	111.4	F	R	1.18	120+	F*	-	-	-	-		
Jackson Avenue	SB	LTR	0.71	32.5	C	LTR	0.71	32.7	C	LTR	0.72	32.8	C		
	EB	LT	0.47	31.8	C	LT	0.76	39.6	D	LT	0.76	39.6	D		
	WB	DefL	1.10	97.1	F	DefL	1.20+	120+	F*	L	0.95	64.8	E		
		T	0.40	18.3	B	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	0.71	16.1	B		
Overall Intersection	-		1.20	109.1	F	-	1.20+	120+	F*	-	0.87	36.9	D		
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	0.84	39.3	D	LTR	0.87	41.2	D	LTR	0.87	41.2	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. 	
	SB	LTR	0.58	28.9	C	LTR	0.65	30.9	C	LTR	0.65	30.9	C		
Jackson Avenue	EB	L	0.98	83.0	F	L	1.20+	120+	F*	L	1.20+	120+	F*		
		TR	0.78	39.4	D	TR	0.91	48.4	D	TR	0.91	48.4	D		
	WB	L	0.51	23.7	C	L	0.56	26.5	C	L	0.56	26.5	C		
		TR	0.79	39.7	D	TR	0.93	50.0	D	TR	0.87	43.9	D		
Overall Intersection	-		0.91	40.8	D	-	1.20+	60.4	E	-	1.20+	58.8	E		

**APPENDIX TABLE 24-2
HUNTER'S 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	1.06	107.8	F	TR	1.06	107.8	F					
Queens Boulevard (to Queens Boulevard.)	EB	T	1.09	113.5	F	T	1.09	113.5	F					
Queens Boulevard (to Van Dam Street)		T	1.03	96.8	F	T	1.03	96.8	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	1.01	68.5	E	R	1.01	68.5	E					
Queens Boulevard (to Thomson Avenue WB)	WB	L	1.19	120+	F*	L	1.20+	120+	F*					
Queens Boulevard (to Viaduct)		TR	0.50	12.2	B	TR	0.50	12.2	B					
Overall Intersection	-		1.17	105.7	F	-	1.17	111.9	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	-		1.07	119.2	F	-	1.11	120+	F*	-	1.05	94.1	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 = 43 s green, NB/SB = 28 s green time, and SB = 34 s of green time (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*	LTR	-	120+	F*	R	0.05	11.1	B	- Partially Mitigated. - Prohibit NB 11th Street left (on to Borden Avenue) and through (on to QMT/LIE) movements and restripe it as 20 ft. right turn only lane. - Prohibit SB QMT Exit left (on to Borden Avenue) and through (on to 11th Street) movements and restripe it as 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 60-second cycle length. [EB+SB right turn green time is 26 s; WB+EB-left+NB right turn green time is 24 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from the 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	0.19	10.8	B	
Borden Avenue	EB	LTR	-	120+	F*	LTR	-	120+	F*	L	1.20+	120+	F*	
		-	-	-	-	-	-	-	-	TR	0.47	13.7	B	
	WB	LTR	-	7.8	A	LTR	-	8.0	A	LTR	0.97	31.3	C	
Overall Intersection	-		-	120+	F*	-	-	120+	F*	-	1.20+	68.2	E	

(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) F* indicates levels of service F conditions with delays in excess of two minutes for the movement with the asterik (*).

 Denotes a significant impact

**APPENDIX TABLE 24-3
HUNTER'S 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	0.97	44.7	D	L	0.97	44.7	D	L	0.75	36.3	D	<ul style="list-style-type: none"> - Install "No Standing Anytime" regulation on the west curb of the 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 additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation on the south curb of the EB Borden Avenue 120 ft. from the intersection and restripe the approach from one 16 ft. travel lane with parking to one 12 ft. shared left through and one 12 ft. through lane. - Shift centerline of the WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe EB Borden Avenue receiving as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right-turn lane to two 11 ft. through lane and one 11 ft. right-turn lane by shifting the north curb 11 ft. to the north. - Restripe WB Borden Avenue receiving from one 22 ft. lane with parking to two 11 ft. lanes with parking. - Modify cycle length from 60 s to 120 s with EB-lead phase. [SB green time is 45 s; EB-lead green time is 21 s; EB/WB green time is 39 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.55	16.5	B	LR	0.95	44.1	D	R	0.49	32.5	C		
Borden Avenue	EB	LT	0.57	16.5	B	LT	1.20+	120+	F*	DefL	0.37	16.3	B		
		-	-	-	-	-	-	-	-	T	0.48	18.4	B		
	WB	T	0.49	14.6	B	T	0.60	16.3	B	T	0.45	33.0	C		
Overall Intersection	-	-	0.77	25.8	C	-	1.16	77.5	E	-	0.78	29.6	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 the right turning traffic to the 11th Street service road with signs for Queens Boulevard/Jackson Avenue East traffic. - Restripe the 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 the NB Pulaski Bridge shared left-through lane to an exclusive left-turn lane. - Install "No Standing Anytime" regulation on the north curb of the WB Jackson Avenue approach for 150 ft. and restripe the approach from a 10 ft. shared left-through and a 12 ft. through lane with parking to two 10 ft. left-turn lanes and a 10 ft. through lane. - Prohibit the WB Jackson Avenue left-turn during the permitted EB/WB phase.
		LT	0.82	39.9	D	LT	0.98	60.3	E	T	0.63	32.6	C		
		R	0.81	45.0	D	R	0.81	45.0	D	-	-	-	-		
Jackson Avenue	SB	LTR	0.52	30.6	C	LTR	0.56	31.3	C	LTR	0.56	31.4	C		
	EB	LT	0.47	31.7	C	LT	0.77	40.1	D	LT	0.77	40.1	D		
	WB	DefL	1.06	85.4	F	DefL	1.16	120+	F*	L	0.90	58.1	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	-	-	0.99	47.0	D	-	1.20+	58.8	E	-	0.74	33.1	C		
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	1.05	86.2	F	LTR	1.08	97.8	F	LTR	1.01	75.5	E	<ul style="list-style-type: none"> - Partially Mitigated. - Install "No Standing 10:00 AM - 7:00 PM" regulation on the east curb of the NB 21st Street. 	
	SB	LTR	0.73	40.3	D	LTR	0.80	43.4	D	LTR	0.80	43.4	D		
Jackson Avenue	EB	L	0.71	24.2	C	L	1.02	91.1	F	L	1.02	91.1	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	29.2	C	TR	0.77	31.2	C	TR	0.77	31.2	C		
Overall Intersection	-	-	0.87	40.9	D	-	1.04	49.5	D	-	1.02	45.3	D		

**APPENDIX TABLE 24-3
HUNTER'S 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		1.10	107.6	F	TR	1.10	107.6	F						
Queens Boulevard (to Queens Boulevard.)	EB	T	0.66	30.9	C	T	0.66	30.9	C						
Queens Boulevard (to Van Dam Street)		T	0.93	61.3	E	T	0.93	61.3	E						
Queens Boulevard (to Thomson Avenue WB)		R	0.08	35.5	D	R	0.08	35.5	D						
Thomson Avenue	EB	T	0.65	22.6	C	T	0.67	23.0	C						
		R	1.19	120+	F*	R	1.19	120+	F*						
Queens Boulevard (to Thomson Avenue WB)	WB	L	0.94	70.3	E	L	0.98	76.3	E						
Queens Boulevard (to Viaduct)		TR	0.32	9.1	A	TR	0.32	9.1	A						
Overall Intersection	-		1.20+	71.1	E	-	1.20+	71.7	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.	
	SB	TR	1.14	120+	F*	TR	1.14	120+	F*	TR	1.14	120+	F*		
Queens Midtown Exp.	WB	TR	1.17	107.8	F	TR	1.20+	120+	F*	T	1.02	51.7	D		
		-	-	-	-	-	-	-	-	R	0.95	29.1	C		
Overall Intersection	-		1.16	107.6	F	-	1.19	120+	F*	-	1.08	72.1	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															
			(UNSIGNALIZED INTERSECTION)				(UNSIGNALIZED INTERSECTION)				(SIGNALIZED INTERSECTION)				
11th Street	NB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.14	11.9	B	- Prohibit NB 11th Street left (on to Borden Avenue) and through (on to QMT/LIE) movements and restripe it as 20 ft. right turn only lane. - Prohibit SB QMT Exit left (on to Borden Avenue) and through (on to 11th Street) movements and restripe it as 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 60-second cycle length. [EB+SB right turn green time is 26 s; WB+EB-left+NB right turn green time is 24 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from the 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	0.20	10.9	B		
Borden Avenue	EB	LTR	-	27.5	D	LTR	-	53.4	F	L	0.88	17.1	B		
		-	-	-	-	-	-	-	-	TR	0.37	12.6	B		
	WB	LTR	-	7.7	A	LTR	-	7.8	A	LTR	0.71	17.4	B		
Overall Intersection	-		-	120+	F*	-	-	120+	F*	-	0.88	16.1	B		

(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) F* indicates levels of service F conditions with delays in excess of two minutes for the movement with the asterik (*).

 Denotes a significant impact

**APPENDIX TABLE 24-4
HUNTER'S 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	1.07	70.1	E	L	1.08	72.7	E	L	0.82	38.8	D	<ul style="list-style-type: none"> - Install "No Standing Anytime" regulation on the west curb of the 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 additional 9 ft. - Install "No Standing 7:00 AM - 7:00 PM" regulation on the south curb of the EB Borden Avenue 120 ft. from the intersection and restripe the approach from one 16 ft. travel lane with parking to one 12 ft. shared left through and one 12 ft. through lane. - Shift centerline of the WB Borden Avenue 6 ft. to the north tapered 150 ft. from the intersection. Restripe EB Borden Avenue receiving as two 11 ft. lanes. - Restripe WB Borden Avenue from one 13 ft. through lane and one 15 ft. channelized right-turn lane to two 11 ft. through lane and one 11 ft. right-turn lane by shifting the north curb 11 ft. to the north. - Restripe WB Borden Avenue receiving from one 22 ft. lane with parking to two 11 ft. lanes with parking. - Modify cycle length from 60 s to 120 s with EB-lead phase. [SB green time is 45 s; EB-lead green time is 21 s; EB/WB green time is 39 s; all phases have 3 s of amber and 2 s of all red time]. 	
		LR	0.59	16.9	B	LR	1.11	89.3	F	R	0.60	36.5	D		
Borden Avenue	EB	LT	0.90	34.3	C	LT	1.20+	120+	F*	DefL	0.53	20.6	C		
		-	-	-	-	-	-	-	-	T	0.59	20.6	C		
	WB	T	0.57	15.5	B	T	0.96	35.9	D	T	0.70	38.1	D		
Overall Intersection	-	0.98	38.6	D	-	1.20+	120+	F*	-	0.98	33.4	C			
JACKSON AVENUE/NORTHERN BOULEVARD															
JACKSON AVENUE & 11TH STREET (PULASKI BRIDGE)															
11th Street (Pulaski Bridge)	NB	-	-	-	-	-	-	-	-	L	1.20	120+	F*		<ul style="list-style-type: none"> - Partially Mitigated. - Post signs on the Pulaski Bridge to direct the right turning traffic to the 11th Street service road with signs for Queens Boulevard/Jackson Avenue East traffic. - Restripe the 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 the NB Pulaski Bridge shared left-through lane to an exclusive left-turn lane. - Install "No Standing Anytime" regulation on the north curb of the WB Jackson Avenue approach for 150 ft. and restripe the approach from a 10 ft. shared left-through and a 12 ft. through lane with parking to two 10 ft. left-turn lanes and a 10 ft. through lane. - Prohibit the 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	1.16	119.4	F	LT	1.20+	120+	F*	T	0.82	41.3	D		
		R	0.84	46.0	D	R	0.88	50.9	D	-	-	-	-		
Jackson Avenue	SB	LTR	0.74	33.2	C	LTR	0.76	33.9	C	LTR	0.84	40.8	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	1.16	107.5	F	DefL	1.16	107.4	F	L	1.11	105.9	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	0.45	11.2	B		
Overall Intersection	-	1.16	72.9	E	-	1.20+	101.1	F	-	1.05	54.1	D			
JACKSON AVENUE & 21ST STREET															
21st Street	NB	LTR	1.18	120+	F*	LTR	1.20+	120+	F*	LTR	1.15	120+	F*	<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. - 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	1.12	105.0	F	LTR	1.20+	120+	F*	LTR	1.20+	120+	F*		
Jackson Avenue	EB	L	0.87	40.9	D	L	1.15	120+	F*	L	1.15	120+	F*		
		TR	0.50	26.2	C	TR	0.56	27.3	C	TR	0.56	27.3	C		
	WB	L	0.46	15.8	B	L	0.49	16.7	B	L	0.49	16.7	B		
		TR	0.88	38.8	D	TR	0.97	50.5	D	TR	0.91	41.1	D		
Overall Intersection	-	1.01	68.7	E	-	1.20+	90.2	F	-	1.20+	82.1	F			

**APPENDIX TABLE 24-4
HUNTER'S 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*					- Unmitigatable Impact.
		TR	1.11	120+	F*	TR	1.11	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	111.1	F	T	1.08	111.1	F					
Queens Boulevard (to Thomson Avenue WB)		R	0.07	46.7	D	R	0.07	46.7	D					
Thomson Avenue	EB	T	1.15	102.2	F	T	1.17	113.1	F					
		R	1.00	62.8	E	R	1.00	62.8	E					
Queens Boulevard (to Thomson Avenue WB)	WB	L	0.60	62.0	E	L	0.68	64.2	E					
Queens Boulevard (to Viaduct)		TR	0.34	9.1	A	TR	0.34	9.1	A					
Overall Intersection	-		1.20+	105.4	F	-	1.20+	108.2	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	- Unmitigatable 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 = 55 s green, NB/SB = 38 s green time, and SB/WB-right only = 12 s of green time (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	73.8	E	TR	1.20+	120+	F*	T	1.17	115.9	F	
		-	-	-	-	-	-	-	-	R	0.88	29.3	C	
Overall Intersection	-		1.20+	117.9	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 = 45 s green, NB/SB = 26 s green time, and SB = 34 s of green time (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														
11th Street	NB	LTR	-	120+	F*	LTR	-	120+	F*	R	0.06	8.9	A	- Prohibit NB 11th Street left (on to Borden Avenue) and through (on to QMT/LIE) movements and restripe it as 20 ft. right turn only lane. - Prohibit SB QMT Exit left (on to Borden Avenue) and through (on to 11th Street) movements and restripe it as 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 60-second cycle length. [EB+SB right turn green time is 22 s; WB+EB-left+NB right turn green time is 28 s; both phases have 3 s of amber and 2 s of all red time]. - Allow Right Turn on Red from the 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	0.22	13.6	B	
Borden Avenue	EB	LTR	-	109.8	F	LTR	-	120+	F*	L	1.12	77.9	E	
		-	-	-	-	-	-	-	-	TR	0.64	19.2	B	
	WB	LTR	-	8.1	A	LTR	-	8.0	A	LTR	0.91	21.6	C	
Overall Intersection	-		-	120+	F*	-	-	120+	F*	-	1.20+	39.2	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) F* indicates levels of service F conditions with delays in excess of two minutes for the movement with the asterik (*).

 Denotes a significant impact









Not to Scale





Not to Scale