Chapter 20: Mitigation

A. INTRODUCTION

As described in Chapter 1, "Project Description," the Applicant, WF Liberty, LLC, is proposing the redevelopment of a 17.72-acre portion of a 33.68-acre property (the Project Site) along the Arthur Kill waterfront in Staten Island that would result in a 589,619-gross-square-foot (gsf) commercial center (the Proposed Project). This chapter considers mitigation measures to address significant adverse impacts generated by the Proposed Project.

The Proposed Project has the potential to result in significant adverse impacts to archaeological resources and transportation. Mitigation measures for these technical areas are identified below.

PRINCIPAL CONCLUSIONS

ARCHAEOLOGICAL RESOURCES

A Phase 1 report prepared for the Proposed Project concluded that there are areas of potential archaeological sensitivity within the Project Site. Therefore, additional Phase 1B and Phase 2 testing was completed[1] and a draft report summarizing such work has been submitted to the New York City Landmarks Preservation Commission (LPC) and the New York State Historic Preservation Office (SHPO). Based on the testing completed to date, the Proposed Project could potentially result in a significant adverse impact on archaeological resources due to site disturbance. Accordingly, the Applicant will complete any required additional investigation and/or mitigation in consultation with the LPC and SHPO. To the extent that mitigation is not completed prior to the issuance of the Final Environmental Impact Statement, the Applicant will record a restrictive declaration obligating it to complete such additional work to the satisfaction of LPC (see Appendix B).

TRANSPORTATION

The Proposed Project would result in significant adverse impacts with respect to traffic. As discussed in Chapter 12, "Transportation," traffic conditions were evaluated at 20 intersections for the weekday AM, midday, PM, and Saturday peak hours. In the 2019 With Action condition (the Proposed Project), there would be the potential for significant adverse traffic impacts at 10 intersections during the weekday AM peak hour, 12 intersections during the weekday midday peak hour, 15 intersections during the weekday PM peak hour, and 15 intersections during the Saturday peak hour.

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[1] Greenhouse Consultants, Inc. (January 2017): "Supplemental Phase 1B and phase 2 Archaeological and Historical Investigations of Riverside Galleria (Formerly Waterfront Commons); Block 7620, Lot 1; Block 7632, Lots 1, 6, 60, 150, and 151; Richmond County, Staten Island, New York; 07PR04902." Prepared for: Robert Konig, Esq., Woodmere, NY

As summarized in **Table 20-1**, some of the locations where significant adverse traffic impacts are predicted to occur could be fully mitigated with the implementation of standard traffic mitigation measures (e.g., signal timing changes, approach daylighting, and lane restriping), which are described below. However, the significant adverse impacts at the intersections of Arthur Kill Road at North Bridge Street, Arthur Kill Road at Richmond Valley Road, Page Avenue at Richmond Valley Road, Boscombe Avenue at the Route 440 Ramps, Amboy Road and Page Avenue, Page Avenue at Hylan Boulevard, North Bridge Street at the 440 westbound off-ramp, and Arthur Kill Road at South Bridge Street could not be fully mitigated during one or more analysis peak hours (see Chapter 21, "Unavoidable Adverse Impacts"). At two of these intersections, improvement measures were recommended to partially mitigate the projected impacts at one or more of the impacted movements. No significant adverse impacts were identified for transit, pedestrians, vehicular and pedestrian safety, and parking.

Table 20-1
Summary of Significant Adverse Traffic Impacts
Proposed Project

Intersection		Weekday AM Peak Hour		Weekday Midday Peak Hour		Weekday PM Peak Hour		Saturday Peak Hour	
EB/WB Street	**NB/SB Street**	**Significant Impacts**	**Mit**	**Significant Impacts**	**Mit**	**Significant Impacts**	**Mit**	**Significant Impacts**	**Mit**
Woodrow Road/School Driveway	Bloomingdale Road	Not Impacted	NA	Not Impacted	NA	WB-L	Yes	WB-L	Yes
Englewood Avenue	Veterans Road East	Not Impacted	NA	Not Impacted	NA	EB-LTR	Yes	EB-LTR	Yes
Veterans Road West/Allentown Lane	Arthur Kill Road	WB-LTR	Yes	WB-LTR NB-LTR SB-LTR	Yes Yes Yes	WB-LTR NB-LTR SB-LTR	Yes Yes Yes	WB-LTR NB-LTR SB-LTR	Yes Yes Yes
North Bridge Street	Arthur Kill Road	WB-LR	No	WB-LR	No	WB-LR	No	WB-LR SB-T	No No
Richmond Valley Road	Arthur Kill Road	WB-TR	No	EB-L EB-TR WB-TR	No No No	EB-L EB-TR WB-L WB-TR NB-TR	No No No No No	EB-L EB-TR WB-TR NB-TR	No No No No
Richmond Valley Road	Page Avenue	Not Impacted	NA	EB-L EB-TR NB-L	Yes Yes No	EB-L EB-TR WB-LTR NB-L	Yes Yes Yes No	EB-L EB-TR WB-LTR NB-L	No No No No
South Bridge Street	Page Avenue/ Boscombe Avenue	EB-LT	Yes	EB-LT	Yes	EB-LT	Yes	EB-LT	Yes
Boscombe Avenue	Route 440 Ramps	EB-L	No	EB-L	No	EB-L	No	EB-L	No
Veterans Road West	Tyrellan Avenue	WB-LTR	Yes	WB-LTR	Yes	EB-LTR WB-LTR	Yes Yes	EB-LTR WB-LTR	Yes Yes
Veterans Road West	North Bridge Street/Bricktown Way	EB-L WB-L	Yes Yes	EB-L EB-TR WB-L	Yes Yes Yes	EB-L EB-TR WB-L	Yes Yes Yes	EB-L EB-TR WB-T	Yes Yes Yes
Amboy Road	Page Avenue	EB-L	Yes	SB-L	Yes	EB-L NB-T SB-L	No Yes Yes	EB-L NB-L NB-T SB-T	No No Yes No
Hylan Boulevard	Page Avenue	EB-L SB-L	No No	SB-L	No	EB-L SB-L	No No	EB-L SB-L	No No
Amboy Road/Pleasant Plains Avenue	Bloomingdale Road	Not Impacted	NA	Not Impacted	NA	NB-LTR	Yes	WB-L NB-LTR	Yes Yes
Route 440 Off-Ramp	North Bridge Street	WB-L	No	WB-L	No	WB-L	No	WB-L	No
South Bridge Street	Arthur Kill Road	Not Impacted	NA	SB-LT	No	SB-LT	No	SB-LT	No
Total Impacted Intersections/Lane Groups		**10/12**		**12/20**		**15/30**		**15/32**	

Notes: L = Left Turn, T = Through, R = Right Turn, DefL = De facto Left Turn, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound, Mit = Mitigation Provided, NA = Not Applicable

B. HISTORIC AND ARCHAEOLOGICAL RESOURCES

A Phase 1A report prepared for the Proposed Project concluded that there are areas of potential archaeological sensitivity within the Project Site. Therefore, additional Phase 1B and Phase 2 testing was completed and a draft report summarizing such work has been submitted to LPC and SHPO. Based on the testing completed to date, the Proposed Project could potentially result in a significant adverse impact on archaeological resources due to site disturbance. Accordingly, the Applicant will complete any required additional investigation and/or mitigation in consultation with the LPC and SHPO. To the extent that mitigation is not completed prior to the issuance of the Final Environmental Impact Statement, the Applicant will record a restrictive declaration obligating it to complete such additional work to the satisfaction of LPC (see **Appendix B**).

With these mitigation measures in place, it is concluded that the potential significant impacts of the Proposed Project on archaeological resources would be fully mitigated and the Proposed Project would not result in significant adverse impacts to historic archaeological resources.

C. TRANSPORTATION

TRAFFIC

As described in Chapter 12, "Transportation," traffic levels of service (LOS) at signalized and unsignalized intersections are evaluated using average stop control delay, in seconds per vehicle, for individual lane groups (grouping of movements in one or more travel lanes), the approaches, and the overall intersection. According to the criteria presented in the 2014 *CEQR Technical Manual*, impacts are considered significant and require examination of mitigation if they result in an increase in the With Action condition of five or more seconds of delay in a lane group over No Action levels beyond mid-LOS D. For No Action LOS E, a four-second increase in delay is considered significant. For No Action LOS F, a three-second increase in delay is considered significant. In addition, impacts are considered significant if levels of service deteriorate from acceptable A, B, or C in the No Action condition to marginally unacceptable LOS D (a delay in excess of 45 and 30 seconds, the midpoint of LOS D, for signalized and unsignalized intersections, respectively), or unacceptable LOS E or F in the With Action condition. For unsignalized intersections, for the minor street to trigger significant impacts, at least 90 passenger car equivalents (PCEs) must be identified in the With Action condition in any peak hour. A traffic impact is considered fully mitigated when the resulting degradation in the average control delay per vehicle under the Action-with-Mitigation condition compared to the No Action condition is no longer deemed significant following the impact criteria described above.

PROPOSED PROJECT

Tables 20-2 through **20-5** itemize the recommended mitigation measures that address the identified impacts under the Proposed Project.

Table 20-2
Recommended Mitigation Measures: Proposed Project
Weekday AM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Veterans Road East and Englewood Avenue[1]	Phase A: NB Green = 27 s Phase B: EB/WB Green = 9 s	Restripe the EB approach from one 24.5 ft moving lane to one 12 ft left-turn lane and one 12 ft through/right-turn lane.	No change from No-Action
Arthur Kill Road and Veterans Road West/ Allentown Lane	Phase A: NB/SB Green = 25 s Phase B: EB/WB Green = 25 s	1) Shift the centerline of Arthur Kill Road south of Veterans Road West 1 ft to the west. Restripe the NB approach from one 20 ft moving lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Allow right turn on red for the NB right-turn movement; 3) Restripe the WB approach from one 13 ft moving lane and one 9 ft parking lane to one 11 ft travel lane and one 11 ft through/right-turn lane; 4) Increase the signal cycle length from 60 seconds to 90 seconds; 5) Create a protected WB left-turn phase with NB right-turn overlap.	Phase A: NB/SB Green = 38 s Phase B: WB/NBR Green = 24 s Phase C: EB/WB Green = 13 s
Arthur Kill Road and North Bridge Street	Phase A: NB/SB Green = 30 s Phase B: WB Green = 20 s	Unmitigated	No change from No-Action
Arthur Kill Road and Richmond Valley Road	Phase A: NB/SB Green = 34 s Phase B: WB Green = 16 s	Unmitigated	No change from No-Action
Page Avenue and Richmond Valley Road[2]	Phase A: NB/SB Green = 49 s Phase B: EB/WB Green = 31 s	1) Restripe the WB approach for 100 ft from one 22.5 ft moving lane to one 11 ft left-turn lane and one 11 ft through/right-turn lane; 2) Install “No Standing Anytime” for 110 ft at the SB approach to create an additional right-turn lane; 3) Increase the signal cycle length from 90 seconds to 120 seconds; 4) Create a leading EB phase with SB right-turn overlap.	Phase A: NB/SB Green = 67 s Phase B: EB/SBR Green = 4 s Phase C: EB/WB Green = 34 s
Page / Boscombe Avenue and South Bridge Street	Phase A: NB/SB Green = 50 s Phase B: EB/WB Green = 30 s	1) Restripe the EB approach from one 18 ft moving lane and buffer zone to one 11 ft left-turn lane and one 10 ft left-turn/through lane; 2) Prohibit WB left-turns; 3) Restripe the SB approach from one 23 ft moving lane to one 12 ft left-turn/through lane and one 11’ through lane; 4) Create a leading SB phase and a protected EB left-turn phase.	Phase A: SB/WBR Green = 11 s Phase B: NB/SB Green = 36 s Phase C: EB Green = 28 s
Boscombe Avenue and the Route 440 Ramps	Phase A: EB/WB Green = 35 s Phase B[4]: NB/SB Green = 16 s Phase C: EB/SBR Green = 54 s	Unmitigated	No change from No-Action

Table 20-2, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday AM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Veterans Road West and Tyrellan Avenue	Phase A: WB Green = 23 s Phase B: EB Green = 23 s Phase C: NB/SB Green = 29 s	1) Restripe the EB approach from one 13 ft travel lane, one 11 ft travel lane and 10 ft median to one 13 ft travel lane, one 11 ft travel lane and one 12 ft left-turn only lane; 2) Restripe the WB approach from one 14 ft travel lane, one 10 ft travel lane and 10 ft median to one 14 ft travel lane, one 10 ft travel lane and one 12 ft left-turn only lane; Change EB and WB split phasing to permitted phasing with an EB/WB protected only left-turn phase.	Phase A: NB/SB Green = 30 s Phase B: EB/WB Green = 10 s Phase C: WB Green = 12 sec Phase D: EB/WB Green = 23 s
Veterans Road West and North Bridge Street/ Bricktown Way	Phase A: EB/WB Green = 30 s Phase B: NB Green = 25 s Phase C: SB Green = 20 s	1) Restripe the NB approach from one 23 ft moving lane to one 11 ft left-turn lane and one 12 ft through/right-turn lane; 2) Restripe the WB approach 12 ft right-turn lane to one 12 ft through/right-turn lane; 3) Restripe the WB receiving lanes from one 12.5 ft through lane and one 9.5 ft right-turn only/parking lane to two 11 ft through lanes to Arthur Kill Road; 4) Increase the signal cycle length from 90 seconds to 120 seconds; 5) Change NB and SB split phasing to permitted and create protected NB, SB and EB left-turn phases.	Phase A: NBL/SBL Green = 4 s Phase B: SB Green = 4 s Phase C: NB/SB Green = 42 s Phase D: EB Green = 7s Phase E: EB/WB Green = 43 s
Page Avenue and Amboy Road	Phase A: EB/WB Green = 27 s Phase B: NB/SB Green = 35 s Phase C: EB Green = 13 s	1) Restripe the WB approach from one 10 ft left-turn lane and one 11 ft through/right-turn lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Restripe the NB approach from one 10 ft left-turn lane, one 11 ft through lane and one 11 ft right-turn lane to one 10 ft left-turn lane, one 11 ft through lane and one 11 ft through/right-turn lane; 3) Shift 1 second each from Phase B (NB/SB) to Phase A (EB/WB) and to Phase C (EB)	Phase A: EB/WB Green = 28 s Phase B: NB/SB Green = 33 s Phase C: EB Green = 14 s
Page Avenue and Hylan Boulevard	Phase A: EB/WB Green = 69 s Phase B: LPI Green = 7 s Phase C: NB/SB Green = 33 s	Unmitigated	No change from No-Action
Bloomingdale Road and Amboy Road and Pleasant Plains Avenue[1]	Phase A: EB/WB Green = 40 s Phase B: NB/SB Green = 40 s	1) Shift the centerline of Amboy Road, south of Pleasant Plains Avenue 1 ft to the west creating a 12 ft NB moving lane; 2) Create NB and WB leading phases.	Phase A: NB Green = 4 s Phase B: NB/SB Green = 32 s Phase C: WB Green = 4 s Phase D: EB/WB Green = 30 s
North Bridge Street and the Route 440 Off-Ramp	Unsignalized	Unmitigated	Unsignalized
Arthur Kill Road and South Bridge Street	Unsignalized	Unmitigated	Unsignalized

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right.
(1) Mitigation measures not required for the weekday AM and midday peak hours.
(2) Mitigation measures not required for the weekday AM peak hour.
(3) Any time not used in Phase C will be added to Phase A.
(4) If NB approach doesn't get called, WBR will operate with SB phase during Phase B.

Table 20-3
Recommended Mitigation Measures: Proposed Project
Weekday Midday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Veterans Road East and Englewood Avenue[1]	Phase A: NB Green = 27 s Phase B: EB/WB Green = 9 s	Restripe the EB approach from one 24.5 ft moving lane to one 12 ft left-turn lane and one 12 ft through/right-turn lane.	No change from No-Action
Arthur Kill Road and Veterans Road West/ Allentown Lane	Phase A: NB/SB Green = 25 s Phase B: EB/WB Green = 25 s	1) Shift the centerline of Arthur Kill Road south of Veterans Road West 1 ft to the west. Restripe the NB approach from one 20 ft moving lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Allow right turn on red for the NB right-turn movement; 3) Restripe the WB approach from one 13 ft moving lane and one 9 ft parking lane to one 11 ft travel lane and one 11 ft through/right-turn lane; 4) Increase the signal cycle length from 60 seconds to 90 seconds; 5) Create a protected WB left-turn phase with NB right-turn overlap.	Phase A: NB/SB Green = 43 s Phase B: WB/NBR Green = 18 s Phase C: EB/WB Green = 14 s
Arthur Kill Road and North Bridge Street	Phase A: NB/SB Green = 30 s Phase B: WB Green = 20 s	Unmitigated	No change from No-Action
Arthur Kill Road and Richmond Valley Road	Phase A: NB/SB Green = 34 s Phase B: WB Green = 16 s	Unmitigated	No change from No-Action
Page Avenue and Richmond Valley Road[2]	Phase A: NB/SB Green = 49 s Phase B: EB/WB Green = 31 s	1) Restripe the WB approach for 100 ft from one 22.5 ft moving lane to one 11 ft left-turn lane and one 11 ft through/right-turn lane; 2) Install “No Standing Anytime” for 110 ft at the SB approach to create an additional right-turn lane; 3) Increase the signal cycle length from 90 seconds to 120 seconds; 4) Create a leading EB phase with SB right-turn overlap.	Phase A: NB/SB Green = 57 s Phase B: EB/SBR Green = 18 s Phase C: EB/WB Green = 30 s
Page / Boscombe Avenue and South Bridge Street	Phase A: NB/SB Green = 50 s Phase B: EB/WB Green = 30 s	1) Restripe the EB approach from one 18 ft moving lane and buffer zone to one 11 ft left-turn lane and one 10 ft left-turn/through lane; 2) Prohibit WB left-turns; 3) Restripe the SB approach from one 23 ft moving lane to one 12 ft left-turn/through lane and one 11’ through lane; 4) Create a leading SB phase and a protected EB left-turn phase.	Phase A: SB/WBR Green = 11 s Phase B: NB/SB Green = 36 s Phase C: EB Green = 28 s
Boscombe Avenue and the Route 440 Ramps	Phase A: EB/WB Green = 35 s Phase B[4]: NB/SB Green = 16 s Phase C: EB/SBR Green = 54 s	Unmitigated	No change from No-Action

Table 20-3, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday Midday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Veterans Road West and Tyrellan Avenue	Phase A: WB Green = 23 s Phase B: EB Green = 23 s Phase C: NB/SB Green = 29 s	1) Restripe the EB approach from one 13 ft travel lane, one 11 ft travel lane and 10 ft median to one 13 ft travel lane, one 11 ft travel lane and one 12 ft left-turn only lane; 2) Restripe the WB approach from one 14 ft travel lane, one 10 ft travel lane and 10 ft median to one 14 ft travel lane, one 10 ft travel lane and one 12 ft left-turn only lane; Change EB and WB split phasing to permitted phasing with an EB/WB protected only left-turn phase.	Phase A: NB/SB Green = 35 s Phase B: EB/WB Green = 11 s Phase C: WB Green = 6 sec Phase D: EB/WB Green = 23 s
Veterans Road West and North Bridge Street/ Bricktown Way	Phase A: EB/WB Green = 30 s Phase B: NB Green = 25 s Phase C: SB Green = 20 s	1) Restripe the NB approach from one 23 ft moving lane to one 11 ft left-turn lane and one 12 ft through/right-turn lane; 2) Restripe the WB approach 12 ft right-turn lane to one 12 ft through/right-turn lane; 3) Restripe the WB receiving lanes from one 12.5 ft through lane and one 9.5 ft right-turn only/parking lane to two 11 ft through lanes to Arthur Kill Road; 4) Increase the signal cycle length from 90 seconds to 120 seconds; 5) Change NB and SB split phasing to permitted and create protected NB, SB and EB left-turn phases.	Phase A: NBL/SBL Green = 4 s Phase B: SB Green = 4 s Phase C: NB/SB Green = 42 s Phase D: EB Green = 7s Phase E: EB/WB Green = 43 s
Page Avenue and Amboy Road	Phase A: EB/WB Green = 29 s Phase B: NB/SB Green = 35 s Phase C: EB Green = 11 s	1) Restripe the WB approach from one 10 ft left-turn lane and one 11 ft through/right-turn lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Restripe the NB approach from one 10 ft left-turn lane, one 11 ft through lane and one 11 ft right-turn lane to one 10 ft left-turn lane, one 11 ft through lane and one 11 ft through/right-turn lane; 3) Shift 4 seconds from Phase A (EB/WB) to Phase C (EB).	Phase A: EB/WB Green = 25 s Phase B: NB/SB Green = 35 s Phase C: EB Green = 15 s
Page Avenue and Hylan Boulevard	Phase A: EB/WB Green = 69 s Phase B: LPI Green = 7 s Phase C: NB/SB Green = 33 s	Unmitigated	No change from No-Action
Bloomingdale Road and Amboy Road	Phase A: EB/WB Green = 40 s Phase B: NB/SB Green = 40 s	1) Shift the centerline of Amboy Road, south of Pleasant Plains Avenue 1 ft to the west creating a 12 ft NB moving lane; 2) Create NB and WB leading phases.	Phase A: NB Green = 4 s Phase B: NB/SB Green = 32 s Phase C: WB Green = 4 s Phase D: EB/WB Green = 30 s
North Bridge Street and the Route 440 Off-Ramp	Unsignalized	Unmitigated	Unsignalized
Arthur Kill Road and South Bridge Street	Unsignalized	Unmitigated	Unsignalized

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right.
(1) Mitigation measures not required for the weekday AM and midday peak hours.
(2) Mitigation measures not required for the weekday AM peak hour.
(3) Any time not used in Phase C will be added to Phase A.
(4) If NB approach doesn't get called, WBR will operate with SB phase during Phase B.

Table 20-4
Recommended Mitigation Measures: Proposed Project
Weekday PM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Bloomingdale Road and Woodrow Road	Phase A: NB/SB Green = 34 s Phase B: EB/WB Green = 24 s Phase C[3]: EB (Woodrow Rd) Green = 17 s	Shift 6 seconds from Phase C (EB Woodrow Road) to Phase B (EB/WB)	Phase A: NB/SB Green = 34 s Phase B: EB/WB Green = 30 s Phase C[3]: EB (Woodrow Rd) Green = 11 s
Veterans Road East and Englewood Avenue[1]	Phase A: NB Green = 27 s Phase B: EB/WB Green = 9 s	Restripe the EB approach from one 24.5 ft moving lane to one 12 ft left-turn lane and one 12 ft through/right-turn lane.	No change from No-Action
Arthur Kill Road and Veterans Road West/ Allentown Lane	Phase A: NB/SB Green = 25 s Phase B: EB/WB Green = 25 s	1) Shift the centerline of Arthur Kill Road south of Veterans Road West 1 ft to the west. Restripe the NB approach from one 20 ft moving lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Allow right turn on red for the NB right-turn movement; 3) Restripe the WB approach from one 13 ft moving lane and one 9 ft parking lane to one 11 ft travel lane and one 11 ft through/right-turn lane; 4) Increase the signal cycle length from 60 seconds to 90 seconds; 5) Create a protected WB left-turn phase with NB right-turn overlap.	Phase A: NB/SB Green = 36 s Phase B: WB/NBR Green = 23 s Phase C: EB/WB Green = 16 s
Arthur Kill Road and North Bridge Street	Phase A: NB/SB Green = 30 s Phase B: WB Green = 20 s	Unmitigated	No change from No-Action
Arthur Kill Road and Richmond Valley Road	Phase A: NB/SB Green = 34 s Phase B: WB Green = 16 s	Unmitigated	No change from No-Action
Page Avenue and Richmond Valley Road[2]	Phase A: NB/SB Green = 49 s Phase B: EB/WB Green = 31 s	1) Restripe the WB approach for 100 ft from one 22.5 ft moving lane to one 11 ft left-turn lane and one 11 ft through/right-turn lane; 2) Install “No Standing Anytime” for 110 ft at the SB approach to create an additional right-turn lane; 3) Increase the signal cycle length from 90 seconds to 120 seconds; 4) Create a leading EB phase with SB right-turn overlap.	Phase A: NB/SB Green = 57 s Phase B: EB/SBR Green = 17 s Phase C: EB/WB Green = 31 s
Page / Boscombe Avenue and South Bridge Street	Phase A: NB/SB Green = 50 s Phase B: EB/WB Green = 30 s	1) Restripe the EB approach from one 18 ft moving lane and buffer zone to one 11 ft left-turn lane and one 10 ft left-turn/through lane; 2) Prohibit WB left-turns; 3) Restripe the SB approach from one 23 ft moving lane to one 12 ft left-turn/through lane and one 11’ through lane; 4) Create a leading SB phase and a protected EB left-turn phase.	Phase A: SB/WBR Green = 11 s Phase B: NB/SB Green = 36 s Phase C: EB Green = 28 s

Table 20-4, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday PM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Boscombe Avenue and Route 440 Ramps	Phase A: EB/WB Green = 35 s Phase B[4]: NB/SB Green = 16 s Phase C: EB/SBR Green = 54 s	Unmitigated	No change from No-Action
Veterans Road West and Tyrellan Avenue	Phase A: WB Green = 23 s Phase B: EB Green = 23 s Phase C: NB/SB Green = 29 s	1) Restripe the EB approach from one 13 ft travel lane, one 11 ft travel lane and 10 ft median to one 13 ft travel lane, one 11 ft travel lane and one 12 ft left-turn only lane; 2) Restripe the WB approach from one 14 ft travel lane, one 10 ft travel lane and 10 ft median to one 14 ft travel lane, one 10 ft travel lane and one 12 ft left-turn only lane; Change EB and WB split phasing to permitted phasing with an EB/WB protected only left-turn phase.	Phase A: NB/SB Green = 32 s Phase B: EB/WB Green = 12 s Phase C: WB Green = 8 sec Phase D: EB/WB Green = 23 s
Veterans Road West and North Bridge Street/ Bricktown Way	Phase A: EB/WB Green = 30 s Phase B: NB Green = 25 s Phase C: SB Green = 20 s	1) Restripe the NB approach from one 23 ft moving lane to one 11 ft left-turn lane and one 12 ft through/right-turn lane; 2) Restripe the WB approach 12 ft right-turn lane to one 12 ft through/right-turn lane; 3) Restripe the WB receiving lanes from one 12.5 ft through lane and one 9.5 ft right-turn only/parking lane to two 11 ft through lanes to Arthur Kill Road; 4) Increase the signal cycle length from 90 seconds to 120 seconds; 5) Change NB and SB split phasing to permitted and create protected NB, SB and EB left-turn phases.	Phase A: NBL/SBL Green = 4 s Phase B: SB Green = 4 s Phase C: NB/SB Green = 42 s Phase D: EB Green = 7s Phase E: EB/WB Green = 43 s
Page Avenue and Amboy Road	Phase A: EB/WB Green = 29 s Phase B: NB/SB Green = 33 s Phase C: EB Green = 13 s	1) Restripe the WB approach from one 10 ft left-turn lane and one 11 ft through/right-turn lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Restripe the NB approach from one 10 ft left-turn lane, one 11 ft through lane and one 11 ft right-turn lane to one 10 ft left-turn lane, one 11 ft through lane and one 11 ft through/right-turn lane; 3) Shift 1 second from Phase A (EB/WB) to Phase C (EB).	Phase A: EB/WB Green = 28 s Phase B: NB/SB Green = 33 s Phase C: EB Green = 14 s
Page Avenue and Hylan Boulevard	Phase A: EB/WB Green = 69 s Phase B: LPI Green = 7 s Phase C: NB/SB Green = 33 s	Unmitigated	No change from No-Action
Bloomingdale Road and Amboy Road	Phase A: EB/WB Green = 40 s Phase B: NB/SB Green = 40 s	1) Shift the centerline of Amboy Road, south of Pleasant Plains Avenue 1 ft to the west creating a 12 ft NB moving lane; 2) Create NB and WB leading phases.	Phase A: NB Green = 4 s Phase B: NB/SB Green = 34 s Phase C: WB Green = 8 s Phase D: EB/WB Green = 24 s

Table 20-4, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday PM Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
North Bridge Street and the Route 440 Off-Ramp	Unsignalized	Unmitigated	Unsignalized
Arthur Kill Road and South Bridge Street	Unsignalized	Unmitigated	Unsignalized

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right.
(1) Mitigation measures not required for the weekday AM and midday peak hours.
(2) Mitigation measures not required for the weekday AM peak hour.
(3) Any time not used in Phase C will be added to Phase A.
(4) If NB approach doesn't get called, WBR will operate with SB phase during Phase B.

Table 20-5
Recommended Mitigation Measures: Proposed Project
Weekday Saturday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Bloomingdale Road and Woodrow Road	Phase A: NB/SB Green = 34 s Phase B: EB/WB Green = 24 s Phase C[3]: EB (Woodrow Rd) Green = 17 s	Shift 3 seconds from Phase C (EB Woodrow Road) to Phase B (EB/WB)	Phase A: NB/SB Green = 34 s Phase B: EB/WB Green = 27 s Phase C[3]: EB (Woodrow Rd) Green = 14 s
Veterans Road East and Englewood Avenue[1]	Phase A: NB Green = 27 s Phase B: EB/WB Green = 9 s	Restripe the EB approach from one 24.5 ft moving lane to one 12 ft left-turn lane and one 12 ft through/right-turn lane.	No change from No-Action
Arthur Kill Road and Veterans Road West/ Allentown Lane	Phase A: NB/SB Green = 25 s Phase B: EB/WB Green = 25 s	1) Shift the centerline of Arthur Kill Road south of Veterans Road West 1 ft to the west. Restripe the NB approach from one 20 ft moving lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Allow right turn on red for the NB right-turn movement; 3) Restripe the WB approach from one 13 ft moving lane and one 9 ft parking lane to one 11 ft travel lane and one 11 ft through/right-turn lane; 4) Increase the signal cycle length from 60 seconds to 90 seconds; 5) Create a protected WB left-turn phase with NB right-turn overlap.	Phase A: NB/SB Green = 34 s Phase B: WB/NBR Green = 23 s Phase C: EB/WB Green = 18 s
Arthur Kill Road and North Bridge Street	Phase A: NB/SB Green = 30 s Phase B: WB Green = 20 s	Unmitigated	No change from No-Action
Arthur Kill Road and Richmond Valley Road	Phase A: NB/SB Green = 34 s Phase B: WB Green = 16 s	Unmitigated	No change from No-Action

Table 20-5, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday Saturday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Page Avenue and Richmond Valley Road[2]	Phase A: NB/SB Green = 49 s Phase B: EB/WB Green = 31 s	1) Restripe the WB approach for 100 ft from one 22.5 ft moving lane to one 11 ft left-turn lane and one 11 ft through/right-turn lane; 2) Install "No Standing Anytime" for 110 ft at the SB approach to create an additional right-turn lane; 3) Increase the signal cycle length from 90 seconds to 120 seconds; 4) Create a leading EB phase with SB right-turn overlap.	Phase A: NB/SB Green = 63 s Phase B: EB/SBR Green = 16 s Phase C: EB/WB Green = 26 s
Page / Boscombe Avenue and South Bridge Street	Phase A: NB/SB Green = 50 s Phase B: EB/WB Green = 30 s	1) Restripe the EB approach from one 18 ft moving lane and buffer zone to one 11 ft left-turn lane and one 10 ft left-turn/through lane; 2) Prohibit WB left-turns; 3) Restripe the SB approach from one 23 ft moving lane to one 12 ft left-turn/through lane and one 11' through lane; 4) Create a leading SB phase and a protected EB left-turn phase.	Phase A: SB/WBR Green = 9 s Phase B: NB/SB Green = 35 s Phase C: EB Green = 31 s
Boscombe Avenue and Route 440 Ramps	Phase A: EB/WB Green = 35 s Phase B[4]: NB/SB Green = 16 s Phase C: EB/SBR Green = 54 s	Unmitigated	No change from No-Action
Veterans Road West and Tyrellan Avenue	Phase A: WB Green = 23 s Phase B: EB Green = 23 s Phase C: NB/SB Green = 29 s	1) Restripe the EB approach from one 13 ft travel lane, one 11 ft travel lane and 10 ft median to one 13 ft travel lane, one 11 ft travel lane and one 12 ft left-turn only lane; 2) Restripe the WB approach from one 14 ft travel lane, one 10 ft travel lane and 10 ft median to one 14 ft travel lane, one 10 ft travel lane and one 12 ft left-turn only lane; Change EB and WB split phasing to permitted phasing with an EB/WB protected only left-turn phase.	Phase A: NB/SB Green = 35 s Phase B: EB/WB Green = 13 s Phase C: WB Green = 4 sec Phase D: EB/WB Green = 23 s
Veterans Road West and North Bridge Street/ Bricktown Way	Phase A: EB/WB Green = 30 s Phase B: NB Green = 25 s Phase C: SB Green = 20 s	1) Restripe the NB approach from one 23 ft moving lane to one 11 ft left-turn lane and one 12 ft through/right-turn lane; 2) Restripe the WB approach 12 ft right-turn lane to one 12 ft through/right-turn lane; 3) Restripe the WB receiving lanes from one 12.5 ft through lane and one 9.5 ft right-turn only/parking lane to two 11 ft through lanes to Arthur Kill Road; 4) Increase the signal cycle length from 90 seconds to 120 seconds; 5) Change NB and SB split phasing to permitted and create protected NB, SB and EB left-turn phases.	Phase A: NBL/SBL Green = 4 s Phase B: SB Green = 4 s Phase C: NB/SB Green = 42 s Phase D: EB Green = 7s Phase E: EB/WB Green = 43 s

Table 20-5, cont'd
Recommended Mitigation Measures: Proposed Project
Weekday Saturday Peak Hour

Intersection	No Action Signal Timing	Recommended Mitigation Measures	Recommended Signal Timing
Page Avenue and Amboy Road	Phase A: EB/WB Green = 29 s Phase B: NB/SB Green = 35 s Phase C: EB Green = 11 s	1) Restripe the WB approach from one 10 ft left-turn lane and one 11 ft through/right-turn lane to one 11 ft left-turn/through lane and one 10 ft right-turn lane; 2) Restripe the NB approach from one 10 ft left-turn lane, one 11 ft through lane and one 11 ft right-turn lane to one 10 ft left-turn lane, one 11 ft through lane and one 11 ft through/right-turn lane.	No change from No-Action
Page Avenue and Hylan Boulevard	Phase A: EB/WB Green = 69 s Phase B: LPI Green = 7 s Phase C: NB/SB Green = 33 s	Unmitigated	No change from No-Action
Bloomingdale Road and Amboy Road	Phase A: EB/WB Green = 40 s Phase B: NB/SB Green = 40 s	1) Shift the centerline of Amboy Road, south of Pleasant Plains Avenue 1 ft to the west creating a 12 ft NB moving lane; 2) Create NB and WB leading phases.	Phase A: NB Green = 4 s Phase B: NB/SB Green = 33 s Phase C: WB Green = 18 s Phase D: EB/WB Green = 15 s
North Bridge Street and the Route 440 Off-Ramp	Unsignalized	Unmitigated	Unsignalized
Arthur Kill Road and South Bridge Street	Unsignalized	Unmitigated	Unsignalized

Notes: EB = Eastbound; WB = Westbound; NB = Northbound; SB = Southbound; L = Left; T = Through; R = Right.
(1) Mitigation measures not required for the weekday AM and midday peak hours.
(2) Mitigation measures not required for the weekday AM peak hour.
(3) Any time not used in Phase C will be added to Phase A.
(4) If NB approach doesn't get called, WBR will operate with SB phase during Phase B.

With the implementation of these standard traffic mitigation measures (including primarily signal timing changes, approach daylighting, and lane restriping), which are subject to review and approval by NYCDOT, the significant adverse traffic impacts identified in Chapter 12, "Transportation," could be fully mitigated except for the intersections of Arthur Kill Road at North Bridge Street (all peak hours), Arthur Kill Road at Richmond Valley Road (all peak hours), Page Avenue at Richmond Valley Road (weekday midday, PM, and Saturday peak hours), Boscombe Avenue at the Route 440 Ramps (all peak hours), Page Avenue at Hylan Boulevard (all peak hours), Page Avenue and Amboy Road (weekday PM and Saturday peak hours), North Bridge Street at the 440 westbound off-ramp (all peak hours), and Arthur Kill Road at South Bridge Street (weekday midday, PM, and Saturday peak hours). At two of these intersections (i.e., Page Avenue at Richmond Valley Road and Page Avenue at Amboy Road), improvement measures were recommended to partially mitigate the projected impacts at one or more of the impacted movements.

A discussion of the recommended mitigation measures is provided below. **Tables 20-6** through **20-9** compare the levels of service (LOS) and lane group delays for the impacted intersections under the 2019 No Action, With Action (the Proposed Project), and Mitigation conditions for the four analysis peak hours.

Table 20-6
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday AM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Veterans Road East & Englewood Avenue[1]												
Eastbound	LTR	0.46	18.8	B	LTR	0.48	19.1	B	L	0.18	14.9	B
									TR	0.32	17.3	B
Westbound	LTR	0.24	6.8	A	LTR	0.28	7.2	A	LTR	0.28	7.2	A
Northbound	LTR	0.43	12.3	B	LTR	0.43	12.3	B	LTR	0.43	12.3	B
	Intersection		13.6	B	Intersection		13.7	B	Intersection		12.9	B
Arthur Kill Road & Allentown Lane/ Veterans Road West												
Eastbound	LTR	0.03	10.4	B	LTR	0.03	10.5	B	LTR	0.10	34.2	C
Westbound	LTR	0.91	39.1	D	LTR	1.09	**82.4**	**F +**	L	0.59	21.2	C
									TR	0.35	16.9	B
Northbound	LTR	0.87	17.7	B	LTR	0.93	22.2	C	LT	0.25	17.6	B
									R	0.34	6.6	A
Southbound	LTR	0.72	25.7	C	LTR	0.79	30.5	C	LTR	0.51	22.1	C
	Intersection		26.3	C	Intersection		45.1	D	Intersection		15.8	B
Arthur Kill Road & North Bridge Street												
Westbound	LR	0.75	25.9	C	LR	1.05	**70.8**	**E +**	Unmitigated			
Northbound	T	0.59	9.0	A	T	0.63	20.7	C				
Southbound	T	0.49	11.9	B	T	0.61	12.9	B				
	Intersection		15.2	B	Intersection		36.6	D				
Arthur Kill Road & Richmond Valley Road												
Eastbound					L	0.18	36.3	D	Unmitigated			
					TR	0.32	40.2	D				
Westbound	LR	0.65	26.4	C	L	0.27	36.2	D				
					TR	0.90	**71.5**	**E +**				
Northbound					L	0.06	13.2	B				
	TR	0.74	14.3	B	TR	0.88	36.4	D				
Southbound	LT	1.28	155.0	F	L	0.85	51.7	D				
					TR	0.52	15.5	B				
	Intersection		68.2	E	Intersection		37.8	D				

Table 20-6, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday AM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Richmond Valley Road[1]												
Eastbound	L	0.21	22.1	C	L	0.47	27.6	C	L	0.49	30.4	C
	TR	0.30	22.9	C	TR	0.41	24.7	C	TR	0.40	25.8	C
Westbound	LTR	0.30	22.8	C	LTR	0.34	23.5	C	L	0.13	32.8	C
									TR	0.37	36.7	D
Northbound	L	0.50	19.3	B	L	0.73	25.6	C	L	0.60	23.9	C
	TR	0.75	22.5	C	TR	0.75	22.8	C	TR	0.73	23.8	C
Southbound	LTR	0.41	11.5	B	LTR	0.43	11.8	B	LT	0.30	14.6	B
									R	0.18	11.7	B
	Intersection		19.0	B	Intersection		20.7	C	Intersection		22.9	C
Page Avenue/ Boscombe Avenue & South Bridge Street / Gas Station												
Eastbound	LT	0.77	38.9	D	LT	0.95	**61.6**	**E +**	L	0.45	27.8	C
									LT	0.44	27.6	C
	R	0.07	20.7	C	R	0.09	20.9	C	R	0.06	21.9	C
Westbound	LTR	0.09	21.0	C	LTR	0.09	21.0	C	R	0.26	39.1	D
Northbound	TR	0.39	13.9	B	TR	0.43	13.4	B	TR	0.59	23.0	C
Southbound	LT	0.48	13.7	B	LT	0.50	14.0	B	LT	0.29	10.1	B
	Intersection		19.2	B	Intersection		24.5	C	Intersection		20.8	C
Boscombe Avenue & The Route 440 Ramps												
Eastbound	L	1.11	101.1	F	L	1.32	**183.6**	**F +**	Unmitigated			
	TR	0.29	4.2	A	TR	0.29	4.2	A				
Westbound	LT	0.89	61.0	E	LT	0.89	61.0	E				
	R	0.42	30.0	C	R	0.42	30.0	C				
Northbound	LTR	0.43	79.1	E	LTR	0.43	79.1	E				
Southbound	LT	0.80	79.8	E	LT	0.80	79.8	E				
	R	0.23	12.5	B	R	0.25	12.8	B				
	Intersection		61.0	E	Intersection		97.8	F				
Veterans Road West & Tyrellan Avenue												
Eastbound	LTR	0.39	29.8	C	LTR	0.41	29.8	D	L	0.17	38.2	D
									TR	0.37	28.9	C
Westbound	LTR	0.83	40.9	D	LTR	0.92	**49.5**	**D +**	L	0.70	41.6	D
									TR	0.36	20.4	C
Northbound	LTR	0.60	28.8	C	LTR	0.60	28.8	C	LTR	0.59	27.6	C
Southbound	LTR	0.35	24.4	C	LTR	0.35	24.4	C	LTR	0.34	23.6	C
	Intersection		33.1	C	Intersection		37.0	D	Intersection		27.8	C
Veterans Road West & North Bridge Street/ Bricktown Way												
Eastbound	L	0.79	46.4	D	L	1.00	**88.7**	**F +**	L	0.61	31.4	C
	TR	0.55	28.7	C	TR	0.61	30.6	C	TR	0.47	24.6	C
Westbound	L	1.18	119.1	F	L	1.31	**168.2**	**F +**	L	0.79	52.8	D
	T	0.42	9.4	A	T	0.57	9.5	A	TR	0.32	28.6	C
	R	0.03	28.9	C	R	0.03	19.2	B				
Northbound	LT	0.45	29.9	C	LT	0.45	29.9	C	L	0.18	25.1	C
	R	0.30	27.5	C	R	0.30	27.5	C	TR	0.40	31.5	C
Southbound	L	0.25	30.4	C	L	0.25	30.4	C	L	0.21	20.7	C
	TR	0.60	38.9	D	TR	0.60	38.9	D	TR	0.35	27.9	C
	Intersection		42.8	D	Intersection		53.0	D	Intersection		31.1	C

Table 20-6, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday AM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Amboy Road												
Eastbound	L	0.99	63.1	E	L	1.03	**74.2**	**E +**	L	0.95	49.9	D
	TR	0.32	14.4	B	TR	0.32	14.4	B	TR	0.31	13.1	B
Westbound	L	0.29	26.7	C	L	0.29	26.7	C	L	0.26	25.2	C
	TR	0.75	38.8	D	TR	0.75	38.8	D	TR	0.73	36.5	D
Northbound	L	0.27	21.2	C	L	0.30	22.0	C	L	0.33	24.4	C
	T	0.78	32.8	C	T	0.87	39.4	D	TR	0.54	24.3	C
	R	0.10	17.9	B	R	0.10	17.9	B				
Southbound	L	0.27	26.9	C	L	0.36	31.6	C	L	0.22	22.3	C
	T	0.51	28.7	C	TR	0.56	29.4	C	T	0.59	27.2	C
	R	0.44	27.5	C	R	0.46	27.3	**C**	R	0.49	25.2	C
	Intersection		34.5	C	Intersection		38.0	D	Intersection		29.5	C
Page Avenue & Hylan Boulevard												
Eastbound	L	1.00	74.8	E	L	1.12	**110.6**	**F +**	Unmitigated			
	TR	0.32	13.7	B	TR	0.32	13.7	B				
Westbound	L	0.07	11.7	B	L	0.07	11.7	B				
	TR	0.39	14.7	B	TR	0.42	15.0	B				
Northbound	LTR	0.21	34.6	C	LTR	0.21	34.6	C				
Southbound	L	0.75	55.0	D	L	0.82	**62.0**	**E +**				
	TR	0.38	37.6	D	TR	0.41	38.2	D				
	Intersection		30.7	C	Intersection		37.7	D				
Bloomingdale Road & Amboy Road & Pleasant Plains Avenue[1]												
Eastbound	LTR	0.11	15.0	B	LTR	0.11	15.0	B	LTR	0.15	21.7	C
Westbound	L	0.47	20.5	C	L	0.52	21.7	C	L	0.54	24.4	C
	T	0.04	14.2	B	T	0.04	14.2	B	T	0.04	14.8	B
	R	0.22	16.2	B	R	0.22	16.2	B	R	0.23	16.9	B
Northbound	LTR	0.58	22.2	C	LTR	0.61	23.0	C	LTR	0.57	21.3	C
Southbound	L	0.77	38.6	D	L	0.80	41.5	D	L	0.77	43.0	D
	TR	0.48	19.8	B	TR	0.48	19.8	B	TR	0.60	28.1	C
	Intersection		22.8	C	Intersection		23.6	C	Intersection		26.2	C
Unsignalized Intersections												
North Bridge Street & The Route 440 Off-Ramp												
Westbound	L	0.74	27.0	D	L	1.13	**104.9**	**F +**	Unmitigated			
Southbound	T	0.27	0.0	A	T	0.28	0.0	A				

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

+ Denotes a significant adverse traffic impact.

(1) Intersection not impacted during the weekday AM peak hour; analysis presented to demonstrate the proposed mitigation measures would not result in additional significant adverse traffic impacts.

Table 20-7
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Veterans Road East & Englewood Avenue[1]												
Eastbound	LTR	0.87	31.6	C	LTR	0.95	41.3	D	L	0.30	15.1	B
									TR	0.73	22.8	C
Westbound	LTR	0.19	7.6	A	LTR	0.28	7.3	A	LTR	0.28	7.3	A
Northbound	LTR	0.89	13.0	B	LTR	0.92	13.1	B	LTR	0.92	13.1	B
	Intersection		21.0	C	Intersection		25.2	C	Intersection		16.1	B
Arthur Kill Road & Allentown Lane/ Veterans Road West												
Eastbound	LTR	0.04	10.5	B	LTR	0.04	10.5	B	LTR	0.12	33.6	C
Westbound	LTR	1.02	59.6	E	LTR	1.35	**185.0**	**F +**	L	0.87	40.2	D
									TR	0.46	21.9	C
Northbound	LTR	0.97	30.4	C	LTR	1.18	**96.4**	**F +**	LT	0.34	15.7	B
									R	0.41	7.6	A
Southbound	LTR	1.90	435.4	F	LTR	2.45	**684.4**	**F +**	LTR	1.00	58.9	E
	Intersection		156.1	F	Intersection		277.8	F	Intersection		30.9	C
Arthur Kill Road & North Bridge Street												
Westbound	LR	0.73	24.8	C	LR	1.52	**262.3**	**F +**	Unmitigated			
Northbound	T	0.64	13.8	B	T	0.79	11.8	B				
Southbound	T	0.58	10.6	B	T	0.80	13.7	B				
	Intersection		15.9	B	Intersection		109.5	F				
Arthur Kill Road & Richmond Valley Road												
Eastbound					L	1.03	**127.9**	**F +**	Unmitigated			
					TR	0.88	**53.4**	**D +**				
Westbound	LR	0.93	47.4	D	L	0.64	47.7	D				
					TR	1.08	**100.6**	**F +**				
Northbound					L	0.24	24.2	C				
	TR	0.56	10.3	B	TR	0.84	41.9	D				
Southbound	LT	1.30	157.0	F	L	1.66	367.9	F				
					TR	0.72	43.2	D				
	Intersection		79.4	E	Intersection		95.5	F				
Page Avenue & Richmond Valley Road												
Eastbound	L	0.27	23.1	C	L	1.37	**215.8**	**F +**	L	0.96	37.7	D
	TR	0.45	25.5	C	TR	0.90	**47.3**	**D +**	TR	0.70	27.5	C
Westbound	LTR	0.30	22.8	C	LTR	0.54	28.0	C	L	0.12	36.0	D
									TR	0.56	44.4	D
Northbound	L	0.87	43.0	D	L	1.52	**270.9**	**F +**	L	1.39	**225.1**	**F +**
	TR	0.62	19.3	B	TR	0.62	20.2	C	TR	0.71	29.1	C
Southbound	LTR	0.49	13.5	B	LTR	0.53	14.9	B	LT	0.45	22.2	C
									R	0.26	10.8	B
	Intersection		21.4	C	Intersection		85.5	F	Intersection		55.6	E
Page Avenue/ Boscombe Avenue & South Bridge Street / Gas Station												
Eastbound	LT	0.70	34.1	C	LT	1.37	**208.5**	**F +**	L	0.64	32.7	C
									LT	0.64	32.6	C
	R	0.08	20.8	C	R	0.13	21.4	C	R	0.08	22.2	C
Westbound	LTR	0.09	20.9	C	LTR	0.17	22.5	C	R	0.23	38.4	D
Northbound	TR	0.39	10.9	B	TR	0.53	8.6	A	TR	0.74	26.4	C
Southbound	LT	0.57	15.1	B	LT	0.62	16.2	B	LT	0.36	10.7	B
	Intersection		17.1	B	Intersection		61.7	E	Intersection		23.9	C

Table 20-7, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Boscombe Avenue & The Route 440 Ramps												
Eastbound	L	1.00	64.9	E	L	1.83	**413.7**	**F +**	Unmitigated			
	TR	0.31	4.4	A	TR	0.31	4.4	A				
Westbound	LT	0.90	61.7	E	LT	0.90	61.7	E				
	R	1.23	156.3	F	R	1.23	156.3	F				
Northbound	LTR	0.44	70.0	E	LTR	0.44	70.0	E				
Southbound	LT	0.57	60.2	E	LT	0.57	60.2	E				
	R	0.17	11.9	B	R	0.22	12.4	B				
	Intersection		76.0	E	Intersection		221.1	F				
Veterans Road West & Tyrellan Avenue												
Eastbound	LTR	0.97	43.2	D	LTR	0.97	47.2	D	L	0.36	41.0	D
									TR	0.99	36.6	D
Westbound	LTR	0.71	35.3	D	LTR	0.90	**46.3**	**D +**	L	0.64	42.7	D
									TR	0.52	26.5	C
Northbound	LTR	2.07	81.8	F	LTR	2.07	81.8	F	LTR	1.25	39.8	D
Southbound	LTR	1.21	135.8	F	LTR	1.21	135.8	F	LTR	0.93	43.2	D
	Intersection		80.5	F	Intersection		80.9	F	Intersection		37.9	D
Veterans Road West & North Bridge Street/ Bricktown Way												
Eastbound	L	1.02	91.9	F	L	1.90	**463.0**	**F +**	L	0.81	47.4	D
	TR	0.76	36.5	D	TR	0.99	**66.7**	**E +**	TR	0.75	33.8	C
Westbound	L	1.70	341.5	F	L	2.96	**900.7**	**F +**	L	1.25	189.2	F
	T	0.51	9.8	A	T	0.80	10.9	B	TR	0.43	30.4	C
	R	0.03	38.0	D	R	0.03	16.3	B				
Northbound	LT	0.53	31.4	C	LT	0.53	31.4	C	L	0.12	24.3	C
	R	0.30	27.4	C	R	0.30	27.4	C	TR	0.52	34.1	C
Southbound	L	0.32	31.6	C	L	0.32	31.6	C	L	0.33	23.0	C
	TR	0.97	76.6	E	TR	0.97	76.6	E	TR	0.56	32.9	C
	Intersection		75.6	E	Intersection		166.3	F	Intersection		47.6	D
Page Avenue & Amboy Road												
Eastbound	L	0.72	27.5	C	L	0.87	42.2	D	L	0.85	36.9	D
	TR	0.17	12.6	B	TR	0.20	13.0	B	TR	0.20	13.6	B
Westbound	L	0.08	21.7	C	L	0.09	21.8	C	L	0.10	25.5	C
	TR	0.57	29.2	C	TR	0.65	32.2	C	TR	0.79	43.9	D
Northbound	L	0.14	18.8	B	L	0.23	21.6	C	L	0.21	20.4	C
	T	0.69	28.5	C	T	0.87	39.0	B	TR	0.47	21.1	C
	R	0.06	17.5	B	R	0.06	17.4	B				
Southbound	L	0.58	34.5	C	L	1.05	**112.1**	**F +**	L	0.48	27.3	C
	T	0.50	24.3	C	T	0.73	25.0	C	T	0.71	28.5	C
	R	0.45	23.7	C	R	0.54	21.0	C	R	0.53	23.9	C
	Intersection		25.8	C	Intersection		34.1	C	Intersection		28.2	C

Table 20-7, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday Midday Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Hylan Boulevard												
Eastbound	L	0.45	17.9	B	L	0.62	23.7	C	Unmitigated			
	TR	0.10	11.6	B	TR	0.10	11.6	B				
Westbound	L	0.02	11.0	B	L	0.02	11.0	B				
	TR	0.29	13.5	B	TR	0.35	14.1	B				
Northbound	LTR	0.08	32.6	C	LTR	0.08	32.6	C				
Southbound	L	0.68	49.0	D	L	0.97	**84.2**	**F +**				
	TR	0.37	37.3	D	TR	0.48	39.6	D				
	Intersection		23.5	C	Intersection		33.2	C				
Bloomingdale Road & Amboy Road & Pleasant Plains Avenue[1]												
Eastbound	LTR	0.04	14.3	B	LTR	0.04	14.3	B	LTR	0.05	20.6	C
Westbound	L	0.52	21.5	C	L	0.63	24.6	C	L	0.66	28.0	C
	T	0.02	14.1	B	T	0.02	14.1	B	T	0.02	14.6	B
	R	0.16	15.4	B	R	0.16	15.4	B	R	0.16	16.1	B
Northbound	LTR	0.61	22.7	C	LTR	0.72	26.4	C	LTR	0.67	24.0	C
Southbound	L	0.28	18.3	B	L	0.32	19.5	B	L	0.31	24.0	C
	TR	0.41	18.6	B	TR	0.41	18.6	B	TR	0.52	25.9	C
	Intersection		20.3	C	Intersection		22.6	C	Intersection		24.7	C
Unsignalized Intersections												
North Bridge Street 7 The Route 440 Off-Ramp												
Westbound	L	0.62	22.4	C	L	1.72	**354.0**	**F +**	Unmitigated			
Southbound	T	0.29	0.0	A	T	0.33	0.0	A				
Arthur Kill Road & South Bridge Street												
Northbound	TR	0.56	0.0	A	TR	0.85	0.0	A	Unmitigated			
Southbound	LT	0.31	8.0	A	LT	0.95	**91.2**	**F +**				

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound

+ Denotes a significant adverse traffic impact.

(1) Intersection not impacted during the weekday midday peak hour; analysis presented to demonstrate the proposed mitigation measures would not result in additional significant adverse traffic impacts.

Table 20-8
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Bloomingdale Road & Woodrow Road/School Driveway												
Eastbound (School Driveway)	L	0.08	25.1	C	L	0.08	25.1	C	L	0.07	20.7	C
	TR	0.29	27.9	C	TR	0.29	27.9	C	TR	0.23	22.7	C
Eastbound (Woodrow Road)	LTR	0.50	59.2	E	LTR	0.50	59.2	E	LTR	0.50	59.2	E
Westbound	L	0.90	65.3	E	L	0.97	**80.3**	**F +**	L	0.77	42.4	D
	R	0.27	27.9	C	R	0.27	27.9	C	R	0.22	22.6	C
Northbound	LT	0.62	17.2	B	LT	0.65	18.0	B	LTR	0.74	25.2	C
	R	0.38	13.1	B	R	0.41	13.5	B	R	0.44	17.5	C
Southbound	L	0.23	12.1	B	L	0.24	12.4	B	L	0.32	17.7	B
	TR	0.25	11.3	B	TR	0.27	11.5	B	TR	0.31	15.1	B
	Intersection		23.7	C	Intersection		26.2	C	Intersection		23.9	C
Veterans Road East & Englewood Avenue												
Eastbound	LTR	1.32	174.9	F	LTR	1.43	**220.3**	**F +**	L	0.56	19.5	B
									TR	1.00	51.6	D
Westbound	LTR	0.25	6.1	A	LTR	0.34	7.2	A	LTR	0.50	9.6	A
Northbound	LTR	0.86	13.4	B	LTR	0.88	13.6	B	LTR	0.88	13.6	B
	Intersection		99.2	F	Intersection		122.6	F	Intersection		28.8	C
Arthur Kill Road & Allentown Lane/ Veterans Road West												
Eastbound	LTR	0.04	10.5	B	LTR	0.04	10.5	B	LTR	0.09	31.5	C
Westbound	LTR	1.47	240.4	F	LTR	1.84	**402.4**	**F +**	L	1.17	113.2	F
									TR	0.32	15.1	B
Northbound	LTR	1.11	69.2	E	LTR	1.31	**152.0**	**F +**	LT	0.40	21.1	C
									R	0.47	9.2	A
Southbound	LTR	1.90	436.4	F	LTR	2.44	**676.1**	**F +**	LTR	1.14	110.5	F
	Intersection		220.0	F	Intersection		363.4	F	Intersection		64.8	E
Arthur Kill Road & North Bridge Street												
Westbound	LR	0.93	41.1	D	LR	1.62	**303.7**	**F +**	Unmitigated			
Northbound	T	0.70	12.1	B	T	0.84	21.3	C				
Southbound	T	0.79	14.1	B	T	1.00	25.1	C				
	Intersection		21.3	C	Intersection		125.6	F				
Arthur Kill Road & Richmond Valley Road												
Eastbound					L	1.02	**130.0**	**F +**	Unmitigated			
					TR	1.08	**108.3**	**F +**				
Westbound	LR	1.08	84.9	F	L	1.29	**209.8**	**F +**				
					TR	1.28	**183.6**	**F +**				
Northbound					L	0.43	38.0	D				
	TR	0.75	14.7	B	TR	1.15	**118.3**	**F +**				
Southbound	LT	2.60	735.1	F	L	1.39	237.3	F				
					TR	0.83	34.2	C				
	Intersection		341.1	F	Intersection		124.1	F				

Table 20-8, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Richmond Valley Road												
Eastbound	L	0.31	24.0	C	L	1.36	**211.7**	**F +**	L	0.93	42.4	D
	TR	0.49	26.2	C	TR	0.91	**48.9**	**D +**	TR	0.71	31.7	C
Westbound	LTR	0.40	24.4	C	LTR	0.94	**63.4**	**E +**	L	0.26	38.4	D
									TR	0.60	44.8	D
Northbound	L	1.16	110.4	F	L	1.99	**468.7**	**F +**	L	1.80	**408.6**	**F +**
	TR	0.72	18.8	B	TR	0.72	17.9	B	TR	0.83	35.2	D
Southbound	LTR	0.66	18.5	B	LTR	0.71	19.8	B	LT	0.69	28.2	C
									R	0.27	11.4	B
	Intersection		29.6	C	Intersection		105.5	F	Intersection		79.1	E
Page Avenue/ Boscombe Avenue & South Bridge Street / Gas Station												
Eastbound	LT	0.94	58.4	E	LT	1.65	**330.2**	**F +**	L	0.77	38.7	D
									LT	0.76	38.3	D
	R	0.17	21.9	C	R	0.23	22.6	C	R	0.16	23.2	C
Westbound	LTR	0.09	20.9	C	LTR	0.13	21.7	C	R	0.25	38.8	D
Northbound	TR	0.48	14.1	B	TR	0.61	11.9	B	TR	0.85	30.9	C
Southbound	LT	0.72	18.6	B	LT	0.77	20.4	C	LT	0.46	11.7	B
	Intersection		24.3	C	Intersection		93.8	F	Intersection		27.2	C
Boscombe Avenue & The Route 440 Ramps												
Eastbound	L	1.14	112.1	F	L	1.86	**424.5**	**F +**	Unmitigated			
	TR	0.37	4.7	A	TR	0.37	4.7	A				
Westbound	LT	1.13	124.0	F	LT	1.13	124.0	F				
	R	1.17	130.6	F	R	1.17	130.6	F				
Northbound	LTR	0.69	116.6	F	LTR	0.69	116.6	F				
Southbound	LT	0.72	70.2	E	LT	0.72	70.2	E				
	R	0.26	12.9	B	R	0.31	13.5	B				
	Intersection		91.3	F	Intersection		221.7	F				
Veterans Road West & Tyrellan Avenue												
Eastbound	LTR	1.13	47.8	D	LTR	1.13	**55.3**	**E +**	L	0.30	38.5	D
									TR	1.15	43.4	D
Westbound	LTR	0.95	52.9	D	LTR	1.13	**105.8**	**F +**	L	0.76	45.7	D
									TR	0.58	26.3	C
Northbound	LTR	1.43	131.6	F	LTR	1.43	131.6	F	LTR	1.14	78.0	E
Southbound	LTR	1.21	138.1	F	LTR	1.21	138.1	F	LTR	1.05	74.4	E
	Intersection		93.3	F	Intersection		107.9	F	Intersection		55.4	E
Veterans Road West & North Bridge Street/ Bricktown Way												
Eastbound	L	1.40	234.1	F	L	2.70	**816.4**	**F +**	L	1.12	119.1	F
	TR	0.84	42.5	D	TR	1.05	**82.6**	**F +**	TR	0.79	36.0	D
Westbound	L	2.21	555.0	F	L	2.74	**794.6**	**F +**	L	1.40	252.5	F
	T	0.53	6.4	A	T	0.83	6.9	A	TR	0.46	30.9	C
	R	0.04	8.4	A	R	0.04	3.8	A				
Northbound	LT	0.57	32.6	C	LT	0.57	32.6	C	L	0.17	25.0	C
	R	0.35	28.3	C	R	0.35	28.3	C	TR	0.54	34.7	C
Southbound	L	0.45	34.0	C	L	0.45	34.0	C	L	0.47	25.6	C
	TR	1.19	145.7	F	TR	1.19	145.7	F	TR	0.69	37.3	D
	Intersection		123.5	F	Intersection		214.9	F	Intersection		61.3	E

Table 20-8, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Weekday PM Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Amboy Road												
Eastbound	L	1.04	76.6	E	L	1.15	**114.7**	**F +**	L	1.15	**115.4**	**F +**
	TR	0.30	13.0	B	TR	0.30	13.0	B	TR	0.30	13.0	B
Westbound	L	0.21	23.7	C	L	0.21	23.7	C	L	0.22	23.9	C
	TR	0.85	43.9	D	TR	0.85	43.9	D	TR	0.83	41.4	D
Northbound	L	0.29	24.2	C	L	0.56	43.8	D	L	0.56	43.8	D
	T	0.90	44.8	D	T	1.07	**85.1**	**F +**	TR	0.62	25.7	C
	R	0.11	19.2	B	R	0.11	19.2	B				
Southbound	L	1.33	226.8	F	L	1.52	295.7	**F +**	L	0.77	55.7	E
	T	0.68	29.8	C	T	0.87	34.2	C	T	0.87	40.9	D
	R	0.62	29.1	C	R	0.70	27.5	C	R	0.70	31.5	C
	Intersection		47.7	D	Intersection		64.7	E	Intersection		43.8	D
Page Avenue & Hylan Boulevard												
Eastbound	L	1.12	115.6	F	L	1.43	**241.0**	**F +**	Unmitigated			
	TR	0.15	12.0	B	TR	0.15	12.0	B				
Westbound	L	0.02	11.0	B	L	0.02	11.0	B				
	TR	0.38	14.4	B	TR	0.41	14.9	B				
Northbound	LTR	0.17	33.9	C	LTR	0.17	33.9	C				
Southbound	L	0.80	57.6	E	L	1.06	**107.5**	**F +**				
	TR	0.48	39.5	D	TR	0.57	41.9	D				
	Intersection		39.9	D	Intersection		70.0	E				
Bloomingdale Road & Amboy Road & Pleasant Plains Avenue												
Eastbound	LTR	0.07	14.6	B	LTR	0.07	14.6	B	LTR	0.12	25.7	C
Westbound	L	0.67	26.2	C	L	0.78	31.6	C	L	0.83	38.7	D
	T	0.03	14.2	B	T	0.03	14.2	B	T	0.04	15.9	B
	R	0.21	16.0	B	R	0.21	16.0	B	R	0.23	18.1	B
Northbound	LTR	0.94	46.1	D	LTR	1.05	**72.4**	**E +**	LTR	0.94	42.6	D
Southbound	L	0.55	28.8	C	L	0.62	34.4	C	L	0.54	31.7	C
	TR	0.53	20.7	C	TR	0.53	20.7	C	TR	0.62	27.1	C
	Intersection		31.3	C	Intersection		43.6	D	Intersection		35.2	D
Unsignalized Intersections												
North Bridge Street & The Route 440 Off-Ramp												
Westbound	L	0.92	50.6	F	L	1.93	**446.4**	**F +**	Unmitigated			
Southbound	T	0.00	0.0	A	T	0.33	0.0	A				
Arthur Kill Road & South Bridge Street												
Northbound	TR	0.65	0.0	A	TR	0.94	0.0	A	Unmitigated			
Southbound	LT	0.51	16.6	C	LT	2.54	**770.9**	**F +**				

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
+ Denotes a significant adverse traffic impact.

Table 20-9
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Saturday Peak Hour

	2019 No Build				2019 Build				Mitigation			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Bloomingdale Road & Woodrow Road/School Driveway												
Eastbound (School Driveway)	L	0.00	0.0	A	L	0.00	0.0	A	L	0.00	0.0	A
	TR	0.00	0.0	A	TR	0.00	0.0	A	TR	0.00	0.0	A
Eastbound (Woodrow Road)	LTR	0.37	46.9	D	LTR	0.37	46.9	D	LTR	0.37	46.9	D
Westbound	L	0.90	62.7	E	L	1.02	**87.9**	**F +**	L	0.90	58.5	E
	R	0.22	27.1	C	R	0.22	27.1	C	R	0.20	24.5	C
Northbound	LT	0.51	15.9	B	LT	0.54	16.5	B	LTR	0.58	19.2	B
	R	0.32	13.2	B	R	0.36	13.8	B	R	0.37	15.6	B
Southbound	L	0.21	12.3	B	L	0.22	12.6	B	L	0.24	14.7	B
	TR	0.33	13.0	B	TR	0.37	13.4	B	TR	0.39	15.4	B
	Intersection		23.9	C	Intersection		29.D	C	Intersection		25.3	C
Veterans Road East & Englewood Avenue												
Eastbound	LTR	1.31	166.6	F	LTR	1.62	**304.5**	**F +**	L	0.62	21.5	C
									TR	1.01	53.0	D
Westbound	LTR	0.35	7.8	A	LTR	0.50	9.3	A	LTR	0.50	9.3	A
Northbound	LTR	1.15	15.2	B	LTR	1.19	15.7	B	LTR	1.19	15.7	B
	Intersection		82.2	F	Intersection		142.5	F	Intersection		27.9	C
Arthur Kill Road & Allentown Lane/ Veterans Road West												
Eastbound	LTR	0.04	10.5	B	LTR	0.04	10.5	B	LTR	0.09	29.8	C
Westbound	LTR	1.65	318.2	F	LTR	2.23	**577.6**	**F +**	L	1.32	174.5	F
									TR	0.42	15.5	B
Northbound	LTR	1.37	180.5	F	LTR	1.66	**307.5**	**F +**	LT	0.40	22.4	C
									R	0.64	13.6	B
Southbound	LTR	2.50	706.7	F	LTR	3.51	**1161.5**	**F +**	LTR	1.17	127.1	F
	Intersection		333.8	F	Intersection		566.8	F	Intersection		83.3	F
Arthur Kill Road & North Bridge Street												
Westbound	LR	0.97	48.1	D	LR	2.01	**481.4**	**F +**	Unmitigated			
Northbound	T	0.80	15.0	B	T	1.00	41.8	D				
Southbound	T	0.79	14.4	B	T	1.13	**76.5**	**E +**				
	Intersection		24.1	C	Intersection		219.3	F				
Arthur Kill Road & Richmond Valley Road												
Eastbound					L	1.35	**248.9**	**F +**	Unmitigated			
					TR	1.63	**337.8**	**F +**				
Westbound	LR	1.19	125.4	F	L	0.45	30.3	C				
					TR	1.46	**257.7**	**F +**				
Northbound					L	0.66	55.0	D				
	TR	0.78	15.8	B	TR	1.28	**172.3**	**F +**				
Southbound	LT	3.06	940.8	F	L	2.02	509.4	F				
					TR	0.96	55.6	E				
	Intersection		404.7	F	Intersection		222.1	F				

Table 20-9, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Saturday Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Richmond Valley Road												
Eastbound	L	0.44	27.1	C	L	2.36	**652.8**	**F +**	L	1.96	**490.0**	**F +**
	TR	0.50	26.3	C	TR	1.01	**69.8**	**E +**	TR	0.89	**45.5**	**D +**
Westbound	LTR	0.42	24.7	C	LTR	1.15	**125.2**	**F +**	L	0.34	**49.6**	**D +**
									TR	0.94	**79.6**	**E +**
Northbound	L	1.65	319.2	F	L	3.19	**1015.7**	**F +**	L	2.30	**625.0**	**F +**
	TR	0.83	22.6	C	TR	0.83	23.7	C	TR	0.86	33.4	C
Southbound	LTR	0.77	20.4	C	LTR	0.83	23.6	C	LT	0.65	23.2	C
									R	0.30	9.6	A
	Intersection		57.8	E	Intersection		273.1	F	Intersection		186.6	F
Page Avenue/ Boscombe Avenue & South Bridge Street / Gas Station												
Eastbound	LT	0.92	53.6	D	LT	1.91	**448.4**	**F +**	L	0.89	49.0	D
									LT	0.85	43.3	D
	R	0.14	21.5	C	R	0.20	22.2	C	R	0.14	21.5	C
Westbound	LTR	0.09	21.0	C	LTR	0.17	22.3	C	R[1]	0.36	45.4	D
Northbound	TR	0.52	15.8	B	TR	0.71	13.2	B	TR	0.96	40.4	D
Southbound	LT	0.70	18.2	B	LT	0.78	20.8	C	LT	0.53	13.8	B
	Intersection		23.6	C	Intersection		130.5	F	Intersection		34.4	C
Boscombe Avenue & The Route 440 Ramps												
Eastbound	L	1.11	97.8	F	L	2.13	**543.8**	**F +**	Unmitigated			
	TR	0.50	5.9	A	TR	0.50	5.9	A				
Westbound	LT	1.15	129.0	F	LT	1.15	129.0	F				
	R	1.32	189.6	F	R	1.32	189.6	F				
Northbound	LTR	0.00	0.0	A	LTR	0.00	0.0	A				
Southbound	LT	0.48	54.4	D	LT	0.48	54.4	D				
	R	0.22	12.4	B	R	0.30	13.3	B				
	Intersection		104.6	F	Intersection		274.7	F				
Veterans Road West & Tyrellan Avenue												
Eastbound	LTR	1.34	79.6	E	LTR	1.34	**105.8**	**F +**	L	0.45	41.0	D
									TR	1.36	62.4	E
Westbound	LTR	1.00	62.8	E	LTR	1.28	**170.0**	**F +**	L	0.80	53.1	D
									TR	0.83	36.9	D
Northbound	LTR	2.08	212.5	F	LTR	2.08	212.5	F	LTR	2.08	123.9	F
Southbound	LTR	1.64	323.7	F	LTR	1.64	323.7	F	LTR	1.22	138.6	F
	Intersection		178.7	F	Intersection		205.9	F	Intersection		89.6	F
Veterans Road West & North Bridge Street/ Bricktown Way												
Eastbound	L	2.58	758.3	F	L	5.84	**2237.2**	**F +**	L	1.89	447.0	F
	TR	0.96	58.0	F	TR	1.23	**150.1**	**F +**	TR	0.93	49.4	D
Westbound	L	2.79	818.8	F	L	2.79	815.5	F	L	2.35	678.0	F
	T	0.70	7.6	A	T	1.16	**81.3**	**F +**	TR	0.62	34.3	C
	R	0.04	9.0	A	R	0.04	3.3	A				
Northbound	LT	0.81	43.2	D	LT	0.81	43.2	D	L	0.16	24.8	C
	R	0.38	28.7	C	R	0.38	28.7	C	TR	0.76	43.2	D
Southbound	L	0.51	35.4	D	L	0.51	35.4	D	L	0.76	43.3	D
	TR	1.43	244.4	F	TR	1.43	244.4	F	TR	0.83	45.8	D
	Intersection		236.8	F	Intersection		436.2	F	Intersection		136.5	F

Table 20-9, cont'd
2019 No Action, With Action, and Mitigation Conditions Level of Service Analysis
Saturday Peak Hour

Intersection	2019 No Build				2019 Build				Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections												
Page Avenue & Amboy Road												
Eastbound	L	1.29	171.5	F	L	1.48	**253.0**	**F +**	L	1.51	**263.7**	**F +**
	TR	0.23	13.3	B	TR	0.23	13.3	B	TR	0.23	13.3	B
Westbound	L	0.13	22.3	C	L	0.13	22.3	C	L	0.13	21.6	C
	TR	0.87	45.4	D	TR	0.87	45.4	D	TR	0.80	38.5	D
Northbound	L	0.26	22.3	C	L	0.56	**47.6**	**D +**	L	0.56	**47.6**	**D +**
	T	0.95	50.2	D	T	1.20	**132.7**	**F +**	TR	0.67	25.5	C
	R	0.08	17.6	B	R	0.08	17.6	B				
Southbound	L	1.57	328.2	F	L	1.57	306.4	F	L	0.95	94.7	F
	T	0.73	31.4	C	T	1.01	**48.7**	**D +**	T	1.01	**63.3**	**E +**
	R	0.56	27.1	C	R	0.66	23.1	C	R	0.66	28.3	C
	Intersection		68.9	E	Intersection		102.2	F	Intersection		71.7	E
Page Avenue & Hylan Boulevard												
Eastbound	L	0.81	38.6	D	L	1.16	**128.9**	**F +**	Unmitigated			
	TR	0.15	12.0	B	TR	0.15	12.0	B				
Westbound	L	0.06	11.4	B	L	0.06	11.4	B				
	TR	0.29	13.5	B	TR	0.34	14.0	B				
Northbound	LTR	0.14	33.4	C	LTR	0.14	33.4	C				
Southbound	L	0.92	74.2	E	L	1.29	**193.7**	**F +**				
	TR	0.56	41.6	D	TR	0.69	46.4	D				
	Intersection		31.4	C	Intersection		70.4	E				
Bloomingdale Road & Amboy Road & Pleasant Plains Avenue												
Eastbound	LTR	0.06	14.4	B	LTR	0.06	14.4	B	LTR	0.15	33.5	C
Westbound	L	0.77	30.8	C	L	0.96	**51.9**	**D +**	L	0.92	46.3	D
	T	0.02	14.0	B	T	0.02	14.0	B	TR	0.02	15.2	B
	R	0.15	15.3	B	R	0.15	15.3	B	R	0.16	16.6	B
Northbound	LTR	0.86	35.5	D	LTR	0.99	**56.7**	**E +**	LTR	0.91	39.2	D
Southbound	L	0.42	22.9	C	L	0.48	26.3	C	L	0.44	28.1	C
	TR	0.52	20.4	C	TR	0.52	20.4	C	TR	0.63	28.0	C
	Intersection		28.3	C	Intersection		42.9	D	Intersection		36.8	D
Unsignalized Intersections												
North Bridge Street & The Route 440 Off-Ramp												
Westbound	L	0.94	56.6	F	L	2.58	**739.2**	**F +**	Unmitigated			
Southbound	T	0.33	0.0	A	T	0.37	0.0	A				
Arthur Kill Road & South Bridge Street												
Northbound	TR	0.72	0.0	A	TR	1.12	0.0	A	Unmitigated			
Southbound	LT	0.55	18.7	C	LT	5.60	**302.7**	**F +**				

Notes: L = Left Turn, T = Through, R = Right Turn, LOS = Level of Service, EB = Eastbound, WB = Westbound, NB = Northbound, SB = Southbound
+ Denotes a significant adverse traffic impact.
(1) Though the approach delay is greater than mid-LOS D, the approach is not public right-of-way and is therefore not considered an impact.

Woodrow Road and Bloomingdale Road

The significant adverse impact at the westbound approach of this intersection during the weekday PM and Saturday peak hours could be fully mitigated by shifting 6 seconds and 3 seconds of green time from the eastbound (Woodrow Road) phase to the westbound phase, respectively. As shown in Tables 20-8 and 20-9, the significant adverse impacts could be fully mitigated.

Veterans Road East and Englewood Avenue

The significant adverse impact at the eastbound approach of this intersection during the weekday PM and Saturday peak hours could be fully mitigated by restriping the eastbound approach from one 24.5-foot moving lane, to one 12-foot left-turn lane and one 12.5-foot through/right-turn lane As shown in Tables 20-8 and 20-9, the significant adverse impact could be fully mitigated.

Arthur Kill Road and Veterans Road West/Allentown Lane

The significant adverse impact at the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday peak hours, and the northbound and southbound approaches during the weekday midday, PM, and Saturday peak hours could be fully mitigated by (1) shifting the centerline of Arthur Kill Road (south of Veterans Road West) one foot to the west and restriping the northbound approach from one 20-foot moving lane to one 11-foot left-turn/through lane and one 10-foot right-turn lane, and (2) allowing northbound right-turns on red. Also, restriping the westbound approach from one 13-foot moving lane and one 9-foot parking lane to one 11-foot travel lane and one 11-foot through/right-turn lane (a loss of approximately 10 parking spaces) would be necessary to fully mitigate the impacts at this intersection. In addition, increasing the cycle length from 60 seconds to 90 seconds and creating a protected westbound left-turn phase with northbound right-turn overlap would be needed to fully mitigate the impacts at this intersection (see Tables 20-2 through 20-5 for proposed signal timing). As shown in Tables 20-6 through 20-9, the significant adverse impacts could be fully mitigated with these proposed mitigation measures.

Arthur Kill Road and North Bridge Street

The significant adverse impact at the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday peak hours could not be mitigated (see Tables 20-6 through 20-9). In addition, the southbound approach of this intersection during the Saturday peak hour could not be mitigated (see Table 20-9).

Arthur Kill Road and Richmond Valley Road

The significant adverse impacts at the eastbound left-turn and through/right-turn lane groups of this intersection during the weekday midday, PM, and Saturday peak hours could not be mitigated (see Tables 20-3 through 20-5).

The significant adverse impact at the westbound through/right-turn lane group of this intersection during the weekday AM, midday, PM, and Saturday peak hours could not be mitigated (see Tables 20-2 through 20-5). In addition, the westbound left-turn lane group of this intersection during the weekday PM peak hour could not be mitigated (see Table 20-4).

The significant adverse impact at the northbound through/right-turn lane group of this intersection during the weekday PM and Saturday peak hours could not be mitigated (see Tables 20-4 and 20-5).

Page Avenue and Richmond Valley Road

The significant adverse impact at the eastbound left-turn and through/right-turn lane groups of this intersection during the weekday midday and PM peak hours, as well as the significant adverse impacts at the westbound approach during the weekday PM peak hour could be fully mitigated by (1) restriping the westbound approach from one 22-foot moving lane to one 11-foot left-turn lane and one 11-foot through/right-turn lane (a loss of approximately five parking spaces), and (2) prohibiting parking (installing "No Standing Anytime" sign) on the west curb of the southbound approach for approximately 100 feet (a loss of approximately six parking spaces) from the intersection to create a 10-foot right-turn lane. In addition, increasing the cycle length from 90 seconds to 120 seconds and creating a leading eastbound phase with southbound right-turn overlap would be necessary to fully mitigate these impacts at this intersection (see Tables 20-2 through 20-5 for proposed signal timing). As shown in Tables 20-7 and 20-8, these significant adverse impacts could be fully mitigated with the above proposed mitigation measures.

The significant adverse impacts at the northbound left-turn lane group of this intersection during the weekday midday and PM peak hours could not be fully mitigated (see Tables 20-3 and 20-4).

The significant adverse impacts at the eastbound left-turn and through/right-turn lane groups of this intersection as well as the westbound approach during the Saturday peak hour could not be fully mitigated (see Table 20-5).

The significant adverse impacts at the northbound left-turn lane group of this intersection during the Saturday peak hour could not be fully mitigated (see Table 20-5).

Though this intersection could not be fully mitigated, the New York City Department of Design and Construction (DDC) Capital Project HWR00509/SE-812 is currently in the preliminary design phase of evaluating the reconstruction and widening of Richmond Valley Road from Arthur Kill Road to Page Avenue to create new through and/or turning lanes in order to relieve congestion. As this project would not be constructed by 2019, this project was not included in the No Action; however, if constructed, these roadway improvements have the potential to further improve traffic operating conditions at this intersection.

Page Avenue/Boscombe Avenue and South Bridge Street

The significant adverse impacts at the eastbound left-turn lane group of this intersection during the weekday AM, midday, PM and Saturday peak hours and the southbound approach during the weekday midday, PM and Saturday peak hours could be fully mitigated by (1) restriping the eastbound approach from one 18-foot left-turn/through lane with 6-foot buffer to one 11-foot left-turn lane and one 10-foot left-turn/through lane with 4-foot buffer, (2) installing signage to prohibit the westbound left-turn movements, and (3) creating a leading southbound phase and protected eastbound left-turn phase (see Tables 20-2 through 20-5 for proposed signal timing).

Under existing conditions, there are minimal westbound left-turn movements, approximately 10 to 15 vehicles during the peak periods, which would be effected by the restriction. Vehicles needing to make a left-turn would instead make a right-turn onto Boscombe Avenue and be diverted to southbound Madsen Avenue.

As shown in Tables 20-6 through 20-9, the significant adverse impact could be fully mitigated with these proposed mitigation measures.

Boscombe Avenue and the Route 440 Ramps

The significant adverse impacts at the eastbound left-turn lane group of this intersection during the weekday AM, midday, PM, and Saturday peak hours could not be mitigated (see Tables 20-6 through 20-9).

Veterans Road West and Tyrellan Avenue

The significant adverse impacts at the eastbound approach of this intersection during the weekday PM and Saturday peak hours as well as the significant adverse impacts at the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday peak hours could be fully mitigated by (1) restriping the eastbound approach from one 13-foot travel lane, one 11-foot travel lane and 10-foot median to one 13-foot travel lane, one 11-foot travel lane and one 12-foot left-turn lane, (2) restriping the westbound approach from one 14-foot travel lane, one 10-foot travel lane and 10-foot median to one 14-foot travel lane, one 10-foot travel lane and one 12-foot left-turn lane, (3) removing the eastbound/westbound split phase and (4) creating a protected only eastbound/westbound left-turn phase (see Tables 20-2 through 20-5 for proposed signal timing). As shown in Tables 20-6 through 20-9, the significant adverse impacts could be fully mitigated with these proposed mitigation measures.

Veterans Road West and North Bridge Street/ Bricktown Way

The significant adverse impact at the eastbound left-turn lane group during the weekday AM, midday, PM and Saturday peak hours, the eastbound through/right-turn lane group during the weekday midday, PM and Saturday peak hours, as well as the westbound left-turn lane group during the weekday AM, midday, and PM peak hours and westbound through lane group during the Saturday peak hour could be fully mitigated by (1) restriping the northbound approach from one 23-foot moving lane to one 11-foot left-turn lane and one 12-foot through/right-turn lane, (2) restriping the 12-foot westbound right-turn lane to a 12-foot westbound through/right-turn lane and (3) Restripe the WB receiving lanes from one through lane and one right-turn only/parking lane to two through lanes to Arthur Kill Road (a loss of approximately 31 parking spaces). In addition, (1) increasing the cycle length from 90 seconds to 120 seconds, (2) removing the northbound/southbound split phase and (3) creating permitted/protected eastbound, northbound, and southbound left-turn phases (see Tables 20-2 through 20-5 for proposed signal timings) would be needed to fully mitigate the projected impacts, as shown in Tables 20-6 through 20-9.

The significant adverse impacts are considered fully mitigated with these proposed mitigation measures pending public review and additional input from the community.

Page Avenue and Amboy Road

The significant adverse impact at the eastbound left-turn lane group of this intersection during the weekday AM and Saturday peak hours, the southbound left-turn lane group during the weekday midday and PM peak hours, and the northbound through lane group during the weekday PM and Saturday peak hours could be fully mitigated by restriping the northbound approach from one 10-foot left-turn lane, one 11-foot through lane, and one 11-foot right-turn lane to one 10-foot left-turn lane, one 11-foot through lane, and one 11-foot through/right-turn lane. In addition, a leading eastbound phase (see Tables 20-2 through 20-5 for proposed signal timing) would need to be created in combination with the above restriping to fully mitigate the impacts identified for these lane groups, as shown in Tables 20-6 through 20-9.

The significant adverse impacts at the eastbound left-turn during the weekday PM and Saturday peak hour could not be fully mitigated (see Tables 20-4 and 20-5).

The significant adverse impacts at the northbound left-turn and southbound through lane groups of this intersection during the Saturday peak hour could not be fully mitigated (see Table 20-5).

Page Avenue and Hylan Boulevard

The significant adverse impacts at the eastbound left-turn lane group of this intersection during the weekday AM, PM, and Saturday peak hours as well as the significant impacts at the southbound left-turn lane group of this intersection during the weekday AM, midday, PM, and Saturday peak hours could not be mitigated (see Tables 20-6 through 20-9).

Bloomingdale Avenue and Amboy Road/Pleasant Plains Road

The significant adverse impacts at the westbound left-turn lane group of this intersection during the Saturday peak hour as well as the significant impacts at the northbound approach of this intersection during the weekday PM and Saturday peak hours could be fully mitigated by (1) shifting the centerline of Amboy Road (south of Pleasant Plains Road) 1 foot to the west and (2) creating northbound and westbound leading phases during all peak hours (see Tables 20-2 through 20-5 for proposed signal timing). As shown in Tables 20-6 through 20-9, the significant adverse impacts could be fully mitigated with these proposed mitigation measures. However, the conditions at this intersection do not meet the requirements of the NYCDOT left-turn warrant analysis. Alternative mitigation measures will be explored further for this location between Draft and Final EIS in consultation with DCP and NYCDOT. If no feasible mitigation measures can be identified, the significant adverse impacts would be unmitigated.

North Bridge Street and the Route 440 Off-Ramp

The significant adverse impact at the westbound approach of this intersection during the weekday AM, midday, PM, and Saturday peak hours could not be mitigated (see Table 20-6 through 20-9).

Arthur Kill Road and South Bridge Street

The significant adverse impact at the southbound approach of this intersection during the weekday midday, PM, and Saturday peak hours could not be mitigated (see Table 20-7 through 20-9).

MITIGATION IMPLEMENTATION

Each of the proposed mitigation measures described above would require approval from and coordination with the respective divisions of NYCDOT, such as Borough Commissioner Office, Geometric Design, Signals, Borough Engineering, and possibly other groups within NYCDOT. The proposed mitigation measures identified in the EIS will be coordinated with NYCDOT for timely implementation to ensure projected significant adverse impacts are mitigated to the extent practicable. Preliminary and final Design drawings for the proposed mitigation measures in accordance with NYCDOT specifications and standards will be submitted by DCP/Applicant for NYCDOT review and approval.

Additionally, to verify the need and effectiveness of the proposed mitigation measures identified in this EIS, the Applicant would develop and conduct a detailed traffic monitoring plan at full buildout of the Proposed Project. The Applicant would submit for NYCDOT's review and approval a scope of work that would include all locations where significant traffic impacts have been identified in the EIS. Data collection conducted for the monitoring plan would include 24-hour Automatic Traffic Recorder (ATR) machine counts, manual turning movement counts, vehicle classification counts, intersection geometry and field observations, signal timing and any

relevant information necessary for conducting intersection capacity and level of service analyses to determine whether the volumes and delays projected for the Proposed Project were found to have occurred and whether the proposed mitigation measures identified in the EIS or similar measures would reasonably mitigate the potential project-related impacts.

The Applicant would be responsible for all costs associated with the traffic monitoring plan. In addition, the Applicant would be responsible for the cost of the design and construction of any or all improvement measures identified in the EIS or through the traffic monitoring plan as warranted due to project-generated traffic.

D. AIR QUALITY

EFFECTS OF PROPOSED TRAFFIC MITIGATION MEASURES

Chapter 13, "Air Quality," concludes that the Proposed Project would not result in significant adverse impacts on air quality. Therefore, no air quality mitigation is required. Since the proposed traffic mitigation measures described above would alter traffic conditions when compared with the Proposed Project, the localized air quality impacts with mitigation were modeled. Of the intersections selected for mobile source analysis in the Draft EIS, the intersection of Page Avenue and Richmond Valley Road was analyzed for traffic mitigation.

Table 20-10 shows the future maximum predicted 8-hour average CO concentration without the proposed project (No Action condition), as well as with the Proposed Project with and without the implementation of the traffic mitigation measures (With Action condition and With Traffic Mitigation).

Table 20-10
8-Hour Average CO Concentrations with Traffic Mitigation

Analysis Site	Location	Time Period	8-Hour Average Concentration (ppm)			
			No Action	With Action	With Traffic Mitigation	*De Minimis*
3	Page Avenue and Richmond Valley Road	Saturday midday	2.1	2.4	2.3	5.5
Notes:	8-hour standard (NAAQS) is 9 parts per million (ppm).					

The results indicate that the Proposed Project with the traffic mitigation measures would not result in any violations of the 8-hour CO standard (9 ppm) as the 8-hour average concentration with traffic mitigation (2.3 ppm) for the Saturday midday peak period would be less than the standard.

Table 20-11 shows the maximum predicted 24-hour average PM_{10} concentrations without the Proposed Project, with the Proposed Project, and with the Proposed Project and implementation of the traffic mitigation measures (No Action, With Action, With Traffic Mitigation).

Table 20-11
24-Hour Average PM_{10} Concentrations with Traffic Mitigation

Analysis Site	Location	24-Hour Concentration ($\mu g/m^3$)[1]		
		No Action	With Action	With Traffic Mitigation
3	Page Avenue and Richmond Valley Road	54.7	57.4	59.3
Note: [1] NAAQS—24-hour average 150 $\mu g/m^3$.				

The results indicate that the implementation of the traffic mitigation measures for the proposed project would not result in any violations of the PM_{10} standard at any of the receptor locations analyzed.

Future maximum predicted 24-hour and annual average $PM_{2.5}$ concentrations were determined so that they could be compared with the *de minimis* criteria for $PM_{2.5}$. Consistent with current CEQR guidance, $PM_{2.5}$ concentrations are presented as an incremental change in concentrations for both the Proposed Project without traffic mitigation measures (as compared with the No Action condition) and for the Proposed Project with traffic mitigation measures (as compared with the No Action condition). The maximum predicted localized 24-hour average and neighborhood-scale annual average $PM_{2.5}$ concentration increments are presented in **Tables 20-12** and **20-13**, respectively. The results show that the maximum daily (24-hour) $PM_{2.5}$ increments with traffic mitigation measures are predicted to be below the *de minimis* criterion of 7.4 $\mu g/m^3$, and the maximum annual average $PM_{2.5}$ increments are not predicted to exceed the applicable *de minimis* criterion of 0.1 $\mu g/m^3$.

Table 20-12
24-Hour Average $PM_{2.5}$ Concentration Increments with Traffic Mitigation

Analysis Site	Location	Increment ($\mu g/m^3$)	Increment with Traffic Mitigation ($\mu g/m^3$)	*De Minimis*
3	Page Avenue and Richmond Valley Road	1.4	1.7	7.4
Notes: $PM_{2.5}$ *de minimis* criteria—24-hour average, not to exceed more than half the difference between the background concentration and the 24-hour standard of 35 $\mu g/m^3$.				

Table 20-13
Neighborhood Scale $PM_{2.5}$ Concentration Increments with Traffic Mitigation

Analysis Site	Location	Increment ($\mu g/m^3$)	Increment with Traffic Mitigation ($\mu g/m^3$)
3	Page Avenue and Richmond Valley Road	0.095	0.092
Notes: $PM_{2.5}$ *de minimis* criteria—annual (neighborhood scale), 0.1 $\mu g/m^3$.			

Therefore, no significant adverse air quality impacts would occur as a result of the proposed traffic mitigation measures.

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