Level 3 Traffic Analysis Technical Report (TAR)

Travel Demand Model Results
and
Highway Capacity Analysis/Microsimulation Results of the Preferred Alternative

The Detroit River International Crossing Study

MDOT
Michigan Department of Transportation

December 2008

Level 3 Traffic Analysis Report (TAR)
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SUMMARY

This Level 3 Traffic Analysis Report (TAR) presents: 1) the final travel demand model (TDM) assignments for the Preferred Alternative, which includes Crossing X-10 and a hybrid of the interchanges associated with Practical Alternatives #1, #2, and #16; and, 2) the microsimulation traffic analysis of the Preferred Alternative.

Since the release of the Level 2 TDM TARs in February, 2008, updates have been made to the SEMCOG portion of the DRIC model, including revisions along I-75 near the new Gateway interchange, the I-75/I-96 interchange, and the I-96/I-94 interchange. Both the Single-Logit and Nested-Logit models have been reapplied to all alternatives.[1] The crossing assignments from these model applications are provided in Appendix A and a comparison of these assignments to those presented in the Level 2 TDM TAR are presented in Appendix B. The network revisions have no material effect on the analysis of Practical Alternatives and reinforce the conclusion that Crossing X-10, the Preferred Alternative, would carry more traffic than Crossing X-11. This is one of the reasons it is preferred.

The Preferred Alternative includes the X-10 Crossing and Plaza P-a (Figure S-1). Following submission of the Level 2 TAR, several Practical Alternative interchange configurations were eliminated from consideration for a variety of factors. For example, Alternatives #3 and #5 would require the removal of an historic building. U.S. law prohibits such alternatives from going forward as long as other reasonable and prudent alternatives remain. Alternative #14 was eliminated because it would provide inferior access to/from and across I-75—damaging the community's cohesion. The most viable Practical Alternative interchanges are Alternatives #1, #2, and #16. For more detailed information, the reader is referred to the document entitled *The Best Alternative Identified at This Time for the Preferred Alternative*, June 16, 2008 (www.partnershipborderstudy.com).

Once Alternatives #1, #2, and #16 were established as the most viable interchange alternatives (Figure S-2), they were examined in five key areas:

1. Local vehicular access to and from I-75;
2. Local vehicular access across I-75;
3. Springwells interchange;
4. Service drive alignment at Berwalt Manor; and,
5. Pedestrian access across I-75.

As the result of this analysis, the Preferred Alternative was developed. It uses the basic plaza design and interchange scheme with I-75 as Alternatives #1, #2, and #16, and connects with I-75 at the same location of Livernois Avenue and Dragoon Street.

[1] Refer to *Level 2 Traffic Analysis Report – Travel Demand Model* found on www.partnershipborderstudy.com for definition of single-logit and nested-logit models.

Figure S-1
Schematic Representation of the Preferred Alternative
Detroit River International Crossing Study

Source: Parsons Transportation Group

Figure S-2
X-10 Crossing Alternatives #1, #2, and #16
Detroit River International Crossing Study

Alternative #1

Alternative #2

Alternative #16

Source: The Corradino Group of Michigan, Inc. and Parsons Transportation Group

The Level 3 TAR travel demand model results indicate the Preferred Alternative are virtually identical with the comparable Practical Alternatives of which it is a hybrid (Table S-1). Changes to the local network, away from the direct crossing paths of international traffic, have very little effect as compared to changes in the length and time of the crossing path itself. This does not imply that these changes are unimportant, but rather that their effects are better measured by using microsimulation traffic analysis techniques, which follow.

Table S-1
Average Percent Difference in Cross-Border Traffic:
Alts. #1, #2, and #16 versus the Preferred Alternative
Detroit River International Crossing Study[2]

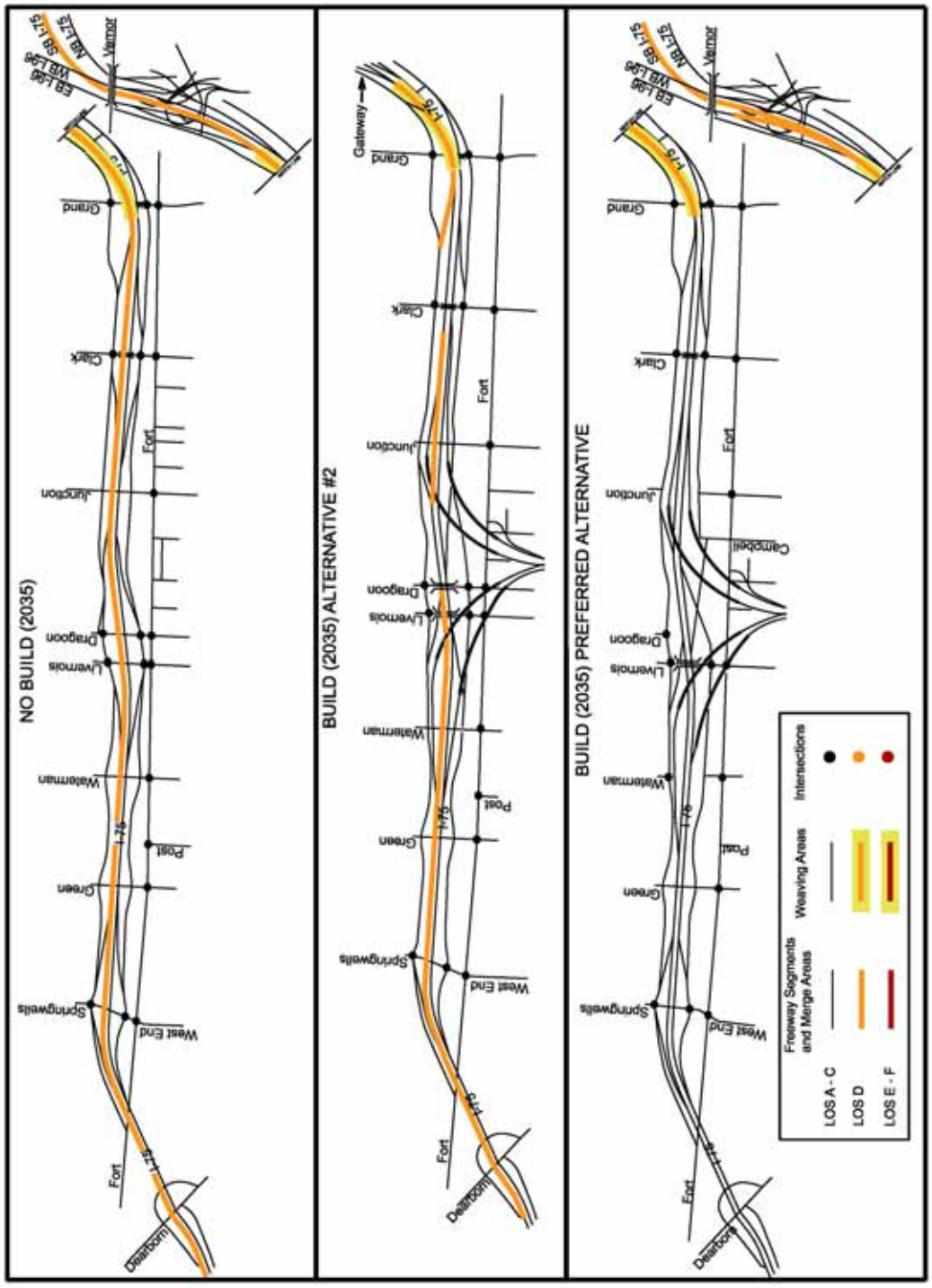
	2035	
	Single-Logit	**Nested-Logit**
AM Peak Hour		
Cars	0%	1%
Trucks	0%	0%
Total	0%	1%
PCEs*	0%	0%
Midday Peak Hour		
Cars	2%	1%
Trucks	0%	0%
Total	1%	0%
PCEs*	1%	0%
PM Peak Hour		
Cars	1%	1%
Trucks	1%	0%
Total	1%	1%
PCEs*	1%	0%

*Passenger Car Equivalents: Trucks = 2.5 cars
Source: The Corradino Group of Michigan, Inc.

The traffic analysis results comparing the Preferred Alternative with the No Build Alternative and Practical Alternative #2, which is close to the Preferred Alternative, indicate all levels of service (LOS) on I-75 and I-96 would be better than LOS D except the one-lane section of the westbound I-96 diverge from northbound I-75 to the Gateway on-ramp. It would be at LOS E. All levels of service for local street connections would be at LOS C or better for all three alternatives (Figure S-3 and Tables S-2 through S-4).

[2] Ibid.

Figure S-3
2035 PM Peak Hour Levels of Service
I-75 Grand Boulevard to Dearborn Avenue
Detroit River International Crossing Study



Source: Parsons Transportation Group

Table S-2A
PM Peak Hour Levels of Service – HCS Analysis
I-75 Mainline Freeway Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Freeway Segments			
Dearborn off-ramp to Springwells off-ramp	B	C	B
Springwells off-ramp to Springwells on-ramp	B	Not Applicable	B
Springwells off-ramp to DRIC Plaza off-ramp	Not Applicable	B	Not Applicable
Springwells on-ramp to Livernois off-ramp	B	Not Applicable	Not Applicable
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	A
DRIC Plaza off-ramp to Livernois off-ramp	Not Applicable	Not Applicable	A
DRIC Plaza off-ramp to Livernois on-ramp	Not Applicable	B	Not Applicable
Livernois off-ramp to Dragoon on-ramp	B	Not Applicable	A
Livernois on-ramp to Junction off-ramp	Not Applicable	A	Not Applicable
Dragoon on-ramp to Clark off-ramp	C	Not Applicable	Not Applicable
Junction off-ramp to DRIC Plaza on-ramp	Not Applicable	B	Not Applicable
Dragoon on-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	A
Clark off-ramp to Clark on-ramp	C	Not Applicable	Not Applicable
DRIC Plaza on-ramp to Clark on-ramp	Not Applicable	B	B
Clark on-ramp to Lafayette off-ramp	B	B	B
Lafayette off-ramp to NB I-75/I-96 Diverge	B	B	B
From NB I-75/I-96 Diverge to NB I-75 Service Drive off-ramp (at Gateway)	B	*	A
From NB I-75 Service Drive off-ramp (at Gateway) to Gateway on-ramp	B	*	B
From Gateway on-ramp to C-D Road off-ramp	B	*	B
Southbound I-75 Freeway Segments			
From C-D Road on-ramp to Gateway off-ramp	D	*	D
From Gateway off-ramp to SB I-75/I-96 Merge	D	*	D
From SB I-75/I-96 Merge to Gateway on-ramp	C	*	D
Gateway on-ramp to Grand Blvd. on-ramp	D	C	C
Grand Blvd. on-ramp to Clark off-ramp	D	C	D
Clark off-ramp to Clark on-ramp	D	Not Applicable	Not Applicable
Clark off-ramp to DRIC Plaza off-ramp	Not Applicable	C	C
Clark on-ramp to Dragoon off-ramp	D	Not Applicable	Not Applicable
DRIC Plaza off-ramp to Junction on-ramp	Not Applicable	D	C
Junction on-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	B
Dragoon off-ramp to Livernois on-ramp	D	Not Applicable	Not Applicable
Junction on-ramp to Livernois off-ramp	Not Applicable	C	Not Applicable
Dragoon off-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	C
Livernois on-ramp to Springwells off-ramp	D	Not Applicable	Not Applicable
Livernois off-ramp to DRIC Plaza on-ramp	Not Applicable	D	Not Applicable
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	B
Springwells off-ramp to Springwells on-ramp	D	Not Applicable	C
DRIC Plaza on-ramp to Springwells on-ramp	Not Applicable	D	Not Applicable
Springwells on-ramp to Dearborn on-ramp	D	D	C
Westbound I-96 Freeway Segments			
From NB I-75 Diverge to 1-lane section	A	*	A
From 2-lane section to Gateway on-ramp	B	*	C
From Gateway on-ramp to Michigan off-ramp	B	*	B
Eastbound I-96 Freeway Segments			
From Michigan on-ramp to Gateway off-ramp	C	*	C
From Gateway off-ramp to SB I-75/I-96 Merge	B	*	D

***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-2B
PM Peak Hour Levels of Service – HCS Analysis
I-75 Merge/Diverge Areas and Weaving Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Ramp Merge and Diverge Areas			
Dearborn off-ramp	C	B	B
Springwells off-ramp	B	B	B
Springwells on-ramp	B	Not Applicable	B
DRIC Plaza off-ramp	Not Applicable	A	B
Livernois off-ramp	B	Not Applicable	A
Livernois on-ramp	Not Applicable	B	Not Applicable
Dragoon on-ramp	B	Not Applicable	B
Junction off-ramp	Not Applicable	A	Not Applicable
DRIC Plaza on-ramp	Not Applicable	Acceptable[(1)]	A
Clark off-ramp	B	Not Applicable	Not Applicable
Clark on-ramp	B	B	B
Lafayette off-ramp	B	B	B
NB I-75/I-96 Diverge	A	*	A
NB I-75 Service Drive off-ramp (at Gateway)	B	*	A
Gateway on-ramp	B	*	B
Southbound I-75 Ramp Merge and Diverge Areas			
Gateway off-ramp	C	*	C
Service Drive on-ramp (E. of Grand Blvd.)	B	C	C
Clark off-ramp	C	D	B
Clark on-ramp	B	Not Applicable	Not Applicable
DRIC Plaza off-ramp	Not Applicable	A	A
Junction on-ramp	Not Applicable	C	C
Dragoon off-ramp	C	Not Applicable	B
Livernois off-ramp	Not Applicable	C	Not Applicable
Livernois on-ramp	C	Not Applicable	Not Applicable
Springwells off-ramp	C	Not Applicable	B
Springwells on-ramp	B	C	C
Dearborn on-ramp	B	C	C
Eastbound I-96 Ramp Merge and Diverge Areas			
Gateway off-ramp	B	*	B
Northbound I-75 Weaving Segments			
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	B
Livernois on-ramp to Junction off-ramp	Not Applicable	A	Not Applicable
Clark on-ramp to Lafayette off-ramp	B	B	B
Southbound I-75 Weaving Segments			
Ambassador Bridge on-ramp to Clark off-ramp	D	D	D
Junction on-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	B
Junction on-ramp to Livernois off-ramp	Not Applicable	C	Not Applicable
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	C

[(1)]Major Merge Area: deemed either acceptable or unacceptable.
***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-2C
PM Peak Hour Levels of Service – VISSIM Analysis
Local Intersections
Detroit River International Crossing Study

LOCAL INTERSECTIONS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Fort at Westend	A	A	A
Fort at Green	B	B	A
Fort at Waterman	B	A	A
Fort at Livernois	B	B	A
Fort at Dragoon	A	A	Not Applicable
Fort at Junction	A	B	B
Fort at Clark	B	B	B
Southbound Service Drive at Livernois	A	A	A
Southbound Service Drive at Dragoon	B	B	A
Southbound Service Drive at Waterman	B	B	A
Northbound Service Drive at Livernois	B	B	A
Northbound Service Drive at Dragoon	B	B	Not Applicable
Southbound Service Drive at Springwells	B	B	A
Northbound Service Drive at Westend	B	B	B
Northbound Service Drive at Clark	B	C	B
Southbound Service Drive at Clark	B	B	B
Fort at Grand Blvd.	A	A	A
Northbound Service Drive at Grand Blvd.	A	B	B
Southbound Service Drive at Grand Blvd.	A	A	A
Fort at Post	A	A	Not Applicable

Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-3A
Midday Peak Hour Levels of Service – HCS Analysis
I-75 Mainline Freeway Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Freeway Segments			
Dearborn off-ramp to Springwells off-ramp	B	B	B
Springwells off-ramp to Springwells on-ramp	B	Not Applicable	A
Springwells off-ramp to DRIC Plaza off-ramp	Not Applicable	B	Not Applicable
Springwells on-ramp to Livernois off-ramp	B	Not Applicable	Not Applicable
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	A
DRIC Plaza off-ramp to Livernois off-ramp	Not Applicable	Not Applicable	A
DRIC Plaza off-ramp to Livernois on-ramp	Not Applicable	A	Not Applicable
Livernois off-ramp to Dragoon on-ramp	B	Not Applicable	A
Livernois on-ramp to Junction off-ramp	Not Applicable	A	Not Applicable
Dragoon on-ramp to Clark off-ramp	B	Not Applicable	Not Applicable
Junction off-ramp to DRIC Plaza on-ramp	Not Applicable	A	Not Applicable
Dragoon on-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	A
Clark off-ramp to Clark on-ramp	B	Not Applicable	Not Applicable
DRIC Plaza on-ramp to Clark on-ramp	Not Applicable	A	B
Clark on-ramp to Lafayette off-ramp	B	A	A
Lafayette off-ramp to NB I-75/I-96 Diverge	A	A	A
From NB I-75/I-96 Diverge to NB I-75 Service Drive off-ramp (at Gateway)	A	*	A
From NB I-75 Service Drive off-ramp (at Gateway) to Gateway on-ramp	B	*	A
From Gateway on-ramp to C-D Road off-ramp	B	*	B
Southbound I-75 Freeway Segments			
From C-D Road on-ramp to Gateway off-ramp	B	*	B
From Gateway off-ramp to SB I-75/I-96 Merge	B	*	B
From SB I-75/I-96 Merge to Gateway on-ramp	B	*	B
Gateway on-ramp to Grand Blvd. on-ramp	B	B	B
Grand Blvd. on-ramp to Clark off-ramp	B	B	B
Clark off-ramp to Clark on-ramp	B	Not Applicable	Not Applicable
Clark off-ramp to DRIC Plaza off-ramp	Not Applicable	B	B
Clark on-ramp to Dragoon off-ramp	B	Not Applicable	Not Applicable
DRIC Plaza off-ramp to Junction on-ramp	Not Applicable	B	A
Dragoon off-ramp to Livernois on-ramp	B	Not Applicable	Not Applicable
Junction on-ramp to Livernois off-ramp	Not Applicable	A	Not Applicable
Junction on-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	A
Livernois on-ramp to Springwells off-ramp	B	Not Applicable	Not Applicable
Livernois off-ramp to DRIC Plaza on-ramp	Not Applicable	B	Not Applicable
Dragoon off-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	A
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	A
Springwells off-ramp to Springwells on-ramp	B	Not Applicable	B
DRIC Plaza on-ramp to Springwells on-ramp	Not Applicable	B	Not Applicable
Springwells on-ramp to Dearborn on-ramp	B	B	B
Westbound I-96 Freeway Segments			
From NB I-75 Diverge to 1-lane section	A	*	A
From 2-lane section to Gateway on-ramp	B	*	B
From Gateway on-ramp to Michigan off-ramp	B	*	A
Eastbound I-96 Freeway Segments			
From Michigan on-ramp to Gateway off-ramp	A	*	B
From Gateway off-ramp to SB I-75/I-96 Merge	A	*	B

***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-3B
Midday Peak Hour Levels of Service – HCS Analysis
I-75 Merge/Diverge Areas and Weaving Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Ramp Merge and Diverge Areas			
Dearborn off-ramp	C	B	B
Springwells off-ramp	B	B	B
Springwells on-ramp	B	Not Applicable	B
DRIC Plaza off-ramp	Not Applicable	A	B
Livernois off-ramp	B	Not Applicable	A
Livernois on-ramp	Not Applicable	A	Not Applicable
Dragoon on-ramp	B	Not Applicable	A
Junction off-ramp	Not Applicable	A	Not Applicable
DRIC Plaza on-ramp	Not Applicable	Acceptable[(1)]	A
Clark off-ramp	B	Not Applicable	Not Applicable
Clark on-ramp	B	B	B
Lafayette off-ramp	B	B	B
NB I-75/I-96 Diverge	A	*	A
NB I-75 Service Drive off-ramp (at Gateway)	A	*	A
Gateway on-ramp	B	*	B
Southbound I-75 Ramp Merge and Diverge Areas			
Gateway off-ramp	B	*	B
Service Drive on-ramp (E. of Grand Blvd.)	B	B	B
Clark off-ramp	B	B	A
Clark on-ramp	B	Not Applicable	Not Applicable
DRIC Plaza off-ramp	Not Applicable	A	A
Junction on-ramp	Not Applicable	B	B
Dragoon off-ramp	B	Not Applicable	A
Livernois off-ramp	Not Applicable	B	Not Applicable
Livernois on-ramp	B	Not Applicable	Not Applicable
Springwells off-ramp	B	Not Applicable	A
Springwells on-ramp	B	B	B
Dearborn on-ramp	B	B	B
Eastbound I-96 Ramp Merge and Diverge Areas			
Gateway off-ramp	A	*	A
Northbound I-75 Weaving Segments			
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	B
Livernois on-ramp to Junction off-ramp	Not Applicable	A	Not Applicable
Clark on-ramp to Lafayette off-ramp	B	B	B
Southbound I-75 Weaving Segments			
Ambassador Bridge on-ramp to Clark off-ramp	B	B	B
Junction on-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	A
Junction on-ramp to Livernois off-ramp	Not Applicable	B	Not Applicable
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	B

[(1)]Major Merge Area: deemed either acceptable or unacceptable.
***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-3C
Midday Peak Hour Levels of Service – VISSIM Analysis
Local Intersections
Detroit River International Crossing Study

LOCAL INTERSECTIONS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Fort at Westend	B	A	A
Fort at Green	B	B	B
Fort at Waterman	B	A	B
Fort at Livernois	A	A	B
Fort at Dragoon	A	B	Not Applicable
Fort at Junction	A	A	A
Fort at Clark	B	B	B
Southbound Service Drive at Livernois	A	A	B
Southbound Service Drive at Dragoon	B	B	A
Southbound Service Drive at Waterman	B	B	A
Northbound Service Drive at Livernois	B	B	B
Northbound Service Drive at Dragoon	B	B	Not Applicable
Southbound Service Drive at Springwells	B	B	B
Northbound Service Drive at Westend	B	B	B
Northbound Service Drive at Clark	B	B	A
Southbound Service Drive at Clark	B	B	B
Fort at Grand Blvd.	A	A	A
Northbound Service Drive at Grand Blvd.	B	B	B
Southbound Service Drive at Grand Blvd.	A	A	A
Fort at Post	A	A	Not Applicable

Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-4A
AM Peak Hour Levels of Service – HCS Analysis
I-75 Mainline Freeway Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Freeway Segments			
Dearborn off-ramp to Springwells off-ramp	C	D	C
Springwells off-ramp to Springwells on-ramp	C	Not Applicable	C
Springwells off-ramp to DRIC Plaza off-ramp	Not Applicable	C	Not Applicable
Springwells on-ramp to Livernois off-ramp	D	Not Applicable	Not Applicable
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	B
DRIC Plaza off-ramp to Livernois off-ramp	Not Applicable	Not Applicable	C
DRIC Plaza off-ramp to Livernois on-ramp	Not Applicable	C	Not Applicable
Livernois off-ramp to Dragoon on-ramp	D	Not Applicable	C
Livernois on-ramp to Junction off-ramp	Not Applicable	C	Not Applicable
Dragoon on-ramp to Clark off-ramp	D	Not Applicable	Not Applicable
Junction off-ramp to DRIC Plaza on-ramp	Not Applicable	C	Not Applicable
Dragoon on-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	C
Clark off-ramp to Clark on-ramp	D	Not Applicable	Not Applicable
DRIC Plaza on-ramp to Clark on-ramp	Not Applicable	D	D
Clark on-ramp to Lafayette off-ramp	C	C	C
Lafayette off-ramp to NB I-75/I-96 Diverge	C	C	C
From NB I-75/I-96 Diverge to NB I-75 Service Drive off-ramp (at Gateway)	C	*	C
From NB I-75 Service Drive off-ramp (at Gateway) to Gateway on-ramp	D	*	C
From Gateway on-ramp to C-D Road off-ramp	D	*	D
Southbound I-75 Freeway Segments			
From C-D Road on-ramp to Gateway off-ramp	B	*	B
From Gateway off-ramp to SB I-75/I-96 Merge	B	*	B
From SB I-75/I-96 Merge to Gateway on-ramp	B	*	B
Gateway on-ramp to Grand Blvd. on-ramp	C	B	B
Grand Blvd. on-ramp to Clark off-ramp	C	B	B
Clark off-ramp to Clark on-ramp	B	Not Applicable	Not Applicable
Clark off-ramp to DRIC Plaza off-ramp	Not Applicable	B	B
Clark on-ramp to Dragoon off-ramp	B	Not Applicable	Not Applicable
DRIC Plaza off-ramp to Junction on-ramp	Not Applicable	B	A
Junction on-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	A
Dragoon off-ramp to Livernois on-ramp	B	Not Applicable	Not Applicable
Junction on-ramp to Livernois off-ramp	Not Applicable	A	Not Applicable
Livernois on-ramp to Springwells off-ramp	B	Not Applicable	Not Applicable
Livernois off-ramp to DRIC Plaza on-ramp	Not Applicable	B	Not Applicable
Dragoon off-ramp to DRIC Plaza on-ramp	Not Applicable	Not Applicable	A
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	A
Springwells off-ramp to Springwells on-ramp	B	Not Applicable	B
DRIC Plaza on-ramp to Springwells on-ramp	Not Applicable	B	Not Applicable
Springwells on-ramp to Dearborn on-ramp	B	B	B
Westbound I-96 Freeway Segments			
From NB I-75 Diverge to 1-lane section	B	*	C
From 2-lane section to Gateway on-ramp	C	*	E
From Gateway on-ramp to Michigan off-ramp	C	*	C
Eastbound I-96 Freeway Segments			
From Michigan on-ramp to Gateway off-ramp	B	*	B
From Gateway off-ramp to SB I-75/I-96 Merge	B	*	C

***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-4B
AM Peak Hour Levels of Service – HCS Analysis
I-75 Merge/Diverge Areas and Weaving Segments
Detroit River International Crossing Study

FREEWAYS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Northbound I-75 Ramp Merge and Diverge Areas			
Dearborn off-ramp	D	C	C
Springwells off-ramp	C	C	C
Springwells on-ramp	C	Not Applicable	C
DRIC Plaza off-ramp	Not Applicable	A	B
Livernois off-ramp	C	Not Applicable	B
Livernois on-ramp	Not Applicable	C	Not Applicable
Dragoon on-ramp	C	Not Applicable	B
Junction off-ramp	Not Applicable	B	Not Applicable
DRIC Plaza on-ramp	Not Applicable	Acceptable[(1)]	A
Clark off-ramp	C	Not Applicable	Not Applicable
Clark on-ramp	B	C	C
Lafayette off-ramp	C	C	C
NB I-75/I-96 Diverge	B	*	B
NB I-75 Service Drive off-ramp (at Gateway)	C	*	B
Gateway on-ramp	C	*	C
Southbound I-75 Ramp Merge and Diverge Areas			
Gateway off-ramp	A	*	B
Service Drive on-ramp (E. of Grand Blvd.)	B	B	B
Clark off-ramp	B	C	A
Clark on-ramp	B	Not Applicable	Not Applicable
DRIC Plaza off-ramp	Not Applicable	A	A
Junction on-ramp	Not Applicable	B	B
Dragoon off-ramp	B	Not Applicable	A
Livernois off-ramp	Not Applicable	B	Not Applicable
Livernois on-ramp	B	Not Applicable	Not Applicable
Springwells off-ramp	B	Not Applicable	A
Springwells on-ramp	B	B	B
Dearborn on-ramp	B	B	B
Eastbound I-96 Ramp Merge and Diverge Areas			
Gateway off-ramp	A	*	B
Northbound I-75 Weaving Segments			
Springwells on-ramp to DRIC Plaza off-ramp	Not Applicable	Not Applicable	B
Livernois on-ramp to Junction off-ramp	Not Applicable	C	Not Applicable
Clark on-ramp to Lafayette off-ramp	C	C	C
Southbound I-75 Weaving Segments			
Ambassador Bridge on-ramp to Clark off-ramp	B	B	B
Junction-ramp to Dragoon off-ramp	Not Applicable	Not Applicable	A
Junction on-ramp to Livernois off-ramp	Not Applicable	B	Not Applicable
DRIC Plaza on-ramp to Springwells off-ramp	Not Applicable	Not Applicable	B

[(1)]Major Merge Area: deemed either acceptable or unacceptable.
***HCS was not completed for this location.**
Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

Table S-4C
AM Peak Hour Levels of Service – VISSIM Analysis
Local Intersections
Detroit River International Crossing Study

LOCAL INTERSECTIONS	NO BUILD (2035)	BUILD (2035) ALT. #2	BUILD (2035) PREFERRED ALT.
Fort at Westend	B	B	A
Fort at Green	A	A	A
Fort at Waterman	B	A	A
Fort at Livernois	B	B	A
Fort at Dragoon	A	A	Not Applicable
Fort at Junction	A	A	B
Fort at Clark	B	B	B
Southbound Service Drive at Livernois	A	A	A
Southbound Service Drive at Dragoon	B	B	A
Southbound Service Drive at Waterman	B	B	A
Northbound Service Drive at Livernois	B	B	A
Northbound Service Drive at Dragoon	A	B	Not Applicable
Southbound Service Drive at Springwells	B	B	B
Northbound Service Drive at Westend	B	B	B
Northbound Service Drive at Clark	B	B	A
Southbound Service Drive at Clark	B	B	C
Fort at Grand Blvd.	A	A	A
Northbound Service Drive at Grand Blvd.	B	B	B
Southbound Service Drive at Grand Blvd.	A	A	A
Fort at Post	A	A	Not Applicable

Legend: LOS Degraded from No Build (2035), LOS Improved from No Build (2035), No Change in LOS from No Build (2035)
Source: Parsons Transportation Group

1. INTRODUCTION

1.1 Purpose of the Report

This Level 3 Traffic Analysis Report (TAR) presents: 1) the final travel demand model (TDM) assignments for the Preferred Alternative, which includes Crossing X-10 and a hybrid of the interchanges associated with Practical Alternatives #1, #2, and #16; and, 2) the microsimulation traffic analysis of the Preferred Alternative. Since the release of the Level 2 TDM TARs in February, 2008, updates have been made to the SEMCOG portion of the DRIC model, including revisions along I-75 near the new Gateway interchange, the I-96 interchange, and the I-94 interchange. All alternatives have been rerun for both the Single-Logit and Nested-Logit models.[3] The crossing assignments from these model applications are provided in Appendix A and a comparison of these assignments to those presented in the Level 2 TDM TAR are presented in Appendix B. The network revisions have no material effect on the analysis of Practical Alternatives and reinforce the conclusion that Crossing X-10, the Preferred Alternative, would carry more traffic than Crossing X-11. This is one of the reasons it is preferred.

From a travel demand model perspective, the network for the Preferred Alternative is similar in most aspects to the previous Crossing X-10 network for Alternatives #1, #2, and #16 (Figure 1-1). The distinguishing features are a full I-75 interchange at Springwells Street; and, a change in the configuration of both Livernois Avenue and Dragoon Street.

The Level 3 TAR also provides responses to traffic-related comments to the Draft Environmental Impact Statement (DEIS). These responses are provided in Appendix C.

The purpose of the microsimulation traffic analysis is to document the applications and results of the *Highway Capacity Software (HCS)* and *VISSIM* modeling software used to evaluate the potential traffic impacts on the U.S. side of the border for the DRIC Preferred Alternative. Based on the traffic volumes determined for the future forecasts, capacity analyses were conducted for three peak periods (AM, Midday and PM) for 2035 conditions. Results include: traffic density, level of service, and, where appropriate, average delay for each freeway mainline segment, merge/diverge area, weaving segment, and local intersection.

1.2 Preferred Alternative

The Preferred Alternative includes the X-10 Crossing and Plaza P-a (Figure 1-1). Following submission of the Level 2 TAR, several Practical Alternative interchange configurations were eliminated from consideration for a variety of factors. For example, Alternatives #3 and #5 would require the removal of an historic building. U.S. law prohibits such alternatives from going forward as long as other reasonable and prudent

[3] Refer to *Level 2 Traffic Analysis Report – Travel Demand Model* found on www.partnershipborderstudy.com for definition of single-logit and nested-logit models.

Figure 1-1
Schematic Representation of the Preferred Alternative
Detroit River International Crossing Study

Source: Parsons Transportation Group

alternatives remain. Alternative #14 was eliminated because it would provide inferior access to/from and across I-75 – damaging the community's cohesion. The most viable Practical Alternative interchanges are Alternatives #1, #2, and #16. For more detailed information, the reader is referred to the document entitled *The Best Alternative Identified at This Time for the Preferred Alternative*, June 16, 2008 (www.partnershipborderstudy.com).

Once Alternatives #1, #2, and #16 were established as the most viable interchange alternatives (Figure 1-2), they were examined in five key areas, each of which is important to the local community as expressed throughout the DRIC study process and in comments on the Draft Environmental Impact Statement:

1. Local vehicular access to and from I-75;
2. Local vehicular access across I-75;
3. Springwells interchange;
4. Service drive alignment at Berwalt Manor; and,
5. Pedestrian access across I-75.

The Preferred Alternative was developed as the result of this analysis. It uses the basic plaza design and interchange scheme with I-75 as Alternatives #1, #2, and #16, and connects with I-75 at the same location of Livernois Avenue and Dragoon Street. Figures 1-3 and 1-4 present the modeled network for each of the Alternative #1, #2, and #16 network, and for the Preferred X-10 Alternative network, respectively. Figures 1-5 and 1-6 show a close-up view of the interchanges for each network.

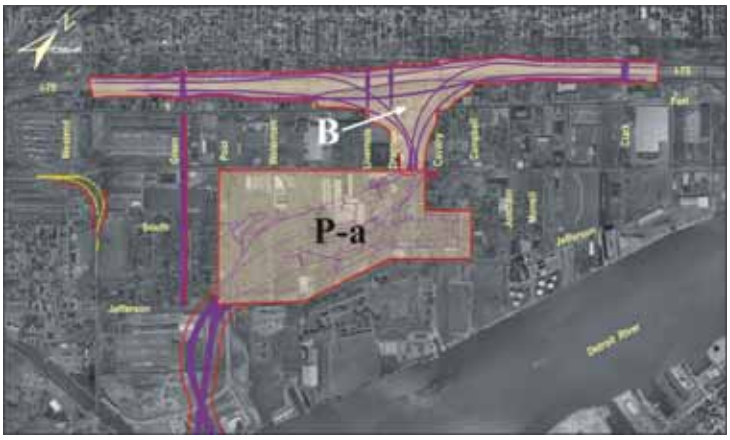
As Figures 1-3 and 1-4 demonstrate, from a model perspective, the differences between the previously modeled interchanges of Alternatives #1, #2, and #16 and the Preferred Alternative interchange are relatively minor in comparison to their similarities. The red circles in Figures 1-3 and 1-4 highlight one significant change. In the Preferred Alternative, the Springwells Street interchange with I-75 is a full interchange. In Alternatives #1, #2, and #16, the interchange is only partial.

Figures 1-5 and 1-6 illustrate the other distinctions between the two respective networks. The network for Alternatives #1, #2, and #16 maintained a full connection for both Livernois Avenue and Dragoon Street across I-75 to Fort Street. Ramps on either side of the Livernois/Dragoon overpass connected the I-75 service drives to the main line and create an auxiliary lane between the entrance and exit ramps. In the Preferred Alternative, Dragoon Street would be closed and Livernois Avenue would be converted to a two-way facility from Lafayette Street to Fort Street. Lafayette Street, which is not a link in the SEMCOG network, would also be converted to a two-way street in order to link the northbound traffic back to Dragoon Street. In the northbound direction of I-75, the slip ramps and auxiliary lane would be replaced by braided ramps. While not evident from the network itself, these changes maintain cross-access over I-75 while reducing the amount of area - and therefore property - required to build the interchange.

Figure 1-2
X-10 Crossing Alternatives #1, #2, and #16
Detroit River International Crossing Study

Alternative #1

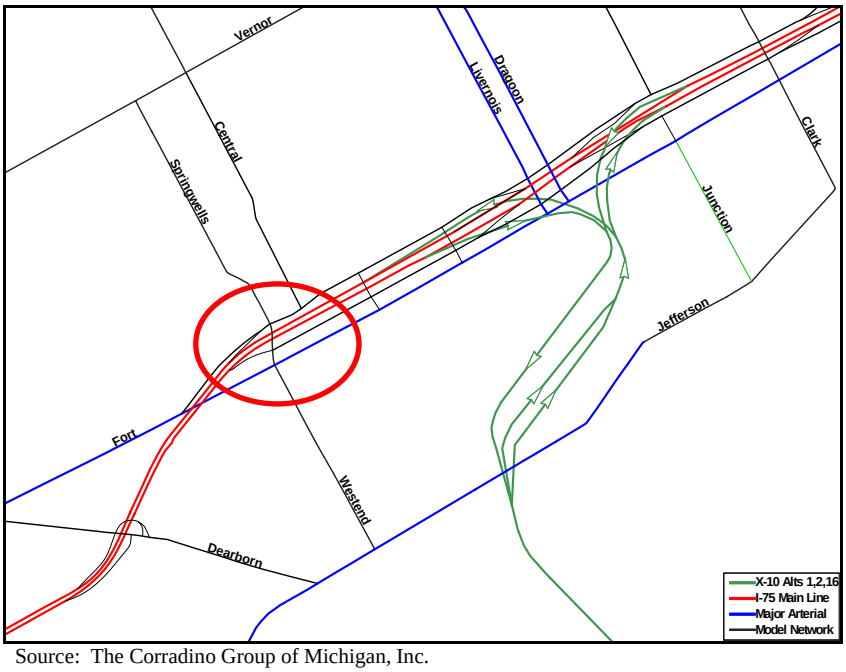
Alternative #2



Alternative #16

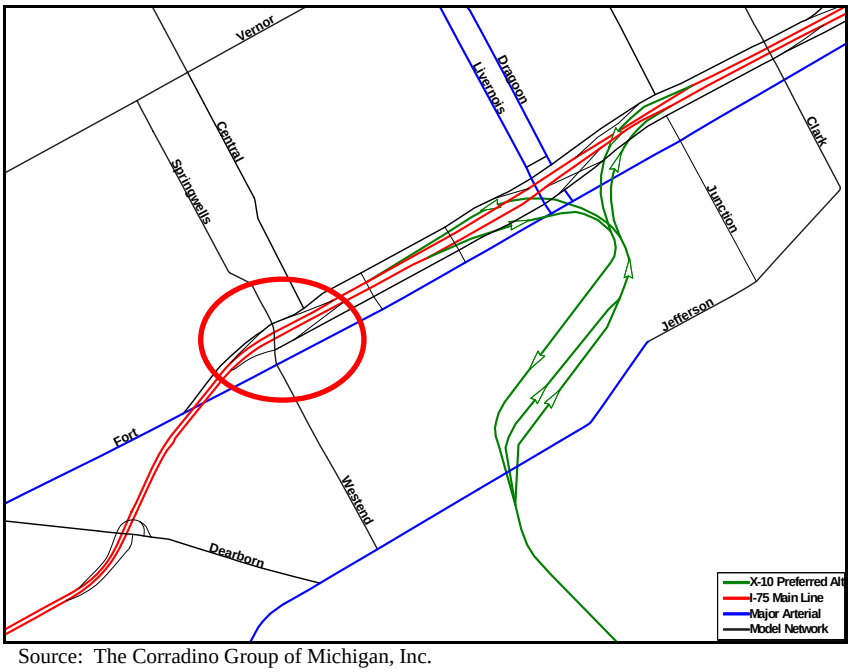
Source: The Corradino Group of Michigan, Inc. and Parsons Transportation Group

Figure 1-3
Model Network for Proposed DRIC Plaza and Interchange
Alternatives #1, #2, and #16
Detroit River International Crossing Study



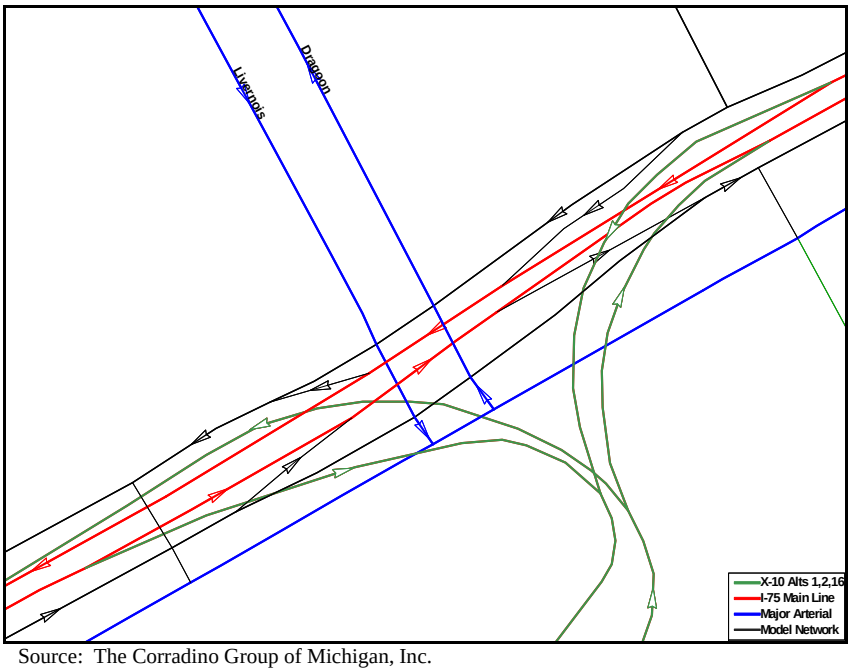
Source: The Corradino Group of Michigan, Inc.

Figure 1-4
Model Network for Proposed DRIC Plaza and Interchange
Preferred Alternative
Detroit River International Crossing Study



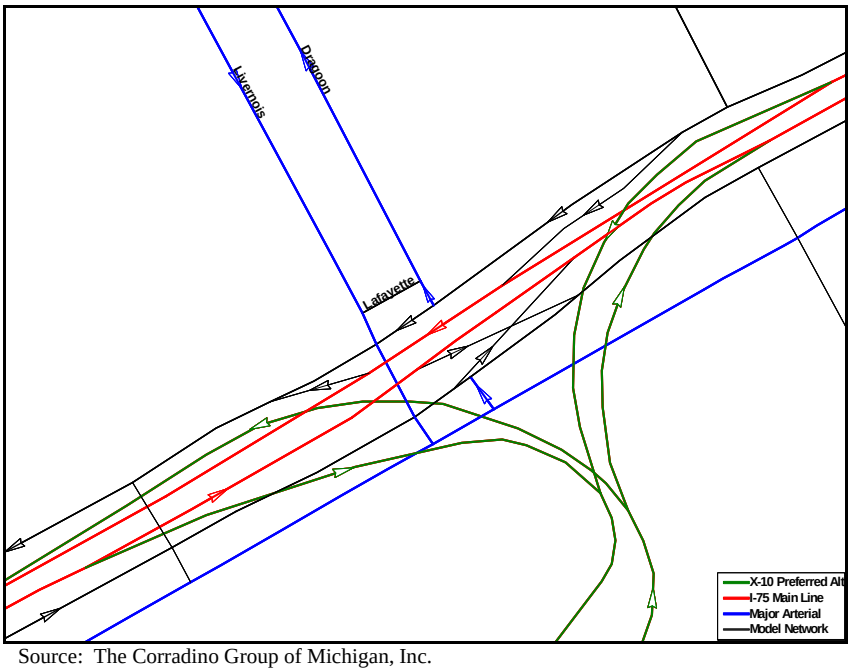
Source: The Corradino Group of Michigan, Inc.

Figure 1-5
Model Network for Proposed DRIC Plaza Interchange
Alternatives #1, #2, and #16
Detroit River International Crossing Study



Source: The Corradino Group of Michigan, Inc.

Figure 1-6
Model Model Network for Proposed DRIC Interchange
Preferred Alternative
Detroit River International Crossing Study



Source: The Corradino Group of Michigan, Inc.

2. TRAVEL DEMAND MODEL

2.1 Crossing Volume Forecasts

Table 2-1 presents the Single-Logit model assignments of 2035 traffic for both the Preferred Alternatives, the Practical Alternatives interchanges from which the Preferred Alternative is derived, as well as the Ambassador Bridge.

Table 2-1
2035 Single-Logit Model Crossing Volumes
Detroit River International Crossing Study

		US to Canada		Canada to US		Two-Way Traffic	
	Network	**AMB**	**DRIC**	**AMB**	**DRIC**	**AMB**	**DRIC**
AM Peak Hour							
Cars	No Build	260	n/a	1,736	n/a	1,995	n/a
	X-10: #A01, #A02, #A16	112	203	1,163	865	1,275	1,068
	X-10: Preferred Alternative	110	207	1,165	860	1,275	1,067
Trucks	No Build	453	n/a	453	n/a	906	n/a
	X-10: #A01, #A02, #A16	124	418	7	548	130	966
	X-10: Preferred Alternative	123	418	9	546	132	964
Midday Peak Hour							
Cars	No Build	691	n/a	661	n/a	1,352	n/a
	X-10: #A01, #A02, #A16	302	413	535	199	836	611
	X-10: Preferred Alternative	299	418	527	206	826	624
Trucks	No Build	722	n/a	504	n/a	1,226	n/a
	X-10: #A01, #A02, #A16	264	736	139	426	404	1,162
	X-10: Preferred Alternative	260	740	139	426	399	1,167
PM Peak Hour							
Cars	No Build	1,824	n/a	674	n/a	2,498	n/a
	X-10: #A01, #A02, #A16	843	1,384	517	248	1,360	1,632
	X-10: Preferred Alternative	837	1,395	510	256	1,347	1,651
Trucks	No Build	750	n/a	383	n/a	1,134	n/a
	X-10: #A01, #A02, #A16	224	752	82	349	306	1,101
	X-10: Preferred Alternative	223	753	76	354	299	1,108

Source: The Corradino Group of Michigan, Inc.

Table 2-2 presents the Nested-Logit model assignments for various alternatives and the Ambassador Bridge for 2035 traffic. Appendix A provides more detailed data from which Tables 2-1 and 2-2 were derived. It is noted here that the Practical Alternatives and the Preferred Alternative divert traffic from each of the Ambassador Bridge and Blue Water Bridge, as well as the Detroit-Windsor Tunnel to varying degrees depending on the model used. This is reflected in the data in the odd-numbered tables (A-1, A-3, A-5, etc.) in Appendix A.

Table 2-2
2035 Nested-Logit Model Crossing Volumes
Detroit River International Crossing Study

AM Peak Hour							
	Network	**US to Canada**		**Canada to US**		**Two-Way Traffic**	
		AMB	**DRIC**	**AMB**	**DRIC**	**AMB**	**DRIC**
Cars	No Build	286	n/a	1,744	n/a	2,031	n/a
	#A01, #A02, #A16	210	150	1,191	1,007	1,401	1,157
	Preferred Alternative	209	152	1,184	1,015	1,393	1,167
Trucks	No Build	486	n/a	544	n/a	1,030	n/a
	#A01, #A02, #A16	270	291	313	350	584	641
	Preferred Alternative	270	292	314	350	584	642
Midday Peak Hour							
	Network	**US to Canada**		**Canada to US**		**Two-Way Traffic**	
		AMB	**DRIC**	**AMB**	**DRIC**	**AMB**	**DRIC**
Cars	No Build	530	n/a	540	n/a	1,070	n/a
	#A01, #A02, #A16	407	341	388	278	795	619
	Preferred Alternative	405	344	387	280	792	624
Trucks	No Build	997	n/a	592	n/a	1,588	n/a
	#A01, #A02, #A16	570	612	342	335	912	947
	Preferred Alternative	570	612	342	335	912	947
PM Peak Hour							
	Network	**US to Canada**		**Canada to US**		**Two-Way Traffic**	
		AMB	**DRIC**	**AMB**	**DRIC**	**AMB**	**DRIC**
Cars	No Build	1,607	n/a	666	n/a	2,273	n/a
	#A01, #A02, #A16	1,033	1,090	466	323	1,499	1,413
	Preferred Alternative	1,025	1,103	465	324	1,490	1,427
Trucks	No Build	828	n/a	448	n/a	1,277	n/a
	#A01, #A02, #A16	469	560	264	285	733	845
	Preferred Alternative	470	561	264	285	734	846

Source: The Corradino Group of Michigan, Inc.

2.2 Comparison of Forecasts

Tables 2-1 and 2-2 demonstrate there is virtually no difference in traffic assignments between Alternatives #1, #2, and #16 on the one hand and the Preferred Alternative regardless of model used, single-logit or nested-logit (Table 2-3). Further distinctions regarding traffic patterns are best analyzed through the microsimulation process, which is reported upon in the next section of this report.

Table 2-3
Average Percent Difference in Cross-Border Traffic:
Alts. #1, #2, and #16 versus the Preferred Alternative
Detroit River International Crossing Study

	2035	
	Single Logit	Nested Logit
AM Peak Hour		
Cars	0%	1%
Trucks	0%	0%
Total	0%	1%
PCEs*	0%	0%
Midday Peak Hour		
Cars	2%	1%
Trucks	0%	0%
Total	1%	0%
PCEs*	1%	0%
PM Peak Hour		
Cars	1%	1%
Trucks	1%	0%
Total	1%	1%
PCEs*	1%	0%

*Passenger Car Equivalents: Trucks = 2.5 cars
Source: The Corradino Group of Michigan, Inc.

2.3 Findings

The Level 3 TAR travel demand model results indicate that, while the Preferred Alternative does make specific network changes that affect traffic operations, these changes are inconsequential, from a macro travel demand model level, to the assignment of international crossing traffic when comparing the Preferred Alternative with the X-10 Crossing Practical Alternatives #1, #2, and #16. Specifically, changes to the local network, away from the direct crossing paths of international traffic, have very little effect as compared to changes in the length and time of the crossing path itself. This does not imply that these changes are unimportant, but rather that their effects are measured not by using the travel demand model but the microsimulation traffic analysis which follows.

3. TRAFFIC ANALYSIS

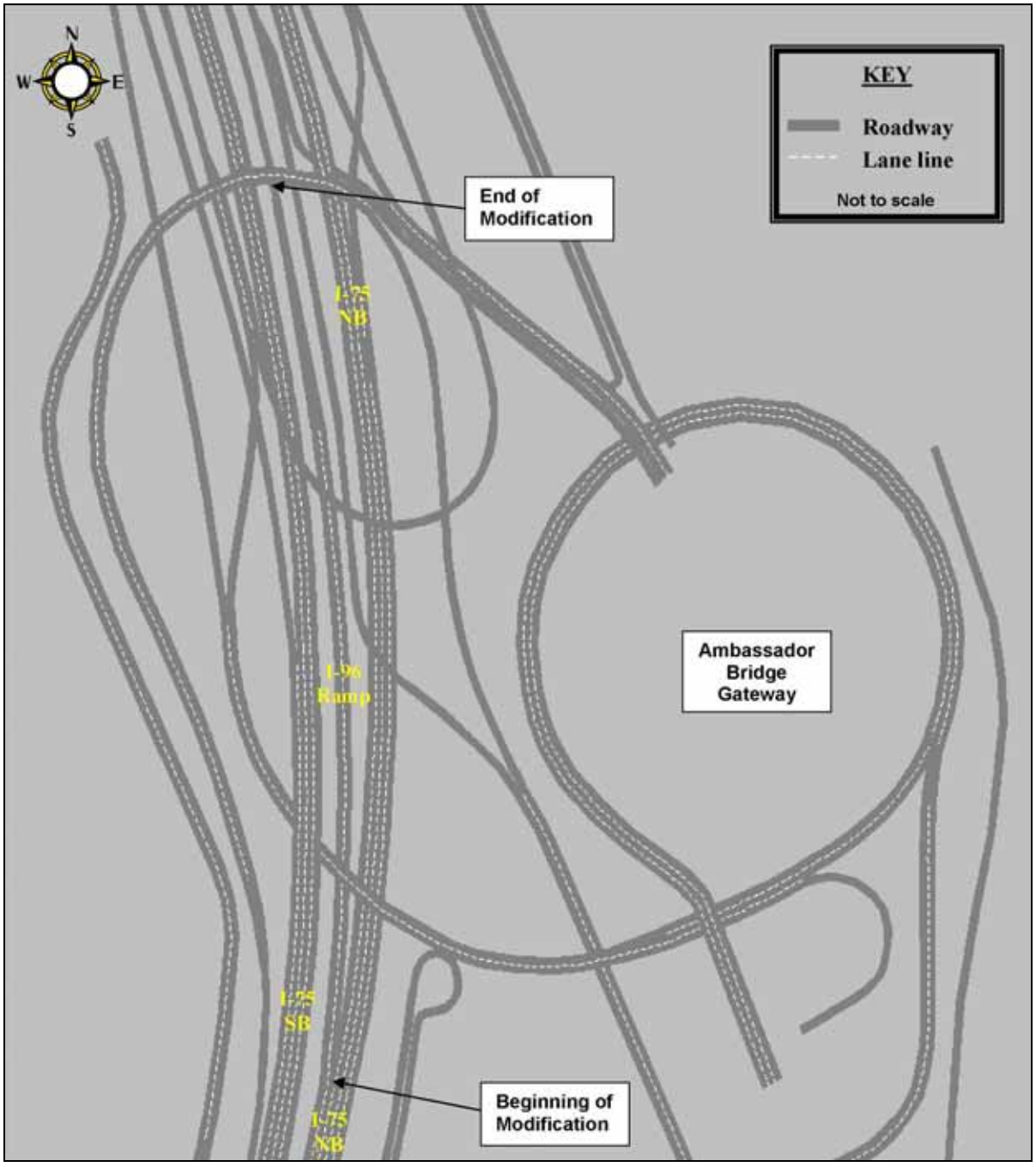
As noted earlier, the purpose of the traffic analysis is to document the applications and results of the Highway Capacity Software (HCS) and VISSIM modeling software used to evaluate the potential traffic impacts on the U.S. side of the border for the DRIC Preferred Alternative. Based on the traffic volumes determined for the future forecasts, capacity analyses were conducted for three peak hours (AM, Midday and PM) for 2035 conditions. Results include: traffic density, level of service, and where appropriate, average delay for each freeway mainline segment, merge/diverge area, weaving segment, and local intersection.

3.1. HCS Traffic Analysis

The HCS analyses uses traffic volumes projected for the year 2035 based on a new X-10 Crossing, interchange, and local ramps to the I-75 service drives as depicted earlier in Figure 1-1. This includes a full Springwells interchange and other components described in Section 1.2 of this report. During earlier DRIC traffic analyses, capacity constraints were identified for the I-75/I-96 system-to-system ramp configuration that is part of the Gateway Project. Further investigation revealed that the ramp to carry northbound I-75 traffic to westbound I-96, originally designed as a two-lane movement, needs to remain that way. While the Gateway Project construction plans originally provided for a one-lane connector, they were designed to allow a two-lane exit that would merge to one lane farther downstream. Operational improvement would be gained by a two-lane ramp, whether or not the DRIC Project (or any other project to the south of the Gateway) is built. Therefore, the Gateway Project will have a two-lane configuration for the I-75 northbound to I-96 westbound movement based on a design modification cleared through the environmental re-evaluation consultation process (MDOT's October 9, 2008 letter). This two-lane connector is fully consistent with the original EA/FONSI for the Gateway Project as well as subsequent re-evaluations, all of which were developed prior to, and without regard to, the DRIC Project. These changes are reflected in the HCS and VISSIM analysis results presented herein (Figure 3-1).

The 2035 forecast volumes used in the analysis of the Preferred Alternative are presented in Appendices D and E. This methodology is described in detail in Section "*2.1.1 Traffic Data*" of the report entitled "*Level 2: Traffic Analysis Technical Report, Part 2: Highway Capacity Analysis and Microsimulation Modeling Results.*" The tables found in this section summarize the results of the capacity analyses conducted for the Preferred Alternative conditions in 2035. The supporting detailed HCS results are found in Appendix D.

Figure 3-1
NB I-75 to WB I-96 Proposed Two-lane Ramp
Detroit River International Crossing Study



3.1.1 Freeway Operations

Mainline Segments

Table 3-1 summarizes the density output from HCS by selected segments of the mainline freeway system and the corresponding levels of service under the Preferred Alternative conditions for each peak hour analyzed for 2035 data.

Table 3-1
2035 Preferred Alternative HCS Levels of Service
for Mainline Freeway Segments
Detroit River International Crossing Study

Freeway Segment	AM Peak		Midday Peak		PM Peak	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound I-75 Main Lanes						
From Dearborn off-ramp to Springwells off-ramp	20.9	C	11.6	B	14.3	B
From Springwells off-ramp to Springwells on-ramp	19.3	C	10.5	A	13.2	B
Springwells on-ramp to DRIC Plaza off-ramp	16.6	B	9.2	A	11.0	A
From DRIC Plaza off-ramp to Livernois off-ramp	18.6	C	8.5	A	9.3	A
From Livernois off-ramp to Dragoon on-ramp	18.1	C	8.3	A	9.0	A
From Dragoon on-ramp to DRIC Plaza on-ramp	18.5	C	8.7	A	10.6	A
From DRIC Plaza on-ramp to Clark on-ramp	27.4	D	11.9	B	14.3	B
From Clark on-ramp to Lafayette off-ramp	22.7	C	10.2	A	12.8	B
From Lafayette off-ramp to NB I-75/I-96 Diverge	22.6	C	9.2	A	11.8	B
From NB I-75/I-96 Diverge to NB I-75 Service Drive off-ramp (at Gateway)	18.7	C	8.4	A	9.6	A
From NB I-75 Service Drive off-ramp (at Gateway) to Gateway on-ramp	24.7	C	11.0	A	12.6	B
From Gateway on-ramp to C-D Road off-ramp	29.4	D	12.3	B	13.9	B
Southbound I-75 Main Lanes						
From C-D Road on-ramp to Gateway off-ramp	15.7	B	17.8	B	32.9	D
From Gateway off-ramp to SB I-75/I-96 Merge	15.2	B	15.8	B	30.4	D
From SB I-75/I-96 Merge to Gateway on-ramp	16.9	B	16.1	B	29.6	D
From Gateway on-ramp to Grand Blvd. on-ramp	13.9	B	13.1	B	24.2	C
From Grand Blvd. on-ramp to Clark off-ramp	14.0	B	13.3	B	26.2	D
From Clark off-ramp to DRIC Plaza off-ramp	11.8	B	12.1	B	25.1	C
From DRIC Plaza off-ramp to Junction on-ramp	10.6	A	10.2	A	20.9	C
From Junction on-ramp to Dragoon off-ramp	8.6	A	8.7	A	17.6	B
From Dragoon off-ramp to DRIC Plaza on-ramp	9.5	A	10.3	A	21.4	C
From DRIC Plaza on-ramp to Springwells off-ramp	8.7	A	8.2	A	15.8	B
From Springwells off-ramp to Springwells on-ramp	12.8	B	12.2	B	23.7	C
From Springwells on-ramp to Dearborn on-ramp	13.3	B	13.4	B	25.5	C
Westbound I-96						
From NB I-75 Diverge to 1-lane section	19.0	C	5.9	A	10.3	A
From 2-lane section to Gateway on-ramp	37.9	E	13.2	B	20.7	C
From Gateway on-ramp to Michigan off-ramp	22.3	C	9.1	A	12.5	B
Eastbound I-96						
From Michigan on-ramp to Gateway off-ramp	17.5	B	11.4	B	20.2	C
From Gateway off-ramp to SB I-75/I-96 Merge	21.9	C	17.9	B	27.6	D

Source: HCS, Parsons Transportation Group

All freeway segments will operate at LOS D, or better, except the **westbound I-96** one-lane freeway segment from the NB I-75/I-96 diverge to the Gateway on-ramp. It will operate at LOS E during the AM peak hour (blue circle ○ on Table 3-1).

Ramp Merge, Diverge and Weaving Areas

For 2035 Preferred Alternative conditions, for each peak hour analyzed, the density output from HCS in the selected ramp merge and diverge areas and the corresponding levels of service are summarized in Table 3-2. For diverge areas with long deceleration lanes, the HCS density results may be negative due to the nature of the density equation. This is especially the case for the proposed two-lane plaza off ramps. Where a negative value is the result of the calculation, it has been suppressed for reporting purposes and an asterisk (*) was placed in the table.

All ramp merge and diverge areas will operate at LOS C, or better, during all peak hours.

Table 3-3 summarizes the density output from HCS for the selected weave segments and the corresponding levels of service for 2035 Preferred Alternative conditions for each peak hour analyzed. Except for a LOS D in the PM peak hour for the **southbound I-75** weaving segment, from the Ambassador Bridge on-ramp to the Clark Street off-ramp (red circle ○ on Table 3-3), all other weaving segments will operate at LOS C, or better.

Figure 3-2 graphically displays the level of service results for the 2035 Preferred Alternative conditions for each freeway segment, merge/diverge area, and weave area analyzed.

Table 3-2
2035 Preferred Alternative HCS Levels of Service for Ramp Merge and Diverge Areas
Detroit River International Crossing Study

Location	AM Peak		Midday Peak		PM Peak	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound I-75						
Dearborn off-ramp	26.0	C	15.8	B	18.5	B
Springwells off-ramp	25.1	C	14.8	B	17.6	B
Springwells on-ramp	26.2	C	13.3	B	16.6	B
DRIC Plaza off-ramp (E of Waterman)	16.4	B	15.0	B	18.3	B
Livernois off-ramp	18.3	B	7.3	A	8.1	A
Dragoon on-ramp	18.2	B	9.6	A	12.0	B
DRIC Plaza on-ramp (E of Junction)	0.6	A	*	A	*	A
Clark on-ramp	21.2	C	11.0	B	13.3	B
Lafayette off-ramp	22.1	C	14.1	B	16.5	B
NB I-75/I-96 Diverge	13.5	B	5.6	A	7.1	A
NB I-75 Service Drive off-ramp (at Gateway)	18.6	B	6.6	A	8.1	A
Gateway on-ramp	24.9	C	10.1	B	11.4	B
Southbound I-75						
Gateway off-ramp	12.8	B	15.0	B	26.8	C
Service Drive on-ramp (E of Grand)	13.9	B	13.4	B	23.3	C
Clark off-ramp	8.1	A	6.0	A	19.2	B
DRIC Plaza off-ramp (E of Junction)	*	A	*	A	*	A
Junction on-ramp	12.0	B	12.2	B	25.3	C
Dragoon off-ramp	6.9	A	6.2	A	17.9	B
Springwells off-ramp	4.0	A	3.0	A	11.2	B
Springwells on-ramp	13.6	B	13.9	B	23.0	C
Dearborn on-ramp	13.5	B	13.6	B	22.9	C
Eastbound I-96						
Gateway off-ramp	13.9	B	8.1	A	16.4	B

* See Section 3.1.1, paragraph 2, page 3-4 for explanation.
Source: HCS, Parsons Transportation Group

Table 3-3
2035 Preferred Alternative HCS Levels of Service for I-75 Weaving Segments
Detroit River International Crossing Study

Location	AM Peak		Midday Peak		PM Peak	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound I-75						
From Springwells on-ramp to DRIC Plaza off-ramp	17.8	B	10.8	B	12.9	B
From Clark on-ramp to Lafayette off-ramp	24.2	C	10.5	B	13.4	B
Southbound I-75						
From Ambassador on-ramp to Clark off-ramp	15.1	B	13.3	B	30.4	D
From Junction on-ramp to Dragoon off-ramp	8.9	A	9.0	A	19.9	B
From DRIC Plaza on-ramp to Springwells off-ramp	11.8	B	10.4	B	20.9	C

Source: HCS, Parsons Transportation Group

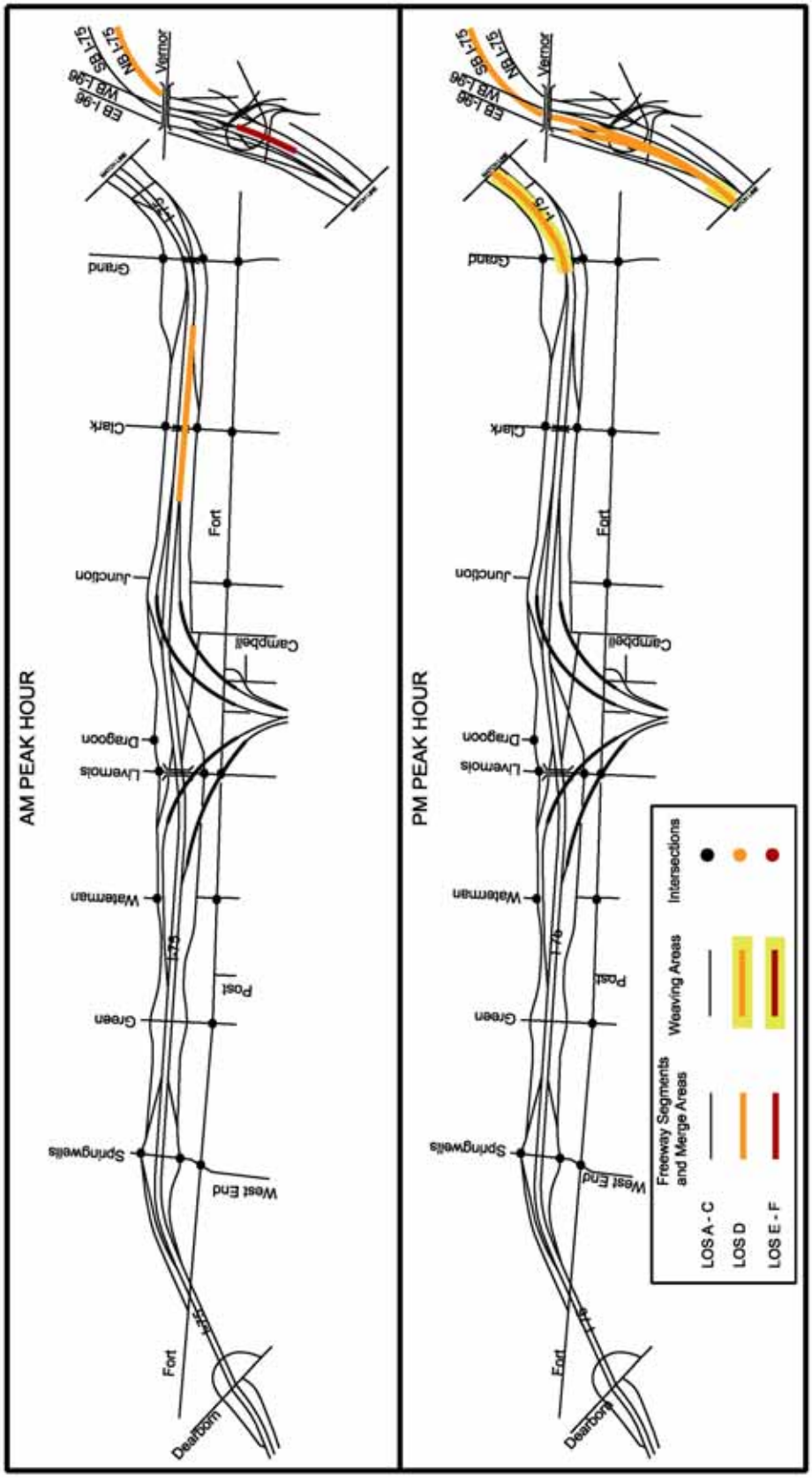


Figure 3-2
Build (2035) Preferred Alternative Levels of Service
I-75 Grand Boulevard to Dearborn Avenue
Detroit River International Crossing Study

3.2 VISSIM Microsimulation Results

This report section summarizes the results of the Preferred Alternative analysis of future 2035 traffic conditions within the DRIC study area using VISSIM microsimulation. VISSIM analyzes the entire freeway and arterial roadway system interacting and operating together in real time, rather than analyzing individual components separately as HCS does. In addition, VISSIM's animation output provides a visualization of the entire network's operations/interactions as a system in each of the years analyzed.

The VISSIM model uses traffic volumes projected for the year 2035 based on the new bridge and changes depicted in Figure 1-1 and described in Section 1-2 of this report.

3.2.1 Local Intersections

For 2035 Preferred Alternative conditions, the delay output from the VISSIM model for each network intersection analyzed, and the levels of service assigned to the intersection as a whole, are summarized in Table 3-4. Except for the **Southbound I-75 Service Drive** at Clark during the AM peak hour which will operate at LOS C (○ red circle on Table 3-4), all other signalized intersections analyzed within the study area will operate at LOS A or B for all peak hours.

Figure 3-2 graphically displays the intersection level of service results for the 2035 Preferred Alternative. Appendix F contains a table that summarizes the delay experienced by each movement and approach at every intersection in the VISSIM model.

3.2.2 Freeway Operations

For each peak hour analyzed, the density and level of service experienced by various segments of the freeway system in the VISSIM model are summarized in Tables 3-5A (northbound) and 3-5B (southbound). Detailed results are contained in Appendix G. The VISSIM results show that freeway operations (levels of service) for the 2035 Preferred Alternative are generally similar to that observed for the 2035 No Build conditions reported in the Level 2 Traffic Analysis Part 2: Highway Capacity Analysis and Microsimulation Modeling Results. In the AM peak, all segments will operate at LOS D or better, except for one segment, i.e., northbound I-75 from the Gateway ramps to Michigan Avenue which would operate at LOS E (blue circle ○ on Table 3-5A). In the Midday peak hour, all segments will operate at LOS A or B. In the PM peak hour, all segments will operate at LOS D or better.

Table 3-4
2035 Preferred Alternative VISSIM Levels of Service for Local Intersections
Detroit River International Crossing Study

Intersection Name	AM Peak		Midday Peak		PM Peak	
	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS	Delay (sec/veh)	LOS
Fort at Westend	9.3	A	9.2	A	8.2	A
Fort at Green	8.2	A	12.5	B	9.3	A
Fort at Waterman	8.7	A	10.6	B	8.1	A
Fort at Livernois	8.4	A	14.3	B	8.8	A
Fort at Junction	10.5	B	8.5	A	10.1	B
Fort at Clark	12.0	B	13.1	B	12.7	B
Southbound I-75 Service Drive at Livernois	8.7	A	18.0	B	8.5	A
Southbound I-75 Service Drive at Dragoon	0.1	A	0.3	A	0.2	A
Southbound I-75 Service Drive at Waterman	3.5	A	3.1	A	2.0	A
Northbound I-75 Service Drive at Livernois	6.7	A	13.1	B	8.2	A
Southbound I-75 Service Drive at Springwells	10.8	B	16.9	B	9.6	A
Northbound I-75 Service Drive at Westend	14.8	B	17.2	B	14.6	B
Northbound I-75 Service Drive at Clark	9.5	A	8.2	A	12.3	B
Southbound I-75 Service Drive at Clark	20.6	C	13.9	B	13.5	B
Fort at Grand Blvd.	4.7	A	4.5	A	5.3	A
Northbound I-75 Service Drive at Grand Blvd.	11.5	B	12.4	B	11.2	B
Southbound I-75 Service Drive at Grand Blvd.	7.5	A	7.9	A	6.8	A

Source: VISSIM, Parsons Transportation Group

Table 3-5A
2035 Preferred Alternative VISSIM Levels of Service for Freeway Segments
Northbound I-75 / Westbound I-96
Detroit River International Crossing Study

Freeway Segment	AM Peak		Midday Peak		PM Peak	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Northbound I-75 Main Lanes						
From West of Dearborn to Springwells	22.0	C	12.6	B	14.9	B
From Springwells to Springwells On Ramp	20.5	C	11.7	B	14.0	B
From Springwells On Ramp to Green	17.3	B	10.7	A	14.9	B
From Green to Waterman	19.2	C	7.3	A	9.0	A
From Waterman to Livernois	21.0	C	8.9	A	10.5	A
From Dragoon to Dragoon On Ramp	19.2	C	8.5	A	9.4	A
From Dragoon On Ramp to Junction	15.6	B	7.1	A	8.9	A
From Junction to Clark (6 lanes section)	15.4	B	6.5	A	7.8	A
From Junction to Clark (5 lanes section)	19.4	C	7.8	A	9.4	A
From Clark to Clark On Ramp	25.8	C	9.8	A	11.7	B
From Clark On Ramp to Grand	22.7	C	8.6	A	10.6	A
From Porter Off Ramp to NB I-75/I-96 Diverge	24.9	C	7.3	A	10.4	A
From NB I-75/I-96 Diverge to Gateway Ramps	16.7	B	6.7	A	9.0	A
From Gateway Ramps to Michigan	40.3	E	9.6	A	12.6	B
Westbound I-96						
From NB I-75/I-96 Diverge to Gateway Ramps	28.8	D	5.1	A	8.4	A
From Gateway Ramps to Michigan	20.7	C	4.8	A	7.9	A
From Michigan to C-D Road	15.7	B	7.2	A	8.0	A
From C-D Road to MLK On Ramp	10.8	A	6.4	A	15.0	B
From MLK On Ramp to I-94 Off Ramp	11.0	B	6.1	A	14.1	B
From I-94 Off Ramp to Warren On Ramp	3.8	A	1.9	A	9.1	A
From Warren On Ramp to I-94	3.2	A	2.2	A	8.5	A
From I-94 to I-94 On Ramp	4.1	A	2.6	A	10.7	A

Source: VISSIM, Parsons Transportation Group

Table 3-5B
2035 Preferred Alternative VISSIM Levels of Service for Freeway Segments
Southbound I-75 / Eastbound I-96
Detroit River International Crossing Study

Freeway Segment	AM Peak		Midday Peak		PM Peak	
	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS	Density (pc/mi/ln)	LOS
Southbound I-75 Main Lanes						
From Fort to Dearborn	13.1	B	14.4	B	27.3	D
From Springwells on ramp to Fort	10.6	A	11.9	B	22.6	C
From Springwells to West of Dearborn	12.8	B	13.1	B	25.7	C
From Springwells off ramp to Springwells	13	B	13.4	B	26.4	D
From Green to Springwells	11.2	B	10.8	A	20.6	C
From Green to Springwells	8.7	A	8.5	A	16.5	B
From Flyover on ramp to Green	8.8	A	7.2	A	15.2	B
From Waterman to Green	9.7	A	10.3	A	22.1	C
From Dragoon On ramp to Livernois	9.5	A	8.2	A	18.5	C
From Junction/Plaza off ramp to Dragoon on ramp	10.7	A	12	B	27.5	D
From Clark Off Ramp to Plaza off ramp	9.3	A	9.7	A	21.9	C
From Grand to Clark Off Ramp	9.8	A	9.0	A	19.4	C
From Gateway On Ramp to New Frontage Road On Ramp	10.6	A	9.9	A	18.8	C
SB I-75/I-96 Merge Area	11.3	B	10.5	A	20.0	C
From Gateway Ramps to SB I-75/I-96 Merge	12.6	B	12.6	B	25.5	C
From Michigan to Gateway Ramps	12.5	B	14.0	B	27.6	D
Eastbound I-96						
From Gateway Ramps to SB I-75/I-96 Merge	20.7	C	14.7	B	24.0	C
From Michigan to Gateway Ramps	20.6	C	9.2	A	17.5	B
From NB 75 Off Ramp to Michigan	16.9	B	8.5	A	14.8	B
From Warren On Ramp to NB 75 Off Ramp	29.5	D	6.6	A	9.7	A
From I-94 On Ramp to Warren On Ramp	33	D	6.7	A	9.1	A
From I-94 to I-94 On Ramp	18.2	C	3.8	A	6.8	A
From I-94 Off Ramp to I-94	18.9	C	4.2	A	7.0	A

Source: VISSIM, Parsons Transportation Group

As with the 2035 No Build alternative, VISSIM analysis showed that the improvements planned for I-94, consisting of widening eastbound I-94 at the I-96 ramp merge areas, are critical to the efficient handling of traffic in this area. Without the improvements, queues will form on the westbound I-96 ramp to eastbound I-94 and extend back into the westbound I-96 lanes during the morning peak hour.

3.2.3 Animation of Traffic Operations

AVI animation files that show the Preferred Alternative road network operating with projected 2035 traffic volumes in each of the peak hours have been created and are provided on a CD (Appendix E). A review of the AVI shows that the new plaza's interchange on I-75 and changed local ramps will operate with no noticeable issues.

3.3 Comparison of Travel Time

The previous sections described the VISSIM density and levels of service on each segment of the road network under the 2035 Preferred Alternative conditions. Beyond this segment-by-segment comparison of the alternatives, one overall measure of effectiveness, travel time, can be used to compare the No Build and Preferred Alternatives.

VISSIM reports the average travel time of vehicles moving through the simulation model, to indicate the efficiency, or congestion, associated with each alternative. These data were collected from the simulation on a segment-by-segment basis, as well as an overall corridor basis for the 2035 Preferred Alternative conditions and compared the results against the 2035 No Build and 2035 Practical Alternative #2. The detailed, segment-by-segment results for the Preferred Alternative are presented in Appendix G while Table 3-6 summarizes the overall travel time for the corridor as a whole.

Table 3-6
No Build & Preferred Alternatives Total Travel Time (seconds)
Detroit River International Crossing Study

Alternative:	2035 No Build	2035 Alt #2	2035 Preferred Alt
AM Peak Hour			
NB I-75, Dearborn Ramps to 14th	294	311	306
NB I-75, Dearborn Ramps to I-94 (McGraw)	340	404	369
SB I-75, Vernor to Dearborn Ramps	226	225	226
SB I-75, I-94 (McGraw) to Dearborn Ramps	327	355	367
Midday Peak Hour			
NB I-75, Dearborn Ramps to 14th	276	262	263
NB I-75, Dearborn Ramps to I-94 (McGraw)	351	325	330
SB I-75, Vernor to Dearborn Ramps	249	226	221
SB I-75, I-94 (McGraw) to Dearborn Ramps	347	322	316
PM Peak Hour			
NB I-75, Dearborn Ramps to 14th	295	264	270
NB I-75, Dearborn Ramps to I-94 (McGraw)	359	328	338
SB I-75, Vernor to Dearborn Ramps	255	238	241
SB I-75, I-94 (McGraw) to Dearborn Ramps	353	333	338

Source: VISSIM, Parsons Transportation Group

Appendix A

Crossing Volume Assignments
2015 and 2035

Table A-1
2035 AM Peak Hour Single-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	182	319	260	n/a	760	186	1,122	1,736	n/a	3,044	368	1,441	1,995	n/a	3,804
	X-10: #A01, #A02, #A16	176	271	112	203	762	170	849	1,163	865	3,048	346	1,120	1,275	1,068	3,810
	X-10: Preferred Alternative	176	270	110	207	763	170	852	1,165	860	3,048	347	1,122	1,275	1,067	3,811
Trucks	No Build	189	81	453	n/a	723	361	75	453	n/a	888	549	155	906	n/a	1,611
	X-10: #A01, #A02, #A16	156	26	124	418	723	317	16	7	548	888	474	42	130	966	1,611
	X-10: Preferred Alternative	157	26	123	418	723	317	16	9	546	888	474	41	132	964	1,611
Total	No Build	371	399	713	n/a	1,483	547	1,197	2,189	n/a	3,932	917	1,596	2,902	n/a	5,415
	X-10: #A01, #A02, #A16	333	296	236	621	1,485	487	865	1,170	1,414	3,936	820	1,161	1,405	2,034	5,421
	X-10: Preferred Alternative	333	296	232	625	1,486	487	868	1,174	1,407	3,936	820	1,164	1,407	2,032	5,423
PCEs	No Build	654	521	1,393	n/a	2,568	1,088	1,309	2,868	n/a	5,264	1,742	1,829	4,261	n/a	7,832
	X-10: #A01, #A02, #A16	567	335	421	1,247	2,570	963	889	1,180	2,236	5,268	1,530	1,224	1,601	3,483	7,838
	X-10: Preferred Alternative	568	334	416	1,253	2,571	963	892	1,188	2,226	5,269	1,531	1,226	1,604	3,479	7,840

Table A-2
2035 AM Peak Hour Single-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S.						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	41	75	71	128	112	203	107	439	1,056	426	1,163	865	1,275	1,068
	X10: Preferred	41	85	69	122	110	207	98	494	1,067	366	1,165	860	1,275	1,067
Trucks	X-10: #A01, #A02, #A16	42	312	82	105	124	418	0	354	7	194	7	548	130	966
	X10: Preferred	41	315	82	103	123	418	0	365	9	182	9	546	132	964
Total	X-10: #A01, #A02, #A16	83	388	153	233	236	621	107	793	1,062	621	1,170	1,414	1,405	2,034
	X10: Preferred	82	400	150	225	232	625	98	859	1,076	548	1,174	1,407	1,407	2,032
PCEs	X-10: #A01, #A02, #A16	145	856	275	391	421	1,247	107	1,324	1,072	912	1,180	2,236	1,601	3,483
	X10: Preferred	144	872	272	380	416	1,253	98	1,406	1,090	820	1,188	2,226	1,604	3,479

Table A-3
2035 Midday Peak Hour Single-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	435	594	691	n/a	1,719	332	411	661	n/a	1,404	766	1,005	1,352	n/a	3,123
	X-10: #A01, #A02, #A16	410	595	302	413	1,719	320	351	535	199	1,404	730	946	836	611	3,124
	X-10: Preferred Alternative	410	593	299	418	1,719	320	351	527	206	1,404	730	943	826	624	3,124
Trucks	No Build	505	282	722	n/a	1,509	297	61	504	n/a	862	802	343	1,226	n/a	2,371
	X-10: #A01, #A02, #A16	427	83	264	736	1,509	278	19	139	426	862	704	101	404	1,162	2,371
	X-10: Preferred Alternative	427	83	260	740	1,509	278	19	139	426	862	704	101	399	1,167	2,371
Total	No Build	940	876	1,413	n/a	3,229	628	472	1,165	n/a	2,266	1,568	1,348	2,579	n/a	5,495
	X-10: #A01, #A02, #A16	837	677	566	1,149	3,229	598	370	674	625	2,266	1,435	1,047	1,240	1,773	5,495
	X-10: Preferred Alternative	837	675	559	1,158	3,229	598	369	667	633	2,266	1,434	1,045	1,225	1,791	5,495
PCEs	No Build	1,698	1,299	2,496	n/a	5,493	1,073	563	1,922	n/a	3,558	2,771	1,863	4,418	n/a	9,051
	X-10: #A01, #A02, #A16	1,477	801	962	2,253	5,493	1,014	398	883	1,264	3,559	2,491	1,199	1,845	3,517	9,052
	X-10: Preferred Alternative	1,477	799	949	2,269	5,493	1,014	398	876	1,272	3,559	2,491	1,197	1,824	3,540	9,052

Table A-4
2035 Midday Peak Hour Single-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S.						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	72	222	229	191	302	413	62	168	473	30	535	199	836	611
	X10: Preferred	69	250	230	167	299	418	58	177	469	30	527	206	826	624
Trucks	X-10: #A01, #A02, #A16	141	511	123	225	264	736	0	310	139	116	139	426	404	1,162
	X10: Preferred	141	517	119	223	260	740	0	311	139	115	139	426	399	1,167
Total	X-10: #A01, #A02, #A16	213	733	353	416	566	1,149	62	478	612	147	674	625	1,240	1,773
	X10: Preferred	210	767	349	391	559	1,158	58	487	608	145	667	633	1,225	1,791
PCEs	X-10: #A01, #A02, #A16	424	1,498	538	754	962	2,253	62	942	821	322	883	1,264	1,845	3,517
	X10: Preferred	421	1,543	527	725	949	2,269	58	954	817	318	876	1,272	1,824	3,540

Table A-5
2035 PM Peak Hour Single-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	462	1,353	1,824	n/a	3,638	489	421	674	n/a	1,584	951	1,773	2,498	n/a	5,222
	X-10: #A01, #A02, #A16	413	999	843	1,384	3,639	463	356	517	248	1,584	876	1,355	1,360	1,632	5,223
	X-10: Preferred Alternative	413	994	837	1,395	3,638	463	355	510	256	1,584	876	1,349	1,347	1,651	5,223
Trucks	No Build	501	123	750	n/a	1,374	388	14	383	n/a	786	889	137	1,134	n/a	2,160
	X-10: #A01, #A02, #A16	356	41	224	752	1,374	355	1	82	349	786	711	42	306	1,101	2,160
	X-10: Preferred Alternative	357	41	223	753	1,374	355	1	76	354	786	711	42	299	1,108	2,160
Total	No Build	963	1,476	2,574	n/a	5,012	877	435	1,058	n/a	2,370	1,840	1,911	3,632	n/a	7,382
	X-10: #A01, #A02, #A16	769	1,040	1,067	2,136	5,013	818	357	598	597	2,370	1,587	1,397	1,666	2,733	7,383
	X-10: Preferred Alternative	770	1,035	1,060	2,148	5,013	818	356	586	610	2,370	1,587	1,391	1,646	2,758	7,383
PCEs	No Build	1,714	1,660	3,700	n/a	7,074	1,459	456	1,633	n/a	3,549	3,173	2,117	5,332	n/a	10,622
	X-10: #A01, #A02, #A16	1,303	1,102	1,404	3,265	7,074	1,350	358	721	1,119	3,549	2,653	1,461	2,125	4,384	10,623
	X-10: Preferred Alternative	1,304	1,097	1,394	3,278	7,074	1,350	357	700	1,142	3,549	2,654	1,455	2,094	4,420	10,623

Table A-6
2035 PM Peak Hour Single-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S.						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	218	403	625	981	843	1,384	101	224	416	24	517	248	1,360	1,632
	X10: Preferred	218	496	619	899	837	1,395	102	233	408	23	510	256	1,347	1,651
Trucks	X-10: #A01, #A02, #A16	52	606	173	146	224	752	41	239	41	110	82	349	306	1,101
	X10: Preferred	50	645	173	109	223	753	41	264	35	90	76	354	299	1,108
Total	X-10: #A01, #A02, #A16	270	1,009	798	1,127	1,067	2,136	142	463	457	134	598	597	1,666	2,733
	X10: Preferred	267	1,141	792	1,008	1,060	2,148	143	498	443	113	586	610	1,646	2,758
PCEs	X-10: #A01, #A02, #A16	347	1,919	1,057	1,346	1,404	3,265	203	821	518	299	721	1,119	2,125	4,384
	X10: Preferred	342	2,108	1,052	1,171	1,394	3,278	205	894	495	248	700	1,142	2,094	4,420

Table A-7
2035 AM Peak Hour Nested-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	218	255	286	n/a	760	239	1,060	1,744	n/a	3,044	457	1,316	2,031	n/a	3,804
	X-10: #A01, #A02, #A16	206	194	210	150	760	214	633	1,191	1,007	3,046	420	827	1,401	1,157	3,806
	X-10: Preferred Alternative	206	193	209	152	760	214	634	1,184	1,015	3,046	420	826	1,393	1,167	3,806
Trucks	No Build	222	15	486	n/a	723	332	13	544	n/a	888	554	27	1,030	n/a	1,611
	X-10: #A01, #A02, #A16	154	8	270	291	723	219	6	313	350	888	373	14	584	641	1,611
	X-10: Preferred Alternative	154	8	270	292	723	218	6	314	350	888	372	14	584	642	1,611
Total	No Build	441	270	773	n/a	1,483	571	1,073	2,288	n/a	3,932	1,011	1,343	3,061	n/a	5,415
	X-10: #A01, #A02, #A16	360	201	480	441	1,483	433	640	1,505	1,357	3,934	793	841	1,985	1,798	5,417
	X-10: Preferred Alternative	360	200	479	444	1,483	432	640	1,498	1,365	3,934	792	840	1,977	1,808	5,417
PCEs	No Build	774	292	1,502	n/a	2,568	1,069	1,092	3,104	n/a	5,264	1,842	1,384	4,605	n/a	7,832
	X-10: #A01, #A02, #A16	591	213	886	877	2,568	760	649	1,975	1,882	5,266	1,352	862	2,861	2,760	7,834
	X-10: Preferred Alternative	591	212	884	881	2,568	759	649	1,968	1,890	5,266	1,350	861	2,852	2,771	7,834

Table A-8
2035 AM Peak Hour Nested-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S. (Peak Direction)						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	46	51	164	99	210	150	168	320	1,024	688	1,191	1,007	1,401	1,157
	X10: Preferred	46	57	163	95	209	152	165	364	1,019	651	1,184	1,015	1,393	1,167
Trucks	X-10: #A01, #A02, #A16	120	182	150	109	270	291	135	244	178	106	313	350	584	641
	X10: Preferred	120	185	150	107	270	292	135	248	178	102	314	350	584	642
Total	X-10: #A01, #A02, #A16	167	233	314	208	480	441	303	564	1,202	793	1,505	1,357	1,985	1,798
	X10: Preferred	166	242	313	202	479	444	300	611	1,197	753	1,498	1,365	1,977	1,808
PCEs	X-10: #A01, #A02, #A16	347	506	539	371	886	877	505	930	1,469	952	1,975	1,882	2,861	2,760
	X10: Preferred	346	518	538	362	884	881	503	983	1,464	907	1,968	1,890	2,852	2,771

Table A-9
2035 Midday Peak Hour Nested-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	528	662	530	n/a	1,719	426	438	540	n/a	1,404	955	1,099	1,070	n/a	3,124
	X-10: #A01, #A02, #A16	491	480	407	341	1,719	401	337	388	278	1,405	892	818	795	619	3,124
	X-10: Preferred Alternative	491	480	405	344	1,719	401	337	387	280	1,405	892	817	792	624	3,124
Trucks	No Build	478	34	997	n/a	1,509	255	16	592	n/a	863	733	51	1,588	n/a	2,372
	X-10: #A01, #A02, #A16	309	18	570	612	1,509	177	9	342	335	863	486	27	912	947	2,372
	X-10: Preferred Alternative	309	18	570	612	1,509	177	9	342	335	863	486	27	912	947	2,372
Total	No Build	1,006	696	1,526	n/a	3,229	681	454	1,132	n/a	2,267	1,687	1,150	2,658	n/a	5,496
	X-10: #A01, #A02, #A16	801	499	977	953	3,229	578	346	730	613	2,268	1,378	845	1,707	1,566	5,496
	X-10: Preferred Alternative	800	498	975	956	3,229	578	346	729	615	2,268	1,378	843	1,704	1,571	5,496
PCEs	No Build	1,724	747	3,022	n/a	5,493	1,063	479	2,019	n/a	3,561	2,786	1,226	5,041	n/a	9,053
	X-10: #A01, #A02, #A16	1,265	526	1,832	1,870	5,493	843	360	1,243	1,116	3,561	2,108	885	3,075	2,986	9,054
	X-10: Preferred Alternative	1,264	525	1,830	1,874	5,493	843	359	1,242	1,117	3,561	2,108	884	3,072	2,991	9,054

Table A-10
2035 Midday Peak Hour Nested-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S. (Peak Direction)						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	102	140	305	201	407	341	78	128	310	151	388	278	795	619
	X10: Preferred	101	158	304	186	405	344	78	137	309	143	387	280	792	624
Trucks	X-10: #A01, #A02, #A16	237	461	333	150	570	612	116	223	225	111	342	335	912	947
	X10: Preferred	237	461	333	150	570	612	116	223	225	111	342	335	912	947
Total	X-10: #A01, #A02, #A16	339	602	638	351	977	953	195	351	535	262	730	613	1,707	1,566
	X10: Preferred	338	620	636	337	975	956	194	360	535	255	729	615	1,704	1,571
PCEs	X-10: #A01, #A02, #A16	695	1,294	1,137	577	1,832	1,870	370	686	873	429	1,243	1,116	3,075	2,986
	X10: Preferred	695	1,312	1,135	562	1,830	1,874	369	695	873	422	1,242	1,117	3,072	2,991

Table A-11
2035 PM Peak Hour Nested-Logit Crossing Assignments: All Crossings
Detroit River International Crossing Study

	Network	US to Canada					Canada to US					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build	521	1,510	1,607	n/a	3,638	589	329	666	n/a	1,584	1,110	1,839	2,273	n/a	5,222
	X-10: #A01, #A02, #A16	471	1,045	1,033	1,090	3,638	549	247	466	323	1,585	1,019	1,292	1,499	1,413	5,223
	X-10: Preferred Alternative	470	1,040	1,025	1,103	3,638	549	247	465	324	1,585	1,019	1,287	1,490	1,427	5,223
Trucks	No Build	520	26	828	n/a	1,374	328	9	448	n/a	786	848	35	1,277	n/a	2,160
	X-10: #A01, #A02, #A16	332	13	469	560	1,374	232	5	264	285	786	563	18	733	845	2,160
	X-10: Preferred Alternative	329	13	470	561	1,374	232	5	264	285	786	561	18	734	846	2,160
Total	No Build	1,042	1,536	2,435	n/a	5,012	917	338	1,114	n/a	2,370	1,959	1,874	3,549	n/a	7,382
	X-10: #A01, #A02, #A16	802	1,058	1,502	1,650	5,012	780	252	730	608	2,371	1,583	1,310	2,232	2,258	7,383
	X-10: Preferred Alternative	799	1,053	1,496	1,664	5,012	781	252	729	609	2,371	1,580	1,305	2,224	2,273	7,383
PCEs	No Build	1,822	1,574	3,678	n/a	7,074	1,410	352	1,787	n/a	3,549	3,232	1,926	5,464	n/a	10,622
	X-10: #A01, #A02, #A16	1,300	1,078	2,206	2,491	7,074	1,128	259	1,127	1,035	3,549	2,428	1,337	3,332	3,526	10,623
	X-10: Preferred Alternative	1,293	1,073	2,201	2,506	7,074	1,129	259	1,124	1,037	3,549	2,422	1,333	3,325	3,543	10,623

Table A-12
2035 PM Peak Hour Nested-Logit Directional Crossing Assignments: Ambassador Bridge and Proposed DRIC Crossing
Detroit River International Crossing Study

	Network	U.S. to Canada						Canada to U.S. (Peak Direction)						Total	
		from I-75 Northbound		from I-75/I-96 Southbound		Total		to I-75 Southbound		to I-75/I-96 Northbound		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	X-10: #A01, #A02, #A16	211	311	821	780	1,033	1,090	117	152	349	171	466	323	1,499	1,413
	X10: Preferred	215	385	811	718	1,025	1,103	116	160	349	165	465	324	1,490	1,427
Trucks	X-10: #A01, #A02, #A16	237	427	232	133	469	560	139	220	125	65	264	285	733	845
	X10: Preferred	239	437	232	124	470	561	139	224	125	61	264	285	734	846
Total	X-10: #A01, #A02, #A16	448	738	1,054	913	1,502	1,650	256	372	475	236	730	608	2,232	2,258
	X10: Preferred	453	822	1,042	842	1,496	1,664	255	383	474	226	729	609	2,224	2,273
PCEs	X-10: #A01, #A02, #A16	803	1,379	1,403	1,112	2,206	2,491	464	703	663	332	1,127	1,035	3,332	3,526
	X10: Preferred	811	1,478	1,390	1,028	2,201	2,506	463	719	661	318	1,124	1,037	3,325	3,543

Appendix B

Network Changes Memorandum

Detroit River International Crossing Study
Network Changes Memorandum (Revised November 10, 2008)

1. Introduction

The DRIC network used in the Level 2 Traffic Analysis Report (TAR) has been revised and refined prior to analyzing the Preferred Alternative. The network changes are described in Attachment 1 to this report. For No Build conditions, the 2004 assignments with the network documented in the Level 2 Traffic Analysis Report (TAR), and the revised network, are virtually the same for the AM and PM peaks. In the Midday peak, 35 cars in the U.S.-to Canada direction shift from the Ambassador Bridge to the Detroit Windsor Tunnel (the Tunnel) as a result of a revised entrance link to the Ambassador Bridge's Canadian plaza.[4] This represents two percent of total international cars, and 0.7 percent of total traffic as measured in passenger car equivalents (PCEs) for this peak. This is not significant (refer to Attachments 2 and 5).

2. Single-Logit Model

The first set of comparisons of traffic assignments is with the single-logit model.

2.1 Crossing X-11 Comparison of 2035 Traffic Data

Table 1 provides a summary of the detailed 2035 traffic information provided in Attachment 3. In the AM peak, there is a shift of 4 cars and about 60 trucks from the proposed DRIC crossing to the Ambassador Bridge (O blue oval). This occurs because of network revisions on the I-75 mainline for the interchange with the Gateway Project, as northbound I-75 diverges to I-96 westbound, and southbound I-75 merges with I-96 eastbound. Changes were also made to the collector/distributor for northbound I-75 just past the I-96 interchange (three to two lanes) and to the westbound exit of I-96 at the I-94 interchange (from one to two lanes) (see Attachment 1, page B-12, Note 4). The decrease in capacity on this link increases the congested travel time for northbound traffic, including international trucks traveling northbound from the proposed DRIC crossing. Canada-to-US traffic on the Ambassador Bridge avoids this congested link, therefore inducing the AM peak shifts documented in Table 1.

The effect of the network revisions on the Midday and PM peak crossing assignments results in a two to four percent decrease in traffic on the Ambassador Bridge (O red oval) accompanied by a three to five percent increase on the proposed DRIC crossing (O green oval).

Across the three peak periods, total traffic on the Ambassador Bridge and the proposed DRIC crossing would be about one percent from one network to another. Considering the nature of the models and how variances occur as large databases are disaggregated, this difference is not considered significant. Detailed data are included in Attachment 3.

[4] See Attachment 1, page B-11. This revision prohibits vehicles from directly exiting to Wyandotte Street. This exit was used by a small portion of car traffic headed for Downtown Windsor. The traffic must now exit the Canadian plaza onto Huron Church Road and then immediately turn right onto Wyandotte Street, adding approximately 30 seconds to this particular path to downtown. The revisions have been applied to all networks for all model years.

Table 1
Change in 2035 Two-way Crossing Traffic
(Revised Network Traffic Minus Level 2 TAR Network Traffic)
Crossing X-11 Alternatives #7, #9 and #11 Using Single-logit Model

AM Peak	AMB	New	
Cars	+4/0%	-4/1%	Note: Almost all of the change occurs in Canada-to-U.S. direction.
Trucks	+63/19%	-61/8%	
Total	+67/3%	-65/5%	
PCEs	+162/7%	-157/6%	
Midday Peak			
Cars	-26/3%	+17/5%	
Trucks	-18/2%	+21/3%	
Total	-44/2%	+38/4%	
PCEs	-71/2%	+70/3%	
PM Peak			
Cars	-47/3%	+59/5%	Note: Almost all of the change occurs in U.S.-to-Canada direction.
Trucks	-23/4%	+34/4%	
Total	-70/3%	+93/5%	
PCEs	-105/3%	+144/4%	

Source: The Corradino Group of Michigan, Inc.

2.2 Crossing X-10 Comparison of 2035 Data

The greatest variability in 2035 traffic is in the PM peak with 227 more cars on the new crossing (○ blue oval) and 214 fewer cars on the Ambassador Bridge (○ red oval) (Table 2). Again, this shift is due to the network revisions on I-75 at the Gateway and the increased capacity of the interchange ramps between the proposed DRIC crossing plaza and I-75.

Table 2
Change in 2035 Two-way Crossing Traffic
(Revised Network Traffic Minus Level 2 TAR Network Traffic)
Crossing X-10 Alternatives #1, #2, #3, #14 and #16 Using Single-logit Model

AM Peak	AMB	New	
Cars	+46/4%	-36/3%	Note: Almost all of the change occurs in Canada-to-U.S. direction.
Trucks	+2/2%	+2/0%	
Total	+48/4%	-34/2%	
PCEs	+51/3%	-31/1%	
Midday			
Cars	-39/4%	+15/3%	
Trucks	-5/1%	+24/2%	
Total	-44/3%	+39/2%	
PCEs	-52/2%	+75/2%	
PM Peak			
Cars	-214/14%	+227/16%	Note: Almost all of the change occurs in U.S.-to-Canada direction.
Trucks	+7/2%	+9/1%	
Total	-207/11%	+236/9%	
PCEs	-197/8%	+250/6%	

Source: The Corradino Group of Michigan, Inc.

With the Revised Network, the Crossing X-10 Alternative in the PM peak hour in 2035 is now expected to attract 227 more cars than the Level 2 TAR Network. It is projected that all of these cars are headed to Canada via Crossing X-10 from the I-75/I-96 direction per the data included in Attachment 4 - Table 4-1D. The model also forecasts 142 of these cars from the I-75/I-96 direction would shift from the Ambassador Bridge crossing to Crossing X-10 based on the network revisions. The 142 cars, however, would have already been on the road network in the southbound direction prior to the Gateway/Ambassador Bridge ramps. This would result in 87 net-new passenger car trips southbound in the PM peak hour on the section of I-75 from the Gateway ramps/Ambassador Bridge to the Crossing X-10 plaza ramps.

The increases/decreases that make up the balance of 227 cars now attracted to Crossing X-10 moving in other directions are not considered significant in terms of additional volumes on specific links.

The data in Attachment 4 also indicate that 11 trucks in the southbound I-75 section between the Gateway Ramps/Ambassador Bridge and the Crossing X-10 plaza ramps will shift back to the Ambassador Bridge using the new network.

This southbound segment of I-75 between the Ambassador Bridge and the new crossing was reviewed against the HCS runs from the Level 2 TAR. The 87 new car trips, minus the 11 trucks, or the equivalent of a net increase of 60 PCEs, will not have a significant effect on the level of service already provided in the southbound direction in the year 2035. Mainline, merge, diverge, and weaving operations can adequately handle these trips and offer excess capacity on the freeway mainline, ramps, and plaza ramps to accommodate this and other potential shifts in future traffic patterns.

Detailed analysis of the revised network and the Preferred Alternative using HCS and VISSIM microsimulations will document these observations.

2.3 Findings

The findings that arise from reviewing these data for the single-logit model are:

1. *No calibration issues arise with a revised network.* The 2004 and future-year No Build networks perform the same for the AM and PM peak periods. During the Midday peak period, there are 35 more cars in the US-to-Canadian direction on the Ambassador Bridge as a result of the revision of the bridge's Canadian plaza link to Wyandotte Street.

2. *There are no significant differences between networks and the network* changes cause no new congestion issues.

   - The network revisions for the X-11 crossing result in an eight percent decrease in the number of trucks (61 trucks) during the AM peak, but three to five percent increases in both cars and trucks in the Midday (21 cars and 38 trucks) and PM peaks (34 cars and 93 trucks). When all three peaks are

combined, there is virtually no difference in Crossing X-11 in 2035 traffic between networks.

- The X-10 Crossing gains traffic in 2035 in the PM peak with the revised network is 236 vehicles, or an increase of nine percent. The gains in 2035 total traffic are usually two percent or less in the AM and Midday peaks. These changes for all three peak periods with the revised network amount to less than 5 percent variation in crossing assignments on each of the Ambassador Bridge and the proposed new crossing.

3. *The network revisions reinforce the conclusion reached earlier that Crossing X-10 carries more traffic than Crossing X-11 as reflected in Attachments 3 and 4.*

3. Nested-Logit Model

The following information applies to the alternative assignments using the nested-logit model. The data in Attachment 5 indicate No Build assignments for 2004 for the network in the Level 2 TAR and the revised network are virtually identical. Therefore, no re-calibration is needed.

3.1 Crossing X-11 and X-10 Comparison of 2035 Traffic Data

Table 3 provides Crossing X-11 traffic data for 2035. Complete data sets are in Attachment 6. The data indicate there is no difference greater than four percent in assignments for cars, one percent for trucks, and two percent for total traffic for AM, Midday, and PM peaks. Most vehicle assignment differences are in single digits.

Table 4 shows Crossing X-10 data for 2035. Complete data sets are provided in Attachment 7. Again, the vehicle assignments in the three periods of the day by vehicle type and total traffic, as well as PCEs, are almost identical between networks.

3.2 Findings

The findings are that network revisions depicted in Attachment 1 cause no meaningful changes in nested-logit assignments by vehicle type in any time period in 2035. This is because the nested-logit assignment is less sensitive to small changes in travel time, as compared to the single-logit model. The revised network will now be used to analyze the Preferred Alternative.

Table 3
Change in 2035 Two-way Crossing Traffic
(Revised Network Traffic Minus Level 2 TAR Network Traffic)
Crossing X-11 Alternatives #7, #9 and #11 Using Nested-logit Model

AM Peak	AMB	New
Cars	+19/1%	-6/1%
Trucks	-1/0%	0/0%
Total	+18/1%	-6/0%
PCEs	+17/1%	-6/0%
Midday Peak		
Cars	-5/1%	+9/0%
Trucks	-2/0%	+4/0%
Total	-7/0%	+13/0%
PCEs	-10/0%	+19/1%
PM Peak		
Cars	-22/1%	+42/4%
Trucks	-4/1%	+5/1%
Total	-26/1%	+47/2%
PCEs	-32/1%	+55/2%

Source: The Corradino Group of Michigan, Inc.

Table 4
Change in 2035 Two-way Crossing Traffic
(Revised Network Traffic Minus Level 2 TAR Network Traffic)
Crossing X-10 Alternatives #1, #2, #3, #14 and #16 Using Nested-logit Model

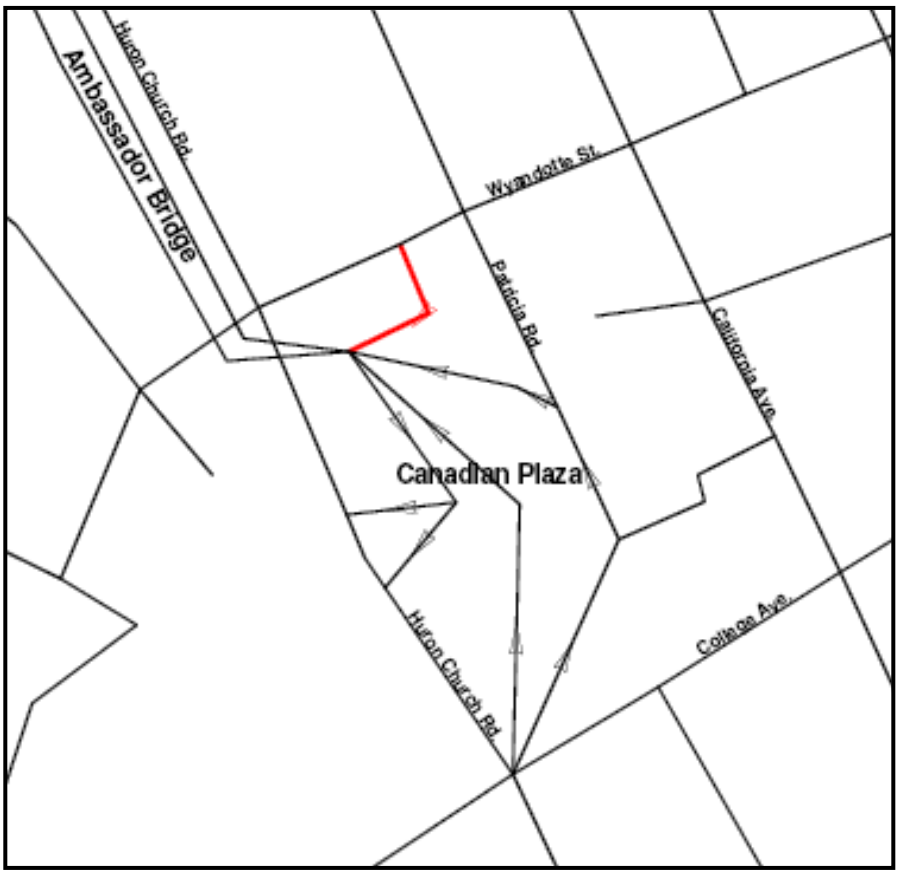
AM Peak	AMB	New
Cars	+18/1%	-5/0%
Trucks	0/0%	0/0%
Total	+18/1%	-5/0%
PCEs	+18/1%	-5/0%
Midday Peak		
Cars	-1/0%	+6/0%
Trucks	-1/0%	+3/0%
Total	-2/0%	+9/0%
PCEs	-4/0%	+14/0%
PM Peak		
Cars	-31/2%	+54/4%
Trucks	-5/1%	+5/1%
Total	-36/2%	+59/3%
PCEs	-44/1%	+67/2%

Source: The Corradino Group of Michigan, Inc.

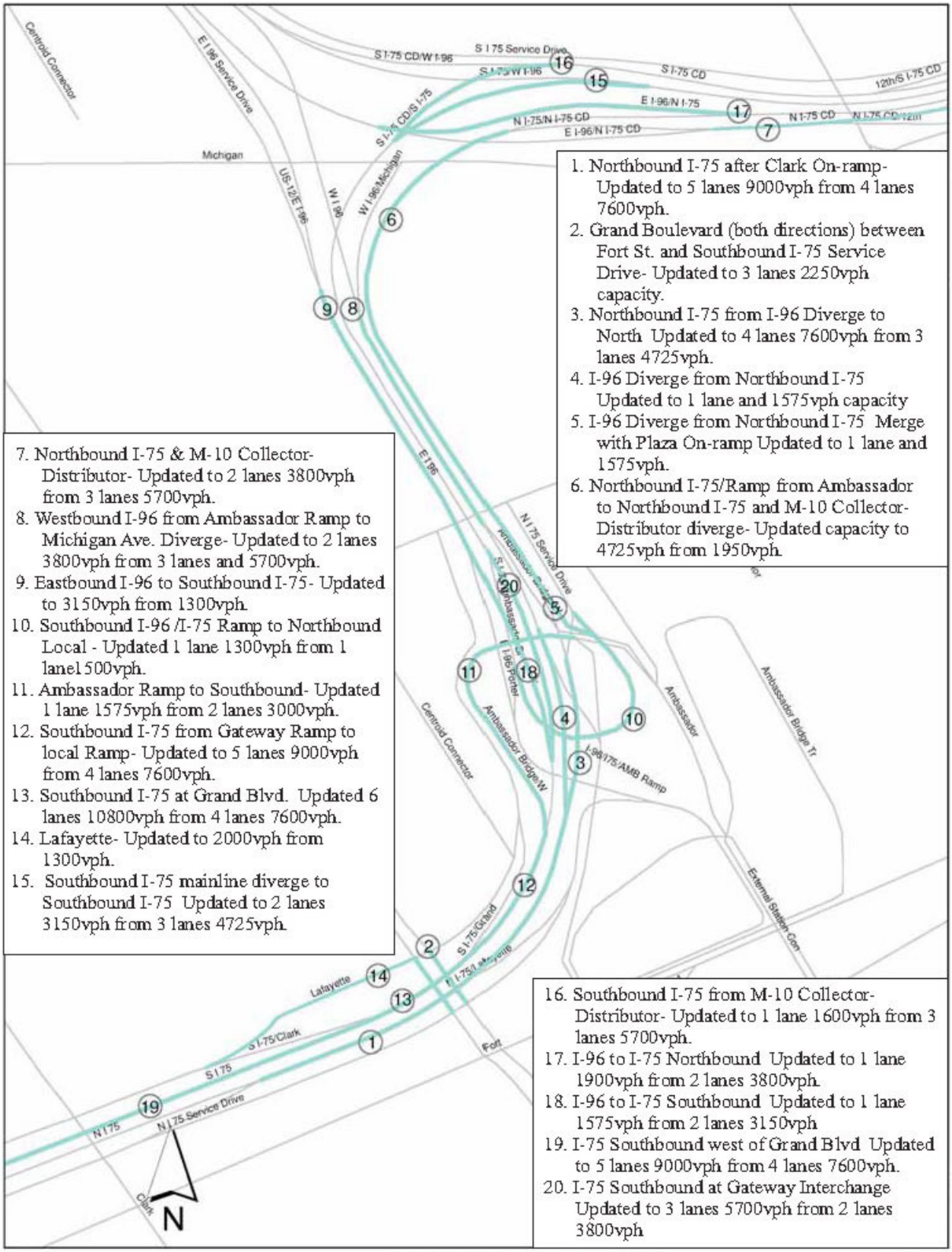
Attachment 1

Network Coding Revisions

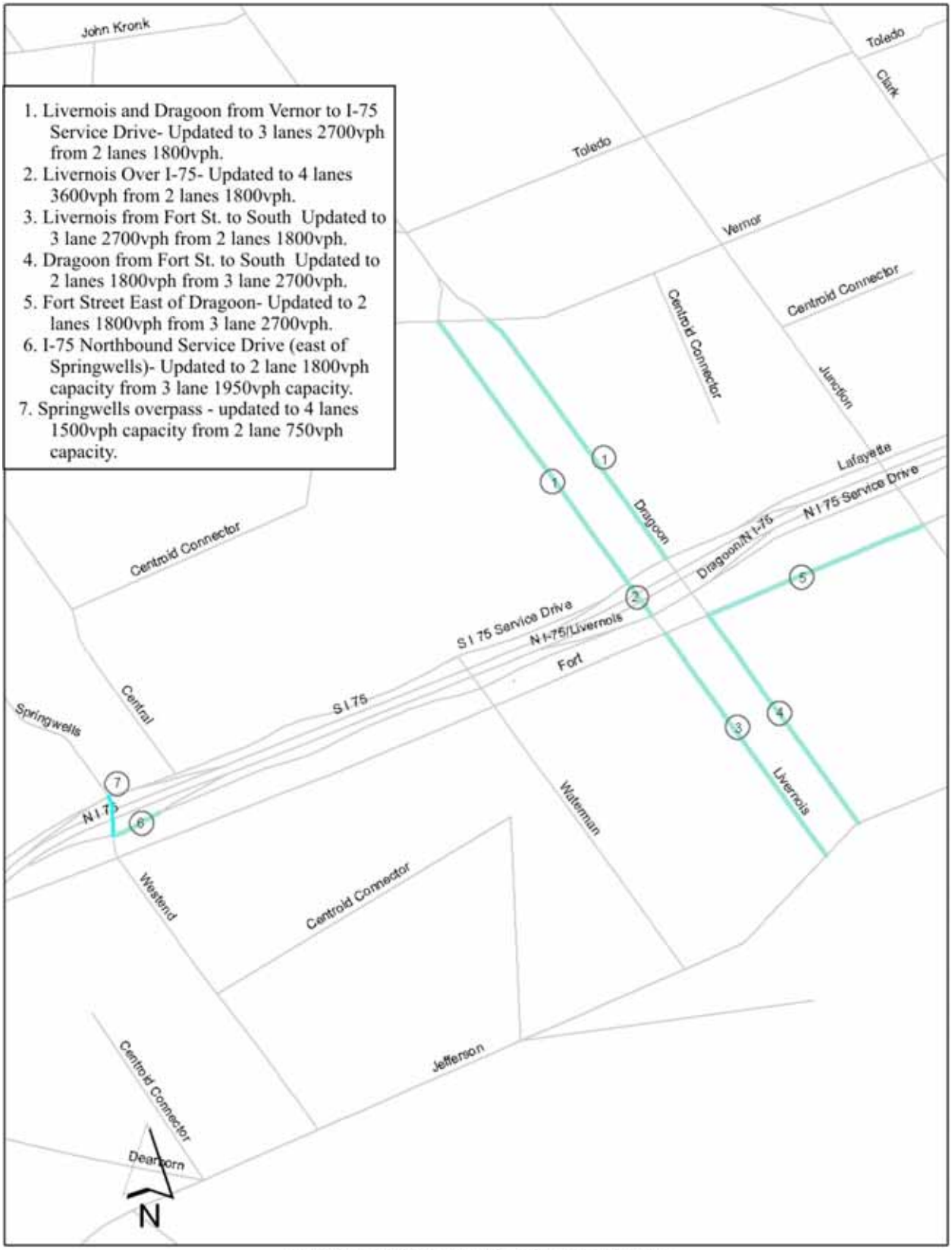
All Networks; All Years



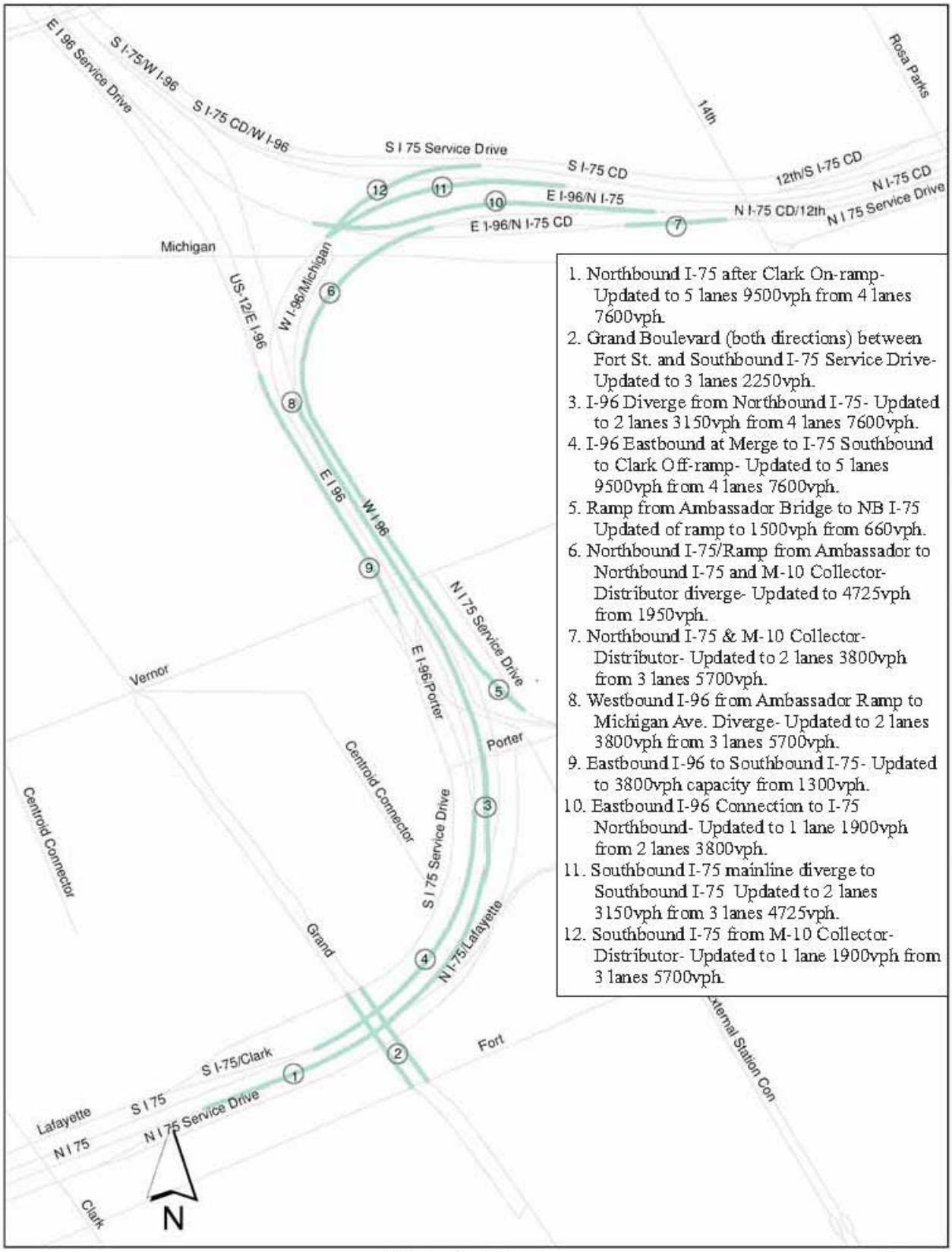
A link to the Canadian plaza of the Ambassador Bridge from Wyandotte Street (in red) was corrected to reflect its single-direction as an entrance only.



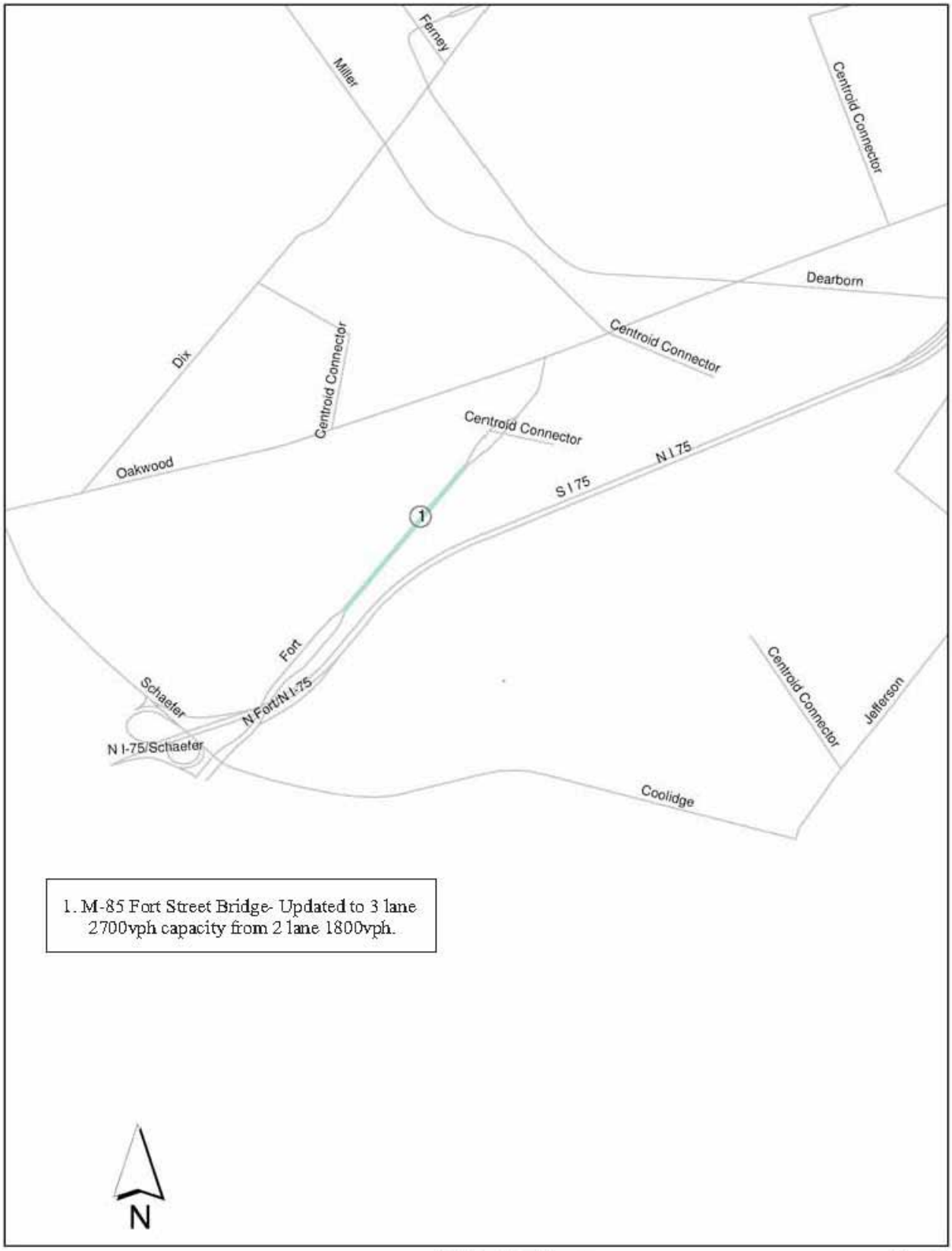
Alternative 2 and Alternative 9- 2035



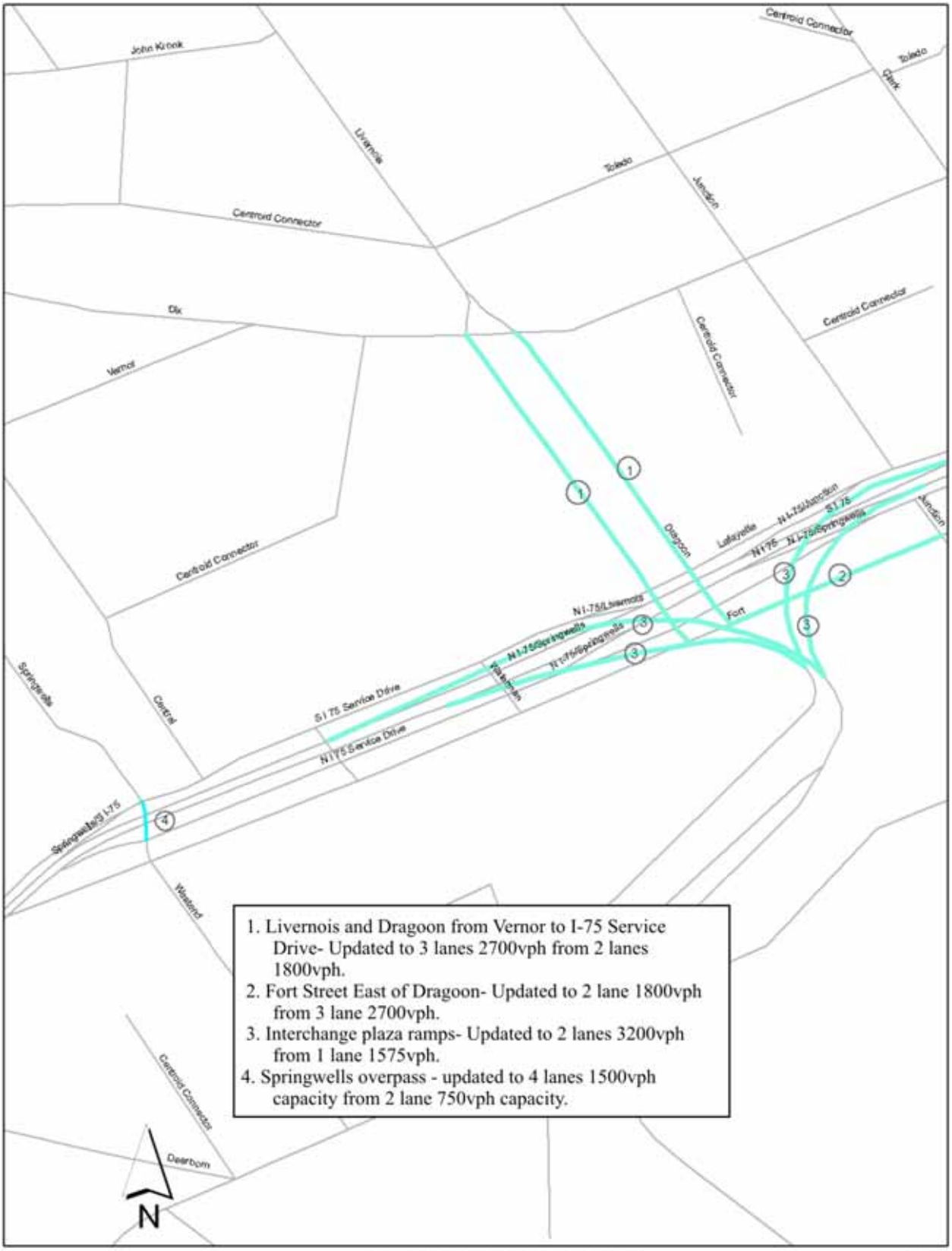
Existing Conditions/Future No Build Conditions



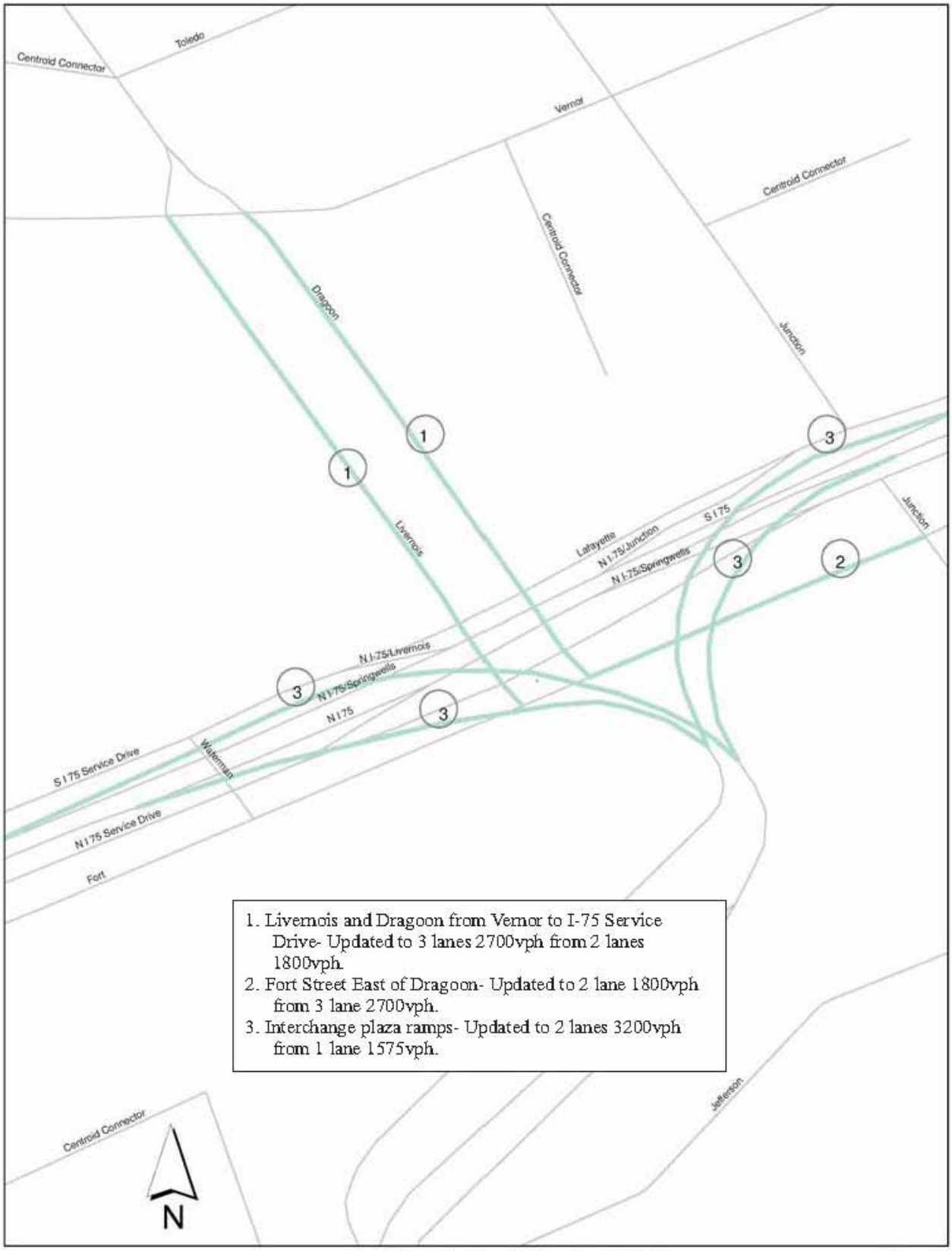
Existing Conditions



Existing Conditions



Alternative 2 and Alternative 9 -2035



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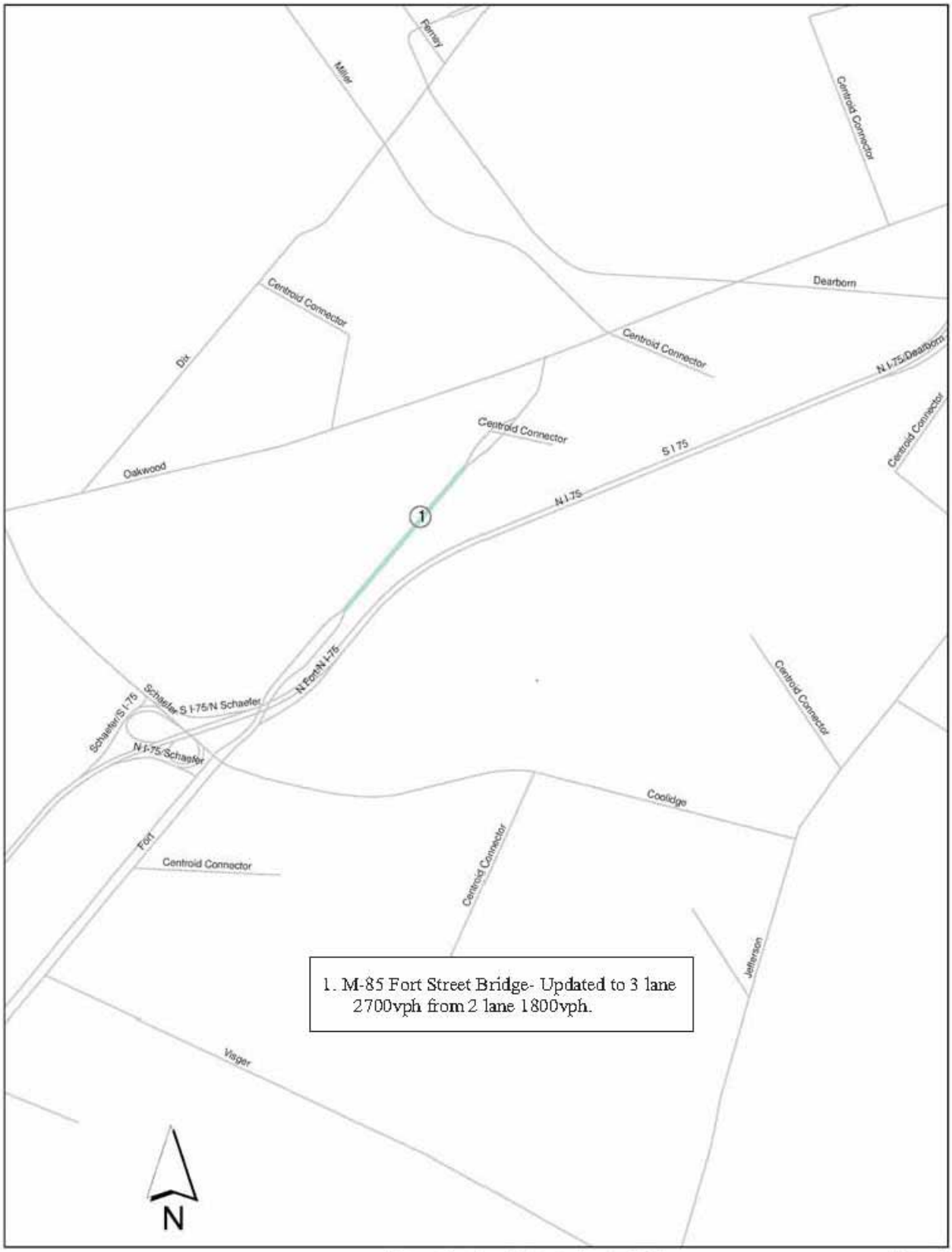
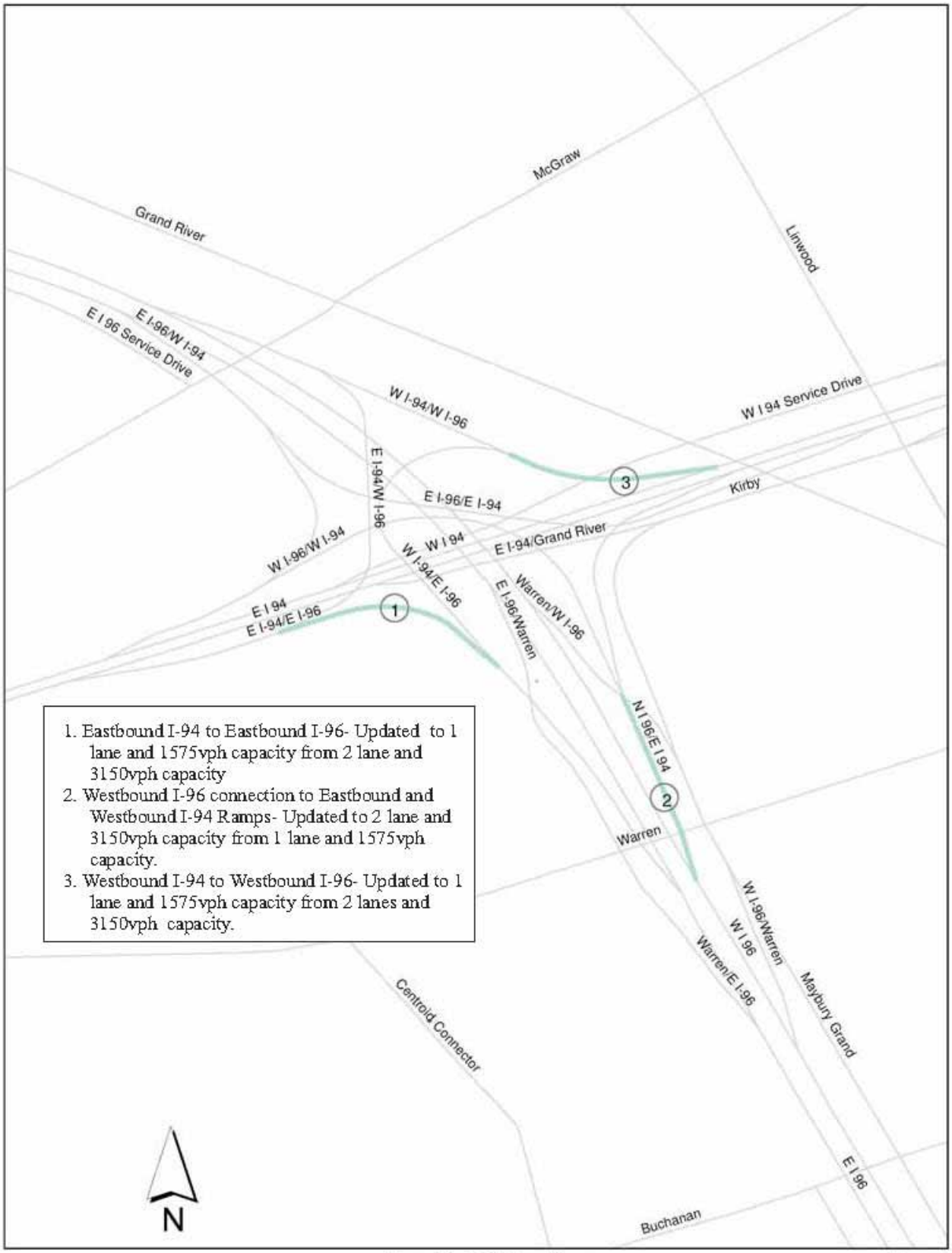
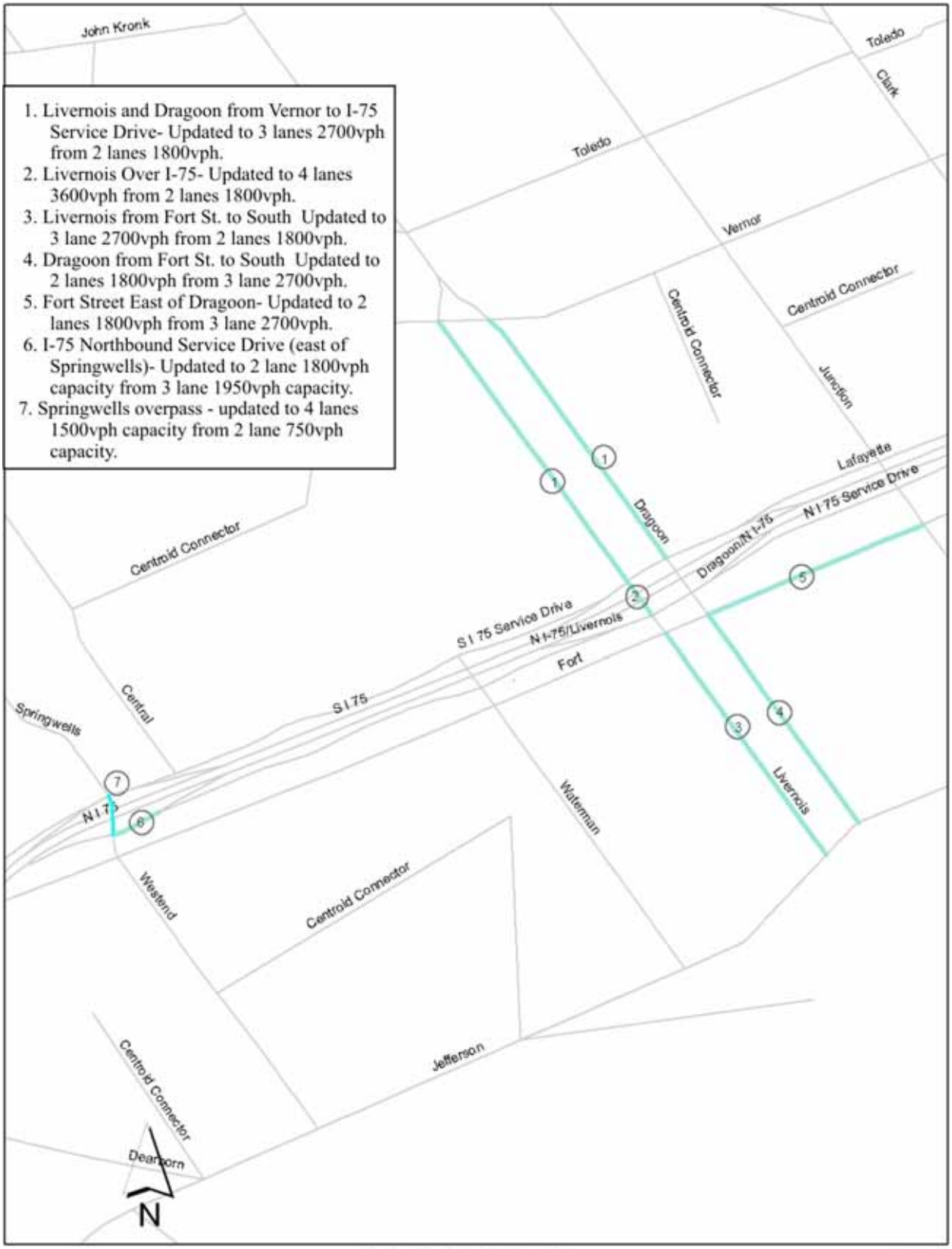


Alternative 2 and Alternative 9- 2035



Future No Build Conditions



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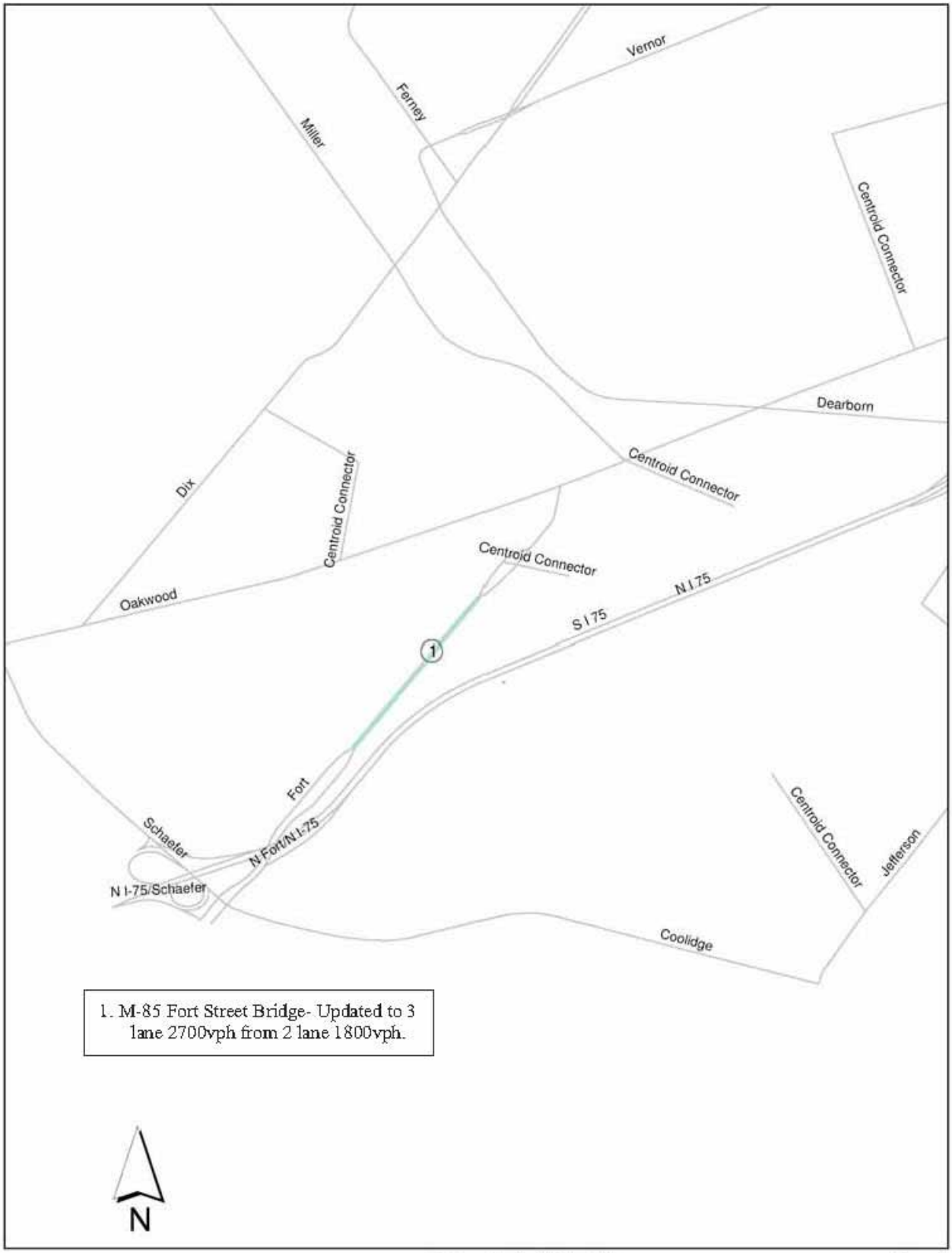

Future No Build Conditions

Attachment 2

2004 No Build Single-logit Traffic Volumes

Table 2-1

AM 2004 Peak Hour Volumes; Single-Logit Assignment Level 2 TAR Base Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	126	195	203	524	203	836	1,128	2,167	329	1,031	1,331	2,691
Trucks	2004 No Build	52	16	217	285	167	25	218	410	219	41	435	695
Total	2004 No Build	178	211	420	809	370	861	1,346	2,577	548	1,072	1,766	3,386
PCEs	2004 No Build	256	235	746	1,237	621	899	1,673	3,192	877	1,134	2,419	4,429

AM 2004 Peak Hour Volumes; Single-Logit Assignment; Revised Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	126	211	186	524	202	831	1,133	2,166	328	1,042	1,320	2,690
Trucks	2004 No Build	53	19	215	286	167	15	227	410	220	34	442	696
Total	2004 No Build	179	230	401	810	369	846	1,361	2,576	548	1,076	1,761	3,386
PCEs	2004 No Build	258	258	723	1,238	620	869	1,702	3,191	878	1,127	2,424	4,429

Table 2-2

MD 2004 Peak Hour Volumes; Single-Logit Assignment; Level 2 TAR Base Network

	Network	U.S.-to-Canada				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	285	413	411	1,109	232	312	347	891	517	725	758	2,000
Trucks	2004 No Build	183	38	388	609	134	11	250	395	317	49	638	1,004
Total	2004 No Build	468	451	799	1,718	366	323	597	1,286	834	774	1,396	3,004
PCEs	2004 No Build	743	508	1,381	2,632	567	340	972	1,879	1,310	848	2,353	4,510

MD 2004 Peak Hour Volumes; Single-Logit Assignment; Revised Network

	Network	U.S.-to-Canada				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	285	448	376	1,109	232	311	348	890	517	759	723	1,999
Trucks	2004 No Build	184	40	386	610	134	11	250	395	317	52	636	1,005
Total	2004 No Build	469	488	761	1,719	366	322	598	1,285	834	811	1,359	3,004
PCEs	2004 No Build	745	549	1,340	2,633	566	339	973	1,878	1,311	888	2,312	4,511

Table 2-3

PM 2004 Peak Hour Volumes; Single-Logit Assignment; Level 2 TAR Base Network

	Network	U.S.-to-Canada (Peak)				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	374	919	1,156	2,449	307	302	379	988	681	1,221	1,535	3,437
Trucks	2004 No Build	164	16	379	559	155	3	202	360	319	19	581	919
Total	2004 No Build	538	935	1,535	3,008	462	305	581	1,348	1,000	1,240	2,116	4,356
PCEs	2004 No Build	784	959	2,104	3,847	695	310	884	1,888	1,479	1,269	2,988	5,735

PM 2004 Peak Hour Volumes; Single-Logit Assignment; Revised Network

	Network	U.S.-to-Canada (Peak)				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	375	917	1,158	2,450	306	310	371	987	681	1,227	1,529	3,437
Trucks	2004 No Build	165	16	379	560	155	0	206	361	320	16	585	921
Total	2004 No Build	540	933	1,537	3,010	461	310	577	1,348	1,001	1,243	2,114	4,358
PCEs	2004 No Build	788	957	2,106	3,850	694	310	886	1,890	1,481	1,267	2,992	5,740

Attachment 3

2035 Single-logit Traffic Volumes
Crossing X-11
Alternatives #7, #9 and #11

Table 3-1A
AM 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S. (Peak)					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	182	305	273	n/a	760	186	1,150	1,709	n/a	3,045	368	1,455	1,982	n/a	3,805
	No Build (Rev. Net.)	182	319	260	n/a	760	186	1,122	1,736	n/a	3,044	368	1,441	1,995	n/a	3,804
	Alts 7, 9, 11 (L2 Net)	178	274	242	67	761	173	957	1,371	544	3,045	351	1,231	1,613	611	3,806
	Alts 7, 9, 11 (Rev. Net.)	177	289	225	69	760	172	942	1,392	538	3,045	350	1,231	1,617	607	3,805
Trucks	No Build (L2 Net)	191	78	454	n/a	723	361	63	465	n/a	889	552	141	919	n/a	1,612
	No Build (Rev. Net.)	189	81	453	n/a	723	361	75	453	n/a	888	549	155	906	n/a	1,611
	Alts 7, 9, 11 (L2 Net)	168	32	277	246	723	326	19	62	483	890	494	51	339	729	1,613
	Alts 7, 9, 11 (Rev. Net.)	167	31	277	248	723	324	19	125	420	888	491	50	402	668	1,611
Total	No Build (L2 Net)	373	383	727	n/a	1,483	547	1,213	2,174	n/a	3,934	920	1,596	2,901	n/a	5,417
	No Build (Rev. Net.)	371	399	713	n/a	1,483	547	1,197	2,189	n/a	3,932	917	1,596	2,902	n/a	5,415
	Alts 7, 9, 11 (L2 Net)	346	306	519	313	1,484	499	976	1,433	1,027	3,935	845	1,282	1,952	1,340	5,419
	Alts 7, 9, 11 (Rev. Net.)	344	321	501	317	1,483	496	961	1,517	958	3,933	841	1,282	2,019	1,275	5,416
PCEs	No Build (L2 Net)	660	500	1,408	n/a	2,568	1,089	1,308	2,872	n/a	5,268	1,748	1,808	4,280	n/a	7,835
	No Build (Rev. Net.)	654	521	1,393	n/a	2,568	1,088	1,309	2,868	n/a	5,264	1,742	1,829	4,261	n/a	7,832
	Alts 7, 9, 11 (L2 Net)	598	354	935	682	2,569	988	1,005	1,526	1,752	5,270	1,586	1,359	2,461	2,434	7,839
	Alts 7, 9, 11 (Rev. Net.)	594	368	916	690	2,568	983	989	1,706	1,588	5,265	1,577	1,357	2,622	2,278	7,833

Table 3-1B
MD 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	435	555	730	n/a	1,720	332	419	656	n/a	1,407	767	974	1,386	n/a	3,127
	No Build (Rev. Net.)	435	594	691	n/a	1,719	332	411	661	n/a	1,404	766	1,005	1,352	n/a	3,123
	Alts 7, 9, 11 (L2 Net)	415	621	452	230	1,718	323	371	563	147	1,404	738	992	1,015	377	3,122
	Alts 7, 9, 11 (Rev. Net.)	414	638	420	247	1,719	322	366	569	147	1,404	736	1,004	989	394	3,123
Trucks	No Build (L2 Net)	505	297	708	n/a	1,510	297	31	534	n/a	862	802	328	1,242	n/a	2,372
	No Build (Rev. Net.)	492	278	740	n/a	1,510	299	25	538	n/a	862	791	303	1,278	n/a	2,372
	Alts 7, 9, 11 (L2 Net)	447	115	482	465	1,509	283	28	318	234	863	730	143	800	699	2,372
	Alts 7, 9, 11 (Rev. Net.)	445	116	470	478	1,509	282	25	312	242	862	727	142	782	720	2,371
Total	No Build (L2 Net)	940	852	1,438	n/a	3,230	629	450	1,190	n/a	2,269	1,569	1,302	2,628	n/a	5,499
	No Build (Rev. Net.)	927	871	1,431	n/a	3,229	631	436	1,199	n/a	2,266	1,558	1,307	2,630	n/a	5,495
	Alts 7, 9, 11 (L2 Net)	862	736	934	695	3,227	606	399	881	381	2,267	1,468	1,135	1,815	1,076	5,494
	Alts 7, 9, 11 (Rev. Net.)	859	755	890	725	3,229	604	391	881	389	2,266	1,463	1,146	1,771	1,114	5,494
PCEs	No Build (L2 Net)	1,698	1,298	2,500	n/a	5,495	1,075	497	1,991	n/a	3,562	2,772	1,794	4,491	n/a	9,057
	No Build (Rev. Net.)	1,664	1,288	2,542	n/a	5,494	1,080	473	2,006	n/a	3,559	2,744	1,761	4,547	n/a	9,053
	Alts 7, 9, 11 (L2 Net)	1,533	909	1,657	1,393	5,491	1,031	441	1,358	732	3,562	2,563	1,350	3,015	2,125	9,052
	Alts 7, 9, 11 (Rev. Net.)	1,526	929	1,595	1,443	5,493	1,028	430	1,349	752	3,558	2,554	1,359	2,944	2,195	9,051

Table 3-1C
PM 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada (Peak)					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	458	1,328	1,852	n/a	3,638	490	429	664	n/a	1,583	948	1,757	2,516	n/a	5,221
	No Build (Rev. Net.)	460	1,321	1,857	n/a	3,638	489	421	673	n/a	1,583	949	1,742	2,530	n/a	5,221
	Alts 7, 9, 11 (L2 Net)	417	1,080	1,221	920	3,638	471	378	532	204	1,585	888	1,458	1,753	1,124	5,223
	Alts 7, 9, 11 (Rev. Net.)	417	1,082	1,164	977	3,638	467	368	542	206	1,584	884	1,449	1,706	1,183	5,222
Trucks	No Build (L2 Net)	493	120	761	n/a	1,374	390	6	391	n/a	787	883	126	1,152	n/a	2,161
	No Build (Rev. Net.)	501	123	750	n/a	1,374	388	14	383	n/a	786	889	137	1,134	n/a	2,160
	Alts 7, 9, 11 (L2 Net)	379	46	364	585	1,374	364	1	161	261	787	743	47	525	846	2,161
	Alts 7, 9, 11 (Rev. Net.)	371	45	337	621	1,374	362	1	165	258	786	733	45	502	880	2,160
Total	No Build (L2 Net)	951	1,448	2,613	n/a	5,012	880	435	1,055	n/a	2,370	1,831	1,883	3,668	n/a	7,382
	No Build (Rev. Net.)	961	1,444	2,607	n/a	5,012	877	435	1,056	n/a	2,369	1,838	1,879	3,664	n/a	7,381
	Alts 7, 9, 11 (L2 Net)	796	1,126	1,585	1,505	5,012	835	379	693	465	2,372	1,631	1,505	2,278	1,970	7,384
	Alts 7, 9, 11 (Rev. Net.)	787	1,126	1,501	1,598	5,012	829	369	707	464	2,370	1,617	1,495	2,208	2,062	7,382
PCEs	No Build (L2 Net)	1,691	1,628	3,755	n/a	7,073	1,465	444	1,642	n/a	3,551	3,156	2,072	5,396	n/a	10,624
	No Build (Rev. Net.)	1,712	1,628	3,733	n/a	7,073	1,459	457	1,632	n/a	3,548	3,171	2,085	5,365	n/a	10,621
	Alts 7, 9, 11 (L2 Net)	1,365	1,195	2,131	2,383	7,073	1,381	381	935	857	3,553	2,746	1,576	3,066	3,239	10,626
	Alts 7, 9, 11 (Rev. Net.)	1,344	1,193	2,007	2,530	7,074	1,372	370	954	852	3,548	2,716	1,563	2,961	3,382	10,622

Table 3-1D

Practical Alts #7, #9, #11: 2035 AM Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	62	59	180	8	242	67	133	392	1,238	152	1,371	544	1,613	611
	Revised Network	50	60	175	8	225	69	130	405	1,262	133	1,392	538	1,617	607
Trucks	L2 TAR Network	53	246	224	0	277	246	1	319	61	164	62	483	339	729
	Revised Network	53	248	223	0	277	248	1	320	125	100	125	420	402	668
Total	L2 TAR Network	115	305	404	8	519	313	134	711	1,299	316	1,433	1,027	1,952	1,340
	Revised Network	103	309	399	8	501	317	130	725	1,387	233	1,517	958	2,019	1,275
PCEs	L2 TAR Network	195	674	740	8	935	682	136	1,190	1,391	562	1,526	1,752	2,461	2,434
	Revised Network	182	681	734	8	916	690	131	1,205	1,574	383	1,706	1,588	2,622	2,278

Practical Alts #7, #9, #11: 2035 Mid-day Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	118	180	334	50	452	230	75	146	488	1	563	147	1,015	377
	Revised Network	98	181	322	67	420	247	73	147	496	0	569	147	989	394
Trucks	L2 TAR Network	111	411	371	54	482	465	46	209	272	25	318	234	800	699
	Revised Network	109	424	360	54	470	478	34	217	278	25	312	242	782	720
Total	L2 TAR Network	229	591	705	104	934	695	121	355	760	26	881	381	1,815	1,076
	Revised Network	207	604	683	121	890	725	107	363	774	25	881	389	1,771	1,114
PCEs	L2 TAR Network	396	1,208	1,262	185	1,657	1,393	190	669	1,168	64	1,358	732	3,015	2,125
	Revised Network	371	1,240	1,224	203	1,595	1,443	158	689	1,191	63	1,349	752	2,944	2,195

Practical Alts #7, #9, #11: 2035 PM Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	302	360	919	560	1,221	920	111	204	421	0	532	204	1,753	1,124
	Revised Network	233	381	930	596	1,164	977	112	206	430	0	542	206	1,706	1,183
Trucks	L2 TAR Network	77	532	287	53	364	585	46	200	115	61	161	261	525	846
	Revised Network	63	520	275	101	337	621	49	216	116	42	165	258	502	880
Total	L2 TAR Network	379	892	1,206	613	1,585	1,505	157	404	536	61	693	465	2,278	1,970
	Revised Network	296	901	1,205	697	1,501	1,598	161	422	546	42	707	464	2,208	2,062
PCEs	L2 TAR Network	495	1,690	1,637	693	2,131	2,383	226	704	709	153	935	857	3,066	3,239
	Revised Network	390	1,681	1,617	849	2,007	2,530	235	746	719	106	954	852	2,961	3,382

Attachment 4

2035 Single-logit Traffic Volumes
Crossing X-10
Alternatives #1, #2, #3, #14 and #16

Table 4-1A
AM 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S. (Peak)					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	182	305	273	n/a	760	186	1,150	1,709	n/a	3,045	368	1,455	1,982	n/a	3,805
	No Build (Rev. Net)	182	319	260	n/a	760	186	1,122	1,736	n/a	3,044	368	1,441	1,995	n/a	3,804
	Alts 1,2,3,14,16 (L2 Net)	177	257	130	196	760	171	866	1,099	908	3,044	348	1,123	1,229	1,104	3,804
	Alts 1,2,3,14,16 (Rev. Net.)	176	271	112	203	762	170	849	1,163	865	3,048	346	1,120	1,275	1,068	3,810
Trucks	No Build (L2 Net)	191	78	454	n/a	723	361	63	465	n/a	889	552	141	919	n/a	1,612
	No Build (Rev. Net)	189	81	453	n/a	723	361	75	453	n/a	888	549	155	906	n/a	1,611
	Alts 1,2,3,14,16 (L2 Net)	158	26	126	413	723	319	16	2	551	888	477	42	128	964	1,611
	Alts 1,2,3,14,16 (Rev. Net.)	156	26	124	418	723	317	16	7	548	888	474	42	130	966	1,611
Total	No Build (L2 Net)	373	383	727	n/a	1,483	547	1,213	2,174	n/a	3,934	920	1,596	2,901	n/a	5,417
	No Build (Rev. Net)	371	399	713	n/a	1,483	547	1,197	2,189	n/a	3,932	917	1,596	2,902	n/a	5,415
	Alts 1,2,3,14,16 (L2 Net)	335	283	256	609	1,483	490	882	1,101	1,459	3,932	825	1,165	1,357	2,068	5,415
	Alts 1,2,3,14,16 (Rev. Net.)	333	296	236	621	1,485	487	865	1,170	1,414	3,936	820	1,161	1,405	2,034	5,421
PCEs	No Build (L2 Net)	660	500	1,408	n/a	2,568	1,089	1,308	2,872	n/a	5,268	1,748	1,808	4,280	n/a	7,835
	No Build (Rev. Net)	654	521	1,393	n/a	2,568	1,088	1,309	2,868	n/a	5,264	1,742	1,829	4,261	n/a	7,832
	Alts 1,2,3,14,16 (L2 Net)	572	322	445	1,229	2,568	969	906	1,104	2,286	5,264	1,541	1,228	1,549	3,514	7,832
	Alts 1,2,3,14,16 (Rev. Net.)	567	335	421	1,247	2,570	963	889	1,180	2,236	5,268	1,530	1,224	1,601	3,483	7,838

Table 4-1B
MD 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	435	555	730	n/a	1,720	332	419	656	n/a	1,407	767	974	1,386	n/a	3,127
	No Build (Rev. Net.)	435	594	691	n/a	1,719	332	411	661	n/a	1,404	766	1,005	1,352	n/a	3,123
	Alts 1,2,3,14,16 (L2 Net)	412	566	346	396	1,720	321	355	529	200	1,405	733	921	875	596	3,125
	Alts 1,2,3,14,16 (Rev. Net.)	410	595	302	413	1,719	320	351	535	199	1,404	730	946	836	611	3,124
Trucks	No Build (L2 Net)	505	297	708	n/a	1,510	297	31	534	n/a	862	802	328	1,242	n/a	2,372
	No Build (Rev. Net.)	505	282	722	n/a	1,509	297	61	504	n/a	862	802	343	1,226	n/a	2,371
	Alts 1,2,3,14,16 (L2 Net)	431	96	276	706	1,509	278	18	133	432	861	709	114	409	1,138	2,370
	Alts 1,2,3,14,16 (Rev. Net.)	427	83	264	736	1,509	278	19	139	426	862	704	101	404	1,162	2,371
Total	No Build (L2 Net)	940	852	1,438	n/a	3,230	629	450	1,190	n/a	2,269	1,569	1,302	2,628	n/a	5,499
	No Build (Rev. Net.)	940	876	1,413	n/a	3,229	628	472	1,165	n/a	2,266	1,568	1,348	2,579	n/a	5,495
	Alts 1,2,3,14,16 (L2 Net)	843	662	622	1,102	3,229	599	373	662	632	2,266	1,442	1,035	1,284	1,734	5,495
	Alts 1,2,3,14,16 (Rev. Net.)	837	677	566	1,149	3,229	598	370	674	625	2,266	1,435	1,047	1,240	1,773	5,495
PCEs	No Build (L2 Net)	1,698	1,298	2,500	n/a	5,495	1,075	497	1,991	n/a	3,562	2,772	1,794	4,491	n/a	9,057
	No Build (Rev. Net.)	1,698	1,299	2,496	n/a	5,493	1,073	563	1,922	n/a	3,558	2,771	1,863	4,418	n/a	9,051
	Alts 1,2,3,14,16 (L2 Net)	1,490	806	1,036	2,161	5,493	1,016	400	862	1,280	3,558	2,506	1,206	1,898	3,441	9,050
	Alts 1,2,3,14,16 (Rev. Net.)	1,477	801	962	2,253	5,493	1,014	398	883	1,264	3,559	2,491	1,199	1,845	3,517	9,052

Table 4-1C
PM 2035 Peak Hour Volumes; Single-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada (Peak)					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	458	1,328	1,852	n/a	3,638	490	429	664	n/a	1,583	948	1,757	2,516	n/a	5,221
	No Build (Rev. Net.)	462	1,353	1,824	n/a	3,638	489	421	674	n/a	1,584	951	1,773	2,498	n/a	5,222
	Alts 1,2,3,14,16 (L2 Net)	414	997	1,072	1,155	3,638	466	367	502	250	1,585	880	1,364	1,574	1,405	5,223
	Alts 1,2,3,14,16 (Rev. Net.)	413	999	843	1,384	3,639	463	356	517	248	1,584	876	1,355	1,360	1,632	5,223
Trucks	No Build (L2 Net)	493	120	761	n/a	1,374	390	6	391	n/a	787	883	126	1,152	n/a	2,161
	No Build (Rev. Net.)	501	123	750	n/a	1,374	388	14	383	n/a	786	889	137	1,134	n/a	2,160
	Alts 1,2,3,14,16 (L2 Net)	368	44	229	734	1,375	357	1	70	358	786	725	45	299	1,092	2,161
	Alts 1,2,3,14,16 (Rev. Net.)	356	41	224	752	1,374	355	1	82	349	786	711	42	306	1,101	2,160
Total	No Build (L2 Net)	951	1,448	2,613	n/a	5,012	880	435	1,055	n/a	2,370	1,831	1,883	3,668	n/a	7,382
	No Build (Rev. Net.)	963	1,476	2,574	n/a	5,012	877	435	1,058	n/a	2,370	1,840	1,911	3,632	n/a	7,382
	Alts 1,2,3,14,16 (L2 Net)	782	1,041	1,301	1,889	5,013	823	368	572	608	2,371	1,605	1,409	1,873	2,497	7,384
	Alts 1,2,3,14,16 (Rev. Net.)	769	1,040	1,067	2,136	5,013	818	357	598	597	2,370	1,587	1,397	1,666	2,733	7,383
PCEs	No Build (L2 Net)	1,691	1,628	3,755	n/a	7,073	1,465	444	1,642	n/a	3,551	3,156	2,072	5,396	n/a	10,624
	No Build (Rev. Net.)	1,714	1,660	3,700	n/a	7,074	1,459	456	1,633	n/a	3,549	3,173	2,117	5,332	n/a	10,622
	Alts 1,2,3,14,16 (L2 Net)	1,334	1,107	1,645	2,990	7,076	1,359	370	677	1,145	3,550	2,693	1,477	2,322	4,135	10,626
	Alts 1,2,3,14,16 (Rev. Net.)	1,303	1,102	1,404	3,265	7,074	1,350	358	721	1,119	3,549	2,653	1,461	2,125	4,384	10,623

Table 4-1D

Practical Alts #1, #2, #3, #14, #16 : 2035 AM Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	53	72	77	124	130	196	120	419	979	489	1,099	908	1,229	1,104
	Revised Network	41	75	71	128	112	203	107	439	1,056	426	1,163	865	1,275	1,068
Trucks	L2 TAR Network	42	309	84	104	126	413	0	327	2	224	2	551	128	964
	Revised Network	42	312	82	105	124	418	0	354	7	194	7	548	130	966
Total	L2 TAR Network	95	381	161	228	256	609	120	746	981	713	1,101	1,459	1,357	2,068
	Revised Network	83	388	153	233	236	621	107	793	1,062	621	1,170	1,414	1,405	2,034
PCEs	L2 TAR Network	158	845	287	384	445	1,229	120	1,237	984	1,049	1,104	2,286	1,549	3,514
	Revised Network	145	856	275	391	421	1,247	107	1,324	1,072	912	1,180	2,236	1,601	3,483

Practical Alts #1, #2, #3, #14, #16 : 2035 Mid-day Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	107	216	239	180	346	396	64	168	465	32	529	200	875	596
	Revised Network	72	222	229	191	302	413	62	168	473	30	535	199	836	611
Trucks	L2 TAR Network	142	488	134	218	276	706	0	289	133	143	133	432	409	1,138
	Revised Network	141	511	123	225	264	736	0	310	139	116	139	426	404	1,162
Total	L2 TAR Network	249	704	373	398	622	1,102	64	457	598	175	662	632	1,284	1,734
	Revised Network	213	733	353	416	566	1,149	62	478	612	147	674	625	1,240	1,773
PCEs	L2 TAR Network	462	1,436	574	725	1,036	2,161	64	891	798	390	862	1,280	1,898	3,441
	Revised Network	424	1,498	538	754	962	2,253	62	942	821	322	883	1,264	1,845	3,517

Practical Alts #1, #2, #3, #14, #16 : 2035 PM Peak Hour Single Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	305	379	767	776	1,072	1,155	101	224	401	26	502	250	1,574	1,405
	Revised Network	218	403	625	981	843	1,384	101	224	416	24	517	248	1,360	1,632
Trucks	L2 TAR Network	61	577	168	157	229	734	41	239	29	119	70	358	299	1,092
	Revised Network	52	606	173	146	224	752	41	239	41	110	82	349	306	1,101
Total	L2 TAR Network	366	956	935	933	1,301	1,889	142	463	430	145	572	608	1,873	2,497
	Revised Network	270	1,009	798	1,127	1,067	2,136	142	463	457	134	598	597	1,666	2,733
PCEs	L2 TAR Network	458	1,822	1,187	1,169	1,645	2,990	204	822	474	324	677	1,145	2,322	4,135
	Revised Network	347	1,919	1,057	1,346	1,404	3,265	203	821	518	299	721	1,119	2,125	4,384

Attachment 5

2004 No Build Nested-logit Traffic Volumes

Table 5-1

AM 2004 Peak Hour Volumes; Nested-Logit Assignment Level 2 TAR Base Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	151	160	213	524	247	683	1,236	2,166	398	843	1,449	2,690
Trucks	2004 No Build	70	6	210	286	153	5	252	410	223	11	462	696
Total	2004 No Build	221	166	423	810	400	688	1,488	2,576	621	854	1,911	3,386
PCEs	2004 No Build	326	175	738	1,239	630	696	1,866	3,191	956	871	2,604	4,430

AM 2004 Peak Hour Volumes; Nested-Logit Assignment; Revised Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	151	165	207	524	246	665	1,255	2,166	397	830	1,463	2,690
Trucks	2004 No Build	70	6	210	286	152	5	252	410	222	12	462	696
Total	2004 No Build	221	171	417	810	398	670	1,508	2,576	620	841	1,925	3,386
PCEs	2004 No Build	327	180	731	1,238	627	678	1,886	3,191	953	859	2,617	4,429

MD 2004 Peak Hour Volumes; Nested-Logit Assignment; Level 2 TAR Base Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	335	380	394	1,109	284	292	314	890	619	672	708	1,999
Trucks	2004 No Build	174	13	422	609	115	8	273	396	289	21	695	1,005
Total	2004 No Build	509	393	816	1,718	399	300	587	1,286	908	693	1,403	3,004
PCEs	2004 No Build	770	413	1,449	2,632	572	312	997	1,880	1,342	725	2,446	4,512

MD 2004 Peak Hour Volumes; Nested-Logit Assignment; Revised Network

	Network	U.S.-to-Canada				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	335	391	383	1,109	284	291	315	890	619	682	698	1,999
Trucks	2004 No Build	175	13	422	610	115	8	273	395	290	21	695	1,005
Total	2004 No Build	510	404	805	1,719	399	298	589	1,286	909	702	1,393	3,004
PCEs	2004 No Build	772	424	1,437	2,633	571	310	998	1,879	1,343	734	2,436	4,512

Table 5-1 (continued)

PM 2004 Peak Hour Volumes; Nested-Logit Assignment; Level 2 TAR Base Network

	Network	U.S.-to-Canada				Canada-to-U.S. (Peak)				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	421	933	1,096	2,450	371	230	386	987	792	1,163	1,482	3,437
Trucks	2004 No Build	176	11	373	560	124	5	231	360	300	16	604	920
Total	2004 No Build	597	944	1,469	3,010	495	235	617	1,347	1,092	1,179	2,086	4,357
PCEs	2004 No Build	861	961	2,029	3,850	681	243	964	1,887	1,542	1,203	2,992	5,737

PM 2004 Peak Hour Volumes; Nested-Logit Assignment; Revised Network

	Network	U.S.-to-Canada (Peak)				Canada-to-U.S.				Two-Way Traffic			
		BWB	DWT	AMB	Total	BWB	DWT	AMB	Total	BWB	DWT	AMB	Total
Cars	2004 No Build	421	944	1,084	2,449	371	224	393	987	793	1,168	1,476	3,437
Trucks	2004 No Build	177	11	372	560	124	5	232	361	301	16	603	920
Total	2004 No Build	599	955	1,455	3,009	495	228	624	1,348	1,094	1,183	2,080	4,357
PCEs	2004 No Build	865	971	2,013	3,849	682	236	972	1,889	1,546	1,207	2,985	5,738

Attachment 6

2035 Nested-logit Traffic Volumes
Crossing X-11
Alternatives #7, #9, and #11

Table 6-1A
AM 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S. (Peak)					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	219	248	294	n/a	761	239	1,066	1,738	n/a	3,043	458	1,314	2,032	n/a	3,804
	No Build (Rev. Net.)	218	255	286	n/a	760	239	1,060	1,744	n/a	3,044	457	1,316	2,031	n/a	3,804
	Alts 7, 9, 11 (L2 Net)	208	203	241	107	759	217	725	1,301	802	3,045	425	928	1,542	909	3,804
	Alts 7, 9, 11 (Rev. Net.)	208	208	234	110	760	217	707	1,327	794	3,045	425	915	1,561	903	3,805
Trucks	No Build (L2 Net)	221	15	488	n/a	724	333	13	543	n/a	889	554	28	1,031	n/a	1,613
	No Build (Rev. Net.)	222	15	486	n/a	723	332	13	544	n/a	888	554	27	1,030	n/a	1,611
	Alts 7, 9, 11 (L2 Net)	157	8	283	275	723	224	7	323	335	889	381	15	606	610	1,612
	Alts 7, 9, 11 (Rev. Net.)	157	8	282	276	723	224	7	323	335	888	381	15	605	610	1,611
Total	No Build (L2 Net)	440	263	782	n/a	1,485	572	1,079	2,281	n/a	3,932	1,012	1,342	3,063	n/a	5,417
	No Build (Rev. Net.)	441	270	773	n/a	1,483	571	1,073	2,288	n/a	3,932	1,011	1,343	3,061	n/a	5,415
	Alts 7, 9, 11 (L2 Net)	365	211	524	382	1,482	441	732	1,624	1,137	3,934	806	943	2,148	1,519	5,416
	Alts 7, 9, 11 (Rev. Net.)	366	216	516	385	1,483	441	713	1,650	1,128	3,933	807	929	2,166	1,514	5,416
PCEs	No Build (L2 Net)	772	286	1,514	n/a	2,571	1,072	1,099	3,096	n/a	5,266	1,843	1,384	4,610	n/a	7,837
	No Build (Rev. Net.)	774	292	1,502	n/a	2,568	1,069	1,092	3,104	n/a	5,264	1,842	1,384	4,605	n/a	7,832
	Alts 7, 9, 11 (L2 Net)	601	223	949	795	2,567	777	743	2,109	1,640	5,268	1,378	966	3,057	2,434	7,834
	Alts 7, 9, 11 (Rev. Net.)	602	228	939	799	2,568	776	723	2,135	1,631	5,265	1,379	951	3,074	2,429	7,833

Table 6-1B
MD 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	529	649	541	n/a	1,719	426	439	539	n/a	1,404	955	1,088	1,080	n/a	3,123
	No Build (Rev. Net.)	528	662	530	n/a	1,719	426	438	540	n/a	1,404	955	1,099	1,070	n/a	3,124
	Alts 7, 9, 11 (L2 Net)	498	516	456	250	1,720	406	364	423	211	1,404	904	880	879	461	3,124
	Alts 7, 9, 11 (Rev. Net.)	497	516	449	257	1,719	406	362	425	213	1,405	902	878	874	470	3,124
Trucks	No Build (L2 Net)	476	34	1,000	n/a	1,510	255	16	592	n/a	863	731	50	1,592	n/a	2,373
	No Build (Rev. Net.)	478	34	997	n/a	1,509	255	16	592	n/a	863	733	51	1,588	n/a	2,372
	Alts 7, 9, 11 (L2 Net)	318	19	595	577	1,509	181	9	354	318	862	499	28	949	895	2,371
	Alts 7, 9, 11 (Rev. Net.)	317	19	593	581	1,509	181	9	354	319	863	498	28	947	899	2,372
Total	No Build (L2 Net)	1,005	683	1,541	n/a	3,229	681	455	1,131	n/a	2,267	1,686	1,138	2,672	n/a	5,496
	No Build (Rev. Net.)	1,006	696	1,526	n/a	3,229	681	454	1,132	n/a	2,267	1,687	1,150	2,658	n/a	5,496
	Alts 7, 9, 11 (L2 Net)	816	535	1,051	827	3,229	587	373	777	529	2,266	1,403	908	1,828	1,356	5,495
	Alts 7, 9, 11 (Rev. Net.)	814	535	1,042	838	3,229	587	371	778	531	2,267	1,401	906	1,820	1,369	5,496
PCEs	No Build (L2 Net)	1,719	734	3,041	n/a	5,494	1,064	479	2,019	n/a	3,562	2,783	1,213	5,060	n/a	9,056
	No Build (Rev. Net.)	1,724	747	3,022	n/a	5,493	1,063	479	2,019	n/a	3,561	2,786	1,226	5,041	n/a	9,053
	Alts 7, 9, 11 (L2 Net)	1,293	564	1,944	1,693	5,493	859	387	1,308	1,006	3,559	2,152	950	3,252	2,699	9,052
	Alts 7, 9, 11 (Rev. Net.)	1,290	563	1,931	1,708	5,493	858	385	1,309	1,009	3,561	2,148	948	3,240	2,717	9,054

Table 6-1C
PM 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada (Peak)					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	521	1,528	1,589	n/a	3,638	589	340	655	n/a	1,584	1,110	1,868	2,244	n/a	5,222
	No Build (Rev. Net.)	521	1,510	1,607	n/a	3,638	589	329	666	n/a	1,584	1,110	1,839	2,273	n/a	5,222
	Alts 7, 9, 11 (L2 Net)	476	1,136	1,191	835	3,638	554	275	504	252	1,585	1,030	1,411	1,695	1,087	5,223
	Alts 7, 9, 11 (Rev. Net.)	474	1,126	1,159	879	3,638	554	266	514	250	1,584	1,029	1,392	1,673	1,129	5,223
Trucks	No Build (L2 Net)	520	26	828	n/a	1,374	328	9	449	n/a	786	848	35	1,277	n/a	2,160
	No Build (Rev. Net.)	520	26	828	n/a	1,374	328	9	448	n/a	786	848	35	1,277	n/a	2,160
	Alts 7, 9, 11 (L2 Net)	340	14	490	530	1,374	237	5	274	271	787	577	19	764	801	2,161
	Alts 7, 9, 11 (Rev. Net.)	338	14	486	536	1,374	237	5	274	270	786	575	19	760	806	2,160
Total	No Build (L2 Net)	1,041	1,554	2,417	n/a	5,012	917	349	1,104	n/a	2,370	1,958	1,903	3,521	n/a	7,382
	No Build (Rev. Net.)	1,042	1,536	2,435	n/a	5,012	917	338	1,114	n/a	2,370	1,959	1,874	3,549	n/a	7,382
	Alts 7, 9, 11 (L2 Net)	816	1,150	1,681	1,365	5,012	791	280	778	523	2,372	1,607	1,430	2,459	1,888	7,384
	Alts 7, 9, 11 (Rev. Net.)	813	1,139	1,645	1,415	5,012	791	271	788	520	2,370	1,604	1,411	2,433	1,935	7,383
PCEs	No Build (L2 Net)	1,821	1,593	3,659	n/a	7,073	1,409	363	1,778	n/a	3,549	3,230	1,956	5,437	n/a	10,622
	No Build (Rev. Net.)	1,822	1,574	3,678	n/a	7,074	1,410	352	1,787	n/a	3,549	3,232	1,926	5,464	n/a	10,622
	Alts 7, 9, 11 (L2 Net)	1,326	1,171	2,416	2,160	7,073	1,147	288	1,189	930	3,553	2,473	1,459	3,605	3,090	10,626
	Alts 7, 9, 11 (Rev. Net.)	1,320	1,160	2,375	2,219	7,074	1,147	279	1,198	924	3,549	2,467	1,439	3,573	3,144	10,623

Table 6-1D

Practical Alts #7, #9, #11: 2035 AM Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	56	39	185	68	241	107	206	264	1,095	538	1,301	802	1,542	909
	Revised Network	54	39	180	71	234	110	200	272	1,127	522	1,327	794	1,561	903
Trucks	L2 TAR Network	131	172	152	103	283	275	120	234	203	101	323	335	606	610
	Revised Network	126	172	156	103	282	276	140	234	183	100	323	335	605	610
Total	L2 TAR Network	187	211	337	171	524	382	326	498	1,298	639	1,624	1,137	2,148	1,519
	Revised Network	180	212	336	174	516	385	340	506	1,310	622	1,650	1,128	2,166	1,514
PCEs	L2 TAR Network	384	469	565	326	949	795	506	849	1,603	791	2,109	1,640	3,057	2,434
	Revised Network	369	470	570	328	939	799	550	858	1,585	773	2,135	1,631	3,074	2,429

Practical Alts #7, #9, #11: 2035 Mid-day Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	126	108	330	142	456	250	96	100	327	111	423	211	879	461
	Revised Network	118	110	331	147	449	257	89	101	336	112	425	213	874	470
Trucks	L2 TAR Network	255	435	340	142	595	577	132	212	222	106	354	318	949	895
	Revised Network	250	438	343	142	593	581	122	213	232	106	354	319	947	899
Total	L2 TAR Network	381	543	670	284	1,051	827	228	312	549	217	777	529	1,828	1,356
	Revised Network	368	549	674	289	1,042	838	210	313	568	218	778	531	1,820	1,369
PCEs	L2 TAR Network	764	1,196	1,180	497	1,944	1,693	426	630	882	376	1,308	1,006	3,252	2,699
	Revised Network	743	1,206	1,189	502	1,931	1,708	393	632	916	377	1,309	1,009	3,240	2,717

Practical Alts #7, #9, #11: 2035 PM Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	335	261	856	574	1,191	835	134	123	370	129	504	252	1,695	1,087
	Revised Network	249	264	910	615	1,159	879	135	124	379	126	514	250	1,673	1,129
Trucks	L2 TAR Network	280	405	210	125	490	530	143	210	131	61	274	271	764	801
	Revised Network	247	409	239	127	486	536	144	209	129	61	274	270	760	806
Total	L2 TAR Network	615	666	1,066	699	1,681	1,365	277	333	501	190	778	523	2,459	1,888
	Revised Network	496	673	1,149	742	1,645	1,415	280	333	508	187	788	520	2,433	1,935
PCEs	L2 TAR Network	1,035	1,274	1,381	887	2,416	2,160	492	648	698	282	1,189	930	3,605	3,090
	Revised Network	866	1,287	1,508	932	2,375	2,219	496	647	702	278	1,198	924	3,573	3,144

Attachment 7

2035 Nested-logit Traffic Volumes
Crossing X-10
Alternatives #1, #2, #3, #14, and #16

Table 7-1A
AM 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S. (Peak)					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	219	248	294	n/a	761	239	1,066	1,738	n/a	3,043	458	1,314	2,032	n/a	3,804
	No Build (Rev. Net)	218	255	286	n/a	760	239	1,060	1,744	n/a	3,044	457	1,316	2,031	n/a	3,804
	Alts 1,2,3,14,16 (L2 Net)	206	189	218	146	759	214	651	1,165	1,016	3,046	420	840	1,383	1,162	3,805
	Alts 1,2,3,14,16 (Rev. Net.)	206	194	210	150	760	214	633	1,191	1,007	3,046	420	827	1,401	1,157	3,806
Trucks	No Build (L2 Net)	221	15	488	n/a	724	333	13	543	n/a	889	554	28	1,031	n/a	1,613
	No Build (Rev. Net)	222	15	486	n/a	723	332	13	544	n/a	888	554	27	1,030	n/a	1,611
	Alts 1,2,3,14,16 (L2 Net)	154	8	271	291	724	219	6	313	350	888	373	14	584	641	1,612
	Alts 1,2,3,14,16 (Rev. Net.)	154	8	270	291	723	219	6	313	350	888	373	14	584	641	1,611
Total	No Build (L2 Net)	440	263	782	n/a	1,485	572	1,079	2,281	n/a	3,932	1,012	1,342	3,063	n/a	5,417
	No Build (Rev. Net)	441	270	773	n/a	1,483	571	1,073	2,288	n/a	3,932	1,011	1,343	3,061	n/a	5,415
	Alts 1,2,3,14,16 (L2 Net)	360	197	489	437	1,483	433	657	1,478	1,366	3,934	793	854	1,967	1,803	5,417
	Alts 1,2,3,14,16 (Rev. Net.)	360	201	480	441	1,483	433	640	1,505	1,357	3,934	793	841	1,985	1,798	5,417
PCEs	No Build (L2 Net)	772	286	1,514	n/a	2,571	1,072	1,099	3,096	n/a	5,266	1,843	1,384	4,610	n/a	7,837
	No Build (Rev. Net)	774	292	1,502	n/a	2,568	1,069	1,092	3,104	n/a	5,264	1,842	1,384	4,605	n/a	7,832
	Alts 1,2,3,14,16 (L2 Net)	591	209	896	874	2,569	762	666	1,948	1,891	5,266	1,353	875	2,843	2,765	7,835
	Alts 1,2,3,14,16 (Rev. Net.)	591	213	886	877	2,568	760	649	1,975	1,882	5,266	1,352	862	2,861	2,760	7,834

Table 7-1B
MD 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	529	649	541	n/a	1,719	426	439	539	n/a	1,404	955	1,088	1,080	n/a	3,123
	No Build (Rev. Net.)	528	662	530	n/a	1,719	426	438	540	n/a	1,404	955	1,099	1,070	n/a	3,124
	Alts 1,2,3,14,16 (L2 Net)	492	482	412	333	1,719	401	340	384	280	1,405	893	822	796	613	3,124
	Alts 1,2,3,14,16 (Rev. Net.)	491	480	407	341	1,719	401	337	388	278	1,405	892	818	795	619	3,124
Trucks	No Build (L2 Net)	476	34	1,000	n/a	1,510	255	16	592	n/a	863	731	50	1,592	n/a	2,373
	No Build (Rev. Net.)	478	34	997	n/a	1,509	255	16	592	n/a	863	733	51	1,588	n/a	2,372
	Alts 1,2,3,14,16 (L2 Net)	311	18	572	609	1,510	177	9	341	335	862	488	27	913	944	2,372
	Alts 1,2,3,14,16 (Rev. Net.)	309	18	570	612	1,509	177	9	342	335	863	486	27	912	947	2,372
Total	No Build (L2 Net)	1,005	683	1,541	n/a	3,229	681	455	1,131	n/a	2,267	1,686	1,138	2,672	n/a	5,496
	No Build (Rev. Net.)	1,006	696	1,526	n/a	3,229	681	454	1,132	n/a	2,267	1,687	1,150	2,658	n/a	5,496
	Alts 1,2,3,14,16 (L2 Net)	803	500	984	942	3,229	578	349	725	615	2,267	1,381	849	1,709	1,557	5,496
	Alts 1,2,3,14,16 (Rev. Net.)	801	499	977	953	3,229	578	346	730	613	2,268	1,378	845	1,707	1,566	5,496
PCEs	No Build (L2 Net)	1,719	734	3,041	n/a	5,494	1,064	479	2,019	n/a	3,562	2,783	1,213	5,060	n/a	9,056
	No Build (Rev. Net.)	1,724	747	3,022	n/a	5,493	1,063	479	2,019	n/a	3,561	2,786	1,226	5,041	n/a	9,053
	Alts 1,2,3,14,16 (L2 Net)	1,270	527	1,842	1,856	5,494	844	363	1,237	1,118	3,560	2,113	890	3,079	2,973	9,054
	Alts 1,2,3,14,16 (Rev. Net.)	1,265	526	1,832	1,870	5,493	843	360	1,243	1,116	3,561	2,108	885	3,075	2,986	9,054

Table 7-1C
PM 2035 Peak Hour Volumes; Nested-Logit Assignment; Network Comparison

	Network	U.S.-to-Canada (Peak)					Canada-to-U.S.					Two-Way Traffic				
		BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total	BWB	DWT	AMB	NEW	Total
Cars	No Build (L2 Net)	521	1,528	1,589	n/a	3,638	589	340	655	n/a	1,584	1,110	1,868	2,244	n/a	5,222
	No Build (Rev. Net.)	521	1,510	1,607	n/a	3,638	589	329	666	n/a	1,584	1,110	1,839	2,273	n/a	5,222
	Alts 1,2,3,14,16 (L2 Net)	472	1,060	1,073	1,034	3,639	548	254	457	325	1,584	1,020	1,314	1,530	1,359	5,223
	Alts 1,2,3,14,16 (Rev. Net.)	471	1,045	1,033	1,090	3,638	549	247	466	323	1,585	1,019	1,292	1,499	1,413	5,223
Trucks	No Build (L2 Net)	520	26	828	n/a	1,374	328	9	449	n/a	786	848	35	1,277	n/a	2,160
	No Build (Rev. Net.)	520	26	828	n/a	1,374	328	9	448	n/a	786	848	35	1,277	n/a	2,160
	Alts 1,2,3,14,16 (L2 Net)	333	13	474	555	1,375	232	5	264	285	786	565	18	738	840	2,161
	Alts 1,2,3,14,16 (Rev. Net.)	332	13	469	560	1,374	232	5	264	285	786	563	18	733	845	2,160
Total	No Build (L2 Net)	1,041	1,554	2,417	n/a	5,012	917	349	1,104	n/a	2,370	1,958	1,903	3,521	n/a	7,382
	No Build (Rev. Net.)	1,042	1,536	2,435	n/a	5,012	917	338	1,114	n/a	2,370	1,959	1,874	3,549	n/a	7,382
	Alts 1,2,3,14,16 (L2 Net)	805	1,073	1,547	1,589	5,014	780	259	721	610	2,370	1,585	1,332	2,268	2,199	7,384
	Alts 1,2,3,14,16 (Rev. Net.)	802	1,058	1,502	1,650	5,012	780	252	730	608	2,371	1,583	1,310	2,232	2,258	7,383
PCEs	No Build (L2 Net)	1,821	1,593	3,659	n/a	7,073	1,409	363	1,778	n/a	3,549	3,230	1,956	5,437	n/a	10,622
	No Build (Rev. Net.)	1,822	1,574	3,678	n/a	7,074	1,410	352	1,787	n/a	3,549	3,232	1,926	5,464	n/a	10,622
	Alts 1,2,3,14,16 (L2 Net)	1,305	1,093	2,258	2,422	7,077	1,128	267	1,117	1,038	3,549	2,433	1,359	3,375	3,459	10,626
	Alts 1,2,3,14,16 (Rev. Net.)	1,300	1,078	2,206	2,491	7,074	1,128	259	1,127	1,035	3,549	2,428	1,337	3,332	3,526	10,623

Table 7-1D

Practical Alts #1, #2, #3, #14, #16 : 2035 AM Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	48	50	170	96	218	146	174	310	991	706	1,165	1,016	1,383	1,162
	Revised Network	46	51	164	99	210	150	168	320	1,024	688	1,191	1,007	1,401	1,157
Trucks	L2 TAR Network	121	182	150	109	271	291	115	244	198	106	313	350	584	641
	Revised Network	120	182	150	109	270	291	135	244	178	106	313	350	584	641
Total	L2 TAR Network	169	232	320	205	489	437	289	554	1,189	812	1,478	1,366	1,967	1,803
	Revised Network	167	233	314	208	480	441	303	564	1,202	793	1,505	1,357	1,985	1,798
PCEs	L2 TAR Network	351	505	545	369	896	874	462	920	1,486	971	1,948	1,891	2,843	2,765
	Revised Network	347	506	539	371	886	877	505	930	1,469	952	1,975	1,882	2,861	2,760

Practical Alts #1, #2, #3, #14, #16 : 2035 Mid-day Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	106	138	306	195	412	333	83	126	301	154	384	280	796	613
	Revised Network	102	140	305	201	407	341	78	128	310	151	388	278	795	619
Trucks	L2 TAR Network	244	459	328	150	572	609	127	223	214	112	341	335	913	944
	Revised Network	237	461	333	150	570	612	116	223	225	111	342	335	912	947
Total	L2 TAR Network	350	597	634	345	984	942	210	349	515	266	725	615	1,709	1,557
	Revised Network	339	602	638	351	977	953	195	351	535	262	730	613	1,707	1,566
PCEs	L2 TAR Network	716	1,286	1,126	570	1,842	1,856	401	684	836	434	1,237	1,118	3,079	2,973
	Revised Network	695	1,294	1,137	577	1,832	1,870	370	686	873	429	1,243	1,116	3,075	2,986

Practical Alts #1, #2, #3, #14, #16 : 2035 PM Peak Hour Nested Logit Assignment; Network Comparison

	Network	U.S.-to-Canada						Canada-to-U.S. (Peak Direction)						Total	
		from I-75		from I-75/I-96		Total		to I-75 Southbound		to I-75/I-96		Total		2-Way	
		AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW	AMB	NEW
Cars	L2 TAR Network	288	311	785	723	1,073	1,034	117	151	340	174	457	325	1,530	1,359
	Revised Network	211	311	821	780	1,033	1,090	117	152	349	171	466	323	1,499	1,413
Trucks	L2 TAR Network	272	424	202	131	474	555	138	221	126	64	264	285	738	840
	Revised Network	237	427	232	133	469	560	139	220	125	65	264	285	733	845
Total	L2 TAR Network	560	735	987	854	1,547	1,589	255	372	466	238	721	610	2,268	2,199
	Revised Network	448	738	1,054	913	1,502	1,650	256	372	475	236	730	608	2,232	2,258
PCEs	L2 TAR Network	968	1,371	1,290	1,051	2,258	2,422	462	704	655	334	1,117	1,038	3,375	3,459
	Revised Network	803	1,379	1,403	1,112	2,206	2,491	464	703	663	332	1,127	1,035	3,332	3,526

Appendix C

Responses to Traffic Related Comments to the DEIS

	Comment	Response Category	Response
1	Pedestrian crossings should be replaced, keeping the community clinic (CHASS Clinic) accessible.	Impacts: Pedestrian/ Bicycle Access	Pedestrian links have been maintained where engineering constraints do not prohibit them.
2	The DRIC project should comprehensively provide for access to the plaza and bridge by pedestrians and bicycles, including a safe and recreationally effective pedestrian-bicycle lane on the bridge as well as necessary accompanying infrastructure for access on both sides of the border. Such infrastructure should be able to link to greenways and pedestrian-bicycle paths on both sides of the border . . . both federal and state law provides that such consideration must be addressed.	Impacts: Pedestrian/ Bicycle Access	A bike lane in each direction on Jefferson/Clark from Dearborn to Clark Park is part of the DRIC plan to compliment the West Riverfront and Rouge Greenway initiatives. The DRIC bridge and plaza layouts allow for bicycle crossings. A final determination will be made by U.S. Customs and Border Protection.
3	A number of cross streets that connect the neighborhoods north and south of I-75 will be lost. This . . . will most certainly result in isolation for businesses and residents . . . and for CHASS it will further limit access to our users. Many of our clients walk to the clinic via Junction.	Impacts: Pedestrian/ Bicycle Access	The Preferred Alternative will provide access across I-75 at Springwells, Green, Livernois, and Clark, plus five pedestrian crossings. All streets crossing I-75 will have sidewalks on both sides to accommodate pedestrians. Two DDOT bus lines will be rerouted. Only the rerouting of Rt. #11 - Junction may affect access to CHASS. Public transit route revisions have been developed in collaboration with the Detroit Department of Transportation.
4	Since the Detroit-Windsor Truck Ferry was closed to bicyclists in 2006, there has been no way to cross the border on bicycle . . . . I advocate opening the border to bicyclists.	Impacts: Pedestrian/ Bicycle Access	The bridge and plaza layouts in the DRIC FEIS allow for bicycle crossings. A final determination will be made by U.S. Customs and Border Protection and the Canadian Border Protection Services Agency.
5	The DEIS indicates a number of pedestrian crossing over I-75 will be removed and some existing transit routes will be impacted . . . . Given that nonmotorized and transit modes are vital in this community, a more strongly worded commitment to replacing crossings as appropriate and maintaining adequate transit service should be considered.	Impacts: Pedestrian/ Bicycle Access	See response to Comment #3.
6	Closing streets that cross over the I-75 expressway or reducing the lanes on remaining cross overs will impact the community on both sides of Fort Street.	Impacts: Pedestrian/ Bicycle Access	See response to Comment #3.
7	Future design . . . should include . . . connections between neighborhoods and to the Detroit River; and increasing non-motorized routes and pathways. The design analysis must be extended to those areas that will be impacted north of Interstate -75 by changes to the local roadway, new freeway ramps, and relocation.	Impacts: Pedestrian/ Bicycle Access	Access across I-75 has been recognized as a primary community concern. The Preferred Alternative improves this access compared to any Practical Alternative in the DEIS, by providing vehicular access across I-75 via Springwells, Green, Livernois, and Clark, plus five pedestrian crossings. Today, there are seven vehicle crossings and five pedestrian/bicycle crossings. The Preferred Alternative provides new boulevards on Green and Campbell to enhance access to the Detroit River. Also, bike lanes will be added to connect to the West Riverfront and Rouge River Gateway paths when they are constructed. Finally, there will be non-motorized pathways within the plaza buffer zone.

	Comment	Response Category	Response
8	Design alternatives to the local roadway changes should include concepts for increasing green spaces, non-motorized paths, lighting, and signage. In particular, the West Riverfront and Rouge River Gateway plans should be components of the final land use design.	Impacts: Pedestrian/ Bicycle Access	Landscaping will be included in the buffer around the plaza. A non-motorized path is also contemplated. All will be developed in the design phase through the application of Context Sensitive Solutions principles.
9	The construction of any and all border crossings must include the financing and completion of all SW Detroit greenways connecting to the west riverfront up into and through the neighborhoods, and joining onto the Detroit International Riverfront riverwalk, and the SW greenway that connects to the Rouge Gateway greenway.	Impacts: Pedestrian/ Bicycle Access	See response to Comment #2.
10	I don't like Alternative 16 because it looks like they will make West End a truck route and I am 100% against that because it will cut right through the area of Delray that will be left.	Impacts: Traffic	Local trucks use the Dearborn, Westend, Livernois/Dragoon, and Clark interchanges. The Preferred Alternative will change the access pattern at Livernois/Dragoon and remove Livernois and Dragoon in the plaza area. Local truck traffic now using Livernois/Dragoon will likely shift to Clark for destinations to/from the north on I-75. Destinations to/from the south already use Dearborn and West End. That pattern is not expected to change as those roads are the logical choice for truck use.
11	The traffic route decisions must be chosen with careful consideration, be creative, methodical and deliberate with intense analysis of the selection of any new traffic routes built, created or modified to ensure the least amount of disruption occurs to our community.	Impacts: Traffic	Section 3.5.3 explains changes to local traffic. In general, removal/modification of the Livernois/Dragoon interchange ramps will reduce truck traffic on the Livernois/Dragoon one-way pair.
12	It would be counterproductive for the DRIC traffic routes to . . . . effect the landscape all the way to east, to Clark St. or even Junction.	Impacts: Traffic	The Preferred Alternative will close Junction. Travel across I-75 will then occur via Clark Street or Livernois Avenue.
13	Route Alternatives should not cause increase truck traffic patterns to utilize Clark Street from the north or south of I-75.	Impacts: Traffic	The truck traffic at Clark will decline when the Gateway Project is completed. The removal of the Livernois/Dragoon interchange will relocate some truck traffic from south of I-75 to the ramps at Clark.
14	Beard ELCC will be directly impacted by increased traffic and widening of the I-75 service drive	Impacts: Traffic	The ramp configuration of the Preferred Alternative will take traffic from southbound I-75 to the service drive and past the Beard EEC. Waterman Street in front of the school will be closed over I-75, reducing traffic on that street.
15	The DRIC project should create a designated trucks-only road as well as designated truck routes to remedy the existing and impending truck traffic on residential streets due t economic activity associated with the international crossing. . . This comment pertains to truck traffic with local destinations. . . With the closure of the Livernois-Dragoon access to I-75 . . . trucks are likely to be forced onto West End and Dearborn streets in the more populated area of Delray.	Impacts: Traffic	See response to Comment #10.
16	Table S-8, p ES-43, indicates the combined traffic at the Ambassador Bridge and the new crossing would increase under the Build Alternatives compared to the No Build Alternative. Is this increase due to induced traffic or does it represent a shift away from the Blue Water Bridge and Detroit-Windsor Tunnel?	Impacts: Traffic	The traffic forecast represents a shift in traffic from the Blue Water Bridge and Detroit-Windsor Tunnel as noted in Section 3.5.1.2 of the DEIS and FEIS.

	Comment	Response Category	Response
17	Is there any concern about the continued validity of proposed Blue Water Bridge plaza enhancements?	Impacts: Traffic	No. The Blue Water Bridge plaza enhancements are needed to address existing problems. The diversion from the Blue Water Bridge is of traffic growth and that is relatively small. Data included in the FEIS indicate traffic on the Blue Water Bridge will increase from today's conditions under both the build and no-build forecast.
18	Are the six upcoming projects referenced on p 3-33 included in the traffic analysis? If so, are they included in only the No Build Alternatives or the Build Alternatives as well?	Impacts: Traffic	Only existing and committed projects are included in the traffic analysis of Build and No Build Alternatives. A "sensitivity test" of traffic effects of the proposed second span of the Ambassador Bridge on the DRIC crossing was conducted (see Section 3.14.3 of the FEIS).
19	p 3-62 indicates local roads would operate at an acceptable LOS under Build and No Build Alternatives. The discussion of the freeway segments is limited to the Build Alternatives. Will the freeway exceed capacity under a No Build situation?	Impacts: Traffic	No it will not.
20	p 3-70 indicates additional coordination will occur regarding congestion in the area of the new crossing. SEMCOG fully supports and encourages this coordination.	Impacts: Traffic	Comment acknowledged.
21	I am concerned about increased traffic on the freeways and the loss of use for commuters, and for our continuity with the downriver suburbs.	Impacts: Traffic	Traffic growth on I-75 in Southwest Detroit is slower than other freeways in Michigan. The DRIC traffic analysis (Section 3.5 of the DEIS and FEIS) indicates I-75 will operate efficiently (Levels of Service of D or better) as will all local streets that are directly connected to it (Levels of Service of B or better).
22	The community on the north side of Fort Street will experience additional truck traffic.	Impacts: Traffic	The community on the north side of I-75 will experience less, not more, truck traffic, as most of that traffic depends on the Livernois-Dragoon interchange with I-75, which would be eliminated.
23	As expressway traffic backs up on I75, truckers will seek the quickest route to enter or exit of I75 to I94 or I75 and will use Jefferson Avenue in River Rouge down to South Schaefer.	Impacts: Traffic	Such backups are not expected under normal traffic conditions because there will be two bridges instead of one.
24	A trucker expressed concerns about the proposed rerouting of trucks and stated in all probability routes trucker will take. Please reference this previous public comment.	Impacts: Traffic	This comment is believed to refer to continued use of the Livernois/Dragoon one-way pair. Measures that will discourage this use are noted in Section 3.5.3 of the DEIS and FEIS. The DIFT project to the north of the DRIC project will reorient an entrance to a major truck/train intermodal yard in a way that will reduce truck traffic on the one-way pair. The interchange of Livernois and I-94 will be reconstructed to facilitate truck access from that direction, not I-75.
25	It is critical that the Preferred Alternative is determined based on its ability to remove trucks from the local roadway system. The removal of truck traffic from the local roadway system [by the Gateway Project], particularly on Clark Street, must not be undermined by a new configuration of freeway ramps.	Impacts: Traffic	The Preferred Alternative traffic analysis has taken into account local truck routes due to placement of the plaza that will cut off several streets. See Section 3.5 of the FEIS.
26	Clark and Junction streets function as the main north and south access routes connecting Southwest Detroit neighborhoods. These routes should be protected for continued residential use.	Impacts: Traffic	See response to Comment #7.
27	A revitalized Delray neighborhood must be connected to surrounding neighborhoods.	Impacts: Traffic	The Preferred Alternative maintains connections to surrounding neighborhoods through access to/from and across I-75 for pedestrians and vehicles.

	Comment	Response Category	Response
28	Despite the fact that Livernois and Dragoon are residential, a substantial volume of truck traffic travels these streets. . . years of truck travel have resulted in a diminished quality of life for those living on these streets. . . [There is] is strong consensus that trucks should be permanently removed from Livernois and Dragoon . . . Achieving this outcome must be a priority of any DRIC Study alternative.	Impacts: Traffic	Measures that will discourage use of Livernois/Dragoon are noted in Section 3.5.3 of the DEIS and FEIS. The DIFT project to the north of the DRIC project will reorient an entrance to a major truck/train intermodal yard in a way that will reduce truck traffic on the one-way pair. The interchange of Livernois and I-94 will be reconstructed to facilitate truck access from that direction, not I-75.
29	The DEIS also expressly states that the new DRC bridge will compete with, and divert traffic from the Ambassador Bridge, the Detroit-Windsor Tunnel and the Blue Water Bridge in Port Huron . . .	Impacts: Traffic	Comment acknowledged.
30	Will the "new" medical/fire/police on Fort St. still be able to respond to calls.	Impacts: Traffic over 75	Yes, project planners met several times to ensure that the Preferred Alternative preserves access for the Southwestern Public Safety Center.
31	I very much object to any plan for plaza and freeway connections that eliminates or degrades the Junction Avenue overpass on I-75. Our company is on South Junction and we don't want to be cut off.	Impacts: Traffic over 75	See response to Comment #12.
32	The Detroit Public Schools District alerts you to necessity for redesigning school bus routes.	Impacts: Traffic over 75	The school buses serving Southwestern High School are primarily oriented to vocational training, carrying SWHS students to and from the school during the day to distant locations where vocational training occurs. This means I-75 is the primary route. The Preferred Alternative maintains access to and from I-75. For those students using the two city of Detroit routes serving this area, those routes have been modified in collaboration with the Detroit Department of Transportation to minimize impacts.
33	The proposed plaza area must preserv[e] . . . as many streets and pedestrian crossings spanning the freeway as is deemed satisfactory to the residents . . . and the business community's customers . . .	Impacts: Traffic over 75	See response to Comment #3.
34	It would be counterproductive . . . to disrupt the I-75 easy on and off ramps to . . .the Springwells Business District that is also a main artery to the West Vernor Business District.	Impacts: Traffic to 75	The Springwells interchange will be reconstructed with full access maintained. The Springwells/Fort Street intersection will be improved.
35	We would like to see a new dedicated truck route between Jefferson and Fort St. Possible solution: a truck route running along side of existing and newly proposed railways.	Impacts: Traffic to 75	The DRIC will have little effect on truck traffic volumes to justify a new truck road as suggested.
36	It is imperative that these businesses [seventeen major employers] are consulted as to their traffic and truck routing needs.	Impacts: Traffic to 75	The Preferred Alternative improves access to I-75 compared to any of the previously presented Practical Alternatives. Full interchanges are preserved at Springwells and at Clark, although the location for two of the Clark interchange ramps will be changed. Some access to the freeway in the vicinity of the existing Livernois interchange has been retained. Major businesses will be met with during the design phase of the project, which is standard procedure.
37	Closing exits and entrances from Clark, Livernois and Springwells would continue the devastation initiated by the Gateway project and is completely unacceptable.	Impacts: Traffic to 75	See response to Comment #36.
38	Only two City of Detroit bus routes are listed as being affected by a project of this magnitude Route 11 and 30, but the ongoing construction would more than likely affect route 19 that utilizes Fort St. Of course adjustments can be made to the routes affected.	Impacts: Transit	A meeting held with DDOT on September 25, 2008, concluded that rerouting of their two bus lines could be accomplished as documented in Section 3.5.6.1 of the FEIS.

	Comment	Response Category	Response
39	. . . the displacement of low-income families (30%) and the multitude of zero car households (25%) are a concern. . . a project of this magnitude could have a massive impact on our ridership.	Impacts: Transit	The Preferred Alternative reduces the number of residential relocations to 257. For these households, and others in the area, transit use is less than 5 percent of all trips. The two Department of Transportation bus routes have been re-routed in collaboration with DDOT to minimize impacts.
40	Current capacity at the border will be overloaded by as early as 2015 if high traffic growth occurs and by 2035 if traffic grows more slowly. . . It is prudent and appropriate to plan now.	P&N: Capacity	Comment acknowledged.
41	The DRIC project has always been portrayed as satisfying a need to accommodate imminent, dramatic increases in traffic volume.	P&N: Capacity	It is unclear where such portrayals have been made or by whom. The traffic forecasts show capacity being exceeded between 2015 and 2035.
42	The DEIS's capacity calculations fail to account for the Ambassador Bridge Enhancement Project. . . By increasing the number of lanes on the Ambassador Bridge from four to six, the Ambassador Bridge Enhancement Project will increase that crossing's physical capacity by 50%.	P&N: Capacity	The Ambassador Bridge Enhancement Project Environmental Assessment submitted to the U.S. Coast Guard April 24, 2007 states "the second span will provide four full service traffic lanes plus two lanes dedicated to low risk commercial travelers." (p.1) "These FAST lanes do not represent an expansion of capacity since they are restricted to those that have been pre-approved for their use." (p 43). Capacity is not otherwise discussed in that EA. As it was stated that the FAST lanes do not contribute to capacity (and it is unclear how that could be so), the position of the DIBC at the time of the writing of the DRIC FEIS was interpreted to be that a new bridge would not add capacity. Nonetheless, travel demand modeling was performed for both a four-lane Ambassador Bridge and a six-lane Ambassador Bridge. The analysis of the six-lane condition is reported in Section 3.14.3 of the FEIS.
43	. . . the mere inclusion of the Ambassador Bridge Enhancement Project as part of baseline traffic capacity moves the earliest conceivable date for traffic "breakdown" from 2015 to approximately 2040.	P&N: Capacity	DEIS page ES-3 notes capacity involves: 1) roads leading to the Ambassador Bridge and Detroit-Windsor Tunnel; 2) customs processing; 3) and, the crossings themselves. An increase in capacity on a bridge does not change the capacity of the approach roads. The Enhancement Project EA states, "Finally, the construction of any new roads linking the Ambassador Bridge with Highway 401 is outside the scope of the Ambassador Bridge Enhancement Project and would be within the exclusive control of Canadian and Ontario government agencies." Because the Enhancement Project includes no provision for a roadway capacity expansion, the existing capacity limitations of the approach corridor remain.
44	Backups on the Ambassador Bridge appear to be entirely due to how many truck CI [Customs Inspection] inspection posts are open. Our members have repeatedly observed that when three or fewer truck CI posts are open, incoming traffic to the U.S. is backed up all the way across the bridge. . . The solution to reducing truck congestion is to ensure that more truck CI posts are open at all times.	P&N: Capacity	As stated in Section 1.2.1.3 of the DEIS, ". . . At least 44 different Canadian and U.S. agencies have jurisdiction over border operations. There are almost 4,500 new or revised regulations introduced by Canadian federal and provincial governments every year that affect border travel. So, while the limitations on U.S. and Canadian access roads and the border crossings can be addressed by physical improvements, changing its plazas where border processing delays regularly occur is not just more booths and manpower, but rules and regulations set by policy makers in the U.S. and Canada."
45	When Phase One of the Gateway Project is completed in 2010, vehicles traveling over the Ambassador Bridge into the United states will pass through improved plazas and have direct access to I-75, I-94, and I-96. These changes will full satisfy any need for improved "system connectivity" and plaza "operations and processing capability" on the U.S. side of the border.	P&N: Connectivity	The Gateway Project also does not address the need for crossing options (redundancy) in case of incidents. It will improve plaza operations in the U.S., but connectivity on one side of the border alone is meaningless without connectivity on the other side.

	Comment	Response Category	Response
46	. . . the federal government of Canada and the provincial government of Ontario signed a Memorandum of Understanding in September 2002 in which they committed to $300 as an "investment in the Windsor Gateway." . . (attached as Exhibit A).	P&N: Connectivity	The "Windsor Gateway" referred to in that memorandum is not the DIBC "Gateway Project." The funds referenced in that memorandum have since been expended on a number of projects which complied with the stated goals/intentions/objectives of that memorandum.
47	My comment [is] about letting the people here tonight know what happens actually down at the border. We . . . brokers . . . facilitate the U.S. Customs. We are licensed . . . to release shipments from all over the world . . . . So this opens up such a trade that you would not believe all over the world . . . . This is going to be a really big situation for the economy.	P&N: Economic Security	Comment acknowledged.
48	It is critical that the bi-national partners take the steps to expand international border crossing infrastructure, and enhance the seamless flow of goods and people in order to strengthen the vitality of the Great Lakes economic region.	P&N: Economic Security	Comment acknowledged.
49	As chairs of our respective transportation committees in the Michigan House of Representatives we cannot express enough how important this project is to the future of the Detroit region, the State of Michigan and international trade.	P&N: Economic Security	Comment acknowledged.
50	Has your projection of 128% truck traffic increase by 2035 taken into account 1) price of fossil fuel, 2) decline in N. American auto industry, and, 3) the projection of added hassle factors to travel across the border that would likely make business limit their crossings and consolidate operations to eliminate previously easy trips?	P&N: Forecasts	Such factors are inherently incorporated into the forecasts by the risk analysis procedure. Reference is made to 3.5.1.4 in the DRIC FEIS.
51	I'd like to comment on the graph [of] travel demand versus capacity. It indicates . . . 1999 was a peak year for . . . the Ambassador Bridge; it's started to decline. You have it going to year 2004, but you've not continued this graph up to current time . . . . It is my understanding that . . . seven years . . . we're down about 39 percent . . . which says the Ambassador Bridge is not being utilized extensively to its capacity.	P&N: Forecasts	Auto traffic is down because of changes/enhancements in border security procedures, economic conditions, and changes in the value of the U.S. currency, to cite a few reasons. But, truck traffic is up since 1999 reaching its highest level ever on the Ambassador Bridge in 2006. Truck traffic is an indicator of trade and the health of the economies of the two largest trading partners in the world. Providing economic security is part of the DRIC project's purpose.
52	This graph is hypothetical so it's meaningless . . . . It has to be updated to prove what they wish to make us believe - that there is a need.	P&N: Forecasts	The graph depicts past and future trends and the time period that the Detroit-Windsor Tunnel and the Ambassador Bridge will be at capacity. Every forecast is "hypothetical" but not meaningless. Nonetheless, it is recognized that auto traffic is down because of changes/enhancements in border security procedures, economic conditions, and changes in the value of the U.S. currency, to cite a few reasons. But, truck traffic is up since 1999 reaching its highest level ever on the Ambassador Bridge in 2006. Truck traffic is an indicator of trade and the health of the economies of the two largest trading partners in the world. Providing economic security is part of the DRIC project's purpose.

	Comment	Response Category	Response
53	The Blue Water Bridge built a second span in 1996. At that time there was roughly six million vehicles going across it annually. It is now down to somewhere about five million and a half, I believe. They projected . . . nine million . . . [It] never did come to fruition, nor is the bridge being used. So that second span was a waste of money, as I see it.	P&N: Forecasts	The 1982 forecasts of traffic crossing the border in the Port Huron-Sarnia area have proven to be accurate.
54	The owners of the Ambassador Bridge state that there will actually be less traffic crossing our border in the next 35 years. And I've heard tonight . . . things are going to pick up after continual downturn of another eight years.	P&N: Forecasts	The DRIC forecasts reflect growth in truck traffic by 2035 and a rebounding in auto traffic with some growth compared to today.
55	International traffic has been declining since 1999.	P&N: Forecasts	See response to Comment #51.
56	. . . there appears to be no information in any of the DEIS documentation regarding the assumptions in the travel demand forecasting process of the border crossing fees for the years for which the traffic forecasts have been made . . . The DEIS should be amended to clarify the traffic forecasting assumptions and to quantitatively evaluate at least the fare policy options identified above.	P&N: Forecasts	As stated in Section 3.5.1.1 of the DEIS and FEIS, tolls at the crossings have been considered equal so no prejudice is cast on one crossing over another.
57	The DEIS uses[s] 2004 as a base year. We now have three more years of data and the DEIS should be amended to establish 2007 as the base year. . . Traffic volumes on at least the BWB {Bluewater Bridge] declined considerably between the end of 2004 and the end of 2007. . . . The DEIS should be modified to present the traffic counts for the AMB [Ambassador Bridge], DWT [Detroit-Windsor Tunnel] and BWB and amend the forecast for the planning horizon year, 2034.	P&N: Forecasts	On the issue of a base year, every analysis must establish a point at its outset from which to project. Nonetheless, it is recognized that auto traffic is down from the base year because of changes/enhancements of border security procedures, economic conditions, and changes in the value of the U.S. currency, to cite a few reasons. But, truck traffic is up since 1999 reaching its highest level ever on the Ambassador Bridge in 2006. Truck traffic is an indicator of trade and the health of the economies of the two largest trading partners in the world. Providing economic security is part of the DRIC project's purpose. Finally, the DRIC model projects trucks within five percent of actual crossings of the Ambassador Bridge in 2005, 2006 and 2007. No modifications of the DEIS are needed.
58	Because significant fuel price changes have an impact on travel demand the travel demand forecast contained in the DEIS should be redone. . . . In addition, the change . . . gives impetus to identify . . . the improvement of intermodal freight services as a reasonable alternative.	P&N: Forecasts	Figure 1-3 in the DEIS and FEIS shows the combined effects of all the risk factors that could move forward or delay the time when a new or expanded crossing is required. The Extreme High Scenario consists of a combination of High Trade Growth and High Passenger Car Demand Scenarios. The Extreme Low Scenario is a combination of the Low Trade Growth, Diversion to Intermodal Rail, High Diversion to St. Clair River crossing and Low Passenger Car Demand Scenarios. Such unlikely scenarios would advance the year in which capacity is reached by five years to about 2015 or delay it by fourteen years to about 2034, respectively. This information can be found on the project Web site under Canadian Reports - "Travel Demand Forecasts, 2005," Section 6.2.5. Such effects on cross border traffic are part of the risk analysis in the DRIC forecasting. Reference is made to 3.5.1.4 in the DRIC FEIS.

	Comment	Response Category	Response
59	. . . the 2034 peak hour PCEs [passenger car equivalents] projection derived above [by the commenter] is slightly less than 90% of the available capacity in place at this time, a result which suggests the need for providing more highway capacity across the Detroit River is not as urgent as is suggested in Figure S-2. . . The DEIS should be revised to explicitly state how the peak period PCE statistic was derived from the year 2034 travel demand forecast and the justification for the procedure . . .	P&N: Forecasts	Information regarding the peak periods and PCE development is fully documented in the Traffic Analysis Technical Report, which were publicly available at the depositories and on the Web at www.partnershipborderstudy.com. Go to Canadian Reports then to the document entitled "Travel Demand Forecasts, 2005." See Section 6.1.
60	Neither the DEIS nor the TDF [travel demand forecasting] contains an analysis of the sensitivity of the hourly PCE for 2034 to changes in assumption made in the calculations . . . It is possible to provide incentives to travel at times other than peak periods. The DEIS also should be amended to address the sensitivity of the peak hour travel forecasts to the implementation of various peak period travel disincentives.	P&N: Forecasts	The travel demand models assign traffic based upon travel time and cost. Trip tables were established based upon analysis of risks so variations in items such as fuel costs are accounted for. Reference is made to the project Web site at www.partnershipborderstudy.com. Go to Canadian Reports then to the document entitled "Travel Demand Forecasts, 2005." See Section 6.2. Additionally, MDOT does not own, manage or operate the existing crossings in Detroit. Therefore there is no ability to impose the kinds of incentives/disincentives suggested by the commenter.
61	The DEIS requires amendment to clearly present both existing and forecasted travel volumes between Detroit and Upstate New York that uses travel through Ontario as a short cut.	P&N: Forecasts	Those data are included in the travel model which uses a network covering all of the U.S. and Canada and also is based on survey trip data which includes that NY/Detroit traffic which is a relatively small percentage of total traffic.
62	Given the non-availability of 2005 [origin-destination] data, and given that practical alternatives to the DRIC project can not be evaluated without such data, it is imperative that the DEIS be amended to include the 2005 origin-destination information and then released to the public for additional comment.	P&N: Forecasts	The best available data were used to develop the DRIC travel forecasting models. Refer to the project Web site. Go to Canadian Reports then to the document entitled "Travel Demand Forecasts, 2005." See Section 6.1.. They have been reviewed by a peer group and found to be acceptable. No further data collection is needed nor will be conducted for the DRIC FEIS.
63	The record of working documents that are a part of the DEIS should be amended to include the TDF [travel demand forecasting] report.	P&N: Forecasts	All appropriate reference material has been made available to the public. This includes material on the Web site. Go to Canadian Reports then to the document entitled "Travel Demand Forecasts, 2005." Also, go to U.S. Reports to the Level 1, Level 2, and Level 3 Traffic Analysis Reports.
64	Although the DEIS was released in 2008, it continues to rely on the now-outdated traffic estimates used three years earlier in the 2005 Draft Scoping Information document.	P&N: Forecasts	The latest information has been used. When SEMCOG released a socioeconomic forecast with lower growth than projected earlier, a sensitivity analysis was performed and reported in Section 3.2.1.3 of the FEIS. It did not substantively change the forecast travel demand.
65	. . . the traffic forecasts that appear in the DEIS were made using data from 2004. The forecasts were not revised to include subsequent years, even though the DEIS was not published until 2008. . . The actual data show a decrease in both passenger and commercial trips between 2005 and 2007. . . the ever-increasing error in the DEIS's traffic figures would compound exponentially over a 30-uear horizon. Any agency decision that is based on this sort of massive projection error would readily qualify as arbitrary and capricious.	P&N: Forecasts	See response to Comment #51.

	Comment	Response Category	Response
66	Recently, the Southeast Michigan Council of Governments ("SEMCOG") released an updated population forecast for the seven-county region . . . The January 2008 Induced Demand Analysis Technical Report recognizes the existence of the more recent SEMCOG forecasts, but claims that the smaller number of people living in the region would not significantly reduce cross-border traffic, and "does not materially change the overall border crossing assignment pattern . . . ." . . . This conclusion is inconsistent with the larger population and economic trends discussed [in the submitted comment letter].	P&N: Forecasts	The conclusion in the Induced Demand Technical Report is consistent with and takes into account the lower SEMCOG population and employments forecasts the commenter notes. (Refer to Section 3.5.1.4 in the DRIC FEIS.) Cross border travel is driven by trade/truck traffic that is a function of broad national issues rather than the number of people and jobs in the SEMCOG region. With that said, it is recognized the auto traffic forecast for 2035 indicates it will just about return to 2000 levels. That forecast is more sensitive to population and employment. The 2035 auto traffic forecast is reasonable. Regarding trucks, recent U.S. Department of Transportation data indicate April 2008 set a new record for U.S. trade with our North American neighbors, at $74.3 billion. (The previous high was $74.2 billion in October, 2007). Trade with Canada alone reached $48.9 billion, a 15% increase from April 2007. April also marked the 14th straight month that surface trade with Canada improved compared to the same month the previous year. Michigan was the leading state in trading with Canada, at $6.4 billion, a full 33% higher than the number two state, Illinois. These numbers support the conclusion that the DRIC crossing is needed sooner rather than later to address economic security.
67	In January 2008, a report prepared for the City of Windsor observed a "substantial decline" in employment during 2007 . . . The Conference Board of Canada is now predicting -0.3% annual declines in employment between 2007 and 2010. In the U.S., SEMCOG employment forecast envision job losses that began in 2000 continuing through 2008. . . .Were the DEIS to use these more recent employment numbers, it would again have to lower its traffic projections.	P&N: Forecasts	See response to Comment #66.
68	The DEIS's commercial vehicle traffic prediction is based on outdated and overly aggressive commodity trade forecasts. . . using the more realistic projections of the Freight Analysis Framework ("FAF2") commodity flow database developed by FHWA in cooperation with the Bureau of Transportation Statistics . . . project[s] a decline in Detroit-Windsor freight activity in the automotive sector until 2015, and overall lower growth in that sector between 2004 and 2035.	P&N: Forecasts	Freight Analysis Framework (“FAF2”) was used as one of several inputs in the base data used for the future demand forecast.
69	The decline in traffic between Detroit and Windsor since 1999 calls into question the basic premises of the DEIS's traffic projection.	P&N: Forecasts	See response to Comment #51.
70	. . . the DRIC Study Travel Demand Forecast report, which is the basis for DEIS Figure 1-3, assumes that the mode share between trucking and rail at both Detroit crossing . . . will remain constant in future years. But, in reality several factors are driving freight shippers to shift from trucking to rail . . .	P&N: Forecasts	The DRIC model uses an increase in intermodal traffic of 20% by 2030 which reduces truck traffic at the border by almost five percent in 2030. That reduction then is taken into consideration in projecting a 128% growth in truck traffic by 2035.

	Comment	Response Category	Response
71	Because U.S. auto manufacturers have lost market share, each car built with U.S. and Canadian parts results in many fewer border crossings of parts and finished vehicles. . . each of these companies has announced a substantial reduction in the selection of vehicle models they will produce. All of this means hat parts will become more generic, and therefore the truck transport of differing, individualized parts will diminish . . .	P&N: Forecasts	That statement is not consistent with the latest surface transportation U.S. and Canadian data for April 2008. They show an increase of 15.9 percent in the value of trade compared to April of 2007. Michigan was the greatest trading partner with Canada in April 2008 at $6.4 billion. It is also noteworthy that most, if not all, of the "foreign" automakers with plants in the U.S. who are gaining market share also have plants in Canada and they contribute to the cross-border traffic. The relative locations of those plants indicate that the Detroit - Windsor border crossing is the most likely route for this traffic.
72	Personal border crossings . . . Likely have been permanently affected by the opening of three hotel casinos in Detroit . . . in 2004, when the DRIC project made its traffic projections, the currency exchange rate was around $1 U.S. dollar to $1.37 Canadian dollars . . . Due to the favorable purchasing position of the U.S. dollar, Windsor's restaurants flourished and personal car traffic across the border was increased. The exchange rate today is nearly one-to-one.	P&N: Forecasts	See response to Comment #58.
73	. . . the strongest proponents of the DRIC project, as well as the sponsoring agencies, must concede the need to collect several more years of current and readily available traffic data before deciding whether it is necessary to open a new border crossing in the Detroit-Windsor area.	P&N: Forecasts	Reasonable and secure crossing options are needed now. The sensitivity to traffic volumes is related to financing a new bridge. A separate and independent investment grade traffic study will follow the FEIS.
74	If one combines the BWB annual traffic volume changes since 2004 . . .with the AMB and DWT . . . it is readily apparent that the total annual traffic demand on the three crossings combined has declined significantly since 2004 - by 12% for passenger car traffic, 2% for commercial traffic, and 7% for PCEs . . . It can be concluded that traffic growth forecasts on which the DRIC DEIS relied are not consistent with the reality of traffic flows observed during 2007. Even if the approximate 3% CAGR [compound annual growth rate] . . . eventually is realized, the date that the capacity of the existing crossings will be matched by traffic demand perhaps will be on the order of five years later than . . . in Figure S-2 . . .	P&N: Forecasts	See response to Comment #58.
75	. . . it is imperative that the DEIS be amended to include the 2005 origin-destination information and then released to the public for additional comment.	P&N: Forecasts	See response to Comment #58.
76	I believe that we need to spend more time understanding the increased demand for the new bridge in light of traffic patterns over the past eight to ten years.	P&N: Forecasts	See response to Comment #51.
77	The traffic numbers used in the DRIC in its DEIS are outdated and flawed. Even the DRIC has recognized this by announcing that it is engaging new traffic experts.	P&N: Forecasts	A separate and independent investment grade traffic study will follow the FEIS. At this time, however, the DRIC has not engaged new traffic experts. One of the DRIC partners, Transport Canada, has initiated an investment grade traffic study to advance its Canadian planning in financing its portion of the project.

	Comment	Response Category	Response
78	The proof of the continuation of the long range downturn in future traffic is . . . The Ontario Trucking Association's report dated Monday, May 19, 2008 stating the cross border trucking was down 8.4% since 2000. . . Tuesday, May 20, 2008 Wall Street Journal concludes that the prediction that the U.S. automobile market will recover to a level of 20 million vehicles a year is incorrect . . . the report of StatsCanada that tourist travel from the US to Canada in March 2008 was 12.4% lower than in March 2007. . . Wednesday, May 21, 2008 Detroit Free Press reports that Detroit Metropolitan Airport cannot support the increased air travel predictions . . .	P&N: Forecasts	Figure 1-3 in the DEIS and FEIS shows the combined effects of all the risk factors that could move forward or delay the time when a new or expanded crossing is required. The Extreme High Scenario consists of a combination of High Trade Growth and High Passenger Car Demand Scenarios. The Extreme Low Scenario is a combination of the Low Trade Growth, Diversion to Intermodal Rail, High Diversion to St. Clair River crossing and Low Passenger Car Demand Scenarios. Such unlikely scenarios would advance the year in which capacity is reached by five years to about 2015 or delay it by fourteen years to about 2034, respectively. This information can be found on the project Web site under Canadian Reports - "Travel Demand Forecasts, 2005," Section 6.2.5. The comment is not consistent with the latest surface transportation U.S. and Canadian data for April 2008. They show an increase of 15.9 percent in the value of trade compared to April of 2007. Michigan was the greatest trucking partner with Canada in April 2008 at $6.4 billion. These data support the conclusion that the DRIC crossing is needed sooner rather than later to address economic security." The report regarding tourist travel can be addressed by other comments dealing with automotive traffic volumes.
79	The . . . DEIS . . . articulates several needs for a new border crossing between Detroit and Windsor . . . The first of these needs, critiqued at length in DIBC and CTC's Initial Comments, hinges on the false assertion that traffic volumes will increase dramatically in the long run.	P&N: Forecasts	The DEIS does not assert that the traffic volumes will increase dramatically. It does state that they will increase using reasonable forecasting assumptions.
80	The arguments in DIBC and CTC's Initial Comments were confirmed when GSA performed its own study of the traffic here at issue and concluded that future growth will be far lower than what the DRIC study predicts.	P&N: Forecasts	The GSA study the comment refers to states as follows: "In addition to projections derived through standard GSA/Regal protocols (emphasis added), the most relevant forecasts available for this application are derived from the Detroit River International Crossing (DRIC) process, ... These forecasts are driven by economic forecasts and a cross border regional travel demand models, and the traffic outputs are higher than the standard statistical projections derived through the GSA/Regal Protocol. Taken together, these two approaches inform low and high traffic forecasts that yield a range of facility requirements used in the development of master plan layout options. Options developed within this context can be evaluated for the adaptability to the actual traffic flows experienced over the planning horizon."
81	Even if the DRIC study's traffic model were viable, the inputs it uses are four years old; newer data shows that actual traffic volumes are far lower than the DRIC model predicted.	P&N: Forecasts	See response to Comment #62.
82	This project is critical and extremely important to the success of the Michigan economy. We strongly recommend this project proceed expeditiously and should be a priority for all levels of government.	P&N: General	Comment acknowledged.

	Comment	Response Category	Response
83	The X-10 or X-11 crossing will pretty much render the Ambassador to a position of second fiddle. Why didn't MDOT think the Gateway Project through to include a vision w/the downriver site? The state could have saved millions if this project decision would have been delayed.	P&N: General	The Gateway Project has independent utility. It was designed to accommodate a second span of the Ambassador Bridge but was in no way dependent on a second span. It was simply prudent to design for that option. Connections to the interstate system were not allowed by law when I-75 was built. The Gateway Project provides those connections. The need for a new crossing involves redundancy. Both the replacement span of the Ambassador Bridge and a new crossing are needed. So, there would not have been "millions saved."
84	While useful, the existing tunnel bus service is insufficient to truly meet the needs of the traveling public.	P&N: General	The need for the project is driven by trade, i.e., travel by truck not bus. Further, according to published data, Bus service crossing the border has declined over the past several years. Since this service is demand driven, that would indicate a lack of demand….not an unserved surplus.
85	DRIC was and still is not a solution for transportation growth in this region.	P&N: General	Providing economic and physical security are the purpose of the DRIC. The DRIC Preferred Alternative is the solution of the Border Transportation Partnership for meeting this purpose.
86	There is absolutely no transportation justification for a DRIC bridge in this corridor.	P&N: General	The justifications are economic and physical security.
87	It is critical that the bi-national partners take the steps to expand international border crossing infrastructure, and enhance the seamless flow of goods and people in order to strengthen the vitality of the Great Lakes economic region.	P&N: General	Comment acknowledged.
88	The DEIS's stated need for the DRIC project is based on unrealistically optimistic traffic growth forecast. . . Among the needs for the DRIC project identified in the DEIS, the claimed need for additional border crossing capacity in the near future stands out as most essential to the project's rationale.	P&N: General	A new border crossing is needed in the Detroit-Windsor area to: * Provide safe, efficient and secure movement of people and goods across the Canadian-U.S.. border in the Detroit River area to support the economies of Michigan, Ontario, Canada and the U.S. * Support the mobility needs of national and civil defense to protect the homeland. To address future mobility requirements (i.e., at least 30 years) across the U.S.-Canada border, there is a need to: * Provide new border-crossing capacity to meet increased long-term demand; * Improve system connectivity to enhance the seamless flow of people and goods; * Improve operations and processing capability in accommodating the flow of people and goods at the plazas; and, * Provide reasonable and secure border crossing options in the event of incidents, maintenance, congestion, or other disruptions.
89	. . . the 2005 Draft Scoping Information document for the DRIC project identified the "needs" . . . The first need on the list was the provision of "new border crossing capacity to meet increased long-term demand." Draft Scoping Information ("DSI") at 6 (emphasis in original). In addition, two of the three other needs identified in the scoping document - better system connectivity and improve processing capability - related directly to the feasibility study's forecast increase in traffic volumes.	P&N: General	See response to Comment #88.

	Comment	Response Category	Response
90	The DEIS consequently proclaims that "a solution is needed" that "[p]rovides adequate vehicle capacity to handle vehicle demand." . . .That "solution," . . . Is an entirely new border crossing.	P&N: General	See response to Comment #88.
91	Because it foresees the existing Detroit-Windsor crossings as having sufficient capacity for as few as seven more years of service, the DEIS concludes that a completely new border crossing is needed immediately.	P&N: General	The immediacy stems from the need for redundancy. The need for a completely new border crossing is immediate. The schedule for implementation is designed to move forward as quickly as practicable to address that need.
92	Revising the DEIS's traffic forecasts to include more recent data and the Ambassador Bridge Enhancement Project eliminates the supposed "need" for a new border crossing.	P&N: General	See response to Comment #88.
93	The DRIC DEIS proposes developing a whole new border crossing . . . This seems to be a poor solution to the border capacity problem . . . There is no need for a whole new plaza and new interchange.	P&N: General	See response to Comment #88.
94	The alleged need for improvements to existing plazas and approach roads is not sufficient reason to construct an entirely new crossing.	P&N: General	See response to Comment #88.
95	Federal and State governments in the U.S. are investing hundreds of millions of dollars to improve access to existing crossings.	P&N: General	Comment acknowledged.
96	Declining to conduct an updated traffic forecast and present it to the public for comment would be an arbitrary and capricious decision. . . . Because these outdated traffic forecasts are fundamental to the DEIS's articulated purpose and need, FHWA cannot responsibly proceed with the DRIC project unless they are updated and corrected.	P&N: General	See response to Comment #88. Traffic forecasts relate to capacity. Capacity is one of four listed needs. Redundancy is another. Redundancy requires a new plaza and interchange in the U.S. and a new plaza and access road in Canada.
97	The Detroit Windsor Tunnel has served the region for over 77 years without government support. It remains important that DRIC continue to view the tunnel as an integral part of our regional international transportation system and keep in mind that until a new crossing is open to traffic, the bridge and tunnel share provide the redundancy in our region.	P&N: Redundancy	The tunnel and the Bluewater Bridge provide partial redundancy to the Ambassador Bridge. But, the purpose and need for the DRIC finds this partial redundancy inadequate to provide economic security.
98	A third, state of the art crossing is required for redundancy and safety issues.	P&N: Redundancy	Comment acknowledged.
99	A discussion of Reasonable Alternatives necessarily includes increased public transit capacity (rail and bus) and freight rail infrastructure.	P&N: Redundancy	Increased public transit and freight rail infrastructure do not meet the project's purpose and need as they fail to provide physical redundancy for traffic crossing the border. This is fully documented in the Planning/Needs and Feasibility Study.
100	One reasonable alternative to the selected alternatives, insofar as freight traffic is concerned, is intermodal rail.	P&N: Redundancy	The DRIC uses in developing its forecasts that 4.4% of the truck traffic could be diverted to intermodal rail by 2030. That diversion is built into the DRIC model before it calculates the 128% increase in truck traffic in 2035.

	Comment	Response Category	Response
101	Redundancy is a critical objective of the DRIC Study Project and an essential feature. . . The current international border crossing system . . . does not work. . . . A breakdown in one lane of traffic, on a local road, or a similar system failure can significantly disrupt the flow of commerce for the entire region. A natural disaster or terrorist attack on such infrastructure would have truly enormously debilitating impact. . .	P&N: Redundancy	Comment acknowledged.
102	DIBC and CTC are continuing . . . the Ambassador Bridge Enhancement Project, a new, privately-financed, six-lane span that will be constructed next to the existing Ambassador Bridge, using the same . . .plazas, without taking homes or businesses and without spending taxpayer money. . . the DRIC project, on the other hand, requires . . . a new bridge . . . new customs plazas . . . and new roads connecting the bridge to U.S. Interstate 75 and Canada Highway 401.	P&N: Redundancy	The owners of the Ambassador Bridge were informed via a letter from the Canadian Customs and Border Services Agency dated June 17, 2008, that "the preliminary planning accomplished so far suggests there is insufficient land available to accommodate a functional port of entry (i.e., a plaza) without impact on the community south and west of existing installations." The areas south and west of existing Canadian installations is occupied by institutional, residential and other uses. (Letter available at www.partnershipborderstudy.com.)
103	In today's global knowledge economy and a post 9-11 world, we must be concerned with just-in-time (JIT) business relationships and the unfortunate reality of the major challenge of redundancy - a just-in-case (JIC) backup plan.	P&N: Redundancy	Comment acknowledged.
104	. . . redundancy is important . . But would it not be more difficult to defend and protect two separate structures and plazas.	P&N: Redundancy	Security will be addressed by the U.S. Department of Homeland Security and the Michigan Homeland Security.
105	The examples outlined by Mr. Bergmann to modify travel demand: differential tolls, peak period travel disincentives, reversible lanes would have the effect of reducing some current transportation impacts . . .	P&N: Redundancy	Comment acknowledged, but these measures would provide no physical redundancy and not satisfy the need for the project. In addition, MDOT lacks the ability to impose these alternatives on its own, and lacks the authority to compel others to impose them.
106	. . . strategic transportation demand management options such as intermodal rail diversion of truck traffic . . . may further lessen environmental impacts as compared to additional road-based crossings.	P&N: Redundancy	See response to Comment #100.
107	. . . strategic transportation demand management options such as . . . a light rail public transportation option may further lessen environmental impacts as compared to additional road-based crossings.	P&N: Redundancy	Light rail service across the Detroit River would not support the purpose and need of the project to "provide safe, secure, and efficient movement of . . . goods . . . support the mobility needs of national and civil defense . . . and provide for seamless flow of goods and processing capability for goods (emphasis added)."
108	It would be prudent to view current oil supplies as a permanent trend and plan accordingly . . . Enhancing border capacity infrastructure with the exclusive development of an additional road-based crossing would be a myopic use of public funds and environmental capacity.	P&N: Redundancy	See response to Comment #88. The purpose and need for the project call for redundancy. Nonetheless, MDOT and FHWA are focused on multi-modal solutions to various transportation issues.

	Comment	Response Category	Response
109	Unless there is a clear, sustained and substantial reversal in fuel prices, a new highway span simply will not be needed for many years. Current economic conditions indicate that he "Roadrailer" type of equipment, which already is in use between Detroit and Toronto, will become more common due to its high fuel efficiency. MDOT failed to evaluate reasonable intermodal freight alternatives in lieu of building a new span.	P&N: Redundancy	See response to Comment #100.
110	PCEs [passenger car equivalents] . . . can be significantly reduced not only by developing improved trans-border intermodal freight railroad services, but also by improving local trans-border public transportation, but also by improving local trans-border public transportation service and by re-establishing passenger train service from Chicago-Detroit-Buffalo-New York City via Southern Ontario.	P&N: Redundancy	Reducing PCEs does not address the need for physical redundancy.
111	The proposed new crossing would not enhance homeland security. . . . The DEIS ignores the redundancy already provided by the six existing crossings as well as the replacement span of the Ambassador Bridge . . . a truck ferry, a freight rail tunnel, the Detroit-Windsor Tunnel, and the twin Blue Water Bridges . . . and a freight rail tunnel. In a future emergency, all seven of these crossings could absorb traffic from any crossing that was out of commission . . . providing all the redundancy the region needs.	P&N: Redundancy	None of the modes/alternatives mentioned can substitute for the physical redundancy provided to the principal mode serving commerce - trucks. Further, analysis indicates that a new DRIC crossing best responds to the crisis of one of the existing crossings being "out of commission."
112	The DRIC project would not create a "second, distinct crossing system."	P&N: Redundancy	The Preferred Alternative would create a new river crossing two miles down river from the Ambassador Bridge. It would provide a new interchange on I-75, plazas in the U.S. and Canada separate from that at the Ambassador Bridge and a new access road to Highway 401 in Canada.
113	Unlike the Ambassador Bridge, which will soon be directly connected to three Interstate Highways, . . . the new crossing described in the DEIS would link only to I-75.	P&N: Redundancy	The connections of the two crossings to the U.S. interstate highway system are effectively the same.
114	The U.S. State department likewise does not agree that the proposed DRIC bridge would create redundancy. In 2005, the State Department opined that locating the DRIC project close to the Ambassador Bridge did not significantly improve redundancy, because "a problem at any one crossing may affect all of the centrally-located crossings. . . . Consequently, proponents of the DRIC project cannot seriously rely on enhanced national security as a justification for the construction of a new border crossing.	P&N: Redundancy	The 2005 Letter from the State Department was cautioning against selecting an alternative that was located too close to the existing crossing (like a twinned bridge option) because of the dangers cited in the letter. Additionally, the State Department has reviewed all major products of the DRIC produced since the 2005 letter that lead up to the DEIS. It reviewed and commented on the DEIS. The project's purpose and need and the Preferred Alternative both address national security and redundancy. That position with the U.S. State Department involvement has not changed.
115	The Ambassador Bridge Enhancement Project will create a state-of-the-art bridge far less susceptible to failure. . . . a cable stayed structure . . .	P&N: Redundancy	Cable-stay and suspension bridges are both candidates for use in the DRIC. For the DRIC, a decision on bridge type will be made during the design phase. Nonetheless, bridge type does not address the security and redundancy issues.

Appendix D – Microsimulation Traffic Data

Appendix E – VISSIM Model and AVI Files

Appendix F – Capacity Analysis Worksheets

Appendix G – VISSIM Microsimulation Results

Under separate cover.