

Appendix K

Detroit River International Crossing Study Air Quality Impact Analysis Technical Report Addendum

Detroit International River Crossing

Air Quality Impact Analysis Technical Report

Addendum

November 2008

This Addendum supports the air quality analysis in the Detroit River International Crossing FEIS. It focuses on the Preferred Alternative. The differences between the Preferred Alternative and several of the Practical Alternatives analyzed in the DEIS are not significant. Therefore, the conclusions stated in the DEIS related to air quality remain valid for the Preferred Alternative. In addition, the project has been found to conform to the Clean Air Act at the project level. The plaza associated with the DRIC falls below *de minimus* thresholds, so general conformity does not apply. The bases leading to these air quality conclusions are discussed below.

Traffic

The Practical Alternatives considered in the DEIS for the macro traffic analysis were included in groups by proposed crossing—X-10 and X-11 (Figure 1). The discussion of the traffic of these groupings is found in Section 3.1 of the *Air Quality Impact Analysis Technical Report*.

The group of alternatives referred to as Practical Alternatives #1, #2, #16 consisted of Crossing X-10 together with Plaza P-a and several interchange configurations. This group of alternatives most closely matches the Preferred Alternative. From a macro modeling assignment perspective, the interchanges of these three alternatives are effectively the same, as all connected to I-75 with the same trumpet-style configuration at essentially the same location. These Practical Alternatives are very much like the Preferred Alternative, with the differences being that: 1) the Preferred Alternative has a full interchange with I-75 at Springwells, the Practical Alternatives did not; and, 2) the entrance and exit ramps vary in the Livernois-Junction area and south of Clark Street (see FEIS Section 2.2.4.2).

Figure 1
Crossing System Build Alternatives Included in
DRIC DEIS
Detroit River International Crossing Study

Alternative	Interchange	Plaza	Crossing
#1	A	P-a	↑ X-10 ↓
#2	B	P-a	
#3	C	P-a	
#5	E	P-a	
#14	G	P-a	
#16	I	P-a	
#7	A	P-c	↑ X-11 ↓
#9	B	P-c	
#11	C	P-c	

Source: The Corradino Group of Michigan, Inc.

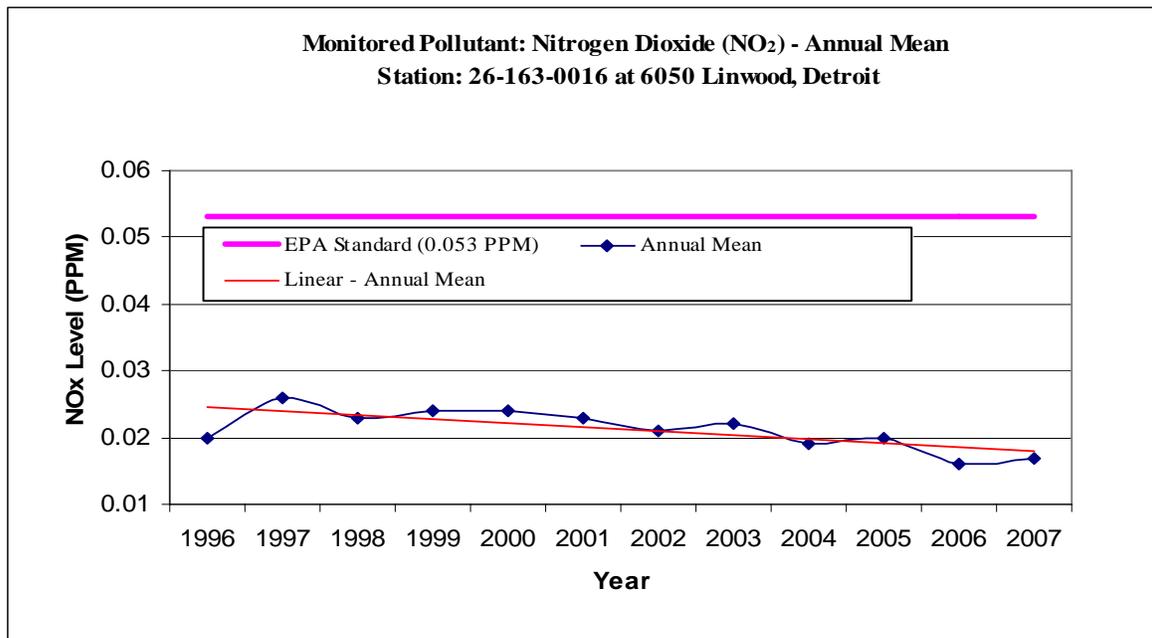
Table 1 indicates there is virtually no difference in the cross-border traffic of the Preferred Alternative and the Practical Alternatives -- Set #1, #2, #16. (This is true for both the single-logit and nested-logit modeling methodologies.) So, air quality near the new bridge, new plaza and the ramps connecting the plaza to I-75 is the same as estimated for the comparable set of Practical Alternatives.

Monitoring Data

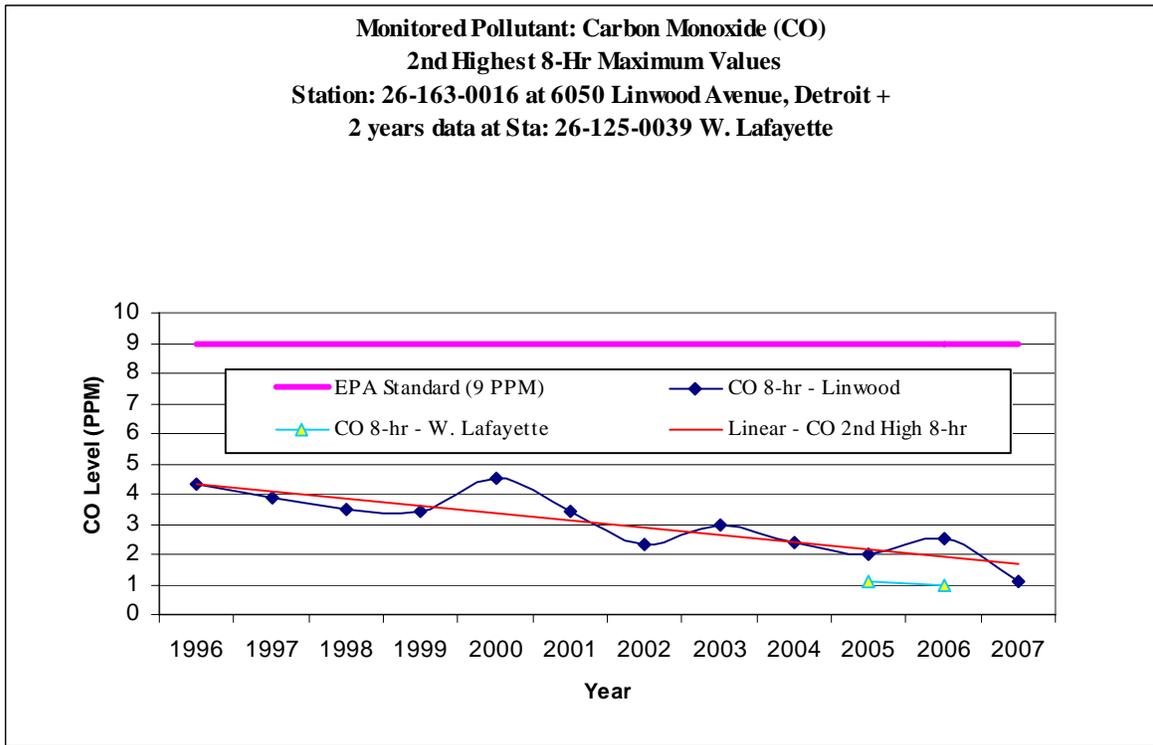
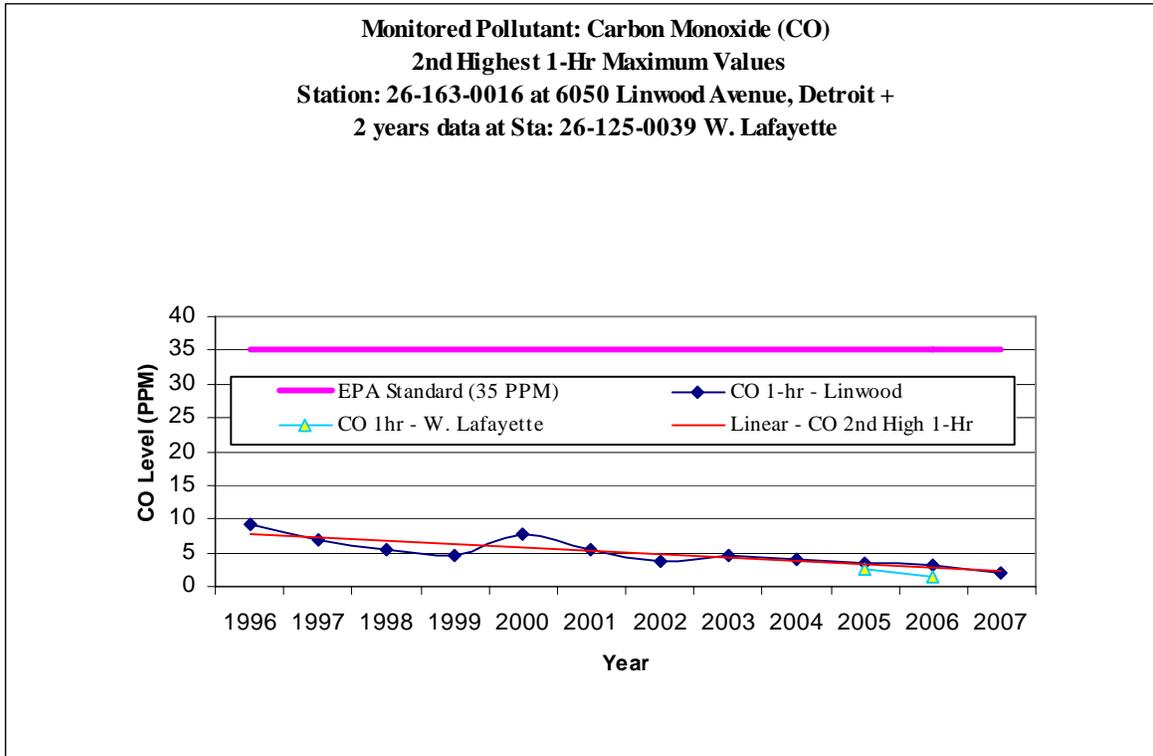
Monitoring data for 2007 have been added to the previous charts and were found to continue the patterns found in the *Air Quality Technical Report*. NOx (a pre-cursor to ozone) is trending down and is well below standards. Other pollutants follow.

Table 1 Average Percent Difference: Practical Alts. #1, #2, #16 and the Preferred Alternative Detroit River International Crossing Study		
2035		
	Single Logit Model	Nested Logit Model
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%

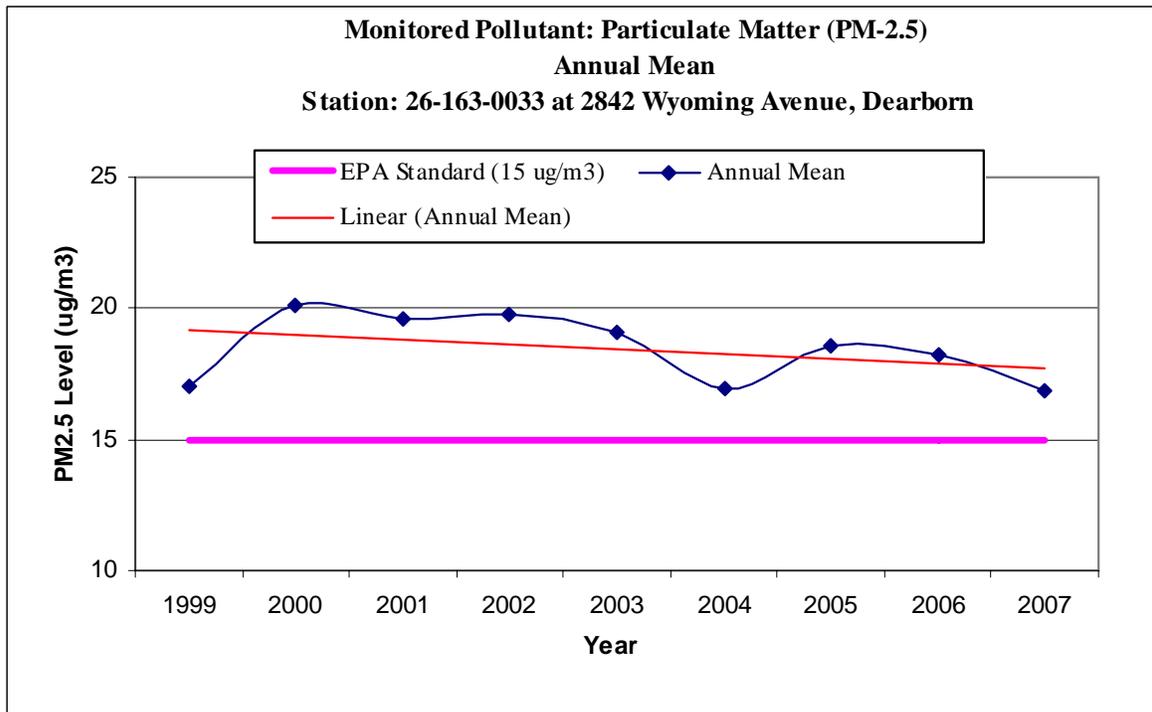
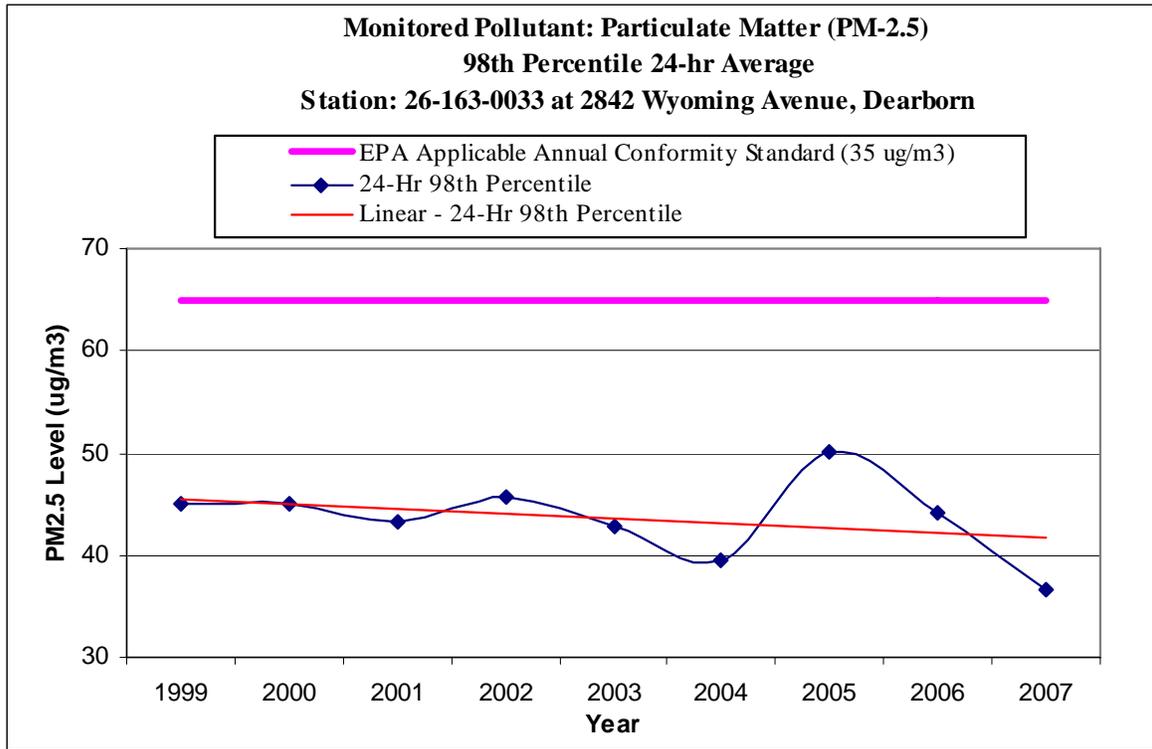
*Passenger Car Equivalents = 2.5 cars
Source: The Corradino Group of Michigan, Inc.



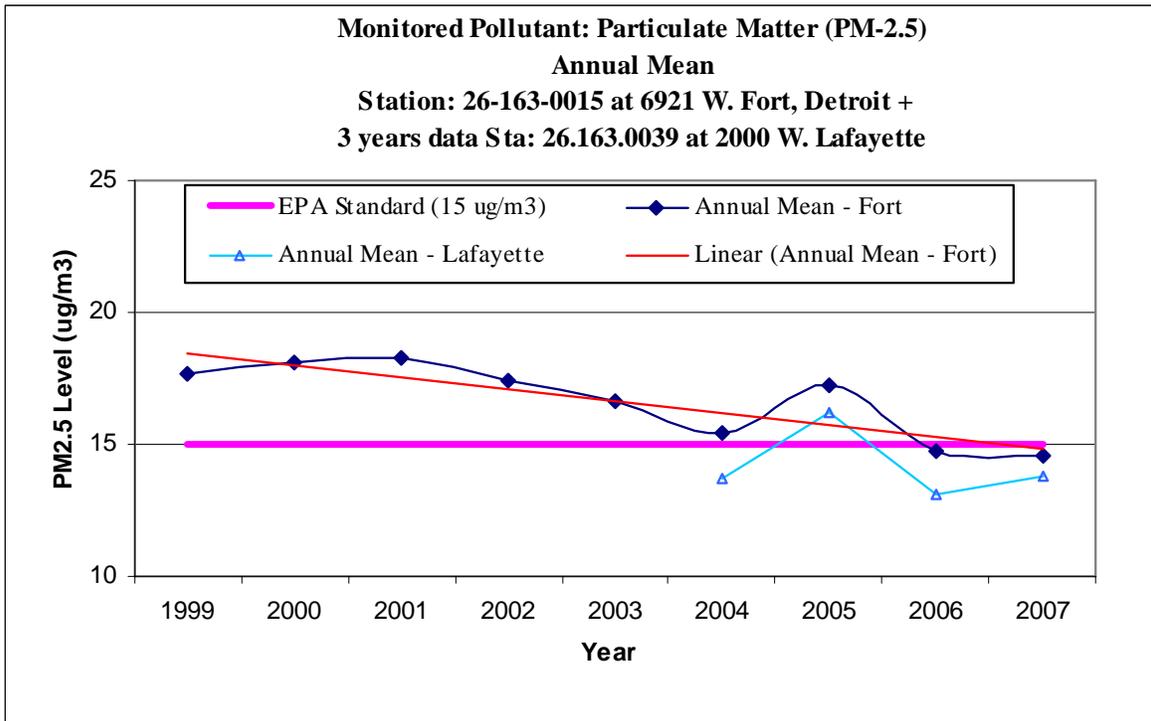
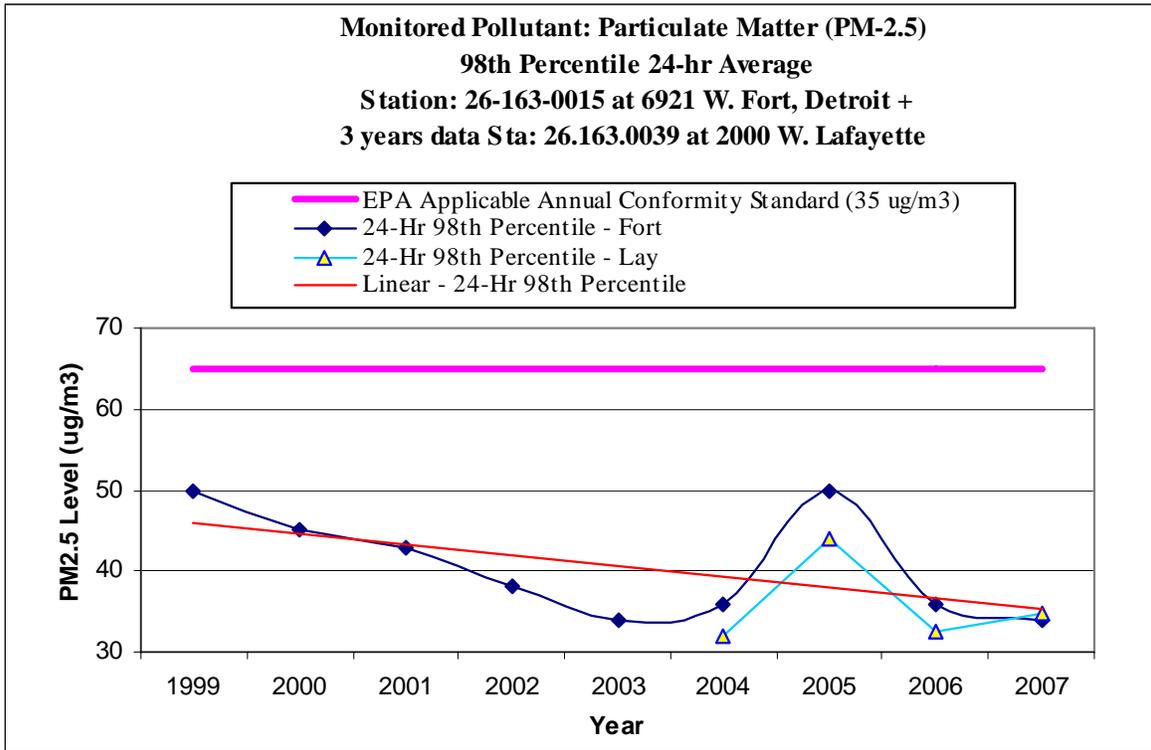
Carbon monoxide is continuing to decline and is well below standards.



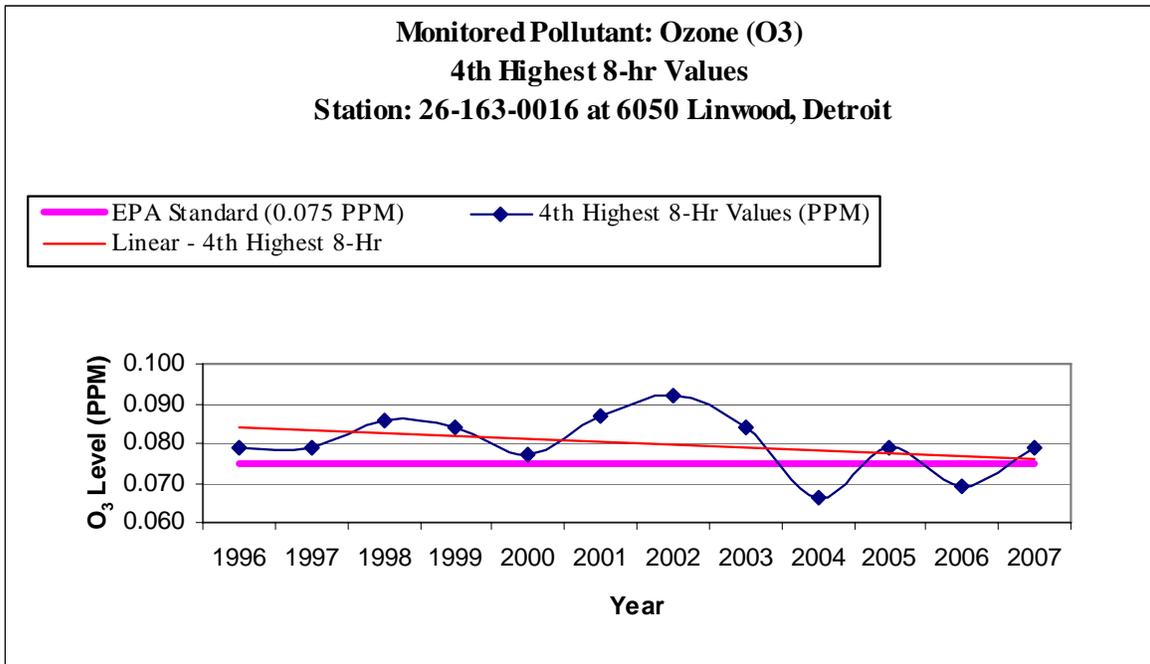
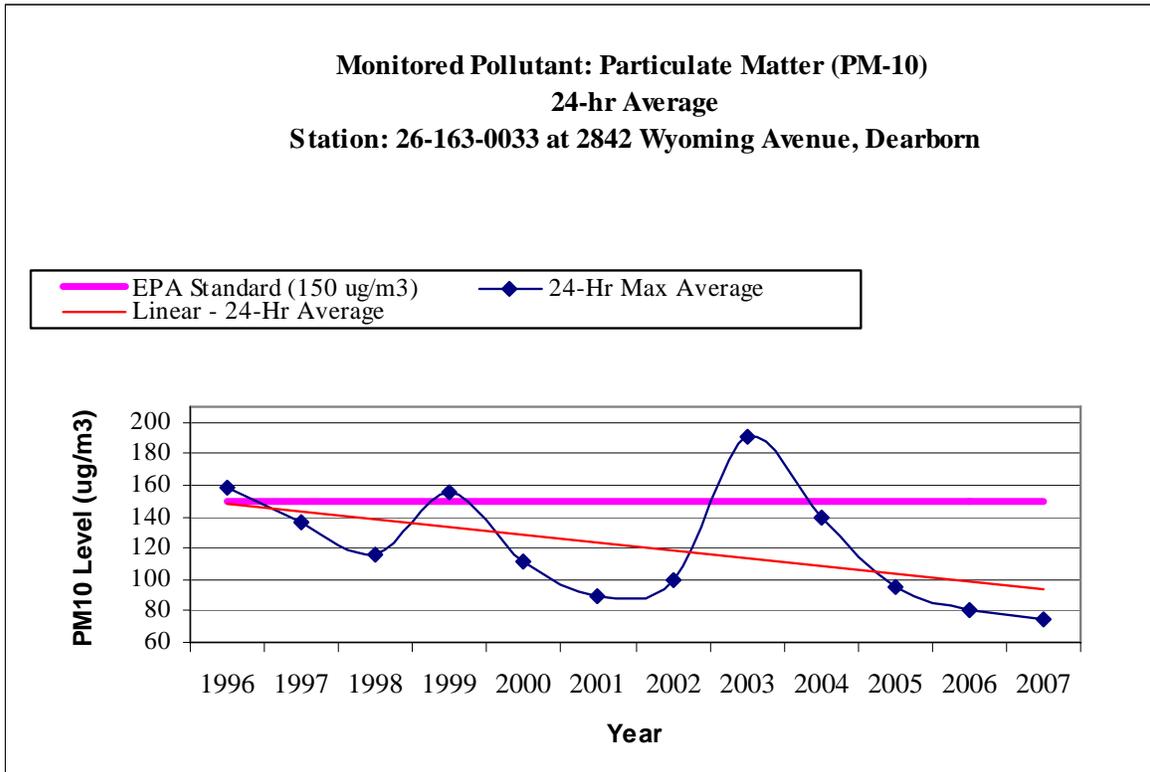
PM_{2.5} values were down at the Wyoming monitor.



PM_{2.5} values were down at the West Fort (Southwestern High School) monitor as well. At Lafayette they were up slightly, but still under the standards.



PM₁₀ values were down at the Wyoming monitor and below the standard.



It is noted that the chart shown above for ozone is for the monitor at 6050 Linwood in Detroit. Ozone monitoring has been discontinued at that location. The value in

the chart for 2008 is from Allen Park, the next nearest monitor about six miles southwest of the project. The Michigan Department of Environmental Quality's *2006 Air Quality Report* noted (page 18) "...It is important to point out that the three-year averages for the 2004-2006 monitoring period show that all sites, except Holland (Allegan County), were meeting the O₃ NAAQS." It was expected that these values would continue to meet the NAAQS. However, in 2007, three monitors in Southeast Michigan exceeded the ozone standard. Nonetheless, the DRIC project has been included in the *Regional Transportation Plan* and the *Transportation Improvement Program* that conform with the emissions budgets adopted by SEMCOG to attain the ozone standard, meaning the DRIC will not have an adverse effect on the ability of Southeast Michigan to attain the ozone standard.

Sensitive Receivers

The sensitive air quality receivers do not change with the Preferred Alternative. For example, the receiver representative of the dense residential area on the north side of I-75 does not change, because the position of the adjacent ramp modeled for the Practical Alternatives does not change (the changes between the Preferred Alternative and the Practical Alternatives -- Set #1, #2, #16 do not impact the area north of I-75). That ramp is the closest approach of new traffic to a set of homes. Likewise, receivers in near the plaza for the analysis of the Practical Alternatives continue to be representative for the analysis of the Preferred Alternative.

Berwalt Manor is an apartment building of historic significance. It has 60+ units located on the northbound service drive of I-75 at Campbell Street. It was to be acquired for right-of-way by all the Practical Alternatives. Due to its historic status, engineering adjustments were made to avoid it. The ramp connecting the new plaza to northbound I-75 passes within 40 feet of the corner of the building at ground level. This would cause noise impacts to the apartments which could not be mitigated with a conventional noise wall treatment. Consequently, MDOT will offer the building's owners the opportunity to install new windows (consistent with the building's historic status) and a central heating/air conditioning system to address the noise. These improvements will have ancillary air quality benefits for residents of Berwalt Manor.

Comparative Analysis of Alternatives

Data in Table 2 that show vehicle miles and vehicle hours of travel of the Preferred Alternative in comparison with the Practical Alternatives. While truck VMT and VHT generally decrease for the Preferred Alternative compared to the Practical Alternatives -- Set #1, #2, #16, there is no significant difference between the two sets of data.

Therefore, the conclusions of the CO, PM_{2.5} and PM₁₀ hotspot analyses conducted for the Practical Alternatives -- Set #1, #2, #16, are also valid for the Preferred Alternative:

Table 2
Vehicle Miles and Hours of Travel (VMT and VHT) Comparison – 2013
Detroit River International Crossing Study

Build Alternative has fewer VMT or VHT than No Build

MID-DAY PEAK HOUR			2013									
			2004		No Build		Alt 1/2/3/14/16		Alt 5		Alt 7/9/11	
2-way New Bridge Daily Vol.												
Auto	NA		NA		13215		13744		7479		13747	
Truck	NA		NA		13325		12979		6529		13201	
SEMOG Region	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	52,723	964	77,251	1,416	77,497	1,423	77,652	1,425	77,521	1,423	77,385	1,421
Truck	46,612	763	63,321	1,035	62,954	1,034	63,116	1,038	63,226	1,035	62,884	1,032
Total	99,335	1,727	140,572	2,451	140,451	2,457	140,768	2,462	140,747	2,459	140,269	2,454
Border Crossing Area ^a	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	7,877	178	10,808	242	11,663	258	11,819	260	11,552	256	11,589	256
Truck	5,463	111	7,584	155	8,785	178	8,851	180	8,074	164	8,813	178
Total	13,340	289	18,392	397	20,447	435	20,670	440	19,626	420	20,402	434
I-75 Mainline ^b	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	656	11	1,051	18	893	15	993	17	889	15	836	14
Truck	786	13	1,165	19	1,010	17	1,100	19	778	13	976	17
Total	1,442	24	2,215	37	1,903	32	2,093	35	1,666	28	1,812	31
United States	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	94,550	1,610	128,391	2,205	128,091	2,204	128,269	2,206	128,266	2,207	127,965	2,202
Truck	151,150	2,400	204,372	3,245	202,590	3,223	202,843	3,228	203,391	3,232	202,497	3,222
Total	245,700	4,010	332,763	5,450	330,681	5,427	331,113	5,434	331,657	5,439	330,461	5,424
PM PEAK HOUR												
SEMOG Region	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	76,566	2,553	108,691	3,292	109,834	3,298	110,129	3,293	109,932	3,302	109,888	3,281
Truck	47,096	824	64,234	1,136	63,151	1,129	63,343	1,130	63,726	1,135	63,048	1,121
Total	123,662	3,377	172,925	4,428	172,985	4,427	173,472	4,423	173,657	4,437	172,936	4,402
Border Crossing Area ^a	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	14,045	359	19,262	516	21,248	527	21,543	526	21,369	532	21,297	521
Truck	5,354	117	7,666	165	8,623	195	8,747	194	8,575	189	8,469	190
Total	19,399	476	26,929	682	29,871	722	30,290	721	29,944	722	29,767	710
I-75 Mainline ^b	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	1,145	20	1,721	31	1,772	34	1,921	36	1,607	29	1,937	35
Truck	852	15	1,265	23	960	17	1,080	19	783	14	931	17
Total	1,997	36	2,986	53	2,732	51	3,000	56	2,391	42	2,867	52
United States	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT	VMT	VHT
Auto	119,377	3,231	157,094	4,069	157,154	4,061	157,491	4,056	157,495	4,068	157,134	4,043
Truck	161,738	2,636	219,475	3,595	215,441	3,549	215,736	3,551	216,671	3,563	215,324	3,540
Total	281,115	5,867	376,569	7,664	372,595	7,610	373,227	7,607	374,166	7,631	372,459	7,583

^a An area bounded by the Southfield Freeway (M39), I-94, I-375, and the Detroit River

^b Between Dearborn Street (Exit 44) and the I-96/I-75 interchange (Exit 48).

Source: The Corradino Group of Michigan, Inc.

- 1) The small changes in traffic volumes would not affect the CO concentrations presented in Table 5-3, which are well below the CO standard, and all intersections would still operate at LOS C or better;
- 2) The conclusions of the PM_{2.5} hotspot analysis presented in section 5.3.2.2 and the PM₁₀ hotspot analysis presented in section 5.3.2.3 remain valid; truck volumes under the Preferred Alternative are still well below those near the Livonia monitoring site, and the remaining local conditions that affect PM_{2.5} and PM₁₀ concentrations remain the same.

Transportation Conformity

The Clean Air Act Transportation Conformity regulations (40 CFR Part 93, Subpart A) establish the following requirements for project-level conformity determinations:

- 1) *The project must be included in a conforming transportation plan and will be included in transportation improvement program (40 CFR 93.114 and 93.115) by the time the ROD is signed.* The Preferred Alternative was incorporated into the fiscally-constrained, conforming SEMCOG 2030 *Regional Transportation Plan*, as confirmed in a letter from FHWA to MDOT dated October 10, 2008. It will be included in the *2009 Transportation Improvement Program* prior to the signing of the Record of Decision. The design concept and scope of the Preferred Alternative are consistent with the project as analyzed by SEMCOG in its regional emissions analysis for conformity.
- 2) *CO hotspot analysis.* Because the project is located in a maintenance area for CO, a CO hotspot analysis is required to meet the requirements of 40 CFR 93.116 and 93.123. The results of the CO hotspot analysis are discussed in Section 3.6.4.1 of the FEIS and Section 5.3.2.1 of the February 2008 *Air Quality Impact Analysis Technical Report*. Because the modeled CO concentrations are well below the CO National Ambient Air Quality Standards, the analysis demonstrates that the project will not cause new violations of, worsen existing violations of, or delay attainment of the CO NAAQS.
- 3) *PM hotspot analysis.* Because the project is located in a nonattainment area for PM_{2.5} and a maintenance area for PM₁₀, a qualitative PM_{2.5} analysis and a PM₁₀ hotspot analysis is required to meet the requirements of 40 CFR 93.116 and 93.123, and the March 2006 EPA/FHWA guidance document "Transportation Conformity Guidance for Qualitative Hot-spot Analysis in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas." The results of the PM hotspot analysis are discussed in Section 3.6.4.1 of the FEIS and sections 5.3.2.2 and 5.3.2.3 of the February 2008 *Air Quality Impact Analysis Technical Report*. The analysis was performed pursuant to the above-referenced guidance and demonstrates that the project will not cause new violations of, worsen existing violations of, or delay attainment of the PM_{2.5} or PM₁₀ NAAQS.
- 4) *PM_{2.5} and PM₁₀ control measures (40 CFR 93.117).* The PM_{2.5} State Implementation Plan and the PM₁₀ maintenance plan that cover the project area do not contain any control measures that would be applicable to this project.

Based on the above, the Preferred Alternative meets all applicable project-level transportation conformity requirements.

General Conformity

A DRIC air quality analysis assessed whether the plaza facilities associated with the proposed action would exceed the *de minimus* emissions levels that define whether the Clean Air Act General Conformity regulations (40 CFR Part 93, Subpart B) apply. The analysis of the Practical Alternatives is documented in Section 5.2 of the February 2008 *Air Quality Impact Analysis Technical Report*. The analysis concludes that pollution expected to be generated by construction and operation of the plaza facilities falls below these *de minimus* thresholds, and, therefore, General Conformity does not apply. The same conclusion applies to the Preferred Alternative as there is no significant difference between the Preferred Alternative and the Practical Alternative Set #1, #2, and #16.